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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

☑ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the fiscal year ended **December 31, 2020**
or
☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the transition period from _____to_____



Commission File Number	Exact Name of Registrant as Specified in its Charter, Principal Office Address and Telephone Number	State of Incorporation or Organization	I.R.S. Employer Identification No.
001-38646	**Dow Inc.** 2211 H.H. Dow Way, Midland, MI 48674 (989) 636-1000	Delaware	30-1128146
001-03433	**The Dow Chemical Company** 2211 H.H. Dow Way, Midland, MI 48674 (989) 636-1000	Delaware	38-1285128

Securities registered pursuant to Section 12(b) of the Act:

Registrant	Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Dow Inc.	Common Stock, par value $0.01 per share	DOW	New York Stock Exchange
The Dow Chemical Company	0.500% Notes due March 15, 2027	DOW/27	New York Stock Exchange
The Dow Chemical Company	1.125% Notes due March 15, 2032	DOW/32	New York Stock Exchange
The Dow Chemical Company	1.875% Notes due March 15, 2040	DOW/40	New York Stock Exchange
The Dow Chemical Company	4.625% Notes due October 1, 2044	DOW/44	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Dow Inc.	☑ Yes	☐ No
The Dow Chemical Company	☑ Yes	☐ No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act.

Dow Inc.	☐ Yes	☑ No
The Dow Chemical Company	☐ Yes	☑ No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Dow Inc.	☑ Yes	☐ No
The Dow Chemical Company	☑ Yes	☐ No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).

Dow Inc.	☑ Yes	☐ No
The Dow Chemical Company	☑ Yes	☐ No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of “large accelerated filer,” “accelerated filer,” “smaller reporting company,” and "emerging growth company" in Rule 12b-2 of the Exchange Act.

	Large accelerated filer	Accelerated filer	Non-accelerated filer	Smaller reporting company	Emerging growth company
Dow Inc.	☑	☐	☐	☐	☐
The Dow Chemical Company	☐	☐	☑	☐	☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Dow Inc.	☐
The Dow Chemical Company	☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report.

Dow Inc.	☑
The Dow Chemical Company	☑

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act).

Dow Inc.	☐ Yes	☑ No
The Dow Chemical Company	☐ Yes	☑ No

As of June 30, 2020, the aggregate market value of the common stock of Dow Inc. held by non-affiliates of Dow Inc. was approximately $29.6 billion based on the last reported closing price of $40.76 per share as reported on the New York Stock Exchange.

Dow Inc. had 743,914,560 shares of common stock, $0.01 par value, outstanding at January 31, 2021. The Dow Chemical Company had 100 shares of common stock, $0.01 par value, outstanding at January 31, 2021, all of which were held by the registrant’s parent, Dow Inc.

The Dow Chemical Company meets the conditions set forth in General Instruction I(1)(a) and (b) for Form 10-K and therefore is filing this form in the reduced disclosure format.

DOCUMENTS INCORPORATED BY REFERENCE

Dow Inc.: Portions of Dow Inc.'s Proxy Statement for the 2021 Annual Meeting of Stockholders are incorporated herein by reference in Part III of this Annual Report on Form 10-K to the extent stated herein. Such proxy statement will be filed with the Securities and Exchange Commission within 120 days of Dow Inc.'s fiscal year ended December 31, 2020.

The Dow Chemical Company: None.

Dow Inc. and Subsidiaries
The Dow Chemical Company and Subsidiaries

ANNUAL REPORT ON FORM 10-K
For the fiscal year ended December 31, 2020

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Dow Inc. and Subsidiaries
The Dow Chemical Company and Subsidiaries

This Annual Report on Form 10-K is a combined report being filed by Dow Inc. and The Dow Chemical Company and its consolidated subsidiaries (“TDCC” and together with Dow Inc., “Dow” or the "Company"). This Annual Report on Form 10-K reflects the results of Dow and its consolidated subsidiaries, after giving effect to the distribution to DowDuPont Inc. (“DowDuPont” and effective June 3, 2019, n/k/a DuPont de Nemours, Inc. or "DuPont") of TDCC’s agricultural sciences business (“AgCo”) and specialty products business (“SpecCo”) and the receipt of E. I. du Pont de Nemours and Company and its consolidated subsidiaries' (“Historical DuPont”) ethylene and ethylene copolymers business (other than its ethylene acrylic elastomers business) ("ECP"). The U.S. GAAP consolidated financial results of Dow Inc. and TDCC reflect the distribution of AgCo and SpecCo as discontinued operations for the applicable periods presented as well as the receipt of ECP as a common control transaction from the closing of the merger with Historical DuPont on August 31, 2017. As a result of the parent/subsidiary relationship between Dow Inc. and TDCC, and considering that the financial statements and disclosures of each company are substantially similar, the companies are filing a combined report for this Annual Report on Form 10-K. The information reflected in this report is equally applicable to both Dow Inc. and TDCC, except where otherwise noted. Each of Dow Inc. and TDCC is filing information in this report on its own behalf and neither company makes any representation to the information relating to the other company.

Background
On April 1, 2019, DowDuPont completed the separation of its materials science business and Dow Inc. became the direct parent company of TDCC and its consolidated subsidiaries, owning all of the outstanding common shares of TDCC. For filings relating to the period commencing April 1, 2019 and thereafter, TDCC was deemed the predecessor to Dow Inc., and the historical results of TDCC are deemed the historical results of Dow Inc. for periods prior to and including March 31, 2019.

The separation was contemplated by the merger of equals transaction effective August 31, 2017, under the Agreement and Plan of Merger, dated as of December 11, 2015, as amended on March 31, 2017. TDCC and Historical DuPont each merged with subsidiaries of DowDuPont and, as a result, TDCC and Historical DuPont became subsidiaries of DowDuPont (the “Merger”). Subsequent to the Merger, TDCC and Historical DuPont engaged in a series of internal reorganization and realignment steps to realign their businesses into three subgroups: agriculture, materials science and specialty products. Dow Inc. was formed as a wholly owned subsidiary of DowDuPont to serve as the holding company for the materials science business.

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

Certain statements in this report are “forward-looking statements” within the meaning of the federal securities laws, including Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Such statements often address expected future business and financial performance, financial condition, and other matters, and often contain words or phrases such as “anticipate,” “believe,” “estimate,” “expect,” “intend,” “may,” “opportunity,” “outlook,” “plan,” “project,” “seek,” “should,” “strategy,” "target," “will,” “will be,” “will continue,” “will likely result,” “would” and similar expressions, and variations or negatives of these words or phrases.

Forward-looking statements are based on current assumptions and expectations of future events that are subject to risks, uncertainties and other factors that are beyond Dow’s control, which may cause actual results to differ materially from those projected, anticipated or implied in the forward-looking statements and speak only as of the date the statements were made. These factors include, but are not limited to: sales of Dow’s products; Dow’s expenses, future revenues and profitability; the continuing global and regional economic impacts of the coronavirus disease 2019 (“COVID-19”) pandemic and other public health-related risks and events on Dow’s business; capital requirements and need for and availability of financing; size of the markets for Dow’s products and services and ability to compete in such markets; failure to develop and market new products and optimally manage product life cycles; the rate and degree of market acceptance of Dow’s products; significant litigation and environmental matters and related contingencies and unexpected expenses; the success of competing technologies that are or may become available; the ability to protect Dow’s intellectual property in the United States and abroad; developments related to contemplated restructuring activities and proposed divestitures or acquisitions such as workforce reduction, manufacturing facility and/or asset closure and related exit and disposal activities, and the benefits and costs associated with each of the foregoing; fluctuations in energy and raw material prices; management of process safety and product stewardship; changes in relationships with Dow’s significant customers and suppliers; changes in consumer preferences and demand; changes in laws and regulations, political conditions or industry

development; global economic and capital markets conditions, such as inflation, market uncertainty, interest and currency exchange rates, and equity and commodity prices; business or supply disruptions; security threats, such as acts of sabotage, terrorism or war; weather events and natural disasters; and disruptions in Dow's information technology networks and systems.

Risks related to Dow's separation from DowDuPont include, but are not limited to: (i) Dow's inability to achieve some or all of the benefits that it expects to receive from the separation from DowDuPont; (ii) certain tax risks associated with the separation; (iii) the failure of Dow's pro forma financial information to be a reliable indicator of Dow's future results; (iv) Dow's inability to receive third-party consents required under the separation agreement; (v) non-compete restrictions under the separation agreement; (vi) receipt of less favorable terms in the commercial agreements Dow entered into with DuPont and Corteva, Inc. ("Corteva"), including restrictions under intellectual property cross-license agreements, than Dow would have received from an unaffiliated third party; and (vii) Dow's obligation to indemnify DuPont and/or Corteva for certain liabilities.

Where, in any forward-looking statement, an expectation or belief as to future results or events is expressed, such expectation or belief is based on the current plans and expectations of management and expressed in good faith and believed to have a reasonable basis, but there can be no assurance that the expectation or belief will result or be achieved or accomplished. A detailed discussion of principal risks and uncertainties which may cause actual results and events to differ materially from such forward-looking statements is included in the section of this Annual Report on Form 10-K titled "Risk Factors." These are not the only risks and uncertainties that Dow faces. There may be other risks and uncertainties that Dow is unable to identify at this time or that Dow does not currently expect to have a material impact on its business. If any of those risks or uncertainties develops into an actual event, it could have a material adverse effect on Dow's business. Dow Inc. and TDCC assume no obligation to update or revise publicly any forward-looking statements whether because of new information, future events, or otherwise, except as required by securities and other applicable laws.

Dow Inc. and Subsidiaries
The Dow Chemical Company and Subsidiaries

PART I

ITEM 1. BUSINESS

THE COMPANY

Dow Inc. was incorporated on August 30, 2018, under Delaware law, to serve as a holding company for The Dow Chemical Company and its consolidated subsidiaries ("TDCC" and together with Dow Inc., "Dow" or the "Company"). Dow Inc. operates all of its businesses through TDCC, a wholly owned subsidiary, which was incorporated in 1947 under Delaware law and is the successor to a Michigan corporation, of the same name, organized in 1897. The Company's principal executive offices are located at 2211 H.H. Dow Way, Midland, Michigan 48674.

Available Information
The Company's Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, are available free of charge at *www.dow.com/investors*, as soon as reasonably practicable after the reports are electronically filed or furnished with the U.S. Securities and Exchange Commission ("SEC"). The SEC maintains a website that contains these reports as well as proxy statements and other information regarding issuers that file electronically. The SEC's website is *www.sec.gov*. Dow's website and its content are not deemed incorporated by reference into this report.

MERGER AND SEPARATION

On April 1, 2019, DowDuPont Inc. (“DowDuPont” and effective June 3, 2019, n/k/a DuPont de Nemours, Inc. or "DuPont") completed the separation of its materials science business and Dow Inc. became the direct parent company of TDCC and its consolidated subsidiaries, owning all of the outstanding common shares of TDCC.

The separation was contemplated by the merger of equals transaction effective August 31, 2017, under the Agreement and Plan of Merger, dated as of December 11, 2015, as amended on March 31, 2017 (the "Merger Agreement"). TDCC and E. I. du Pont de Nemours and Company and its consolidated subsidiaries (“Historical DuPont”) each merged with subsidiaries of DowDuPont and, as a result, TDCC and Historical DuPont became subsidiaries of DowDuPont (the “Merger”). Subsequent to the Merger, TDCC and Historical DuPont engaged in a series of internal reorganization and realignment steps to realign their businesses into three subgroups: agriculture, materials science and specialty products. Dow Inc. was formed as a wholly owned subsidiary of DowDuPont to serve as the holding company for the materials science business.

The consolidated financial results of Dow for periods prior to April 1, 2019, reflect the distribution of TDCC’s agricultural sciences business (“AgCo”) and specialty products business (“SpecCo”) as discontinued operations for each period presented as well as reflect the receipt of Historical DuPont’s ethylene and ethylene copolymers businesses (other than its ethylene acrylic elastomers business) (“ECP”) as a common control transaction from the closing of the Merger on August 31, 2017. See Note 3 to the Consolidated Financial Statements and Dow Inc.'s Amendment No. 4 to the Registration Statement on Form 10 filed with the SEC on March 8, 2019, for additional information.

Throughout this Annual Report on Form 10-K, unless otherwise indicated, amounts and activity are presented on a continuing operations basis.

ABOUT DOW

Dow combines global breadth, asset integration and scale, focused innovation and leading business positions to achieve profitable growth. The Company’s ambition is to become the most innovative, customer centric, inclusive and sustainable materials science company, with a purpose to deliver a sustainable future for the world through our materials science expertise and collaboration with our partners. Dow’s portfolio of plastics, industrial intermediates, coatings and silicones businesses delivers a broad range of differentiated science-based products and solutions for its customers in high-growth market segments, such as packaging, infrastructure, mobility and consumer care. Dow operates 106 manufacturing sites in 31 countries and employs approximately 35,700 people.

BUSINESS SEGMENTS AND PRODUCTS

The Company conducts its worldwide operations through six global businesses which are organized into the following operating segments: Packaging & Specialty Plastics, Industrial Intermediates & Infrastructure and Performance Materials & Coatings. Corporate contains the reconciliation between the totals for the operating segments and the Company's totals. The Company did not aggregate any operating segments when determining its reportable segments. See Part II, Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations and Note 26 to the Consolidated Financial Statements for additional information concerning the Company's operating segments.

PACKAGING & SPECIALTY PLASTICS

Packaging & Specialty Plastics consists of two highly integrated global businesses: Hydrocarbons & Energy and Packaging and Specialty Plastics. The segment employs the industry's broadest polyolefin product portfolio, supported by the Company's proprietary catalyst and manufacturing process technologies, to work at the customer's design table throughout the value chain to deliver more reliable and durable, higher performing, and more sustainable plastics to customers in food and specialty packaging; industrial and consumer packaging; health and hygiene; caps, closures and pipe applications; consumer durables; mobility and transportation; and infrastructure.

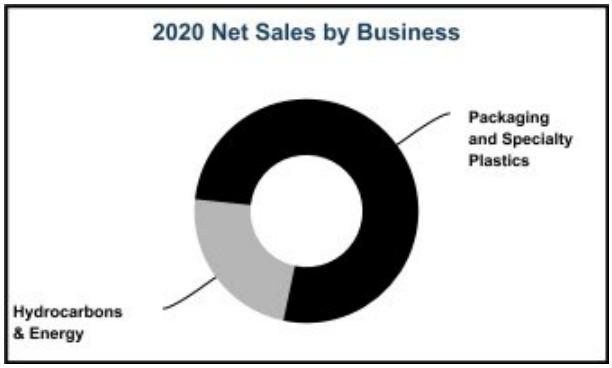
The Company's unique advantages compared with its competitors include: extensive low-cost feedstock positions around the world; unparalleled scale, global footprint and market reach; world-class manufacturing sites in every geographic region; deep customer and brand owner understanding; portfolio of higher-value functional polymers, such as polyolefin elastomers, semiconductive and jacketing compound solutions and wire and cable insulation; and market-driven application development and technical support.

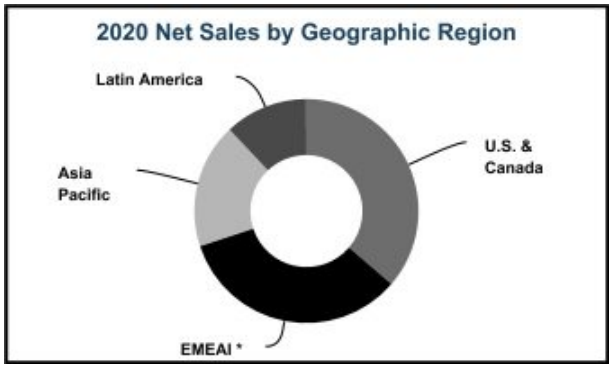
The segment remains agile by participating in the entire ethylene-to-polyethylene chain integration, enabling the Company to manage market swings, and therefore optimize returns while reducing long-term earnings volatility. The Company's unrivaled value chain ownership is further strengthened by its Pack Studio locations in every geographic region, which help customers and brand owners deliver faster and more efficient packaging product commercialization through a global network of laboratories, technical experts and testing equipment.

Hydrocarbons & Energy
Hydrocarbons & Energy is a leading global producer of ethylene, a key chemical building block that the Company consumes primarily within the Packaging & Specialty Plastics segment. Ethylene is transferred to downstream derivative businesses at market-based prices, which are generally equivalent to prevailing market prices for large volume purchases. In addition to ethylene, the business is a leading producer of propylene and aromatics products that are used to manufacture materials consumers use every day. The business also produces and procures the power and feedstocks used by the Company's manufacturing sites.

Packaging and Specialty Plastics
Packaging and Specialty Plastics serves growing, high-value sectors using world-class technology, broad existing product lines, and a rich product pipeline that creates competitive advantages for the entire packaging value chain. The business is a recognized leader in the production, marketing and innovation of polyethylene. The business is also a leader in other ethylene derivatives, such as polyolefin elastomers, ethylene vinyl acetate and ethylene propylene diene monomer ("EPDM") rubber serving mobility and transportation, consumer, wire and cable and construction end-markets. Market growth is expected to be driven by major shifts in population demographics; improving socioeconomic status in emerging geographic regions; consumer and brand owner demand for increased functionality; global efforts to reduce food waste; growth in telecommunications networks; global development of electrical transmission and distribution infrastructure; and renewable energy applications.

Details on Packaging & Specialty Plastics' 2020 net sales, by business and geographic region, are as follows:





* Europe, Middle East, Africa and India ("EMEAI")

Products
Major applications/market segments and products are listed below by business:

Business	*Applications/Market Segments*	*Major Products*	*Key Raw Materials*	*Key Competitors*
Hydrocarbons & Energy	Purchaser of feedstocks; production of cost competitive hydrocarbon monomers utilized by Dow's derivative businesses; and energy, principally for use in Dow's global operations	Ethylene, propylene, benzene, butadiene, octene, aromatics co-products, power, steam, other utilities	Butane, condensate, ethane, naphtha, natural gas, propane	Chevron Phillips Chemical, ExxonMobil, INEOS, LyondellBasell, SABIC, Shell, Sinopec
Packaging and Specialty Plastics	Adhesives; automotive; caps, closures and pipe applications; construction; cosmetics; electrical transmission and distribution; food and supply chain packaging; footwear; health and hygiene; housewares; industrial specialty applications using polyolefin elastomers, ethylene copolymers, and EPDM; irrigation pipe; mobility; photovoltaic encapsulants; sporting goods; telecommunications infrastructure; toys and infant products	Acrylics, bio-based plasticizers, copolymer, elastomers, ethylene copolymer resins, EPDM, ethylene vinyl acetate ("EVA"), methacrylic acid copolymer resins, polyethylene ("PE"), high-density polyethylene ("HDPE"), low-density polyethylene ("LDPE"), linear low-density polyethylene ("LLDPE"), polyolefin plastomers, resin additives and modifiers, semiconductive and jacketing compound solutions and wire and cable insulation	Aliphatic solvent, butene, ethylene, hexene, octene, propylene	Borealis, ExxonMobil, INEOS, Lanxess, LyondellBasell, Nova, SABIC

Joint Ventures:
This segment includes a portion of the Company's share of the results of the following joint ventures:

- EQUATE Petrochemical Company K.S.C.C. (“EQUATE”) - a Kuwait-based company that manufactures ethylene, polyethylene and ethylene glycol, and manufactures and markets monoethylene glycol, diethylene glycol and polyethylene terephthalate resins; owned 42.5 percent by the Company.
- The Kuwait Olefins Company K.S.C.C. (“TKOC”) - a Kuwait-based company that manufactures ethylene and ethylene glycol; owned 42.5 percent by the Company.
- Map Ta Phut Olefins Company Limited (“Map Ta Phut”) - a Thailand-based company that manufactures propylene and ethylene; the Company has an effective ownership of 32.77 percent (of which 20.27 percent is owned directly by the Company and aligned with the Industrial Intermediates & Infrastructure segment and 12.5 percent is owned indirectly through the Company’s equity interest in Siam Polyethylene Company Limited, an entity that is part of The SCG-Dow Group and aligned with the Packaging & Specialty Plastics segment).

- Sadara Chemical Company ("Sadara") - a Saudi Arabian company that manufactures chlorine, ethylene, propylene and aromatics for internal consumption and manufactures and sells polyethylene, ethylene oxide and propylene oxide derivative products, and isocyanates; owned 35 percent by the Company. The Company is responsible for marketing a majority of Sadara products outside of the Middle East zone through the Company's established sales channels. As part of this arrangement, the Company purchases and sells Sadara products for a marketing fee.

This segment also includes the Company's share of the results of the following joint ventures:

- The Kuwait Styrene Company K.S.C.C. - a Kuwait-based company that manufactures styrene monomer; owned 42.5 percent by the Company.
- The SCG-Dow Group - a group of Thailand-based companies (consisting of Siam Polyethylene Company Limited; Siam Polystyrene Company Limited; Siam Styrene Monomer Company Limited; and Siam Synthetic Latex Company Limited) that manufacture polyethylene, polystyrene, styrene, latex and specialty elastomers; owned 50 percent by the Company.

Current and Future Investments
In 2018, the Company started up its new LDPE production facility and its new NORDEL™ Metallocene EPDM production facility, both located in Plaquemine, Louisiana. These key milestones enable the Company to capture benefits from increasing supplies of U.S. shale gas to deliver differentiated downstream solutions in its core market verticals. The Company also completed debottlenecking of an existing bi-modal gas phase polyethylene production facility in St. Charles, Louisiana, and started up a new High Melt Index ("HMI") AFFINITY™ polymer production facility in Freeport, Texas, in the fourth quarter of 2018. In 2020, the Company's integrated world-scale ethylene production facility in Freeport, Texas, was expanded to a capacity of 2,000 kilotonnes per annum ("KTA"), making it the largest ethylene cracker in the world. Recognized for efficiency in construction time and cost as a newly designed cracker, this facility is also known for its low operating cost, excellent safety, reliability and asset utilization performance.

Additionally, the Company has announced investments over the next several years that are expected to enhance competitiveness. These include:

- Incremental debottleneck projects across its global asset network that will deliver approximately 350 KTA of additional polyethylene, the majority of which will be in the U.S. & Canada.
- Construction of a world-scale polyethylene unit on the U.S. Gulf Coast based on Dow's proprietary process technologies, to meet consumer-driven demand in specialty packaging, health and hygiene, and industrial and consumer packaging applications.
- A new catalyst production facility for key catalysts licensed by Univation Technologies, LLC, a wholly owned subsidiary of the Company.
- Addition of a furnace to its ethylene production facility in Alberta, Canada, incrementally expanding capacity by approximately 130,000 metric tons. Dow will co-invest in the expansion with a regional customer, evenly sharing project costs and ethylene output, with the additional ethylene to be consumed by existing polyethylene manufacturing assets in the region. The expansion is expected to come online in the first half of 2021.

The Company's ambition includes becoming the most sustainable materials science company, with a strategy to advance the well-being of humanity by helping lead the transition to a sustainable planet and society. This includes lowering energy and greenhouse gas ("GHG") emissions and enabling a shift to a circular economy for plastics by focusing on resource efficiency and integrating recycled content and renewable feedstocks into its production processes. As part of that strategy, Dow announced the following:

- In 2020, Dow and waste-optimization specialist Avangard Innovative LP ("AI") announced that AI will supply post-consumer resin ("PCR") plastic film pellets to Dow, a significant addition to Dow's plastic circularity portfolio. Dow will initially use the PCR pellets from AI to create linear low-density polyethylene and low-density polyethylene products.
- In 2020, Dow announced development and commercialization of a new formulated post-consumer plastic resin designed for collation shrink film applications in Asia Pacific and the U.S. & Canada. The new resin is designed with up to 40 percent PCR content and creates a film with performance comparable to those made with virgin resins, which expands Dow's circular technology portfolio to help more customers and brands achieve their sustainability goals.

- In 2019, an agreement with the Fuenix Ecogy Group, based in Weert, The Netherlands, for the supply of pyrolysis oil feedstock, which is made from recycled plastic waste. The feedstock will be used to produce virgin polymers at Dow's production facilities in Terneuzen, The Netherlands. In addition to increasing the Company's feedstock flexibility, this is an important step forward to increase feedstock recycling - the process of breaking down mixed waste plastics into their original form to manufacture new virgin polymers. The polymers produced from this pyrolysis oil will be identical to products produced from traditional feedstocks, and as such, they can be used in the same applications, including food packaging.
- In 2019, an agreement with UPM Biofuels, a producer of biofuels, for the supply and integration of wood-based UPM Bio Verno renewable naphtha - a key raw material used to develop plastics - into Dow's slate of raw materials, creating an alternative source for plastics production. Effectively increasing the Company's feedstock flexibility, the feedstock will be used to produce bio-based polyethylene at Dow's production facilities in Terneuzen, The Netherlands, for use in packaging applications such as food packaging, to reduce food waste.
- In 2019, the retrofit of one of its Louisiana steam crackers with Dow's proprietary fluidized catalytic dehydrogenation ("FCDh") technology to produce on-purpose propylene. The FCDh technology retrofit further improves Dow's ability to continue to source the most advantaged feedstocks, while also producing reliable and cost-efficient on-purpose propylene to supply its integrated derivative units in Louisiana. The technology reduces capital outlay by up to 25 percent and lowers energy usage and GHG emissions by up to 20 percent, thereby improving overall sustainability when compared with conventional propane dehydrogenation technologies. The project is expected to begin producing on-purpose propylene by the end of 2021.

INDUSTRIAL INTERMEDIATES & INFRASTRUCTURE

Industrial Intermediates & Infrastructure consists of two customer-centric global businesses - Industrial Solutions and Polyurethanes & Construction Chemicals - that develop important intermediate chemicals that are essential to manufacturing processes, as well as downstream, customized materials and formulations that use advanced development technologies. These businesses primarily produce and market ethylene oxide and propylene oxide derivatives that are aligned to market segments as diverse as appliances, coatings, electronics, surfactants for cleaning and sanitization, infrastructure and oil and gas. The global scale and reach of these businesses, world-class technology and R&D capabilities and materials science expertise enable the Company to be a premier solutions provider offering customers value-add sustainable solutions to enhance comfort, energy efficiency, product effectiveness and durability across a wide range of home comfort and appliances, building and construction, adhesives and lubricant applications, among others.

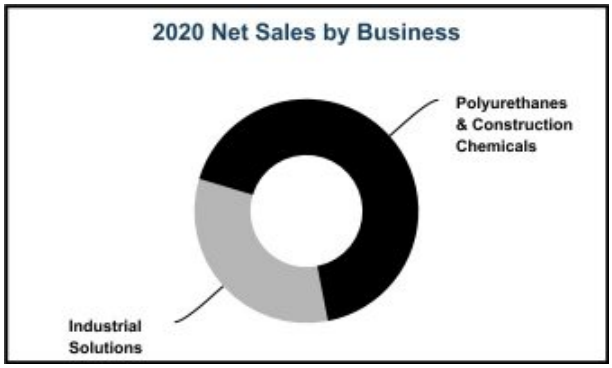
Industrial Solutions

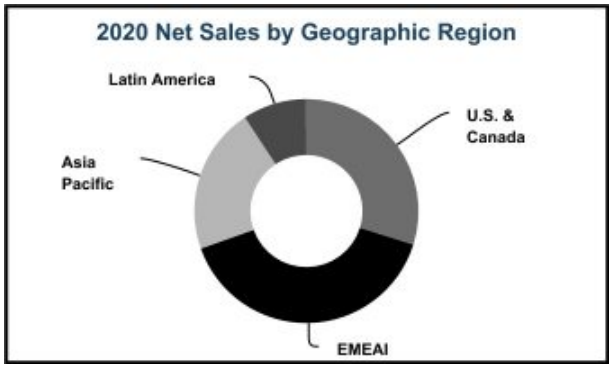
Industrial Solutions provides a broad portfolio of solutions that enable and improve the manufacture of consumer and industrial goods and services. The business' solutions minimize friction and heat in mechanical processes; manage the oil and water interface; deliver ingredients for maximum effectiveness; facilitate dissolvability; enable product identification; and provide the foundational building blocks for the development of chemical technologies. The business supports manufacturers associated with a large variety of end-markets, notably coatings, detergents and cleaners, crop protection, pharmaceuticals, electronics, oil and gas, inks and textiles. The business is a leading producer of purified ethylene oxide.

Polyurethanes & Construction Chemicals

Polyurethanes & Construction Chemicals consists of three businesses: Polyurethanes, Chlor-Alkali & Vinyl ("CAV") and Construction Chemicals ("DCC"). The Polyurethanes business is the world's largest producer of propylene oxide, propylene glycol and polyether polyols, and a leading producer of aromatic isocyanates and fully formulated polyurethane systems for rigid, semi-rigid and flexible foams, and coatings, adhesives, sealants, elastomers and composites that serve energy efficiency, consumer comfort, industrial and enhanced mobility market sectors. The CAV business provides chlorine and caustic soda supply and markets caustic soda, a valuable co-product of the chlor-alkali manufacturing process, and ethylene dichloride and vinyl chloride monomer. The CAV business' assets are predominantly in Western Europe and largely produce materials for internal consumption. The DCC business provides cellulose ethers, redispersible latex powders, and acrylic emulsions used as key building blocks for differentiated building and construction materials across many market segments and applications ranging from roofing and flooring to gypsum-, cement-, concrete- and dispersion-based building materials.

Details on Industrial Intermediates & Infrastructures' 2020 net sales, by business and geographic region, are as follows:





Products
Major applications/market segments and products are listed below by business:

Business	*Applications/Market Segments*	*Major Products*	*Key Raw Materials*	*Key Competitors*
Industrial Solutions	Broad range of products for specialty applications, including pharmaceuticals, agriculture crop protection offerings, aircraft deicing, solvents for coatings, heat transfer fluids for concentrated solar power, construction, solvents for electronics processing, food preservation, fuel markers, industrial and institutional cleaning, infrastructure applications, lubricant additives, paper, transportation and utilities; products for energy markets including exploration, production, transmission, refining, mining and gas processing to optimize supply, improve efficiencies and manage emissions	Butyl glycol ethers, VERSENE™ Chelants, UCAR™ Deicing Fluids, ethanolamines, ethylene oxide ("EO"), ethyleneamines, UCON™ Fluids, DOWANOL™ glycol ethers, DOWTHERM™ Heat Transfer Fluids, higher glycols, isopropanolamines, low-VOC solvents, methoxypolyethylene glycol, methyl isobutyl, polyalkylene glycol, CARBOWAX™ SENTRY™ Polyethylene Glycol, TERGITOL™ and TRITON™ Surfactants, demulsifiers, drilling and completion fluids, heat transfer fluids, rheology modifiers, scale inhibitors, shale inhibitors, specialty amine solvents, surfactants, water clarifiers, frothing separating agents	Ethylene, propylene	BASF, Eastman, Hexion, Huntsman, INEOS, LyondellBasell, SABIC, Sasol, Shell
Polyurethanes & Construction Chemicals	Aircraft deicing fluids; alumina, pulp and paper; appliances; automotive; bedding; building and construction; flooring; footwear; heat transfer fluids; hydraulic fluids; infrastructure; mobility; packaging; textiles and transportation; construction; caulks and sealants; cement-based tile adhesives; concrete solutions; elastomeric roof coatings; industrial non-wovens; plasters and renders; roof tiles and siding; sport grounds and tape joint compounds	Aniline, caustic soda, ethylene dichloride ("EDC"), methylene diphenyl diisocyanate ("MDI"), polyether polyols, propylene glycol ("PG"), propylene oxide ("PO"), polyurethane systems, toluene diisocyanate ("TDI"), vinyl chloride monomer ("VCM"), AQUASET™ Acrylic Thermosetting Resins, DOW™ Latex Powder, RHOPLEX™ and PRIMAL™ Acrylic Emulsion Polymers, WALOCEL™ Cellulose Ethers	Aniline, benzene, carbon monoxide, caustic soda, cell effluent, cellulose, chlorine, electric power, ethylene, hydrogen peroxide, propylene, styrene	Arkema, Ashland, BASF, Covestro, Eastman, Huntsman, Wanhua

Joint Ventures
This segment includes a portion of the Company's share of the results of EQUATE, TKOC, Map Ta Phut and Sadara.

Current and Future Investments
The Company expects to make investments over the next several years to enhance competitiveness in the Company's Polyurethanes & Construction Chemicals and Industrial Solutions businesses. The investments will include alkoxylation capacity expansions and finishing capabilities; investments to support growth in polyurethane systems; and efficiency improvements around the world.

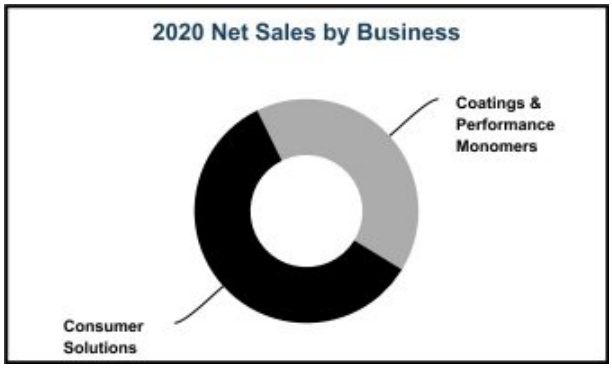
PERFORMANCE MATERIALS & COATINGS

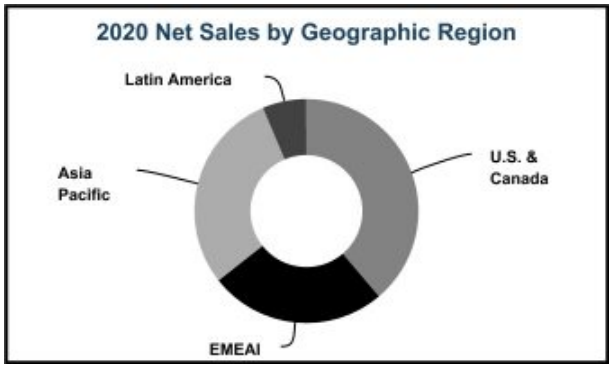
Performance Materials & Coatings includes industry-leading franchises that deliver a wide array of solutions into consumer and infrastructure end-markets. The segment consists of two global businesses: Coatings & Performance Monomers and Consumer Solutions. These businesses primarily utilize the Company's acrylics-, cellulosics- and silicone-based technology platforms to serve the needs of the architectural and industrial coatings; home care and personal care; consumer and electronics; mobility and transportation; industrial and chemical processing; and building and infrastructure end-markets. Both businesses employ materials science capabilities, global reach and unique products and technology to combine chemistry platforms to deliver differentiated offerings to customers.

Coatings & Performance Monomers
Coatings & Performance Monomers consists of two businesses: Coating Materials and Performance Monomers. The Coating Materials business makes critical ingredients and additives that help advance the performance of paints and coatings. The business offers innovative and sustainable products to accelerate paint and coatings performance across diverse market segments, including architectural paints and coatings, as well as industrial coatings applications used in maintenance and protective industries, wood, metal packaging, traffic markings, thermal paper and leather. These products enhance coatings by improving hiding and coverage characteristics, enhancing durability against nature and the elements, lowering or eliminating volatile organic compounds ("VOC") content, reducing maintenance and improving ease of application. The Performance Monomers business manufactures acrylics-based building blocks needed for the production of coatings, textiles, adhesives and home and personal care products.

Consumer Solutions
Consumer Solutions consists of three businesses: Performance Silicones, Home & Personal Care and Silicone Feedstocks & Intermediates. Performance Silicones offers a portfolio of innovative, versatile silicone-based technology to provide ingredients and solutions to customers for addressing megatrends, including globalization, urbanization, sustainability and digitalization. The business serves customers in several global markets with strong growth opportunities, including: building and infrastructure; consumer and electronics; industrial and chemical processing; and mobility and transportation. Dow's wide array of silicone-based products and solutions enables customers to: increase the appeal of their products; extend shelf life; improve performance of products under a wider range of conditions; and provide a more sustainable offering. The Home & Personal Care business collaborates closely with global and regional brand owners to deliver innovative solutions, leveraging acrylics, cellulosics and silicone technology platforms for creating new and unrivaled consumer benefits and experiences in cleaning, laundry and skin and hair care applications, among others. Silicone Feedstocks & Intermediates provides standalone silicone materials that are used as intermediates in a wide range of applications including adhesion promoters, coupling agents, crosslinking agents, dispersing agents and surface modifiers.

Details on Performance Materials & Coatings' 2020 net sales, by business and geographic region, are as follows:





Products
Major applications/market segments and products are listed below by business:

Business	*Applications/Market Segments*	*Major Products*	*Key Raw Materials*	*Key Competitors*
Coatings & Performance Monomers	Acrylic binders for architectural paints and coatings, industrial coatings and paper; adhesives; dispersants; impact modifiers; inks and paints; opacifiers and surfactants for both architectural and industrial applications; plastics additives; processing aids; protective and functional coatings; rheology modifiers	ACOUSTICRYL™ Liquid-Applied Sound Damping Technology; acrylates; ACRYSOL™ Rheology Modifiers; AVANSE™ Acrylic Binders; EVOQUE™ Pre-Composite Polymer; foam cell promoters; FORMASHIELD™ Acrylic Binder; high-quality impact modifiers; MAINCOTE™ Acrylic Epoxy Hybrid; methacrylates; processing aids; RHOPLEX™ Acrylic Resin; TAMOL™ Dispersants; vinyl acetate monomers; weatherable acrylic capstock compounds for thermoplastic and thermosetting materials	Acetic acid, acetone, acrylic acid, butyl acrylate, methyl methacrylate, propylene, styrene	Arkema, BASF, Celanese, Evonik, LyondellBasell, Wacker Chemie
Consumer Solutions	Personal care, color cosmetics, baby care, home care and specialty applications with a key focus on hair care, skin care, sun care, cleansing, as well as fabric, dish, floor, hard surface and air care applications; commercial glazing; electrical and high-voltage insulation; lamp and luminaire modules assembly; mobility; oil and gas; paints and inks; release liners, specialty films and tapes; sporting goods; 3D printing	Adhesives and sealants; antifoams and surfactants; coatings and controlled release; coupling agents and crosslinkers; IMAGIN3D™ Printing Technology; fluids, emulsions and dispersions; formulating and processing aids; granulation and binders; oils; polymers and emollients; opacifiers; reagents; resins, gels and powders; rheology modifiers; rubber; solubility enhancers; aerospace composites; surfactants and solvents; SILASTIC™ Silicone Elastomers; DOWSIL™ Silicone Products; SYL-OFF™ Silicone Release Coatings; AMPLIFY™ Si PE 1000 Polymer System	Hydrochloric acid, methanol, platinum, silica, silicon metal	Elkem, Momentive, Shin-Etsu, Wacker Chemie

Current and Future Investments
The Company continues to make incremental investments in low-capital, high-return projects in the silicones franchise to further enhance competitiveness. Investments include both debottleneck and efficiency projects across its global footprint, including expansion of silicone polymers, as well as investments in high-performance sealants.

CORPORATE

Corporate includes certain enterprise and governance activities (including insurance operations, environmental operations, etc.); non-business aligned joint ventures; non-business aligned litigation expenses; and discontinued or non-aligned businesses.

RAW MATERIALS

The Company operates in an integrated manufacturing environment. Basic raw materials are processed through many stages to produce a number of products that are sold as finished goods at various points in those processes. The major raw material stream that feeds the production of the Company's finished goods is hydrocarbon-based raw materials. The Company purchases hydrocarbon raw materials including ethane, propane, butane, naphtha and condensate as feedstocks. These raw materials are used in the production of both saleable products and energy. The Company also purchases certain monomers, primarily ethylene and propylene, to supplement internal production. The Company purchases natural gas, primarily to generate electricity, and purchases electric power to supplement internal generation. In addition, the Company produces a portion of its electricity needs in Louisiana and Texas; Alberta, Canada; The Netherlands; and Germany.

The Company's primary source of these raw materials are natural gas liquids ("NGLs"), which are derived from shale gas and crude oil production and naphtha, which is produced during the processing and refining of crude oil. Given recent advancements in shale gas, shale oil and conventional drilling techniques, the Company expects these raw materials to be in abundant supply. The Company's suppliers of these raw materials include regional, international and national oil and gas companies.

The Company purchases raw materials on both short- and long-term contracts. The Company had adequate supplies of raw materials in 2020 and expects to continue to have adequate supplies of raw materials in 2021.

INDUSTRY SEGMENTS AND GEOGRAPHIC REGION RESULTS

See Note 26 to the Consolidated Financial Statements for information regarding net sales, pro forma net sales, Operating EBIT, pro forma Operating EBIT and total assets by segment, as well as net sales and long-lived assets by geographic region.

SIGNIFICANT CUSTOMERS AND PRODUCTS

All products and services are marketed primarily through the Company’s sales force, although in some instances more emphasis is placed on sales through distributors. In 2020, no significant portion of the Company's sales was dependent upon a single customer.

PATENTS, LICENSES AND TRADEMARKS

The Company continually applies for and obtains U.S. and foreign patents and has a substantial number of pending patent applications throughout the world. At December 31, 2020, the Company owned approximately 3,500 active U.S. patents and 18,900 active foreign patents as follows:

Remaining Life of Patents Owned at Dec 31, 2020	*United States*	*Rest of World*
Within 5 years	800	3,400
6 to 10 years	1,000	6,500
11 to 15 years	1,500	8,400
16 to 20 years	200	600
Total	3,500	18,900

The Company’s primary purpose in obtaining patents is to protect the results of its research for use in operations and licensing. The Company is party to a substantial number of patent licenses, including intellectual property cross-license agreements and other technology agreements, and also has a substantial number of trademarks and trademark registrations in the United States and in other countries, including the “Dow in Diamond” trademark. Although the Company considers that its patents, licenses and trademarks in the aggregate constitute a valuable asset, it does not regard its business as being materially dependent on any single or group of related patents, licenses or trademarks.

PRINCIPAL PARTLY OWNED COMPANIES

The Company's principal nonconsolidated affiliates at December 31, 2020, including direct and indirect ownership interest for each, are listed below:

Principal Nonconsolidated Affiliate	*Country*	*Ownership Interest*	*Business Description*
EQUATE Petrochemical Company K.S.C.C.	Kuwait	42.50 %	Manufactures ethylene, polyethylene and ethylene glycol, and manufactures and markets monoethylene glycol, diethylene glycol and polyethylene terephthalate resins
The Kuwait Olefins Company K.S.C.C.	Kuwait	42.50 %	Manufactures ethylene and ethylene glycol
The Kuwait Styrene Company K.S.C.C.	Kuwait	42.50 %	Manufactures styrene monomer
Map Ta Phut Olefins Company Limited [1]	Thailand	32.77 %	Manufactures propylene and ethylene
Sadara Chemical Company [2]	Saudi Arabia	35.00 %	Manufactures chlorine, ethylene, propylene and aromatics for internal consumption and manufactures and sells polyethylene, ethylene oxide and propylene oxide derivative products, and isocyanates
The SCG-Dow Group:			
Siam Polyethylene Company Limited	Thailand	50.00 %	Manufactures polyethylene
Siam Polystyrene Company Limited	Thailand	50.00 %	Manufactures polystyrene
Siam Styrene Monomer Company Limited	Thailand	50.00 %	Manufactures styrene
Siam Synthetic Latex Company Limited	Thailand	50.00 %	Manufactures latex and specialty elastomers

1. The Company's effective ownership of Map Ta Phut is 32.77 percent, of which the Company directly owns 20.27 percent and indirectly owns 12.5 percent through its equity interest in Siam Polyethylene Company Limited.
2. The Company is responsible for marketing the majority of Sadara products outside of the Middle East zone through the Company's established sales channels. Under this arrangement, the Company purchases and sells Sadara products for a marketing fee.

See Note 12 to the Consolidated Financial Statements for additional information regarding nonconsolidated affiliates.

PROTECTION OF THE ENVIRONMENT

Matters pertaining to the environment are discussed in Part I, Item 1A. Risk Factors; Part II, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations; and Notes 1 and 16 to the Consolidated Financial Statements. In addition, detailed information on the Company's performance regarding environmental matters and goals is accessible through the Science & Sustainability webpage at *www.dow.com/sustainability.* Dow's website and its content are not deemed incorporated by reference into this report.

HUMAN CAPITAL

Dow's ambition – to be the most innovative, customer-centric, inclusive and sustainable materials science company - starts with people. Dow employees create innovative and sustainable materials science solutions to advance the world. Every answer starts with asking the right questions. This is why the diverse, dedicated Dow team collaborates with customers and other stakeholders to find solutions to the world's toughest challenges. The Company's values of Respect for People, Integrity and Protecting Our Planet are fundamental beliefs that are ingrained in each action taken, can never be compromised and are the foundation of the Company's Code of Conduct.

The Company is dedicated to employee health and safety, and is invested in fostering a culture of inclusion and continuous learning to ensure all Dow employees are respected, valued and encouraged to make their fullest contribution.

Safety, Employee Health and Well-Being
A commitment to safety and employee health is engrained in Dow's culture and central to how the Dow team works. Dow uses a comprehensive, integrated operating discipline management system that includes policies, requirements, best practices and procedures associated with health and safety. In 2020, the Company achieved an Occupational Safety and Health Administration ("OSHA") Total Recordable Injury and Illness Rate of 0.12, based upon the number of incidents per 200,000 work hours for employees and contractors globally. This measure, along with a consistent set of globally applied, as well as locally defined, leading indicators of safety performance, are cornerstones of Dow's worker protection program. The Company maintains a robust, globally tracked near-miss program for situations that did not result in an injury, but could have been high consequence had circumstances been slightly different. This data is reviewed regularly by management and the Environment, Health, Safety & Technology Committee of the Dow Inc. Board of Directors ("Board"), is visible to all employees and is built into digital dashboards that include actual injury information for every Dow location around the world.

As part of the Company's total worker health strategy, employees have access to occupational health services at no cost through on-site, Company-managed clinics at its manufacturing locations or an offsite provider overseen by Dow Occupational Health. In addition to access for occupational health needs, the Company also maintains a comprehensive wellness program, recognizing the value of good physical as well as mental health to employees, families and communities. In 2020, the Company also initiated an offering of psychological safety training sessions to employees.

Dow maintains active Crisis Management Teams at the corporate level and in each region where the Company operates to ensure appropriate plans are in place in the event of natural disasters or other emergencies, and currently in response to the coronavirus disease 2019 ("COVID-19") pandemic. For additional information on the Company's response to the COVID-19 pandemic, see Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations.

Inclusion & Diversity
At Dow, inclusion and diversity ("I&D") is a business imperative evidenced by inclusion serving as a core pillar of the Company's ambition statement. A strategic and intentional focus on I&D not only enhances the employee experience and satisfaction, but it also supports innovation, customer experience and understanding of the communities the Company serves. In 2020, Dow ranked #22 in the DiversityInc Top 50 Companies for Diversity.

Dow's strategic I&D efforts are directed by its Chief Inclusion Officer and Office of Inclusion, which supports implementation throughout Dow's businesses, functions and regions. Three Inclusion Councils drive the I&D strategy from the top of the Company down and across the enterprise:

- The President's Inclusion Council defines and supports the mandate from the top.
- A Senior Leaders' Inclusion Council influences change through senior and mid-level business, geographic and functional leaders.
- A Joint Inclusion Council proactively engages with Dow's Employee Resource Groups ("ERGs") to ensure employee engagement at all levels.

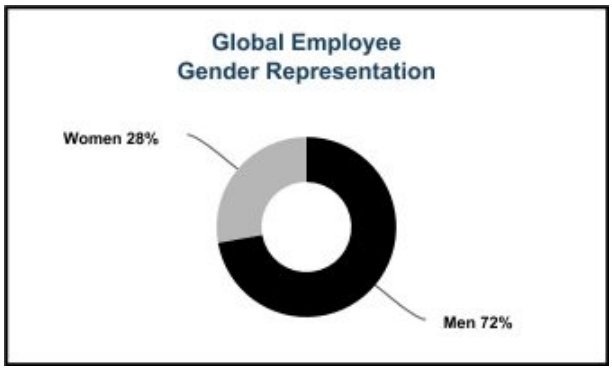
Dow's 10 ERGs are representative of the Company's diverse workforce and help foster an inclusive workplace. Dow's ERGs are organized around historically underrepresented groups including women, people of color, LGBTQ+ individuals, people with disabilities and veterans, as well as groups both for professionals who are new to the Company and those who are later in their careers. Senior leaders serve as executive sponsors for each ERG. In 2020, 49 percent of Dow's workforce and 98 percent of Dow leaders participated in at least one ERG.

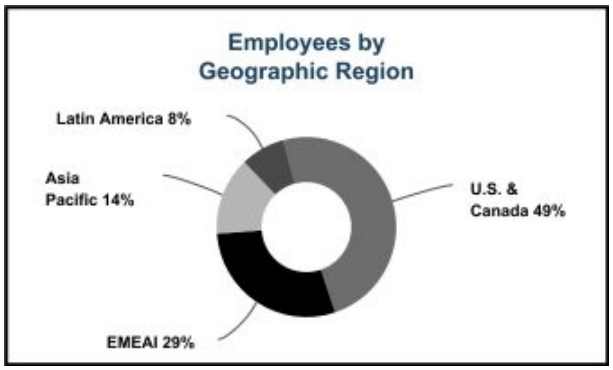
I&D metrics, including ERG participation, global representation of women and U.S. minority representation in the United States, are published internally on a quarterly basis, are embedded in the same scorecard where Dow's financial and safety results are measured and are directly connected to leaders' annual performance and compensation. This data is reviewed regularly by management and with the Compensation and Leadership Development Committee of the Board.

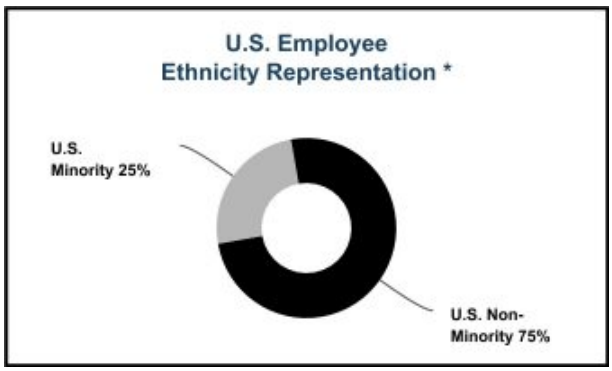
Employee Engagement, Learning and Development

Throughout an employee's career, the Company supports development through a blend of learning approaches including in-person and virtual trainings, digital learning platforms, on-the-job training and a series of leadership development programs. Annually, all employees have the opportunity to provide feedback on employee experience and offer insights into how to improve Dow's working culture through a global employee opinion survey. A key component of the survey is an opportunity for employees to provide feedback on the effectiveness of their direct leader. In 2020, 74 percent of employees responded to the annual survey. The feedback received through this annual survey and additional quarterly checkpoint surveys is used to drive actions to improve the overall Dow experience for employees across the Company, as well as to support continuous improvement in leader effectiveness.

At December 31, 2020, the Company permanently employed approximately 35,700 people on a full-time basis.







* U.S. Minority includes employees who self-identify as Hispanic or Latino, Black or African American, Asian, American Indian or Alaskan Native, Native Hawaiian or other Pacific Islander, or two or more races. Employees who self-identify as White are considered U.S. Non-Minority.

Additional information regarding Dow's human capital measures can be found in the Company's annual Sustainability Report, accessible through the Science & Sustainability webpage at *www.dow.com/sustainability*, as well as Dow's annual Shine Inclusion Report and the U.S. Equal Employment Opportunity Report (EEO-1), accessible through the Inclusion & Diversity webpage at *www.dow.com/diversity*. Dow's website and its contents are not deemed incorporated by reference into this report.

OTHER ACTIVITIES

The Company engages in property and casualty insurance and reinsurance primarily through its Liana Limited subsidiaries.

EXECUTIVE OFFICERS OF THE REGISTRANT

Set forth below is information related to the Company's executive officers as of February 5, 2021:

Name, Age	*Present Position with Registrant*	*Year Elected as Executive Officer of Dow Inc.*	*Other Business Experience since January 1, 2016*
Jack Broodo, 62	President, Feedstocks & Energy	2020	Dow Inc.: President, Feedstocks & Energy since February 2020; Business President, Feedstocks & Energy from April 2019 to February 2020. TDCC: President, Feedstocks & Energy since February 2020; Business President, Feedstocks & Energy from February 2016 to February 2020. Vice President, Investor Relations from November 2014 to January 2016.
Karen S. Carter, 50	Chief Human Resources Officer and Chief Inclusion Officer	2019	Dow Inc.: Chief Human Resources Officer and Chief Inclusion Officer since April 2019. TDCC: Chief Human Resources Officer since October 2018; Chief Inclusion Officer since July 2017; North America Commercial Vice President, Dow Packaging and Specialty Plastics from February 2016 to July 2017; Global Business Director, Low Density & Slurry Polyethylene, Packaging & Specialty Plastics from April 2015 to January 2016.
Diego Donoso, 53	President, Packaging & Specialty Plastics	2020	Dow Inc.: President, Packaging & Specialty Plastics since February 2020; Business President, Packaging & Specialty Plastics from April 2019 to February 2020. TDCC: President, Packaging & Specialty Plastics since February 2020; Business President, Packaging & Specialty Plastics from August 2012 to February 2020.
Ronald C. Edmonds, 63	Controller and Vice President of Controllers and Tax	2019	Dow Inc.: Controller and Vice President of Controllers and Tax since April 2019. TDCC: Controller and Vice President since November 2009; Vice President of Tax since January 2016.
Jim Fitterling, 59	Chairman and Chief Executive Officer	2018	Dow Inc.: Chairman since April 2020; Chief Executive Officer since August 2018. TDCC: Chairman since April 2020; Chief Executive Officer since July 2018; President and Chief Operating Officer from February 2016 to July 2018; Vice Chairman and Chief Operating Officer from October 2015 to February 2016.
Mauro Gregorio, 58	President, Performance Materials & Coatings	2020	Dow Inc.: President, Performance Materials & Coatings since February 2020; Business President, Performance Materials & Coatings from April 2019 to February 2020. TDCC: President, Performance Materials & Coatings since February 2020; Business President, Consumer Solutions from January 2016 to February 2020.
Jane M. Palmieri, 51	President, Industrial Intermediates & Infrastructure	2020	Dow Inc.: President, Industrial Intermediates & Infrastructure since February 2020; Business President, Polyurethanes and Chlor-Alkali & Vinyl from April 2019 to February 2020. TDCC: President, Industrial Intermediates & Infrastructure since February 2020; Business President, Polyurethanes and Chlor-Alkali & Vinyl from April 2018 to February 2020; Business President, Polyurethanes and Chlor-Alkali from October 2016 to April 2018; Business President, Building and Construction from June 2013 to April 2018.
John M. Sampson, 60	Senior Vice President, Operations, Manufacturing & Engineering	2021	Dow Inc.: Senior Vice President, Operations, Manufacturing & Engineering since October 2020. Olin Corporation: Executive Vice President, Business Operations from April 2019 to September 2020; Vice President, Business Operations from October 2015 to April 2019.
A. N. Sreeram, 53	Senior Vice President of Research & Development and Chief Technology Officer	2019	Dow Inc.: Senior Vice President of Research & Development and Chief Technology Officer since April 2019. TDCC: Chief Technology Officer since October 2015; Senior Vice President of Research & Development since August 2013.
Howard Ungerleider, 52	President and Chief Financial Officer	2018	Dow Inc.: President and Chief Financial Officer since August 2018. TDCC: Chief Financial Officer since October 2014; President since July 2018; Vice Chairman from October 2015 to July 2018.
Amy E. Wilson, 50	General Counsel and Corporate Secretary	2018	Dow Inc.: General Counsel and Corporate Secretary since April 2019; Secretary from August 2018 to April 2019. TDCC: General Counsel since October 2018; Corporate Secretary since February 2015; Associate General Counsel from April 2017 to September 2018; Assistant General Counsel from February 2015 to April 2017; Director of the Office of the Corporate Secretary from August 2013 to October 2018.

ITEM 1A. RISK FACTORS

The factors described below represent the Company's principal risks.

COVID-19 PANDEMIC - RELATED RISKS

Public Health Crisis: A public health crisis or global outbreak of disease, including the pandemic caused by coronavirus disease 2019 ("COVID-19") has had, and could continue to have, a negative effect on the Company's manufacturing operations, supply chain and workforce, creating business disruptions that could continue to have a substantial negative impact on the Company's results of operations, financial condition and cash flows.

The pandemic caused by COVID-19 has impacted all geographic regions where Dow products are produced and sold. The global, regional and local spread of COVID-19 has resulted in significant global mitigation measures, including government-directed quarantines, social distancing and shelter-in-place mandates, travel restrictions and/or bans, and restricted access to certain corporate facilities and manufacturing sites. Uncertainty with respect to the severity and duration of the COVID-19 pandemic, coupled with oil price fluctuations due in part to the global spread of COVID-19 and the continued increase in global cases, has contributed to the volatility of financial markets. While the severity and duration of the COVID-19 pandemic in key geographic regions and end-markets cannot be reasonably estimated at this time, impacts to the Company include, but are not limited to: fluctuations in the Company's stock price due to market volatility; a decrease in demand for certain Company products; price declines; reduced profitability; supply chain disruptions impeding the Company's ability to ship and/or receive product; temporary idling or permanent closure of select manufacturing facilities and/or manufacturing assets; asset impairment charges; interruptions or limitations to manufacturing operations imposed by local, state or federal governments; reduced market liquidity and increased borrowing costs; workforce absenteeism and distraction; labor shortages; customer credit concerns; increased cyber security risk and data accessibility disruptions due to remote working arrangements; workforce reductions and fluctuations in foreign currency markets. Additional risks may include, but are not limited to: shortages of key raw materials; potential impairment in the carrying value of goodwill; additional asset impairment charges; increased obligations related to the Company's pension and other postretirement benefit plans; and tax valuation allowances. Business disruptions and market volatility resulting from the COVID-19 pandemic have had and could continue to have a substantial negative impact on the Company's results of operations, financial condition and cash flows. The adverse impact of the COVID-19 pandemic on the Company may also have the effect of heightening many of the other risks described in this "Risk Factors" section.

MACROECONOMIC RISKS

Financial Commitments and Credit Markets: Market conditions could reduce the Company's flexibility to respond to changing business conditions or fund capital needs.

Adverse economic conditions could reduce the Company's flexibility to respond to changing business and economic conditions or to fund capital expenditures or working capital needs. The economic environment could result in a contraction in the availability of credit in the marketplace and reduce sources of liquidity for the Company. This could result in higher borrowing costs.

Global Economic Considerations: The Company operates in a global, competitive environment which gives rise to operating and market risk exposure.

The Company sells its broad range of products and services in a competitive, global environment, and competes worldwide for sales on the basis of product quality, price, technology and customer service. Increased levels of competition could result in lower prices or lower sales volume, which could have a negative impact on the Company's results of operations. Sales of the Company's products are also subject to extensive federal, state, local and foreign laws and regulations, trade agreements, import and export controls and duties and tariffs. The imposition of additional regulations, controls and duties and tariffs or changes to bilateral and regional trade agreements could result in lower sales volume, which could negatively impact the Company's results of operations.

Economic conditions around the world, and in certain industries in which the Company does business, also impact sales price and volume. As a result, market uncertainty or an economic downturn driven by political tensions, war, terrorism, epidemics, pandemics or political instability in the geographic regions or industries in which the Company sells its products could reduce demand for these products and result in decreased sales volume, which could have a negative impact on the Company's results of operations.

In addition, volatility and disruption of financial markets could limit customers' ability to obtain adequate financing to maintain operations, which could result in a decrease in sales volume and have a negative impact on the Company's results of operations. The Company's global business operations also give rise to market risk exposure

related to changes in foreign currency exchange rates, interest rates, commodity prices and other market factors such as equity prices. To manage such risks, the Company enters into hedging transactions pursuant to established guidelines and policies. If the Company fails to effectively manage such risks, it could have a negative impact on its results of operations.

Pension and Other Postretirement Benefits: Increased obligations and expenses related to the Company's defined benefit pension plans and other postretirement benefit plans could negatively impact its financial condition and results of operations.
The Company has defined benefit pension plans and other postretirement benefit plans (the “plans”) in the United States and a number of other countries. The assets of the Company's funded plans are primarily invested in fixed income securities, equity securities of U.S. and foreign issuers and alternative investments, including investments in real estate, private equity and absolute return strategies. Changes in the market value of plan assets, investment returns, discount rates, mortality rates, regulations and the rate of increase in compensation levels may affect the funded status of the Company's plans and could cause volatility in the net periodic benefit cost, future funding requirements of the plans and the funded status of the plans. A significant increase in the Company's obligations or future funding requirements could have a negative impact on the Company's results of operations and cash flows for a particular period and on the Company's financial condition.

Supply/Demand Balance: Earnings generated by the Company's products vary based in part on the balance of supply relative to demand within the industry.
The balance of supply relative to demand within the industry may be significantly impacted by the addition of new capacity, especially for basic commodities where capacity is generally added in large increments as world-scale facilities are built. This may disrupt industry balances and result in downward pressure on prices due to the increase in supply, which could negatively impact the Company’s results of operations.

LEGAL AND REGULATORY RISKS

Environmental Compliance: The costs of complying with evolving regulatory requirements could negatively impact the Company's financial results. Actual or alleged violations of environmental laws or permit requirements could result in restrictions or prohibitions on plant operations, substantial civil or criminal sanctions, as well as the assessment of strict liability and/or joint and several liability.
The Company is subject to extensive federal, state, local and foreign laws, regulations, rules and ordinances relating to pollution, protection of the environment, climate change, greenhouse gas emissions, and the generation, storage, handling, transportation, treatment, disposal and remediation of hazardous substances and waste materials. In addition, the Company may have costs related to environmental remediation and restoration obligations associated with past and current sites as well as related to its past or current waste disposal practices or other hazardous materials handling. Although management will estimate and accrue liabilities for these obligations, it is reasonably possible that the Company’s ultimate cost with respect to these matters could be significantly higher, which could negatively impact the Company’s financial condition and results of operations. Costs and capital expenditures relating to environmental, health or safety matters are subject to evolving regulatory requirements and depend on the timing of the promulgation and enforcement of specific standards which impose the requirements. Moreover, changes in environmental regulations could inhibit or interrupt the Company’s operations, or require modifications to its facilities. Accordingly, environmental, health or safety regulatory matters could result in significant unanticipated costs or liabilities. For additional information, see Part II, Item 7. Other Matters, Environmental Matters in Management’s Discussion and Analysis of Financial Condition and Results of Operations.

Health and Safety: Increased concerns regarding the safe use of chemicals and plastics in commerce and their potential impact on the environment has resulted in more restrictive regulations and could lead to new regulations.
Concerns regarding the safe use of chemicals and plastics in commerce and their potential impact on health and the environment reflect a growing trend in societal demands for increasing levels of product safety and environmental protection. These concerns could manifest themselves in stockholder proposals, preferred purchasing, delays or failures in obtaining or retaining regulatory approvals, delayed product launches, lack of market acceptance and continued pressure for more stringent regulatory intervention and litigation. These concerns could also influence public perceptions, the viability or continued sales of certain of the Company's products, its reputation and the cost to comply with regulations. In addition, terrorist attacks and natural disasters have increased concerns about the security and safety of chemical production and distribution. These concerns could have a negative impact on the Company's results of operations.

Local, state, federal and foreign governments continue to propose new regulations related to the security of chemical plant locations and the transportation of hazardous chemicals, which could result in higher operating costs.

Litigation: The Company is party to a number of claims and lawsuits arising out of the normal course of business with respect to product liability, patent infringement, employment matters, governmental tax and regulation disputes, contract and commercial litigation, and other actions.
Certain of the claims and lawsuits facing the Company purport to be class actions and seek damages in very large amounts. All such claims are contested. With the exception of the possible effect of the asbestos-related liability of Union Carbide Corporation (“Union Carbide”) and Chapter 11 related matters of Dow Silicones Corporation ("Dow Silicones") as described below, it is the opinion of the Company’s management that the possibility is remote that the aggregate of all such claims and lawsuits will have a material adverse impact on the Company’s consolidated financial statements.

Union Carbide is and has been involved in a large number of asbestos-related suits filed primarily in state courts during the past four decades. At December 31, 2020, Union Carbide's total asbestos-related liability, including future defense and processing costs, was $1,098 million ($1,165 million at December 31, 2019).

In 1995, Dow Silicones, a former 50:50 joint venture, voluntarily filed for protection under Chapter 11 of the U.S. Bankruptcy Code in order to resolve breast implant liabilities and related matters (the “Chapter 11 Proceeding”). Dow Silicones emerged from the Chapter 11 Proceeding on June 1, 2004, and is implementing the Joint Plan of Reorganization (the “Plan”). The Plan provides funding for the resolution of breast implant and other product liability litigation covered by the Chapter 11 Proceeding. Dow Silicones’ liability for breast implant and other product liability claims was $160 million at December 31, 2020 ($165 million at December 31, 2019). See Note 16 to the Consolidated Financial Statements for additional information on litigation matters.

Plastic Waste: Increased concerns regarding plastic waste in the environment, consumers selectively reducing their consumption of plastic products due to recycling concerns, or new or more restrictive regulations and rules related to plastic waste could reduce demand for the Company’s plastic products and could negatively impact the Company’s financial results.
Local, state, federal and foreign governments have been increasingly proposing and in some cases approving bans on certain plastic-based products including single-use plastics, plastic straws and utensils. In addition, plastics have faced increased public scrutiny due to negative coverage of plastic waste in the environment, including the world’s oceans. As Dow is one of the world’s largest producers of plastics, increased regulation on the use of plastics could cause reduced demand for the Company’s polyethylene products which could negatively impact the Company’s financial condition, results of operations and cash flows.

OPERATIONAL AND STRATEGIC RISKS

Company Strategy: Implementing certain elements of the Company's strategy could negatively impact its financial results.
The Company currently has manufacturing operations, sales and marketing activities, and joint ventures in emerging geographic regions. Activities in these geographic regions are accompanied by uncertainty and risks including: navigating different government regulatory environments; relationships with new, local partners; project funding commitments and guarantees; expropriation, military actions, war, terrorism and political instability; sabotage; uninsurable risks; suppliers not performing as expected resulting in increased risk of extended project timelines; and determining raw material supply and other details regarding product movement. If the manufacturing operations, sales and marketing activities, and/or implementation of these projects is not successful, it could adversely affect the Company’s financial condition, cash flows and results of operations.

Cyber Threat: The risk of loss of the Company’s intellectual property, trade secrets or other sensitive business information or disruption of operations could negatively impact the Company’s financial results.
Cyber-attacks or security breaches could compromise confidential, business critical information, cause a disruption in the Company’s operations or harm the Company's reputation. The Company has attractive information assets, including intellectual property, trade secrets and other sensitive, business critical information. While the Company has a comprehensive cyber-security program that is continuously reviewed, maintained and upgraded, a significant cyber-attack could result in the loss of critical business information and/or could negatively impact operations, which could have a negative impact on the Company’s financial results.

Goodwill: An impairment of goodwill could negatively impact the Company's financial results.
At least annually, the Company assesses goodwill for impairment. If testing indicates that goodwill is impaired, the carrying value is written down based on fair value with a charge against earnings. Where the Company utilizes a discounted cash flow methodology in determining fair value, continued weak demand for a specific product line or business could result in an impairment. Accordingly, any determination requiring the write-off of a significant portion of goodwill could negatively impact the Company's results of operations. See Note 13 to the Consolidated Financial Statements for additional information regarding the Company's goodwill impairment testing.

Operational Event: A significant operational event could negatively impact the Company's results of operations.
As a diversified chemical manufacturing company, the Company's operations, the transportation of products, cyber-attacks, pandemics and other public health-related events or severe weather conditions and other natural phenomena (such as freezing, drought, hurricanes, earthquakes, tsunamis, floods, etc.) could result in an unplanned event that could be significant in scale and could negatively impact operations, neighbors or the public at large, which could have a negative impact on the Company's results of operations.

Major hurricanes have caused significant disruption in the Company's operations on the U.S. Gulf Coast, logistics across the region, and the supply of certain raw materials, which had an adverse impact on volume and cost for some of its products. Due to the Company's substantial presence on the U.S. Gulf Coast, similar severe weather conditions or other natural phenomena in the future could negatively impact the Company's results of operations.

Raw Materials: Availability of purchased feedstock and energy, and the volatility of these costs, impact Dow's operating costs and add variability to earnings.
Purchased feedstock and energy costs account for a substantial portion of the Company's total production costs and operating expenses. The Company purchases hydrocarbon raw materials including ethane, propane, butane, naphtha and condensate as feedstocks and also purchases certain monomers, primarily ethylene and propylene, to supplement internal production, as well as other raw materials. The Company also purchases natural gas, primarily to generate electricity, and purchases electric power to supplement internal generation.

Feedstock and energy costs generally follow price trends in crude oil and natural gas, which are sometimes volatile. While the Company uses its feedstock flexibility and financial and physical hedging programs to help mitigate feedstock cost increases, the Company is not always able to immediately raise selling prices. Ultimately, the ability to pass on underlying cost increases is dependent on market conditions. Conversely, when feedstock and energy costs decline, selling prices generally decline as well. As a result, volatility in these costs could impact the Company's results of operations.

The Company has a number of investments on the U.S. Gulf Coast to take advantage of increasing supplies of low-cost natural gas and natural gas liquids ("NGLs") derived from shale gas including: the St. Charles Operations ("SCO-2") ethylene production facility, which commenced operations in December 2012; an on-purpose propylene production facility, which commenced operations in December 2015; an ethylene production facility in Plaquemine, Louisiana, which included expanding the facility's ethylene production capacity and modifications to enable full ethane cracking flexibility; completion of a new integrated world-scale ethylene production facility and a new ELITE™ Enhanced Polyethylene production facility, both located in Freeport, Texas, in 2017, and a capacity expansion project which brought the facility's total ethylene capacity to 2,000 kilotonnes per annum in 2020; and, the Company commenced operations in 2018 on its new LDPE production facility and its new NORDEL™ Metallocene EPDM production facility, both located in Plaquemine, Louisiana. As a result of these investments, the Company's exposure to purchased ethylene and propylene is expected to decline, offset by increased exposure to ethane- and propane-based feedstocks.

While the Company expects abundant and cost-advantaged supplies of NGLs in the United States to persist for the foreseeable future, if NGLs become significantly less advantaged than crude oil-based feedstocks, it could have a negative impact on the Company's results of operations and future investments. Also, if the Company's key suppliers of feedstock and energy are unable to provide the raw materials required for production, it could have a negative impact on the Company's results of operations.

Separation from DowDuPont: Risks related to achieving the anticipated benefits of Dow's separation from DowDuPont.
Risks related to achieving the anticipated benefits of Dow's separation from DowDuPont include, but are not limited to, a number of conditions outside the control of Dow, including risks related to: (i) Dow's inability to achieve some or all of the benefits that it expects to receive from the separation from DowDuPont; (ii) certain tax risks associated with the separation; (iii) the failure of Dow's pro forma financial information to be a reliable indicator of Dow's future results; (iv) Dow's inability to receive third-party consents required under the separation agreement; (v) non-compete restrictions under the separation agreement; (vi) receipt of less favorable terms in the commercial agreements Dow entered into with DuPont and Corteva, Inc. ("Corteva"), including restrictions under intellectual property cross-license agreements, than Dow would have received from an unaffiliated third party; and (vii) Dow's obligation to indemnify DuPont and/or Corteva for certain liabilities.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

The Company's corporate headquarters are located in Midland, Michigan. The Company's manufacturing, processing, marketing and research and development facilities, as well as regional purchasing offices and distribution centers are located throughout the world. The Company has investments in property, plant and equipment related to global manufacturing operations. Collectively, the Company operates 106 manufacturing sites in 31 countries. The following table includes the major manufacturing sites by operating segment, including consolidated variable interest entities:

Major Manufacturing Sites by Segment *Location*	*Packaging & Specialty Plastics*	*Industrial Intermediates & Infrastructure*	*Performance Materials & Coatings*
Bahia Blanca, Argentina	X		
Candeias, Brazil		X	
Canada:			
Fort Saskatchewan, Alberta	X		
Prentiss, Alberta	X		
Zhangjiagang, China	X	X	X
Germany:			
Boehlen	X	X	X
Leuna	X		
Schkopau	X	X	
Stade		X	
Terneuzen, The Netherlands	X	X	
Tarragona, Spain	X	X	
Map Ta Phut, Thailand	X	X	X
Barry, United Kingdom			X
United States:			
Carrollton, Kentucky			X
Hahnville, Louisiana	X	X	X
Plaquemine, Louisiana	X	X	
Midland, Michigan			X
Deer Park, Texas		X	X
Freeport, Texas	X	X	X
Orange, Texas	X		
Seadrift, Texas	X	X	

Including the major manufacturing sites, the Company has manufacturing sites and holdings in all geographic regions as follows:

Manufacturing Sites by Region	
Asia Pacific	19 manufacturing sites in 10 countries
EMEAI [1]	37 manufacturing sites in 15 countries
Latin America	15 manufacturing sites in 4 countries
U.S. & Canada	35 manufacturing sites in 2 countries

1. Europe, Middle East, Africa and India.

Properties of the Company include facilities which, in the opinion of management, are suitable and adequate for their use and will have sufficient capacity for the Company's current needs and expected near-term growth. All of the Company's plants are owned or leased, subject to certain easements of other persons which, in the opinion of management, do not substantially interfere with the continued use of such properties or materially affect their value. No title examination of the properties has been made for the purpose of this report. Additional information with respect to the Company's property, plant and equipment and leases is contained in Notes 11, 15 and 17 to the Consolidated Financial Statements.

ITEM 3. LEGAL PROCEEDINGS

Asbestos-Related Matters of Union Carbide Corporation
Union Carbide Corporation ("Union Carbide"), a wholly owned subsidiary of the Company, is and has been involved in a large number of asbestos-related suits filed primarily in state courts during the past four decades. These suits principally allege personal injury resulting from exposure to asbestos-containing products and frequently seek both actual and punitive damages. The alleged claims primarily relate to products that Union Carbide sold in the past, alleged exposure to asbestos-containing products located on Union Carbide's premises, and Union Carbide's responsibility for asbestos suits filed against a former Union Carbide subsidiary, Amchem Products, Inc.

For additional information, see Part II, Item 7. Other Matters, Asbestos-Related Matters of Union Carbide Corporation in Management's Discussion and Analysis of Financial Condition and Results of Operations, and Notes 1 and 16 to the Consolidated Financial Statements.

Environmental Proceedings
On July 5, 2018, the Company received a draft consent decree from the U.S. Environmental Protection Agency ("EPA"), the U.S. Department of Justice ("DOJ") and the Louisiana Department of Environmental Quality, relating to the operation of steam-assisted flares at the Company's olefins manufacturing facilities in Freeport, Texas; Plaquemine, Louisiana; and St. Charles, Louisiana. On June 2, 2020, the EPA and the DOJ added Performance Materials NA, Inc., a wholly owned subsidiary of the Company, as an additional signatory to the existing draft consent decree based on the operation of steam-assisted flares at the Sabine olefins manufacturing facility in Orange, Texas (the "Orange, TX Facility"). Performance Materials NA, Inc. acquired the Orange, TX Facility in February 2019 and became a subsidiary of the Company in April 2019. On January 19, 2021, a proposed final consent decree was filed in the U.S. District Court for the Eastern District of Louisiana to address these matters. Notice of the consent decree was published in the Federal Register on January 28, 2021 and public comments are required to be submitted within 30 days of that publication. The consent decree would require the Company to pay a $3 million civil penalty and $424,786 to specified local projects in Louisiana. The consent decree would further require the Company to install and operate additional air pollution control and monitoring technology on these steam-assisted flares at an estimated cost of approximately $294 million, to be completed over the next several years.

On August 27, 2019, the EPA, DOJ, Texas Environmental Quality Board, and Texas Office of the Attorney General (the "Government Agencies") added Performance Materials NA, Inc., a wholly owned subsidiary of the Company, as an additional signatory to an existing draft consent decree relating to alleged environmental violations at the Orange, TX Facility. Performance Materials NA, Inc. acquired the Orange, TX Facility in February 2019 and became a subsidiary of the Company in April 2019. The alleged violations were first identified during multimedia environmental inspections that the EPA conducted at the Orange, TX Facility while under prior ownership in March 2009 and December 2015, and involve the management of materials in the Orange, TX Facility's wastewater treatment system, hazardous waste management, and air emissions, including leak detection and repair. Discussions are ongoing between the Government Agencies, the Company, and the Orange, TX Facility's prior owner, who is the other named signatory.

On November 8, 2019, a proposed consent decree was filed in the U.S. District Court for the Eastern District of Michigan, Civil Action No. 1:19-cv-13292 between the Company and federal, state and tribal trustees to resolve allegations of natural resource damages arising from the historic operations of the Company's Midland, Michigan, manufacturing facility. On November 14, 2019, a Notice of Lodging and Notice of Availability and Request for Comments on Draft Restoration Plan/Environmental Assessment was published in the Federal Register. The DOJ filed a Joint Motion for Entry of the Consent Decree on May 8, 2020, which was granted and entered as a final order on July 20, 2020. The consent decree required the Company to pay a $15 million cash settlement to be used for trustee-selected remediation projects and $6.75 million to specified local projects managed by third parties. These funds were paid in December 2020. The consent decree further requires the Company to complete 13 additional environmental restoration projects which are valued by the trustees at approximately $77 million, to be conducted over the next several years.

On December 18, 2020, Dow and several other parties received a complaint and proposed consent decree from the EPA relating to environmental contamination at the Gulfco Marine Maintenance Superfund Site in Freeport, Texas. The proposed consent decree includes a requirement for three defendants to make a collective payment of $1.2 million for EPA's past response costs as well as an obligation to conduct certain response actions at the site. The proposed consent decree was submitted for notice and a 30-day public comment period on December 29, 2020.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

Dow Inc. and Subsidiaries
The Dow Chemical Company and Subsidiaries

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

On April 1, 2019, DowDuPont Inc. (“DowDuPont” and effective June 3, 2019, n/k/a DuPont de Nemours, Inc.) completed the separation of its materials science business and Dow Inc. became the direct parent company of The Dow Chemical Company and its consolidated subsidiaries (“TDCC” and together with Dow Inc., “Dow” or the “Company”), owning all of the outstanding common shares of TDCC. Dow Inc. is now an independent, publicly traded company and Dow Inc. common stock is listed on the New York Stock Exchange under the symbol “DOW.” Dow Inc. common stock began regular-way trading on April 2, 2019.

Dow Inc. has paid dividends on a quarterly basis since the separation from DowDuPont and expects to continue to do so, subject to approval by the Company’s Board of Directors. Quarterly market price of common stock and dividend information can be found in Note 27 to the Consolidated Financial Statements.

At January 31, 2021, there were 78,276 stockholders of record.

See Part III, Item 11. Executive Compensation for information relating to shares authorized for issuance under Dow Inc.'s equity compensation plans.

The Company grants stock-based compensation to employees and non-employee directors in the form of stock incentive plans, which include stock options, restricted stock units and restricted stock. The Company also provides stock-based compensation in the form of performance stock units. See Note 21 to the Consolidated Financial Statements for additional information.

Issuer Purchases of Equity Securities
The following table provides information regarding purchases of Dow Inc. common stock by the Company during the three months ended December 31, 2020:

Issuer Purchases of Equity Securities				
Period	*Total number of shares purchased*	*Average price paid per share*	*Total number of shares purchased as part of the Company's publicly announced share repurchase program*	*Approximate dollar value of shares that may yet be purchased under the Company's publicly announced share repurchase program* [1] *(In millions)*
October 2020	—	$ —	—	$ 2,375
November 2020	—	$ —	—	$ 2,375
December 2020	—	$ —	—	$ 2,375
Fourth quarter 2020	—	$ —	—	$ 2,375

1. On April 1, 2019, Dow Inc.'s Board of Directors ratified the share repurchase program originally approved on March 15, 2019, authorizing up to $3.0 billion to be spent on the repurchase of the Company's common stock, with no expiration date.

ITEM 6. SELECTED FINANCIAL DATA

Selected Financial Data - Dow Inc. In millions, except as noted (Unaudited)	*2020*	*2019*	*2018*	*2017*	*2016*
Summary of Operations					
Net sales	$ 38,542	$ 42,951	$ 49,604	$ 43,730	$ 36,264
Income (loss) from continuing operations, net of tax [1]	$ 1,294	$ (1,717)	$ 2,940	$ (1,287)	$ 1,478
Per share of common stock (in dollars):					
Earnings (loss) per common share from continuing operations - basic [1]	$ 1.64	$ (2.42)	$ 3.80	$ (1.88)	$ 1.57
Earnings (loss) per common share from continuing operations - diluted [1]	$ 1.64	$ (2.42)	$ 3.80	$ (1.88)	$ 1.55
Cash dividends declared per share of common stock [2]	$ 2.80	$ 2.10	$ —	$ 1.38	$ 1.84
Year-end Financial Position					
Total assets	$ 61,470	$ 60,524	$ 83,699	$ 85,852	$ 79,511
Long-term debt	$ 16,491	$ 15,975	$ 19,253	$ 19,757	$ 20,444
Financial Ratios					
Research and development expenses as percent of net sales	2.0 %	1.8 %	1.6 %	1.8 %	2.1 %
Income (loss) from continuing operations before income taxes as percent of net sales [1]	5.4 %	(2.9)%	7.6 %	0.5 %	3.5 %
Return on stockholders' equity [1]	9.9 %	(10.0)%	14.3 %	1.5 %	15.3 %
Gross debt as a percent of total capitalization	56.8 %	54.7 %	37.2 %	39.1 %	43.9 %
Net debt as a percent of total capitalization	47.9 %	50.9 %	33.7 %	31.1 %	35.1 %

Selected Financial Data - TDCC In millions, except as noted (Unaudited)	*2020*	*2019*	*2018*	*2017*	*2016*
Summary of Operations					
Net sales	$ 38,542	$ 42,951	$ 49,604	$ 43,730	$ 36,264
Income (loss) from continuing operations, net of tax [1]	$ 1,304	$ (1,595)	$ 2,940	$ (1,287)	$ 1,478
Year-end Financial Position					
Total assets	$ 61,345	$ 60,390	$ 83,699	$ 85,852	$ 79,511
Long-term debt	$ 16,491	$ 15,975	$ 19,253	$ 19,757	$ 20,444
Financial Ratios					
Research and development expenses as percent of net sales	2.0 %	1.8 %	1.6 %	1.8 %	2.1 %
Income (loss) from continuing operations before income taxes as percent of net sales [1]	5.4 %	(2.6)%	7.6 %	0.5 %	3.5 %
Return on stockholders' equity [1]	9.5 %	(8.6)%	14.3 %	1.5 %	15.3 %
Gross debt as a percent of total capitalization	55.8 %	53.3 %	37.2 %	39.1 %	43.9 %
Net debt as a percent of total capitalization	46.8 %	49.6 %	33.7 %	31.1 %	35.1 %

1. See Notes 3, 5, 6, 7, 8, 12, 13, 15 and 16 to the Consolidated Financial Statements for information on items materially impacting the results for the years ended December 31, 2020, 2019 and 2018, including the effects of the U.S. Tax Cuts and Jobs Act, enacted on December 22, 2017; Swiss tax reform; loss on early redemption of debt; integration and separation costs; charges related to restructuring programs; goodwill impairment and other asset related charges (including charges related to Sadara Chemical Company); a charge related to environmental remediation; litigation related charges, awards and adjustments; charges associated with agreements entered into with DuPont and Corteva as part of the separation from DowDuPont; adjustments to the warranty accrual of an exited business; and net gains on divestitures and asset sales.
2. Amounts shown for 2020 and 2019 represent dividends declared by Dow Inc. Amounts shown for 2017 and 2016 represent cash dividends declared by TDCC prior to the Merger. Subsequent to the Merger, TDCC has no common shares outstanding.

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

On April 1, 2019, DowDuPont Inc. (“DowDuPont” and effective June 3, 2019, n/k/a DuPont de Nemours, Inc. or "DuPont") completed the separation of its materials science business and Dow Inc. became the direct parent company of The Dow Chemical Company and its consolidated subsidiaries (“TDCC” and together with Dow Inc., “Dow” or the “Company”), owning all of the outstanding common shares of TDCC. For filings related to the period commencing April 1, 2019 and thereafter, TDCC was deemed the predecessor to Dow Inc., and the historical results of TDCC are deemed the historical results of Dow Inc. for periods prior to and including March 31, 2019. As a result of the parent/subsidiary relationship between Dow Inc. and TDCC, and considering that the financial statements and disclosures of each company are substantially similar, the companies are filing a combined report for this Annual Report on Form 10-K. The information reflected in the report is equally applicable to both Dow Inc. and TDCC, except where otherwise noted.

The separation was contemplated by the merger of equals transaction effective August 31, 2017, under the Agreement and Plan of Merger, dated as of December 11, 2015, as amended on March 31, 2017. TDCC and E. I. du Pont de Nemours and Company and its consolidated subsidiaries (“Historical DuPont”) each merged with subsidiaries of DowDuPont and, as a result, TDCC and Historical DuPont became subsidiaries of DowDuPont (the “Merger”). Subsequent to the Merger, TDCC and Historical DuPont engaged in a series of internal reorganization and realignment steps to realign their businesses into three subgroups: agriculture, materials science and specialty products. Dow Inc. was formed as a wholly owned subsidiary of DowDuPont to serve as the holding company for the materials science business.

As of the effective date and time of the distribution, DowDuPont did not beneficially own any equity interest in Dow and no longer consolidated Dow and its consolidated subsidiaries into its financial results. The consolidated financial results of Dow for all periods presented reflect the distribution of TDCC’s agricultural sciences business (“AgCo”) and specialty products business (“SpecCo”) as discontinued operations, as well as reflect the receipt of Historical DuPont’s ethylene and ethylene copolymers businesses (other than its ethylene acrylic elastomers business) (“ECP”) as a common control transaction from the closing of the Merger on August 31, 2017 ("Merger Date"). See Note 3 to the Consolidated Financial Statements and Dow Inc.'s Amendment No. 4 to the Registration Statement on Form 10 filed with the U.S. Securities and Exchange Commission ("SEC") on March 8, 2019 for additional information.

Throughout this Annual Report on Form 10-K, unless otherwise indicated, amounts and activity are presented on a continuing operations basis.

Except as otherwise indicated by the context, the terms "Union Carbide" means Union Carbide Corporation, a wholly owned subsidiary of the Company, and "Dow Silicones" means Dow Silicones Corporation, a wholly owned subsidiary of the Company.

Items Affecting Comparability of Financial Results

As a result of the separation from DowDuPont, pro forma net sales and pro forma Operating EBIT for the years ended December 31, 2019 and 2018 are provided in this section and based on the consolidated financial statements of TDCC, adjusted to give effect to the separation from DowDuPont as if it had been consummated on January 1, 2017. Pro forma adjustments include (1) the margin impact of various manufacturing, supply and service related agreements entered into with DuPont and Corteva, Inc. ("Corteva") in connection with the separation which provide for different pricing than the historical intercompany and intracompany pricing practices of TDCC and Historical DuPont, and (2) the elimination of the impact of events directly attributable to the Merger, internal reorganization and business realignment, separation, distribution and other related transactions (e.g., one-time transaction costs). These adjustments impacted the consolidated results as well as the reportable segments. See Note 26 to the Consolidated Financial Statements for a summary of the pro forma adjustments impacting segment measures for the years ended December 31, 2019 and 2018.

STATEMENT ON COVID-19 AND OIL PRICE VOLATILITY

Overview of Dow's Response to COVID-19

The pandemic caused by coronavirus disease 2019 ("COVID-19") has impacted all geographic regions where Dow products are produced and sold. Financial markets were volatile towards the end of the first quarter and early in the second quarter of 2020, primarily due to uncertainty with respect to the severity and duration of the pandemic, coupled with fluctuations in crude oil prices due in part to the global spread of COVID-19. As the second quarter progressed, crude oil prices increased, driven by improved supply and demand fundamentals, which continued into the second half of 2020. Financial markets also continued a gradual and uneven recovery in the second half of 2020.

The global, regional and local spread of COVID-19 resulted in significant global mitigation measures, including government-directed quarantines, social distancing and shelter-in-place mandates, travel restrictions and/or bans, and restricted access to certain corporate facilities and manufacturing sites. Most of the Company's manufacturing facilities have been designated essential operations by local governments. As a result, nearly all of the Company's manufacturing sites and facilities continue to operate and are doing so safely, having implemented social distancing and enhanced health, safety and sanitization measures as directed by Dow's regional Crisis Management Teams ("CMTs"). The CMTs continue to work closely with site leadership and are adjusting alert levels as warranted on a site by site basis.

In the second quarter of 2020, the CMTs initiated implementation of the Company's comprehensive Return to Workplace ("RTW") plan that is tailored for each site and includes several health and safety measures to be followed in a gradual and phased approach. Employees in Europe, Middle East, Africa, and India ("EMEAI") and Asia Pacific returned to the workplace throughout the third quarter of 2020. In the fourth quarter of 2020, many EMEAI sites once again reduced on-site workforce in accordance with governmental regulations. A significant number of employees in the U.S. & Canada and Latin America continue to work remotely as the Company monitors the pandemic evolution, awaiting acceptable and safe levels to implement its RTW phases. If ongoing mitigation efforts are successful, sites in the U.S. & Canada expect to implement additional RTW phases in the first and second quarters of 2021 and Latin America anticipates RTW during the second quarter of 2021. At the time of this filing, approximately half of Dow's global workforce is working remotely. The Company continues to encourage its workforce to practice safe behaviors in the workplace and while away from work to help prevent community spread of COVID-19.

Dow's materials science expertise and production capabilities are used to develop some of the most vital hygiene and medical products and technologies to fight the COVID-19 pandemic, such as disinfectants, sanitizers, cleansers, plastics used in the production of disposable personal protective equipment for medical professionals, and memory foam for hospital beds. The Company has continued to look for ways to contribute time, talent and materials science expertise to help fight and combat the pandemic while creating some new opportunities for innovation and business. Dow's contributions to fight the COVID-19 pandemic included the following:

- The Company collaborated with nine key partners across a myriad of industries to develop and donate 100,000 isolation gowns to help equip frontline workers in Texas, Louisiana and Mexico.
- Dow, Whirlpool Corporation and Reynolds Consumer Products jointly developed a powered, air-purifying respirator which takes the place of a traditional medical face mask and face shield.
- Dow developed and shared an open source design for a simplified face shield and donated 100,000 face shields to hospitals in Michigan.
- Five Dow sites in the United States, Europe and Latin America produced more than 200 metric tons of hand sanitizer, equivalent to more than 880,000 eight-ounce bottles, which were primarily donated to local health systems and government agencies.
- The Company and The Dow Company Foundation committed $4 million to aid COVID-19 relief efforts, with donations going towards global relief organizations, as well as non-profits in communities where Dow operates.

During this public health crisis, the Company is focused on the health and safety of its employees, contractors, customers and suppliers around the world and maintaining the safe and reliable operations of its manufacturing sites. Although supply disruptions and related logistical issues have posed challenges across all modes of transportation, the Company's manufacturing sites have continued to operate during the COVID-19 pandemic, with no significant impact to manufacturing whether through shutdowns or shortages in labor, raw materials or personal protective equipment. Supply chain and logistical challenges are expected to stabilize in 2021. Contingency plans remain in place in the event of significant impacts from COVID-19 infection resurgences.

The Company continues to maintain a strong financial position and build further liquidity in the midst of the economic recession triggered by the COVID-19 pandemic. The Company started 2020 with significant committed liquidity facilities. As markets became more volatile and uncertain during the first quarter of 2020, the Company took proactive measures to further bolster liquidity by drawing down certain uncommitted credit facilities, which were subsequently repaid in the second quarter of 2020, and partially monetizing investments in company-owned life insurance policies, which were fully repaid in the fourth quarter of 2020. At December 31, 2020, the Company had cash and committed and available forms of liquidity of $14.6 billion. The Company also has no substantive long-term debt maturities until the second half of 2024.

The Company took proactive actions to electively focus on cash and maintain financial strength with a continued emphasis on safe, reliable operations and disciplined capital allocation. These actions included:

- Further reduced the 2020 capital expenditures to $1.25 billion.
- Decreased operating expenses by $500 million through structural cost improvements.
- Unlocked nearly $500 million in structural improvements in working capital.
- Temporarily suspended share repurchases.
- Delayed planned maintenance turnaround spending, where appropriate, without compromising safety or the ability to serve customer needs.
- Temporarily idled select manufacturing facilities to balance production to demand across markets more severely affected by restrained economic activity. This included the idling of three polyethylene production units and two elastomers units; running Dow's polyurethanes assets, including propylene oxide and methylene diphenyl diisocyanate, at reduced operating rates; reducing siloxanes operating rates globally and extending a planned maintenance turnaround at a silicones production unit in Zhangjiagang, China. All of these assets returned to more normalized operating rates in the third quarter of 2020.
- Implementing a restructuring program ("2020 Restructuring Program"), which was approved by the Board of Directors ("Board") of Dow Inc. on September 29, 2020, targeting more than $300 million in annualized Operating EBITDA[1] benefit by the end of 2021. This program includes a 6 percent reduction in Dow's global workforce costs as well as actions to rationalize the Company's manufacturing assets, including asset write-down and write-off charges, related contract termination fees and environmental remediation costs. See Note 6 to the Consolidated Financial Statements for additional information.

Review of 2020 Financial Impacts from COVID-19

Net sales were $38.5 billion in 2020, down 10 percent from net sales of $43.0 billion in 2019, as the COVID-19 pandemic disrupted the global economy and supply and demand fundamentals. The most significant impacts from the pandemic occurred in the first half of the year, with a gradual yet uneven recovery taking hold as the second half of the year progressed.

In the first six months of 2020, the Company's sales declined 18 percent compared with the same period last year, with the most significant impact on demand in the second quarter of 2020. Strong demand in food packaging, health and hygiene, home care and pharma end-markets was more than offset by volume declines for products used in consumer durable good end-markets, including construction, furniture and bedding and automotive, with the most notable impacts in the Industrial Intermediates & Infrastructure and Performance Materials & Coatings operating segments. Demand for products used in consumer durable goods remained lower through the second quarter largely due to the delayed restart in these industries from May to June.

1. Operating EBITDA is a non-GAAP measure. Dow defines Operating EBITDA as earnings (i.e., "Income (loss) from continuing operations before income taxes") before interest, depreciation and amortization, excluding the impact of significant items.

Local price declined in the first and second quarters of 2020, largely impacted by lower global energy prices. In March and April 2020, crude oil prices declined significantly, due in part to the COVID-19 pandemic, coupled with increased supply from oil producers. Crude oil prices increased in the latter half of the second quarter as supply and demand fundamentals improved, driving higher feedstock costs, which proved beneficial to product prices and margins in the third and fourth quarters of 2020.

In the third quarter of 2020, net sales increased 16 percent compared with the second quarter of 2020, due to increasing demand and higher local prices. Sales increased sequentially in all operating segments and geographic regions, reflecting improved demand trends in furniture and bedding, appliances, packaging, construction and automotive end-markets. Local price also increased sequentially, reflecting higher global energy prices and improved supply and demand fundamentals, with increases in all geographic regions. Local price increases were reported in Packaging & Specialty Plastics and Industrial Intermediates & Infrastructure, which more than offset declines in Performance Materials & Coatings. Operating rates increased from second quarter lows, as the Company raised rates to match demand trends as the global economic recovery gained traction. The Company's deliberate focus on structural cost reductions and prudent cash management resulted in sequentially higher margins and cash flow in the third quarter of 2020.

Net sales in the fourth quarter of 2020 increased 10 percent sequentially, with continued demand recovery as the global economy continued to strengthen. Sales increased sequentially in all operating segments and geographic regions, reflecting strong supply and demand fundamentals which drove both price and volume gains. Local price increased in all segments and all geographic regions. Volume increased in all geographic regions and in Packaging & Specialty Plastics and Industrial Intermediates & Infrastructure, reflecting consumer-driven demand and industrial market recovery. Volume declined in Performance Materials & Coatings, primarily due to seasonal demand declines for coating applications. Operating rates continued to increase in the fourth quarter of 2020 and margins expanded.

Notably, net sales in the fourth quarter of 2020 increased 5 percent compared with the fourth quarter of 2019, with increases in local price and volume. Local price increased 2 percent compared with the same quarter last year, primarily driven by improved pricing in polyethylene and polyurethane applications. Volume returned to pre-pandemic levels in all operating segments and was led by demand growth in Packaging & Specialty Plastics and Performance Materials & Coatings.

The Company enters 2021 with sequential momentum and is well-positioned for continued profitable growth in the ongoing economic recovery and improving industry cycle. The Company will maintain its disciplined focus on capital allocation priorities as it benefits from an improving cost structure, financial flexibility and a low-cost operating model. As the market recovery broadens, Dow anticipates increasing margins as differentiated parts of the portfolio see improving demand. Longer-term, the Company expects to deliver ongoing significant value through increased innovation, operational efficiencies and a leading environmental, social, and governance profile that will further distinguish Dow from its peers.

At the time of this filing, the ultimate severity and duration of the COVID-19 pandemic cannot be reasonably estimated. The COVID-19 pandemic has had, and could continue to have, a substantial negative impact on the Company’s results of operations, financial condition and cash flows. The effects of the COVID-19 pandemic for the year ended December 31, 2020 and the additional risks associated with these conditions are more fully discussed in this report in Part I, Item 1A, Risk Factors. The Company is actively monitoring for potential financial impacts from the COVID-19 pandemic and oil price volatility, including, but not limited to: gauging the financial health of its customers; assessing liquidity; evaluating the recoverability of its assets; enhancing cyber security monitoring; and evaluating ongoing appropriateness of its estimates.

The Coronavirus Aid, Relief, and Economic Security Act (“CARES Act”) was enacted on March 27, 2020 in the United States. While there have been no significant impacts to the Company's provision for income taxes on continuing operations in 2020 as a result of the CARES Act legislation, the Company filed a tax loss carryback claim for $291 million in accordance with the provisions of the CARES Act.

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ABOUT DOW

Dow combines global breadth, asset integration and scale, focused innovation and leading business positions to achieve profitable growth. The Company's ambition is to become the most innovative, customer centric, inclusive and sustainable materials science company, with a purpose to deliver a sustainable future for the world through our materials science expertise and collaboration with our partners. Dow's portfolio of plastics, industrial intermediates, coatings and silicones businesses delivers a broad range of differentiated science-based products and solutions for its customers in high-growth market segments, such as packaging, infrastructure, mobility and consumer care. Dow operates 106 manufacturing sites in 31 countries and employs approximately 35,700 people.

In 2020, the Company had annual sales of $38.5 billion, of which 35 percent of the Company's sales were to customers in the U.S. & Canada; 34 percent were in EMEAI; while the remaining 31 percent were to customers in Asia Pacific and Latin America.

In 2020, the Company and its consolidated subsidiaries did not operate in countries subject to U.S. economic sanctions and export controls as imposed by the U.S. State Department or in countries designated by the U.S. State Department as state sponsors of terrorism, including Iran, the Democratic People's Republic of Korea (North Korea), Sudan and Syria. The Company has policies and procedures in place designed to ensure that it and its consolidated subsidiaries remain in compliance with applicable U.S. laws and regulations.

OVERVIEW

The following is a summary of the results from continuing operations for the Company for the year ended December 31, 2020:

The Company reported net sales in 2020 of $38.5 billion, down 10 percent from $43.0 billion in 2019, with declines across all geographic regions and operating segments, reflecting the impact of the COVID-19 pandemic on economies and supply and demand fundamentals, most notably in the first half of the year. These declines were due to a decrease in local price of 7 percent and a volume decline of 3 percent. Currency was flat.

Local price decreased 7 percent compared with the same period last year, with decreases in all operating segments, including a double-digit decline in Packaging & Specialty Plastics (down 11 percent). Local price decreased in all geographic regions, including a double-digit decline in EMEAI (down 12 percent).

Volume decreased 3 percent compared with 2019. Industrial Intermediates & Infrastructure and Performance Materials & Coatings reported volume declines (both down 6 percent) while Packaging & Specialty Plastics volume increased 1 percent. Volume decreased in the U.S. & Canada (down 8 percent), partially offset by an increase in EMEAI (up 1 percent). Volume was flat in Asia Pacific and Latin America.

Restructuring and asset related charges - net were $708 million in 2020, primarily reflecting actions taken under the 2020 Restructuring Program.

Integration and separation costs for Dow Inc. and TDCC were $239 million in 2020, down from $1,063 million and $1,039 million, respectively, in 2019, reflecting the wind-down of post-Merger integration and business separation activities. Integration and separation activities were completed as of December 31, 2020.

Equity in earnings (losses) of nonconsolidated affiliates was a loss of $18 million in 2020, compared with a loss of $94 million in 2019. Equity in earnings (losses) of nonconsolidated affiliates improved primarily due to lower equity losses from Sadara Chemical Company ("Sadara") which were partially offset by lower equity earnings from the Kuwait joint ventures.

Sundry income (expense) - net for Dow Inc. and TDCC was income of $1,269 million and income of $1,274 million, respectively, in 2020 compared with income of $461 million and income of $573 million, respectively, in 2019. Sundry income (expense) - net increased primarily due to gains on the sale of certain rail and marine and terminal operations and assets and gains related to a legal matter, which were partially offset by losses on the early extinguishment of debt.

Net income (loss) available for Dow Inc. and TDCC common stockholder(s) was income of $1,225 million and $1,235 million, respectively, in 2020, compared with a loss of $1,359 million and $1,237 million, respectively, in 2019. Earnings (loss) per share for Dow Inc. was earnings of $1.64 per share in 2020, compared with a loss of $1.84 per share in 2019.

In 2020, Dow Inc. declared and paid dividends to common stockholders of $2.80 per share ($2,071 million).

In 2020, Dow Inc. repurchased $125 million of the Company's common stock.

Other notable events and highlights from the year ended December 31, 2020 include:

- Dow was named by the Human Rights Campaign ("HRC") Foundation to its 2020 list of “Best Places to Work” for LGBTQ+ equality. This marks the Company’s 15th consecutive year receiving a perfect score on HRC’s Corporate Equality Index, a national benchmarking tool on corporate policies and practices pertinent to LGBTQ+ employees.
- Dow received two *2020 BIG Innovation Awards* from the Business Intelligence Group for DOWSIL™ TC-3015 Reworkable Thermal Gel and ECOFAST™ Pure Sustainable Textile Treatment.
- In February 2020, TDCC announced the completion of a public offering of €2.25 billion aggregate principal amount of its notes.
- In the first quarter of 2020, TDCC redeemed $1.25 billion of its 3.0 percent notes due November 15, 2022.
- In March 2020, Dow announced a commitment of $3 million to aid COVID-19 relief efforts worldwide. This included $2 million for immediate support of impacts caused by COVID-19, including donations to the COVID-19 Solidarity Fund, Direct Relief, and local and regional nonprofit organizations in Dow communities around the globe and $1 million to build community resilience in the recovery phase.
- In response to global needs related to COVID-19, in March 2020, the Company announced plans to produce hand sanitizer at five of its manufacturing sites around the world: Auburn, Michigan; South Charleston, West Virginia; Seneffe, Belgium; Hortolandia, Brazil and Stade, Germany. A majority of the hand sanitizer produced was donated to health systems and government agencies for distribution.
- In April 2020, Dow announced the Company had developed a simplified face shield design and shared the design through an open-source file to help accelerate production rates of the critically-needed personal protective equipment.
- Effective April 9, 2020, following the Company's Annual Meeting of Stockholders ("2020 Meeting") Dow Inc.'s Board elected Jim Fitterling, Dow’s Chief Executive Officer, as Chairman. In connection with that election, the Board elected Jeff M. Fettig to serve as Lead Director until the 2021 Annual Meeting of Stockholders or until a successor is duly elected and qualified. The Company also announced that Jill S. Wyant, currently Executive Vice President of Innovation and Transformation at Ecolab, Inc., was elected to the Board at the 2020 Meeting and Ruth G. Shaw retired from the Board following the 2020 Meeting after 15 years of exemplary leadership, in accordance with director tenure requirements of the Company's Corporate Governance Guidelines.
- Effective April 9, 2020, following the 2020 Meeting, Dow Inc.'s Board designated Dow's business presidents Jack Broodo, Diego Donoso, Mauro Gregorio and Jane Palmieri, as Executive Officers of the Company.

- On April 30, 2020, the Company announced the temporary idling or operating rate reductions of select manufacturing assets to balance production with demand across markets more severely affected by restrained economic activity. These assets returned to more normalized operating rates in the third quarter of 2020.
- Dow published its 2019 Shine Inclusion Report, providing progress on the Company's inclusion and diversity strategy, goals and performance.
- Dow was named to the 2020 DiversityInc Top 50 Companies for Diversity list for the third consecutive year. Dow was also included on four of DiversityInc's Specialty Lists including: Top Companies for Employee Resource Groups, Top Companies for Supplier Diversity, Top Companies for People with Disabilities, and Top Companies for LGBT Employees.
- In May 2020, the Company’s global headquarters community of Midland, Michigan, experienced widespread devastation caused by heavy rain and two dam failures, which led to extensive flooding and damage to homes and businesses in the area. The Company’s manufacturing facilities were not significantly impacted by the flooding. In response to this natural disaster, Dow pledged $1 million in financial support for immediate relief and long-term recovery efforts associated with the impact of the flooding and its aftermath.
- In June 2020, the Company launched Dow ACTs (Advocacy, Community and Talent), a strategic framework that outlined a new set of actions Dow is taking to address systemic racism and racial injustice. In addition, Dow pledged $5 million over the next five years to help advance racial equality and social justice.
- In June 2020, Dow published its annual Sustainability Report and announced new sustainability targets, which align to and build upon its 2025 Sustainability Goals, including targets to Protect the Climate, Stop the Waste and Close the Loop. By 2030, Dow expects to reduce its net annual carbon emissions by five million metric tons, or 15 percent from its 2020 baseline. Additionally, Dow intends to be carbon neutral by 2050, in alignment with the Paris Agreement. By 2030, Dow plans to help stop the waste by enabling one million metric tons of plastic to be collected, reused or recycled through its direct actions and partnerships. By 2035, Dow will help close the loop with a target to have 100 percent of its products sold into packaging applications be reusable or recyclable.
- Dow was named to the 2020 *Disability Equality Index® "Best Places to Work,"* by receiving the top score for the fourth year in a row.
- In July 2020, Dow launched its MobilityScience™ platform, designed to enhance the customer experience by tailoring technologies, products, and services from across Dow businesses to the transportation industry. The platform is pursuing accelerated growth by addressing mobility mega-trends with materials science innovation, and enabling a seamless experience for Dow’s customers and partners.
- On August 13, 2020, Gaurdie Banister Jr., former President and CEO of Aera Energy LLC, an oil and gas exploration and production company jointly owned by Shell Oil Company and ExxonMobil Corporation, was elected to Dow Inc.'s Board.
- In August 2020, TDCC announced the completion of a public offering of $2.0 billion aggregate principal amount of its notes.
- Dow Silicones voluntarily repaid the full $2.0 billion outstanding principal balance under a certain third party credit agreement.
- In September 2020, TDCC and Union Carbide completed cash tender offers for certain debt securities. A total of $493 million aggregate principal amount was tendered and retired.
- Dow was named as one of the 2020 *PEOPLE's "50 Companies that Care"* by *Great Place to Work®* and *PEOPLE.*
- Dow received four *2020 Sustainability Awards* from the Business Intelligence Group, including the Sustainability Initiative of the Year Award for Dow's Carbon Partnership with International Olympic Committee as well as the Sustainability Products of the Year Award for ECOFAST™ Pure Sustainable Textile Treatment and SunSpheres™ BIO SPF Booster.
- On September 15, 2020, the Company announced that John Sampson will rejoin Dow as Senior Vice President, Operations, Manufacturing and Engineering, succeeding Peter Holicki, who will retire in 2021 after more than 34 years of service with Dow.
- On September 30, 2020, TDCC completed the sale of rail infrastructure operations and assets at six sites in the U.S. & Canada for gross cash proceeds in excess of $310 million.

- Dow was named to the *Forbes JUST 100* list, recognizing the Company's commitment to serve all stakeholders. Dow was the top scoring chemical company in the workers category.
- In October 2020, Dow launched its first digital waste management platform, Rethink+. Rethink+ is a plastics take-back program that aims to prevent post-consumer plastic waste from going to landfills by digitally connecting waste generators, waste aggregators, waste processors and recyclers.
- Dow received five *R&D 100 Awards* from *R&D Magazine* for innovative technologies including: DOWSIL™ EC-6601 Electrically Conductive Adhesive, DOWSIL™ EI-2888 Primerless Silicone Encapsulant, ENGAGE™ 11000 Polyolefin Elastomers, NEOSEED® NE-8800 Emulsion, and RHOBARR™ 320 Polyolefin Dispersion for Paper and Board.
- Dow received the *2020 National Safety Council Green Cross for Safety® Innovation Award* for its Aerial Lift Safety Project.
- Dow was named to the Dow Jones Sustainability World Index - marking the 21st time the Company has been named to this global benchmark.
- On December 1, 2020, TDCC completed the sale of certain U.S. Gulf Coast marine and terminal operations and assets for gross cash proceeds of $620 million.
- In December 2020, Dow Inc.'s Board designated John Sampson as an Executive Officer of the Company, effective January 1, 2021.

In addition to the highlights above, the following events occurred subsequent to December 31, 2020:

- On January 28, 2021, Dow announced plans to further advance and expand its digitalization efforts to deliver long-term value creation, by accelerating investment in three key areas ("Digital Acceleration"): expanding digital tools to accelerate materials science innovation; further enhancing the e-commerce buying and fulfillment experience for Dow's customers; and adopting real-time digital manufacturing insights, operational data intelligence and demand sensing to enhance the productivity and reliability of Dow's operations. The Company expects more than $300 million in incremental annual run rate Operating EBITDA generation by the end of 2025 related to Digital Acceleration, with an additional one-time $100 million in structural working capital efficiency gains, driven in part by enhanced planning from digital tools. The activities related to Digital Acceleration are expected to result in additional cash expenditures of approximately $400 million, primarily through the end of 2022.

RESULTS OF OPERATIONS

Net Sales

The following tables summarize net sales, pro forma net sales and sales variance by operating segment and geographic region from the prior year:

Summary of Sales Results In millions	*2020*	*2019*	*2018*
Net sales	$ 38,542	$ 42,951	$ 49,604
Pro forma net sales		$ 42,998	$ 49,852

Sales Variances by Operating Segment and Geographic Region - As Reported										
	2020					2019				
Percentage change from prior year	Local Price & Product Mix	Currency	Volume	Portfolio & Other [1]	Total	Local Price & Product Mix	Currency	Volume	Portfolio & Other [1]	Total
Packaging & Specialty Plastics	(11) %	— %	1 %	— %	(10)%	(12) %	(1) %	(3) %	— %	(16)%
Industrial Intermediates & Infrastructure	(5)	—	(6)	—	(11)	(12)	(1)	—	—	(13)
Performance Materials & Coatings	(6)	—	(6)	1	(11)	(6)	(2)	(3)	3	(8)
Total	(7) %	— %	(3) %	— %	(10)%	(11) %	(1) %	(2) %	1 %	(13)%
Total, excluding the Hydrocarbons & Energy business	(5) %	— %	(4) %	— %	(9)%	(11) %	(2) %	1 %	1 %	(11)%
U.S. & Canada	(5) %	— %	(8) %	— %	(13)%	(11) %	— %	(3) %	1 %	(13)%
EMEAI	(12)	—	1	—	(11)	(9)	(3)	(4)	—	(16)
Asia Pacific	(6)	—	—	—	(6)	(12)	(1)	5	—	(8)
Latin America	(7)	—	—	—	(7)	(14)	—	(3)	—	(17)
Total	(7) %	— %	(3) %	— %	(10)%	(11) %	(1) %	(2) %	1 %	(13)%

1. Portfolio & Other includes the sales impact of various manufacturing, supply and service related agreements entered into with DuPont and Corteva in connection with the separation, which provide for different pricing than the historical intercompany and intracompany pricing practices of TDCC and Historical DuPont.

Sales Variances by Operating Segment and Geographic Region - As Reported	2018				
Percentage change from prior year	Local Price & Product Mix	Currency	Volume	Portfolio & Other [1]	Total
Packaging & Specialty Plastics	1 %	2 %	5 %	5 %	13 %
Industrial Intermediates & Infrastructure	5	1	13	—	19
Performance Materials & Coatings	10	1	(2)	—	9
Total	4 %	1 %	6 %	2 %	13 %
Total, excluding the Hydrocarbons & Energy business	4 %	1 %	7 %	2 %	14 %
U.S. & Canada	4 %	— %	2 %	2 %	8 %
EMEAI	5	3	4	2	14
Asia Pacific	2	1	19	3	25
Latin America	5	—	4	2	11
Total	4 %	1 %	6 %	2 %	13 %

1. Portfolio & Other includes the sales impact of various manufacturing, supply and service related agreements entered into with DuPont and Corteva in connection with the separation, which provide for different pricing than the historical intercompany and intracompany pricing practices of TDCC and Historical DuPont.

2020 Versus 2019

The Company reported net sales of $38.5 billion in 2020, down 10 percent from $43.0 billion in 2019, with local price down 7 percent and volume down 3 percent. Net sales decreased in all geographic regions and operating segments, reflecting impacts from the global COVID-19 pandemic on economies and supply and demand fundamentals, most notably in the first half of the year. Local price decreased in all operating segments and in all geographic regions, primarily in response to lower global energy prices. Local price decreased in Packaging & Specialty Plastics (down 11 percent), Industrial Intermediates & Infrastructure (down 5 percent) and Performance Materials & Coatings (down 6 percent). Volume declined 3 percent, driven by the U.S. & Canada (down 8 percent), which was partially offset by demand growth in EMEAI (up 1 percent). Volume was flat in Asia Pacific and Latin America. Volume increased in Packaging & Specialty Plastics (up 1 percent) and decreased in Industrial Intermediates & Infrastructure and Performance Materials & Coatings (both down 6 percent). Excluding the Hydrocarbons & Energy business, sales declined 9 percent.

2019 Versus 2018

The Company reported net sales of $43.0 billion in 2019, down 13 percent from $49.6 billion in 2018, driven by a decrease in local price, decreased volume and the unfavorable impact of currency. Sales declines were broad-based and occurred in all segments and geographic regions. Local price decreased 11 percent, primarily in response to lower feedstock and raw material costs and pricing pressures. Local price decreased in Packaging & Specialty Plastics and Industrial Intermediates & Infrastructure (both down 12 percent) and in Performance Materials & Coatings (down 6 percent). Local price decreased in all geographic regions. Volume decreased 2 percent with declines in all geographic regions except Asia Pacific (up 5 percent). Volume declines were primarily driven by lower hydrocarbon co-product sales. Volume decreased in Packaging & Specialty Plastics and Performance Materials & Coatings (both down 3 percent), while Industrial Intermediates & Infrastructure volume was flat. Currency unfavorably impacted net sales by 1 percent compared with the prior year, driven primarily by EMEAI (down 3 percent). Portfolio & Other improved sales by 1 percent. Excluding the Hydrocarbons & Energy business, sales declined 11 percent.

Sales Variances by Operating Segment and Geographic Region - Pro Forma Basis

	2020 [1]				*2019*			
Percentage change from prior year	*Local Price & Product Mix*	*Currency*	*Volume*	*Total*	*Local Price & Product Mix*	*Currency*	*Volume*	*Total*
Packaging & Specialty Plastics	(11) %	— %	1 %	(10)%	(12) %	(1) %	(3) %	(16)%
Industrial Intermediates & Infrastructure	(5)	—	(6)	(11)	(12)	(2)	1	(13)
Performance Materials & Coatings	(6)	—	(5)	(11)	(6)	(2)	(1)	(9)
Total	(7) %	— %	(3) %	(10)%	(11) %	(1) %	(2) %	(14)%
Total, excluding the Hydrocarbons & Energy business	(5) %	— %	(4) %	(9)%	(10) %	(2) %	1 %	(11)%
U.S. & Canada	(5) %	— %	(8) %	(13)%	(11) %	— %	(2) %	(13)%
EMEAI	(12)	—	1	(11)	(9)	(3)	(4)	(16)
Asia Pacific	(6)	—	—	(6)	(12)	(1)	5	(8)
Latin America	(7)	—	—	(7)	(15)	—	(3)	(18)
Total	(7) %	— %	(3) %	(10)%	(11) %	(1) %	(2) %	(14)%

1. As reported net sales for the year ended December 31, 2020 compared with pro forma net sales for the year ended December 31, 2019.

Sales Variances by Operating Segment and Geographic Region - Pro Forma Basis

	2018				
Percentage change from prior year	*Local Price & Product Mix*	*Currency*	*Volume*	*Portfolio & Other* [1]	*Total*
Packaging & Specialty Plastics	1 %	1 %	5 %	— %	7 %
Industrial Intermediates & Infrastructure	5	1	13	—	19
Performance Materials & Coatings	10	1	(2)	2	11
Total	4 %	1 %	6 %	— %	11 %
Total, excluding the Hydrocarbons & Energy business	4 %	1 %	7 %	— %	12 %
U.S. & Canada	3 %	— %	2 %	1 %	6 %
EMEAI	5	3	4	—	12
Asia Pacific	3	1	18	—	22
Latin America	5	—	4	—	9
Total	4 %	1 %	6 %	— %	11 %

1. Portfolio & Other includes the sales impact of various manufacturing, supply and service related agreements entered into with DuPont and Corteva in connection with the separation, which provide for different pricing than the historical intercompany and intracompany pricing practices of TDCC and Historical DuPont.

2020 Versus 2019 - Pro Forma
The Company reported net sales of $38.5 billion for 2020, down 10 percent from pro forma net sales of $43.0 billion in 2019, with local price down 7 percent and volume down 3 percent. Net sales decreased in all geographic regions and operating segments, reflecting impacts from the global COVID-19 pandemic on economies and supply and demand fundamentals, most notably in the first half of the year. Local price decreased in all operating segments and in all geographic regions, primarily in response to lower global energy prices. Local price decreased in Packaging & Specialty Plastics (down 11 percent), Industrial Intermediates & Infrastructure (down 5 percent) and Performance Materials & Coatings (down 6 percent). Volume declined 3 percent, driven by the U.S. & Canada (down 8 percent), which was partially offset by an increase in EMEAI (up 1 percent). Volume was flat in Asia Pacific and Latin America. Volume increased in Packaging & Specialty Plastics (up 1 percent) and decreased in Industrial Intermediates & Infrastructure (down 6 percent) and Performance Materials & Coatings (down 5 percent). Excluding the Hydrocarbons & Energy business, sales declined 9 percent.

2019 Versus 2018 - Pro Forma
The Company reported pro forma net sales for 2019 of $43.0 billion, down 14 percent from $49.9 billion for 2018, primarily driven by a decrease in local price, decreased volume and the unfavorable impact of currency. Sales declines were broad-based and occurred in all segments and geographic regions. Local price decreased 11 percent, primarily in response to lower feedstock and raw material costs and pricing pressures. Local price decreased in Packaging & Specialty Plastics and Industrial Intermediates & Infrastructure (both down 12 percent) and in Performance Materials & Coatings (down 6 percent). Local price decreased in all geographic regions. Volume decreased 2 percent with declines in all geographic regions, except Asia Pacific (up 5 percent). Volume decreased in Packaging & Specialty Plastics (down 3 percent) and Performance Materials & Coatings (down 1 percent) and increased in Industrial Intermediates & Infrastructure (up 1 percent). Currency unfavorably impacted net sales by 1 percent compared with the prior year, driven primarily by EMEAI (down 3 percent). Excluding the Hydrocarbons & Energy business, sales declined 11 percent.

Cost of Sales
Cost of sales ("COS") was $33.3 billion in 2020, down $3.4 billion compared with $36.7 billion in 2019. COS decreased in 2020 primarily due to lower feedstock and other raw material costs, decreased sales volume and lower planned maintenance turnaround costs, which were partially offset by higher performance-based compensation costs. Operating rates declined significantly in the second quarter of 2020, as the Company temporarily idled certain manufacturing facilities and selectively adjusted operating rates at other facilities to balance production to demand in response to the COVID-19 pandemic. These facilities returned to more normalized operating rates in the third quarter of 2020. Overall, operating rates increased in the third and fourth quarters of 2020. In 2019, COS also included $75 million of transaction-related costs resulting from the separation from DowDuPont (related to Corporate) and $399 million of environmental charges related to Packaging & Specialty Plastics ($5 million), Industrial Intermediates & Infrastructure ($8 million), Performance Materials & Coatings ($50 million) and Corporate ($336 million). COS as a percentage of sales was 86.5 percent in 2020 compared with 85.3 percent in 2019.

COS was $36.7 billion in 2019, down $4.4 billion from $41.1 billion in 2018. COS decreased in 2019 primarily due to lower feedstock and other raw material costs, decreased sales volume, cost synergies, stranded cost removal and a favorable adjustment to the warranty accrual of an exited business, which were partially offset by $75 million of transaction-related costs resulting from the separation from DowDuPont (related to Corporate) and $399 million of environmental charges related to Packaging & Specialty Plastics ($5 million), Industrial Intermediates & Infrastructure ($8 million), Performance Materials & Coatings ($50 million) and Corporate ($336 million). COS as a percentage of sales was 85.3 percent in 2019 compared with 82.8 percent in 2018.

Research and Development Expenses
R&D expenses were $768 million in 2020, compared with $765 million in 2019 and $800 million in 2018. R&D expenses in 2020 increased compared with 2019 primarily due to higher performance-based compensation costs which were partially offset by cost reductions. R&D expenses in 2019 decreased compared with 2018 primarily due to cost reductions and lower performance-based compensation costs.

Selling, General and Administrative Expenses
Selling, general and administrative ("SG&A") expenses were $1,471 million in 2020, compared with $1,590 million and $1,585 million for Dow Inc. and TDCC, respectively, in 2019 and $1,782 million in 2018. SG&A expenses in 2020 decreased primarily due to cost reductions which were partially offset by higher performance-based compensation costs. SG&A was also favorably impacted by the recovery of legal costs related to the Nova

Chemicals Corporation ("Nova") ethylene asset matter and the reversal of a bad debt reserve related to an arbitration judgment. SG&A expenses in 2019 decreased compared with 2018 primarily due to cost reductions, cost synergies, stranded cost removal and lower performance-based compensation costs. SG&A expenses were favorably impacted by a recovery of a portion of legal costs related to the Nova litigation matter in the third quarter of 2019. See Note 16 to the Consolidated Financial Statements for additional information on the Nova litigation matters.

Amortization of Intangibles
Amortization of intangibles was $401 million in 2020, compared with $419 million in 2019 and $469 million in 2018. Amortization of intangibles decreased primarily due to certain intangible assets becoming fully amortized. See Note 13 to the Consolidated Financial Statements for additional information on intangible assets.

Restructuring, Goodwill Impairment and Asset Related Charges - Net
Restructuring, goodwill impairment and asset related charges - net were $708 million in 2020, $3,219 million in 2019 and $221 million in 2018.

2020 Restructuring Program
On September 29, 2020, Dow Inc.'s Board approved restructuring actions to achieve the Company's structural cost improvement initiatives in response to the continued economic impact from the COVID-19 pandemic. The restructuring program is designed to reduce structural costs and enable the Company to further enhance competitiveness while the COVID-19 economic recovery gains traction. These actions are expected to be substantially complete by the end of 2021.

As a result of these actions, in 2020 the Company recorded pretax restructuring charges of $573 million, consisting of severance and related benefit costs of $297 million, asset write-downs and write-offs of $196 million and costs associated with exit and disposal activities of $80 million. The restructuring charges by segment were as follows: $11 million in Packaging & Specialty Plastics, $22 million in Industrial Intermediates & Infrastructure, $177 million in Performance Materials & Coatings and $363 million in Corporate.

DowDuPont Cost Synergy Program
In September and November 2017, DowDuPont approved post-Merger restructuring actions under the DowDuPont Cost Synergy Program (the "Synergy Program") which was designed to integrate and optimize the organization following the Merger and in preparation for the business separations. The restructuring charges below reflect charges from continuing operations.

As a result of the Synergy Program, the Company recorded pretax restructuring charges of $184 million in 2018, consisting of severance and related benefit costs of $137 million, asset write-downs and write-offs of $33 million and costs associated with exit and disposal activities of $14 million. The restructuring charges by segment were as follows: $13 million in Packaging & Specialty Plastics, $11 million in Industrial Intermediates & Infrastructure, $7 million in Performance Materials & Coatings and $153 million in Corporate.

In 2019, the Company recorded pretax restructuring charges of $292 million, consisting of severance and related benefit costs of $123 million, asset write-downs and write-offs of $143 million and costs associated with exit and disposal activities of $26 million. The restructuring charges by segment were as follows: $1 million in Packaging & Specialty Plastics, $7 million in Industrial Intermediates & Infrastructure, $28 million in Performance Materials & Coatings and $256 million in Corporate.

In 2020, the Company recorded pretax restructuring charges of $86 million for severance and related benefit costs, related to Corporate. Cash expenditures related to the Synergy Program were substantially completed at the end of 2020.

2019 Goodwill Impairment
Upon completion of the goodwill impairment testing in the fourth quarter of 2019, the Company determined the fair value of the Coatings & Performance Monomers reporting unit was lower than its carrying amount. As a result, the Company recorded an impairment charge of $1,039 million in the fourth quarter of 2019 related to Performance Materials & Coatings.

Asset Related Charges
2020 Charges
In 2020, the Company recognized pretax impairment charges of $49 million, including additional pretax impairment charges for capital additions made to a bio-ethanol manufacturing facility in Santa Vitoria, Minas Gerais, Brazil ("Santa Vitoria"), which was impaired in 2017 and divested in 2020, as well as charges for miscellaneous write-offs and write-downs of non-manufacturing assets and the write-down of certain corporate leased equipment. The impairment charges were included in “Restructuring, goodwill impairment and asset related charges - net” in the consolidated statements of income and related to Packaging & Specialty Plastics ($19 million), Performance Materials & Coatings ($15 million) and Corporate ($15 million). See Note 23 for additional information.

2019 Charges
On August 13, 2019, the Company entered into a definitive agreement to sell its acetone derivatives business to ALTIVIA Ketones & Additives, LLC. The transaction closed on November 1, 2019 and included the Company's acetone derivatives related inventory and production assets, located in Institute, West Virginia, in addition to the site infrastructure, land, utilities and certain railcars. The Company remains at the Institute site as a tenant. As a result of the divestiture, the Company recognized a pretax impairment charge of $75 million in the third quarter of 2019. The impairment charge by segment was as follows: $24 million in Packaging & Specialty Plastics and $51 million in Corporate.

In the fourth quarter of 2019, the Company concluded that its equity method investment in Sadara was other-than-temporarily impaired. The Company also reserved certain accounts and notes receivable and accrued interest balances due to uncertainty on the timing of collection. As a result, the Company recorded a $1,755 million pretax charge related to Sadara. The charge by segment was as follows: $370 million in Packaging & Specialty Plastics, $1,168 million in Industrial Intermediates & Infrastructure and $217 million in Corporate.

In 2019, the Company recognized additional pretax impairment charges of $58 million related primarily to capital additions at its Santa Vitoria manufacturing facility, which was impaired in 2017. The impairment charges by segment were as follows: $44 million in Packaging & Specialty Plastics, $9 million in Performance Materials & Coatings and $5 million in Corporate.

2018 Charges
In 2018, the Company recognized additional pretax impairment charges of $34 million related primarily to capital additions at its Santa Vitoria manufacturing facility. The impairment charge was related to Packaging & Specialty Plastics.

See Note 6 to the Consolidated Financial Statements for additional information on restructuring, goodwill impairment and asset related charges.

Integration and Separation Costs
Integration and separation costs, which reflect costs related to post-Merger integration and business separation activities (through December 31, 2020) and the ownership restructure of Dow Silicones (through May 31, 2018), were $239 million in 2020, $1,063 million and $1,039 million for Dow Inc. and TDCC, respectively, in 2019 and $1,179 million in 2018. In 2018 and 2019, integration and separation costs were higher as a result of post-Merger integration and business separation activities. Integration and business separation activities were completed as of December 31, 2020. Integration and separation costs are related to Corporate.

Equity in Earnings (Losses) of Nonconsolidated Affiliates
The Company’s share of equity in earnings (losses) of nonconsolidated affiliates in 2020 was a loss of $18 million, compared with a loss of $94 million in 2019 and earnings of $555 million in 2018. In 2020, equity losses decreased primarily due to lower equity losses from Sadara, driven by improved industry supply and demand fundamentals in the third and fourth quarters of 2020, which were partially offset by lower equity earnings from the Kuwait joint ventures due to lower monoethylene glycol prices. The Company had equity losses in 2019 compared with equity earnings in 2018 primarily due to lower equity earnings from the Kuwait joint ventures due to lower monoethylene glycol and polyethylene prices and the Thai joint ventures and increased equity losses from Sadara. See Note 12 to the Consolidated Financial Statements for additional information on the Company’s evaluation of its equity method investment in Sadara for other-than-temporary impairment in 2019.

Sundry Income (Expense) - Net
Sundry income (expense) – net includes a variety of income and expense items such as foreign currency exchange gains and losses, dividends from investments, gains and losses on sales of investments and assets, non-operating pension and other postretirement benefit plan credits or costs, and certain litigation matters.

TDCC
Sundry income (expense) - net for 2020 was income of $1,274 million, compared with income of $573 million in 2019 and $96 million in 2018.

In 2020, sundry income (expense) - net included a $544 million gain related to the Nova ethylene asset matter (related to Packaging & Specialty Plastics), a $499 million gain related to the sale of certain U.S. Gulf Coast marine and terminal operations and assets ($17 million related to Packaging & Specialty Plastics, $61 million related to Industrial Intermediates & Infrastructure and $421 million related to Corporate), a $233 million gain related to the sale of rail infrastructure operations and assets in the U.S. & Canada ($48 million related to Packaging & Specialty Plastics and $185 million related to Corporate), and non-operating pension and postretirement benefit plan credits. These were partially offset by a $149 million loss on the early extinguishment of debt (related to Corporate), foreign currency exchange losses, $11 million in charges associated with agreements entered into with DuPont and Corteva as part of the separation and distribution, which provides for cross-indemnities and allocations of obligations and liabilities for periods prior to, at and after completion of the separation (related to Corporate), a $13 million loss related to the divestiture of a bio-ethanol manufacturing facility in Brazil (related to Packaging & Specialty Plastics) and a $2 million loss on an asset sale (related to Corporate). See Notes 5, 7, 15, 16, 20 and 26 to the Consolidated Financial Statements for additional information.

In 2019, sundry income (expense) - net included foreign currency exchange gains, non-operating pension and postretirement benefit plan credits and gains on sales of assets and investments, as well as a net gain of $205 million related to litigation matters, which included a $170 million gain related to a legal matter with Nova (related to Packaging & Specialty Plastics), and an $85 million gain related to an adjustment of the Dow Silicones breast implant liability (related to Corporate), which were partially offset by a $50 million charge (net of indemnifications of $37 million), related to the settlement of the Dow Silicones commercial creditor matters (related to Corporate). In 2019, sundry income (expense) - net also included a $102 million loss on the early extinguishment of debt and a gain of $2 million on post-closing adjustments related to previous divestitures (both related to Corporate). See Notes 7, 15, 16, 20 and 26 to the Consolidated Financial Statements for additional information.

In 2018, sundry income (expense) - net included non-operating pension and other postretirement benefit plan credits, a $20 million gain related to the Company's sale of its equity interest in MEGlobal (related to Corporate) and gains on sales of assets and investments, which more than offset foreign currency exchange losses, a loss of $54 million on the early extinguishment of debt (related to Corporate) and a loss of $20 million for post-closing adjustments related to the Dow Silicones ownership restructure (related to Performance Materials & Coatings). See Notes 7, 15, 20, and 26 to the Consolidated Financial Statements for additional information.

Dow Inc.
Sundry income (expense) - net for 2020 was income of $1,269 million, compared with income of $461 million in 2019 and $96 million in 2018.

In 2020, in addition to the amounts previously discussed above for TDCC, sundry income (expense) - net included $10 million in charges associated with the agreements entered into with DuPont and Corteva as part of the separation and distribution (related to Corporate).

In 2019, in addition to the amounts previously discussed above for TDCC, sundry income (expense) - net included a $51 million loss on post-closing adjustments related to a previous divestiture and $69 million in charges associated with the agreements entered into with DuPont and Corteva as part of the separation and distribution (both related to Corporate). See Notes 3, 7, 15, 16, 20 and 26 to the Consolidated Financial Statements for additional information.

Interest Expense and Amortization of Debt Discount

Dow Inc.

Interest expense and amortization of debt discount was $827 million in 2020, down from $933 million in 2019, primarily due to TDCC's redemption of long-term debt in 2019 and debt issuances at lower coupon rates in 2020. Interest expense and amortization of debt discount in 2019 was down from $1,063 million in 2018, primarily due to debt reductions and lower interest bearing notes issued in the fourth quarter of 2018, which replaced higher interest bearing notes redeemed in the fourth quarter of 2018. See Liquidity and Capital Resources in Management's Discussion and Analysis of Financial Condition and Results of Operations and Notes 11 and 15 to the Consolidated Financial Statements for additional information related to debt financing activity.

TDCC

Interest expense and amortization of debt discount was $827 million in 2020, down from $952 million in 2019 and $1,063 million in 2018. In addition to the amounts previously discussed above for Dow Inc., TDCC had interest expense related to an intercompany loan with Dow Inc. in 2019. See Note 25 to the Consolidated Financial Statements for additional information.

Provision for Income Taxes on Continuing Operations

The Company's effective tax rate fluctuates based on, among other factors, where income is earned, the level of income relative to tax attributes and the level of equity earnings, since most earnings from the Company's equity method investments are taxed at the joint venture level. The underlying factors affecting the Company's overall tax rate are summarized in Note 8 to the Consolidated Financial Statements.

The CARES Act was enacted on March 27, 2020 in the United States. There were no significant impacts to the Company's provision for income taxes on continuing operations in 2020 as a result of the CARES Act legislation.

The provision for income taxes on continuing operations was $777 million in 2020, compared with $470 million in 2019 and $809 million in 2018. The tax rate for 2020 was unfavorably impacted by valuation allowances of $260 million related to foreign tax credits and other attributes that are more likely than not to remain unutilized prior to their expiration. The tax rate for 2020 was favorably impacted by a capital loss resulting from the divestiture of the Santa Vitoria manufacturing facility. This resulted in an effective tax rate of 37.5 percent for Dow Inc. in 2020.

The tax rate for 2019 was unfavorably impacted by non-deductible goodwill and investment impairments, geographic mix of earnings and reduced equity earnings. These factors resulted in a negative effective tax rate of 37.7 percent for Dow Inc. in 2019.

In the fourth quarter of 2019, the Company recorded the impacts of tax law changes enacted in Switzerland. As a result, deferred tax assets increased by $92 million.

The tax rate for 2018 was favorably impacted by the reduced U.S. federal corporate income tax rate as a result of the Tax Cuts and Jobs Act, which was enacted on December 22, 2017, and benefits related to the issuance of stock-based compensation and unfavorably impacted by non-deductible restructuring costs and increases in statutory income in Latin America and Canada due to local currency devaluations. These factors resulted in an effective tax rate of 21.6 percent in 2018.

Income from Discontinued Operations, Net of Tax

Income from discontinued operations, net of tax was $445 million in 2019 and $1,835 million in 2018, related to the distribution of AgCo and SpecCo to DowDuPont as a result of the separation. See Note 3 to the Consolidated Financial Statements for additional information.

Net Income Attributable to Noncontrolling Interests

Net income attributable to noncontrolling interests was $69 million in 2020, $87 million in 2019 and $134 million in 2018. Net income attributable to noncontrolling interests decreased in 2019 compared with 2018, primarily due to the Company's acquisition of full ownership in a propylene oxide manufacturing joint venture on October 1, 2019. Net income attributable to noncontrolling interests from discontinued operations of $13 million in 2019 and $32 million in 2018 related to the distribution of AgCo and SpecCo to DowDuPont as a result of the separation are included in the amounts above. See Notes 19 and 24 to the Consolidated Financial Statements for additional information.

Net Income (Loss) Available for the Common Stockholder(s)

Dow Inc.

Net income (loss) available for Dow Inc. common stockholders was income of $1,225 million in 2020, compared with a loss of $1,359 million in 2019 and income of $4,641 million in 2018. Earnings (loss) per share of Dow Inc. was earnings of $1.64 per share in 2020, compared with a loss of $1.84 per share in 2019 and earnings of $6.21 per share in 2018. See Note 9 to the Consolidated Financial Statements for details on Dow Inc.'s earnings per share calculations.

TDCC

Net income (loss) available for TDCC common stockholder was income of $1,235 million in 2020, compared with loss of $1,237 million in 2019 and income of $4,641 million in 2018. Following the separation from DowDuPont, TDCC's common shares are owned solely by Dow Inc.

SEGMENT RESULTS

The Company conducts its worldwide operations through six global businesses which are organized into the following operating segments: Packaging & Specialty Plastics, Industrial Intermediates & Infrastructure and Performance Materials & Coatings. Corporate contains the reconciliation between the totals for the operating segments and the Company's totals. The Company did not aggregate any operating segments when determining its reportable segments. The Company reports geographic information for the following regions: U.S. & Canada, Asia Pacific, Latin America and EMEAI. The Company transfers ethylene to its downstream derivative businesses at market prices. The Company also allocated costs previously assigned to AgCo and SpecCo ("stranded costs") to the operating segments.

The Company’s measure of profit/loss for segment reporting purposes is Operating EBIT (for the year ended December 31, 2020) and pro forma Operating EBIT (for the years ended December 31, 2019 and 2018) as this is the manner in which the Company's chief operating decision maker ("CODM") assesses performance and allocates resources. The Company defines Operating EBIT as earnings (i.e., "Income (loss) from continuing operations before income taxes") before interest, excluding the impact of significant items. The Company defines pro forma Operating EBIT as earnings (i.e., "Income (loss) from continuing operations before income taxes") before interest, plus pro forma adjustments, excluding the impact of significant items. Operating EBIT by segment and pro forma Operating EBIT by segment include all operating items relating to the businesses; items that principally apply to Dow as a whole are assigned to Corporate. The Company also presents pro forma net sales for the years ended December 31, 2019 and 2018, as it is included in management’s measure of segment performance and is regularly reviewed by the CODM. Pro forma net sales includes the impact of various manufacturing, supply and service related agreements entered into with DuPont and Corteva in connection with the separation which provide for different pricing than the historical intercompany and intracompany pricing practices of TDCC and Historical DuPont. See Note 26 to the Consolidated Financial Statements for reconciliations of these measures and a summary of the pro forma adjustments impacting segment measures, which are consistent with the pro forma adjustments included in the Current Report on Form 8-K filed on June 3, 2019, with the SEC.

PACKAGING & SPECIALTY PLASTICS

Packaging & Specialty Plastics consists of two highly integrated global businesses: Hydrocarbons & Energy and Packaging and Specialty Plastics. The segment employs the industry’s broadest polyolefin product portfolio, supported by the Company’s proprietary catalyst and manufacturing process technologies, to work at the customer’s design table throughout the value chain to deliver more reliable and durable, higher performing, and more sustainable plastics to customers in food and specialty packaging; industrial and consumer packaging; health and hygiene; caps, closures and pipe applications; consumer durables; mobility and transportation; and infrastructure. Ethylene is transferred to downstream derivative businesses at market-based prices, which are generally equivalent to prevailing market prices for large volume purchases. This segment also includes the results of The Kuwait Styrene Company K.S.C.C. and The SCG-Dow Group, as well as a portion of the results of EQUATE Petrochemical Company K.S.C.C. ("EQUATE"), The Kuwait Olefins Company K.S.C.C. ("TKOC"), Map Ta Phut Olefins Company Limited ("Map Ta Phut") and Sadara, all joint ventures of the Company.

The Company is responsible for marketing a majority of Sadara products outside of the Middle East zone through the Company's established sales channels. As part of this arrangement, the Company purchases and sells Sadara products for a marketing fee.

Packaging & Specialty Plastics In millions	*2020*	*2019*	*2018*
Net sales	$ 18,301	$ 20,245	$ 24,195
Pro forma net sales		$ 20,245	$ 24,237
Operating EBIT	$ 2,325		
Pro forma Operating EBIT		$ 2,904	$ 3,593
Equity earnings	$ 173	$ 162	$ 287

Packaging & Specialty Plastics Percentage change from prior year	*2020*	*2019*	*2018*
Change in Net Sales from Prior Period due to:			
Local price & product mix	(11)%	(12)%	1 %
Currency	—	(1)	2
Volume	1	(3)	5
Portfolio & other	—	—	5
Total	(10)%	(16)%	13 %
Change in Pro Forma Net Sales from Prior Period due to:			
Local price & product mix		(12)%	1 %
Currency		(1)	1
Volume		(3)	5
Total		(16)%	7 %

2020 Versus 2019

Packaging & Specialty Plastics net sales were $18,301 million in 2020, down 10 percent from net sales and pro forma net sales of $20,245 million in 2019, with local price down 11 percent and volume up 1 percent. Net sales declined in the first half of the year, reflecting the impact of the COVID-19 pandemic, while strong supply and demand fundamentals took hold in the second half of the year. Local price decreased in both businesses and across all geographic regions, driven by reduced polyethylene prices and lower global energy prices. Local price declined in Hydrocarbons & Energy as prices for co-products are generally correlated to Brent crude oil prices, which declined 33 percent compared with 2019. Volume increased in Hydrocarbons & Energy as increases in EMEAI were partially offset by declines in the U.S. & Canada, Asia Pacific and Latin America. Packaging and Specialty Plastics volume was flat as increases in flexible food and specialty packaging, industrial and consumer packaging and health and hygiene applications in Asia Pacific, Latin America and EMEAI were offset by reduced demand for functional polymers, primarily due to the COVID-19 pandemic, and lower catalyst licensing activity in the U.S. & Canada.

Operating EBIT was $2,325 million in 2020, down 20 percent from pro forma Operating EBIT of $2,904 million in 2019. Operating EBIT decreased primarily due to integrated margin compression in both businesses. These declines more than offset cost reductions, decreased planned maintenance turnaround costs and increased equity earnings.

2019 Versus 2018

Packaging & Specialty Plastics net sales were $20,245 million in 2019, down 16 percent from net sales of $24,195 million in 2018. Pro forma net sales were $20,245 million in 2019, a decrease of 16 percent compared with pro forma net sales of $24,237 million in 2018, with local price down 12 percent, volume down 3 percent, and an unfavorable currency impact of 1 percent, primarily in EMEAI. Local price decreased in both businesses and across all geographic regions driven by reduced polyethylene prices and lower prices for Hydrocarbons & Energy co-products. Volume declined for the segment in all geographic regions, except Asia Pacific. Hydrocarbons & Energy volume declines more than offset volume gains in Packaging and Specialty Plastics. Volume decreased in Hydrocarbons & Energy primarily due to planned maintenance turnaround activity in Europe, increased internal consumption of ethylene on the U.S. Gulf Coast and lighter feedslate usage in Europe, leading to lower co-product production. Volume increased in Packaging and Specialty Plastics in Asia Pacific and EMEAI. Packaging and Specialty Plastics volume growth was driven by strong end-market growth in flexible food and specialty packaging, industrial and consumer packaging, and health and hygiene applications.

Pro forma Operating EBIT was $2,904 million in 2019, down 19 percent from pro forma Operating EBIT of $3,593 million in 2018. Pro forma Operating EBIT decreased primarily due to lower selling prices, reduced equity earnings at the Kuwait joint ventures due to lower polyethylene margins, lower sales volume in the Hydrocarbons & Energy business and the impact of an outage in Argentina, which more than offset lower feedstock and other raw material costs, volume gains in the Packaging and Specialty Plastics business and cost synergies.

INDUSTRIAL INTERMEDIATES & INFRASTRUCTURE

Industrial Intermediates & Infrastructure consists of two customer-centric global businesses - Industrial Solutions and Polyurethanes & Construction Chemicals - that develop important intermediate chemicals that are essential to manufacturing processes, as well as downstream, customized materials and formulations that use advanced development technologies. These businesses primarily produce and market ethylene oxide and propylene oxide derivatives that are aligned to market segments as diverse as appliances, coatings, electronics, surfactants for cleaning and sanitization, infrastructure and oil and gas. The global scale and reach of these businesses, world-class technology and R&D capabilities and materials science expertise enable the Company to be a premier solutions provider offering customers value-add sustainable solutions to enhance comfort, energy efficiency, product effectiveness and durability across a wide range of home comfort and appliances, building and construction, adhesives and lubricant applications, among others. This segment also includes a portion of the results of EQUATE, TKOC, Map Ta Phut and Sadara, all joint ventures of the Company.

The Company is responsible for marketing a majority of Sadara products outside of the Middle East zone through the Company's established sales channels. As part of this arrangement, the Company purchases and sells Sadara products for a marketing fee.

Industrial Intermediates & Infrastructure In millions	*2020*	*2019*	*2018*
Net sales	$ 12,021	$ 13,440	$ 15,447
Pro forma net sales		$ 13,449	$ 15,465
Operating EBIT	$ 355		
Pro forma Operating EBIT		$ 845	$ 1,767
Equity earnings (losses)	$ (166)	$ (241)	$ 284

Industrial Intermediates & Infrastructure Percentage change from prior year	*2020*	*2019*	*2018*
Change in Net Sales from Prior Period due to:			
Local price & product mix	(5)%	(12)%	5 %
Currency	—	(1)	1
Volume	(6)	—	13
Total	(11)%	(13)%	19 %
Change in Pro Forma Net Sales from Prior Period due to:			
Local price & product mix		(12)%	5 %
Currency		(2)	1
Volume		1	13
Portfolio & other		—	—
Total		(13)%	19 %

2020 Versus 2019
Industrial Intermediates & Infrastructure net sales were $12,021 million in 2020, down 11 percent from $13,440 million in 2019. Net sales decreased 11 percent from pro forma net sales of $13,449 million in 2019, with volume down 6 percent and local price down 5 percent. Weak demand for products used in consumer durable good end-markets, including construction, furniture and bedding, appliances and automotive, drove volume declines in Polyurethanes & Construction Chemicals in all geographic regions, reflecting the impact of the COVID-19 pandemic on consumer activities and buying patterns, most notably in the first half of the year. Volume in Industrial Solutions was also impacted by the COVID-19 pandemic, with decreases in the U.S. & Canada and Latin America which were partially offset by increases in Asia Pacific and EMEAI. The volume decline in Industrial Solutions was due to weakened demand in industrial, energy and automotive end-markets partially offset by stronger demand for products used in electronics, agriculture and pharma applications. Local price decreased in both businesses and in all geographic regions, primarily due to lower global energy prices and raw material costs.

Operating EBIT was $355 million in 2020, down 58 percent from pro forma Operating EBIT of $845 million in 2019. Operating EBIT decreased due to lower demand and margin compression, which were partially offset by cost reductions, decreased equity losses and lower planned maintenance turnaround costs. The overall decrease in equity losses was driven by lower equity losses from Sadara partially offset by decreased equity earnings from EQUATE.

2019 Versus 2018
Industrial Intermediates & Infrastructure net sales were $13,440 million in 2019, down 13 percent from $15,447 million in 2018. Pro forma net sales were $13,449 million in 2019, down from pro forma net sales of $15,465 million in 2018. Pro forma net sales decreased 13 percent in 2019, with local price down 12 percent and an unfavorable currency impact of 2 percent, primarily in EMEAI, which were partially offset by a 1 percent increase in volume. Price decreased in both businesses and all geographic regions, driven by lower feedstock and other raw material costs and unfavorable supply and demand fundamentals. Polyurethanes & Construction Chemicals reported volume increases in all geographic regions, primarily reflecting increased supply from Sadara and growth in polyurethanes systems applications, which were partially offset by a decline of caustic soda volume due to planned maintenance turnaround activities. Industrial Solutions volume decreased in EMEAI and the U.S & Canada and was flat in Latin America and Asia Pacific, primarily driven by reduced availability of glycol ethers, performance solvents and monoethylene glycol due to planned and unplanned events that more than offset higher demand for industrial specialties.

Pro forma Operating EBIT was $845 million in 2019, down 52 percent from pro forma Operating EBIT of $1,767 million in 2018. Pro forma Operating EBIT decreased as a result of margin compression across both businesses as well as lower equity earnings from the Kuwait joint ventures and increased equity losses from Sadara, which more than offset cost reductions.

PERFORMANCE MATERIALS & COATINGS

Performance Materials & Coatings includes industry-leading franchises that deliver a wide array of solutions into consumer and infrastructure end-markets. The segment consists of two global businesses: Coatings & Performance Monomers and Consumer Solutions. These businesses primarily utilize the Company's acrylics-, cellulosics- and silicone-based technology platforms to serve the needs of the architectural and industrial coatings; home care and personal care; consumer and electronics; mobility and transportation; industrial and chemical processing; and building and infrastructure end-markets. Both businesses employ materials science capabilities, global reach and unique products and technology to combine chemistry platforms to deliver differentiated offerings to customers.

Performance Materials & Coatings In millions	*2020*	*2019*	*2018*
Net sales	$ 7,951	$ 8,923	$ 9,677
Pro forma net sales		$ 8,961	$ 9,865
Operating EBIT	$ 314		
Pro forma Operating EBIT		$ 918	$ 1,246
Equity earnings	$ 6	$ 5	$ 4

Performance Materials & Coatings Percentage change from prior year	*2020*	*2019*	*2018*
Change in Net Sales from Prior Period due to:			
Local price & product mix	(6)%	(6)%	10 %
Currency	—	(2)	1
Volume	(6)	(3)	(2)
Portfolio & other	1	3	—
Total	(11)%	(8)%	9 %
Change in Pro Forma Net Sales from Prior Period due to: [1]			
Local price & product mix	(6)%	(6)%	10 %
Currency	—	(2)	1
Volume	(5)	(1)	(2)
Portfolio & other	—	—	2
Total	(11)%	(9)%	11 %

1. As reported net sales for the year ended December 31, 2020 compared with pro forma net sales for the year ended December 31, 2019.

2020 Versus 2019

Performance Materials & Coatings net sales were $7,951 million in 2020, down 11 percent from net sales of $8,923 million in 2019. Net sales decreased 11 percent from pro forma net sales of $8,961 million in 2019, with local price down 6 percent and volume down 5 percent. Local price decreased in both businesses and all geographic regions. Consumer Solutions local price declined in all regions, primarily in upstream siloxanes due to weak supply and demand fundamentals. Local price decreased in Coatings & Performance Monomers in response to lower feedstock and other raw material costs. Volume declined in all geographic regions except Latin America, reflecting the impact from the COVID-19 pandemic. Consumer Solutions volume decreased as growth in home care applications was more than offset by lower demand for products used in automotive, industrial, construction and personal care end-markets as consumer activities and buying patterns were limited by the COVID-19 pandemic. Coatings & Performance Monomers volume increased in all geographic regions, except EMEAI. Volume gains were driven by higher demand for methacrylates used in protective applications, for architectural coatings as consumers continued do-it-yourself projects at home, and higher demand for vinyl acetate monomers.

Operating EBIT was $314 million in 2020, down 66 percent from pro forma Operating EBIT of $918 million in 2019. Operating EBIT decreased primarily due to margin compression, lower demand in siloxanes as a result of the COVID-19 pandemic and higher manufacturing and planned maintenance turnaround costs that more than offset volume gains in Coatings & Performance Monomers and lower SG&A costs.

2019 Versus 2018

Performance Materials & Coatings net sales were $8,923 million in 2019, down 8 percent from net sales of $9,677 million in 2018. Pro forma net sales were $8,961 million in 2019, down 9 percent from pro forma net sales of $9,865 million in 2018 with local price down 6 percent, an unfavorable currency impact of 2 percent and volume down 1 percent. Local price decreased in both businesses and all geographic regions. Local price decreased in Consumer Solutions due to lower siloxanes prices, primarily in Asia Pacific and EMEAI. Coatings & Performance Monomers local price declined in all geographic regions in response to lower feedstock and other raw material costs. Volume for the segment declined in all geographic regions, except Asia Pacific. Consumer Solutions volume was flat, with volume growth in Asia Pacific, offset by volume declines in Latin America and EMEAI. Consumer Solutions volume was flat in the U.S. & Canada. Coatings & Performance Monomers volume declined in all geographic regions. The decline in volume was driven by increased captive use of coatings products which drove soft demand in coating applications, primarily architectural binders, and lower demand for acrylates and methacrylates due to supply and demand balances.

Pro forma Operating EBIT was $918 million in 2019, down 26 percent from pro forma Operating EBIT of $1,246 million in 2018. Pro forma Operating EBIT decreased primarily due to margin compression in both businesses, which more than offset lower planned maintenance turnaround spending and cost synergies.

CORPORATE

Corporate includes certain enterprise and governance activities (including insurance operations, environmental operations, etc.); non-business aligned joint ventures; non-business aligned litigation expenses; and discontinued or non-aligned businesses.

Corporate In millions	*2020*	*2019*	*2018*
Net sales	$ 269	$ 343	$ 285
Pro forma net sales		$ 343	$ 285
Operating EBIT	$ (279)		
Pro forma Operating EBIT		$ (315)	$ (370)
Equity losses	$ (31)	$ (20)	$ (20)

2020 Versus 2019

Net sales for Corporate, which primarily relate to the Company's insurance operations, were $269 million in 2020, down from net sales and pro forma net sales of $343 million in 2019.

Operating EBIT was a loss of $279 million in 2020, compared with a pro forma Operating EBIT loss of $315 million in 2019. Compared with 2019, Operating EBIT improved primarily due to cost reductions and stranded cost removal throughout 2019.

2019 Versus 2018

Net sales and pro forma net sales for Corporate, which primarily relate to the Company's insurance operations, were $343 million in 2019, up from net sales and pro forma net sales of $285 million in 2018.

Pro forma Operating EBIT was a loss of $315 million in 2019, compared with a pro forma Operating EBIT loss of $370 million in 2018. Compared with 2018, pro forma Operating EBIT improved primarily due to cost reductions and stranded cost removal.

OUTLOOK

Operating Segments & End-Market Expectations

In 2021, the Company expects continued volatility across crude oil, natural gas and feedstocks, driven by external macroeconomic and geopolitical factors, including the continuation of an uneven recovery from the COVID-19 pandemic. Overall, the Company expects crude oil prices to be, on average, higher than 2020 with an expectation of firming prices in the second half of the year. Crude oil fundamentals suggest global supply will meet or slightly lag demand; however, the uneven pandemic recovery could slow demand, leading to further volatility in prices.

The Company expects natural gas prices to remain competitive. The Company expects the U.S. & Canada gas supply to continue to recover through 2021. Robust supplies of natural gas are expected to keep domestic prices globally competitive. U.S. exports of liquefied natural gas ("LNG") are expected to remain strong. In Europe, the supply of natural gas is expected to continue to be plentiful, both from pipeline supply and from growing LNG imports.

In Packaging & Specialty Plastics, the global economic recovery is expected to drive demand growth, notably for flexible food and specialty packaging, industrial and consumer packaging and functional polymers. Integrated margins are expected to improve, supported by strong supply and demand fundamentals expected in the first half of the year and the Company’s regional feedstock cost advantages. Profitability could vary materially, particularly in the latter part of the year, depending on supply and demand dynamics, global gross domestic product ("GDP") growth rates, industry operating rates, timing of new industry capacity startups and fluctuations in global crude oil, natural gas and feedstock prices. The Hydrocarbons & Energy business expects to bring online approximately 130,000 metric tons of additional ethylene capacity in Canada as part of its suite of incremental growth investments. The new capacity is expected to come online in the first half of 2021.

In Industrial Intermediates & Infrastructure, above GDP top line growth is expected, driven by strong demand for products used in furniture and bedding, appliances, automotive, construction, electronics and pharma applications. Prices are expected to increase for most products, including continued recovery in monoethylene glycol pricing.

Supply and demand fundamentals for methylene diphenyl diisocyanate and propylene oxide are expected to remain consistent with what was experienced in 2020, with additional industry capacity anticipated to come online in 2021. Margins are also expected to improve, driven by demand growth.

In Performance Materials & Coatings, prices for siloxanes are expected to improve compared with 2020, but remain below peak pricing that was seen in 2018. Downstream silicones volume is expected to grow in excess of GDP, particularly for products used in mobility and transportation, high performance building and construction, industrial and consumer and electronics applications. The Company will continue to pursue incremental downstream silicones capacity debottleneck and growth projects to meet expected demand in consumer driven end-markets. Global architectural coatings and industrial coatings demand is anticipated to see continued recovery as the do-it-yourself and retail end-markets remain strong and contractor demand improves. Highly competitive environments in both architectural and industrial coatings are expected to continue, but the Company looks to capture opportunities from customers' shift to sustainable chemistries where Dow has unique technologies and solutions to compete.

Other factors impacting operating segment profitability include:

- Planned maintenance turnaround spending is expected to be approximately $400 million higher, including joint ventures. Spending will be higher in the second and third quarters, as the COVID-19 pandemic delayed certain planned maintenance turnaround activities in 2020.
- Equity in earnings (losses) of nonconsolidated affiliates is expected to be flat compared with 2020 as projected margin improvements are expected to be partially offset by increased planned maintenance turnaround spending at joint ventures.

Projected Uses of Cash
Items that may impact the consolidated statements of cash flows in 2021 include:

- Required cash contributions to global pension plans are expected to be approximately $300 million.
- Capital expenditures are expected to be approximately $1.6 billion. The Company will adjust its spending through the year as economic conditions develop.
- Cash expenditures related to the Digital Acceleration program announced on January 28, 2021 are expected to be approximately $150 million in 2021.
- Cash outflows related to the Company's 2020 Restructuring Program, including restructuring implementation costs, are expected to be approximately $350 million.
- Cash dividends from equity companies are expected to be approximately $200 million lower than 2020.
- Cash outflows to drive further deleveraging are expected to be $1 billion.

Sadara debt re-profile
In January 2021, Sadara reached an agreement in principle with its lenders to re-profile Sadara's outstanding project financing debt. Key features of the Sadara debt re-profile are expected to include:

- An extension of the contractual debt maturity from 2029 to 2038.
- A modified repayment schedule aligned with Sadara's projected cash generation profile, including a grace period until June 2026 during which interest-only payments are required, and an excess cash sweep mechanism to prepay debt.
- No change to the notional debt amount and no other early repayment requirements.

As a result, Sadara is expected to have significantly improved cash flow self-sufficiency. The re-profiling agreements have not been finalized and remain subject to modification until the transaction formally closes, which is expected to occur in the first quarter of 2021. The impacts to Dow's commitments are expected to include the following, which are in proportion to Dow's 35 percent ownership interest in Sadara:

- Dow will provide guarantees for $1.3 billion of Sadara's debt, effectively replacing approximately $4.0 billion of prior guarantees.
- Additionally, Dow will provide guarantees for its portion of all Sadara interest payments due during the grace period. Dow's pro-rata share of any potential shortfall will be funded by a new $500 million revolving credit facility guaranteed by Dow, which is expected to be established by Sadara in the first quarter of 2021.

- Dow's existing $220 million letter of credit related to the guarantee of one future Sadara debt service schedule payment will be cancelled.

As a result of these actions, the Company does not expect to provide any shareholder loans or equity contributions to Sadara in 2021. The impact of the debt re-profiling efforts and related actions taken by the Company are not expected to have a material impact on the Company's results of operations.

LIQUIDITY AND CAPITAL RESOURCES

The Company had cash and cash equivalents of $5,104 million at December 31, 2020 and $2,367 million at December 31, 2019, of which $862 million at December 31, 2020 and $986 million at December 31, 2019, was held by subsidiaries in foreign countries, including United States territories. The decrease in cash and cash equivalents held by subsidiaries in foreign countries is due to repatriation activities. For each of its foreign subsidiaries, the Company makes an assertion regarding the amount of earnings intended for permanent reinvestment, with the balance available to be repatriated to the United States.

The cash held by foreign subsidiaries for permanent reinvestment is generally used to finance the subsidiaries' operational activities and future foreign investments. Dow has the ability to repatriate additional funds to the U.S., which could result in an adjustment to the tax liability for foreign withholding taxes, foreign and/or U.S. state income taxes and the impact of foreign currency movements. At December 31, 2020, management believed that sufficient liquidity was available in the United States. The Company has and expects to continue repatriating certain funds from its non-U.S. subsidiaries that are not needed to finance local operations; however, these particular repatriation activities have not and are not expected to result in a significant incremental tax liability to the Company.

The Company's cash flows from operating, investing and financing activities, as reflected in the consolidated statements of cash flows, are summarized in the following table:

Cash Flow Summary	*Dow Inc.*			*TDCC*		
In millions	*2020*	*2019*	*2018*	*2020*	*2019*	*2018*
Cash provided by (used for):						
Operating activities - continuing operations	$ 6,252	$ 5,713	$ 3,096	$ 6,263	$ 5,706	$ 3,096
Operating activities - discontinued operations	(26)	217	1,158	—	371	1,158
Operating activities	6,226	5,930	4,254	6,263	6,077	4,254
Investing activities - continuing operations	(841)	(2,158)	(1,826)	(841)	(2,158)	(1,826)
Investing activities - discontinued operations	—	(34)	(369)	—	(34)	(369)
Investing activities	(841)	(2,192)	(2,195)	(841)	(2,192)	(2,195)
Financing activities - continuing operations	(2,764)	(4,077)	(5,351)	(2,801)	(4,224)	(5,351)
Financing activities - discontinued operations	—	(18)	(53)	—	(18)	(53)
Financing activities	(2,764)	(4,095)	(5,404)	(2,801)	(4,242)	(5,404)
Effect of exchange rate changes on cash, cash equivalents and restricted cash	107	(27)	(99)	107	(27)	(99)
Summary						
Increase (decrease) in cash, cash equivalents and restricted cash	2,728	(384)	(3,444)	2,728	(384)	(3,444)
Cash, cash equivalents and restricted cash at beginning of year	2,380	2,764	6,208	2,380	2,764	6,208
Cash, cash equivalents and restricted cash at end of year	$ 5,108	$ 2,380	$ 2,764	$ 5,108	$ 2,380	$ 2,764
Less: Restricted cash and cash equivalents, included in "Other current assets"	4	13	40	4	13	40
Cash and cash equivalents at end of year	$ 5,104	$ 2,367	$ 2,724	$ 5,104	$ 2,367	$ 2,724

Cash Flows from Operating Activities
Cash provided by operating activities from continuing operations increased in 2020 compared with 2019. The improvement was primarily due to a decrease in integration and separation costs. Also contributing to the improvement from the prior year was a decrease in performance-based compensation payments, a cash receipt for the refund of withholding tax related to the Nova ethylene asset matter and an increase in advance payments from customers, which were partially offset by a decrease in dividends received from nonconsolidated affiliates, a reduction in cash generated from working capital and a cash receipt in 2019 related to the Nova ethylene asset matter. Cash provided by operating activities from continuing operations increased in 2019 compared with 2018. The increase was primarily due to improvements in working capital, a cash receipt related to the Nova ethylene asset matter, advance payments from customers for product supply agreements, lower pension contributions and higher dividends received from nonconsolidated affiliates, which were partially offset by a decrease in cash earnings.

Net Working Capital and Current Ratio at Dec 31	*Dow Inc.*		*TDCC*	
In millions	*2020*	*2019*	*2020*	*2019*
Current assets	$ 19,084	$ 16,815	$ 18,998	$ 16,733
Current liabilities	11,108	10,679	10,574	10,150
Net working capital	$ 7,976	$ 6,136	$ 8,424	$ 6,583
Current ratio	1.72:1	1.57:1	1.80:1	1.65:1

Working Capital Metrics	*Three Months Ended* [1]				*Twelve Months Ended*	
	Mar 31, 2020	*Jun 30, 2020*	*Sep 30, 2020*	*Dec 31, 2020*	*Dec 31, 2020*	*Dec 31, 2019*
Days sales outstanding in trade receivables	45	50	43	41	46	45
Days sales in inventory	69	72	63	57	65	65
Days payables outstanding	63	68	58	56	66	65

1. Due to the impacts related to the COVID-19 pandemic, quarterly working capital metrics are presented for 2020.

Cash provided by (used for) operating activities from discontinued operations in 2020 and 2019 primarily related to cash payments and receipts the Company had with DuPont and Corteva that related to certain agreements and matters related to the separation from DowDuPont. Cash provided by operating activities from discontinued operations decreased in 2019 compared with 2018, primarily due to the separation of AgCo and SpecCo on April 1, 2019. See Note 3 to the Consolidated Financial Statements for additional information.

Cash Flows from Investing Activities
Cash used for investing activities from continuing operations in 2020 was primarily for capital expenditures, purchases of investments, investments in and loans to nonconsolidated affiliates (related to Sadara) and acquisitions of property and businesses, which were partially offset by proceeds from sales and maturities of investments and proceeds from sales of property and businesses. Cash used for investing activities from continuing operations in 2019 was primarily for capital expenditures, purchases of investments and investments in and loans to nonconsolidated affiliates, which were partially offset by proceeds from sales and maturities of investments. Cash used for investing activities from continuing operations in 2018 was primarily for capital expenditures and purchases of investments, which were partially offset by proceeds from sales and maturities of investments and proceeds from interests in trade accounts receivable conduits.

The Company loaned Sadara $333 million in 2020 ($473 million in 2019 and zero in 2018). As a result of Sadara's debt re-profiling, the Company does not expect to provide any shareholder loans or equity contributions to Sadara in 2021. See Notes 12 and 16 to the Consolidated Financial Statements for additional information.

The Company's capital expenditures related to continuing operations, including capital expenditures of consolidated variable interest entities, were $1,252 million in 2020, $1,961 million in 2019 and $2,091 million in 2018. Capital spending was lower in 2020 as the Company proactively reduced its capital expenditures to focus on cash and maintaining financial strength during the COVID-19 pandemic. The Company expects capital spending in 2021 to be approximately $1.6 billion. The Company will adjust its spending through the year as economic conditions develop.

Capital spending in 2018, 2019 and 2020, included spending related to certain U.S. Gulf Coast investment projects including: a NORDEL™ Metallocene EPDM production facility, a Low Density Polyethylene ("LDPE") production facility, a High Melt Index ("HMI") AFFINITY™ polymer production facility and debottlenecking of an existing bi-modal gas phase polyethylene production facility, all of which commenced operations in 2018; an expansion of the Company's new ethylene production facility in Freeport, Texas, which commenced operations in 2020, bringing the facility's total ethylene capacity to 2,000 kilotonnes per annum and making it the largest ethylene cracker in the world; the addition of a furnace to the Company's ethylene production facility in Alberta, Canada, which is expected to commence operations in the first half of 2021; and the retrofit of one of the Company's Louisiana steam crackers with Dow's proprietary fluidized catalytic dehydrogenation ("FCDh") technology to produce on-purpose propylene, which is expected by the end of 2021.

Cash used for investing activities from discontinued operations in 2019 was primarily for capital expenditures, partially offset by proceeds from the sales of property, businesses and ownership interests in nonconsolidated affiliates. Cash used for investing activities from discontinued operations in 2018 was primarily for capital expenditures, partially offset by proceeds from the sales of property and businesses.

Cash Flows from Financing Activities
Cash used for financing activities from continuing operations in 2020 included payments on long-term debt, changes in short-term notes payable and transaction financing, debt issuance and other costs, which were partially offset by proceeds from issuance of long-term debt. In addition, Dow Inc. included cash outflows for dividends paid to stockholders and purchases of treasury stock and TDCC included cash outflows for dividends paid to Dow Inc. Cash used for financing activities from continuing operations in 2019 included payments on long-term debt and dividends paid to DowDuPont, which were partially offset by proceeds from issuance of long-term debt. In addition, Dow Inc. received cash as part of the separation from DowDuPont, which was more than offset by dividends paid to stockholders and purchases of treasury stock. Cash used for financing activities in continuing operations in 2018 included dividends paid to DowDuPont and payments of long-term debt, which were partially offset by proceeds from issuance of long-term debt. See Notes 15 and 18 to the Consolidated Financial Statements for additional information related to the issuance and retirement of debt and the Company's share repurchases and dividends.

Cash used for financing activities from discontinued operations in 2019 and 2018 primarily related to distributions to noncontrolling interests and employee taxes paid for share-based payment arrangements.

Non-GAAP Cash Flow Measures
Cash Flows from Operating Activities - Continuing Operations - Excluding Impact of ASU 2016-15
Cash flows from operating activities - continuing operations, excluding the impact of Accounting Standards Update ("ASU") 2016-15, is defined as cash provided by operating activities - continuing operations, excluding the impact of ASU 2016-15 and related interpretive guidance. Management believes this non-GAAP financial measure is relevant and meaningful as it presents cash flows from operating activities inclusive of all trade accounts receivable collection activity, which Dow utilizes in support of its operating activities. This measure is only applicable for the year ended December 31, 2018 as there were no sales of trade accounts receivable under the applicable programs for the years ended December 31, 2020 and 2019.

Free Cash Flow
Dow defines free cash flow as cash flows from operating activities - continuing operations, excluding the impact of ASU 2016-15, less capital expenditures. Under this definition, free cash flow represents the cash generated by Dow from operations after investing in its asset base. Free cash flow, combined with cash balances and other sources of liquidity, represents the cash available to fund obligations and provide returns to shareholders. Free cash flow is an integral financial measure used in Dow's financial planning process.

Operating EBITDA and Pro Forma Operating EBITDA
Dow defines Operating EBITDA (for the year ended December 31, 2020) as earnings (i.e., "Income from continuing operations before income taxes") before interest, depreciation and amortization, excluding the impact of significant items. Pro forma Operating EBITDA (for the years ended December 31, 2019 and 2018) is defined as earnings (i.e. "Income (loss) from continuing operations before income taxes") before interest, depreciation and amortization, plus pro forma adjustments, excluding the impact of significant items.

Cash Flow Conversion
Dow defines cash flow conversion (Operating EBITDA or pro forma Operating EBITDA to cash flow from operations) as cash flows from operating activities - continuing operations, excluding the impact of ASU 2016-15, divided by Operating EBITDA or pro forma Operating EBITDA. Management believes cash flow conversion is an important financial metric as it helps the Company determine how efficiently it is converting its earnings into cash flow.

These financial measures are not recognized in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP") and should not be viewed as alternatives to U.S. GAAP financial measures of performance. All companies do not calculate non-GAAP financial measures in the same manner and, accordingly, Dow's definitions may not be consistent with the methodologies used by other companies.

Reconciliation of Non-GAAP Cash Flow Measures	*Dow Inc.*		
In millions	*2020*	*2019*	*2018*
Cash provided by operating activities - continuing operations (GAAP)	$ 6,252	$ 5,713	$ 3,096
Impact of ASU 2016-15 and related interpretive guidance	—	—	657
Cash flows from operating activities - continuing operations - excluding impact of ASU 2016-15 (non-GAAP)	$ 6,252	$ 5,713	$ 3,753
Capital expenditures	(1,252)	(1,961)	(2,091)
Free cash flow (non-GAAP)	$ 5,000	$ 3,752	$ 1,662

Reconciliation of Cash Flow Conversion	*Dow Inc.*		
In millions	*2020*	*2019* [1]	*2018* [1]
Income (loss) from continuing operations, net of tax (GAAP)	$ 1,294	$ (1,717)	$ 2,940
+ Provision for income taxes on continuing operations	777	470	809
Income (loss) from continuing operations before income taxes	$ 2,071	$ (1,247)	$ 3,749
- Interest income	38	81	82
+ Interest expense and amortization of debt discount	827	933	1,063
+ Pro forma adjustments [2]	—	65	180
- Significant items [3]	145	(4,682)	(1,326)
Operating EBIT (non-GAAP)	$ 2,715	$ 4,352	$ 6,236
+ Depreciation and amortization	2,874	2,938	2,909
Operating EBITDA (non-GAAP)	$ 5,589	$ 7,290	$ 9,145
Cash flows from operating activities - continuing operations - excluding impact of ASU 2016-15 (non-GAAP)	$ 6,252	$ 5,713	$ 3,753
Cash flow conversion (Operating EBITDA or pro forma Operating EBITDA to cash flow from operations) (non-GAAP)	111.9 %	78.4 %	41.0 %

1. Operating EBIT, depreciation and amortization and Operating EBITDA for the years ended December 31, 2019 and 2018 are presented on a pro forma basis.
2. Pro forma adjustments for the years ended December 31, 2019 and 2018 include: (1) the margin impact of various manufacturing, supply and service related agreements entered into with DuPont and Corteva in connection with the separation which provide for different pricing than the historical intercompany and intracompany pricing practices of TDCC and Historical DuPont and (2) the elimination of the impact of events directly attributable to the Merger, internal reorganization and business realignment, separation, distribution and other related transactions (e.g., one-time transaction costs).
3. The year ended December 31, 2020 includes integration and separation costs, restructuring and asset related charges - net, a gain on a warranty accrual adjustment of an exited business, restructuring implementation costs, a net gain on divestitures and asset sale, a gain related to a legal matter with Nova, a loss on early extinguishment of debt and a loss associated with agreements entered into with DuPont and Corteva as part of the separation and distribution. The year ended December 31, 2019 includes integration and separation costs, restructuring, goodwill impairment and asset related charges - net, a gain on a warranty accrual adjustment of an exited business, environmental charges, a loss related to previous divestitures, a loss on early extinguishment of debt, a net gain related to litigation matters and a loss associated with agreements entered into with DuPont and Corteva as part of the separation and distribution. The year ended December 31, 2018 includes a post-closing adjustment related to the Dow Silicones ownership restructure, integration and separation costs, restructuring and asset related charges - net, a gain on divestiture and a loss on early extinguishment of debt. See Note 26 to the Consolidated Financial Statements for additional information.

Liquidity & Financial Flexibility

The Company's primary source of incremental liquidity is cash flows from operating activities. The generation of cash from operations and the Company's ability to access capital markets is expected to meet the Company's cash requirements for working capital, capital expenditures, debt maturities, contributions to pension plans, dividend distributions to stockholders, share repurchases and other needs. In addition to cash from operating activities, the Company's current liquidity sources also include TDCC's U.S. and Euromarket commercial paper programs, committed and uncommitted credit facilities, committed accounts receivable facilities, a U.S. retail note program ("InterNotes®") and other debt markets.

The Company continues to maintain a strong financial position with all of its committed credit facilities undrawn and fully available at December 31, 2020. Cash and committed and available forms of liquidity were $14.6 billion at December 31, 2020. The Company also has no substantive long-term debt maturities until the second half of 2024. Additional details on sources of liquidity are as follows:

Commercial Paper

TDCC issues promissory notes under its U.S. and Euromarket commercial paper programs. TDCC had no commercial paper outstanding at December 31, 2020 ($151 million at December 31, 2019). TDCC maintains access to the commercial paper market at competitive rates. Amounts outstanding under TDCC's commercial paper programs during the period may be greater or less than the amount reported at the end of the period. Subsequent to December 31, 2020, TDCC issued approximately $1.3 billion of commercial paper.

Committed Credit Facilities

The Company also has the ability to access liquidity through TDCC's committed and available credit facilities. At December 31, 2020, TDCC had total committed and available credit facilities of $8.1 billion. In 2020, Dow Silicones voluntarily repaid $2.0 billion of principal under a certain third party credit agreement. See Note 15 to the Consolidated Financial Statements for additional information on committed and available credit facilities.

Committed Accounts Receivable Facilities

In addition to the above committed credit facilities, the Company maintains a committed accounts receivable facility in the U.S. where eligible trade accounts receivable, up to $900 million, may be sold at any point in time. The Company also maintains a committed accounts receivable facility in Europe where eligible trade accounts receivable, up to €400 million, may be sold at any point in time. See Note 14 to the Consolidated Financial Statements for additional information.

Company-Owned Life Insurance

The Company has investments in company-owned life insurance ("COLI") policies, which are recorded at their cash surrender value as of each balance sheet date. The Company has the ability to monetize its investment in its COLI policies as an additional source of liquidity. At December 31, 2019, the Company had monetized $85 million of its existing COLI policies' value. In the first nine months of 2020, the Company monetized an additional $211 million as a proactive measure to bolster liquidity at the onset of the COVID-19 pandemic. In the fourth quarter of 2020, the Company repaid all existing drawdowns against the cash surrender value, which resulted in no monetization of its existing COLI policies' value at December 31, 2020. See Note 7 to the Consolidated Financial Statements for additional information.

Uncommitted Credit Facilities

Dow has entered into various uncommitted bilateral credit arrangements as a potential source of excess liquidity. These lines can be used to support short-term liquidity needs and for general purposes, including letters of credit. In the first quarter of 2020, the Company took proactive measures to further bolster liquidity by drawing down certain uncommitted credit facilities, which were subsequently repaid in the second quarter of 2020.

Letters of Credit

TDCC utilizes letters of credit to support commitments made in the ordinary course of business. While the terms and amounts of letters of credit change, TDCC generally has approximately $400 million of outstanding letters of credit at any given time. In addition, at December 31, 2020, the Company had a $220 million outstanding letter of credit related to the Company's share of one future debt service schedule payment of Sadara. See Note 16 to the Consolidated Financial Statements for additional information related to guarantees.

Shelf Registration - U.S.
On July 26, 2019, Dow Inc. and TDCC filed a shelf registration statement with the SEC. The shelf indicates that Dow Inc. may offer common stock; preferred stock; depositary shares; debt securities; guarantees; warrants to purchase common stock, preferred stock and debt securities; and stock purchase contracts and stock purchase units, with pricing and availability of any such offerings depending on market conditions. The shelf also indicates that TDCC may offer debt securities, guarantees and warrants to purchase debt securities, with pricing and availability of any such offerings depending on market conditions. Also on July 26, 2019, TDCC filed a new prospectus supplement under this shelf registration to register an unlimited amount of securities for issuance under InterNotes®.

Debt
As the Company continues to maintain its strong balance sheet and financial flexibility, management is focused on net debt (a non-GAAP financial measure), as the Company believes this is the best representation of its financial leverage at this point in time. As shown in the following table, net debt is equal to total gross debt minus "Cash and cash equivalents" and "Marketable securities." At December 31, 2020, net debt as a percent of total capitalization for Dow Inc. and TDCC decreased to 47.9 percent and 46.8 percent, respectively, compared with 50.9 percent and 49.6 percent, respectively, at December 31, 2019.

Total Debt at Dec 31	*Dow Inc.*		*TDCC*	
In millions	*2020*	*2019*	*2020*	*2019*
Notes payable	$ 156	$ 586	$ 156	$ 586
Long-term debt due within one year	460	435	460	435
Long-term debt	16,491	15,975	16,491	15,975
Gross debt	$ 17,107	$ 16,996	$ 17,107	$ 16,996
- Cash and cash equivalents	5,104	2,367	5,104	2,367
- Marketable securities [1]	45	21	45	21
Net debt	$ 11,958	$ 14,608	$ 11,958	$ 14,608
Gross debt as a percent of total capitalization	56.8 %	54.7 %	55.8 %	53.3 %
Net debt as a percent of total capitalization	47.9 %	50.9 %	46.8 %	49.6 %

1. Included in "Other current assets" in the consolidated balance sheets.

In February 2020, the Company issued €2.25 billion aggregate principal amount of notes (“Euro Notes”). The Euro Notes included €1.0 billion aggregate principal amount of 0.50 percent notes due 2027, €750 million aggregate principal amount of 1.125 percent notes due 2032 and €500 million aggregate principal amount of 1.875 percent notes due 2040. The Euro Notes have a weighted average coupon rate of approximately 1.0 percent. In addition, the Company redeemed $1.25 billion of 3.0 percent notes issued by the Company with maturity in 2022.

In August 2020, the Company issued $2.0 billion aggregate principal amount of notes. The notes included $850 million aggregate principal amount of 2.1 percent notes due 2030 and $1.15 billion aggregate principal amount of 3.6 percent notes due 2050 (together, the "Notes"). In September 2020, TDCC also used $556 million of aggregate proceeds from the Notes to fund cash tender offers for certain of its debt securities and certain debt securities of Union Carbide, of which $493 million aggregate principal amount was tendered and retired.

The Company may at any time repurchase certain debt securities in the open market or in privately negotiated transactions subject to: the applicable terms under which any such debt securities were issued, certain internal approvals of the Company, and applicable laws and regulations of the relevant jurisdiction in which any such potential transactions might take place. This in no way obligates the Company to make any such repurchases nor should it be considered an offer to do so.

TDCC’s public debt instruments and primary, private credit agreements contain, among other provisions, certain customary restrictive covenant and default provisions. TDCC’s most significant debt covenant with regard to its financial position is the obligation to maintain the ratio of its consolidated indebtedness to consolidated capitalization at no greater than 0.65 to 1.00 at any time the aggregate outstanding amount of loans under the Five Year Competitive Advance and Revolving Credit Facility Agreement ("Revolving Credit Agreement") equals or exceeds $500 million. The ratio of TDCC’s consolidated indebtedness as defined in the Revolving Credit Agreement was 0.53 to 1.00 at December 31, 2020. Management believes TDCC was in compliance with all of its covenants and default provisions at December 31, 2020.

On April 1, 2019, DowDuPont completed the separation of its materials science business and Dow Inc. became the direct parent company of TDCC. In conjunction with the separation, Dow Inc. is obligated, substantially concurrently with the issuance of any guarantee in respect of outstanding or committed indebtedness under the Revolving Credit Agreement, to enter into a supplemental indenture with TDCC and the trustee under TDCC's existing 2008 base indenture governing certain notes issued by TDCC. Under such supplemental indenture, Dow Inc. will guarantee all outstanding debt securities and all amounts due under such existing base indenture and will become subject to certain covenants and events of default under the existing base indenture.

In addition, the Revolving Credit Agreement includes an event of default which would be triggered in the event Dow Inc. incurs or guarantees third party indebtedness for borrowed money in excess of $250 million or engages in any material activity or directly owns any material assets, in each case, subject to certain conditions and exceptions. Dow Inc. may, at its option, cure the event of default by delivering an unconditional and irrevocable guarantee to the administrative agent within thirty days of the event or events giving rise to such event of default.

No such events have occurred or have been triggered at the time of the filing of this Annual Report on Form 10-K. See Note 15 to the Consolidated Financial Statements for information related to TDCC's notes payable and long-term debt activity and information on TDCC's debt covenants and default provisions.

While taking into consideration the current economic environment, management expects that the Company will continue to have sufficient liquidity and financial flexibility to meet all of its business obligations.

Credit Ratings
TDCC's credit ratings at January 31, 2021 were as follows:

Credit Ratings	*Long-Term Rating*	*Short-Term Rating*	*Outlook*
Standard & Poor's	BBB-	A-3	Stable
Moody's Investors Service	Baa2	P-2	Stable
Fitch Ratings	BBB+	F2	Negative

On April 9, 2020, Standard & Poor's ("S&P") announced a credit rating change for TDCC from BBB and A-2 to BBB- and A-3, maintaining stable outlook. The decision was made as part of S&P's broader review of the chemicals sector, in light of the global impact of COVID-19 and lower oil prices. On April 13, 2020, Fitch Ratings ("Fitch") re-affirmed TDCC's BBB+ and F2 rating, and revised its outlook to negative from stable. The decision was made as part of Fitch's annual review process.

Downgrades in TDCC's credit ratings will increase borrowing costs on certain indentures and could impact its ability to access debt capital markets.

Dividends
Dow Inc.
The following table provides dividends paid to common stockholders for the years ended December 31, 2020, 2019 and 2018:

Dividends Paid for the Years Ended Dec 31 In millions, except per share amounts	*2020*	*2019* [1]	*2018* [2]
Dividends paid, per common share	$ 2.80	$ 2.10	N/A
Dividends paid to common stockholders	$ 2,071	$ 1,550	N/A

1. Reflects Dow Inc. activity subsequent to the separation from DowDuPont.
2. In 2018, the common stock of Dow Inc. and TDCC was owned solely by DowDuPont and therefore the Company did not have publicly traded stock.

TDCC
Effective with the Merger, TDCC no longer has publicly traded common stock. From the Merger Date through March 31, 2019, TDCC's common shares were owned solely by DowDuPont. Pursuant to the Merger Agreement, TDCC committed to fund a portion of DowDuPont's dividends paid to common stockholders and certain governance expenses. In addition, share repurchases by DowDuPont were partially funded by TDCC through 2018. Funding was accomplished through intercompany loans. On a quarterly basis, TDCC's Board reviewed and determined a

dividend distribution to DowDuPont to settle the intercompany loans. The dividend distribution considered the level of TDCC's earnings and cash flows and the outstanding intercompany loan balances. TDCC declared and paid dividends to DowDuPont of $535 million for the year ended December 31, 2019 and $3,711 million for the year ended December 31, 2018. See Note 25 to the Consolidated Financial Statements for additional information.

Effective with the separation from DowDuPont on April 1, 2019, TDCC became a wholly owned subsidiary of Dow Inc. TDCC has committed to fund Dow Inc.'s dividends paid to common stockholders, share repurchases and certain governance expenses. Funding is accomplished through intercompany loans. TDCC's Board reviews and determines a dividend distribution to Dow Inc. to settle the intercompany loans. For the year ended December 31, 2020, TDCC declared and paid dividends to Dow Inc. of $2,233 million ($201 million for the year ended December 31, 2019). At December 31, 2020, TDCC's intercompany loan balance with Dow Inc. was insignificant. See Note 25 to the Consolidated Financial Statements for additional information.

Share Repurchase Program

Dow Inc.

On April 1, 2019, Dow Inc.'s Board ratified the share repurchase program originally approved on March 15, 2019, authorizing up to $3.0 billion to be spent on the repurchase of the Company's common stock, with no expiration date. In 2020, Dow Inc. repurchased $125 million of the Company's common stock. At December 31, 2020, approximately $2.4 billion of the share repurchase program authorization remained available for repurchases. The Company will continue to evaluate the repurchase of additional shares to cover dilution as economic conditions develop.

Pension Plans

The Company has both funded and unfunded defined benefit pension plans that cover employees in the United States and a number of other countries. As a result of the Company's separation from DowDuPont, the number of significant defined benefit pension plans administered by the Company decreased from 45 plans to 35 plans, with approximately $270 million of net unfunded pension liabilities transferred to DowDuPont. Plans administered by other subsidiaries of DowDuPont that were transferred to the Company were not significant. There were no changes in the number of significant other postretirement benefit plans administered by the Company as a result of the separation. Existing Company plans that were significantly impacted by the transfer of active plan participants to DowDuPont were remeasured, resulting in curtailment gains and losses and recognition of special termination benefits.

In 2020, 2019 and 2018, the Company contributed $299 million, $261 million and $1,651 million to its continuing operations pension plans respectively, including contributions to fund benefit payments for its non-qualified pension plans ($299 million, $266 million and $1,656 million, including contributions to plans of discontinued operations). In the third quarter of 2018, the Company made a $1,100 million discretionary contribution to its principal U.S. pension plan, which is included in the 2018 contribution amount above. The discretionary contribution was primarily based on the Company's funding policy, which permits contributions to defined benefit pension plans when economics encourage funding, and reflected considerations relating to tax deductibility and capital structure.

The Company expects to contribute approximately $300 million to its pension plans in 2021. See Note 20 to the Consolidated Financial Statements for additional information concerning the Company's pension plans.

Restructuring Programs

The actions related to the 2020 Restructuring Program are expected to result in additional cash expenditures of approximately $365 million, primarily through the first quarter of 2022, consisting of severance and related benefit costs and costs associated with exit and disposal activities, including contract cancellation penalties and environmental remediation. Restructuring implementation costs, primarily decommissioning and demolition activities related to asset actions, are expected to result in additional cash expenditures of approximately $150 million, primarily through the third quarter of 2022.

The activities related to the Synergy Program are expected to result in additional cash payments of approximately $35 million, primarily through the second quarter of 2021, consisting of severance and related benefit costs and costs associated with exit and disposal activities, including environmental remediation.

The Company expects to incur additional costs in the future related to its restructuring activities, which will be recognized as incurred. The Company also expects to incur additional employee-related costs, including involuntary termination benefits related to its other optimization activities. These costs cannot be reasonably estimated at this

time. See Note 6 to the Consolidated Financial Statements for additional information on the Company's restructuring activities.

Digital Acceleration
On January 28, 2021, Dow announced plans for Digital Acceleration: expanding digital tools to accelerate materials science innovation; further enhancing the e-commerce buying and fulfillment experience for Dow's customers; and adopting real-time digital manufacturing insights, operational data intelligence and demand sensing to enhance the productivity and reliability of Dow's operations. The activities related to Digital Acceleration are expected to result in additional cash expenditures of approximately $400 million, primarily through the end of 2022.

Integration and Separation Costs
Integration and separation costs, which reflect costs related to post-Merger integration and business separation activities and costs related to the ownership restructure of Dow Silicones, were $239 million in 2020, $1,063 million and $1,039 million for Dow Inc. and TDCC, respectively, in 2019 and $1,179 million in 2018. Integration and separation costs related to post-Merger integration and business separation activities were completed as of December 31, 2020.

Contractual Obligations
The following table summarizes the Company's contractual obligations, commercial commitments and expected cash requirements for interest at December 31, 2020. Additional information related to these obligations can be found in Notes 15, 16, 17 and 20 to the Consolidated Financial Statements.

Contractual Obligations at Dec 31, 2020	*Payments Due In*				
In millions	*2021*	*2022-2023*	*2024-2025*	*2026 and beyond*	*Total*
Dow Inc.					
Long-term debt obligations [1]	$ 460	$ 617	$ 1,796	$ 14,443	$ 17,316
Expected cash requirements for interest [2]	764	1,453	1,354	8,368	11,939
Pension and other postretirement benefits	421	1,201	1,586	8,625	11,833
Operating leases [3]	477	699	406	703	2,285
Purchase obligations [4]	2,624	4,082	3,292	3,384	13,382
Other noncurrent obligations [5]	—	1,059	717	1,394	3,170
Total	$ 4,746	$ 9,111	$ 9,151	$ 36,917	$ 59,925
TDCC					
Long-term debt obligations [1]	$ 460	$ 617	$ 1,796	$ 14,443	$ 17,316
Expected cash requirements for interest [2]	764	1,453	1,354	8,368	11,939
Pension and other postretirement benefits	421	1,201	1,586	8,625	11,833
Operating leases [3]	477	699	406	703	2,285
Purchase obligations [4]	2,624	4,082	3,292	3,384	13,382
Other noncurrent obligations [5]	—	1,025	619	1,371	3,015
Total	$ 4,746	$ 9,077	$ 9,053	$ 36,894	$ 59,770

1. Excludes unamortized debt discount and issuance costs of $365 million. Includes finance lease obligations of $518 million.
2. Cash requirements for interest on long-term debt was calculated using current interest rates at December 31, 2020, and includes $235 million of various floating rate notes.
3. Includes imputed interest of $348 million.
4. Includes outstanding purchase orders and other commitments greater than $1 million obtained through a survey conducted within the Company.
5. Includes liabilities related to asbestos litigation, environmental remediation, legal matters and other noncurrent liabilities. In addition to these items, Dow Inc. includes liabilities related to noncurrent obligations with DuPont and Corteva. The table excludes uncertain tax positions due to uncertainties in the timing of the effective settlement of tax positions with the respective taxing authorities and deferred tax liabilities as it is impractical to determine whether there will be a cash impact related to these liabilities. The table also excludes deferred revenue and negative investment balances related to equity method investments as these items do not represent future cash requirements arising from contractual payment obligations.

The Company expects to meet its contractual obligations through its normal sources of liquidity and believes it has the financial resources to satisfy these contractual obligations.

Off-Balance Sheet Arrangements
Off-balance sheet arrangements are obligations the Company has with nonconsolidated entities related to transactions, agreements or other contractual arrangements. The Company holds variable interests in joint ventures accounted for under the equity method of accounting. The Company is not the primary beneficiary of these joint ventures and therefore is not required to consolidate these entities (see Note 24 to the Consolidated Financial Statements). In addition, see Note 14 to the Consolidated Financial Statements for information regarding the transfer of financial assets.

Guarantees arise during the ordinary course of business from relationships with customers, committed accounts receivable facilities and nonconsolidated affiliates when the Company undertakes an obligation to guarantee the performance of others if specific triggering events occur. The Company had outstanding guarantees at December 31, 2020 of $251 million, compared with $3,952 million at December 31, 2019. In the fourth quarter of 2020, the remaining project completion conditions related to the Sadara project finance guarantees were fulfilled. Additional information related to guarantees can be found in the “Guarantees” section of Note 16 to the Consolidated Financial Statements.

Fair Value Measurements
See Note 20 to the Consolidated Financial Statements for information related to fair value measurements of pension and other postretirement benefit plan assets; see Note 22 for information related to other-than-temporary impairments; and, see Note 23 for additional information concerning fair value measurements.

OTHER MATTERS

Recent Accounting Guidance
See Note 2 to the Consolidated Financial Statements for a summary of recent accounting guidance.

Critical Accounting Estimates
The preparation of financial statements and related disclosures in accordance with U.S. GAAP requires management to make judgments, assumptions and estimates that affect the amounts reported in the consolidated financial statements and accompanying notes. Note 1 to the Consolidated Financial Statements describes the significant accounting policies and methods used in the preparation of the consolidated financial statements. Following are the Company’s accounting policies impacted by judgments, assumptions and estimates:

Litigation
The Company is subject to legal proceedings and claims arising out of the normal course of business including product liability, patent infringement, employment matters, governmental tax and regulation disputes, contract and commercial litigation and other actions. The Company routinely assesses the legal and factual circumstances of each matter, the likelihood of any adverse outcomes to these matters, as well as ranges of probable losses. A determination of the amount of the reserves required, if any, for these contingencies is made after thoughtful analysis of each known claim. The Company has an active risk management program consisting of numerous insurance policies secured from many carriers covering various timeframes. These policies may provide coverage that could be utilized to minimize the financial impact, if any, of certain contingencies. The required reserves may change in the future due to new developments in each matter. For further discussion, see Note 16 to the Consolidated Financial Statements.

Asbestos-Related Matters of Union Carbide Corporation
Union Carbide is and has been involved in a large number of asbestos-related suits filed primarily in state courts during the past four decades. These suits principally allege personal injury resulting from exposure to asbestos-containing products and frequently seek both actual and punitive damages. The alleged claims primarily relate to products that Union Carbide sold in the past, alleged exposure to asbestos-containing products located on Union Carbide’s premises, and Union Carbide’s responsibility for asbestos suits filed against a former Union Carbide subsidiary, Amchem Products, Inc. ("Amchem"). Each year, Ankura Consulting Group, LLC ("Ankura") performs a review for Union Carbide based upon historical asbestos claims, resolution and asbestos-related defense and processing costs, through the terminal year of 2049. Union Carbide compares current asbestos claim and resolution activity, including asbestos-related defense and processing costs, to the results of the most recent Ankura study at each balance sheet date to determine whether the asbestos-related liability continues to be appropriate.

For additional information, see Part I, Item 3. Legal Proceedings; Asbestos-Related Matters of Union Carbide Corporation in Management’s Discussion and Analysis of Financial Condition and Results of Operations; and Notes 1 and 16 to the Consolidated Financial Statements.

Environmental Matters
The Company determines the costs of environmental remediation of its facilities and formerly owned facilities based on evaluations of current law and existing technologies. Inherent uncertainties exist in such evaluations primarily due to unknown environmental conditions, changing governmental regulations and legal standards regarding liability, and emerging remediation technologies. The recorded liabilities are adjusted periodically as remediation efforts progress, or as additional technical or legal information becomes available. At December 31, 2020, the Company had accrued obligations of $1,244 million for probable environmental remediation and restoration costs, including $248 million for the remediation of Superfund sites. This is management's best estimate of the costs for remediation and restoration with respect to environmental matters for which the Company has accrued liabilities, although it is reasonably possible that the ultimate cost with respect to these particular matters could range up to approximately one and a half times that amount. For further discussion, see Environmental Matters in Management's Discussion and Analysis of Financial Condition and Results of Operations and Notes 1 and 16 to the Consolidated Financial Statements.

Goodwill
The Company performs goodwill impairment testing at the reporting unit level. Reporting units are the level at which discrete financial information is available and reviewed by business management on a regular basis. The Company tests goodwill for impairment annually (in the fourth quarter), or more frequently when events or changes in circumstances indicate it is more likely than not that the fair value of a reporting unit has declined below its carrying value. Goodwill is evaluated for impairment using qualitative and/or quantitative testing procedures. The separation from DowDuPont on April 1, 2019, did not impact the composition of the Company's six reporting units: Coatings & Performance Monomers, Consumer Solutions, Hydrocarbons & Energy, Industrial Solutions, Packaging and Specialty Plastics and Polyurethanes & Construction Chemicals. The ECP businesses received as part of the separation from DowDuPont are included in the Hydrocarbons & Energy and Packaging and Specialty Plastics reporting units. At December 31, 2020, goodwill was carried by five out of six of the Company's reporting units.

The Company has the option to first perform qualitative testing to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying value. Qualitative factors assessed at the Company level include, but are not limited to, GDP growth rates, long-term hydrocarbon and energy prices, equity and credit market activity, discount rates, foreign exchange rates and overall financial performance. Qualitative factors assessed at the reporting unit level include, but are not limited to, changes in industry and market structure, competitive environments, planned capacity and new product launches, cost factors such as raw material prices, and financial performance of the reporting unit. If the Company chooses not to complete a qualitative assessment for a given reporting unit or if the initial assessment indicates that it is more likely than not that the estimated fair value of a reporting unit is less than its carrying value, additional quantitative testing is required.

Quantitative testing requires the fair value of the reporting unit to be compared with its carrying value. If the reporting unit's carrying value exceeds its fair value, an impairment charge is recognized for the difference. The Company utilizes a discounted cash flow methodology to calculate the fair value of its reporting units. This valuation technique has been selected by management as the most meaningful valuation method due to the limited number of market comparables for the Company's reporting units. However, where market comparables are available, the Company includes EBIT/EBITDA multiples as part of the reporting unit valuation analysis. The discounted cash flow valuations are completed using the following key assumptions: projected revenue growth rates or compounded annual growth rates, discount rates, tax rates, terminal values, currency exchange rates, and forecasted long-term hydrocarbon and energy prices, by geographic region and by year, which include the Company's key feedstocks as well as natural gas and crude oil (due to its correlation to naphtha). Currency exchange rates and long-term hydrocarbon and energy prices are established for the Company as a whole and applied consistently to all reporting units, while revenue growth rates, discount rates and tax rates are established by reporting unit to account for differences in business fundamentals and industry risk. These key assumptions drive projected EBIT/EBITDA and EBIT/EBITDA margins, which are key elements of management's internal control over the reporting unit valuation analysis.

2020 Goodwill Impairment Testing
In 2020, there were no events or changes in circumstances that warranted interim goodwill impairment testing. In the fourth quarter of 2020, qualitative testing was performed for all reporting units carrying goodwill. Based on the results of the qualitative testing, quantitative testing was performed on one reporting unit. For the qualitative assessments, management considered factors at both the Company level and the reporting unit level. Based on the qualitative assessments for the reporting units, management concluded it is not more likely than not that the fair value of the reporting unit is less than the carrying value of the reporting unit. For the quantitative testing, the fair value exceeded the carrying value of the reporting unit.

Pension and Other Postretirement Benefits
The amounts recognized in the consolidated financial statements related to pension and other postretirement benefits are determined from actuarial valuations. Inherent in these valuations are assumptions including expected return on plan assets, discount rates at which the liabilities could have been settled at December 31, 2020, rate of increase in future compensation levels, mortality rates and health care cost trend rates. These assumptions are updated annually and are disclosed in Note 20 to the Consolidated Financial Statements. In accordance with U.S. GAAP, actual results that differ from the assumptions are accumulated and amortized over future periods and, therefore, affect expense recognized and obligations recorded in future periods. The U.S. pension plans represent 68 percent of the Company's pension plan assets and 69 percent of the pension obligations.

The Company uses the spot rate approach to determine the discount rate utilized to measure the service cost and interest cost components of net periodic pension and other postretirement benefit costs for the U.S. and other selected countries. Under the spot rate approach, the Company calculates service cost and interest cost by applying individual spot rates from the Willis Towers Watson RATE:Link yield curve (based on high-quality corporate bond yields) for each selected country to the separate expected cash flow components of service cost and interest cost; service cost and interest cost for all other plans (including all plans prior to adoption) are determined on the basis of the single equivalent discount rates derived in determining those plan obligations.

The following information relates to the U.S. plans only; a similar approach is used for the Company's non-U.S. plans.

The Company determines the expected long-term rate of return on assets by performing a detailed analysis of historical and expected returns based on the strategic asset allocation approved by the Company's Investment Committee and the underlying return fundamentals of each asset class. The Company's historical experience with the pension fund asset performance is also considered. The expected return of each asset class is derived from a forecasted future return confirmed by historical experience. The expected long-term rate of return is an assumption and not what is expected to be earned in any one particular year. The weighted-average long-term rate of return assumption used for determining net periodic pension expense for 2020 was 7.95 percent. The weighted-average assumption to be used for determining 2021 net periodic pension expense is 7.96 percent. Future actual pension expense will depend on future investment performance, changes in future discount rates and various other factors related to the population of participants in the Company's pension plans.

The discount rates utilized to measure the pension and other postretirement obligations of the U.S. qualified plans are based on the yield on high-quality corporate fixed income investments at the measurement date. Future expected actuarially determined cash flows for the Company's U.S. plans are individually discounted at the spot rates under the Willis Towers Watson U.S. RATE:Link 60-90 corporate yield curve (based on 60th to 90th percentile high-quality corporate bond yields) to arrive at the plan's obligations as of the measurement date. The weighted average discount rate utilized to measure pension obligations decreased to 2.71 percent at December 31, 2020, from 3.41 percent at December 31, 2019.

At December 31, 2020, the U.S. qualified plans were underfunded on a projected benefit obligation basis by $5,873 million. The underfunded amount increased $1,105 million compared with December 31, 2019. The increase in the underfunded amount in 2020 was primarily due to the impact of lower discount rates, which was partially offset by overall favorable asset returns. The Company did not make contributions to the U.S. qualified plans in 2020.

The assumption for the long-term rate for the compensation levels for the U.S. qualified plans was unchanged. The Company uses a generational mortality table to determine the duration of its pension and other postretirement obligations.

The following discussion relates to the Company's significant pension plans.

The Company bases the determination of pension expense on a market-related valuation of plan assets that reduces year-to-year volatility. This market-related valuation recognizes investment gains or losses over a five-year period from the year in which they occur. Investment gains or losses for this purpose represent the difference between the expected return calculated using the market-related value of plan assets and the actual return based on the market value of plan assets. Since the market-related value of plan assets recognizes gains or losses over a five-year period, the future value will be impacted when previously deferred gains or losses are recorded. Over the life of the plans, both gains and losses have been recognized and amortized. At December 31, 2020, net gains of $1,396 million remain to be recognized in the calculation of the market-related value of plan assets. These net gains will result in decreases in future pension expense as they are recognized in the market-related value of assets.

The net increase in the market-related value of assets due to the recognition of prior gains is presented in the following table:

Net Increase in Market-Related Asset Value Due to Recognition of Prior Gains In millions	
2021	$ 359
2022	182
2023	627
2024	228
Total	$ 1,396

At December 31, 2020, the Company expects pension expense to decrease in 2021 by approximately $25 million. The decrease in pension expense is primarily due to the lower interest cost component.

A 25 basis point increase or decrease in the long-term return on assets assumption would change the Company's total pension expense for 2021 by $61 million. A 25 basis point increase in the discount rate assumption would lower the Company's total pension expense for 2021 by $55 million. A 25 basis point decrease in the discount rate assumption would increase the Company's total pension expense for 2021 by $60 million. A 25 basis point change in the long-term return and discount rate assumptions would have an immaterial impact on the other postretirement benefit expense for 2021.

Income Taxes

Deferred tax assets and liabilities are determined based on temporary differences between the financial reporting and tax bases of assets and liabilities, applying enacted tax rates expected to be in effect for the year in which the differences are expected to reverse. Based on the evaluation of available evidence, both positive and negative, the Company recognizes future tax benefits, such as net operating loss carryforwards and tax credit carryforwards, to the extent that realizing these benefits is considered to be more likely than not.

At December 31, 2020, the Company had a net deferred tax asset balance of $1,810 million, after valuation allowances of $1,302 million.

In evaluating the ability to realize the deferred tax assets, the Company relies on, in order of increasing subjectivity, taxable income in prior carryback years, the future reversals of existing taxable temporary differences, tax planning strategies and forecasted taxable income using historical and projected future operating results.

At December 31, 2020, the Company had deferred tax assets for tax loss and tax credit carryforwards of $2,004 million, $708 million of which is subject to expiration in the years 2021 through 2025. In order to realize these deferred tax assets for tax loss and tax credit carryforwards, the Company needs taxable income of approximately $27,331 million across multiple jurisdictions. The taxable income needed to realize the deferred tax assets for tax loss and tax credit carryforwards that are subject to expiration from 2021 through 2025 is approximately $6,405 million.

The Company recognizes the financial statement effects of an uncertain income tax position when it is more likely than not, based on technical merits, that the position will be sustained upon examination. At December 31, 2020, the Company had uncertain tax positions for both domestic and foreign issues of $373 million.

The Company accrues for non-income tax contingencies when it is probable that a liability to a taxing authority has been incurred and the amount of the contingency can be reasonably estimated. At December 31, 2020, the Company had a non-income tax contingency reserve for both domestic and foreign issues of $33 million.

Indemnification Assets and Liabilities

In connection with the 2019 separation from DowDuPont and the 2016 ownership restructure of Dow Silicones, Dow entered into agreements that established each party's indemnification obligations for certain tax, environmental, litigation and other matters, subject to certain conditions and limits. The Company records indemnification assets when collection is deemed probable and engages with indemnifying parties and assesses publicly available information to evaluate collectability. The underlying tax, environmental, litigation and other liabilities for which the Company claims indemnification are subject to significant judgment and potential disputes could adversely impact collectability. The Company assesses the collectability of indemnification assets when events or changes in circumstances indicate the carrying values may not be recoverable. At December 31, 2020, indemnification assets were $225 million and $115 million for Dow Inc. and TDCC, respectively ($210 million and $100 million for Dow Inc. and TDCC respectively at December 31, 2019).

The Company records indemnification liabilities when it is probable that a liability has been incurred and the amount can be reasonably estimated. At December 31, 2020, indemnification liabilities related to the agreements were $657 million for Dow Inc. and zero for TDCC ($848 million for Dow Inc. and zero for TDCC at December 31, 2019). This represents management's best estimate of the Company's obligations under the agreements, although it is reasonably possible that future events could cause the actual values to be higher or lower than those projected or those recorded. For further discussion, see Notes 3 and 16 to the Consolidated Financial Statements.

Environmental Matters

Environmental Policies

Dow is committed to world-class environmental, health and safety ("EH&S") performance, as demonstrated by industry-leading performance, a long-standing commitment to Responsible Care®, and a strong commitment to achieve the Company's 2025 Sustainability Goals – goals that set the standard for sustainability in the chemical industry by focusing on improvements in the Company's local corporate citizenship and product stewardship, and by actively pursuing methods to reduce its environmental impact.

To meet the Company's public commitments, as well as the stringent laws and government regulations related to environmental protection and remediation to which its global operations are subject, the Company has well-defined policies, requirements and management systems. The Company's EH&S Management System ("EMS") defines the "who, what, when and how" needed for the businesses to achieve the Company's policies, requirements, performance objectives, leadership expectations and public commitments. To ensure effective utilization, the EMS is integrated into a company-wide management system for EH&S, Operations, Quality and Human Resources.

It is the Company's policy to adhere to a waste management hierarchy that minimizes the impact of wastes and emissions on the environment. First, work to eliminate or minimize the generation of waste and emissions at the source through research, process design, plant operations and maintenance. Second, find ways to reuse and recycle materials. Finally, unusable or non-recyclable hazardous waste is treated before disposal to eliminate or reduce the hazardous nature and volume of the waste. Treatment may include destruction by chemical, physical, biological or thermal means. Disposal of waste materials in landfills is considered only after all other options have been thoroughly evaluated. The Company has specific requirements for waste that is transferred to non-Dow facilities, including the periodic auditing of these facilities.

The Company believes third-party verification and transparent public reporting are cornerstones of world-class EH&S performance and building public trust. Numerous Dow sites in Europe, Latin America, Asia Pacific and the U.S. & Canada have received third-party verification of the Company's compliance with Responsible Care® and with outside specifications such as ISO-14001. The Company continues to be a global champion of Responsible Care® and has worked to broaden the application and impact of Responsible Care® around the world through engagement with suppliers, customers and joint venture partners.

The Company's EH&S policies helped to achieve health and safety performance targets in 2020. The Company's safety continued to improve in 2020 based on process and personal safety project implementations. Improvement in these areas, as well as environmental compliance, remains a top management priority, with initiatives underway to further improve performance and compliance in 2021 as the Company continues to implement the 2025 Sustainability Goals and new, progressive, multi-decade sustainability targets around advancing a circular economy and climate protection.

Detailed information on Dow's performance regarding environmental matters and goals is accessible through the Company's Science & Sustainability webpage at *www.dow.com/sustainability*. The website and its content are not deemed incorporated by reference into this report.

Chemical Security

Public and political attention continues to be placed on the protection of critical infrastructure, including the chemical industry, from security threats. Terrorist attacks, natural disasters and cyber incidents have increased global concerns about the security and safety of chemical production and distribution. Many, including the Company and the American Chemistry Council, have called for uniform risk-based and performance-based national standards for securing the U.S. chemical industry. U.S. regulations set forth risk-based and performance-based standards that must be met at U.S. Coast Guard-regulated facilities. The Company is subject to U.S. Chemical Plant Security regulations and Chemical Facility Anti-Terrorism Standards which were implemented by the U.S. Department of Homeland Security. The Company is also subject to the requirements of the Rail Transportation Security Rule issued by the U.S. Transportation Security Administration. The Company continues to support uniform risk-based national standards for securing the chemical industry.

Since 1988, the Company has maintained a comprehensive, multi-level security plan that focuses on security, emergency planning, preparedness and response. This plan, which has been activated in response to significant world and national events, is reviewed on an annual basis. The Company continues to improve its security plans, placing emphasis on the safety of Dow communities and people by being prepared to meet risks at any level and to address both internal and external identifiable risks. The security plan includes regular vulnerability assessments, security audits, mitigation efforts and physical security upgrades designed to reduce vulnerability. The Company's security plans are also designed to avert interruptions of normal business operations that could materially and adversely affect the Company's results of operations, financial condition and cash flows.

The Company played a key role in the development and implementation of the American Chemistry Council's Responsible Care® Security Code ("Security Code"), which requires that all aspects of security – including facility, transportation and cyberspace – be assessed and gaps addressed. Through the global implementation of the Security Code, the Company has permanently heightened the level of security – not just in the United States, but worldwide. The Company employs several hundred employees and contractors in its Emergency Services and Security department worldwide. In 2019, the Company established its Global Security Operations Center ("GSOC") to provide 24-hour/day, 365-day/year real-time monitoring of global risks to Dow assets and people. The GSOC employs state-of-the-art social media monitoring, threat reporting and geo-fencing capabilities to analyze global risks and report those risks, facilitating decision-making and actions to prevent Dow crises.

Through the implementation of the Security Code, including voluntary security enhancements and upgrades, the Company is well-positioned to comply with U.S. chemical facility regulations and other regulatory security frameworks. The Company participates with the American Chemistry Council to periodically review and update the Security Code.

The Company continues to work collaboratively across the supply chain on Responsible Care®, supply chain design, emergency preparedness, shipment visibility and transportation of hazardous materials. The Company cooperated with public and private entities to lead the implementation of advanced tank car design, and track and trace technologies. Further, the Company's Distribution Risk Review process addresses potential threats in all modes of transportation across the Company's supply chain. To reduce vulnerabilities, the Company maintains security measures that meet or exceed regulatory and industry security standards in all areas in which they operate.

The Company's initiatives relative to chemical security, emergency preparedness and response, Community Awareness and Emergency Responses and crisis management are implemented consistently at all Dow sites on a global basis. The Company participates with chemical associations globally and participates as an active member of the U.S. delegation to the G7 Global Partnership Sub-Working Group on Chemical Security.

Climate Change
Climate change matters for the Company are likely to be driven by several categories of risks related to the transition to a lower-carbon economy ("Transition Risks") and risks related to the physical impacts of climate change ("Physical Risks").

Transition Risks
Transition Risks include carbon pricing mechanisms, transition to lower emissions technology, increased cost of raw materials, and mandates on and regulation of existing products and services. Carbon pricing is a market-based strategy for lowering global warming emissions by putting a monetary value on carbon emissions, allowing for the costs of climate impacts and opportunities for low-carbon energy options to be reflected in production and consumption choices. Approximately 35 percent of Dow's carbon emissions are generated from operations in Canada and the European Union ("EU") where carbon pricing is already in place. As part of the European Green Deal, the European Commission proposed a 2030 greenhouse gas ("GHG") emissions reduction target of at least 55 percent below 1990 levels, with a goal for the EU to be carbon neutral by 2050. In China, an emissions trading system, initially proposed to cover the power sector only, is expected to gradually expand to cover a total of eight sectors, including the petrochemical and chemical industries, though no specific timeline for implementation and expansion has been outlined.

These carbon pricing mechanisms will not only increase Dow's direct costs to operate but will also result in increased energy costs. Dow mitigates the direct cost impact of existing regulation through research and development projects designed to increase energy efficiency, and capital investment projects that will reduce the Company's energy usage and carbon footprint. The Company is also exploring options for carbon capture, utilization and storage ("CCUS") and electrification of Dow's processes. Dow sees CCUS as a mechanism to help bridge the time period between the onset of increased carbon regulation and the technology available to economically reduce Dow's GHG emissions. Dow also incorporates a theoretical internal carbon price into its business planning and risk management strategies. This theoretical price of carbon is also included in internal calculations used for prioritizing capital projects. Ultimately the goal of utilizing an internal carbon price is to mitigate the risk of Dow's carbon exposure to help ensure future resiliency.

Physical Risks
Operationally, climate change may result in more frequent severe weather events, potential changes in precipitation patterns and extreme variability in weather patterns, which can disrupt operations. Several of Dow's production facilities are located in water-scarce areas and water shortages could impact normal production. Changes in average precipitation could have an impact on the availability and price of water. The Company has engineered susceptible facilities, particularly on the U.S. Gulf Coast, to better withstand severe weather and rising sea levels, and continues to study the long-term implications of changing climate parameters on water availability, plant siting issues and other impacts. Preparedness plans are developed that detail actions needed in the event of severe weather. These measures have historically been in place and these activities and associated costs are driven by normal operational preparedness.

In 2019, the most recent period for which data is available, the Company's greenhouse gas intensity was down approximately 3 percent from 2018 and by a total of approximately 13 percent since the baseline year of 2006. In addition, the Company is on track to meet its target of purchasing 750 megawatts of renewable power by 2025.

The Company continues progress toward its defined 2025 Sustainability Goals and is taking further action to lessen its carbon impact moving forward. In June 2020, the Company announced a new, multi-decade carbon target to reduce its net annual carbon emission by 5 million metric tons compared with its 2020 baseline, a reduction of approximately 15 percent, and an intention to be carbon neutral (Scopes 1+2+3, as defined by the Greenhouse Gas Protocol, plus product benefits) by 2050.

Dow's action plan to achieve carbon neutrality by 2050 includes:

- Optimizing energy efficiency of facilities and processes
- Increasing renewables in purchased power mix
- Investments in CCUS
- Developing low-carbon technologies for emission reductions
- Deploying materials to enable emissions reductions for customers and industries

The Company intends to meet its commitment to implement the recommendations of the Task Force on Climate-related Financial Disclosures ("TCFD") over the next two years. Disclosures aligned with TCFD recommendations will be included in the Company's annual Sustainability Report.

Environmental Remediation

The Company accrues the costs of remediation of its facilities and formerly owned facilities based on current law and regulatory requirements. The nature of such remediation can include management of soil and groundwater contamination. The accounting policies adopted to properly reflect the monetary impacts of environmental matters are discussed in Note 1 to the Consolidated Financial Statements. To assess the impact on the financial statements, environmental experts review currently available facts to evaluate the probability and scope of potential liabilities. Inherent uncertainties exist in such evaluations primarily due to unknown environmental conditions, changing governmental regulations and legal standards regarding liability, and the ability to apply remediation technologies. These liabilities are adjusted periodically as remediation efforts progress or as additional technical or legal information becomes available. The Company had an accrued liability of $996 million at December 31, 2020, related to the remediation of current or former Dow-owned sites. At December 31, 2019, the liability related to remediation was $948 million.

In addition to current and former Dow-owned sites, under the federal Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA") and equivalent state laws (hereafter referred to collectively as "Superfund Law"), the Company is liable for remediation of other hazardous waste sites where the Company allegedly disposed of, or arranged for the treatment or disposal of, hazardous substances. Because Superfund Law imposes joint and several liability upon each party at a site, the Company has evaluated its potential liability in light of the number of other companies that have also been named potentially responsible parties ("PRPs") at each site, the estimated apportionment of costs among all PRPs, and the financial ability and commitment of each to pay its expected share. The Company's remaining liability for the remediation of Superfund sites was $248 million at December 31, 2020 ($207 million at December 31, 2019). The Company has not recorded any third-party recovery related to these sites as a receivable.

Information regarding environmental sites is provided below:

Environmental Sites	*Dow-owned Sites* [1]		*Superfund Sites* [2]	
	2020	*2019*	*2020*	*2019*
Number of sites at Jan 1	178	178	133	131
Sites added during year	7	7	—	6
Sites closed during year	—	(7)	(1)	(4)
Number of sites at Dec 31	185	178	132	133

1. Dow-owned sites are sites currently or formerly owned by the Company. In the United States, remediation obligations are imposed by the Resource Conservation and Recovery Act or analogous state law. At December 31, 2020, 24 of these sites (28 sites at December 31, 2019) were formerly owned by Dowell Schlumberger, Inc., a group of companies in which the Company previously owned a 50 percent interest. The Company sold its interest in Dowell Schlumberger in 1992.
2. Superfund sites are sites, including sites not owned by the Company, where remediation obligations are imposed by Superfund Law.

Additional information is provided below for the Company's Midland, Michigan, manufacturing site and Midland off-site locations (collectively, the "Midland sites"), as well as a Superfund site in Wood-Ridge, New Jersey, the locations for which the Company has the largest potential environmental liabilities.

In the early days of operations at the Midland manufacturing site, wastes were usually disposed of on-site, resulting in soil and groundwater contamination, which has been contained and managed on-site under a series of Resource Conservation and Recovery Act permits and regulatory agreements. The Hazardous Waste Operating License for the Midland manufacturing site, issued in 2003, and renewed and replaced in September 2015, also included provisions for the Company to conduct an investigation to determine the nature and extent of off-site contamination from historic Midland manufacturing site operations. In January 2010, the Company, the U.S. Environmental Protection Agency ("EPA") and the State of Michigan ("State") entered into an Administrative Order on Consent that requires the Company to conduct a remedial investigation, a feasibility study and a remedial design for the Tittabawassee River, the Saginaw River and the Saginaw Bay, and pay the oversight costs of the EPA and the State under the authority of CERCLA. See Note 16 to the Consolidated Financial Statements for further information relating to Midland off-site environmental matters.

Rohm and Haas, a wholly owned subsidiary of the Company, is a PRP at the Wood-Ridge, New Jersey Ventron/Velsicol Superfund Site, and the adjacent Berry's Creek Study Area ("BCSA") (collectively, the "Wood-Ridge sites"). Rohm and Haas is a successor in interest to a company that owned and operated a mercury processing facility, where wastewater and waste handling resulted in contamination of soils and adjacent creek sediments. In 2018, the Berry's Creek Study Area Potentially Responsible Party Group ("PRP Group"), consisting of over 100 PRPs, completed a Remedial Investigation/Feasibility Study for the BCSA. During that time, the EPA concluded that an "iterative or adaptive approach" was appropriate for cleaning up the BCSA. Thus, each phase of remediation will be followed by a period of monitoring to assess its effectiveness and determine if there is a need for more work. In September 2018, the EPA signed a Record of Decision ("ROD 1") which describes the initial phase of the EPA's plan to clean-up the BCSA. ROD 1 will remediate waterways and major tributaries in the most contaminated part of the BCSA. The PRP Group has signed agreements with the EPA to design the selected remedy. Although there is currently much uncertainty as to what will ultimately be required to remediate the BCSA and Rohm and Haas's share of these costs has yet to be determined, the range of activities that are required in the interim Record of Decision is known in general terms.

At December 31, 2020, the Company had accrued liabilities totaling $370 million ($368 million at December 31, 2019) for environmental remediation at the Midland and Wood-Ridge sites. In 2020, the Company spent $53 million ($32 million in 2019) for environmental remediation at the Midland and Wood-Ridge sites.

During the third quarter of 2020, the Company accrued additional liabilities totaling $106 million related to environmental remediation matters resulting from the Company's evaluation of the costs required to manage remediation activities at sites Dow will permanently shut down as part of its 2020 Restructuring Program. In addition, the Company recorded indemnification assets of $50 million related to Dow Silicones' environmental matters. Net of indemnifications, the Company recognized a pretax charge of $56 million related to these environmental matters, included in "Restructuring, goodwill impairment and asset related charges - net" in the consolidated statements of income.

During the third quarter of 2019, the Company accrued additional liabilities totaling $447 million related to environmental remediation matters at a number of current and historical locations. The additional accrual primarily resulted from: the culmination of long-standing negotiations and discussions with regulators and agencies, including technical studies supporting higher cost estimates for final or staged remediation plans; the Company's evaluation of the cost required to manage remediation activities at sites affected by Dow's separation from DowDuPont and related agreements with Corteva and DuPont; and, the Company's review of its closure strategies and obligations to monitor ongoing operations and maintenance activities. In addition, the Company recorded indemnification assets of $48 million related to Dow Silicones' environmental matters. Net of indemnifications, the Company recognized a pretax charge of $399 million related to these environmental matters, included in "Cost of sales" in the consolidated statements of income.

In total, the Company's accrued liability for probable environmental remediation and restoration costs was $1,244 million at December 31, 2020, compared with $1,155 million at December 31, 2019. This is management's best estimate of the costs for remediation and restoration with respect to environmental matters for which the Company has accrued liabilities, although it is reasonably possible that the ultimate cost with respect to these particular matters could range up to approximately one and a half times that amount. Consequently, it is reasonably possible that environmental remediation and restoration costs in excess of amounts accrued could have a material impact on the Company's results of operations, financial condition and cash flows. It is the opinion of the Company's management, however, that the possibility is remote that costs in excess of the range disclosed will have a material impact on the Company's results of operations, financial condition and cash flows.

The amounts charged to income on a pretax basis related to environmental remediation totaled $234 million in 2020, $588 million in 2019 and $176 million in 2018. The amounts charged to income on a pretax basis related to operating the Company's current pollution abatement facilities, excluding internal recharges, totaled $616 million in 2020, $677 million in 2019 and $695 million in 2018. Capital expenditures for environmental protection were $80 million in 2020, $83 million in 2019 and $55 million in 2018.

Asbestos-Related Matters of Union Carbide Corporation

Union Carbide is and has been involved in a large number of asbestos-related suits filed primarily in state courts during the past four decades. These suits principally allege personal injury resulting from exposure to asbestos-containing products and frequently seek both actual and punitive damages. The alleged claims primarily relate to products that Union Carbide sold in the past, alleged exposure to asbestos-containing products located on Union Carbide's premises, and Union Carbide's responsibility for asbestos suits filed against a former Union Carbide subsidiary, Amchem. In many cases, plaintiffs are unable to demonstrate that they have suffered any compensable loss as a result of such exposure, or that injuries incurred in fact resulted from exposure to Union Carbide's products.

The table below provides information regarding asbestos-related claims pending against Union Carbide and Amchem based on criteria developed by Union Carbide and its external consultants:

Asbestos-Related Claim Activity	*2020*	*2019*	*2018*
Claims unresolved at Jan 1	11,117	12,780	15,427
Claims filed	4,857	5,743	6,599
Claims settled, dismissed or otherwise resolved	(6,848)	(7,406)	(9,246)
Claims unresolved at Dec 31	9,126	11,117	12,780
Claimants with claims against both Union Carbide and Amchem	(2,904)	(3,837)	(4,675)
Individual claimants at Dec 31	6,222	7,280	8,105

Plaintiffs' lawyers often sue numerous defendants in individual lawsuits or on behalf of numerous claimants. As a result, the damages alleged are not expressly identified as to Union Carbide, Amchem or any other particular defendant, even when specific damages are alleged with respect to a specific disease or injury. In fact, there are no asbestos personal injury cases in which only Union Carbide and/or Amchem are the sole named defendants. For these reasons and based upon Union Carbide's litigation and settlement experience, Union Carbide does not consider the damages alleged against Union Carbide and Amchem to be a meaningful factor in its determination of any potential asbestos-related liability.

For additional information see Part I, Item 3. Legal Proceedings and Asbestos-Related Matters of Union Carbide Corporation in Note 16 to the Consolidated Financial Statements.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

The Company's business operations give rise to market risk exposure due to changes in foreign exchange rates, interest rates, commodity prices and other market factors such as equity prices. To manage such risks effectively, the Company enters into hedging transactions, pursuant to established guidelines and policies that enable it to mitigate the adverse effects of financial market risk. Derivatives used for this purpose are designated as hedges per the accounting guidance related to derivatives and hedging activities, where appropriate. A secondary objective is to add value by creating additional non-specific exposure within established limits and policies; derivatives used for this purpose are not designated as hedges. The potential impact of creating such additional exposures is not material to the Company's results.

The global nature of the Company's business requires active participation in the foreign exchange markets. The Company has assets, liabilities and cash flows in currencies other than the U.S. dollar. The primary objective of the Company's foreign currency risk management is to optimize the U.S. dollar value of net assets and cash flows. To achieve this objective, the Company hedges on a net exposure basis using foreign currency forward contracts, over-the-counter option contracts, cross-currency swaps and nonderivative instruments in foreign currencies. Exposures primarily relate to assets, liabilities and bonds denominated in foreign currencies, as well as economic exposure, which is derived from the risk that currency fluctuations could affect the dollar value of future cash flows related to operating activities. The largest exposures are denominated in European currencies, the Chinese yuan, the Japanese yen and the Thai baht, although exposures also exist in other currencies in Asia Pacific, Latin America, the Middle East, Africa, India and Canada.

The main objective of interest rate risk management is to reduce the total funding cost to the Company and to alter the interest rate exposure to the desired risk profile. To achieve this objective, the Company hedges using interest rate swaps, "swaptions," and exchange-traded instruments. The Company's primary exposure is to the U.S. dollar yield curve.

The Company has a portfolio of equity securities derived primarily from the investment activities of its insurance subsidiaries. This exposure is managed in a manner consistent with the Company's market risk policies and procedures.

Inherent in the Company's business is exposure to price changes for several commodities. Some exposures can be hedged effectively through liquid tradable financial instruments. Natural gas and crude oil, along with feedstocks for ethylene and propylene production, constitute the main commodity exposures. Over-the-counter and exchange traded instruments are used to hedge these risks, when feasible.

The Company uses value-at-risk ("VAR"), stress testing and scenario analysis for risk measurement and control purposes. VAR estimates the maximum potential loss in fair market values, given a certain move in prices over a certain period of time, using specified confidence levels. The VAR methodology used by the Company is a variance/covariance model. This model uses a 97.5 percent confidence level and includes at least one year of historical data. The 2020 and 2019 year-end and average daily VAR for the aggregate of all positions are shown below. These amounts are immaterial relative to the total equity of the Company.

Total Daily VAR by Exposure Type at Dec 31	*2020*		*2019*	
In millions	*Year-end*	*Average*	*Year-end*	*Average*
Commodities	$ 23	$ 19	$ 7	$ 12
Equity securities	18	17	10	11
Foreign exchange	11	15	43	36
Interest rate	142	153	77	69
Composite	$ 194	$ 204	$ 137	$ 128

The Company's composite VAR for the aggregate of all positions increased from $137 million at December 31, 2019 to $194 million at December 31, 2020. The commodities VAR increased due to an increase in managed exposures and an increase in commodity volatility. The equity securities VAR increased due to an increase in equity volatility. The foreign exchange VAR decreased due to a decrease in managed exposures. The interest rate VAR increased due to an increase in interest rate volatility and an increase in interest rate exposure. See Note 22 to the Consolidated Financial Statements for further disclosure regarding market risk.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors of Dow Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Dow Inc. and subsidiaries (the "Company") as of December 31, 2020 and 2019, the related consolidated statements of income, comprehensive income, equity, and cash flows, for each of the three years in the period ended December 31, 2020, and the related notes and the schedule listed in the Index at Item 15(a)2 (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2020 and 2019, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2020, in conformity with accounting principles generally accepted in the United States of America.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2020, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 5, 2021, expressed an unqualified opinion on the Company's internal control over financial reporting.

Changes in Accounting Principles

As discussed in Note 1 to the financial statements, in the first quarter of 2019, the Company changed its method of accounting for leases due to the adoption of Accounting Standards Codification (ASC) Topic 842, *Leases*.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matter communicated below is a matter arising from the current-period audit of the financial statements that was communicated or required to be communicated to the audit committee and that (1) relates to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing separate opinions on the critical audit matter or on the accounts or disclosures to which it relates.

Goodwill – Annual Impairment Assessment – Refer to Note 1 and Note 13 to the financial statements

Critical Audit Matter Description

The Company tests goodwill for impairment annually (in the fourth quarter), or more frequently when events or changes in circumstances indicate it is more likely than not that the fair value of a reporting unit has declined below its carrying value. The Company utilizes a discounted cash flow methodology to calculate the fair value of its reporting units, which requires management to make significant estimates and assumptions related to projected revenue growth rates, discount rates, and earnings before interest, taxes, depreciation and amortization (“EBITDA”). Changes in these assumptions could have a significant impact on the fair value of the reporting unit and the amount of any goodwill impairment charge. As of December 31, 2020, the Company has six reporting units, all but one of which have goodwill.

Throughout 2020, the Coronavirus (COVID-19) has had substantial negative impact on the results of the Company's operations and financial performance of its reporting units. With unprecedented volatility in global financial and commodities markets, the Company's reporting units experienced decreased demand in certain end-customer markets, changes in supply and demand fundamentals, and margin compression caused by lowering of global energy prices. Given the uncertainty as to the ultimate severity and duration of the COVID-19 pandemic, the volatility in the value of Company's shares, and uneven course of economic recovery, leading up to its annual goodwill impairment test in the fourth quarter the Company continuously monitored the impact of the pandemic on its reporting units to determine if it was more likely than not that the fair value was less than the carrying value for any of its reporting units. Based on the results of qualitative assessments completed as part of the annual impairment test for all reporting units, the Company moved to performing a quantitative test for one reporting unit. The discounted cash flows of this reporting unit supported a fair value in excess of the carrying value and as such no goodwill impairment charges were recorded.

Given the significant judgments made by management to estimate the fair value of the reporting unit, performing audit procedures to evaluate the reasonableness of management's estimates and assumptions related to projected revenue growth rates, discount rates, EBITDA and EBITDA margin required a high degree of auditor judgment and an increased extent of effort, including the assistance of our fair value specialists.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to management's estimates and assumptions related to projected revenue growth rates, discount rates, EBITDA and EBITDA margin for the reporting unit subject to the quantitative test included the following, among other procedures:

- With the assistance of our fair value specialists, we tested the effectiveness of internal controls over the goodwill impairment evaluation, including controls over the selection of the discount rates and over forecasts of future revenue growth rates, EBITDA, and EBITDA margin.
- We performed a retrospective review comparing actual revenue and EBITDA results of the reporting unit for 2020 to the forecasted results from 2019.
- We performed a retrospective review comparing management's estimates and assumptions relating to revenue, EBITDA, and EBITDA margin projections for the reporting unit used for the purpose of current year's annual impairment test to the projections previously used in connection with the prior year annual impairment test.
- We evaluated the consistency of estimates and assumptions relating to revenue and EBITDA growth inherent in the discounted cash flow model for the reporting unit to those used by management in other annual forecasting activities.
- With the assistance of our fair value specialists, we performed a benchmarking exercise comparing management's estimates and assumptions related to revenue growth, EBITDA and EBITDA margin for the reporting unit as of the measurement date to the revenue growth, EBITDA and EBITDA margins of a peer group of public companies for the most recent three years and the projection period.
- With the assistance of our fair value specialists, we evaluated (1) the valuation methodology used and (2) the projections of long-term revenue growth and the discount rates by testing the underlying source information, and by developing a range of independent estimates and comparing those to the rates selected by management.

/s/ DELOITTE & TOUCHE LLP

Midland, Michigan
February 5, 2021

We have served as the Company's auditor since 1905.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholder and the Board of Directors of The Dow Chemical Company

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of The Dow Chemical Company and subsidiaries (the "Company") as of December 31, 2020 and 2019, the related consolidated statements of income, comprehensive income, equity, and cash flows, for each of the three years in the period ended December 31, 2020, and the related notes and the schedule listed in the Index at Item 15(a)2 (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2020 and 2019, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2020, in conformity with accounting principles generally accepted in the United States of America.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2020, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 5, 2021, expressed an unqualified opinion on the Company's internal control over financial reporting.

Changes in Accounting Principles

As discussed in Note 1 to the financial statements, in the first quarter of 2019, the Company changed the method of accounting for leases due to the adoption of Accounting Standards Codification (ASC) Topic 842, *Leases*.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current-period audit of the financial statements that was communicated or required to be communicated to the audit committee and that (1) relates to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing separate opinions on the critical audit matter or on the accounts or disclosures to which they relate.

Goodwill – Annual Impairment Assessment – Refer to Note 1 and Note 13 to the financial statements

Critical Audit Matter Description

The Company tests goodwill for impairment annually (in the fourth quarter), or more frequently when events or changes in circumstances, indicate it is more likely than not that the fair value of a reporting unit has declined below its carrying value. In performing quantitative assessments, the Company utilizes a discounted cash flow methodology to calculate the fair value of its reporting units, which requires management to make significant estimates and assumptions related to projected revenue growth rates, discount rates, and earnings before interest, taxes, depreciation and amortization (“EBITDA”), and EBITDA margin. Changes in these assumptions could have a significant impact on the fair value of the reporting unit and the amount of any goodwill impairment charge. At December 31, 2020, the Company has six reporting units, all but one of which have goodwill.

Throughout 2020, the Coronavirus (COVID-19) has had substantial negative impact on the results of the Company's operations and financial performance of its reporting units. With unprecedented volatility in global financial and commodities markets, the Company's reporting units experienced decreased demand in certain end-customer markets, changes in supply and demand fundamentals, and margin compression caused by lowering of global energy prices. Given the uncertainty as to the ultimate severity and duration of the COVID-19 pandemic, the volatility in the value of Company's shares, and uneven course of economic recovery, leading up to its annual goodwill impairment test in the fourth quarter the Company continuously monitored the impact of the pandemic on its reporting units to determine if it was more likely than not that the fair value was less than the carrying value for any of its reporting units. Based on the results of qualitative assessments completed as part of the annual impairment test for all reporting units, the Company moved to performing a quantitative test for one reporting unit. The discounted cash flows of this reporting unit supported a fair value in excess of the carrying value and as such no goodwill impairment charges were recorded.

Given the significant judgments made by management to estimate the fair value of the reporting unit, performing audit procedures to evaluate the reasonableness of management's estimates and assumptions related to projected revenue growth rates, discount rates, EBITDA and EBITDA margin required a high degree of auditor judgment and an increased extent of effort, including the assistance of our fair value specialists.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to management's estimates and assumptions related to projected revenue growth rates, discount rates, EBITDA and EBITDA margin for the reporting unit subject to the quantitative test included the following, among other procedures:

- With the assistance of our fair value specialists, we tested the effectiveness of internal controls over the goodwill impairment evaluation, including quarterly impairment monitoring controls and controls over the selection of the discount rates and over forecasts of future revenue growth rates, EBITDA, and EBITDA margin.
- We performed a retrospective review comparing actual revenue and EBITDA results of the reporting unit for 2020 to the forecasted results from 2019.
- We performed a retrospective review comparing management's estimates and assumptions relating to revenue, EBITDA, and EBITDA margin projections for the reporting unit used for the purpose of current year's annual impairment test to the projections previously used in connection with the prior year annual impairment test.
- We evaluated the consistency of estimates and assumptions relating to revenue and EBITDA growth inherent in the discounted cash flow model for the reporting unit to those used by management in other annual forecasting activities.
- With the assistance of our fair value specialists, we performed a benchmarking exercise comparing management's estimates and assumptions related to revenue growth, EBITDA and EBITDA margin for the reporting unit as of the measurement date to the revenue growth, EBITDA and EBITDA margins of a peer group of public companies for the most recent three years and the projection period.
- With the assistance of our fair value specialists, we evaluated (1) the valuation methodology used and (2) the projections of long-term revenue growth and the discount rates by testing the underlying source information, and by developing a range of independent estimates and comparing those to the rates selected by management.

/s/ DELOITTE & TOUCHE LLP

Midland, Michigan
February 5, 2021

We have served as the Company's auditor since 1905.

Dow Inc. and Subsidiaries

Consolidated Statements of Income

(In millions, except per share amounts) For the years ended Dec 31,	2020	2019	2018
Net sales	$ 38,542	$ 42,951	$ 49,604
Cost of sales	33,346	36,657	41,074
Research and development expenses	768	765	800
Selling, general and administrative expenses	1,471	1,590	1,782
Amortization of intangibles	401	419	469
Restructuring, goodwill impairment and asset related charges - net	708	3,219	221
Integration and separation costs	239	1,063	1,179
Equity in earnings (losses) of nonconsolidated affiliates	(18)	(94)	555
Sundry income (expense) - net	1,269	461	96
Interest income	38	81	82
Interest expense and amortization of debt discount	827	933	1,063
Income (loss) from continuing operations before income taxes	2,071	(1,247)	3,749
Provision for income taxes on continuing operations	777	470	809
Income (loss) from continuing operations, net of tax	1,294	(1,717)	2,940
Income from discontinued operations, net of tax	—	445	1,835
Net income (loss)	1,294	(1,272)	4,775
Net income attributable to noncontrolling interests	69	87	134
Net income (loss) available for Dow Inc. common stockholders	$ 1,225	$ (1,359)	$ 4,641
Per common share data:			
Earnings (loss) per common share from continuing operations - basic	$ 1.64	$ (2.42)	$ 3.80
Earnings per common share from discontinued operations - basic	—	0.58	2.41
Earnings (loss) per common share - basic	$ 1.64	$ (1.84)	$ 6.21
Earnings (loss) per common share from continuing operations - diluted	$ 1.64	$ (2.42)	$ 3.80
Earnings per common share from discontinued operations - diluted	—	0.58	2.41
Earnings (loss) per common share - diluted	$ 1.64	$ (1.84)	$ 6.21
Weighted-average common shares outstanding - basic	740.5	742.5	747.2
Weighted-average common shares outstanding - diluted	742.3	742.5	747.2

See Notes to the Consolidated Financial Statements.

Dow Inc. and Subsidiaries

Consolidated Statements of Comprehensive Income

(In millions) For the years ended Dec 31,	*2020*	*2019*	*2018*
Net income (loss)	$ 1,294	$ (1,272)	$ 4,775
Other comprehensive income (loss), net of tax			
Unrealized gains (losses) on investments	40	115	(67)
Cumulative translation adjustments	205	(32)	(225)
Pension and other postretirement benefit plans	(778)	(899)	(40)
Derivative instruments	(76)	(338)	75
Total other comprehensive loss	(609)	(1,154)	(257)
Comprehensive income (loss)	685	(2,426)	4,518
Comprehensive income attributable to noncontrolling interests, net of tax	69	99	97
Comprehensive income (loss) attributable to Dow Inc.	$ 616	$ (2,525)	$ 4,421

See Notes to the Consolidated Financial Statements.

Dow Inc. and Subsidiaries

Consolidated Balance Sheets

(In millions, except share amounts) At Dec 31,	*2020*	*2019*
Assets		
Current Assets		
Cash and cash equivalents (variable interest entities restricted - 2020: $26; 2019: $37)	$ 5,104	$ 2,367
Accounts and notes receivable:		
Trade (net of allowance for doubtful receivables - 2020: $51; 2019: $45)	4,839	4,844
Other	2,551	2,711
Inventories	5,701	6,214
Other current assets	889	679
Total current assets	19,084	16,815
Investments		
Investment in nonconsolidated affiliates	1,327	1,404
Other investments (investments carried at fair value - 2020: $1,674; 2019: $1,584)	2,775	2,588
Noncurrent receivables	465	1,063
Total investments	4,567	5,055
Property		
Property	56,325	54,910
Less: Accumulated depreciation	36,086	33,914
Net property (variable interest entities restricted - 2020: $232; 2019: $330)	20,239	20,996
Other Assets		
Goodwill	8,908	8,796
Other intangible assets (net of accumulated amortization - 2020: $4,428; 2019: $3,886)	3,352	3,759
Operating lease right-of-use assets	1,856	2,072
Deferred income tax assets	2,215	2,213
Deferred charges and other assets	1,249	818
Total other assets	17,580	17,658
Total Assets	$ 61,470	$ 60,524
Liabilities and Equity		
Current Liabilities		
Notes payable	$ 156	$ 586
Long-term debt due within one year	460	435
Accounts payable:		
Trade	3,763	3,889
Other	2,126	2,064
Operating lease liabilities - current	416	421
Income taxes payable	397	522
Accrued and other current liabilities	3,790	2,762
Total current liabilities	11,108	10,679
Long-Term Debt (variable interest entities nonrecourse - 2020: $6; 2019: $34)	16,491	15,975
Other Noncurrent Liabilities		
Deferred income tax liabilities	405	347
Pension and other postretirement benefits - noncurrent	11,648	10,083
Asbestos-related liabilities - noncurrent	1,013	1,060
Operating lease liabilities - noncurrent	1,521	1,739
Other noncurrent obligations	6,279	6,547
Total other noncurrent liabilities	20,866	19,776
Stockholders' Equity		
Common stock (authorized 5,000,000,000 shares of $0.01 par value each; issued 2020: 755,993,198 shares; 2019: 751,228,644 shares)	8	8
Additional paid-in capital	7,595	7,325
Retained earnings	16,361	17,045
Accumulated other comprehensive loss	(10,855)	(10,246)
Unearned ESOP shares	(49)	(91)
Treasury stock at cost (2020: 12,803,303 shares; 2019: 9,729,834 shares)	(625)	(500)
Dow Inc.'s stockholders' equity	12,435	13,541
Noncontrolling interests	570	553
Total equity	13,005	14,094
Total Liabilities and Equity	$ 61,470	$ 60,524

See Notes to the Consolidated Financial Statements.

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Dow Inc. and Subsidiaries

Consolidated Statements of Cash Flows

(In millions) For the years ended Dec 31,	2020	2019	2018
Operating Activities			
Net income (loss)	$ 1,294	$ (1,272)	$ 4,775
Less: Income from discontinued operations, net of tax	—	445	1,835
Income (loss) from continuing operations, net of tax	1,294	(1,717)	2,940
Adjustments to reconcile net income (loss) to net cash provided by operating activities:			
Depreciation and amortization	2,874	2,938	2,909
Provision (credit) for deferred income tax	258	(228)	(429)
Earnings of nonconsolidated affiliates less than dividends received	443	1,114	108
Net periodic pension benefit cost	266	144	279
Pension contributions	(299)	(261)	(1,651)
Net gain on sales of assets, businesses and investments	(802)	(81)	(38)
Restructuring, goodwill impairment and asset related charges - net	708	3,219	221
Other net loss	318	198	415
Changes in assets and liabilities, net of effects of acquired and divested companies:			
Accounts and notes receivable	171	1,253	(855)
Inventories	515	668	(859)
Accounts payable	(84)	(948)	787
Other assets and liabilities, net	590	(586)	(731)
Cash provided by operating activities - continuing operations	6,252	5,713	3,096
Cash provided by (used for) operating activities - discontinued operations	(26)	217	1,158
Cash provided by operating activities	6,226	5,930	4,254
Investing Activities			
Capital expenditures	(1,252)	(1,961)	(2,091)
Investment in gas field developments	(5)	(76)	(114)
Purchases of previously leased assets	(5)	(9)	(26)
Proceeds from sales of property and businesses, net of cash divested	929	84	47
Acquisitions of property and businesses, net of cash acquired	(130)	—	(20)
Investments in and loans to nonconsolidated affiliates	(333)	(638)	(18)
Distributions and loan repayments from nonconsolidated affiliates	7	89	55
Purchases of investments	(1,203)	(899)	(1,530)
Proceeds from sales and maturities of investments	1,122	1,252	1,214
Proceeds from interests in trade accounts receivable conduits	—	—	657
Other investing activities, net	29	—	—
Cash used for investing activities - continuing operations	(841)	(2,158)	(1,826)
Cash used for investing activities - discontinued operations	—	(34)	(369)
Cash used for investing activities	(841)	(2,192)	(2,195)
Financing Activities			
Changes in short-term notes payable	(431)	307	(178)
Proceeds from issuance of short-term debt greater than three months	163	—	—
Payments on short-term debt greater than three months	(163)	—	—
Proceeds from issuance of long-term debt	4,672	2,287	1,999
Payments on long-term debt	(4,653)	(5,561)	(3,054)
Purchases of treasury stock	(125)	(500)	—
Proceeds from issuance of stock	108	93	112
Transaction financing, debt issuance and other costs	(175)	(119)	(70)
Employee taxes paid for share-based payment arrangements	(27)	(60)	(77)
Distributions to noncontrolling interests	(62)	(77)	(135)
Purchases of noncontrolling interests	—	(297)	—
Dividends paid to stockholders	(2,071)	(1,550)	—
Dividends paid to DowDuPont Inc.	—	(535)	(3,711)
Settlements and transfers related to separation from DowDuPont Inc.	—	1,935	(240)
Other financing activities, net	—	—	3
Cash used for financing activities - continuing operations	(2,764)	(4,077)	(5,351)
Cash used for financing activities - discontinued operations	—	(18)	(53)
Cash used for financing activities	(2,764)	(4,095)	(5,404)
Effect of exchange rate changes on cash, cash equivalents and restricted cash	107	(27)	(99)
Summary			
Increase (decrease) in cash, cash equivalents and restricted cash	2,728	(384)	(3,444)
Cash, cash equivalents and restricted cash at beginning of year	2,380	2,764	6,208
Cash, cash equivalents and restricted cash at end of year	$ 5,108	$ 2,380	$ 2,764
Less: Restricted cash and cash equivalents, included in "Other current assets"	4	13	40
Cash and cash equivalents at end of year	$ 5,104	$ 2,367	$ 2,724

See Notes to the Consolidated Financial Statements.

Dow Inc. and Subsidiaries

Consolidated Statements of Equity

(In millions, except per share amounts) For the years ended Dec 31,	2020	2019	2018
Common Stock			
Balance at beginning of year	$ 8	$ —	$ —
Common stock issued	—	8	—
Balance at end of year	8	8	—
Additional Paid-in Capital			
Balance at beginning of year	7,325	7,042	6,553
Common stock issued / sold	108	57	—
Issuance of parent company stock - DowDuPont Inc.	—	28	112
Stock-based compensation and allocation of ESOP shares	162	235	377
Other	—	(37)	—
Balance at end of year	7,595	7,325	7,042
Retained Earnings			
Balance at beginning of year	17,045	35,460	33,742
Net income (loss) available for Dow Inc.'s common stockholders	1,225	(1,359)	4,641
Dividends to stockholders	(2,071)	(1,550)	—
Dividends to DowDuPont Inc.	—	(535)	(3,711)
Common control transaction	177	(14,806)	(182)
Adoption of accounting standards (Note 1)	—	(151)	989
Other	(15)	(14)	(19)
Balance at end of year	16,361	17,045	35,460
Accumulated Other Comprehensive Loss			
Balance at beginning of year	(10,246)	(9,885)	(8,591)
Other comprehensive loss	(609)	(1,154)	(257)
Common control transaction	—	793	—
Adoption of accounting standards (Note 1)	—	—	(1,037)
Balance at end of year	(10,855)	(10,246)	(9,885)
Unearned ESOP Shares			
Balance at beginning of year	(91)	(134)	(189)
Stock-based compensation and allocation of ESOP shares	42	45	55
ESOP shares acquired	—	(2)	—
Balance at end of year	(49)	(91)	(134)
Treasury Stock			
Balance at beginning of year	(500)	—	—
Treasury stock purchases	(125)	(500)	—
Balance at end of year	(625)	(500)	—
Dow Inc.'s stockholders' equity	12,435	13,541	32,483
Noncontrolling Interests	570	553	1,138
Total Equity	$ 13,005	$ 14,094	$ 33,621

Dividends declared per share of common stock	$ 2.80	$ 2.10	$ —

See Notes to the Consolidated Financial Statements.

The Dow Chemical Company and Subsidiaries

Consolidated Statements of Income

(In millions) For the years ended Dec 31,	*2020*	*2019*	*2018*
Net sales	$ 38,542	$ 42,951	$ 49,604
Cost of sales	33,343	36,657	41,074
Research and development expenses	768	765	800
Selling, general and administrative expenses	1,471	1,585	1,782
Amortization of intangibles	401	419	469
Restructuring, goodwill impairment and asset related charges - net	708	3,219	221
Integration and separation costs	239	1,039	1,179
Equity in earnings (losses) of nonconsolidated affiliates	(18)	(94)	555
Sundry income (expense) - net	1,274	573	96
Interest income	40	81	82
Interest expense and amortization of debt discount	827	952	1,063
Income (loss) from continuing operations before income taxes	2,081	(1,125)	3,749
Provision for income taxes on continuing operations	777	470	809
Income (loss) from continuing operations, net of tax	1,304	(1,595)	2,940
Income from discontinued operations, net of tax	—	445	1,835
Net income (loss)	1,304	(1,150)	4,775
Net income attributable to noncontrolling interests	69	87	134
Net income (loss) available for The Dow Chemical Company common stockholder	$ 1,235	$ (1,237)	$ 4,641

See Notes to the Consolidated Financial Statements.

The Dow Chemical Company and Subsidiaries

Consolidated Statements of Comprehensive Income

(In millions) For the years ended Dec 31,	*2020*	*2019*	*2018*
Net income (loss)	$ 1,304	$ (1,150)	$ 4,775
Other comprehensive income (loss), net of tax			
Unrealized gains (losses) on investments	40	115	(67)
Cumulative translation adjustments	205	(32)	(225)
Pension and other postretirement benefit plans	(778)	(899)	(40)
Derivative instruments	(76)	(338)	75
Total other comprehensive loss	(609)	(1,154)	(257)
Comprehensive income (loss)	695	(2,304)	4,518
Comprehensive income attributable to noncontrolling interests, net of tax	69	99	97
Comprehensive income (loss) attributable to The Dow Chemical Company	$ 626	$ (2,403)	$ 4,421

See Notes to the Consolidated Financial Statements.

The Dow Chemical Company and Subsidiaries

Consolidated Balance Sheets

(In millions, except share amounts) At Dec 31,	*2020*	*2019*
Assets		
Current Assets		
Cash and cash equivalents (variable interest entities restricted - 2020: $26; 2019: $37)	$ 5,104	$ 2,367
Accounts and notes receivable:		
Trade (net of allowance for doubtful receivables - 2020: $51; 2019: $45)	4,839	4,844
Other	2,553	2,716
Inventories	5,701	6,214
Other current assets	801	592
Total current assets	18,998	16,733
Investments		
Investment in nonconsolidated affiliates	1,327	1,404
Other investments (investments carried at fair value - 2020: $1,674; 2019: $1,584)	2,775	2,588
Noncurrent receivables	426	1,011
Total investments	4,528	5,003
Property		
Property	56,325	54,910
Less: Accumulated depreciation	36,086	33,914
Net property (variable interest entities restricted - 2020: $232; 2019: $330)	20,239	20,996
Other Assets		
Goodwill	8,908	8,796
Other intangible assets (net of accumulated amortization - 2020: $4,428; 2019: $3,886)	3,352	3,759
Operating lease right-of-use assets	1,856	2,072
Deferred income tax assets	2,215	2,213
Deferred charges and other assets	1,249	818
Total other assets	17,580	17,658
Total Assets	$ 61,345	$ 60,390
Liabilities and Equity		
Current Liabilities		
Notes payable	$ 156	$ 586
Long-term debt due within one year	460	435
Accounts payable:		
Trade	3,763	3,889
Other	2,126	2,064
Operating lease liabilities - current	416	421
Income taxes payable	397	522
Accrued and other current liabilities	3,256	2,233
Total current liabilities	10,574	10,150
Long-Term Debt (variable interest entities nonrecourse - 2020: $6; 2019: $34)	16,491	15,975
Other Noncurrent Liabilities		
Deferred income tax liabilities	405	347
Pension and other postretirement benefits - noncurrent	11,648	10,083
Asbestos-related liabilities - noncurrent	1,013	1,060
Operating lease liabilities - noncurrent	1,521	1,739
Other noncurrent obligations	6,124	6,174
Total other noncurrent liabilities	20,711	19,403
Stockholder's Equity		
Common stock (authorized and issued 100 shares of $0.01 par value each)	—	—
Additional paid-in capital	7,603	7,333
Retained earnings	16,300	17,313
Accumulated other comprehensive loss	(10,855)	(10,246)
Unearned ESOP shares	(49)	(91)
The Dow Chemical Company’s stockholder's equity	12,999	14,309
Noncontrolling interests	570	553
Total equity	13,569	14,862
Total Liabilities and Equity	$ 61,345	$ 60,390

See Notes to the Consolidated Financial Statements.

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The Dow Chemical Company and Subsidiaries

Consolidated Statements of Cash Flows

(In millions) For the years ended Dec 31,	2020	2019	2018
Operating Activities			
Net income (loss)	$ 1,304	$ (1,150)	$ 4,775
Less: Income from discontinued operations, net of tax	—	445	1,835
Income (loss) from continuing operations, net of tax	1,304	(1,595)	2,940
Adjustments to reconcile net income (loss) to net cash provided by operating activities:			
Depreciation and amortization	2,874	2,938	2,909
Provision (credit) for deferred income tax	258	(228)	(429)
Earnings of nonconsolidated affiliates less than dividends received	443	1,114	108
Net periodic pension benefit cost	266	144	279
Pension contributions	(299)	(261)	(1,651)
Net gain on sales of assets, businesses and investments	(802)	(81)	(38)
Restructuring, goodwill impairment and asset related charges - net	708	3,219	221
Other net loss	320	213	415
Changes in assets and liabilities, net of effects of acquired and divested companies:			
Accounts and notes receivable	171	1,253	(855)
Inventories	515	668	(859)
Accounts payable	(84)	(948)	787
Other assets and liabilities, net	589	(730)	(731)
Cash provided by operating activities - continuing operations	6,263	5,706	3,096
Cash provided by operating activities - discontinued operations	—	371	1,158
Cash provided by operating activities	6,263	6,077	4,254
Investing Activities			
Capital expenditures	(1,252)	(1,961)	(2,091)
Investment in gas field developments	(5)	(76)	(114)
Purchases of previously leased assets	(5)	(9)	(26)
Proceeds from sales of property and businesses, net of cash divested	929	84	47
Acquisitions of property and businesses, net of cash acquired	(130)	—	(20)
Investments in and loans to nonconsolidated affiliates	(333)	(638)	(18)
Distributions and loan repayments from nonconsolidated affiliates	7	89	55
Purchases of investments	(1,203)	(899)	(1,530)
Proceeds from sales and maturities of investments	1,122	1,252	1,214
Proceeds from interests in trade accounts receivable conduits	—	—	657
Other investing activities, net	29	—	—
Cash used for investing activities - continuing operations	(841)	(2,158)	(1,826)
Cash used for investing activities - discontinued operations	—	(34)	(369)
Cash used for investing activities	(841)	(2,192)	(2,195)
Financing Activities			
Changes in short-term notes payable	(431)	307	(178)
Proceeds from issuance of short-term debt greater than three months	163	—	—
Payments on short-term debt greater than three months	(163)	—	—
Proceeds from issuance of long-term debt	4,672	2,287	1,999
Payments on long-term debt	(4,653)	(5,561)	(3,054)
Proceeds from issuance of stock	108	93	112
Transaction financing, debt issuance and other costs	(175)	(119)	(70)
Employee taxes paid for share-based payment arrangements	(27)	(60)	(77)
Distributions to noncontrolling interests	(62)	(77)	(135)
Purchases of noncontrolling interests	—	(297)	—
Dividends paid to DowDuPont Inc.	—	(535)	(3,711)
Dividends paid to Dow Inc.	(2,233)	(201)	—
Settlements and transfers related to separation from DowDuPont Inc.	—	(61)	(240)
Other financing activities, net	—	—	3
Cash used for financing activities - continuing operations	(2,801)	(4,224)	(5,351)
Cash used for financing activities - discontinued operations	—	(18)	(53)
Cash used for financing activities	(2,801)	(4,242)	(5,404)
Effect of exchange rate changes on cash, cash equivalents and restricted cash	107	(27)	(99)
Summary			
Increase (decrease) in cash, cash equivalents and restricted cash	2,728	(384)	(3,444)
Cash, cash equivalents and restricted cash at beginning of year	2,380	2,764	6,208
Cash, cash equivalents and restricted cash at end of year	$ 5,108	$ 2,380	$ 2,764
Less: Restricted cash and cash equivalents, included in "Other current assets"	4	13	40
Cash and cash equivalents at end of year	$ 5,104	$ 2,367	$ 2,724

See Notes to the Consolidated Financial Statements.

The Dow Chemical Company and Subsidiaries

Consolidated Statements of Equity

(In millions, except per share amounts) For the years ended Dec 31,	*2020*	*2019*	*2018*
Common Stock			
Balance at beginning and end of year	$ —	$ —	$ —
Additional Paid-in Capital			
Balance at beginning of year	7,333	7,042	6,553
Issuance of parent company stock - Dow Inc.	108	65	—
Issuance of parent company stock - DowDuPont Inc.	—	28	112
Stock-based compensation and allocation of ESOP shares	162	235	377
Other	—	(37)	—
Balance at end of year	7,603	7,333	7,042
Retained Earnings			
Balance at beginning of year	17,313	35,460	33,742
Net income (loss) available for The Dow Chemical Company's common stockholder	1,235	(1,237)	4,641
Dividends to Dow Inc.	(2,233)	(201)	—
Dividends to DowDuPont Inc.	—	(535)	(3,711)
Common control transaction	—	(16,009)	(182)
Adoption of accounting standards (Note 1)	—	(151)	989
Other	(15)	(14)	(19)
Balance at end of year	16,300	17,313	35,460
Accumulated Other Comprehensive Loss			
Balance at beginning of year	(10,246)	(9,885)	(8,591)
Other comprehensive loss	(609)	(1,154)	(257)
Common control transaction	—	793	—
Adoption of accounting standards (Note 1)	—	—	(1,037)
Balance at end of year	(10,855)	(10,246)	(9,885)
Unearned ESOP Shares			
Balance at beginning of year	(91)	(134)	(189)
Stock-based compensation and allocation of ESOP shares	42	45	55
ESOP shares acquired	—	(2)	—
Balance at end of year	(49)	(91)	(134)
The Dow Chemical Company's stockholder's equity	12,999	14,309	32,483
Noncontrolling Interests	570	553	1,138
Total Equity	$ 13,569	$ 14,862	$ 33,621

See Notes to the Consolidated Financial Statements.

Dow Inc. and Subsidiaries
The Dow Chemical Company and Subsidiaries

Notes to the Consolidated Financial Statements

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NOTE 1 – SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Merger and Separation

On April 1, 2019, DowDuPont Inc. (“DowDuPont” and effective June 3, 2019, n/k/a DuPont de Nemours, Inc. or "DuPont") completed the separation of its materials science business and Dow Inc. became the direct parent company of The Dow Chemical Company and its consolidated subsidiaries (“TDCC” and together with Dow Inc., “Dow” or the “Company”). The separation was contemplated by the merger of equals transaction effective August 31, 2017, under the Agreement and Plan of Merger, dated as of December 11, 2015, as amended on March 31, 2017 (the "Merger Agreement"). TDCC and E. I. du Pont de Nemours and Company and its consolidated subsidiaries (“Historical DuPont”) each merged with subsidiaries of DowDuPont and, as a result, TDCC and Historical DuPont became subsidiaries of DowDuPont (the “Merger”). Subsequent to the Merger, TDCC and Historical DuPont engaged in a series of internal reorganization and realignment steps to realign their businesses into three subgroups: agriculture, materials science and specialty products. Dow Inc. was formed as a wholly owned subsidiary of DowDuPont to serve as the holding company for the materials science business. See Note 3 for additional information.

Principles of Consolidation and Basis of Presentation
The accompanying consolidated financial statements of Dow Inc. and TDCC were prepared in accordance with accounting principles generally accepted in the United States of America (“U.S. GAAP”) and include the assets, liabilities, revenues and expenses of all majority-owned subsidiaries over which Dow exercises control and, when applicable, entities for which Dow has a controlling financial interest or is the primary beneficiary. Intercompany transactions and balances are eliminated in consolidation. Investments in nonconsolidated affiliates (20-50 percent owned companies or less than 20 percent owned companies over which significant influence is exercised) are accounted for using the equity method.

Effective April 1, 2019, Dow Inc. owns all of the outstanding common shares of TDCC. TDCC is deemed the predecessor to Dow Inc. and the historical results of TDCC are deemed the historical results of Dow Inc. for periods prior to and including March 31, 2019. As a result of the parent/subsidiary relationship between Dow Inc. and TDCC, and considering that the financial statements and disclosures of each company are substantially similar, the companies are filing a combined report for this Annual Report on Form 10-K. The information reflected in the report is equally applicable to both Dow Inc. and TDCC, except where otherwise noted.

As of the effective date and time of the distribution, DowDuPont no longer beneficially owned any equity interest in Dow and no longer consolidated Dow and its consolidated subsidiaries into its financial results. The consolidated financial results of Dow for all periods presented reflect the distribution of TDCC’s agricultural sciences business (“AgCo”) and specialty products business (“SpecCo”) as discontinued operations, as well as the receipt of Historical DuPont’s ethylene and ethylene copolymers businesses (other than its ethylene acrylic elastomers business) (“ECP”) as a common control transaction from the closing of the Merger on August 31, 2017 ("Merger Date"). See Note 3 for additional information.

The Company conducts its worldwide operations through six global businesses which are organized into the following operating segments: Packaging & Specialty Plastics, Industrial Intermediates & Infrastructure and Performance Materials & Coatings. Corporate contains the reconciliation between the totals for the operating segments and the Company's totals. See Note 26 for additional information.

From the Merger Date through the separation, transactions between DowDuPont, TDCC and Historical DuPont and their affiliates were treated as related party transactions. Transactions between TDCC and Historical DuPont primarily consisted of the sale and procurement of certain raw materials that were consumed in each company's manufacturing process. Transactions between TDCC and Dow Inc. are treated as related party transactions for TDCC. See Note 25 for additional information.

Throughout this Annual Report on Form 10-K, unless otherwise indicated, amounts and activity are presented on a continuing operations basis.

Except as otherwise indicated by the context, the term "Union Carbide" means Union Carbide Corporation, a wholly owned subsidiary of the Company, and "Dow Silicones" means Dow Silicones Corporation, a wholly owned subsidiary of the Company.

Use of Estimates in Financial Statement Preparation
The preparation of financial statements in accordance with U.S. GAAP requires the use of estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. The Company’s consolidated financial statements include amounts that are based on management’s best estimates and judgments. Actual results could differ from those estimates.

Significant Accounting Policies
Asbestos-Related Matters
Accruals for asbestos-related matters, including defense and processing costs, are recorded based on an analysis of claim and resolution activity, defense spending, and pending and future claims. These accruals are assessed at each balance sheet date to determine if the asbestos-related liability remains appropriate. Accruals for asbestos-related matters are included in the consolidated balance sheets in “Accrued and other current liabilities” and “Asbestos-related liabilities - noncurrent.” See Note 16 for additional information.

Legal Costs
The Company expenses legal costs as incurred, with the exception of defense and processing costs associated with asbestos-related matters.

Foreign Currency Translation
The local currency has been primarily used as the functional currency throughout the world. Translation gains and losses of those operations that use local currency as the functional currency are included in the consolidated balance sheets in "Accumulated other comprehensive loss" ("AOCL"). For certain subsidiaries, the U.S. dollar is used as the functional currency. This occurs when the subsidiary operates in an economic environment where the products produced and sold are tied to U.S. dollar-denominated markets, or when the foreign subsidiary operates in a hyper-inflationary environment. Where the U.S. dollar is used as the functional currency, foreign currency translation gains and losses are reflected in income.

Environmental Matters
Accruals for environmental matters are recorded when it is probable that a liability has been incurred and the amount of the liability can be reasonably estimated based on current law and existing technologies. These accruals are adjusted periodically as assessment and remediation efforts progress or as additional technical or legal information becomes available. Accruals for environmental liabilities are included in the consolidated balance sheets in “Accrued and other current liabilities” and “Other noncurrent obligations” at undiscounted amounts. Accruals for related insurance or other third-party recoveries for environmental liabilities are recorded when it is probable that a recovery will be realized and are included in the consolidated balance sheets in “Accounts and notes receivable - Other” or "Noncurrent receivables."

Environmental costs are capitalized if the costs extend the life of the property, increase its capacity and/or mitigate or prevent contamination from future operations. Environmental costs are also capitalized in recognition of legal asset retirement obligations resulting from the acquisition, construction and/or normal operation of a long-lived asset. Costs related to environmental contamination treatment and cleanup are charged to expense. Estimated future incremental operations, maintenance and management costs directly related to remediation are accrued when such costs are probable and reasonably estimable.

Cash and Cash Equivalents
Cash and cash equivalents include time deposits and investments with maturities of three months or less at the time of purchase.

Financial Instruments
The Company calculates the fair value of financial instruments using quoted market prices when available. When quoted market prices are not available for financial instruments, the Company uses standard pricing models with market-based inputs that take into account the present value of estimated future cash flows.

The Company utilizes derivatives to manage exposures to foreign currency exchange rates, commodity prices and interest rate risk. The fair values of all derivatives are recognized as assets or liabilities at the balance sheet date. Changes in the fair values of these instruments are reported in income or AOCL, depending on the use of the derivative and whether the Company has elected hedge accounting treatment.

Gains and losses on derivatives that are designated and qualify as cash flow hedging instruments are recorded in AOCL until the underlying transactions are recognized in income. Gains and losses on derivative and non-derivative instruments used as hedges of the Company’s net investment in foreign operations are recorded in AOCL as part of the cumulative translation adjustment.

Gains and losses on derivatives designated and qualifying as fair value hedging instruments, as well as the offsetting losses and gains on the hedged items, are reported in income in the same accounting period. Derivatives not designated as hedging instruments are marked-to-market at the end of each accounting period with the results included in income.

Inventories
Inventories are stated at the lower of cost or net realizable value. The method of determining cost for each subsidiary varies among last-in, first-out ("LIFO"); first-in, first-out ("FIFO"); and average cost, and is used consistently from year to year. At December 31, 2020, approximately 30 percent, 58 percent and 12 percent of the Company's inventories were accounted for under the LIFO, FIFO and average cost methods, respectively. At December 31, 2019, approximately 32 percent, 58 percent and 10 percent of the Company's inventories were accounted for under the LIFO, FIFO and average cost methods, respectively.

The Company routinely exchanges and swaps raw materials and finished goods with other companies to reduce delivery time, freight and other transportation costs. These transactions are treated as non-monetary exchanges and are valued at cost.

Property
Land, buildings and equipment are carried at cost less accumulated depreciation or amortization. Property under finance lease agreements is carried at the present value of lease payments over the lease term less accumulated amortization. Depreciation is based on the estimated service lives of depreciable assets and is calculated using the straight-line method. Fully depreciated assets are retained in property and accumulated depreciation accounts until they are removed from service. In the case of disposals, assets and related accumulated depreciation are removed from the accounts, and the net amounts, less proceeds from disposal, are included in income.

Impairment and Disposal of Long-Lived Assets
The Company evaluates long-lived assets and certain identifiable intangible assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. When undiscounted future cash flows are not expected to be sufficient to recover an asset's carrying amount, the asset is written down to its fair value based on bids received from third parties or a discounted cash flow analysis based on market participant assumptions.

Long-lived assets to be disposed of by sale, if material, are classified as held for sale and reported at the lower of carrying amount or fair value less cost to sell, and depreciation is ceased. Long-lived assets to be disposed of other than by sale are classified as held and used until they are disposed of and reported at the lower of carrying amount or fair value, and depreciation is recognized over the remaining useful life of the assets.

Goodwill and Other Intangible Assets
The Company records goodwill when the purchase price of a business combination exceeds the estimated fair value of net identified tangible and intangible assets acquired. Goodwill is tested for impairment at the reporting unit level annually in the fourth quarter, or more frequently when events or changes in circumstances indicate that the fair value of a reporting unit has more likely than not declined below its carrying value. When testing goodwill for impairment, the Company may first assess qualitative factors. If an initial qualitative assessment identifies that it is more likely than not that the fair value of a reporting unit is less than its carrying value, additional quantitative testing is performed. The Company may also elect to skip the qualitative testing and proceed directly to the quantitative testing. If the quantitative testing indicates that goodwill is impaired, an impairment charge is recognized based on the difference between the reporting unit's carrying value and its fair value. The Company primarily utilizes a discounted cash flow methodology to calculate the fair value of its reporting units.

Finite-lived intangible assets such as developed technology, customer-related, trademarks, tradenames and software, are amortized over their estimated useful lives, generally on a straight-line basis for periods ranging primarily from 3 to 20 years. Indefinite-lived intangible assets are reviewed for impairment or obsolescence annually, or more frequently when events or changes in circumstances indicate that the carrying amount of an intangible asset may not be recoverable. If impaired, intangible assets are written down to fair value based on discounted cash flows.

Asset Retirement Obligations
The Company records asset retirement obligations as incurred and reasonably estimable, including obligations for which the timing and/or method of settlement are conditional on a future event that may or may not be within the control of the Company. The fair values of obligations are recorded as liabilities on a discounted basis and are accreted over time for the change in present value. Costs associated with the liabilities are capitalized and amortized over the estimated remaining useful life of the asset, generally for periods of 10 years or less.

Investments
Investments in debt securities, primarily held by the Company's insurance operations, are classified as trading, available-for-sale or held-to-maturity. Investments classified as trading are reported at fair value with unrealized gains and losses related to mark-to-market adjustments included in income. Those classified as available-for-sale are reported at fair value with unrealized gains and losses recorded in AOCL. Those classified as held-to-maturity are recorded at amortized cost. The cost of investments sold is determined by FIFO or specific identification.

Investments in equity securities with a readily determinable fair value are reported at fair value with unrealized gains and losses related to mark-to-market adjustments included in income. Equity securities without a readily determinable fair value are accounted for at cost, adjusted for impairments and observable price changes in orderly transactions.

The Company routinely reviews its investments for declines in fair value below the cost basis. When events or changes in circumstances indicate the carrying value of an asset may not be recoverable, the security is written down, establishing a new cost basis.

Leases
The Company determines whether a contract contains a lease at contract inception. A contract contains a lease if there is an identified asset and the Company has the right to control the asset.

Operating lease right-of-use (“ROU”) assets represent the Company's right to use an underlying asset for the lease term, and lease liabilities represent the Company's obligation to make lease payments arising from the lease. Operating lease ROU assets and lease liabilities are recognized at commencement date based on the present value of lease payments over the lease term. The Company uses the incremental borrowing rate in determining the present value of lease payments, unless the implicit rate is readily determinable. If lease terms include options to extend or terminate the lease, the ROU asset and lease liability are measured based on the reasonably certain decision. Leases with a term of 12 months or less at the commencement date are not recognized on the balance sheet and are expensed as incurred.

The Company has lease agreements with lease and non-lease components, which are accounted for as a single lease component for nearly all classes of leased assets for which the Company is the lessee. Additionally, for certain equipment leases, the portfolio approach is applied to account for the operating lease ROU assets and lease liabilities. In the consolidated statements of income, lease expense for operating lease payments is recognized on a straight-line basis over the lease term. For finance leases, interest expense is recognized on the lease liability and the ROU asset is amortized over the lease term.

Some leasing arrangements require variable payments that are dependent upon usage or output, or may vary for other reasons, such as insurance or tax payments. Variable lease payments are recognized as incurred and are not presented as part of the ROU asset or lease liability. See Note 17 for additional information.

Revenue
The Company recognizes revenue when its customer obtains control of promised goods or services in an amount that reflects the consideration which the Company expects to receive in exchange for those goods or services. To determine revenue recognition, the Company performs the following five steps: (1) identify the contract(s) with a customer, (2) identify the performance obligations in the contract, (3) determine the transaction price, (4) allocate the transaction price to the performance obligations in the contract and (5) recognize revenue when (or as) the entity satisfies a performance obligation. See Note 4 for additional information.

Revenue related to the Company's insurance operations includes third-party insurance premiums, which are earned over the terms of the related insurance policies and reinsurance contracts.

Severance Costs
The Company routinely reviews its operations around the world in an effort to ensure competitiveness across its businesses and geographic regions. When the reviews result in a workforce reduction related to the shutdown of facilities or other optimization activities, severance benefits are provided to employees primarily under the Company’s ongoing benefit arrangements. These severance costs are accrued once management commits to a plan of termination and it becomes probable that employees will be entitled to benefits at amounts that can be reasonably estimated.

Integration and Separation Costs
The Company classifies expenses related to the Merger and separation and the ownership restructure of Dow Silicones as "Integration and separation costs" in the consolidated statements of income. Merger and separation related costs include: post-Merger integration expenses, costs incurred for the separation of AgCo and SpecCo and costs related to the integration of ECP. The Dow Silicones-related costs include integration expenses incurred after the close of the ownership restructure. Integration and separation costs primarily consist of financial adviser, information technology, legal, accounting, consulting and other professional advisory fees associated with preparation and execution of these activities. Integration and separation costs related to the Dow Silicones ownership restructure were completed as of May 31, 2018. Integration and separation costs related to the Merger and separation were completed as of December 31, 2020.

Income Taxes
The Company accounts for income taxes using the asset and liability method. Under this method, deferred tax assets and liabilities are recognized for the future tax consequences of temporary differences between the carrying amounts and tax bases of assets and liabilities using enacted tax rates. The effect of a change in tax rates on deferred tax assets or liabilities is recognized in income in the period that includes the enactment date. The Company uses the portfolio approach for releasing income tax effects from AOCL.

Effective with the Merger, TDCC and Historical DuPont were subsidiaries of DowDuPont. Prior to the separation, TDCC was included in DowDuPont's consolidated tax groups and related income tax returns within certain jurisdictions. The Company recorded a separate tax liability for its share of the taxable income and tax attributes and obligations on DowDuPont's consolidated income tax returns following a formula consistent with the economic sharing of tax attributes and obligations. The Company and Historical DuPont computed the amount due to DowDuPont for their share of taxable income and tax attributes and obligations on DowDuPont's consolidated tax return. The amounts reported as income tax payable or receivable represent the Company's payment obligation (or refundable amount) to DowDuPont based on a theoretical tax liability calculated based on the methodologies agreed, elected or required in each combined or consolidated filing jurisdiction. Since April 1, 2019, the Company no longer has consolidated income tax return filings with Historical DuPont entities.

The Company recognizes the financial statement effects of an uncertain income tax position when it is more likely than not, based on the technical merits, that the position will be sustained upon examination. The Company accrues for other tax contingencies when it is probable that a liability to a taxing authority has been incurred and the amount of the contingency can be reasonably estimated. The current portion of uncertain income tax positions is included in "Income taxes payable" and the long-term portion is included in "Other noncurrent obligations" in the consolidated balance sheets.

Provision is made for taxes on undistributed earnings of foreign subsidiaries and related companies to the extent that such earnings are not deemed to be permanently invested.

Earnings per Common Share
The calculation of earnings per common share is based on the weighted-average number of the Company's common shares outstanding for the applicable period. The calculation of diluted earnings per common share reflects the effect of all potential common shares that were outstanding during the respective periods, unless the effect of doing so is antidilutive.

Adoption of Accounting Standards
2019
Effective January 1, 2019, the Company adopted Accounting Standards Update ("ASU") 2016-02, "Leases (Topic 842)," and the associated ASUs (collectively, "Topic 842") and added the accounting policy on leases discussed in the section above. Adoption of the new standard resulted in the recording of operating lease ROU assets and lease liabilities of $2.3 billion at January 1, 2019. The net impact to "Retained earnings" was an increase of $32 million and was primarily a result of the recognition of a deferred gain associated with a prior sale-leaseback transaction. The impact is reflected in the "Adoption of accounting standards" line in the consolidated statements of equity of both Dow Inc. and TDCC. See Note 17 for additional information.

In addition, the consolidated financial statements reflect the impact of the adoption of ASU 2014-09, "Revenue from Contracts with Customers (Topic 606)," and the associated ASUs (collectively, "Topic 606") at January 1, 2019 by certain nonconsolidated affiliates of the Company, which were subsequently distributed as part of the separation from DowDuPont. The net impact was reflected in assets and liabilities of discontinued operations with a corresponding reduction to "Retained earnings" of $183 million in the consolidated balance sheets at January 1, 2019. The impact is reflected in the "Adoption of accounting standards" line in the consolidated statements of equity of both Dow Inc. and TDCC.

2018
The adoption of Topic 606, ASU 2016-01, "Financial Instruments - Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities" and ASU 2016-16, "Income Taxes (Topic 740): Intra-Entity Transfers of Assets Other Than Inventory" in the first quarter of 2018 resulted in a net decrease of $68 million to "Retained earnings" and a decrease of $20 million to AOCL in the consolidated statements of equity at January 1, 2018. In the second quarter of 2018, the Company early adopted ASU 2018-02, "Income Statement - Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income ("ASU 2018-02")." The adoption of this standard resulted in a $1,057 million increase to "Retained earnings" due to the reclassification from AOCL in the consolidated statements of equity at April 1, 2018. The impacts are reflected in the "Adoption of accounting standards" line in the consolidated statements of equity.

Change in Financial Statement Presentation
Consolidated Balance Sheets
In 2020, the Company elected to reclassify "Marketable securities" to "Other current assets" in the consolidated balance sheets and, as a result, the prior period amounts have been reclassified to conform to current year presentation. Changes made to the consolidated balance sheets were as follows:

Changes to the Consolidated Balance Sheets	*Dec 31, 2019*			
	Dow Inc.		*TDCC*	
In millions	*As Filed*	*Updated*	*As Filed*	*Updated*
Marketable securities	$ 21	$ —	$ 21	$ —
Other current assets	$ 658	$ 679	$ 571	$ 592

TDCC Dividends
Effective with the Merger, TDCC no longer had publicly traded common stock. TDCC's common shares were owned solely by its parent company, DowDuPont, prior to separation, and TDCC's Board of Directors ("Board") determined whether or not there would be a dividend distribution to DowDuPont. Effective with the separation from DowDuPont, TDCC became a wholly owned subsidiary of Dow Inc. and TDCC's Board determines whether or not there will be a dividend distribution to Dow Inc. See Notes 18 and 25 for additional information.

NOTE 2 – RECENT ACCOUNTING GUIDANCE

Recently Adopted Accounting Guidance
In the first quarter of 2020, the Company adopted ASU 2018-13, "Fair Value Measurement (Topic 820): Disclosure Framework - Changes to the Disclosure Requirements for Fair Value Measurement," which is part of the Financial Accounting Standards Board's ("FASB") disclosure framework project to improve the effectiveness of disclosures in the notes to the financial statements. The amendments in the new guidance remove, modify and add certain disclosure requirements related to fair value measurements covered in Topic 820, "Fair Value Measurement," with certain requirements applied prospectively and all other requirements applied retrospectively. The adoption of this guidance did not have a material impact on the consolidated financial statements. See Note 23 for additional information.

In the first quarter of 2020, the Company adopted ASU 2018-15, "Intangibles - Goodwill and Other - Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement that is a Service Contract," which requires a customer in a cloud computing arrangement that is a service contract to follow the internal-use software guidance in Topic 350, "Intangibles - Goodwill and Other" to determine which implementation costs to capitalize as assets or expense as incurred. The Company elected to apply the standard prospectively and the adoption of this guidance did not have a material impact on the consolidated financial statements.

In the first quarter of 2020, the Company adopted ASU 2016-13, "Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments" and the associated ASUs. The amendments replace the incurred loss impairment methodology with a methodology that reflects expected credit losses and requires consideration of a broader range of reasonable and supportable information to inform credit loss estimates. Accordingly, companies are required to consider forward-looking information to estimate credit losses expected to occur over the estimated life of an asset, including losses that may be incurred in future periods. The amendments in the standard required application through a cumulative-effect adjustment to retained earnings as of the beginning of the first reporting period in which the guidance is adopted. The adoption of this guidance did not have a material impact on the consolidated financial statements.

In the third quarter of 2020, the Company adopted ASU 2020-04, “Reference Rate Reform (Topic 848): Facilitation of the Effects of Reference Rate Reform on Financial Reporting.” The amendments provide optional expedients and exceptions for applying generally accepted accounting principles to contracts, hedging relationships and other transactions affected by reference rate reform if certain criteria are met. The new standard is effective March 12, 2020 through December 31, 2022, with the adoption date dependent upon the Company’s election. The Company has elected to apply the optional expedients and exceptions provided by the new guidance as modifications are made to relevant contracts, hedging relationships and other transactions during the reference rate reform transition period. As the amendments are intended to ease the potential burden in accounting for, or recognizing the effects of, reference rate reform on financial reporting, the application of this guidance has not and will not have a material impact on the consolidated financial statements.

Accounting Guidance Issued But Not Adopted at December 31, 2020

In December 2019, the FASB issued ASU 2019-12, "Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes." The amendments simplify the accounting for income taxes by removing certain exceptions to the general principles of Topic 740, "Income Taxes" and also improve consistent application by clarifying and amending existing guidance. The new standard is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2020. Early adoption is permitted, with the amendments to be applied on a retrospective, modified retrospective or prospective basis, depending on the specific amendment. The Company will adopt the new guidance in the first quarter of 2021 and the adoption of this guidance is not expected to have a material impact on the consolidated financial statements.

NOTE 3 – SEPARATION FROM DOWDUPONT

Effective August 31, 2017, TDCC and Historical DuPont completed the merger of equals transaction contemplated by the Merger Agreement, by and among TDCC, Historical DuPont, DowDuPont, Diamond Merger Sub, Inc. and Orion Merger Sub, Inc. Pursuant to the Merger Agreement, (i) Diamond Merger Sub, Inc. was merged with and into TDCC, with TDCC surviving the merger as a subsidiary of DowDuPont (the "Diamond Merger") and (ii) Orion Merger Sub, Inc. was merged with and into Historical DuPont, with Historical DuPont surviving the merger as a subsidiary of DowDuPont (the "Orion Merger" and, together with the Diamond Merger, the "Mergers"). Following the consummation of the Mergers, each of TDCC and Historical DuPont became subsidiaries of DowDuPont. Subsequent to the Merger, TDCC and Historical DuPont engaged in a series of internal reorganization and realignment steps to realign their businesses into three subgroups: agriculture, materials science and specialty products. Dow Inc. was formed as a wholly owned subsidiary of DowDuPont to serve as the holding company for the materials science business.

On April 1, 2019, DowDuPont completed the previously announced separation of its materials science business. The separation was effected by way of a pro rata distribution of all of the then-issued and outstanding shares of Dow Inc. common stock to DowDuPont stockholders of record as of the close of business, Eastern Time, on March 21, 2019 (the “Record Date”). The shareholders of record of DowDuPont received one share of Dow Inc. common stock, par value $0.01 per share, for every three shares of DowDuPont common stock, par value $0.01 per share, held as of the Record Date ("Distribution Ratio"). No fractional shares of Dow Inc. common stock were issued. Instead, cash in lieu of any fractional shares was paid to DowDuPont registered shareholders. The number of shares of Dow Inc. common stock issued on April 1, 2019 was 748.8 million shares. Dow Inc. is now an independent, publicly traded company and Dow Inc. common stock is listed on the NYSE under the symbol “DOW.” Dow Inc. common stock began regular-way trading on April 2, 2019, the first day following the distribution.

Effective April 1, 2019, TDCC became a wholly owned subsidiary of Dow Inc. As of the effective date and time of the distribution, DowDuPont did not beneficially own any equity interest in Dow and no longer consolidated Dow and its consolidated subsidiaries into its financial results. Beginning in the second quarter of 2019, Dow's consolidated financial results reflect the results of Dow Inc. and its consolidated subsidiaries - that is, TDCC after giving effect to the distribution of AgCo and SpecCo and the receipt of ECP. The consolidated financial results of Dow for periods prior to April 1, 2019, reflect the distribution of AgCo and SpecCo as discontinued operations for each period presented as well as reflect the receipt of ECP as a common control transaction from the closing of the Merger on August 31, 2017.

On April 1, 2019, Dow Inc. received a cash contribution of $2,024 million from DowDuPont as part of the internal reorganization and business realignment steps between Dow Inc., TDCC and DowDuPont. Dow Inc. recognized a reduction to "Retained earnings" of $14,806 million in 2019 as a result of the cash contribution, the distribution of AgCo and SpecCo, and other separation related adjustments. TDCC recognized a reduction to "Retained earnings" of $16,009 million in 2019 as a result of the distribution of AgCo and SpecCo.

Receipt of ECP

As the receipt of ECP was accounted for as a transfer between entities under common control, the consolidated financial statements have been retrospectively adjusted to reflect the receipt of ECP from the closing of the Merger on August 31, 2017. All intercompany transactions have been eliminated in consolidation.

Distribution of AgCo and SpecCo

Upon distribution, the Company retrospectively adjusted the previously issued consolidated financial statements and presented AgCo and SpecCo as discontinued operations based on the guidance in ASC 205-20 "Discontinued Operations" ("ASC 205-20"). The results of operations of AgCo and SpecCo are presented as discontinued operations in the consolidated statements of income and are summarized in the following table:

Results of Operations of AgCo and SpecCo In millions	*2019* [1]	*2018*
Net sales	$ 2,953	$ 12,187
Cost of sales	1,804	7,668
Research and development expenses	175	761
Selling, general and administrative expenses	262	1,108
Amortization of intangibles	61	249
Restructuring and asset related charges - net	78	411
Equity in earnings of nonconsolidated affiliates	28	400
Sundry income (expense) - net	(18)	(13)
Interest income	3	26
Interest expense and amortization of debt discount	7	56
Income from discontinued operations before income taxes	$ 579	$ 2,347
Provision for income taxes	134	512
Income from discontinued operations, net of tax	$ 445	$ 1,835

1. Results through March 31, 2019.

Agreements Related to the Separation and Distribution

In connection with the separation, Dow Inc. entered into certain agreements with DuPont and/or Corteva, Inc. ("Corteva"), including the following: Separation and Distribution Agreement, Tax Matters Agreement and Employee Matters Agreement (collectively, the "Agreements"). In addition to establishing the terms of the separation, the Agreements provide a framework for Dow's interaction with DuPont and Corteva after the separation and also provide for the allocation among Dow, DuPont and Corteva of assets, liabilities and obligations attributable to periods prior to, at and after the completion of the separation. The Agreements also contain certain indemnity and/or cross-indemnity provisions that are intended to set forth each party's respective rights, responsibilities and obligations for matters subject to indemnification. Except in certain instances, the parties' indemnification obligations are uncapped. Certain indemnification obligations will be subject to reduction by insurance proceeds or other third-party proceeds of the indemnified party that reduces the amount of the loss. In addition, indemnifiable losses will be subject to, in certain cases, "de minimis" threshold amounts and, in certain cases, deductible amounts.

The impacts of indemnifications and other post-separation matters relating to the Agreements are primarily reflected in the consolidated financial statements of Dow Inc. In 2019, the Company recorded pretax charges related to the Agreements of $24 million in "Integration and separation costs" and $69 million in "Sundry income (expense) - net" in the consolidated statements of income of Dow Inc., related to Corporate.

At December 31, 2020, the Company had assets of $77 million ($58 million at December 31, 2019) included in "Other current assets" and $33 million ($52 million at December 31, 2019) included in "Noncurrent receivables" and liabilities of $412 million ($352 million at December 31, 2019) included in "Accrued and other current liabilities" and $46 million ($96 million at December 31, 2019) included in "Other noncurrent obligations" in the consolidated balance sheets of Dow Inc. related to the Agreements. Any adjustments to these assets and liabilities in subsequent periods will be recorded in Dow Inc.'s results of operations.

In addition, the Company deferred approximately $400 million of the cash distribution received from DowDuPont at separation and recorded an associated liability with an offset to "Retained earnings" in the consolidated balance sheets of Dow Inc. At December 31, 2020, $103 million ($130 million at December 31, 2019) of this liability was recorded in "Accrued and other current liabilities" and $96 million ($270 million at December 31, 2019) was recorded in "Other noncurrent obligations" in the consolidated balance sheets of Dow Inc. Based on notices received in the fourth quarter of 2020, Dow Inc. reversed $177 million of the liability and the impact is reflected in the "Common control transaction" line in the consolidated statements of equity of Dow Inc. The final resolution of the remaining liability is uncertain and any subsequent adjustments to the carrying value of this liability will be reflected in equity of Dow Inc.

In 2020, Dow Inc. made net cash payments of $18 million ($215 million in 2019) related to the Agreements, recorded in "Cash flows from operating activities - discontinued operations" in the Dow Inc. consolidated statements of cash flows. The Company also received $98 million in 2019 related to the Agreements, recorded in "Other assets and liabilities, net" within "Cash flows from operating activities - continuing operations" in the Dow Inc. consolidated statements of cash flows.

Continuing Involvement
The Company has certain product and service agreements with DuPont and Corteva that were considered intercompany transactions prior to the separation, but are trade transactions subsequent to the separation. These transactions have been retrospectively reclassified as trade transactions in the consolidated financial statements. Based on the Company’s assessment of the specific factors identified in ASC Topic 205, “Presentation of Financial Statements,” the Company concluded that these agreements do not constitute significant continuing involvement in AgCo or SpecCo.

Integration and Separation Costs
Integration and separation costs, which reflect costs related to post-Merger integration and business separation activities, as well as the ownership restructure of Dow Silicones (through May 31, 2018), were $239 million in 2020, compared with $1,063 million and $1,039 million for Dow Inc. and TDCC, respectively, in 2019 and $1,179 million in 2018. Integration and separation costs related to post-Merger integration and business separation activities were completed as of December 31, 2020.

NOTE 4 – REVENUE

The majority of the Company's revenue is derived from product sales. In 2020, 99 percent of the Company's revenue related to product sales (98 percent in 2019 and 99 percent in 2018). The remaining sales were primarily related to the Company's insurance operations and licensing of patents and technologies.

Product Sales
Product sales consist of sales of the Company's products to manufacturers and distributors. The Company considers order confirmations or purchase orders, which in some cases are governed by master supply agreements, to be contracts with a customer. Product sale contracts are generally short-term contracts where the time between order confirmation and satisfaction of all performance obligations is less than one year. However, the Company has some long-term contracts which can span multiple years.

Revenues from product sales are recognized when the customer obtains control of the product, which occurs at a point in time, usually upon shipment, with payment terms typically in the range of 30 to 60 days after invoicing, depending on business and geographic region. When the Company performs shipping and handling activities after the transfer of control to the customer (e.g., when control transfers prior to shipment), these are considered fulfillment activities, and accordingly, the costs are accrued when the related revenue is recognized. Taxes collected from customers relating to product sales and remitted to governmental authorities are excluded from revenues. The Company elected to use the practical expedient to expense cash and non-cash sales incentives, as the amortization period for the costs to obtain the contract would have been one year or less.

Certain long-term contracts include a series of distinct goods that are delivered continuously to the customer through a pipeline (e.g., feedstocks). For these types of product sales, the Company invoices the customer in an amount that directly corresponds with the value to the customer of the Company's performance to date. As a result, the Company recognizes revenue based on the amount billable to the customer in accordance with the right to invoice practical expedient.

The transaction price includes estimates for reductions in revenue from customer rebates and right of returns on product sales. These amounts are estimated based upon the most likely amount of consideration to which the customer will be entitled. All estimates are based on historical experience, anticipated performance and the Company's best judgment at the time to the extent it is probable that a significant reversal of revenue recognized will not occur. All estimates for variable consideration are reassessed periodically. The Company elected the practical expedient to not adjust the amount of consideration for the effects of a significant financing component for all instances in which the period between payment and transfer of the goods will be one year or less.

For contracts with multiple performance obligations, the Company allocates the transaction price to each performance obligation based on the relative standalone selling price. The standalone selling price is the observable price which depicts the price as if sold to a similar customer in similar circumstances.

Patents, Trademarks and Licenses
The Company enters into licensing arrangements in which it licenses certain rights of its patents and technology to customers. Revenue from the majority of the Company's licenses for patents and technology is derived from sales-based royalties. The Company estimates the amount of sales-based royalties it expects to be entitled to based on historical sales to the customer. For the remaining revenue from licensing arrangements, payments are typically received from the Company's licensees based on billing schedules established in each contract. Revenue is recognized when the performance obligation is satisfied.

Remaining Performance Obligations
Remaining performance obligations represent the transaction price allocated to unsatisfied or partially unsatisfied performance obligations. At December 31, 2020, the Company had unfulfilled performance obligations of $977 million ($826 million at December 31, 2019) related to the licensing of technology and expects revenue to be recognized for the remaining performance obligations over the next seven years.

The remaining performance obligations are for product sales that have expected durations of one year or less, product sales of materials delivered through a pipeline for which the Company has elected the right to invoice practical expedient, or variable consideration attributable to royalties for licenses of patents and technology. The Company has received advance payments from customers related to long-term supply agreements that are deferred and recognized over the life of the contract, with remaining contract terms that range up to 21 years. The Company will have rights to future consideration for revenue recognized when product is delivered to the customer. These payments are included in "Accrued and other current liabilities" and "Other noncurrent obligations" in the consolidated balance sheets.

Disaggregation of Revenue
Dow disaggregates its revenue from contracts with customers by operating segment and business, as the Company believes it best depicts the nature, amount, timing and uncertainty of its revenue and cash flows. See details in the tables below:

Net Trade Sales by Segment and Business In millions	*2020*	*2019*	*2018*
Hydrocarbons & Energy	$ 4,271	$ 5,357	$ 7,587
Packaging and Specialty Plastics	14,030	14,888	16,608
Packaging & Specialty Plastics	$ 18,301	$ 20,245	$ 24,195
Industrial Solutions	$ 3,929	$ 4,310	$ 4,812
Polyurethanes & Construction Chemicals	8,080	9,117	10,615
Others	12	13	20
Industrial Intermediates & Infrastructure	$ 12,021	$ 13,440	$ 15,447
Coatings & Performance Monomers	$ 3,258	$ 3,517	$ 3,979
Consumer Solutions	4,693	5,406	5,698
Performance Materials & Coatings	$ 7,951	$ 8,923	$ 9,677
Corporate	$ 269	$ 343	$ 285
Total	$ 38,542	$ 42,951	$ 49,604

Net Trade Sales by Geographic Region In millions	*2020*	*2019*	*2018*
U.S. & Canada	$ 13,582	$ 15,549	$ 17,809
EMEAI [1]	12,969	14,612	17,406
Asia Pacific	8,165	8,676	9,404
Latin America	3,826	4,114	4,985
Total	$ 38,542	$ 42,951	$ 49,604

1. Europe, Middle East, Africa and India.

Contract Assets and Liabilities
The Company receives payments from customers based upon contractual billing schedules. Accounts receivable are recorded when the right to consideration becomes unconditional. Contract assets include amounts related to the Company's contractual right to consideration for completed performance obligations not yet invoiced. Contract liabilities include payments received in advance of performance under the contract and are recognized in revenue when the performance obligations are met. "Contract liabilities - current" primarily reflects deferred revenue from prepayments from customers for product to be delivered in 12 months or less. "Contract liabilities - noncurrent" includes advance payments that the Company has received from customers related to long-term supply agreements and royalty payments that are deferred and recognized over the life of the contract.

Revenue recognized in 2020 from amounts included in contract liabilities at the beginning of the period was approximately $145 million (approximately $145 million in 2019 and $205 million in 2018). In 2020, the amount of contract assets reclassified to receivables as a result of the right to the transaction consideration becoming unconditional was approximately $25 million (approximately $15 million in 2019). The Company did not recognize any asset impairment charges related to contract assets in 2020, 2019, or 2018.

The following table summarizes the contract assets and liabilities at December 31, 2020 and 2019:

Contract Assets and Liabilities at Dec 31 In millions	*2020*	*2019*
Accounts and notes receivable - Trade	$ 4,839	$ 4,844
Contract assets - current [1]	$ 58	$ 41
Contract assets - noncurrent [2]	$ 11	$ 4
Contract liabilities - current [3]	$ 349	$ 193
Contract liabilities - noncurrent [4]	$ 1,915	$ 1,607

1. Included in "Other current assets" in the consolidated balance sheets.
2. Included in "Deferred charges and other assets" in the consolidated balance sheets.
3. Included in "Accrued and other current liabilities" in the consolidated balance sheets. The increase from December 31, 2019 to December 31, 2020 was primarily due to advance payments from customers related to royalty agreements.
4. Included in "Other noncurrent obligations" in the consolidated balance sheets. The increase from December 31, 2019 to December 31, 2020 was due to an advance payment from a customer related to a long-term product supply agreement.

NOTE 5 – DIVESTITURES

Divestiture of Rail Infrastructure Operations and Assets

On September 30, 2020, TDCC sold its rail infrastructure operations and assets, including existing agreements to provide rail services to unrelated third parties, at six sites in the U.S. & Canada to an affiliate of Watco Companies, L.L.C. for cash proceeds of $303 million, net of costs to sell and other adjustments and subject to customary post-closing adjustments. These assets are located at TDCC's sites in Plaquemine and St. Charles, Louisiana; Freeport and Seadrift, Texas; and Fort Saskatchewan and Prentiss, Alberta, Canada. Divested operations included property with a net book value of $68 million and goodwill of $2 million ($16 million related to Packaging & Specialty Plastics and $54 million related to Corporate). TDCC retained ownership of the sites and underlying real property where the divested operations are located. TDCC and the buyer entered into mutual long-term service agreements designed to ensure the continuation of rail services for TDCC's existing operations at each site. The rail-service agreements include variable fees that have an initial term of 25 years. TDCC recognized a pretax gain of $233 million on the sale ($48 million related to Packaging & Specialty Plastics and $185 million related to Corporate), included in "Sundry income (expense) - net" in the consolidated statements of income.

The Company evaluated the divestiture of the rail infrastructure operations and assets and determined it did not represent a strategic shift that had a major effect on the Company's operations and financial results and did not qualify as an individually significant component of the Company. As a result, the divestiture is not reported as discontinued operations.

Divestiture of Marine and Terminal Operations and Assets

On December 1, 2020, TDCC sold certain U.S. Gulf Coast marine and terminal operations and assets, including existing agreements to provide marine and terminal services to unrelated third parties, at three U.S. sites to an affiliate of Royal Vopak for cash proceeds of $600 million, net of costs to sell and other adjustments and subject to customary post-closing adjustments. These assets are located at TDCC's sites in Plaquemine and St. Charles, Louisiana, and Freeport, Texas. Divested operations included property with a net book value of $93 million and goodwill of $8 million ($7 million related to Packaging & Specialty Plastics, $17 million related to Industrial Intermediates & Infrastructure and $77 million related to Corporate). TDCC retained ownership of the sites and the underlying real property where the divested operations are located. TDCC and the buyer entered into mutual long-term service agreements designed to ensure the continuation of marine and terminal services for TDCC's existing operations at each site. The marine and terminal service agreements include fixed and variable fees that have initial terms of up to 25 years. In the fourth quarter of 2020, TDCC recognized a pretax gain of $499 million on the sale ($17 million related to Packaging & Specialty Plastics, $61 million related to Industrial Intermediates & Infrastructure and $421 million related to Corporate), included in "Sundry income (expense) - net" in the consolidated statements of income.

The Company evaluated the divestiture of the marine and terminal operations and assets and determined it did not represent a strategic shift that had a major effect on the Company's operations and financial results and did not qualify as an individually significant component of the Company. As a result, the divestiture is not reported as discontinued operations.

NOTE 6 – RESTRUCTURING, GOODWILL IMPAIRMENT AND ASSET RELATED CHARGES - NET

The "Restructuring, goodwill impairment and asset related charges - net" line in the consolidated statements of income is used to record charges for restructuring programs, goodwill impairments, and other asset related charges, which includes other asset impairments.

Restructuring Programs

2020 Restructuring Program

On September 29, 2020, the Board of Dow Inc. approved restructuring actions to achieve the Company's structural cost improvement initiatives in response to the continued economic impact from the coronavirus disease 2019 ("COVID-19") pandemic. The restructuring program is designed to reduce structural costs and enable the Company to further enhance competitiveness while the COVID-19 economic recovery gains traction. This program includes a global workforce cost reduction of approximately 6 percent and actions to rationalize the Company's manufacturing assets, which include asset write-down and write-off charges, related contract termination fees and environmental remediation costs ("2020 Restructuring Program"). These actions are expected to be substantially complete by the end of 2021.

As a result of these actions, in the third quarter of 2020 the Company recorded pretax restructuring charges of $575 million, consisting of severance and related benefit costs of $297 million, asset write-downs and write-offs of $197 million and costs associated with exit and disposal activities of $81 million. The impact of these charges is shown as "Restructuring, goodwill impairment and asset related charges - net" in the consolidated statements of income. In the fourth quarter of 2020, the Company recorded net favorable pretax restructuring credits of $1 million related to asset write-downs and write-offs and $1 million related to costs associated with exit and disposal activities (related to Performance Materials & Coatings and Corporate). The adjustment to costs associated with exit and disposal activities included curtailment costs associated with a defined benefit pension plan. See Note 20 for additional information. The following table summarizes the activities related to the 2020 Restructuring Program:

2020 Restructuring Program In millions	*Severance and Related Benefit Costs*	*Asset Write-downs and Write-offs*	*Costs Associated with Exit and Disposal Activities*	*Total*
Packaging & Specialty Plastics	$ —	$ 11	$ —	$ 11
Industrial Intermediates & Infrastructure	—	22	—	22
Performance Materials & Coatings	—	116	61	177
Corporate	297	47	19	363
Total restructuring charges	$ 297	$ 196	$ 80	$ 573
Charges against the reserve	—	(196)	(5)	(201)
Cash payments	(8)	—	—	(8)
Reserve balance at Dec 31, 2020	$ 289	$ —	$ 75	$ 364

At December 31, 2020, $227 million of the reserve balance was included in "Accrued and other current liabilities" and $137 million was included in "Other noncurrent obligations" in the consolidated balance sheets.

Severance and Related Benefit Costs

Severance benefits are provided to employees primarily under Dow's ongoing benefit arrangements and are accrued against the Corporate segment once management commits to a plan of termination. The 2020 Restructuring Program included a charge for severance and related benefit costs of $297 million for a global workforce cost reduction of approximately 6 percent, with separations occurring primarily through the end of 2021, and impacting Corporate. At December 31, 2020, $8 million in severance payments had been made.

Asset Write-downs and Write-offs
The 2020 Restructuring Program included charges related to the write-down and write-off of assets totaling $196 million. Details regarding the asset write-downs and write-offs are as follows:

- Packaging & Specialty Plastics recorded a charge of $11 million to rationalize its production capacity by shutting down a small-scale production unit. The production unit will be shut down by the end of the third quarter of 2022.
- Industrial Intermediates & Infrastructure recorded a charge of $22 million to rationalize its asset footprint by shutting down certain amines and solvents facilities in the United States and Europe as well as select, small-scale downstream polyurethanes manufacturing facilities. The facilities will be shut down by the end of 2021.
- Performance Materials & Coatings recorded a charge of $116 million to shut down manufacturing assets, primarily related to small-scale coatings reactors, and will also rationalize its upstream asset footprint in Europe and the U.S. & Canada by adjusting the supply of siloxane and silicon metal to balance to regional needs. The impacted facilities will be shut down by the end of 2021.
- Corporate recorded a charge of $47 million related to the write-down of leased, non-manufacturing facilities and the write-down of miscellaneous assets.

Costs Associated with Exit and Disposal Activities
The 2020 Restructuring Program included charges of $80 million for costs associated with exit and disposal activities, which included $19 million for contract termination fees related to the asset actions listed above, impacting Performance Materials & Coatings ($9 million) and Corporate ($10 million), as well as $56 million for environmental remediation, impacting Performance Materials & Coatings ($52 million) and Corporate ($4 million) and $5 million related to curtailment costs associated with a defined benefit pension plan, impacting Corporate.

DowDuPont Cost Synergy Program
In September and November 2017, DowDuPont approved post-Merger restructuring actions under the DowDuPont Cost Synergy Program (the "Synergy Program") which was designed to integrate and optimize the organization following the Merger and in preparation for the business separations. The Company expected (prior to the impact of any discontinued operations) to record total pretax restructuring charges of approximately $1.3 billion, which included initial estimates of approximately $525 million to $575 million of severance and related benefit costs, $400 million to $440 million of asset write-downs and write-offs, and $290 million to $310 million of costs associated with exit and disposal activities. The restructuring charges below reflect charges from continuing operations. The impact of the charges are shown as "Restructuring, goodwill impairment and asset related charges - net" in the consolidated statements of income.

The Company recorded pretax restructuring charges of $184 million in 2018, consisting of severance and related benefit costs of $137 million, asset write-downs and write-offs of $33 million and costs associated with exit and disposal activities of $14 million.

The Company recorded pretax restructuring charges of $292 million in 2019, consisting of severance and related benefit costs of $123 million, assets write-downs and write-offs of $143 million and costs associated with exit and disposal activities of $26 million.

For the year ended December 31, 2020, the Company recorded pretax restructuring charges of $86 million for severance and related benefit costs. Cash expenditures related to the Synergy Program were substantially complete at December 31, 2020.

The following table summarizes the activities related to the Synergy Program. At December 31, 2020, $21 million was included in "Accrued and other current liabilities" ($52 million at December 31, 2019) and $13 million ($19 million at December 31, 2019) was included in "Other noncurrent obligations" in the consolidated balance sheets.

DowDuPont Synergy Program In millions	*Severance and Related Benefit Costs*	*Asset Write-downs and Write-offs*	*Costs Associated with Exit and Disposal Activities*	*Total*
Reserve balance at Dec 31, 2017	$ 270	$ —	$ 5	275
2018 restructuring charges				
Packaging & Specialty Plastics	$ —	$ 10	$ 3	$ 13
Industrial Intermediates & Infrastructure	—	—	11	11
Performance Materials & Coatings	—	7	—	7
Corporate	137	16	—	153
Total 2018 restructuring charges	$ 137	$ 33	$ 14	$ 184
Charges against the reserve	—	(33)	—	(33)
Cash payments	(197)	—	(12)	(209)
Reserve balance at Dec 31, 2018	$ 210	$ —	$ 7	$ 217
2019 restructuring charges				
Packaging & Specialty Plastics	$ —	$ —	$ 1	$ 1
Industrial Intermediates & Infrastructure	—	2	5	7
Performance Materials & Coatings	—	28	—	28
Corporate	123	113	20	256
Total 2019 restructuring charges	$ 123	$ 143	$ 26	$ 292
Charges against the reserve	—	(143)	—	(143)
Cash payments	(279)	—	(16)	(295)
Reserve balance at Dec 31, 2019	$ 54	$ —	$ 17	$ 71
2020 restructuring charges				
Corporate	90	—	—	90
Total 2020 restructuring charges	$ 90	$ —	$ —	$ 90
Charges against the reserve	(4)	—	—	(4)
Cash payments	(121)	—	(2)	(123)
Reserve balance at Dec 31, 2020	$ 19	$ —	$ 15	$ 34

The Company recorded pretax restructuring charges of $961 million inception-to-date under the Synergy Program on a continuing operations basis, consisting of severance and related benefit costs of $653 million, asset write-downs and write-offs of $263 million and costs associated with exit and disposal activities of $45 million.

Asset Write-downs and Write-offs
The restructuring charges related to the write-down and write-off of assets in 2018 under the Synergy Program were as follows:

- The Company recorded a charge of $33 million for other miscellaneous asset write-downs and write-offs, including the shutdown of several small manufacturing facilities and the write-off of leased, non-manufacturing assets and certain corporate facilities. The charge related to Packaging & Specialty Plastics ($10 million), Performance Materials & Coatings ($7 million) and Corporate ($16 million). These manufacturing facilities were shut down by the end of 2019.

The restructuring charges related to the write-down and write-off of assets in 2019 under the Synergy Program were as follows:

- The Company recorded a charge of $143 million for other miscellaneous asset write-downs and write-offs, including the shutdown of several small manufacturing facilities and the write-off of non-manufacturing assets and certain corporate facilities. The charge related to Industrial Intermediates & Infrastructure ($2 million), Performance Materials & Coatings ($28 million) and Corporate ($113 million). These manufacturing facilities were substantially shut down by the end of 2020.

There were no restructuring charges related to the write-down and write-off of assets in 2020 under the Synergy Program.

Costs Associated with Exit and Disposal Activities
The restructuring charges for costs associated with exit and disposal activities, including contract cancellation penalties and environmental remediation liabilities, totaled $14 million in 2018, $26 million in 2019 and zero in 2020.

The Company expects to incur additional costs in the future related to its restructuring activities. Future costs are expected to include demolition costs related to closed facilities and restructuring implementation costs. These costs will be recognized as incurred. The Company also expects to incur additional employee-related costs, including involuntary termination benefits, related to its other optimization activities. These costs cannot be reasonably estimated at this time.

2019 Goodwill Impairment
Upon completion of the goodwill impairment testing in the fourth quarter of 2019, the Company determined the fair value of the Coatings & Performance Monomers reporting unit was lower than its carrying amount. As a result, the Company recorded an impairment charge of $1,039 million in the fourth quarter of 2019, included in "Restructuring, goodwill impairment and asset related charges - net" in the consolidated statements of income and related to Performance Materials & Coatings. See Note 13 for additional information.

Asset Related Charges
2020 Charges
In 2020, the Company recognized pretax impairment charges of $49 million, including additional pretax impairment charges for capital additions made to a bio-ethanol manufacturing facility in Santa Vitoria, Minas Gerais, Brazil ("Santa Vitoria"), which was impaired in 2017 and divested in 2020, as well as charges for miscellaneous write-offs and write-downs of non-manufacturing assets and the write-down of certain corporate leased equipment. The impairment charges were included in “Restructuring, goodwill impairment and asset related charges - net” in the consolidated statements of income and related to Packaging & Specialty Plastics ($19 million), Performance Materials & Coatings ($15 million) and Corporate ($15 million). See Note 23 for additional information.

2019 Charges
On August 13, 2019, the Company entered into a definitive agreement to sell its acetone derivatives business to ALTIVIA Ketones & Additives, LLC. The transaction closed on November 1, 2019 and included the Company's acetone derivatives related inventory and production assets, located in Institute, West Virginia, in addition to the site infrastructure, land, utilities and certain railcars. The Company remains at the Institute site as a tenant. As a result of the planned transaction, the Company recognized a pretax impairment charge of $75 million in the third quarter of 2019, included in "Restructuring, goodwill impairment and asset related charges - net" in the consolidated statements of income and related to Packaging & Specialty Plastics ($24 million) and Corporate ($51 million). See Note 23 for additional information.

In the fourth quarter of 2019, upon completion of an evaluation of its equity method investment in Sadara Chemical Company ("Sadara") for other-than-temporary impairment, the Company determined that its investment in Sadara was other-than-temporarily impaired and it was written down to zero. Additionally, as part of Dow's evaluation of Sadara, the Company reserved certain of its notes and accounts receivable with Sadara due to uncertainty on the timing of collection. As a result, the Company recorded a $1,755 million charge related to Sadara, included in “Restructuring, goodwill impairment and asset related charges - net" in the consolidated statements of income and related to Packaging & Specialty Plastics ($370 million), Industrial Intermediates & Infrastructure ($1,168 million) and Corporate ($217 million). See Notes 12 and 23 for additional information.

In 2019, the Company recognized additional pretax impairment charges of $58 million related primarily to capital additions at Santa Vitoria. The impairment charges were included in “Restructuring, goodwill impairment and asset related charges - net” in the consolidated statements of income and related to Packaging & Specialty Plastics ($44 million), Performance Materials & Coatings ($9 million) and Corporate ($5 million). See Note 23 for additional information.

2018 Charges

In 2018, the Company recognized an additional pretax impairment charge of $34 million related primarily to capital additions at Santa Vitoria. The impairment charge was included in “Restructuring, goodwill impairment and asset related charges - net” in the consolidated statements of income and related to the Packaging & Specialty Plastics segment. See Note 23 for additional information.

NOTE 7 – SUPPLEMENTARY INFORMATION

Sundry Income (Expense) – Net [1]	*Dow Inc.*			*TDCC*		
In millions	*2020*	*2019*	*2018*	*2020*	*2019*	*2018*
Non-operating pension and other postretirement benefit plan net credits [2]	$ 103	$ 205	$ 123	$ 103	$ 205	$ 123
Foreign exchange gains (losses)	(62)	91	(119)	(65)	77	(119)
Gain on divestiture of marine and terminal operations and assets [3]	233	—	—	233	—	—
Gain on divestiture of rail infrastructure operations and assets [3]	499	—	—	499	—	—
Loss on early extinguishment of debt [4]	(149)	(102)	(54)	(149)	(102)	(54)
Gain (loss) on divestitures and asset sale [5]	(15)	(49)	—	(15)	2	—
Gain related to Nova ethylene asset matter [6]	544	170	—	544	170	—
Gain on sales of other assets and investments	48	67	18	48	67	18
Dow Silicones breast implant liability adjustment [6]	5	85	—	5	85	—
Indemnification and other transaction related credits (costs) [7]	(21)	(69)	—	(11)	6	—
Loss on Dow Silicones commercial creditor matters [6]	—	(50)	—	—	(50)	—
Post-closing adjustments related to Dow Silicones ownership restructure	—	—	(20)	—	—	(20)
Post-closing adjustments on divestiture of MEGlobal	—	—	20	—	—	20
Other - net	84	113	128	82	113	128
Total sundry income (expense) – net	$ 1,269	$ 461	$ 96	$ 1,274	$ 573	$ 96

1. Prior period amounts were updated to conform with the current year presentation.
2. See Note 20 for additional information.
3. See Note 5 for additional information.
4. See Note 15 for additional information.
5. The year ended December 31, 2020 primarily relates to a loss on the divestiture of a bio-ethanol manufacturing facility in Brazil, related to Packaging & Specialty Plastics. The year ended December 31, 2019 includes post-closing adjustments on previous divestitures, related to Corporate.
6. See Note 16 for additional information.
7. See Note 3 for additional information.

Accrued and Other Current Liabilities
"Accrued and other current liabilities" were $3,790 million and $3,256 million at December 31, 2020 and $2,762 million and $2,233 million at December 31, 2019, for Dow Inc. and TDCC, respectively. Accrued payroll, which is a component of "Accrued and other current liabilities" and includes liabilities related to payroll, incentive compensation and severance, was $866 million at December 31, 2020 and $284 million at December 31, 2019. No other components of "Accrued and other current liabilities" were more than 5 percent of total current liabilities.

Other Investments
The Company has investments in company-owned life insurance policies ("COLI"), which are recorded at their cash surrender value as of each balance sheet date, as provided below:

Investments in Company-Owned Life Insurance In millions	*Dec 31, 2020*	*Dec 31, 2019*
Gross cash value	$ 807	$ 820
Less: Existing drawdowns [1]	—	85
Investments in company-owned life insurance [2]	$ 807	$ 735

1. Classified as "Proceeds from sales and maturities of investments" in the consolidated statements of cash flows.
2. Classified as "Other investments" in the consolidated balance sheets.

The Company has the ability to monetize its investment in its COLI policies as an additional source of liquidity. At December 31, 2019, the Company had monetized $85 million of its existing COLI policies' value. In the first nine months of 2020, the Company monetized an additional $211 million. In the fourth quarter of 2020, the Company repaid all existing drawdowns against the cash surrender value, which resulted in no monetization of its existing COLI policies' value at December 31, 2020. The repayment was reflected in "Purchases of investments" in the consolidated statements of cash flows.

Supplemental Cash Flow Information
The following table shows cash paid for interest and income taxes for the years ended December 31, 2020, 2019 and 2018:

Supplemental Cash Flow Information In millions	*2020*	*2019*	*2018*
Cash paid during year for:			
Interest	$ 842	$ 993	$ 1,143
Income taxes	$ 518	$ 881	$ 1,193

NOTE 8 – INCOME TAXES

The financial statements for Dow Inc. and TDCC are substantially similar, including the reporting of current and deferred tax expense (benefit), provision for income taxes on continuing operations, and deferred tax asset and liability balances. As a result, the following income tax discussion pertains to Dow Inc. only.

Geographic Allocation of Income and Provision for Income Taxes on Continuing Operations In millions	*2020*	*2019*	*2018*
Income (loss) from continuing operations before income taxes			
Domestic [1]	$ (681)	$ (1,196)	$ 745
Foreign [2]	2,752	(51)	3,004
Income (loss) from continuing operations before income taxes	$ 2,071	$ (1,247)	$ 3,749
Current tax expense (benefit)			
Federal	$ (176)	$ (287)	$ 324
State and local	4	25	13
Foreign	691	960	901
Total current tax expense	$ 519	$ 698	$ 1,238
Deferred tax expense (benefit)			
Federal [3]	$ 184	$ 52	$ (318)
State and local	19	19	(32)
Foreign	55	(299)	(79)
Total deferred tax expense (benefit)	$ 258	$ (228)	$ (429)
Provision for income taxes on continuing operations	$ 777	$ 470	$ 809
Income (loss) from continuing operations, net of tax	$ 1,294	$ (1,717)	$ 2,940

1. The 2019 amount includes approximately $1.4 billion of expense related to goodwill impairment and environmental matters. See Notes 13 and 16 for additional information.
2. The 2019 amount includes approximately $1.8 billion of expense for Sadara related charges. See Note 12 for additional information.
3. The 2018 amount reflects the tax impact of the Tax Cuts and Jobs Act which accelerated the utilization of tax credits and required remeasurement of all U.S. deferred tax assets and liabilities.

Reconciliation to U.S. Statutory Rate	*2020*	*2019*	*2018*
Statutory U.S. federal income tax rate	21.0 %	21.0 %	21.0 %
Equity earnings effect	0.2	(3.2)	(3.3)
Foreign income taxed at rates other than the statutory U.S. federal income tax rate [1]	1.7	(14.8)	6.7
U.S. tax effect of foreign earnings and dividends	3.9	1.9	(0.7)
Unrecognized tax benefits	3.3	1.0	0.2
Divestitures [2]	(5.1)	—	0.8
Changes in valuation allowances	12.6	—	—
Impact of tax reform [3]	—	11.1	(3.4)
Federal tax accrual adjustment [4]	—	10.4	—
State and local income taxes	0.3	(4.4)	0.4
Sadara related charges [5]	—	(29.5)	—
Goodwill impairment [6]	—	(17.5)	—
Other - net	(0.4)	(13.7)	(0.1)
Effective tax rate	37.5 %	(37.7)%	21.6 %

1. Includes the impact of valuation allowances and interest and penalties associated with uncertain tax positions in foreign jurisdictions. The 2020 impact from interest and penalties increased the effective tax rate by approximately 4 percent.
2. The 2020 impact relates to the divestiture of a bio-ethanol manufacturing facility in Brazil. See Note 6 for additional information.
3. Includes the impact of tax reform in Switzerland and the United States.
4. Primarily related to the favorable impact of the restoration of tax basis in assets, driven by a court judgment that did not involve the Company.
5. See Note 12 for additional information.
6. See Note 13 for additional information.

The Coronavirus Aid, Relief, and Economic Security Act (“CARES Act”) was enacted on March 27, 2020 in the United States. While the CARES Act has had no significant impact on the Company's provision for income taxes on continuing operations in 2020, the Company filed a tax loss carryback claim for $291 million in accordance with the provisions of the CARES Act. This resulted in an increase in "Accounts and notes receivable - other" and a decrease in "Deferred income tax assets" in the consolidated balance sheets.

In the fourth quarter of 2020, a valuation allowance of $260 million was recorded in the United States, primarily due to filing of the final combined Dow and DuPont tax return and related unutilized foreign tax credits. The Company projects it is more likely than not that a portion of these foreign tax credits and other tax attributes will remain unutilized prior to their expiration.

On December 22, 2017, the Tax Cuts and Jobs Act ("The Act") was enacted. The Act reduced the U.S. federal corporate income tax rate from 35 percent to 21 percent, required companies to pay a one-time transition tax on earnings of certain foreign subsidiaries that were previously deferred, created new provisions related to foreign sourced earnings, eliminated the domestic manufacturing deduction and moved to a hybrid territorial system. While the Company made a reasonable estimate of the effects of The Act on its deferred tax balances and the one-time transition tax at December 31, 2017, in accordance with Staff Accounting Bulletin 118, the income tax effects of The Act were refined upon obtaining, preparing and analyzing additional information during the measurement period as follows:

- In 2018, the Company completed the remeasurement of its U.S. federal deferred tax assets and liabilities based on rates at which they are expected to reverse in the future, which is generally 21 percent, and recorded a benefit of $79 million to “Provision for income taxes on continuing operations” in the consolidated statements of income with respect to the remeasurement of the Company's deferred tax balances.
- The Company adjusted the impact of the mandatory deemed repatriation of post-1986 undistributed foreign earnings and profits, which resulted in a one-time transition tax, and recorded a benefit in 2018 of $85 million to "Provision for income taxes on continuing operations" in the consolidated statements of income with respect to the one-time transition tax. The Company had sufficient tax credits to offset the tax liability associated with the one-time transition tax.
- In 2018, the Company recorded an indirect impact of The Act related to prepaid tax on the intercompany sale of inventory. The amount recorded related to inventory was a charge of $38 million to "Provision for income taxes on continuing operations" in the consolidated statements of income.

Deferred Tax Balances at Dec 31	*2020*		*2019*	
In millions	*Assets*	*Liabilities*	*Assets*	*Liabilities*
Property	$ 499	$ 3,388	$ 494	$ 3,177
Tax loss and credit carryforwards	2,004	—	1,920	—
Postretirement benefit obligations	2,712	250	2,432	210
Other accruals and reserves	1,507	43	1,678	43
Intangibles	124	638	120	688
Inventory	30	198	28	234
Investments	142	51	125	48
Other – net	858	196	851	120
Subtotal	$ 7,876	$ 4,764	$ 7,648	$ 4,520
Valuation allowances	(1,302)	—	(1,262)	—
Total	$ 6,574	$ 4,764	$ 6,386	$ 4,520

Operating Loss and Tax Credit Carryforwards at Dec 31 In millions	*2020* *Assets*	*2019* *Assets*
Operating loss carryforwards		
Expire within 5 years	$ 274	$ 263
Expire after 5 years or indefinite expiration	1,031	1,133
Total operating loss carryforwards	$ 1,305	$ 1,396
Tax credit carryforwards		
Expire within 5 years	$ 434	$ 32
Expire after 5 years or indefinite expiration	265	492
Total tax credit carryforwards	$ 699	$ 524
Total operating loss and tax credit carryforwards	$ 2,004	$ 1,920

Undistributed earnings of foreign subsidiaries and related companies that are deemed to be permanently invested amounted to $7,401 million at December 31, 2020 and $6,851 million at December 31, 2019. Undistributed earnings are subject to certain taxes upon repatriation, primarily where foreign withholding taxes apply. It is not practicable to calculate the unrecognized deferred tax liability on undistributed earnings.

The following table provides a reconciliation of the Company's unrecognized tax benefits:

Total Gross Unrecognized Tax Benefits In millions	*2020*	*2019*	*2018*
Total unrecognized tax benefits at Jan 1	$ 319	$ 314	$ 255
Decreases related to positions taken on items from prior years	(1)	(1)	(8)
Increases related to positions taken on items from prior years	52	16	68
Increases related to positions taken in the current year	18	10	2
Settlement of uncertain tax positions with tax authorities	(14)	(19)	—
Decreases due to expiration of statutes of limitations	(1)	—	(1)
Foreign exchange gain	—	(1)	(2)
Total unrecognized tax benefits at Dec 31	$ 373	$ 319	$ 314
Total unrecognized tax benefits that, if recognized, would impact the effective tax rate	$ 285	$ 234	$ 235
Total amount of interest and penalties expense (benefit) recognized in "Provision for income taxes on continuing operations"	$ 84	$ (11)	$ (12)
Total accrual for interest and penalties recognized in the consolidated balance sheets	$ 144	$ 100	$ 109

Prior to the separation, TDCC and its consolidated subsidiaries were included in DowDuPont's consolidated federal income tax group and consolidated tax return. Generally, the consolidated tax liability of the DowDuPont U.S. tax group for each year was apportioned among the members of the consolidated group based on each member’s separate taxable income. TDCC and DuPont intend that, to the extent federal and/or state corporate income tax liabilities are reduced through the utilization of tax attributes of the other, settlement of any receivable and payable generated from the use of the other party’s sub-group attributes will be in accordance with a tax sharing agreement and/or tax matters agreement. At December 31, 2020, the Company had a receivable of $261 million related to the tax sharing agreement, which is included in "Other current assets" in the consolidated balance sheets ($312 million included in "Noncurrent receivables" at December 31, 2019).

Each year, the Company files tax returns in the various national, state and local income taxing jurisdictions in which it operates. These tax returns are subject to examination and possible challenge by the tax authorities. Positions challenged by the tax authorities may be settled or appealed by the Company. As a result, there is an uncertainty in income taxes recognized in the Company’s financial statements in accordance with accounting for income taxes and accounting for uncertainty in income taxes. The ultimate resolution of such uncertainties is not expected to have a material impact on the Company's results of operations.

Tax years that remain subject to examination for the Company's major tax jurisdictions are shown below:

Tax Years Subject to Examination by Major Tax Jurisdiction at Dec 31, 2020 *Jurisdiction*	*Earliest Open Year*
Argentina	2014
Brazil	2015
Canada	2012
China	2010
Germany	2014
Italy	2016
The Netherlands	2016
Switzerland	2016
United States:	
Federal income tax	2004
State and local income tax	2004

The reserve for non-income tax contingencies related to issues in the United States and foreign locations was $33 million at December 31, 2020 ($44 million at December 31, 2019). This is management's best estimate of the potential liability for non-income tax contingencies. Inherent uncertainties exist in estimates of tax contingencies due to changes in tax law, both legislated and concluded through the various jurisdictions' tax court systems. It is the opinion of the Company's management that the possibility is remote that costs in excess of those accrued will have a material impact on the Company's consolidated financial statements.

NOTE 9 - EARNINGS PER SHARE CALCULATIONS

The following tables provide earnings per share calculations of Dow Inc. for the years ended December 31, 2020, 2019, and 2018. In accordance with the accounting guidance for earnings per share, earnings per share of TDCC is not presented as this information is not required in financial statements of wholly owned subsidiaries.

Net Income (Loss) for Earnings Per Share Calculations In millions	*2020*	*2019*	*2018*
Income (loss) from continuing operations, net of tax	$ 1,294	$ (1,717)	$ 2,940
Net income attributable to noncontrolling interests - continuing operations	(69)	(74)	(102)
Net income attributable to participating securities - continuing operations [1]	(9)	(6)	—
Income (loss) from continuing operations attributable to common stockholders	$ 1,216	$ (1,797)	$ 2,838
Income from discontinued operations, net of tax	$ —	$ 445	$ 1,835
Net income attributable to noncontrolling interests - discontinued operations	—	(13)	(32)
Income from discontinued operations attributable to common stockholders	$ —	$ 432	$ 1,803
Net income (loss) attributable to common stockholders	$ 1,216	$ (1,365)	$ 4,641

Earnings (Loss) Per Share Calculations - Basic Dollars per share	*2020*	*2019*	*2018*
Income (loss) from continuing operations attributable to common stockholders	$ 1.64	$ (2.42)	$ 3.80
Income from discontinued operations, net of tax	—	0.58	2.41
Net income (loss) attributable to common stockholders	$ 1.64	$ (1.84)	$ 6.21

Earnings (Loss) Per Share Calculations - Diluted Dollars per share	*2020*	*2019*	*2018*
Income (loss) from continuing operations attributable to common stockholders	$ 1.64	$ (2.42)	$ 3.80
Income from discontinued operations, net of tax	—	0.58	2.41
Net income (loss) attributable to common stockholders	$ 1.64	$ (1.84)	$ 6.21

Share Count Information Shares in millions	*2020*	*2019*	*2018*
Weighted-average common shares outstanding - basic [2]	740.5	742.5	747.2
Plus dilutive effect of equity compensation plans [3]	1.8	—	—
Weighted-average common shares outstanding - diluted [2, 3]	742.3	742.5	747.2
Stock options and restricted stock units excluded from EPS calculations [4]	14.2	20.8	—

1. Restricted stock units are considered participating securities due to the Company's practice of paying dividend equivalents on unvested shares.
2. Share amounts for the year ended December 31, 2018 were based on 2,246.3 million DowDuPont common shares outstanding as of the Record Date for the April 1, 2019 distribution, less 4.6 million Employee Stock Ownership Plan ("ESOP") shares that had not been released and were not considered outstanding, adjusted for the Distribution Ratio. There was no dilutive effect for the year ended December 31, 2018 as the Company did not engage in activities giving rise to dilution.
3. The year ended December 31, 2019 reflected a loss from continuing operations, and as such, the basic share count was used for purposes of calculating earnings per share on a diluted basis.
4. These outstanding options to purchase shares of common stock and restricted stock units were excluded from the calculation of diluted earnings per share because the effect of including them would have been antidilutive. For the year ended December 31, 2018, the Company did not engage in activities giving rise to dilution.

NOTE 10 – INVENTORIES

The following table provides a breakdown of inventories:

Inventories at Dec 31 In millions	*2020*	*2019*
Finished goods	$ 3,140	$ 3,505
Work in process	996	1,122
Raw materials	598	628
Supplies	933	845
Total	$ 5,667	$ 6,100
Adjustment of inventories to the LIFO basis	34	114
Total inventories	$ 5,701	$ 6,214

Inventories valued on the LIFO basis represented 30 percent of the total inventories at December 31, 2020 and 32 percent of the total inventories at December 31, 2019.

NOTE 11 – PROPERTY

The following table provides a breakdown of property:

Property at Dec 31 In millions	*Estimated Useful Lives (Years)*	*2020*	*2019*
Land and land improvements	0-25	$ 2,011	$ 2,177
Buildings	5-50	4,976	4,742
Machinery and equipment	3-25	42,108	40,651
Other property	3-50	5,626	5,354
Construction in progress [1]	—	1,604	1,986
Total property		$ 56,325	$ 54,910

1. The decrease is primarily related to the Company proactively reducing capital spending in 2020 to focus on cash and maintaining financial strength during the COVID-19 pandemic.

In millions	*2020*	*2019*	*2018*
Depreciation expense	$ 2,092	$ 2,156	$ 2,174
Capitalized interest	$ 64	$ 80	$ 88

NOTE 12 – NONCONSOLIDATED AFFILIATES

The Company's investments in companies accounted for using the equity method ("nonconsolidated affiliates") and dividends received from nonconsolidated affiliates are shown in the following tables:

Investments in Nonconsolidated Affiliates at Dec 31 In millions	*2020* [1]	*2019* [1]
Investment in nonconsolidated affiliates	$ 1,327	$ 1,404
Other noncurrent obligations	(169)	(80)
Net investment in nonconsolidated affiliates	$ 1,158	$ 1,324

1. The carrying amount of the Company's investments in nonconsolidated affiliates at December 31, 2020, was $55 million less than its share of the investees' net assets, ($51 million less at December 31, 2019), exclusive of additional differences relating to Sadara, EQUATE Petrochemical Company K.S.C.C. ("EQUATE") and AgroFresh Solutions Inc. ("AFSI"), which are discussed separately in the disclosures that follow.

Dividends Received from Nonconsolidated Affiliates In millions	*2020*	*2019*	*2018*
Dividends from nonconsolidated affiliates	$ 425	$ 1,020	$ 663

Except for AFSI, the nonconsolidated affiliates in which the Company has investments are privately held companies; therefore, quoted market prices are not available.

Sadara

In 2011, the Company and Saudi Arabian Oil Company formed Sadara - a joint venture between the two companies that subsequently constructed and now operates a world-scale, fully integrated chemicals complex in Jubail Industrial City, Kingdom of Saudi Arabia. The Company has a 35 percent equity interest in this joint venture and has been, and continues to be, responsible for marketing the majority of Sadara's products through the Company's established sales channels.

The Company's investment in Sadara was $1,618 million less than Dow's proportionate share of the carrying value of the underlying net assets held by Sadara at December 31, 2020 ($1,705 million less at December 31, 2019). This basis difference is primarily attributed to the long-lived assets of Sadara and is being amortized over the remaining useful lives of the assets. At December 31, 2020, the Company had a negative investment balance in Sadara of $22 million (zero at December 31, 2019) classified as "Other noncurrent obligations" in the Company's consolidated balance sheets, related to the Company's share of Sadara's AOCL in 2020 offset by the basis difference amortization. The Company expects to continue to recognize its share of potential future losses reported by Sadara. See Note 16 for additional information related to guarantees.

In 2019, the Company recorded impairment charges related to its investment in Sadara. The joint venture achieved full commercial operations of all its facilities in 2017. In December 2018, the joint venture successfully completed its Creditors Reliability Test, an extensive operational testing program designed to demonstrate the reliability of the joint venture's full chemical complex by operating at high rates for an extended period of time. While Sadara had reached these operational milestones and had been generating positive EBITDA (a non-GAAP measure defined as earnings before interest, taxes, depreciation and amortization), the joint venture had yet to report positive net income. During the fourth quarter of 2019, Sadara tested its long-lived assets for impairment using long-term cash flow projections. Sadara's U.S. GAAP impairment test utilized an undiscounted cash flow methodology, under which Sadara concluded its long-lived assets were recoverable. Due to Sadara's financial condition and its long-lived asset impairment test, Dow evaluated its equity method investment in Sadara for other-than-temporary impairment. The Company utilized a discounted cash flow methodology to measure the estimated fair value of its investment in Sadara, which was estimated to be zero (see Note 23 for additional information on the fair value measurement). The Company determined the decline in value of its investment in Sadara was other-than-temporary due to Sadara's financial performance since becoming commercially operational in 2017 and uncertainty around prospects for recovery in Sadara's financial condition. In addition, the Company reserved certain accounts and notes receivable and accrued interest balances associated with Sadara due to uncertainty around the timing of collection. In total, the Company recorded a $1,755 million pretax charge in the fourth quarter of 2019 related to Sadara, included in "Restructuring, goodwill impairment and asset related charges - net" in the consolidated statements of income and related to Packaging & Specialty Plastics ($370 million), Industrial Intermediates & Infrastructure ($1,168 million) and Corporate ($217 million).

In 2020, the Company loaned $333 million to Sadara that was accounted for as in substance common stock and classified as "Investment in nonconsolidated affiliates" in the Company's consolidated balance sheets. The Company loaned $473 million to Sadara and converted $380 million of the notes and accounts receivable into equity during 2019. In 2018, the Company converted $382 million of outstanding notes and accounts receivable with Sadara into equity, primarily due to a shareholder loan reduction agreement with Sadara. At December 31, 2020 and 2019, the Company's note receivable with Sadara was zero.

EQUATE
The Company had a negative investment balance in EQUATE of $147 million at December 31, 2020 (negative $80 million at December 31, 2019), classified as "Other noncurrent obligations" in the consolidated balance sheets. The Company's investment in EQUATE was $475 million less than the Company's proportionate share of EQUATE's underlying net assets at December 31, 2020 ($489 million less at December 31, 2019), which represents the difference between the fair values of certain MEGlobal assets acquired by EQUATE and the Company's related valuation on a U.S. GAAP basis. A basis difference of $155 million at December 31, 2020 ($169 million at December 31, 2019) is being amortized over the remaining useful lives of the assets and the remainder is considered a permanent difference.

AFSI
At December 31, 2020, the Company had an investment in AFSI of zero ($35 million at December 31, 2019), classified as "Investment in nonconsolidated affiliates" in the consolidated balance sheets. At December 31, 2020, the Company's investment in AFSI was $108 million less than the Company's proportionate share of AFSI's underlying net assets ($102 million less at December 31, 2019). This amount primarily relates to an other-than-temporary decline in the Company's investment in AFSI. At December 31, 2020, the Company held a 40 percent ownership interest in AFSI (41 percent at December 31, 2019).

Transactions with Nonconsolidated Affiliates
The Company has service agreements with certain nonconsolidated affiliates, including contracts to manage the operations of manufacturing sites and the construction of new facilities; licensing and technology agreements; and marketing, sales, purchase, lease and sublease agreements.

The Company sells excess ethylene glycol produced at manufacturing facilities in the United States and Europe to MEGlobal, a subsidiary of EQUATE. The Company also sells ethylene to MEGlobal as a raw material for its ethylene glycol plants in Canada. Sales of these products to MEGlobal represented 1 percent of total net sales in 2020, 2019 and 2018. Sales of ethylene to MEGlobal are reflected in the Packaging & Specialty Plastics segment and represented 2 percent of the segment's sales in 2020 (1 percent in 2019 and 2018). Sales of ethylene glycol to MEGlobal are reflected in the Industrial Intermediates & Infrastructure segment and represented 1 percent of the segment's sales in 2020 (1 percent in 2019 and 2 percent in 2018).

The Company is responsible for marketing the majority of Sadara products outside of the Middle East zone through the Company’s established sales channels. Under this arrangement, the Company purchases and sells Sadara products for a marketing fee. Purchases of Sadara products represented 8 percent of "Cost of sales" in 2020 (8 percent in 2019 and 9 percent in 2018).

The Company purchases products from The SCG-Dow Group, primarily for marketing and distribution in Asia Pacific. Purchases of products from The SCG-Dow Group represented 3 percent of "Cost of sales" in 2020 (2 percent in 2019 and 2018).

Sales to and purchases from other nonconsolidated affiliates were not material to the consolidated financial statements.

Balances due to or due from nonconsolidated affiliates at December 31, 2020 and 2019 were as follows:

Balances Due To or Due From Nonconsolidated Affiliates at Dec 31 In millions	*2020*	*2019*
Accounts and notes receivable - Other	$ 229	$ 211
Accounts payable - Other	$ 1,075	$ 1,092

Principal Nonconsolidated Affiliates

The Company had an ownership interest in 35 nonconsolidated affiliates at December 31, 2020 (37 at December 31, 2019). The Company's principal nonconsolidated affiliates and its ownership interest (direct and indirect) for each at December 31, 2020, 2019 and 2018 are as follows:

Principal Nonconsolidated Affiliates at Dec 31		*Ownership Interest*		
	Country	*2020*	*2019*	*2018*
EQUATE Petrochemical Company K.S.C.C.	Kuwait	42.5 %	42.5 %	42.5 %
The Kuwait Olefins Company K.S.C.C.	Kuwait	42.5 %	42.5 %	42.5 %
The Kuwait Styrene Company K.S.C.C.	Kuwait	42.5 %	42.5 %	42.5 %
Map Ta Phut Olefins Company Limited [1]	Thailand	32.77 %	32.77 %	32.77 %
Sadara Chemical Company	Saudi Arabia	35 %	35 %	35 %
The SCG-Dow Group:				
Siam Polyethylene Company Limited	Thailand	50 %	50 %	50 %
Siam Polystyrene Company Limited	Thailand	50 %	50 %	50 %
Siam Styrene Monomer Company Limited	Thailand	50 %	50 %	50 %
Siam Synthetic Latex Company Limited	Thailand	50 %	50 %	50 %

1. The Company's effective ownership of Map Ta Phut Olefins Company Limited ("Map Ta Phut") is 32.77 percent, of which the Company directly owns 20.27 percent and indirectly owns 12.5 percent through its equity interest in Siam Polyethylene Company Limited.

The Company’s investment in and equity earnings from its principal nonconsolidated affiliates are shown in the tables below:

Investment in Principal Nonconsolidated Affiliates at Dec 31 In millions	*2020*	*2019*
Investment in nonconsolidated affiliates	$ 922	$ 963
Other noncurrent obligations	(169)	(80)
Net investment in principal nonconsolidated affiliates	$ 753	$ 883

Equity in Earnings (Losses) of Principal Nonconsolidated Affiliates In millions	*2020*	*2019*	*2018*
Equity in earnings (losses) of principal nonconsolidated affiliates	$ (16)	$ 21	$ 561

The summarized financial information that follows represents the combined accounts (at 100 percent) of the principal nonconsolidated affiliates.

Summarized Balance Sheet Information at Dec 31 In millions	*2020*	*2019*
Current assets	$ 5,044	$ 5,302
Noncurrent assets	25,298	26,477
Total assets	$ 30,342	$ 31,779
Current liabilities	$ 3,942	$ 3,743
Noncurrent liabilities	20,144	20,271
Total liabilities	$ 24,086	$ 24,014
Noncontrolling interests	$ 132	$ 110

Summarized Income Statement Information [1] In millions	*2020*	*2019*	*2018*
Sales	$ 9,470	$ 10,905	$ 14,461
Gross profit	$ 619	$ 644	$ 2,320
Income (loss) from continuing operations, net of tax	$ (461)	$ (277)	$ 1,173

1. The results in this table reflect purchase and sale activity between certain principal nonconsolidated affiliates and the Company, as previously discussed in the "Transactions with Nonconsolidated Affiliates" section.

NOTE 13 – GOODWILL AND OTHER INTANGIBLE ASSETS

The following table shows changes in the carrying amounts of goodwill by reportable segment for the years ended December 31, 2020 and 2019:

Goodwill In millions	*Packaging & Specialty Plastics*	*Industrial Intermediates & Infrastructure*	*Performance Materials & Coatings*	*Total*
Balance at Jan 1, 2019	$ 5,101	$ 1,095	$ 3,650	$ 9,846
Foreign currency impact	8	6	(24)	(10)
Goodwill Impairment	—	—	(1,039)	(1,039)
Other	—	(1)	—	(1)
Balance at Dec 31, 2019	$ 5,109	$ 1,100	$ 2,587	$ 8,796
Foreign currency impact	12	4	106	122
Sale of rail infrastructure	(2)	—	—	(2)
Sale of marine and terminal infrastructure	(4)	(4)	—	(8)
Balance at Dec 31, 2020	$ 5,115	$ 1,100	$ 2,693	$ 8,908

The separation from DowDuPont did not impact the composition of the Company's six reporting units: Coatings & Performance Monomers, Consumer Solutions, Hydrocarbons & Energy, Industrial Solutions, Packaging and Specialty Plastics and Polyurethanes & Construction Chemicals. The ECP businesses received as part of the separation from DowDuPont are included in the Hydrocarbons & Energy and Packaging and Specialty Plastics reporting units. At December 31, 2020, goodwill was carried by all reporting units except Coatings & Performance Monomers (“C&PM”).

Goodwill Impairments

The carrying amounts of goodwill at December 31, 2020 and 2019 were net of accumulated impairments of $309 million in Industrial Intermediates & Infrastructure and $2,530 million in Performance Materials & Coatings.

Goodwill Impairment Testing
The Company performs an impairment test of goodwill annually in the fourth quarter. In 2020, the Company performed qualitative assessments for all reporting units that carried goodwill. Based on the results of the qualitative assessments, the Company performed quantitative testing for one reporting unit (two in 2019 and one in 2018). The qualitative assessments on the remaining reporting units indicated that it was not more likely than not that fair value was less than the carrying value for those reporting units.

The quantitative testing conducted in 2020 and 2018 concluded that no goodwill impairments existed.

Upon completion of the quantitative testing in the fourth quarter of 2019, the Company determined the C&PM reporting unit was impaired. During 2019, the C&PM reporting unit did not consistently meet expected financial performance targets, primarily due to the industry's increased captive use of coatings products, which led to volume reductions; reduced margins for products across the portfolio due to changes in customer buying patterns and supply and demand balances; as well as a continuous trend of customer consolidation in end-markets, which reduced growth opportunities. As a result, the C&PM reporting unit lowered its future revenue and profitability projections. The fair value of the C&PM reporting unit was determined using a discounted cash flow methodology that reflected reductions in projected revenue growth rates due to lower sales volume and price assumptions, as well as reductions to future growth rates. These discounted cash flows did not support the carrying value of the C&PM reporting unit. As a result, the Company recorded a goodwill impairment charge of $1,039 million in the fourth quarter of 2019, included in "Restructuring, goodwill impairment and asset related charges - net" in the consolidated statements of income and related to the Performance Materials & Coatings segment. The carrying value of the C&PM reporting unit's goodwill was zero at December 31, 2019. No other goodwill impairments were identified as a result of the 2019 testing.

Other Intangible Assets
The following table provides information regarding the Company's other intangible assets:

Other Intangible Assets at Dec 31	*2020*			*2019*		
In millions	*Gross Carrying Amount*	*Accum Amort*	*Net*	*Gross Carrying Amount*	*Accum Amort*	*Net*
Intangible assets with finite lives:						
Developed technology	$ 2,638	$ (1,677)	$ 961	$ 2,634	$ (1,467)	$ 1,167
Software	1,489	(989)	500	1,449	(893)	556
Trademarks/tradenames	352	(343)	9	352	(342)	10
Customer-related	3,301	(1,419)	1,882	3,207	(1,184)	2,023
Total other intangible assets, finite lives	$ 7,780	$ (4,428)	$ 3,352	$ 7,642	$ (3,886)	$ 3,756
In-process research and development	—	—	—	3	—	3
Total other intangible assets	$ 7,780	$ (4,428)	$ 3,352	$ 7,645	$ (3,886)	$ 3,759

The following table provides information regarding amortization expense from continuing operations related to intangible assets:

Amortization Expense from Continuing Operations			
In millions	*2020*	*2019*	*2018*
Other intangible assets, excluding software	$ 401	$ 419	$ 469
Software, included in "Cost of sales"	$ 96	$ 96	$ 93

Total estimated amortization expense from continuing operations for the next five fiscal years, including amounts expected to be capitalized, is as follows:

Estimated Amortization Expense for Next Five Years In millions	
2021	$ 477
2022	$ 415
2023	$ 384
2024	$ 366
2025	$ 275

NOTE 14 – TRANSFERS OF FINANCIAL ASSETS

Accounts Receivable Programs

The Company maintains committed accounts receivable facilities with various financial institutions, including in the United States, which expires in November 2022 (“U.S. A/R Program”) and in Europe, which expires in July 2023 (“Europe A/R Program” and together with the U.S. A/R Program, "the Programs"). Under the terms of the Programs, the Company may sell certain eligible trade accounts receivable at any point in time, up to $900 million for the U.S. A/R Program and up to €400 million for the Europe A/R Program. Under the terms of the Programs, the Company continues to service the receivables from the customer, but retains no interest in the receivables, and remits payment to the financial institutions. The Company also provides a guarantee to the financial institutions for the creditworthiness and collection of the receivables in satisfaction of the facility. See Note 16 for additional information related to guarantees. There were no receivables sold under the Programs during the years ended December 31, 2020 and 2019.

Accounts Receivable Securitization Facilities

The Company historically sold trade accounts receivable of select North American entities and qualifying trade accounts receivable of select European entities on a revolving basis to certain multi-seller commercial paper conduit entities ("conduits"). The proceeds received were comprised of cash and interests in specified assets of the conduits (the receivables sold by the Company) that entitled the Company to the residual cash flows of such specified assets in the conduits after the commercial paper had been repaid. Neither the conduits nor the investors in those entities had recourse to other assets of the Company in the event of nonpayment by the debtors.

In the fourth quarter of 2017, the Company suspended further sales of trade accounts receivable through these facilities and began reducing outstanding balances through collections of trade accounts receivable previously sold to such conduits. In 2018, the Company recognized a loss of $7 million on the sale of these receivables, which is included in “Interest expense and amortization of debt discount” in the consolidated statements of income. The Company's interests in the conduits were reflected in "Investing Activities" in the consolidated statements of cash flows and were $657 million in 2018. In September and October 2018, the North American and European facilities, respectively, were amended and the terms of the agreements changed from off-balance sheet arrangements to secured borrowing arrangements. In November 2019 and July 2020, the North American and European facilities, respectively, were amended and are no longer secured borrowing arrangements. These facilities were not drawn upon during the period they were secured borrowing arrangements. See Note 15 for additional information on the secured borrowing arrangements.

NOTE 15 – NOTES PAYABLE, LONG-TERM DEBT AND AVAILABLE CREDIT FACILITIES

Notes Payable at Dec 31 In millions	*2020*	*2019*
Commercial paper	$ —	$ 151
Notes payable to banks and other lenders	156	435
Total notes payable	$ 156	$ 586
Year-end average interest rates	3.89 %	6.30 %

Long-Term Debt at Dec 31 In millions	*2020 Average Rate*	*2020*	*2019 Average Rate*	*2019*
Promissory notes and debentures:				
Final maturity 2020	— %	$ —	8.44 %	$ 76
Final maturity 2021	8.95 %	173	8.95 %	174
Final maturity 2022	8.64 %	121	3.50 %	1,372
Final maturity 2023	7.63 %	250	7.64 %	325
Final maturity 2024 [1]	3.43 %	1,017	3.37 %	1,397
Final maturity 2025	5.13 %	625	5.26 %	662
Final maturity 2026 and thereafter [1]	5.22 %	10,888	5.73 %	8,820
Other facilities:				
U.S. dollar loans	— %	—	2.55 %	2,000
Foreign currency notes and loans, various rates and maturities	1.41 %	3,189	3.26 %	592
InterNotes®, varying maturities through 2050	3.56 %	535	3.44 %	928
Finance lease obligations [2]		518		395
Unamortized debt discount and issuance costs		(365)		(331)
Long-term debt due within one year [3]		(460)		(435)
Long-term debt		$ 16,491		$ 15,975

1. Cost includes net fair value hedge adjustment gains of $69 million at December 31, 2020 ($1 million at December 31, 2019). See Note 22 for additional information.
2. See Note 17 for additional information.
3. Presented net of current portion of unamortized debt issuance costs.

Maturities of Long-Term Debt for Next Five Years at Dec 31, 2020 In millions	
2021	$ 460
2022	$ 236
2023	$ 381
2024	$ 1,079
2025	$ 717

2020 Activity

In February 2020, the Company issued €2.25 billion aggregate principal amount of notes (“Euro Notes”). The Euro Notes included €1 billion aggregate principal amount of 0.50 percent notes due 2027, €750 million aggregate principal amount of 1.125 percent notes due 2032 and €500 million aggregate principal amount of 1.875 percent notes due 2040. The Euro Notes have a weighted average coupon rate of approximately 1.0 percent. With the net proceeds from the issuance of the Euro Notes, Dow Silicones voluntarily repaid $750 million of principal under a certain third party credit agreement, ("Term Loan Facility”). In addition, the Company redeemed $1.25 billion of 3.0 percent notes issued by the Company with maturity in 2022. As a result, the Company recognized a pretax loss of $85 million on the early extinguishment of debt, included in “Sundry income (expense) – net” in the consolidated statements of income and related to Corporate.

In the first quarter of 2020, the Company withdrew $800 million under various uncommitted bilateral credit arrangements, which were subsequently repaid in the second quarter of 2020.

In August 2020, the Company issued $2 billion aggregate principal amount of notes. The notes included $850 million aggregate principal amount of 2.1 percent notes due 2030 and $1.15 billion aggregate principal amount of 3.6 percent notes due 2050 (together, the "Notes"). With the net proceeds from the issuance of the Notes, Dow Silicones voluntarily repaid the remaining $1.25 billion outstanding principal balance under the Term Loan Facility. In September 2020, the Company also used $556 million of aggregate proceeds from the Notes to fund cash tender offers for certain of its debt securities and certain debt securities of Union Carbide. In total, $493 million aggregate principal amount was tendered and retired. These actions resulted in a pretax loss of $62 million on the early extinguishment of debt included in "Sundry income (expense) – net" in the consolidated statements of income and related to Corporate.

In 2020, the Company also issued an aggregate principal amount of $190 million of InterNotes®, and redeemed an aggregate principal amount of $180 million at maturity. In addition, the Company voluntarily repaid an aggregate principal amount of $400 million of InterNotes® with various maturities. As a result, the Company recognized a pretax loss on the early extinguishment of debt of $2 million, included in “Sundry income (expense) – net” in the consolidated statements of income and related to Corporate. Additionally, the Company repaid $134 million of long-term debt at maturity and approximately $29 million of long-term debt was repaid by consolidated variable interest entities.

Subsequent Event
On January 15, 2021, the Company announced a call for $118 million of InterNotes® with various maturities, which will settle on February 15, 2021.

2019 Activity
In 2019, the Company issued $2 billion of senior unsecured notes in an offering under Rule 144A of the Securities Act of 1933. The offering included $750 million aggregate principal amount of 4.80 percent notes due 2049; $750 million aggregate principal amount of 3.625 percent notes due 2026; and $500 million aggregate principal amount of 3.15 percent notes due 2024. In addition, the Company redeemed $1.5 billion of 4.25 percent notes with maturity in 2020 and $1.25 billion of 4.125 percent notes with maturity in 2021. As a result, the Company recognized a pretax loss of $100 million on the early extinguishment of debt, included in "Sundry income (expense) - net" in the consolidated statements of income and related to Corporate. The Company also issued an aggregate principal amount of $277 million of InterNotes®, and redeemed an aggregate principal amount of $122 million at maturity. Approximately $149 million of long-term debt (net of $16 million of issuances) was repaid by consolidated variable interest entities.

In 2019, Dow Silicones voluntarily repaid $2.5 billion of principal under the Term Loan Facility. As a result, Dow Silicones recognized a pretax loss of $2 million on the early extinguishment of debt, included in "Sundry income (expense) - net" in the consolidated statements of income and related to Corporate.

In October 2019, TDCC launched exchange offers for $4 billion of all the outstanding, unregistered senior notes that were issued in private offerings on November 30, 2018 and May 20, 2019, for identical, registered notes under the Securities Act of 1933 (the “Exchange Offers”). The Exchange Offers were with respect to the Company’s 3.15 percent notes due 2024, 4.55 percent notes due 2025, 3.625 percent notes due 2026, 4.80 percent notes due 2028, 5.55 percent notes due 2048 and 4.80 percent notes due 2049, and fulfilled the Company’s obligations contained in the registration rights agreements entered into in connection with the issuance of the aforementioned notes.

2018 Activity
In 2018, the Company redeemed $333 million of 5.70 percent notes at maturity and an aggregate principal amount of $91 million of InterNotes® at maturity. In addition, approximately $138 million of long-term debt was repaid by consolidated variable interest entities. The Company also called an aggregate principal amount of $343 million tax-exempt bonds of various interest rates and maturities in 2029, 2033 and 2038. As a result of these redemptions, the Company recognized a pretax loss of $6 million on the early extinguishment of debt, included in “Sundry income (expense) - net” in the consolidated statements of income and related to Corporate.

In November 2018, the Company issued $2 billion of senior unsecured notes in an offering under Rule 144A of the Securities Act of 1933. The offering included $900 million aggregate principal amount of 5.55 percent notes due

2048; $600 million aggregate principal amount of 4.80 percent notes due 2028; and $500 million aggregate principal amount of 4.55 percent notes due 2025.

In December 2018, the Company tendered and redeemed $2.1 billion of 8.55 percent notes issued by the Company with maturity in 2019. As a result, the Company recognized a pretax loss of $48 million on the early extinguishment of debt, included in "Sundry income (expense) - net" in the consolidated statements of income and related to Corporate.

Available Credit Facilities
The following table summarizes the Company's credit facilities:

Committed and Available Credit Facilities at Dec 31, 2020				
In millions	*Committed Credit*	*Credit Available*	*Maturity Date*	*Interest*
Five Year Competitive Advance and Revolving Credit Facility	$ 5,000	$ 5,000	October 2024	Floating rate
Bilateral Revolving Credit Facility	200	200	November 2021	Floating rate
Bilateral Revolving Credit Facility	300	300	December 2021	Floating rate
Bilateral Revolving Credit Facility	300	300	December 2021	Floating rate
Bilateral Revolving Credit Facility	150	150	March 2022	Floating rate
Bilateral Revolving Credit Facility	100	100	June 2022	Floating rate
Bilateral Revolving Credit Facility	200	200	September 2022	Floating rate
Bilateral Revolving Credit Facility	200	200	September 2023	Floating rate
Bilateral Revolving Credit Facility	250	250	September 2023	Floating rate
Bilateral Revolving Credit Facility	300	300	September 2023	Floating rate
Bilateral Revolving Credit Facility	100	100	October 2024	Floating rate
Bilateral Revolving Credit Facility	100	100	October 2024	Floating rate
Bilateral Revolving Credit Facility	200	200	November 2024	Floating rate
Bilateral Revolving Credit Facility	100	100	March 2025	Floating rate
Bilateral Revolving Credit Facility	250	250	March 2025	Floating rate
Bilateral Revolving Credit Facility	350	350	March 2025	Floating rate
Total Committed and Available Credit Facilities	$ 8,100	$ 8,100		

Secured Borrowings
In September 2018, the Company renewed its North American accounts receivable securitization facility for a one year term and amended the terms of the agreement from an off-balance sheet arrangement to a secured borrowing arrangement, with a borrowing capacity up to $800 million. Under the structure of the amended agreement, the Company had the option to use select trade accounts receivable to collateralize the credit facility with certain lenders. In November 2019, the facility was amended and is no longer a secured borrowing arrangement. It was not drawn upon during its term as a secured borrowing arrangement.

In October 2018, the Company renewed its European accounts receivable securitization facility for a two year term and amended the terms of the agreement from an off-balance sheet arrangement to a secured borrowing arrangement, with a borrowing capacity up to €400 million. Under the structure of the amended agreement, the Company had the option to use select trade accounts receivable to collateralize the credit facility with certain lenders. In July 2020, the facility was amended and is no longer a secured borrowing arrangement. It was not drawn upon during its term as a secured borrowing arrangement. See Note 14 for additional information related to the accounts receivable programs.

Letters of Credit
The Company utilizes letters of credit to support commitments made in the ordinary course of business. While the terms and amounts of letters of credit change, the Company generally has approximately $400 million of outstanding letters of credit at any given time. In addition, at December 31, 2020, the Company had a $220 million outstanding letter of credit related to a guarantee of the Company’s share of one future debt service schedule payment for Sadara. See Note 16 for additional information related to guarantees.

Debt Covenants and Default Provisions

TDCC's outstanding long-term debt has been issued primarily under indentures which contain, among other provisions, certain customary restrictive covenants with which TDCC must comply while the underlying notes are outstanding. Failure of TDCC to comply with any of its covenants, could result in a default under the applicable indenture and allow the note holders to accelerate the due date of the outstanding principal and accrued interest on the underlying notes.

TDCC's indenture covenants include obligations to not allow liens on principal U.S. manufacturing facilities, enter into sale and lease-back transactions with respect to principal U.S. manufacturing facilities, merge or consolidate with any other corporation, or sell, lease or convey, directly or indirectly, all or substantially all of TDCC's assets. The outstanding debt also contains customary default provisions. TDCC remains in compliance with these covenants.

TDCC's primary, private credit agreements also contain certain customary restrictive covenant and default provisions in addition to the covenants set forth above with respect to TDCC's debt. Significant other restrictive covenants and default provisions related to these agreements include:

(a) the obligation to maintain the ratio of TDCC's consolidated indebtedness to consolidated capitalization at no greater than 0.65 to 1.00 at any time the aggregate outstanding amount of loans under the Five Year Competitive Advance and Revolving Credit Facility Agreement ("Revolving Credit Agreement") dated October 30, 2018, equals or exceeds $500 million,

(b) a default if TDCC or an applicable subsidiary fails to make any payment, including principal, premium or interest, under the applicable agreement on other indebtedness of, or guaranteed by, TDCC or such applicable subsidiary in an aggregate amount of $100 million or more when due, or any other default or other event under the applicable agreement with respect to such indebtedness occurs which permits or results in the acceleration of $400 million or more in the aggregate of principal, and

(c) a default if TDCC or any applicable subsidiary fails to discharge or stay within 60 days after the entry of a final judgment against TDCC or such applicable subsidiary of more than $400 million.

Failure of TDCC to comply with any of the covenants or default provisions could result in a default under the applicable credit agreement which would allow the lenders to not fund future loan requests and to accelerate the due date of the outstanding principal and accrued interest on any outstanding indebtedness.

On April 1, 2019, DowDuPont completed the separation of its materials science business and Dow Inc. became the direct parent company of TDCC. In conjunction with the separation, Dow Inc. is obligated, substantially concurrently with the issuance of any guarantee in respect of outstanding or committed indebtedness under TDCC's Revolving Credit Agreement, to enter into a supplemental indenture with TDCC and the trustee under TDCC's existing 2008 base indenture governing certain notes issued by TDCC. Under such supplemental indenture, Dow Inc. will guarantee all outstanding debt securities and all amounts due under such existing base indenture and will become subject to certain covenants and events of default under the existing base indenture.

In addition, the Revolving Credit Agreement includes an event of default which would be triggered in the event Dow Inc. incurs or guarantees third party indebtedness for borrowed money in excess of $250 million or engages in any material activity or directly owns any material assets, in each case, subject to certain conditions and exceptions. Dow Inc. may, at its option, cure the event of default by delivering an unconditional and irrevocable guarantee to the administrative agent within thirty days of the event or events giving rise to such event of default.

No such events have occurred or have been triggered at the time of the filing of this Annual Report on Form 10-K.

NOTE 16 – COMMITMENTS AND CONTINGENT LIABILITIES

Environmental Matters

Introduction

Accruals for environmental matters are recorded when it is probable that a liability has been incurred and the amount of the liability can be reasonably estimated based on current law and existing technologies. At December 31, 2020, the Company had accrued obligations of $1,244 million for probable environmental remediation and restoration costs, including $248 million for the remediation of Superfund sites. These obligations are included in "Accrued and other current liabilities" and "Other noncurrent obligations" in the consolidated balance sheets. This is management's best estimate of the costs for remediation and restoration with respect to environmental matters for which the Company has accrued liabilities, although it is reasonably possible that the ultimate cost with respect to these particular matters could range up to approximately one and a half times that amount. Consequently, it is reasonably possible that environmental remediation and restoration costs in excess of amounts accrued could have a material impact on the Company's results of operations, financial condition and cash flows. It is the opinion of the Company's management, however, that the possibility is remote that costs in excess of the range disclosed will have a material impact on the Company's results of operations, financial condition or cash flows. Inherent uncertainties exist in these estimates primarily due to unknown conditions, changing governmental regulations and legal standards regarding liability, and emerging remediation technologies for handling site remediation and restoration. As new or additional information becomes available and/or certain spending trends become known, management will evaluate such information in determination of the current estimate of the environmental liability. At December 31, 2019, the Company had accrued obligations of $1,155 million for probable environmental remediation and restoration costs, including $207 million for the remediation of Superfund sites.

As part of the Company's 2020 Restructuring Program, in the third quarter of 2020, the Company recorded a pretax charge related to environmental remediation matters. This charge resulted from the Company's evaluation of the costs required to manage remediation activities at sites Dow will permanently shut down as part of its 2020 Restructuring Program. In addition, the Company recorded indemnification assets of $50 million related to Dow Silicones' environmental matters. The Company recognized a pretax charge, net of indemnifications, of $56 million, included in "Restructuring, goodwill impairment and asset related charges - net" in the consolidated statements of income and related to Performance Materials & Coatings ($52 million) and Corporate ($4 million). See Note 6 for additional information.

In the third quarter of 2019, the Company recorded a pretax charge related to environmental remediation matters at a number of current and historical locations. The charge primarily resulted from: the culmination of long-standing negotiations and discussions with regulators and agencies, including technical studies supporting higher cost estimates for final or staged remediation plans; the Company's evaluation of the cost required to manage remediation activities at sites affected by Dow's separation from DowDuPont and related agreements with Corteva and DuPont; and, the Company's review of its closure strategies and obligations to monitor ongoing operations and maintenance activities. In addition, the Company recorded indemnification assets of $48 million related to Dow Silicones' environmental matters. The Company recognized a pretax charge, net of indemnifications, of $399 million related to these environmental matters, included in "Cost of sales" in the consolidated statements of income and related to Packaging & Specialty Plastics ($5 million), Industrial Intermediates & Infrastructure ($8 million), Performance Materials & Coatings ($50 million) and Corporate ($336 million).

The following table summarizes the activity in the Company's accrued obligations for environmental matters for the years ended December 31, 2020 and 2019:

Accrued Obligations for Environmental Matters In millions	*2020*	*2019*
Balance at Jan 1	$ 1,155	$ 810
Accrual adjustment	285	590
Payments against reserve	(198)	(241)
Foreign currency impact	2	(4)
Balance at Dec 31	$ 1,244	$ 1,155

The amounts charged to income on a pretax basis related to environmental remediation totaled $234 million in 2020, $588 million in 2019 and $176 million in 2018. Capital expenditures for environmental protection were $80 million in 2020, $83 million in 2019 and $55 million in 2018.

Midland Off-Site Environmental Matters
On June 12, 2003, the Michigan Department of Environmental Quality ("MDEQ") issued a Hazardous Waste Operating License (the "License") to the Company's Midland, Michigan, manufacturing site (the "Midland Site"), which was renewed and replaced by the MDEQ on September 25, 2015, and included provisions requiring the Company to conduct an investigation to determine the nature and extent of off-site contamination in the City of Midland soils, the Tittabawassee River and Saginaw River sediment and floodplain soils, and the Saginaw Bay, and, if necessary, undertake remedial action. In 2016, final regulatory approval was received from the MDEQ for the City of Midland and the Company is continuing the long term monitoring requirements of the Remedial Action Plan.

Tittabawassee and Saginaw Rivers, Saginaw Bay
The Company, the U.S. Environmental Protection Agency ("EPA") and the State of Michigan ("State") entered into an administrative order on consent ("AOC"), effective January 21, 2010, that requires the Company to conduct a remedial investigation, a feasibility study and a remedial design for the Tittabawassee River, the Saginaw River and the Saginaw Bay, and pay the oversight costs of the EPA and the State under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act. These actions, to be conducted under the lead oversight of the EPA, will build upon the investigative work completed under the State Resource Conservation Recovery Act program from 2005 through 2009.

The Tittabawassee River, beginning at the Midland Site and extending down to the first six miles of the Saginaw River, are designated as the first Operable Unit for purposes of conducting the remedial investigation, feasibility study and remedial design work. This work will be performed in a largely upriver to downriver sequence for eight geographic segments of the Tittabawassee and upper Saginaw Rivers. In the first quarter of 2012, the EPA requested the Company address the Tittabawassee River floodplain ("Floodplain") as an additional segment. In January 2015, the Company and the EPA entered into an order to address remediation of the Floodplain. The remedial work is expected to continue over the next two years. The remainder of the Saginaw River and the Saginaw Bay are designated as a second Operable Unit and the work associated with that unit may also be geographically segmented. The AOC does not obligate the Company to perform removal or remedial action; that action can only be required by a separate order. The Company and the EPA have been negotiating orders separate from the AOC that obligate the Company to perform remedial actions under the scope of work of the AOC. The Company and the EPA have entered into six separate orders to perform limited remedial actions in seven of the eight geographic segments in the first Operable Unit, including the Floodplain. Dow has received from the EPA a Notice of Completion of Work for three of these six orders and the Company continues the long-term monitoring requirements. Dow also has entered into a separate order to perform a limited remedial action for certain properties located within the second Operable Unit.

Alternative Dispute Resolution Process
The Company, the EPA, the U.S. Department of Justice and the natural resource damage trustees (which include the Michigan Office of the Attorney General, the Michigan Department of Environment, Great Lakes and Energy, the Michigan Department of Natural Resources, the U.S. Fish and Wildlife Service, the U.S. Bureau of Indian Affairs and the Saginaw-Chippewa Indian Tribe of Michigan) have been engaged in negotiations to seek to resolve potential governmental claims against the Company for natural resource damages related to historical off-site contamination associated with the City of Midland, the Tittabawassee and Saginaw Rivers and the Saginaw Bay. The Company and the governmental parties started meeting in the fall of 2005 and entered into a Confidentiality Agreement in December 2005.

On July 20, 2020, the U.S. District Court for the Eastern District of Michigan ("District Court") entered a final consent decree in Civil Action No. 1:19-cv-13292 between the Company and federal, state and tribal trustees to resolve allegations of natural resource damages arising from the historic operations of the Company's Midland Site. The consent decree required the Company to pay a $15 million cash settlement to be used for long-term maintenance and trustee-selected remediation projects with an additional $7 million to specified local projects managed by third parties. These funds were paid in December 2020. The consent decree further requires the Company to complete 13 additional environmental restoration projects which are valued by the trustees at approximately $77 million, to be conducted over the next several years.

At December 31, 2020, the accrual for these off-site matters was $107 million (included in the total accrued obligation of $1,244 million). At December 31, 2019, the Company had an accrual for these off-site matters of $135 million (included in the total accrued obligation of $1,155 million).

Environmental Matters Summary
It is the opinion of the Company's management that the possibility is remote that costs in excess of those disclosed will have a material impact on the Company's results of operations, financial condition or cash flows.

Litigation
Asbestos-Related Matters of Union Carbide Corporation
Introduction
Union Carbide is and has been involved in a large number of asbestos-related suits filed primarily in state courts during the past four decades. These suits principally allege personal injury resulting from exposure to asbestos-containing products and frequently seek both actual and punitive damages. The alleged claims primarily relate to products that Union Carbide sold in the past, alleged exposure to asbestos-containing products located on Union Carbide's premises and Union Carbide's responsibility for asbestos suits filed against a former Union Carbide subsidiary, Amchem Products, Inc. ("Amchem"). In many cases, plaintiffs are unable to demonstrate that they have suffered any compensable loss as a result of such exposure, or that injuries incurred in fact resulted from exposure to Union Carbide's products. Union Carbide expects more asbestos-related suits to be filed against Union Carbide and Amchem in the future, and will aggressively defend or reasonably resolve, as appropriate, both pending and future claims.

Estimating the Asbestos-Related Liability
Based on a study completed by Ankura Consulting Group, LLC ("Ankura") in January 2003, Union Carbide increased its December 31, 2002, asbestos-related liability for pending and future claims for a 15-year period ending in 2017 to $2.2 billion, excluding future defense and processing costs. In subsequent years, Union Carbide compared current asbestos claim and resolution activity to the results of the most recent Ankura study at each balance sheet date to determine whether the accrual continued to be appropriate.

In 2016, Ankura completed a study to provide estimates for the undiscounted cost of disposing of pending and future claims against Union Carbide and Amchem through the terminal year of 2049, including a reasonable forecast of future defense and processing costs. Based on the study and Union Carbide's internal review of asbestos claim and resolution activity, Union Carbide determined estimating the liability through the terminal year of 2049 was more appropriate due to increased knowledge and data about the costs to resolve claims and diminished volatility in filing rates. Union Carbide and the Company also determined that estimating and accruing a liability for future asbestos-related defense and processing costs was more appropriate as such costs represent expenditures related to legacy activities that do not contribute to current or future revenue generating activities of Union Carbide and the Company and is also reflective of the manner in which Union Carbide manages its asbestos-related exposure, including careful monitoring of the correlation between defense spending and resolution costs. As a result, in the fourth quarter of 2016, Union Carbide recorded a $1,113 million increase in its asbestos-related liability for pending and future claims, including future defense and processing costs. Each October, Union Carbide requests Ankura to review its historical asbestos claim and resolution activity through the third quarter of the current year, including asbestos-related defense and processing costs, to determine the appropriateness of updating the most recent study.

In December 2018, Ankura completed a study of Union Carbide's historical asbestos claim and resolution activity through September 30, 2018, including asbestos-related defense and processing costs, and provided estimates for the undiscounted cost of disposing of pending and future claims against Union Carbide and Amchem through the terminal year of 2049. Based on the study and Union Carbide's internal review process, it was determined that no adjustment to the accrual was required.

In December 2019, Ankura stated that an update of its December 2018 study would not provide a more likely estimate of future events than the estimate reflected in the study and, therefore, the estimate in the study remained applicable. Based on Union Carbide's internal review process and Ankura's response, Union Carbide determined that no change to the accrual was required. At December 31, 2019, the asbestos-related liability for pending and future claims against Union Carbide and Amchem, including future asbestos-related defense and processing costs, was $1,165 million, and approximately 18 percent of the recorded liability related to pending claims and approximately 82 percent related to future claims.

In December 2020, Ankura completed a study of Union Carbide's historical asbestos claim and resolution activity through September 30, 2020, including asbestos-related defense and processing costs, and provided estimates for the undiscounted cost of disposing of pending and future claims against Union Carbide and Amchem through the terminal year of 2049. Based on the study and Union Carbide's internal review process, it was determined that no adjustment to the accrual was required. At December 31, 2020, the asbestos-related liability for pending and future claims against Union Carbide and Amchem, including future asbestos-related defense and processing costs, was $1,098 million, and approximately 22 percent of the recorded liability related to pending claims and approximately 78 percent related to future claims.

Summary
The Company's management believes the amounts recorded by Union Carbide for the asbestos-related liability, including defense and processing costs, reflect reasonable and probable estimates of the liability based upon current, known facts. However, future events, such as the number of new claims to be filed and/or received each year, the average cost of defending and disposing of each such claim, as well as the numerous uncertainties surrounding asbestos litigation in the United States over a significant period of time, could cause the actual costs for Union Carbide to be higher or lower than those projected or those recorded. Any such events could result in an increase or decrease in the recorded liability.

Because of the uncertainties described above, Union Carbide cannot estimate the full range of the cost of resolving pending and future asbestos-related claims facing Union Carbide and Amchem. As a result, it is reasonably possible that an additional cost of disposing of Union Carbide's asbestos-related claims, including future defense and processing costs, could have a material impact on the Company's results of operations and cash flows for a particular period and on the consolidated financial position.

Dow Silicones Chapter 11 Related Matters
Introduction
In 1995, Dow Silicones, then a 50:50 joint venture between the Company and Corning Incorporated ("Corning"), voluntarily filed for protection under Chapter 11 of the U.S. Bankruptcy Code in order to resolve Dow Silicones' breast implant liabilities and related matters (the "Chapter 11 Proceeding"). Dow Silicones emerged from the Chapter 11 Proceeding on June 1, 2004 (the "Effective Date") and is implementing the Joint Plan of Reorganization (the "Plan"). The Plan provides funding for the resolution of breast implant and other product liability litigation covered by the Chapter 11 Proceeding. As of June 1, 2016, Dow Silicones is a wholly owned subsidiary of the Company.

Breast Implant and Other Product Liability Claims
Under the Plan, a product liability settlement program administered by an independent claims office (the "Settlement Facility") was created to resolve breast implant and other product liability claims. Product liability claimants rejecting the settlement program in favor of pursuing litigation must bring suit against a litigation facility (the "Litigation Facility"). Under the Plan, total payments committed by Dow Silicones to resolving product liability claims are capped at a maximum $2,350 million net present value ("NPV") determined as of the Effective Date using a discount rate of seven percent (approximately $4,081 million undiscounted at December 31, 2020). Of this amount, no more than $400 million NPV determined as of the Effective Date can be used to fund the Litigation Facility.

Dow Silicones had an obligation to fund the Settlement Facility and the Litigation Facility over a 16-year period, commencing at the Effective Date. At December 31, 2020, Dow Silicones and its insurers have made life-to-date payments of $1,762 million to the Settlement Facility and the Settlement Facility reported an unexpended balance of $58 million.

In accordance with ASC Topic 450 "Accounting for Contingencies," the Company records a liability for breast implant and other product liability claims ("Implant Liability"), which reflects the estimated impact of the settlement of pending claims. The claim filing deadline passed in June 2019. All claims have been received and are being processed. Based on the claims filed at and before the deadline, Dow Silicones estimates that it will be obligated to contribute an additional $160 million after the Settlement Facility balance is exhausted.

In the third quarter of 2019, with the assistance of a third party consultant ("Consultant"), Dow Silicones updated its Implant Liability estimate, primarily reflecting a decrease in Class 16 claims, a decrease resulting from the passage of time, decreased claim filing activity and administrative costs compared with the previous estimate, and an increase in investment income resulting from insurance proceeds. Based on the Consultant's updated estimate and Dow Silicones own review of claim filing activity, Dow Silicones determined that an adjustment to the Implant Liability was required. Accordingly, in the third quarter of 2019, Dow Silicones decreased its Implant Liability $98 million and decreased its corresponding Class 16 receivable $13 million, both included in “Sundry income (expense) - net” in the consolidated statements of income and related to Corporate. The estimate was updated again in the second quarter of 2020 with the assistance of the Consultant, which primarily reflected decreased administrative costs compared with the previous estimate and an increase in investment income resulting from insurance proceeds.

Dow Silicones' Implant Liability was $160 million at December 31, 2020 ($165 million at December 31, 2019), of which $46 million ($20 million at December 31, 2019) was included in “Accrued and other current liabilities” and $114 million ($145 million at December 31, 2019) was included in "Other noncurrent obligations" in the consolidated balance sheets.

Dow Silicones is not aware of circumstances that would change the factors used in estimating the Implant Liability and believes the recorded liability reflects the best estimate of the remaining funding obligations under the Plan; however, the estimate relies upon a number of significant assumptions, including: future acceptance rates, disease mix, and payment values will be materially consistent with historical experience; no material negative outcomes in future controversies or disputes over Plan interpretation will occur; and the Plan will not be modified. If actual outcomes related to any of these assumptions prove to be materially different, the future liability to fund the Plan may be materially different than the amount estimated.

Commercial Creditor Issues
The Plan provides that each of Dow Silicones commercial creditors (the “Commercial Creditors”) would receive in cash the sum of (a) an amount equal to the principal amount of their claims and (b) interest on such claims. Upon the Plan becoming effective, Dow Silicones paid approximately $1,500 million to the Commercial Creditors, representing principal and an amount of interest that Dow Silicones considers undisputed. On August 19, 2019, Dow Silicones entered into a settlement agreement with the Commercial Creditors related to the remaining, disputed portion, obligating Dow Silicones to pay $172 million, inclusive of the Commercial Creditors' legal costs. The settlement was approved by the District Court. As a result of the settlement agreement, in the third quarter of 2019, the Company recorded a pretax charge of $50 million, net of indemnifications of $37 million, included in "Sundry Income (expense) - net" in the consolidated statements of income and related to Corporate. The settlement was paid to the Commercial Creditors in the fourth quarter of 2019. The litigation is now concluded.

Summary
The amounts recorded by Dow Silicones for the Chapter 11 related matters described above were based upon current, known facts, which management believes reflect reasonable and probable estimates of the liability. However, future events could cause the actual costs for Dow Silicones to be higher or lower than those projected or those recorded. Any such events could result in an increase or decrease in the recorded liability.

Other Litigation Matters
In addition to the specific matters described above, the Company is party to a number of other claims and lawsuits arising out of the normal course of business with respect to product liability, patent infringement, employment matters, governmental tax and regulation disputes, contract and commercial litigation, and other actions. Certain of these actions purport to be class actions and seek damages in very large amounts. All such claims are being contested. The Company has an active risk management program consisting of numerous insurance policies secured from many carriers at various times. These policies may provide coverage that could be utilized to minimize the financial impact, if any, of certain contingencies described above. It is the opinion of the Company’s management that the possibility is remote that the aggregate of all such other claims and lawsuits will have a material adverse impact on the results of operations, financial condition and cash flows of the Company.

Indemnifications with Corning
In connection with the June 1, 2016 ownership restructure of Dow Silicones, the Company is indemnified by Corning for at least 50 percent of future losses associated with certain pre-closing liabilities, including the Implant Liability, Commercial Creditors issues and certain environmental matters described in the preceding sections, subject to certain conditions and limits. The maximum amount of indemnified losses which may be recovered are subject to a cap that declines over time. Indemnified losses are capped at $1 billion between May 31, 2018 and May 31, 2023, and no recoveries are permitted after May 31, 2023. The Company had indemnification assets of $115 million at December 31, 2020 ($100 million at December 31, 2019), of which zero ($37 million at December 31, 2019) was included in "Other current assets" and $115 million ($63 million at December 31, 2019) was included in "Noncurrent receivables" in the consolidated balance sheets.

Gain Contingency - Dow v. Nova Chemicals Corporation Patent Infringement Matter
In December 2010, Dow filed suit in the Federal Court in Ontario, Canada ("Federal Court") alleging that Nova Chemicals Corporation ("Nova") was infringing the Company's Canadian polyethylene patent 2,106,705 (the "'705 Patent"). Nova counterclaimed on the grounds of invalidity and non-infringement. In accordance with Canadian practice, the suit was bifurcated into a merits phase, followed by a damages phase. Following trial in the merits phase, in May 2014 the Federal Court ruled that the Company's '705 Patent was valid and infringed by Nova. Nova appealed to the Canadian Federal Court of Appeal, which affirmed the Federal Court decision in August 2016. Nova then sought leave to appeal its loss to the Supreme Court of Canada ("Court"), which dismissed Nova's petition in April 2017. As a result, Nova has exhausted all appeal rights on the merits, and it is undisputed that Nova owes the Company the profits it earned from its infringing sales as determined in the trial for the damages phase.

In April 2017, the Federal Court issued a Public Judgment in the damages phase, which detailed its conclusions on how to calculate the profits to be awarded to the Company. In June 2017, the Federal Court ordered Nova to pay $645 million Canadian dollars (equivalent to $495 million U.S. dollars) to the Company, plus pre- and post-judgment interest, for which the Company received payment of $501 million from Nova in July 2017. Although Nova is appealing portions of the damages judgment, certain portions of it are indisputable and can be retained by the Company regardless of the outcome of any further appeals by Nova. As a result of these actions and in accordance with ASC Topic 450-30 "Gain Contingencies," the Company recorded a $160 million pretax gain in the second quarter of 2017.

On September 15, 2020, the Canadian Federal Court of Appeal dismissed Nova's appeal of the damages judgment, thus affirming the trial court's decision in its entirety. In November 2020, Nova filed an application for leave to appeal this decision to the Court. Briefing is expected to be completed in early 2021 and the Company anticipates a decision in the first half of 2021 as to whether the Court will accept the appeal. The Court has complete discretion on whether to grant leave applications. At December 31, 2020, the Company had $341 million (zero at December 31, 2019) included in "Accrued and other current liabilities" and zero ($341 million at December 31, 2019) included in "Other noncurrent obligations" related to the disputed portion of the damages judgment. The Company is confident of its chances to continue to defend the entire judgment if the Court agrees to review it, particularly the trial and appellate courts' determinations on important factual issues, which will be accorded deferential review on appeal.

Gain Contingency - Dow v. Nova Chemicals Corporation Ethylene Asset Matter
On September 18, 2019, the Court of the Queen's Bench in Alberta, Canada, signed a judgment ordering Nova to pay the Company $1.43 billion Canadian dollars (equivalent to approximately $1.08 billion U.S. dollars) by October 11, 2019, for damages the Company incurred through 2012 related to the companies' jointly-owned ethylene asset in Joffre, Alberta, Canada. The Court of the Queen's Bench in Alberta, Canada, which initially ruled in June 2018, found that Nova failed to operate the ethylene asset at full capacity for more than ten years, and furthermore, that Nova violated several contractual agreements related to the Company receiving its share of the asset's ethylene production. These actions resulted in reduced productivity and sales for the Company. Nova has appealed the judgment, however, certain portions of it are not in dispute and are owed to the Company regardless of the outcome of Nova's appeal. As a result of these actions and in accordance with ASC Topic 450-30 "Gain Contingencies," the Company recorded a $186 million pretax gain in the third quarter of 2019, of which $170 million was included in "Sundry income (expense) - net" and $16 million was included in "Selling, general and administrative expenses" in the consolidated statements of income and related to Packaging & Specialty Plastics. In October 2019, Nova paid $1.08 billion Canadian dollars (equivalent to approximately $0.8 billion U.S. dollars) directly to the Company, and remitted $347 million Canadian dollars to the Canada Revenue Agency ("CRA") for the tax account of one of the Company's subsidiaries. The Company sought a refund of the entire amount remitted to CRA. On March 31, 2020, the Company received the full refund from CRA, equivalent to $259 million U.S. dollars.

In preparation for the June 2020 appellate hearing on the case, Nova provided the Court of the Queen's Bench in Alberta, Canada, an updated schedule of the financial impact of the issues on appeal, which explained that even if Nova prevails on all appeal issues, the Company would still be entitled to retain an amount in excess of the gain recognized in 2019. As a result, the Company recorded an $18 million pretax gain in the second quarter of 2020, of which $12 million was included in "Selling, general and administrative expenses" and $6 million was included in "Sundry income (expense) - net" in the consolidated statements of income and related to Packaging & Specialty Plastics. On September 16, 2020, the Court of Appeal of Alberta issued its decision, affirming the trial court's liability finding, upholding the majority of Dow's damages and requiring the trial court to recalculate a portion of damages. In the fourth quarter of 2020, Nova chose not to petition the Court to review the appellate court decision, making additional portions of the ruling in Dow's favor final and no longer subject to dispute. As a result, the Company recorded a $552 million pretax gain in the fourth quarter of 2020, of which $538 million was included in "Sundry income (expense) - net" and $14 million was included in "Selling, general and administrative expenses" in the consolidated statements of income and related to Packaging & Specialty Plastics. At December 31, 2020, $323 million ($893 million at December 31, 2019) was included in "Other noncurrent obligations" in the Company's consolidated balance sheets related to the disputed portion of the damages judgment. Dow continues to seek an award of additional damages for the period from 2013 through 2018.

Purchase Commitments

The Company has outstanding purchase commitments and various commitments for take-or-pay or throughput agreements. The Company was not aware of any purchase commitments that were negotiated as part of a financing arrangement for the facilities that will provide the contracted goods or services or for the costs related to those goods or services at December 31, 2020 and 2019.

Guarantees

The following table provides a summary of the final expiration, maximum future payments and recorded liability reflected in the consolidated balance sheets for guarantees:

Guarantees	*Dec 31, 2020*			*Dec 31, 2019*		
In millions	*Final Expiration*	*Maximum Future Payments*	*Recorded Liability*	*Final Expiration*	*Maximum Future Payments*	*Recorded Liability*
Guarantees	2023	$ 251	$ 2	2023	$ 3,952	$ 10

Guarantees arise during the ordinary course of business from relationships with customers, committed accounts receivable facilities and nonconsolidated affiliates when the Company undertakes an obligation to guarantee the performance of others (via delivery of cash or other assets) if specified triggering events occur. With guarantees, such as commercial or financial contracts, non-performance by the guaranteed party triggers the obligation of the Company to make payments to the beneficiary of the guarantee. The majority of the Company's guarantees relate to debt of nonconsolidated affiliates, which have expiration dates ranging from less than one year to less than three years. The Company's current expectation is that future payment or performance related to the non-performance of others is considered remote.

The Company has entered into guarantee agreements related to Sadara, a nonconsolidated affiliate. The total of an Islamic bond and additional project financing (collectively "Total Project Financing") obtained by Sadara was approximately $12.5 billion. Sadara had $10.8 billion of Total Project Financing debt outstanding at December 31, 2019. In November 2020, the remaining project completion conditions related to the Total Project Financing guarantees were fulfilled and the Company's guarantee obligations terminated. Subsequently, the Company provided a new guarantee in the form of a letter of credit for its share of one future debt service schedule payment up to $220 million. The guarantee is in proportion to the Company's 35 percent ownership interest in Sadara and is expected to remain in effect until the re-profiling of Sadara's debt is completed which is expected in the first quarter of 2021. See Note 12 for additional information.

In January 2021, Sadara reached an agreement in principle with its lenders to re-profile Sadara's outstanding project financing debt. In conjunction with completion of the Sadara debt re-profiling, the Company expects to guarantee approximately $1.3 billion of Sadara's debt. The debt re-profiling is expected to include a grace period until June 2026, during which Sadara is obligated to make interest-only payments. Dow will also provide guarantees for its portion of all Sadara interest payments due during the grace period. Dow's pro-rata share of any potential shortfall during the grace period will be funded by a new $500 million revolving credit facility guaranteed by Dow,

which is expected to be established by Sadara in the first quarter of 2021. Dow's existing $220 million letter of credit related to the guarantee of one future Sadara debt service schedule payment will be cancelled upon completion of the full re-profiling of Sadara's debt. All guarantees related to the debt re-profile and revolving credit facility are in proportion to Dow's 35 percent ownership interest in Sadara. As a result of these actions, the Company does not expect to provide any shareholder loans or equity contributions to Sadara in 2021.

Asset Retirement Obligations

The Company has 106 manufacturing sites in 31 countries. Most of these sites contain numerous individual manufacturing operations, particularly at the Company's larger sites. Asset retirement obligations are recorded as incurred and reasonably estimable, including obligations for which the timing and/or method of settlement are conditional on a future event that may or may not be within the control of the Company. The retirement of assets may involve such efforts as remediation and treatment of asbestos, contractually required demolition, and other related activities, depending on the nature and location of the assets; and retirement obligations are typically realized only upon demolition of those facilities. In identifying asset retirement obligations, the Company considers identification of legally enforceable obligations, changes in existing law, estimates of potential settlement dates and the calculation of an appropriate discount rate to be used in calculating the fair value of the obligations. The Company has a well-established global process to identify, approve and track the demolition of retired or to-be-retired facilities; and no assets are retired from service until this process has been followed. The Company typically forecasts demolition projects based on the usefulness of the assets; environmental, health and safety concerns; and other similar considerations. Under this process, as demolition projects are identified and approved, reasonable estimates are determined for the time frames during which any related asset retirement obligations are expected to be settled. For those assets where a range of potential settlement dates may be reasonably estimated, obligations are recorded. The Company routinely reviews all changes to items under consideration for demolition to determine if an adjustment to the value of the asset retirement obligation is required.

The Company has recognized asset retirement obligations for the following activities: demolition and remediation activities at manufacturing sites primarily in Europe, United States, Japan, United Arab Emirates, Canada and Argentina; and capping activities at landfill sites in the United States, Brazil and Canada. The Company has also recognized conditional asset retirement obligations related to asbestos encapsulation as a result of planned demolition and remediation activities at manufacturing and administrative sites primarily in the United States, Europe, Argentina and Japan. The aggregate carrying amount of conditional asset retirement obligations recognized by the Company (included in the asset retirement obligations balance shown below) was $14 million at December 31, 2020 ($19 million at December 31, 2019).

The following table shows changes in the aggregate carrying amount of the Company's asset retirement obligations for the years ended December 31, 2020 and 2019:

Asset Retirement Obligations In millions	*2020*	*2019*
Balance at Jan 1	$ 104	$ 109
Additional accruals	6	10
Liabilities settled	(3)	(7)
Accretion expense	3	2
Revisions in estimated cash flows	7	3
Other	(5)	(13)
Balance at Dec 31	$ 112	$ 104

The discount rate used to calculate the Company's asset retirement obligations at December 31, 2020, was 0.42 percent (2.12 percent at December 31, 2019). These obligations are included in the consolidated balance sheets as "Accrued and other current liabilities" and "Other noncurrent obligations."

The Company has not recognized conditional asset retirement obligations for which a fair value cannot be reasonably estimated in its consolidated financial statements. Assets that have not been submitted/reviewed for potential demolition activities are considered to have continued usefulness and are generally still operating normally. Therefore, without a plan to demolish the assets or the expectation of a plan, such as shortening the useful life of assets for depreciation purposes in accordance with the accounting guidance related to property, plant and equipment, the Company is unable to reasonably forecast a time frame to use for present value calculations. As such, the Company has not recognized obligations for individual plants/buildings at its manufacturing sites where

estimates of potential settlement dates cannot be reasonably made. In addition, the Company has not recognized conditional asset retirement obligations for the capping of its approximately 36 underground storage wells and 129 underground brine mining and other wells at Company-owned sites when there are no plans or expectations of plans to exit the sites. It is the opinion of the Company's management that the possibility is remote that such conditional asset retirement obligations, when estimable, will have a material impact on the Company's consolidated financial statements based on current costs.

NOTE 17 - LEASES

Operating lease ROU assets are included in "Operating lease right-of-use assets" while finance lease ROU assets are included in "Net property" in the consolidated balance sheets. With respect to lease liabilities, operating lease liabilities are included in "Operating lease liabilities - current" and "Operating lease liabilities - noncurrent," and finance lease liabilities are included in "Long-term debt due within one year" and "Long-Term Debt" in the consolidated balance sheets.

Dow routinely leases sales and administrative offices, power plants, production facilities, warehouses and tanks for product storage, aircraft, motor vehicles, railcars, computers, office machines and equipment. Some leases contain renewal provisions, purchase options and escalation clauses and the terms for these leased assets vary depending on the lease agreement. These leased assets have remaining lease terms of up to 55 years. See Note 1 for additional information on leases.

The components of lease cost for operating and finance leases for the years ended December 31, 2020 and 2019 were as follows:

Lease Cost In millions	*2020*	*2019*
Operating lease cost	$ 484	$ 532
Finance lease cost		
Amortization of right-of-use assets - finance	$ 58	$ 39
Interest on lease liabilities - finance	25	25
Total finance lease cost	$ 83	$ 64
Short-term lease cost	$ 213	$ 204
Variable lease cost	199	198
Sublease income	(5)	(4)
Total lease cost	$ 974	$ 994

The following table provides supplemental cash flow information related to leases:

Other Lease Information In millions	*2020*	*2019*
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash flows for operating leases	$ 482	$ 544
Operating cash flows for finance leases	$ 25	$ 25
Financing cash flows for finance leases	$ 58	$ 34

The following table summarizes the lease-related assets and liabilities recorded in the consolidated balance sheets at December 31, 2020 and 2019.

Lease Position In millions	*Balance Sheet Classification*	*Dec 31, 2020*	*Dec 31, 2019*
Right-of-use assets obtained in exchange for lease obligations:			
Operating leases [1]		$ 185	$ 2,476
Finance leases		$ 178	$ 89
Assets			
Operating lease assets	Operating lease right-of-use assets	$ 1,856	$ 2,072
Finance lease assets	Property	665	486
Finance lease amortization	Accumulated depreciation	(216)	(167)
Total lease assets		$ 2,305	$ 2,391
Liabilities			
Current			
Operating	Operating lease liabilities - current	$ 416	$ 421
Finance	Long-term debt due within one year	54	32
Noncurrent			
Operating	Operating lease liabilities - noncurrent	1,521	1,739
Finance	Long-Term Debt	464	363
Total lease liabilities		$ 2,455	$ 2,555

1. Includes $2.3 billion for the period ended December 31, 2019 related to the adoption of Topic 842. See Note 1 for additional information.

The weighted-average remaining lease term and discount rate for leases recorded in the consolidated balance sheets at December 31, 2020 and 2019 are provided below:

Lease Term and Discount Rate	*Dec 31, 2020*	*Dec 31, 2019*
Weighted-average remaining lease term		
Operating leases	7.6 years	8.0 years
Finance leases	11.6 years	12.3 years
Weighted-average discount rate		
Operating leases	3.84 %	4.09 %
Finance leases	5.41 %	6.28 %

The following table provides the maturities of lease liabilities at December 31, 2020:

Maturities of Lease Liabilities In millions	*Operating Leases*	*Finance Leases*
2021	$ 477	$ 78
2022	387	74
2023	312	98
2024	242	45
2025	164	41
2026 and thereafter	703	373
Total future undiscounted lease payments	$ 2,285	$ 709
Less: Imputed interest	348	191
Total present value of lease liabilities	$ 1,937	$ 518

At December 31, 2020, Dow had additional leases of approximately $56 million, primarily for buildings and equipment, which had not yet commenced. These leases are expected to commence in 2021 and 2022, with lease terms of up to 10 years.

Dow provides guarantees related to certain leased assets, specifying the residual value that will be available to the lessor at lease termination through the sale of the assets to the lessee or third parties. The following table provides a summary of the final expiration, maximum future payments and recorded liability reflected in the consolidated balance sheets for residual value guarantees at December 31, 2020 and 2019. There was $22 million of recorded liability related to these residual value guarantees at December 31, 2020 (zero at December 31, 2019), as payment of such residual value guarantees was determined to be probable. The lease agreements do not contain any material restrictive covenants.

Lease Guarantees	*Dec 31, 2020*			*Dec 31, 2019*		
In millions	*Final Expiration*	*Maximum Future Payments*	*Recorded Liability*	*Final Expiration*	*Maximum Future Payments*	*Recorded Liability*
Residual value guarantees	2030	$ 818	$ 22	2028	$ 792	$ —

NOTE 18 – STOCKHOLDERS' EQUITY

Common Stock

Dow Inc.

Dow Inc. was incorporated in 2018 with 100 authorized and issued shares of common stock, par value $0.01 per share, owned solely by its parent company, DowDuPont. In the first quarter of 2019, in connection with the separation and distribution of DowDuPont's materials science business, the number of authorized shares of common stock was increased to 5,000,000,000 shares, par value $0.01 per share, and Dow Inc.'s 100 shares of issued common stock were recapitalized into 748,771,240 shares of common stock. Dow Inc.'s common stock was solely owned by DowDuPont through March 31, 2019, and on April 1, 2019, Dow Inc. became an independent, publicly traded company. Dow Inc. common stock is listed on the NYSE under the symbol "DOW." See Note 3 for additional information.

The Company may issue shares of Dow Inc. common stock out of treasury stock or as new shares of common stock for options exercised and for the release of restricted stock units ("RSUs"), performance stock units ("PSUs") and restricted stock. Common stock shares issued to employees and non-employee directors was approximately 4.8 million in 2020. Subsequent to the separation from DowDuPont, the number of new Dow Inc. common stock shares issued to employees and non-employee directors was approximately 2.5 million in 2019. See Note 21 for additional information on the Company's equity awards.

TDCC

Effective with the Merger and through March 31, 2019, TDCC had 100 authorized and issued shares of common stock, par value $0.01 per share, owned solely by DowDuPont. Effective with the separation from DowDuPont, TDCC became a wholly owned subsidiary of Dow Inc., which now holds all 100 authorized and issued shares of common stock of TDCC. See Note 3 for additional information.

Retained Earnings

Dow Inc.

There are no significant restrictions limiting Dow Inc.'s ability to pay dividends. Dow Inc. declared dividends of $2.80 per share in 2020 ($2.10 per share in 2019, subsequent to the separation from DowDuPont).

Undistributed earnings of nonconsolidated affiliates included in retained earnings were $716 million at December 31, 2020 and $852 million at December 31, 2019.

TDCC

Effective with the Merger, TDCC no longer had publicly traded common stock. TDCC's common shares were owned solely by DowDuPont, prior to the separation on April 1, 2019, and TDCC's Board determined whether or not there would be a dividend distribution to DowDuPont. Effective with the separation from DowDuPont on April 1, 2019, TDCC became a wholly owned subsidiary of Dow Inc. and TDCC's Board determines whether or not there will be a dividend distribution to Dow Inc. In 2020 and 2019, TDCC declared and paid dividends to Dow Inc. of $2,233 million and $201 million, respectively. In 2019 and 2018, TDCC declared and paid dividends to DowDuPont of $535 million and $3,711 million, respectively.

Employee Stock Ownership Plan
The Dow Employee Stock Ownership Plan (the "ESOP") is an integral part of The Dow Chemical Company Employees' Savings Plan (the "Savings Plan"). A significant majority of full-time employees in the United States are eligible to participate in the Savings Plan. The Company uses the ESOP to provide its matching contribution in the form of stock to Plan participants. Effective with the Merger, shares of TDCC Common Stock held by the ESOP were converted into shares of DowDuPont Common Stock at a ratio of 1:1. Effective with the separation from DowDuPont, the DowDuPont Common Stock held by the ESOP received a Dow Inc. Common Stock share dividend at a ratio of 3:1, resulting in the ESOP holding both DowDuPont and Dow Inc. shares. Subsequent to the separation from DowDuPont, the ESOP independent fiduciary sold the DowDuPont shares and purchased additional Dow Inc. shares with the proceeds.

In connection with the acquisition of Rohm and Haas on April 1, 2009, the Rohm and Haas Employee Stock Ownership Plan (the "Rohm and Haas ESOP") was merged into the Savings Plan, and the Company assumed the $78 million balance of debt at 9.8 percent interest with final maturity in 2020 that was used to finance share purchases by the Rohm and Haas ESOP in 1990. The debt was fully repaid in 2020 which resulted in an outstanding balance of zero at December 31, 2020 ($3 million at December 31, 2019).

Dividends on unallocated shares held by the ESOP are used by the ESOP to make debt service payments and to purchase additional shares if dividends exceed the debt service payments. Dividends on allocated shares are used by the ESOP to make debt service payments to the extent needed; otherwise, they are paid to the Savings Plan participants. Shares are released for allocation to participants based on the ratio of the current year's debt service to the sum of the principal and interest payments over the life of the loan. The shares are allocated to Plan participants in accordance with the terms of the Savings Plan. The unallocated shares are excluded from the Company's earnings per share calculation.

Compensation expense for allocated shares is recorded at the fair value of the shares on the date of allocation. Compensation expense reflected in income from continuing operations for ESOP shares was $72 million in 2020, $77 million in 2019 and $144 million in 2018. At December 31, 2020, 4.4 million shares out of a total 6.1 million shares held by the ESOP had been allocated to participants' accounts and 1.7 million shares, at a fair value of $93 million, were considered unearned.

Treasury Stock
Dow Inc.
On April 1, 2019, Dow Inc.'s Board ratified the share repurchase program originally approved on March 15, 2019, authorizing up to $3 billion to be spent on the repurchase of the Company's common stock, with no expiration date. In 2020, Dow Inc. repurchased $125 million of Dow Inc. common stock ($500 million in 2019). At December 31, 2020, $2.4 billion of the share repurchase program authorization remained available for repurchases.

The Company may issue shares of Dow Inc. common stock out of treasury stock or as new shares of common stock for options exercised and for the release of RSUs, PSUs and restricted stock. The Company did not issue any treasury shares to employees and non-employee directors under its stock-based compensation programs for the years ended December 31, 2020 and 2019. See Note 21 for additional information on changes to the Company's equity awards in connection with the separation from DowDuPont.

The following table provides a reconciliation of Dow Inc. common stock activity for the years ended December 31, 2020 and 2019:

Shares of Dow Inc. Common Stock	*Issued*	*Held in Treasury*
Balance at Jan 1, 2019	100	—
Impact of recapitalization	748,771,140	—
Issued [1]	2,457,404	—
Repurchased	—	9,729,834
Balance at Jan 1, 2020	751,228,644	9,729,834
Issued [1]	4,764,554	—
Repurchased	—	3,073,469
Balance at Dec 31, 2020	755,993,198	12,803,303

1. Shares issued to employees and non-employee directors under the Company's equity compensation plans.

Accumulated Other Comprehensive Loss
The changes in each component of AOCL for the years ended December 31, 2020, 2019 and 2018 were as follows:

Accumulated Other Comprehensive Loss In millions	*2020*	*2019*	*2018*
Unrealized Gains (Losses) on Investments			
Beginning balance	$ 64	$ (51)	$ 17
Unrealized gains (losses) on investments	104	178	(93)
Less: Tax (expense) benefit	(23)	(38)	19
Net unrealized gains (losses) on investments	81	140	(74)
(Gains) losses reclassified from AOCL to net income [1]	(54)	(33)	9
Less: Tax expense (benefit) [2]	13	8	(2)
Net (gains) losses reclassified from AOCL to net income	(41)	(25)	7
Other comprehensive income (loss), net of tax	40	115	(67)
Reclassification of stranded tax effects [3]	—	—	(1)
Ending balance	$ 104	$ 64	$ (51)
Cumulative Translation Adjustment			
Beginning balance	$ (1,135)	$ (1,813)	$ (1,481)
Gains (losses) on foreign currency translation	227	59	(215)
Less: Tax (expense) benefit	25	(2)	(6)
Net gains (losses) on foreign currency translation	252	57	(221)
(Gains) losses reclassified from AOCL to net income [4]	(47)	(89)	(4)
Other comprehensive income (loss), net of tax	205	(32)	(225)
Impact of common control transaction [5]	—	710	—
Reclassification of stranded tax effects [3]	—	—	(107)
Ending balance	$ (930)	$ (1,135)	$ (1,813)
Pension and Other Postretirement Benefits			
Beginning balance	$ (8,781)	$ (7,965)	$ (6,998)
Gains (losses) arising during the period	(1,769)	(1,699)	(625)
Less: Tax (expense) benefit	411	413	130
Net gains (losses) arising during the period	(1,358)	(1,286)	(495)
Amortization and recognition of net loss and prior service credits [6]	753	504	594
Less: Tax expense (benefit) [2]	(173)	(117)	(139)
Net loss and prior service credits reclassified from AOCL to net income	580	387	455
Other comprehensive income (loss), net of tax	(778)	(899)	(40)
Impact of common control transaction [5]	—	83	—
Reclassification of stranded tax effects [3]	—	—	(927)
Ending balance	$ (9,559)	$ (8,781)	$ (7,965)
Derivative Instruments			
Beginning balance	$ (394)	$ (56)	$ (109)
Gains (losses) on derivative instruments	(96)	(470)	6
Less: Tax (expense) benefit	(1)	101	(2)
Net gains (losses) on derivative instruments	(97)	(369)	4
(Gains) losses reclassified from AOCL to net income [7]	30	44	89
Less: Tax expense (benefit) [2]	(9)	(13)	(18)
Net (gains) losses reclassified from AOCL to net income	21	31	71
Other comprehensive income (loss), net of tax	(76)	(338)	75
Reclassification of stranded tax effects [3]	—	—	(22)
Ending balance	$ (470)	$ (394)	$ (56)
Total AOCL ending balance	$ (10,855)	$ (10,246)	$ (9,885)

1. Reclassified to "Net sales" and "Sundry income (expense) - net."
2. Reclassified to "Provision for income taxes on continuing operations."
3. Amounts reclassified to "Retained earnings" as a result of the adoption of ASU 2018-02.
4. Reclassified to "Sundry income (expense) - net."
5. Reclassified to "Retained earnings" as a result of the separation from DowDuPont on April 1, 2019. See Note 3 for additional information.
6. These AOCL components are included in the computation of net periodic benefit cost of the Company's defined benefit pension and other postretirement benefit plans. See Note 20 for additional information.
7. Reclassified to "Cost of sales," "Sundry income (expense) - net" and "Interest expense and amortization of debt discount."

NOTE 19 – NONCONTROLLING INTERESTS

Ownership interests in the Company's subsidiaries held by parties other than the Company are presented separately from the Company's equity in the consolidated balance sheets as "Noncontrolling interests." The amount of consolidated net income attributable to the Company and the noncontrolling interests are both presented on the face of the consolidated statements of income.

The following table summarizes the activity for equity attributable to noncontrolling interests for the years ended December 31, 2020, 2019 and 2018:

Noncontrolling Interests In millions	*2020*	*2019*	*2018*
Balance at Jan 1	$ 553	$ 1,138	$ 1,186
Net income attributable to noncontrolling interests - continuing operations	69	74	102
Net income attributable to noncontrolling interests - discontinued operations	—	13	32
Distributions to noncontrolling interests [1]	(55)	(77)	(145)
Impact of common control transaction [2]	—	(353)	—
Purchase of noncontrolling interests [3]	—	(254)	—
Deconsolidation of noncontrolling interests [4]	(7)	—	—
Cumulative translation adjustments	9	12	(39)
Other	1	—	2
Balance at Dec 31	$ 570	$ 553	$ 1,138

1. Distributions to noncontrolling interests are net of $7 million in 2020 ($7 million in 2019 and $27 million in 2018) in dividends paid to a joint venture, which were reclassified to "Equity in earnings (losses) of nonconsolidated affiliates" in the consolidated statements of income. Also includes amounts attributable to discontinued operations of $7 million in 2019 and $37 million in 2018.
2. Related to the separation from DowDuPont. See Note 3 for additional information.
3. Related to the acquisition of full ownership in a propylene oxide manufacturing joint venture, which occurred on October 1, 2019. See Note 24 for additional information. As a result of this arrangement, the carrying value of the noncontrolling interest was removed, and “Additional paid-in capital” was adjusted by $38 million.
4. Related to the divestiture of the Company's interest in a cogeneration facility in Brazil in the third quarter of 2020. See Note 24 for additional information.

NOTE 20 – PENSION PLANS AND OTHER POSTRETIREMENT BENEFITS

Defined Benefit Pension Plans

The Company has both funded and unfunded defined benefit pension plans that cover employees in the United States and a number of other countries. The U.S. qualified plan covering the parent company is the largest plan. Benefits for employees hired before January 1, 2008, are based on length of service and the employee's three highest consecutive years of compensation. Employees hired after January 1, 2008, earn benefits that are based on a set percentage of annual pay, plus interest.

The Company's funding policy is to contribute to the plans when pension laws and/or economics either require or encourage funding. In 2020, the Company contributed $299 million to its pension plans, including contributions to fund benefit payments for the Company's unfunded pension plans. The Company expects to contribute approximately $300 million to its pension plans in 2021.

The weighted-average assumptions used to determine pension plan obligations and net periodic benefit costs for all plans are summarized in the table below:

Weighted-Average Assumptions for All Pension Plans	*Benefit Obligations at Dec 31*		*Net Periodic Costs for the Year Ended*		
	2020	*2019*	*2020*	*2019*	*2018*
Discount rate	2.20 %	2.81 %	2.81 %	3.50 %	3.17 %
Interest crediting rate for applicable benefits	3.55 %	3.51 %	3.51 %	3.72 %	3.61 %
Rate of compensation increase	3.91 %	3.92 %	3.92 %	3.92 %	3.88 %
Expected return on plan assets			7.00 %	7.11 %	7.11 %

The weighted-average assumptions used to determine pension plan obligations and net periodic benefit costs for U.S. plans are summarized in the table below:

Weighted-Average Assumptions for U.S. Pension Plans	*Benefit Obligations at Dec 31*		*Net Periodic Costs for the Year Ended*		
	2020	*2019*	*2020*	*2019*	*2018*
Discount rate	2.71 %	3.41 %	3.41 %	4.15 %	3.66 %
Interest crediting rate for applicable benefits	4.50 %	4.50 %	4.50 %	4.50 %	4.50 %
Rate of compensation increase	4.25 %	4.25 %	4.25 %	4.25 %	4.25 %
Expected return on plan assets			7.95 %	7.92 %	7.92 %

Other Postretirement Benefit Plans

The Company provides certain health care and life insurance benefits to retired employees and survivors. The Company's plans outside of the United States are not significant; therefore, this discussion relates to the U.S. plans only. The plans provide health care benefits, including hospital, physicians' services, drug and major medical expense coverage, and life insurance benefits. In general, for employees hired before January 1, 1993, the plans provide benefits supplemental to Medicare when retirees are eligible for these benefits. The Company and the retiree share the cost of these benefits, with the Company portion increasing as the retiree has increased years of credited service, although there is a cap on the Company portion. The Company has the ability to change these benefits at any time. Employees hired after January 1, 2008, are not covered under the plans.

The Company funds most of the cost of these health care and life insurance benefits as incurred. In 2020, the Company did not make any contributions to its other postretirement benefit plan trusts. The trusts did not hold assets at December 31, 2020. The Company does not expect to contribute assets to its other postretirement benefit plan trusts in 2021.

The weighted-average assumptions used to determine other postretirement benefit plan obligations and net periodic benefit costs for the U.S. plans are provided below:

Weighted-Average Assumptions for U.S. Other Postretirement Benefits Plans	*Benefit Obligations at Dec 31*		*Net Periodic Costs for the Year Ended*		
	2020	*2019*	*2020*	*2019*	*2018*
Discount rate	2.38 %	3.19 %	3.19 %	4.01 %	3.51 %
Health care cost trend rate assumed for next year	6.75 %	6.25 %	6.25 %	6.50 %	6.75 %
Rate to which the cost trend rate is assumed to decline (the ultimate health care cost trend rate)	5.00 %	5.00 %	5.00 %	5.00 %	5.00 %
Year that the rate reaches the ultimate health care cost trend rate	2028	2025	2025	2025	2025

Assumptions
The Company determines the expected long-term rate of return on plan assets by performing a detailed analysis of key economic and market factors driving historical returns for each asset class and formulating a projected return based on factors in the current environment. Factors considered include, but are not limited to, inflation, real economic growth, interest rate yield, interest rate spreads and other valuation measures and market metrics. The expected long-term rate of return for each asset class is then weighted based on the strategic asset allocation approved by the governing body for each plan. The Company's historical experience with the pension fund asset performance is also considered.

The Company uses the spot rate approach to determine the discount rate utilized to measure the service cost and interest cost components of net periodic pension and other postretirement benefit costs for the U.S. and other selected countries. Under the spot rate approach, the Company calculates service cost and interest cost by applying individual spot rates from the Willis Towers Watson RATE:Link yield curve (based on high-quality corporate bond yields) for each selected country to the separate expected cash flow components of service cost and interest cost. Service cost and interest cost for all other plans are determined on the basis of the single equivalent discount rates derived in determining those plan obligations.

The discount rates utilized to measure the pension and other postretirement obligations of the U.S. plans are based on the yield on high-quality corporate fixed income investments at the measurement date. Future expected actuarially determined cash flows for the Company's U.S. plans are individually discounted at the spot rates under the Willis Towers Watson U.S. RATE:Link 60-90 corporate yield curve (based on 60th to 90th percentile high-quality corporate bond yields) to arrive at the plan's obligations as of the measurement date.

The Company utilizes a modified version of the Society of Actuaries' mortality tables released in 2014 and a modified version of the generational mortality improvement scale released in 2018 for purposes of measuring the U.S. pension and other postretirement obligations, based on an evaluation of the mortality experience of the Company's pension plans.

Separation from DowDuPont
As a result of the Company's separation from DowDuPont in 2019, the number of significant defined benefit pension plans administered by the Company decreased from 45 plans to 35 plans, with approximately $270 million of net unfunded pension liabilities transferred to DowDuPont. Plans administered by other subsidiaries of DowDuPont that were transferred to the Company were not significant. There were no changes in the number of significant other postretirement benefit plans administered by the Company as a result of the separation. Existing Company plans that were significantly impacted by the transfer of active plan participants to DowDuPont were remeasured, resulting in curtailment gains and losses and recognition of special termination benefits.

Summarized information on the Company's pension and other postretirement benefit plans is as follows:

Change in Projected Benefit Obligations, Plan Assets and Funded Status of All Significant Plans	*Defined Benefit Pension Plans*		*Other Postretirement Benefit Plans*	
In millions	*2020*	*2019*	*2020*	*2019*
Change in projected benefit obligations:				
Benefit obligations at beginning of year	$ 32,621	$ 29,600	$ 1,535	$ 1,478
Impact of plans transferred to DowDuPont at separation	—	(331)	—	—
Service cost	399	396	7	8
Interest cost	767	921	40	49
Plan participants' contributions	12	12	—	—
Actuarial changes in assumptions and experience	3,021	3,904	7	148
Benefits paid	(1,569)	(1,684)	(132)	(148)
Plan amendments	8	—	—	—
Acquisitions/divestitures/other [1]	(692)	(37)	—	—
Effect of foreign exchange rates	791	14	7	3
Termination benefits/curtailments/settlements [2]	(49)	(174)	—	(3)
Benefit obligations at end of year	$ 35,309	$ 32,621	$ 1,464	$ 1,535
Change in plan assets:				
Fair value of plan assets at beginning of year	$ 24,908	$ 22,544	$ —	$ —
Impact of plans transferred to DowDuPont at separation	—	(61)	—	—
Actual return on plan assets	2,877	3,790	—	—
Employer contributions	299	266	—	—
Plan participants' contributions	12	12	—	—
Benefits paid	(1,569)	(1,684)	—	—
Other [3]	(681)	—	—	—
Effect of foreign exchange rates	571	41	—	—
Settlements	(11)	—	—	—
Fair value of plan assets at end of year	$ 26,406	$ 24,908	$ —	$ —
Funded status:				
U.S. plans with plan assets	$ (5,873)	$ (4,768)	$ —	$ —
Non-U.S. plans with plan assets	(2,222)	(2,207)	—	—
All other plans	(808)	(738)	(1,464)	(1,535)
Funded status at end of year	$ (8,903)	$ (7,713)	$ (1,464)	$ (1,535)
Amounts recognized in the consolidated balance sheets at Dec 31:				
Deferred charges and other assets	$ 1,007	$ 623	$ —	$ —
Accrued and other current liabilities	(54)	(49)	(113)	(128)
Pension and other postretirement benefits - noncurrent	(9,856)	(8,287)	(1,351)	(1,407)
Net amount recognized	$ (8,903)	$ (7,713)	$ (1,464)	$ (1,535)
Pretax amounts recognized in accumulated other comprehensive loss at Dec 31:				
Net loss (gain)	$ 12,736	$ 11,761	$ (129)	$ (147)
Prior service credit	(154)	(177)	—	—
Pretax balance in accumulated other comprehensive loss at end of year	$ 12,582	$ 11,584	$ (129)	$ (147)

1. The 2020 impact relates primarily to the transfer of benefit obligations in the U.S. through the purchase of annuity contracts from an insurance company. The 2019 impact includes the divestiture of a business with pension benefit obligations of $53 million.
2. The 2020 impact relates to pension plan curtailments of a European plan resulting from the 2020 Restructuring Program and the settlement of certain plan obligations of a U.S. non-qualified pension plan resulting from lump-sum payments. The 2019 impact relates to plan curtailments and associated special termination benefits resulting from the reduction in plan participation due to the separation from DowDuPont.
3. The 2020 impact relates to the purchase of annuity contracts associated with the transfer of benefit obligations to an insurance company.

A significant component of the overall increase in the Company's benefit obligation for the year ended December 31, 2020 was due to the change in weighted-average discount rates, which decreased from 2.81 percent at December 31, 2019 to 2.20 percent at December 31, 2020. A significant component of the overall increase in the Company's benefit obligation for the year ended December 31, 2019 was due to the change in weighted-average discount rates, which decreased from 3.69 percent at December 31, 2018 to 2.81 percent at December 31, 2019.

The accumulated benefit obligation for all significant pension plans was $34.1 billion and $31.4 billion at December 31, 2020 and 2019, respectively.

Pension Plans with Accumulated Benefit Obligations in Excess of Plan Assets at Dec 31 In millions	*2020*	*2019*
Accumulated benefit obligations	$ 29,084	$ 26,959
Fair value of plan assets	$ 20,130	$ 19,571

Pension Plans with Projected Benefit Obligations in Excess of Plan Assets at Dec 31 In millions	*2020*	*2019*
Projected benefit obligations	$ 30,161	$ 28,013
Fair value of plan assets	$ 20,251	$ 19,677

Net Periodic Benefit Costs for All Significant Plans for the Year Ended Dec 31	*Defined Benefit Pension Plans*			*Other Postretirement Benefit Plans*		
In millions	*2020*	*2019*	*2018*	*2020*	*2019*	*2018*
Net Periodic Benefit Costs:						
Service cost	$ 399	$ 396	$ 520	$ 7	$ 8	$ 12
Interest cost	767	921	886	40	49	45
Expected return on plan assets	(1,658)	(1,679)	(1,644)	—	—	—
Amortization of prior service credit	(19)	(20)	(24)	—	—	—
Amortization of unrecognized (gain) loss	773	574	642	(10)	(20)	(24)
Curtailment/settlement/other [1]	9	(27)	—	—	(3)	—
Net periodic benefit costs	$ 271	$ 165	$ 380	$ 37	$ 34	$ 33
Less: discontinued operations	—	21	101	—	—	3
Net periodic benefit costs - continuing operations	$ 271	$ 144	$ 279	$ 37	$ 34	$ 30
Changes in plan assets and benefit obligations recognized in other comprehensive (income) loss:						
Net (gain) loss	$ 1,753	$ 1,606	$ 584	$ 8	$ 145	$ (13)
Prior service cost	8	—	17	—	—	—
Amortization of prior service credit	19	20	24	—	—	—
Amortization of unrecognized gain (loss)	(773)	(574)	(642)	10	20	24
Common control transaction [2]	—	(112)	—	—	—	—
Curtailment and settlement gain (loss) [1]	(9)	27	—	—	3	—
Total recognized in other comprehensive (income) loss	$ 998	$ 967	$ (17)	$ 18	$ 168	$ 11
Total recognized in net periodic benefit cost and other comprehensive (income) loss	$ 1,269	$ 1,132	$ 363	$ 55	$ 202	$ 44

1. The 2020 impact relates to pension plan curtailments of a European plan resulting from the 2020 Restructuring Program and the settlement of certain plan obligations of a U.S. non-qualified pension plan resulting from lump-sum payments. The 2019 impact relates to plan curtailments and associated special termination benefits resulting from the reduction in plan participation due to the separation from DowDuPont.
2. The 2019 impact is the result of the separation from DowDuPont.

Except for plan curtailment costs related to the 2020 Restructuring Program, which are included in "Restructuring, goodwill impairment and asset related charges - net" in the consolidated statements of income, non-service cost components of net periodic benefit cost are included in "Sundry income (expense) - net" in the consolidated statements of income. See Notes 6 and 7 for additional information.

Estimated Future Benefit Payments
The estimated future benefit payments of continuing operations, reflecting expected future service, as appropriate, are presented in the following table:

Estimated Future Benefit Payments at Dec 31, 2020 In millions	*Defined Benefit Pension Plans*	*Other Postretirement Benefit Plans*
2021	$ 1,647	$ 114
2022	1,595	103
2023	1,593	102
2024	1,604	101
2025	1,641	100
2026-2030	8,419	449
Total	$ 16,499	$ 969

Plan Assets
Plan assets consist primarily of equity and fixed income securities of U.S. and foreign issuers, and include alternative investments, such as real estate, private equity and absolute return strategies. Plan assets totaled $26.4 billion at December 31, 2020 and $24.9 billion at December 31, 2019 and included no directly held common stock of Dow Inc.

The Company's investment strategy for the plan assets is to manage the assets in relation to the liability in order to pay retirement benefits to plan participants over the life of the plans. This is accomplished by identifying and managing the exposure to various market risks, diversifying investments across various asset classes and earning an acceptable long-term rate of return consistent with an acceptable amount of risk, while considering the liquidity needs of the plans.

The plans are permitted to use derivative instruments for investment purposes, as well as for hedging the underlying asset and liability exposure and rebalancing the asset allocation. The plans use value-at-risk, stress testing, scenario analysis and Monte Carlo simulations to monitor and manage both the risk within the portfolios and the surplus risk of the plans.

Equity securities primarily include investments in large- and small-cap companies located in both developed and emerging markets around the world. Fixed income securities include investment and non-investment grade corporate bonds of companies diversified across industries, U.S. treasuries, non-U.S. developed market securities, U.S. agency mortgage-backed securities, emerging market securities and fixed income related funds. Alternative investments primarily include investments in real estate, private equity and absolute return strategies. Other significant investment types include various insurance contracts and interest rate, equity, commodity and foreign exchange derivative investments and hedges.

The Company mitigates the credit risk of investments by establishing guidelines with investment managers that limit investment in any single issue or issuer to an amount that is not material to the portfolio being managed. These guidelines are monitored for compliance both by the Company and external managers. Credit risk related to derivative activity is mitigated by utilizing multiple counterparties, collateral support agreements and centralized clearing, where appropriate.

A short-term investment money market fund is utilized as the sweep vehicle for the U.S. plans, which from time to time can represent a significant investment. For one U.S. plan, approximately 31 percent of the liability is covered by a participating group annuity issued by Prudential Insurance Company.

The weighted-average target allocation for plan assets of the Company's pension plans is summarized as follows:

Target Allocation for Plan Assets at Dec 31, 2020 *Asset Category*	*Target Allocation*
Equity securities	35 %
Fixed income securities	36
Alternative investments	28
Other investments	1
Total	100 %

Fair value calculations may not be indicative of net realizable value or reflective of future fair values. Furthermore, although the Company believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different fair value measurement at the reporting date.

For pension plan assets classified as Level 1 measurements (measured using quoted prices in active markets), total fair value is either the price of the most recent trade at the time of the market close or the official close price, as defined by the exchange on which the asset is most actively traded on the last trading day of the period, multiplied by the number of units held without consideration of transaction costs.

For pension plan assets classified as Level 2 measurements, where the security is frequently traded in less active markets, fair value is based on the closing price at the end of the period; where the security is less frequently traded, fair value is based on the price a dealer would pay for the security or similar securities, adjusted for any terms specific to that asset or liability. Market inputs are obtained from well-established and recognized vendors of market data and subjected to tolerance and quality checks. For derivative assets and liabilities, standard industry models are used to calculate the fair value of the various financial instruments based on significant observable market inputs, such as foreign exchange rates, commodity prices, swap rates, interest rates and implied volatilities obtained from various market sources. For other pension plan assets for which observable inputs are used, fair value is derived through the use of fair value models, such as a discounted cash flow model or other standard pricing models.

For pension plan assets classified as Level 3 measurements, total fair value is based on significant unobservable inputs including assumptions where there is little, if any, market activity for the investment.

Certain pension plan assets are held in funds where fair value is based on an estimated net asset value per share (or its equivalent) as of the most recently available fund financial statements which are received on a monthly or quarterly basis. These valuations are reviewed for reasonableness based on applicable sector, benchmark and company performance. Adjustments to valuations are made where appropriate to arrive at an estimated net asset value per share at the measurement date. These funds are not classified within the fair value hierarchy.

The following table summarizes the bases used to measure the Company's pension plan assets at fair value for the years ended December 31, 2020 and 2019:

Basis of Fair Value Measurements	*Dec 31, 2020*				*Dec 31, 2019*			
In millions	*Total*	*Level 1*	*Level 2*	*Level 3*	*Total*	*Level 1*	*Level 2*	*Level 3*
Cash and cash equivalents	$ 1,298	$ 1,103	$ 195	$ —	$ 754	$ 675	$ 79	$ —
Equity securities:								
U.S. equity securities [1]	$ 3,934	$ 3,911	$ 22	$ 1	$ 3,844	$ 3,752	$ 91	$ 1
Non - U.S. equity securities	5,186	4,213	964	9	4,646	3,819	801	26
Total equity securities	$ 9,120	$ 8,124	$ 986	$ 10	$ 8,490	$ 7,571	$ 892	$ 27
Fixed income securities:								
Debt - government-issued	$ 4,998	$ 128	$ 4,870	$ —	$ 4,992	$ 197	$ 4,795	$ —
Debt - corporate-issued	3,970	553	3,416	1	3,697	607	3,089	1
Debt - asset-backed	103	—	102	1	70	—	69	1
Total fixed income securities	$ 9,071	$ 681	$ 8,388	$ 2	$ 8,759	$ 804	$ 7,953	$ 2
Alternative investments:								
Private markets	$ 13	$ —	$ —	$ 13	$ 11	$ —	$ —	$ 11
Real estate	51	51	—	—	25	25	—	—
Derivatives - asset position	697	2	695	—	574	2	572	—
Derivatives - liability position	(594)	(1)	(593)	—	(513)	(2)	(511)	—
Total alternative investments	$ 167	$ 52	$ 102	$ 13	$ 97	$ 25	$ 61	$ 11
Other investments	$ 472	$ 22	$ 448	$ 2	$ 411	$ 28	$ 383	$ —
Subtotal	$ 20,128	$ 9,982	$ 10,119	$ 27	$ 18,511	$ 9,103	$ 9,368	$ 40
Investments measured at net asset value:								
Hedge funds	$ 1,350				$ 1,595			
Private markets	3,135				2,794			
Real estate	1,886				2,110			
Total investments measured at net asset value	$ 6,371				$ 6,499			
Items to reconcile to fair value of plan assets:								
Pension trust receivables [2]	$ 66				$ 70			
Pension trust payables [3]	(159)				(172)			
Total	$ 26,406				$ 24,908			

1. No Dow Inc. common stock was directly held at December 31, 2020 or December 31, 2019.
2. Primarily receivables for investment securities sold.
3. Primarily payables for investment securities purchased.

The following table summarizes the changes in the fair value of Level 3 pension plan assets for the years ended December 31, 2020 and 2019:

Fair Value Measurement of Level 3 Pension Plan Assets In millions	*Equity Securities*	*Fixed Income Securities*	*Alternative Investments*	*Other Investments*	*Total*
Balance at Jan 1, 2019	$ 39	$ 1	$ 1	$ —	$ 41
Actual return on assets:					
Relating to assets sold during 2019	(2)	—	—	—	(2)
Relating to assets held at Dec 31, 2019	1	—	(14)	—	(13)
Purchases, sales and settlements, net	(11)	1	24	—	14
Balance at Dec 31, 2019	$ 27	$ 2	$ 11	$ —	$ 40
Actual return on assets:					
Relating to assets sold during 2020	—	—	(11)	—	(11)
Relating to assets held at Dec 31, 2020	(1)	—	8	(1)	6
Purchases, sales and settlements, net	(19)	(1)	5	3	(12)
Transfers into Level 3, net	3	1	—	—	4
Balance at Dec 31, 2020	$ 10	$ 2	$ 13	$ 2	$ 27

Defined Contribution Plans
U.S. employees may participate in defined contribution plans by contributing a portion of their compensation, which is partially matched by the Company. Defined contribution plans also cover employees in some subsidiaries in other countries, including China, Brazil, Canada, Belgium, Spain and the United Kingdom. Expense of continuing operations recognized for all defined contribution plans was $156 million in 2020, $163 million in 2019 and $186 million in 2018.

NOTE 21 – STOCK-BASED COMPENSATION

The Company grants stock-based compensation to employees and non-employee directors in the form of stock incentive plans, which include stock options, stock appreciation rights, RSUs and restricted stock. The Company also provides stock-based compensation in the form of PSUs.

In connection with the Merger, on August 31, 2017 ("Conversion Date"), all outstanding TDCC stock options and RSU awards were converted into stock options and RSU awards with respect to DowDuPont common stock. The stock options and RSU awards had the same terms and conditions under the applicable plans and award agreements prior to the Merger. All outstanding and nonvested PSU awards were converted into RSU awards with respect to DowDuPont common stock at the greater of the applicable performance target or the actual performance as of the effective time of the Merger. Changes in the fair value of liability instruments are recognized as compensation expense each quarter. TDCC and Historical DuPont did not merge their stock-based compensation plans as a result of the Merger. TDCC and Historical DuPont stock-based compensation plans were assumed by DowDuPont and continued in place with the ability to grant and issue DowDuPont common stock until separation.

In connection with the separation on April 1, 2019, outstanding stock options, RSU and PSU awards were converted to Dow Inc. denominated awards under the “Employer Method,” or DowDuPont denominated awards under the “Shareholder Method,” and adjusted to maintain the intrinsic value of those awards before and after the date of the separation. In connection with the Corteva separation transaction on June 3, 2019, the outstanding DowDuPont denominated stock options, RSU and PSU awards were converted to Corteva and DuPont denominated awards and adjusted to maintain the intrinsic value of those awards before and after the date of the Corteva separation. The awards have the same terms and conditions under the applicable plans and award agreements prior to the separation transactions.

The conversions of stock awards resulted in no incremental compensation expense. Approximately 5,000 employees were impacted by the conversion on April 1, 2019 in connection with Dow Inc.'s separation from DowDuPont. Approximately 4,000 employees were impacted by the conversion on June 3, 2019 in connection with the Corteva separation transaction.

The total stock-based compensation expense included in continuing operations in the consolidated statements of income was $171 million, $158 million and $188 million in 2020, 2019 and 2018, respectively. The income tax benefits related to stock-based compensation arrangements were $39 million, $36 million and $42 million in 2020, 2019 and 2018, respectively. Amounts disclosed throughout the remainder of this footnote are inclusive of activity attributable to both continuing operations and discontinued operations, as the impact of discontinued operations is not significant.

Accounting for Stock-Based Compensation
The Company grants stock-based compensation awards that vest over a specified period or upon employees meeting certain performance and/or retirement eligibility criteria. The fair value of equity instruments issued to employees is measured on the grant date. The fair value of liability instruments (granted to executive employees subject to stock ownership requirements, that provide the recipient the option to elect to receive a cash payment equal to the value of the stock award on the date of delivery) is measured at the end of each quarter. The fair value of equity and liability instruments is expensed over the vesting period or, in the case of retirement, from the grant date to the date on which retirement eligibility provisions have been met and additional service is no longer required. The Company estimates expected forfeitures.

The Company uses the Black-Scholes option valuation model to estimate the fair value of stock options. The weighted-average assumptions used to calculate total stock-based compensation are included in the following table:

Weighted-Average Assumptions	*2020*	*2019*	*2018*
Dividend yield	5.80 %	5.10 %	2.13 %
Expected volatility	26.70 %	26.10 %	23.34 %
Risk-free interest rate	1.49 %	2.43 %	2.83 %
Expected life of stock options granted during period (years)	6.1	6.1	6.2

The dividend yield assumption was equal to the dividend yield on the grant date, which reflected the Company's quarterly dividend payments of $0.70 per share in 2020 on Dow Inc. Common Stock ($0.70 per share in 2019 on Dow Inc. Common Stock and $0.38 per share in 2018 on DowDuPont Common Stock). The expected volatility assumptions for the 2020, 2019 and 2018 stock options were based on an equal weighting of the historical daily volatility for the expected term of the awards and current implied volatility from exchange-traded options. The expected volatility assumption for the market portion of the 2020 and 2019 PSU awards were based on historical daily volatility for the term of the award. The risk-free interest rate was based on the U.S. Treasury strip rates over the expected life of the 2020, 2019 and 2018 options. The expected life of stock options granted was based on an analysis of historical exercise patterns.

Stock Incentive Plan
The Company has historically granted equity awards under various plans (the "Prior Plans"). On February 9, 2012, the Board authorized The Dow Chemical Company 2012 Stock Incentive Plan (the "2012 Plan"), which was approved by stockholders at TDCC's annual meeting on May 10, 2012 ("2012 Plan Effective Date") and became effective on that date. On February 13, 2014, the Board adopted The Dow Chemical Company Amended and Restated 2012 Stock Incentive Plan (the "2012 Restated Plan"). The 2012 Restated Plan was approved by stockholders at TDCC's annual meeting on May 15, 2014, and became effective on that date. The Prior Plans were superseded by the 2012 Plan and the 2012 Restated Plan (collectively, the "2012 Plan"). Under the 2012 Plan, the Company may grant options, RSUs, PSUs, restricted stock, stock appreciation rights and stock units to employees and non-employee directors until the tenth anniversary of the 2012 Plan Effective Date, subject to an aggregate limit and annual individual limits. The terms of the grants are fixed at the grant date. TDCC's stock-based compensation programs were assumed by DowDuPont and continued in place with the ability to grant and issue DowDuPont common stock until separation.

On April 1, 2019 ("Original Effective Date"), in connection with the separation, the Company adopted the 2019 Stock Incentive Plan (the "2019 Plan"). Under the 2019 Plan, the Company may grant stock options, RSUs, PSUs, stock appreciation rights and stock units to employees and non-employee directors until the tenth anniversary of the Original Effective Date, subject to an aggregate limit and annual individual limits. The terms of the grants are fixed at the grant date. At December 31, 2020, there were approximately 16 million shares of common stock available for grant under the 2019 Plan.

Stock Options

The Company grants stock options to certain employees, subject to certain annual and individual limits, with terms of the grants fixed at the grant date. The exercise price of each stock option equals the market price of the common stock on the grant date. Options vest from one to three years and have a maximum term of ten years. The following table summarizes stock option activity for 2020:

Stock Options Shares in thousands	*2020*	
	Shares	*Exercise Price* [1]
Outstanding at Jan 1, 2020	21,265	$ 45.96
Granted	2,191	$ 48.30
Exercised	(3,002)	$ 36.78
Forfeited/Expired	(202)	$ 59.70
Outstanding at Dec 31, 2020	20,252	$ 47.44
Remaining contractual life in years		4.63
Aggregate intrinsic value in millions	$ 209	
Exercisable at Dec 31, 2020	16,564	$ 46.11
Remaining contractual life in years		3.76
Aggregate intrinsic value in millions	$ 192	

1. Weighted-average per share.

Additional Information about Stock Options In millions, except per share amounts	*2020*	*2019*	*2018*
Weighted-average fair value per share of options granted	$ 5.89	$ 7.99	$ 15.38
Total compensation expense for stock option plans	$ 22	$ 23	$ 68
Related tax benefit	$ 5	$ 5	$ 15
Total amount of cash received from the exercise of options	$ 108	$ 93	$ 112
Total intrinsic value of options exercised [1]	$ 41	$ 77	$ 160
Related tax benefit	$ 9	$ 17	$ 36

1. Difference between the market price at exercise and the price paid by the employee to exercise the options.

Total unrecognized compensation cost related to unvested stock option awards of $8 million at December 31, 2020, is expected to be recognized over a weighted-average period of 1.34 years.

Restricted Stock Units

The Company grants RSUs to certain employees and non-employee directors. The grants vest after a designated period of time, generally three years for employees and two years for non-employee directors. The following table shows changes in nonvested RSUs:

RSU Awards Shares in thousands	*2020*	
	Shares	*Grant Date Fair Value* [1]
Nonvested at Jan 1, 2020	2,454	$ 59.98
Granted	2,065	$ 47.66
Vested	(1,422)	$ 55.53
Canceled	(90)	$ 54.69
Nonvested at Dec 31, 2020	3,007	$ 53.78

1. Weighted-average per share.

Additional Information about RSUs In millions, except per share amounts	*2020*	*2019*	*2018*
Weighted-average fair value per share of RSUs granted	$ 47.66	$ 54.78	$ 71.46
Total fair value of RSUs vested [1]	$ 106	$ 264	$ 382
Related tax benefit	$ 24	$ 59	$ 86
Total compensation expense for RSU awards	$ 93	$ 110	$ 144
Related tax benefit	$ 21	$ 25	$ 32

1. Includes the fair value of shares vested in prior years and delivered in the reporting year.

In 2020, the Company paid $4 million in cash, equal to the value of the stock award on the date of delivery, to certain executive employees to settle approximately 85,000 RSUs (341,000 RSUs settled in cash for $19 million in 2019 and 625,000 RSUs settled in cash for $45 million in 2018). Total unrecognized compensation cost related to RSU awards of $75 million at December 31, 2020 is expected to be recognized over a weighted-average period of 1.69 years. At December 31, 2020, approximately 1.3 million RSUs with a grant date weighted-average fair value per share of $53.91 had previously vested, but were not issued. These shares are scheduled to be issued to employees within six months to three years or upon retirement.

Performance Stock Units

The Company grants PSUs to certain employees. The grants vest when the Company attains specified performance targets, such as return on capital and relative total shareholder return, over a predetermined period, generally one to three years. In November 2017, the Company granted PSUs to senior leadership measured on the realization of cost savings in connection with cost synergy commitments, as well as the Company's ability to complete the business separations. Performance and payouts are determined independently for each metric. Compensation expense related to PSU awards is recognized over the lesser of the service or performance period. Changes in the fair value of liability instruments are recognized as compensation expense each quarter.

The following table shows the PSU awards granted:

PSU Awards Shares in thousands		*Target Shares Granted* [1]	*Grant Date Fair Value* [2]
Year	*Performance Period*		
2020	Jan 1, 2020 – Dec 31, 2022	1,426	$ 48.35
2019	Apr 1, 2019 – Dec 31, 2021	1,173	$ 57.58
2017	Sep 1, 2017 – Aug 31, 2019	232	$ 71.16
2017 [3]	Jan 1, 2017 – Dec 31, 2019	1,728	$ 81.99

1. At the end of the performance period, the actual number of shares issued can range from zero to 200 percent of target shares granted.
2. Weighted-average per share.
3. Converted to RSUs as a result of the Merger.

The following table shows changes in nonvested PSUs:

PSUs Shares in thousands	*2020*	
	Shares	*Grant Date Fair Value* [1]
Nonvested at Jan 1, 2020	1,121	$ 57.58
Granted	1,426	$ 48.35
Vested	—	$ —
Canceled	(59)	$ 53.09
Nonvested at Dec 31, 2020	2,488	$ 53.78

1. Weighted-average per share.

Additional Information about PSUs In millions, except share amounts	*2020*	*2019*	*2018*
Total fair value of PSUs vested and delivered [1]	$ —	$ 18	$ —
Related tax benefit	$ —	$ 4	$ —
Total compensation expense for PSU awards	$ 56	$ 25	$ 12
Related tax benefit	$ 13	$ 6	$ 3
Shares of PSUs settled in cash (in thousands) [2]	—	162	—
Total cash paid to settle PSUs [3]	$ —	$ 13	$ —

1. Includes the fair value of shares vested in prior years and delivered in the reporting year.
2. PSU awards vested in prior years and delivered in the reporting year.
3. Cash paid to certain executive employees for PSU awards vested in prior periods and delivered in the reporting year, equal to the value of the stock award on the date of delivery.

Total unrecognized compensation cost related to PSU awards of $31 million at December 31, 2020, is expected to be recognized over a weighted-average period of 1.67 years.

Restricted Stock

Under the 2012 Plan, the Company granted shares (including options, stock appreciation rights, stock units and restricted stock) to non-employee directors over the 10-year duration of the program, subject to the plan's aggregate limit as well as annual individual limits. The restricted stock issued under this plan cannot be sold, assigned, pledged or otherwise transferred by the non-employee director, until retirement or termination of service to the Company. In 2018, 36,000 shares of restricted stock with a weighted average fair value of $62.82 were issued under this plan. In 2019 and 2020, there were no restricted stock shares issued under this plan.

NOTE 22 – FINANCIAL INSTRUMENTS

The following table summarizes the fair value of financial instruments at December 31, 2020 and 2019:

Fair Value of Financial Instruments at Dec 31	2020				2019			
In millions	Cost	Gain	Loss	Fair Value	Cost	Gain	Loss	Fair Value
Cash equivalents:								
Held-to-maturity securities [1]	$ 980	$ —	$ —	$ 980	$ 220	$ —	$ —	$ 220
Money market funds	484	—	—	484	408	—	—	408
Total cash equivalents	$ 1,464	$ —	$ —	$ 1,464	$ 628	$ —	$ —	$ 628
Marketable securities [2]	$ 45	$ —	$ —	$ 45	$ 21	$ —	$ —	$ 21
Other investments:								
Debt securities:								
Government debt [3]	$ 673	$ 35	$ (10)	$ 698	$ 533	$ 33	$ (11)	$ 555
Corporate bonds	822	119	(5)	936	944	80	(10)	1,014
Total debt securities	$ 1,495	$ 154	$ (15)	$ 1,634	$ 1,477	$ 113	$ (21)	$ 1,569
Equity securities [4]	6	34	—	40	10	6	(1)	15
Total other investments	$ 1,501	$ 188	$ (15)	$ 1,674	$ 1,487	$ 119	$ (22)	$ 1,584
Total cash equivalents, marketable securities and other investments	$ 3,010	$ 188	$ (15)	$ 3,183	$ 2,136	$ 119	$ (22)	$ 2,233
Long-term debt including debt due within one year [5]	$ (16,951)	$ 6	$ (3,659)	$ (20,604)	$ (16,410)	$ 7	$ (2,258)	$ (18,661)
Derivatives relating to:								
Interest rates [6]	$ —	$ 41	$ (182)	$ (141)	$ —	$ 8	$ (283)	$ (275)
Foreign currency	—	69	(84)	(15)	—	101	(21)	80
Commodities [6]	—	63	(84)	(21)	—	59	(115)	(56)
Total derivatives	$ —	$ 173	$ (350)	$ (177)	$ —	$ 168	$ (419)	$ (251)

1. The Company's held-to-maturity securities primarily included treasury bills and time deposits.
2. The Company's investments in marketable securities are included in "Other current assets" in the consolidated balance sheets.
3. U.S. Treasury obligations, U.S. agency obligations, U.S. agency mortgage-backed securities and other municipalities' obligations.
4. Equity securities with a readily determinable fair value.
5. Cost includes fair value hedge adjustment gains of $69 million at December 31, 2020 and losses of $1 million at December 31, 2019 on $3,314 million of debt at December 31, 2020 and $3,490 million of debt at December 31, 2019.
6. Presented net of cash collateral where master netting arrangements allow.

Cost approximates fair value for all other financial instruments.

Debt Securities

The Company's investments in debt securities are primarily classified as available-for-sale. The following table provides the investing results from available-for-sale securities for the years ended December 31, 2020, 2019 and 2018.

Investing Results			
In millions	2020	2019	2018
Proceeds from sales of available-for-sale securities	$ 837	$ 1,138	$ 1,053
Gross realized gains	$ 94	$ 51	$ 21
Gross realized losses	$ 40	$ 18	$ 30

The following table summarizes the contractual maturities of the Company's investments in debt securities:

Contractual Maturities of Debt Securities at Dec 31, 2020 [1] In millions	*Cost*	*Fair Value*
Within one year	$ 25	$ 25
One to five years	406	448
Six to ten years	649	685
After ten years	415	476
Total	$ 1,495	$ 1,634

1. Includes marketable securities with maturities of less than one year.

Portfolio managers regularly review the Company's holdings to determine if any investments in debt securities are other-than-temporarily impaired. The analysis includes reviewing the amount of the impairment, as well as the length of time it has been impaired.

The credit rating of the issuer, current credit rating trends, the trends of the issuer's overall sector, the ability of the issuer to pay expected cash flows and the length of time the security has been in a loss position are considered in determining whether unrealized losses represent an other-than-temporary impairment. The Company did not have any credit-related losses in 2020, 2019 or 2018.

The following table provides the fair value and gross unrealized losses of the Company's investments in debt securities that were deemed to be temporarily impaired at December 31, 2020 and 2019, aggregated by investment category:

Temporarily Impaired Debt Securities at Dec 31 In millions	*Less than 12 months*		*12 months or more*		*Total*	
	Fair Value	*Unrealized Losses*	*Fair Value*	*Unrealized Losses*	*Fair Value*	*Unrealized Losses*
2020						
Government debt [1]	$ 124	$ (3)	$ 7	$ (7)	$ 131	$ (10)
Corporate bonds	55	(3)	12	(2)	67	(5)
Total temporarily impaired debt securities	$ 179	$ (6)	$ 19	$ (9)	$ 198	$ (15)
2019						
Government debt [1]	$ 55	$ (3)	$ 23	$ (8)	$ 78	$ (11)
Corporate bonds	79	(3)	52	(7)	131	(10)
Total temporarily impaired debt securities	$ 134	$ (6)	$ 75	$ (15)	$ 209	$ (21)

1. U.S. Treasury obligations, U.S. agency obligations, U.S. agency mortgage-backed securities and other municipalities' obligations.

Equity Securities

There were no material adjustments to the carrying value of the not readily determinable investments for impairment or observable price changes for the year ended December 31, 2020. The net unrealized gain recognized in earnings on equity securities totaled $32 million for the year ended December 31, 2020 ($5 million net unrealized gain for the year ended December 31, 2019).

Investments in Equity Securities In millions	*Dec 31, 2020*	*Dec 31, 2019*
Readily determinable fair value	$ 40	$ 15
Not readily determinable fair value	$ 215	$ 189

Risk Management

The Company's business operations give rise to market risk exposure due to changes in foreign exchange rates, interest rates, commodity prices and other market factors such as equity prices. To manage such risks effectively, the Company enters into hedging transactions, pursuant to established guidelines and policies that enable it to mitigate the adverse effects of financial market risk. Derivatives used for this purpose are designated as hedges per

the accounting guidance related to derivatives and hedging activities, where appropriate. A secondary objective is to add value by creating additional non-specific exposure within established limits and policies; derivatives used for this purpose are not designated as hedges. The potential impact of creating such additional exposures is not material to the Company's results. Accounting guidance requires companies to recognize all derivative instruments as either assets or liabilities at fair value.

The Company's risk management program for interest rate, foreign currency and commodity risks is based on fundamental, mathematical and technical models that take into account the implicit cost of hedging. Risks created by derivative instruments and the mark-to-market valuations of positions are strictly monitored at all times, using value-at-risk and stress tests. Counterparty credit risk arising from these contracts is not significant because the Company minimizes counterparty concentration, deals primarily with major financial institutions of solid credit quality, and the majority of its hedging transactions mature in less than three months. In addition, the Company minimizes concentrations of credit risk through its global orientation by transacting with large, internationally diversified financial counterparties. It is the Company's policy to not have credit risk-related contingent features in its derivative instruments. No significant concentration of counterparty credit risk existed at December 31, 2020. The Company does not anticipate losses from credit risk, and the net cash requirements arising from counterparty risk associated with risk management activities are not expected to be material in 2021.

The Company revises its strategies as market conditions dictate and management reviews its overall financial strategies and the impacts from using derivatives in its risk management program with the Company's senior leadership who also reviews these strategies with the Dow Inc. Board and/or relevant committees thereof.

Derivative Instruments
The notional amounts of the Company's derivative instruments presented on a net basis at December 31, 2020 and 2019, were as follows:

Notional Amounts - Net In millions	*Dec 31, 2020*	*Dec 31, 2019*
Derivatives designated as hedging instruments		
Interest rate contracts	$ 612	$ 922
Foreign currency contracts	$ 3,784	$ 6,253
Derivatives not designated as hedging instruments		
Interest rate contracts	$ 94	$ 145
Foreign currency contracts	$ 9,187	$ 5,567

The notional amounts of the Company's commodity derivatives presented on a net basis at December 31, 2020 and 2019, were as follows:

Commodity Notionals - Net	*Dec 31, 2020*	*Dec 31, 2019*	*Notional Volume Unit*
Derivatives designated as hedging instruments			
Hydrocarbon derivatives	10.9	6.1	million barrels of oil equivalent
Derivatives not designated as hedging instruments			
Hydrocarbon derivatives	—	0.1	million barrels of oil equivalent
Power derivatives	—	87.5	thousands of megawatt hours

Maturity Dates of Derivatives Designated as Hedging Instruments	*Year*
Interest rate contracts	2021
Foreign currency contracts	2021
Commodity contracts	2022

Interest Rate Risk Management
The main objective of interest rate risk management is to reduce the total funding cost to the Company and to alter the interest rate exposure to the desired risk profile. To achieve this objective, the Company hedges using interest rate swaps, “swaptions,” and exchange-traded instruments.

Foreign Currency Risk Management
The global nature of the Company's business requires active participation in the foreign exchange markets. The Company has assets, liabilities and cash flows in currencies other than the U.S. dollar. The primary objective of the Company's foreign currency risk management is to optimize the U.S. dollar value of net assets and cash flows. To achieve this objective, the Company hedges on a net exposure basis using foreign currency forward contracts, over-the-counter option contracts, cross-currency swaps and nonderivative instruments in foreign currencies. Exposures primarily relate to assets, liabilities and bonds denominated in foreign currencies, as well as economic exposure, which is derived from the risk that currency fluctuations could affect the dollar value of future cash flows related to operating activities.

Commodity Risk Management
The Company has exposure to the prices of commodities in its procurement of certain raw materials. The primary purpose of commodity hedging activities is to manage the price volatility associated with these forecasted inventory purchases.

Derivatives Not Designated in Hedging Relationships
Foreign Currency Contracts
The Company also uses foreign exchange forward contracts, options and cross-currency swaps that are not designated as hedging instruments primarily to manage foreign currency exposure.

Commodity Contracts
The Company utilizes futures, options and swap instruments that are effective as economic hedges of commodity price exposures, but do not meet hedge accounting criteria for derivatives and hedging, to reduce exposure to commodity price fluctuations on purchases of raw materials and inventory.

Interest Rate Contracts
The Company uses swap instruments that are not designated as hedging instruments to manage interest rate exposures. The Company uses interest rate swaps, "swaptions," and exchange-traded instruments to accomplish this objective.

Accounting for Derivative Instruments and Hedging Activities
Cash Flow Hedges
For derivatives that are designated and qualify as cash flow hedging instruments, the gain or loss on the derivative is recorded in AOCL; it is reclassified to income in the same period or periods that the hedged transaction affects income. The unrealized amounts in AOCL fluctuate based on changes in the fair value of open contracts at the end of each reporting period. The Company anticipates volatility in AOCL and net income from its cash flow hedges. The amount of volatility varies with the level of derivative activities and market conditions during any period.

The portion of the mark-to-market effects of the foreign currency contracts is recorded in AOCL; it is reclassified to income in the same period or periods that the underlying item affects income.

Commodity swaps, futures and option contracts with maturities of not more than 60 months are utilized and designated as cash flow hedges of forecasted commodity purchases. The designated portion of the mark-to-market effect of the cash flow hedge instrument is recorded in AOCL; it is reclassified to income in the same period or periods that the underlying commodity purchase affects income.

Fair Value Hedges
For interest rate instruments that are designated and qualify as fair value hedges, the gain or loss on the derivative as well as the offsetting loss or gain on the hedge item attributable to the hedged risk are recognized in current period income and reflected as “Interest expense and amortization of debt discount” in the consolidated statements of income, except for amounts excluded from the assessment of effectiveness that are recognized in earnings through an amortization approach.

Net Foreign Investment Hedges
The Company designates derivatives that qualify as effective net foreign investment hedges, the results of which are presented in the effect of derivative instruments table. In addition, the Company utilizes non-derivative instruments as net foreign investment hedges. The Company had outstanding foreign-currency denominated debt designated as a hedge of net foreign investment of $194 million at December 31, 2020 ($184 million at December 31, 2019).

The following tables provide the fair value and balance sheet classification of derivative instruments at December 31, 2020 and 2019:

Fair Value of Derivative Instruments		*Dec 31, 2020*		
In millions	*Balance Sheet Classification*	*Gross*	*Counterparty and Cash Collateral Netting* [1]	*Net Amounts Included in the Consolidated Balance Sheets*
Asset derivatives				
Derivatives designated as hedging instruments				
Interest rate contracts	Other current assets	$ 3	$ (3)	$ —
Foreign currency contracts	Other current assets	39	(19)	20
Commodity contracts	Other current assets	146	(109)	37
Commodity contracts	Deferred charges and other assets	31	(8)	23
Total		$ 219	$ (139)	$ 80
Derivatives not designated as hedging instruments				
Interest rate contracts	Deferred charges and other assets	$ 41	$ —	$ 41
Foreign currency contracts	Other current assets	74	(25)	49
Commodity contracts	Other current assets	4	(1)	3
Total		$ 119	$ (26)	$ 93
Total asset derivatives		$ 338	$ (165)	$ 173
Liability derivatives				
Derivatives designated as hedging instruments				
Interest rate contracts	Accrued and other current liabilities	$ 7	$ (3)	$ 4
Foreign currency contracts	Accrued and other current liabilities	93	(19)	74
Commodity contracts	Accrued and other current liabilities	151	(112)	39
Commodity contracts	Other noncurrent obligations	48	(9)	39
Total		$ 299	$ (143)	$ 156
Derivatives not designated as hedging instruments				
Interest rate contracts	Other noncurrent obligations	$ 178	$ —	$ 178
Foreign currency contracts	Accrued and other current liabilities	35	(25)	10
Commodity contracts	Accrued and other current liabilities	9	(3)	6
Total		$ 222	$ (28)	$ 194
Total liability derivatives		$ 521	$ (171)	$ 350

1. Counterparty and cash collateral amounts represent the estimated net settlement amount when applying netting and set-off rights included in master netting arrangements between the Company and its counterparties and the payable or receivable for cash collateral held or placed with the same counterparty.

Fair Value of Derivative Instruments		Dec 31, 2019		
In millions	*Balance Sheet Classification*	*Gross*	*Counterparty and Cash Collateral Netting [1]*	*Net Amounts Included in the Consolidated Balance Sheets*
Asset derivatives				
Derivatives designated as hedging instruments				
Interest rate contracts	Other current assets	$ 21	$ (13)	$ 8
Foreign currency contracts	Other current assets	105	(36)	69
Commodity contracts	Other current assets	44	(25)	19
Commodity contracts	Deferred charges and other assets	28	(3)	25
Total		$ 198	$ (77)	$ 121
Derivatives not designated as hedging instruments				
Interest rate contracts	Other current assets	$ 14	$ (14)	$ —
Foreign currency contracts	Other current assets	44	(12)	32
Commodity contracts	Other current assets	18	(3)	15
Total		$ 76	$ (29)	$ 47
Total asset derivatives		$ 274	$ (106)	$ 168
Liability derivatives				
Derivatives designated as hedging instruments				
Interest rate contracts	Accrued and other current liabilities	$ 23	$ (13)	$ 10
Interest rate contracts	Other noncurrent obligations	1	—	1
Foreign currency contracts	Accrued and other current liabilities	46	(36)	10
Commodity contracts	Accrued and other current liabilities	95	(29)	66
Commodity contracts	Other noncurrent obligations	38	(4)	34
Total		$ 203	$ (82)	$ 121
Derivatives not designated as hedging instruments				
Interest rate contracts	Accrued and other current liabilities	$ 136	$ (14)	$ 122
Interest rate contracts	Other noncurrent obligations	150	—	150
Foreign currency contracts	Accrued and other current liabilities	23	(12)	11
Commodity contracts	Accrued and other current liabilities	17	(3)	14
Commodity contracts	Other noncurrent obligations	1	—	1
Total		$ 327	$ (29)	$ 298
Total liability derivatives		$ 530	$ (111)	$ 419

1. Counterparty and cash collateral amounts represent the estimated net settlement amount when applying netting and set-off rights included in master netting arrangements between the Company and its counterparties and the payable or receivable for cash collateral held or placed with the same counterparty.

Assets and liabilities related to forward contracts, interest rate swaps, currency swaps, options and other conditional or exchange contracts executed with the same counterparty under a master netting arrangement are netted. Collateral accounts are netted with corresponding assets or liabilities, when applicable. The Company posted cash collateral of $7 million at December 31, 2020 ($5 million at December 31, 2019). No cash collateral was posted by counterparties with the Company at December 31, 2020 ($3 million at December 31, 2019).

The following table summarizes the gain (loss) of derivative instruments in the consolidated statements of income and comprehensive income for the years ended December 31, 2020, 2019 and 2018:

Effect of Derivative Instruments	*Amount of gain (loss) recognized in OCI* [1]			*Amount of gain (loss) recognized in income* [2]			
In millions	*2020*	*2019*	*2018*	*2020*	*2019*	*2018*	*Income Statement Classification*
Derivatives designated as hedging instruments:							
Fair value hedges:							
Interest rate contracts	$ —	$ —	$ —	$ 69	$ 17	$ —	Interest expense and amortization of debt discount [3]
Excluded components [4]	7	(3)	—	—	—	—	Interest expense and amortization of debt discount
Cash flow hedges:							
Interest rate contracts	—	(316)	26	(2)	1	(3)	Interest expense and amortization of debt discount
Foreign currency contracts	(20)	16	19	3	28	(18)	Cost of sales
Foreign currency contracts	—	10	(3)	—	8	—	Sundry income (expense) - net
Commodity contracts	(8)	(6)	(46)	(31)	(81)	(69)	Cost of sales
Net foreign investment hedges:							
Foreign currency contracts	(38)	(52)	116	—	—	—	
Excluded components [4]	27	162	—	20	99	—	Sundry income (expense) - net
Total derivatives designated as hedging instruments	$ (32)	$ (189)	$ 112	$ 59	$ 72	$ (90)	
Derivatives not designated as hedging instruments:							
Interest rate contracts	$ —	$ —	$ —	$ (16)	$ (4)	$ —	Interest expense and amortization of debt discount
Foreign currency contracts	—	—	—	28	45	101	Sundry income (expense) - net
Commodity contracts	—	—	—	11	(28)	(12)	Cost of sales
Total derivatives not designated as hedging instruments	$ —	$ —	$ —	$ 23	$ 13	$ 89	
Total derivatives	$ (32)	$ (189)	$ 112	$ 82	$ 85	$ (1)	

1. OCI is defined as other comprehensive income (loss).
2. Pretax amounts.
3. Gain (loss) recognized in income of derivatives is offset by gain (loss) recognized in income of the hedged item.
4. The excluded components are related to the time value of the derivatives designated as hedges.

The following table provides the net after-tax amounts to be reclassified from AOCL to income within the next 12 months:

Expected Reclassifications from AOCL within the next 12 months	*Dec 31, 2020*
Cash flow hedges:	
Interest rate contracts	$ (8)
Commodity contracts	$ (1)
Foreign currency contracts	$ (18)
Net foreign investment hedges:	
Excluded components	$ 2

NOTE 23 – FAIR VALUE MEASUREMENTS

Fair Value Measurements on a Recurring Basis

The following table summarizes the bases used to measure certain assets and liabilities at fair value on a recurring basis:

Basis of Fair Value Measurements on a Recurring Basis	Dec 31, 2020			Dec 31, 2019		
In millions	Level 1	Level 2	Total	Level 1	Level 2	Total
Assets at fair value:						
Cash equivalents:						
Held-to-maturity securities [1]	$ —	$ 980	$ 980	$ —	$ 220	$ 220
Money market funds	—	484	484	—	408	408
Marketable securities [2]	—	45	45	—	21	21
Equity securities [3]	40	—	40	15	—	15
Debt securities: [3]						
Government debt [4]	—	698	698	—	555	555
Corporate bonds	28	908	936	22	992	1,014
Derivatives relating to: [5]						
Interest rates	—	44	44	—	35	35
Foreign currency	—	113	113	—	149	149
Commodities	8	173	181	23	67	90
Total assets at fair value	$ 76	$ 3,445	$ 3,521	$ 60	$ 2,447	$ 2,507
Liabilities at fair value:						
Long-term debt including debt due within one year [6]	$ —	$ 20,604	$ 20,604	$ —	$ 18,661	$ 18,661
Derivatives relating to: [5]						
Interest rates	—	185	185	—	310	310
Foreign currency	—	128	128	—	69	69
Commodities	7	201	208	14	137	151
Total liabilities at fair value	$ 7	$ 21,118	$ 21,125	$ 14	$ 19,177	$ 19,191

1. The Company's held-to-maturity securities primarily included treasury bills and time deposits.
2. The Company's investments in marketable securities are included in "Other current assets" in the consolidated balance sheets.
3. The Company's investments in debt securities, which are primarily available-for-sale, and equity securities are included in "Other investments" in the consolidated balance sheets.
4. U.S. Treasury obligations, U.S. agency obligations, U.S. agency mortgage-backed securities and other municipalities' obligations.
5. See Note 22 for the classification of derivatives in the consolidated balance sheets.
6. See Note 22 for information on fair value measurements of long-term debt.

For assets and liabilities classified as Level 1 measurements (measured using quoted prices in active markets), total fair value is either the price of the most recent trade at the time of the market close or the official close price, as defined by the exchange on which the asset is most actively traded on the last trading day of the period, multiplied by the number of units held without consideration of transaction costs.

For assets and liabilities classified as Level 2 measurements, where the security is frequently traded in less active markets, fair value is based on the closing price at the end of the period; where the security is less frequently traded, fair value is based on the price a dealer would pay for the security or similar securities, adjusted for any terms specific to that asset or liability, or by using observable market data points of similar, more liquid securities to imply the price. Market inputs are obtained from well-established and recognized vendors of market data and subjected to tolerance and quality checks.

For derivative assets and liabilities, standard industry models are used to calculate the fair value of the various financial instruments based on significant observable market inputs, such as foreign exchange rates, commodity prices, swap rates, interest rates and implied volatilities obtained from various market sources. Market inputs are obtained from well-established and recognized vendors of market data and subjected to tolerance/quality checks.

For all other assets and liabilities for which observable inputs are used, fair value is derived through the use of fair value models, such as a discounted cash flow model or other standard pricing models. See Note 22 for further information on the types of instruments used by the Company for risk management.

There were no transfers between Levels 1 and 2 in the years ended December 31, 2020 and 2019.

For assets classified as Level 3 measurements, the fair value is based on significant unobservable inputs including assumptions where there is little, if any, market activity. The fair value of the Company's interests held in trade accounts receivable conduits is determined by calculating the expected amount of cash to be received using the key input of anticipated credit losses in the portfolio of receivables sold that have not yet been collected. Given the short-term nature of the underlying receivables, discount rate and prepayments are not factors in determining the fair value of the interests. See Note 14 for further information on assets classified as Level 3 measurements.

For equity securities calculated at net asset value per share (or its equivalent), the Company had $111 million in private equity and $19 million in real estate at December 31, 2020 ($117 million in private equity and $18 million in real estate at December 31, 2019). There are no redemption restrictions and the unfunded commitments on these investments were $63 million at December 31, 2020 ($76 million at December 31, 2019).

The following table summarizes the changes in fair value measurements using Level 3 inputs for the year ended December 31, 2018:

Fair Value Measurements Using Level 3 Inputs for Interests Held in Trade Accounts Receivable Conduits In millions	*2018*
Balance at Jan 1	$ 677
Gain (loss) included in earnings [1]	3
Settlements [2]	(680)
Balance at Dec 31	$ —

1. Included in "Selling, general and administrative expenses" in the consolidated statements of income.
2. Includes noncash transactions of $23 million for the year ended December 31, 2018.

Fair Value Measurements on a Nonrecurring Basis
The following table summarizes the bases used to measure certain assets at fair value on a nonrecurring basis in the consolidated balance sheets in 2020, 2019 and 2018:

Basis of Fair Value Measurements on a Nonrecurring Basis at Dec 31 In millions	*(Level 3)*	*Total Losses*
2020		
Assets at fair value:		
Long-lived assets and other assets	$ 121	$ (245)
2019		
Assets at fair value:		
Long-lived assets, other assets and equity method investments	$ 162	$ (2,031)
Goodwill	$ —	$ (1,039)
2018		
Assets at fair value:		
Long-lived assets and other assets	$ —	$ (67)

2020 Fair Value Measurements on a Nonrecurring Basis
As part of the 2020 Restructuring Program, the Company has or will shut down and write off several small manufacturing facilities and miscellaneous assets around the world. The assets associated with this plan were written down to zero. In addition, impairments of leased, non-manufacturing facilities, which were classified as Level 3 measurements, resulted in a write-down of right-of-use assets to a fair value of $110 million using unobservable inputs. The impairment charges related to the 2020 Restructuring Program, totaling $196 million, were included in "Restructuring, goodwill impairment and asset related charges - net" in the consolidated

statements of income and related to Packaging & Specialty Plastics ($11 million), Industrial Intermediates & Infrastructure ($22 million), Performance Materials & Coatings ($116 million) and Corporate ($47 million).

In 2020, the Company recognized impairment charges of $30 million related to the write-down of a non-manufacturing asset and certain corporate leased equipment and the write-off of a capital project. The assets, classified as Level 3 measurements, were valued at $11 million using unobservable inputs. The impairment charges were included in "Restructuring, goodwill impairment and asset related charges - net" in the consolidated statements of income and related to Performance Materials & Coatings ($15 million) and Corporate ($15 million).

In 2020, the Company recognized an additional pretax impairment charge of $19 million related to capital additions made to a bio-ethanol manufacturing facility in Santa Vitoria, Minas Gerais, Brazil, which was impaired in 2017. The assets were written down to zero in 2020. The impairment charge was included in “Restructuring, goodwill impairment and asset related charges - net” in the consolidated statements of income and related to Packaging & Specialty Plastics. On September 29, 2020, the Company divested the bio-ethanol manufacturing facility. See Note 6 for additional information.

2019 Fair Value Measurements on a Nonrecurring Basis
As part of the Synergy Program, the Company has or will shut down and write-off several small manufacturing facilities, non-manufacturing assets and certain corporate facilities around the world. In 2019, manufacturing facilities associated with this plan were written down to zero. In addition, impairments of leased, non-manufacturing facilities, which were classified as Level 3 measurements, resulted in a write-down of right-of-use assets to a fair value of $152 million using unobservable inputs. The impairment charges related to the Synergy Program, totaling $143 million, were included in "Restructuring, goodwill impairment and asset related charges - net" in the consolidated statements of income and related to Industrial Intermediates & Infrastructure ($2 million), Performance Materials & Coatings ($28 million) and Corporate ($113 million).

In 2019, the Company recognized an additional pretax impairment charge of $44 million related to capital additions made to Santa Vitoria, which was impaired in 2017. The assets were written down to zero in 2019. The impairment charge was included in “Restructuring, goodwill impairment and asset related charges - net” in the consolidated statements of income and related to Packaging & Specialty Plastics.

In 2019, the Company recognized impairment charges of $14 million related to non-manufacturing assets. The assets, classified as Level 3 measurements, were valued at $10 million using unobservable inputs. The impairment charges were included in "Restructuring, goodwill impairment and asset related charges - net" in the consolidated statements of income and related to Performance Materials & Coatings ($9 million) and Corporate ($5 million).

In 2019, the Company recognized an impairment charge of $75 million resulting from the planned divestiture of its acetone derivatives business to ALTIVIA Ketones & Additives, LLC. The transaction closed on November 1, 2019 and included the Company's acetone derivatives related inventory and production assets, located in Institute, West Virginia, in addition to the site infrastructure, land and utilities. The assets, classified as Level 3 measurements and valued using unobservable inputs, were written down to zero in 2019, except for inventory, which was sold at the lower of cost or market. The impairment charge was included in "Restructuring, goodwill impairment and asset related charges - net" in the consolidated statements of income and related to Packaging & Specialty Plastics ($24 million) and Corporate ($51 million).

In the fourth quarter of 2019, the Company performed its annual goodwill impairment testing utilizing a discounted cash flow methodology as its valuation technique. As a result, the Company determined the fair value of the C&PM reporting unit was lower than its carrying amount and recorded an impairment charge of $1,039 million, included in “Restructuring, goodwill impairment and asset related charges - net” in the consolidated statements of income and related to Performance Materials & Coatings. See Note 13 for additional information on the impairment charge.

In the fourth quarter of 2019, the Company concluded that its equity method investment in Sadara, classified as a Level 3 measurement and valued using unobservable inputs, was other-than-temporarily impaired and written down to zero. Additionally, the Company reserved certain accounts and notes receivable and accrued interest balances due to uncertainty on the timing of collection. As a result, the Company recorded a $1,755 million charge related to Sadara. The charge was included in “Restructuring, goodwill impairment and asset related charges - net” in the consolidated statements of income and related to Packaging & Specialty Plastics ($370 million), Industrial Intermediates & Infrastructure ($1,168 million) and Corporate ($217 million). See Note 12 for additional information.

2018 Fair Value Measurements on a Nonrecurring Basis
The Company has or will shut down a number of manufacturing and other non-manufacturing facilities and corporate facilities around the world as part of its restructuring programs. In 2018, the manufacturing facilities and related assets and corporate facilities associated with these programs were written down to zero. The impairment charges related to the restructuring programs, totaling $33 million, were included in "Restructuring, goodwill impairment and asset related charges - net" in the consolidated statements of income and related to Packaging & Specialty Plastics ($10 million), Performance Materials & Coatings ($7 million) and Corporate ($16 million).

In 2018, the Company recognized an additional pretax impairment charge of $34 million related primarily to capital additions made to Santa Vitoria, which was impaired in 2017. The assets were written down to zero in 2018. The impairment charge was included in “Restructuring, goodwill impairment and asset related charges - net” in the consolidated statements of income and related to the Packaging & Specialty Plastics segment.

See Note 6 for additional information on the Company's restructuring activities.

NOTE 24 – VARIABLE INTEREST ENTITIES

Consolidated Variable Interest Entities ("VIEs")
The Company holds a variable interest in the following joint ventures or entities for which it is the primary beneficiary:

Asia Pacific Joint Ventures
The Company has variable interests in two joint ventures that own and operate manufacturing and logistics facilities, which produce chemicals and provide services in Asia Pacific. The Company's variable interests in these joint ventures relate to arrangements between the joint ventures and the Company, involving the majority of the output on take-or-pay terms with pricing ensuring a guaranteed return to the joint ventures.

The Company was a 50 percent indirect owner in a propylene oxide ("PO") manufacturing joint venture in Asia Pacific. The Company had a variable interest in this joint venture relating to arrangements between the joint venture and the Company involving the majority of the output on take-or-pay terms, with pricing ensuring a guaranteed return to the joint venture. On April 30, 2019, the Company executed an agreement to acquire full ownership in the PO manufacturing joint venture. The transaction closed on October 1, 2019, for a cash purchase price of $331 million. Approximately half of the purchase price was attributed to the Company’s proportionate equity interest in the entity that owned the PO manufacturing joint venture, which is accounted for under the equity method of accounting, and was classified as "Investments in and loans to nonconsolidated affiliates" in the consolidated statements of cash flows. The remaining $166 million was classified as "Purchases of noncontrolling interests" in the consolidated statements of cash flows.

Ethylene Storage Joint Venture
The Company has variable interests in a joint venture that provides ethylene storage in Alberta, Canada. The Company's variable interests relate to arrangements involving a majority of the joint venture's storage capacity on take-or-pay terms with pricing ensuring a guaranteed return to the joint venture; and favorably priced leases provided to the joint venture. The Company provides the joint venture with operation and maintenance services and utilities.

Cogeneration in Brazil
The Company held variable interests in a cogeneration facility in Brazil that provided power to the Company's bio-ethanol manufacturing facility. The Company's variable interests were the result of a tolling arrangement where it provided fuel to the entity and purchased a majority of the cogeneration facility’s output on terms that ensured a return to the entity’s equity holders. On September 29, 2020, the Company divested its bio-ethanol manufacturing facility and is no longer a party to the tolling arrangement with the cogeneration facility.

Assets and Liabilities of Consolidated VIEs
The Company's consolidated financial statements include the assets, liabilities and results of operations of VIEs for which the Company is the primary beneficiary. The other equity holders’ interests are reflected in "Net income attributable to noncontrolling interests" in the consolidated statements of income and "Noncontrolling interests" in the consolidated balance sheets.

The following table summarizes the carrying amounts of these entities' assets and liabilities included in the Company's consolidated balance sheets at December 31, 2020 and 2019:

Assets and Liabilities of Consolidated VIEs at Dec 31 In millions	*2020*	*2019*
Cash and cash equivalents	$ 26	$ 37
Other current assets	44	51
Net property	232	330
Other noncurrent assets	17	18
Total assets [1]	$ 319	$ 436
Current liabilities	$ 73	$ 141
Long-term debt	6	34
Other noncurrent obligations	18	21
Total liabilities [2]	$ 97	$ 196

1. All assets were restricted at December 31, 2020 and 2019.
2. All liabilities were nonrecourse at December 31, 2020 and 2019.

Amounts presented in the consolidated balance sheets and the table above as restricted assets or nonrecourse obligations relating to consolidated VIEs at December 31, 2020 and 2019 are adjusted for intercompany eliminations.

Nonconsolidated VIEs
The Company holds a variable interest in the following entities for which the Company is not the primary beneficiary:

Silicon Joint Ventures
The Company holds minority voting interests in certain joint ventures that produce silicon inputs for the Company. These joint ventures operate under supply agreements that sell inventory to the equity owners using pricing mechanisms that guarantee a return, therefore shielding the joint ventures from the obligation to absorb expected losses. As a result of the pricing mechanisms of these agreements, these entities are determined to be VIEs. The Company is not the primary beneficiary, as it does not hold the power to direct the activities that most significantly impact the economic performance of these entities; therefore, the entities are accounted for under the equity method of accounting. The Company's maximum exposure to loss as a result of its involvement with these variable interest entities is determined to be the carrying value of the investment in these entities. At December 31, 2020, the Company's investment in these joint ventures was $107 million ($100 million at December 31, 2019), classified as "Investment in nonconsolidated affiliates" in the consolidated balance sheets, representing the Company's maximum exposure to loss.

NOTE 25 – RELATED PARTY TRANSACTIONS

Effective with the separation from DowDuPont on April 1, 2019, TDCC became a wholly owned subsidiary of Dow Inc. and reported transactions with Dow Inc. as related party transactions. From the Merger Date through March 31, 2019, TDCC reported transactions with DowDuPont and Historical DuPont and its affiliates as related party transactions.

TDCC
TDCC has committed to fund Dow Inc.'s dividends paid to common stockholders and share repurchases, as approved by Dow Inc.'s Board from time to time, as well as certain governance expenses. Funding is accomplished through intercompany loans. TDCC's Board reviews and determines a dividend distribution to Dow Inc. to settle the intercompany loans. In 2020 and 2019, TDCC declared and paid dividends to Dow Inc. of $2,233 million and $201 million, respectively. At December 31, 2020 and 2019, TDCC's intercompany loan balance with Dow Inc. was insignificant.

DowDuPont
Pursuant to the Agreement and Plan of Merger, dated as of December 11, 2015, as amended on March 31, 2017, and prior to the separation from DowDuPont, TDCC committed to fund a portion of DowDuPont's dividends paid to common stockholders and certain governance expenses. In addition, share repurchases by DowDuPont were partially funded by TDCC through 2018. In 2019, TDCC declared and paid dividends to DowDuPont of $535 million ($3,711 million in 2018).

Historical DuPont and its Affiliates
Prior to the separation from DowDuPont, TDCC sold to and procured from Historical DuPont and its affiliates certain raw materials that were consumed in each company's manufacturing process. The following table presents revenue earned and expenses incurred related to transactions with Historical DuPont and its affiliates:

Sales to Historical DuPont and its Affiliates In millions	*2019*	*2018*
Net sales	$ 12	$ 55
Cost of sales	$ 9	$ 42

Purchases from Historical DuPont and its affiliates were insignificant for 2019 and 2018.

NOTE 26 – SEGMENTS AND GEOGRAPHIC REGIONS

Dow combines global breadth, asset integration and scale, focused innovation and leading business positions to achieve profitable growth. The Company's ambition is to become the most innovative, customer centric, inclusive and sustainable materials science company, with a purpose to deliver a sustainable future for the world through our materials science expertise and collaboration with our partners. Dow’s portfolio of plastics, industrial intermediates, coatings and silicones businesses delivers a broad range of differentiated science-based products and solutions for its customers in high-growth market segments, such as packaging, infrastructure, mobility and consumer care. Dow operates 106 manufacturing sites in 31 countries and employs approximately 35,700 people.

The Company conducts its worldwide operations through six global businesses which are organized into the following operating segments: Packaging & Specialty Plastics, Industrial Intermediates & Infrastructure and Performance Materials & Coatings. Corporate contains the reconciliation between the totals for the operating segments and the Company's totals. The Company did not aggregate any operating segments when determining its reportable segments. The Company reports geographic information for the following regions: U.S. & Canada, Asia Pacific, Latin America and EMEAI. The Company transfers ethylene to its downstream derivative businesses at market prices. The Company also allocated costs previously assigned to AgCo and SpecCo ("stranded costs") to the operating segments.

Dow’s measure of profit/loss for segment reporting purposes is Operating EBIT (for the year ended December 31, 2020) and pro forma Operating EBIT (for the years ended December 31, 2019 and 2018) as this is the manner in which the Company's chief operating decision maker ("CODM") assesses performance and allocates resources. The Company defines Operating EBIT as earnings (i.e., "Income (loss) from continuing operations before income taxes") before interest, excluding the impact of significant items. The Company defines pro forma Operating EBIT as earnings (i.e., "Income (loss) from continuing operations before income taxes") before interest, plus pro forma adjustments, excluding the impact of significant items. Operating EBIT and pro forma Operating EBIT by segment include all operating items relating to the businesses; items that principally apply to Dow as a whole are assigned to Corporate. The Company also presents pro forma net sales for the years ended December 31, 2019 and 2018 in this footnote as it is included in management's measure of segment performance and is regularly reviewed by the CODM. Pro forma net sales includes the impact of various manufacturing, supply and service related agreements entered into with DuPont and Corteva in connection with the separation which provide for different pricing than the historical intercompany and intracompany pricing practices of TDCC and Historical DuPont.

Corporate Profile
Dow conducts its worldwide operations through global businesses which are reflected in the following reportable segments:

Packaging & Specialty Plastics
Packaging & Specialty Plastics consists of two highly integrated global businesses: Hydrocarbons & Energy and Packaging and Specialty Plastics. The segment employs the industry's broadest polyolefin product portfolio, supported by the Company's proprietary catalyst and manufacturing process technologies, to work at the customer's design table throughout the value chain to deliver more reliable and durable, higher performing, and more sustainable plastics to customers in food and specialty packaging; industrial and consumer packaging; health and hygiene; caps, closures and pipe applications; consumer durables; mobility and transportation; and infrastructure. This segment includes the results of The Kuwait Styrene Company K.S.C.C. and The SCG-Dow Group, as well as a portion of the results of EQUATE, The Kuwait Olefins Company K.S.C.C. ("TKOC"), Map Ta Phut and Sadara, all joint ventures of the Company.

Industrial Intermediates & Infrastructure
Industrial Intermediates & Infrastructure consists of two customer-centric global businesses - Industrial Solutions and Polyurethanes & Construction Chemicals - that develop important intermediate chemicals that are essential to manufacturing processes, as well as downstream, customized materials and formulations that use advanced development technologies. These businesses primarily produce and market ethylene oxide and propylene oxide derivatives that are aligned to market segments as diverse as appliances, coatings, electronics, surfactants for cleaning and sanitization, infrastructure and oil and gas. The global scale and reach of these businesses, world-class technology and R&D capabilities and materials science expertise enable the Company to be a premier solutions provider offering customers value-add sustainable solutions to enhance comfort, energy efficiency, product effectiveness and durability across a wide range of home comfort and appliances, building and construction, adhesives and lubricant applications, among others. This segment includes a portion of the Company's share of the results of EQUATE, TKOC, Map Ta Phut and Sadara.

Performance Materials & Coatings
Performance Materials & Coatings includes industry-leading franchises that deliver a wide array of solutions into consumer and infrastructure end-markets. The segment consists of two global businesses: Coatings & Performance Monomers and Consumer Solutions. These businesses primarily utilize the Company's acrylics-, cellulosics- and silicone-based technology platforms to serve the needs of the architectural and industrial coatings; home care and personal care; consumer and electronics; mobility and transportation; industrial and chemical processing; and building and infrastructure end-markets. Both businesses employ materials science capabilities, global reach and unique products and technology to combine chemistry platforms to deliver differentiated offerings to customers.

Corporate
Corporate includes certain enterprise and governance activities (including insurance operations, environmental operations, etc.); non-business aligned joint ventures; non-business aligned litigation expenses; and discontinued or non-aligned businesses.

Sales are attributed to geographic region based on customer location; long-lived assets are attributed to geographic region based on asset location.

Geographic Region Information In millions	*United States*	*EMEAI*	*Rest of World*	*Total*
2020				
Sales to external customers	$ 12,547	$ 12,969	$ 13,026	$ 38,542
Long-lived assets	$ 13,833	$ 2,813	$ 3,593	$ 20,239
2019				
Sales to external customers	$ 14,437	$ 14,612	$ 13,902	$ 42,951
Long-lived assets	$ 14,571	$ 2,649	$ 3,776	$ 20,996
2018				
Sales to external customers	$ 16,613	$ 17,406	$ 15,585	$ 49,604
Long-lived assets	$ 14,750	$ 2,657	$ 4,011	$ 21,418

Segment Information In millions	*Pack. & Spec. Plastics*	*Ind. Interm. & Infrast.*	*Perf. Materials & Coatings*	*Corp.*	*Total*
2020					
Net sales	$ 18,301	$ 12,021	$ 7,951	$ 269	$ 38,542
Restructuring and asset related charges - net [1]	30	22	192	464	708
Equity in earnings (losses) of nonconsolidated affiliates	173	(166)	6	(31)	(18)
Operating EBIT [2]	2,325	355	314	(279)	2,715
Depreciation and amortization	1,372	605	870	27	2,874
Total assets	30,069	12,220	13,915	5,266	61,470
Investments in nonconsolidated affiliates	661	531	108	27	1,327
Capital expenditures	678	268	306	—	1,252
2019					
Net sales	$ 20,245	$ 13,440	$ 8,923	$ 343	$ 42,951
Pro forma net sales	20,245	13,449	8,961	343	42,998
Restructuring, goodwill impairment and asset related charges - net [1]	439	1,175	1,076	529	3,219
Equity in earnings (losses) of nonconsolidated affiliates	162	(241)	5	(20)	(94)
Pro forma Operating EBIT [3]	2,904	845	918	(315)	4,352
Depreciation and amortization	1,435	594	877	32	2,938
Total assets	29,522	11,753	14,059	5,190	60,524
Investments in nonconsolidated affiliates	675	568	101	60	1,404
Capital expenditures	1,039	452	470	—	1,961
2018					
Net sales	$ 24,195	$ 15,447	$ 9,677	$ 285	$ 49,604
Pro forma net sales	24,237	15,465	9,865	285	49,852
Restructuring, goodwill impairment and asset related charges - net [1]	46	11	21	143	221
Equity in earnings (losses) of nonconsolidated affiliates	287	284	4	(20)	555
Pro forma Operating EBIT [3]	3,593	1,767	1,246	(370)	6,236
Depreciation and amortization	1,385	607	888	29	2,909
Total assets [4]	30,279	14,092	16,050	3,378	63,799
Investments in nonconsolidated affiliates	1,278	1,850	99	93	3,320
Capital expenditures	1,231	433	427	—	2,091

1. See Note 6 for information regarding the Company's restructuring programs, goodwill impairment and other asset related charges.
2. Operating EBIT for TDCC in 2020 is substantially the same as that of Dow Inc. and therefore is not disclosed separately in the table above. A reconciliation of "Income from continuing operations, net of tax" to Operating EBIT is provided on the following page.
3. Pro forma Operating EBIT for TDCC in 2019 is substantially the same as that of Dow Inc. (same for 2018) and therefore is not disclosed separately in the table above. A reconciliation of "Income (loss) from continuing operations, net of tax" to pro forma Operating EBIT is provided on the following page.
4. Excludes assets of discontinued operations of $19,900 million.

Reconciliation of "Income from continuing operations, net of tax" to Operating EBIT In millions	*2020*
Income from continuing operations, net of tax	$ 1,294
+ Provision for income taxes on continuing operations	777
Income from continuing operations before income taxes	$ 2,071
- Interest income	38
+ Interest expense and amortization of debt discount	827
- Significant items	145
Operating EBIT	$ 2,715

Reconciliation of "Income (loss) from continuing operations, net of tax" to Pro Forma Operating EBIT In millions	*2019*	*2018*
Income (loss) from continuing operations, net of tax	$ (1,717)	$ 2,940
+ Provision for income taxes on continuing operations	470	809
Income (loss) from continuing operations before income taxes	$ (1,247)	$ 3,749
- Interest income	81	82
+ Interest expense and amortization of debt discount	933	1,063
+ Pro forma adjustments [1]	65	180
- Significant items	(4,682)	(1,326)
Pro forma Operating EBIT	$ 4,352	$ 6,236

1. Pro forma adjustments include: (1) the margin impact of various manufacturing, supply and service related agreements entered into with DuPont and Corteva in connection with the separation which provide for different pricing than the historical intercompany and intracompany pricing practices of TDCC and Historical DuPont (included for 2019 and 2018 only), (2) the removal of the amortization of ECP's inventory step-up recognized in connection with the Merger and (3) the elimination of the impact of events directly attributable to the Merger, internal reorganization and business realignment, separation, distribution and other related transactions (e.g., one-time transaction costs).

The following tables summarize the pretax impact of significant items by segment that are excluded from Operating EBIT and pro forma Operating EBIT:

Significant Items by Segment for 2020 In millions	*Pack. & Spec. Plastics*	*Ind. Interm. & Infrast.*	*Perf. Materials & Coatings*	*Corp.*	*Total*
Integration and separation costs [1]	$ —	$ —	$ —	$ (239)	$ (239)
Restructuring and asset related charges - net [2]	(30)	(22)	(192)	(464)	(708)
Warranty accrual adjustment of exited business [3]	—	—	—	11	11
Restructuring implementation costs [4]	—	—	—	(10)	(10)
Net gain on divestitures and asset sale [5]	52	61	—	604	717
Litigation related charges, awards and adjustments [6]	544	—	—	—	544
Loss on early extinguishment of debt [7]	—	—	—	(149)	(149)
Indemnification and other transaction related costs [8]	—	—	—	(21)	(21)
Total	$ 566	$ 39	$ (192)	$ (268)	$ 145

1. Costs related to business separation activities.
2. Includes Board approved restructuring plans and asset-related charges, which include other asset impairments. See Note 6 for additional information.
3. Includes an adjustment to the warranty accrual of an exited business.
4. Includes costs associated with implementing the Company's 2020 Restructuring Program.
5. Primarily related to a gain on the sale of rail infrastructure in the U.S. and Canada and a gain on the sale of marine and terminal operations and assets in the U.S. See Notes 5 and 7 for additional information.
6. Includes recognition of gains associated with a legal matter with Nova. See Note 16 for additional information.
7. The Company retired outstanding long-term debt resulting in a loss on early extinguishment. See Note 15 for additional information.
8. Primarily related to charges associated with agreements entered into with DuPont and Corteva as part of the separation and distribution which, among other matters, provides for cross-indemnities and allocations of obligations and liabilities for periods prior to, at and after the completion of the separation.

Significant Items by Segment for 2019 In millions	*Pack. & Spec. Plastics*	*Ind. Interm. & Infrast.*	*Perf. Materials & Coatings*	*Corp.*	*Total*
Integration and separation costs [1]	$ —	$ —	$ —	$ (1,013)	$ (1,013)
Restructuring, goodwill impairment and asset related charges - net [2]	(439)	(1,175)	(1,076)	(529)	(3,219)
Warranty accrual adjustment of exited business [3]	—	—	—	39	39
Environmental charges [4]	(5)	(8)	(50)	(336)	(399)
Loss on divestitures [5]	—	(5)	—	(44)	(49)
Loss on early extinguishment of debt [6]	—	—	—	(102)	(102)
Litigation related charges, awards and adjustments [7]	170	—	—	35	205
Indemnification and other transaction related costs [8]	—	—	—	(144)	(144)
Total	$ (274)	$ (1,188)	$ (1,126)	$ (2,094)	$ (4,682)

1. Costs related to post-Merger integration and business separation activities. Excludes one-time transaction costs directly attributable to the Merger.
2. Includes Board approved restructuring plans and asset related charges (see Note 6 for additional information); a charge related to Sadara (see Note 12 for additional information) and an impairment charge related to goodwill associated with the Coatings & Performance Monomers reporting unit (see Note 13 for additional information).
3. Includes an adjustment to the warranty accrual of an exited business.
4. Related to environmental remediation, primarily resulting from the culmination of long-standing negotiations with regulators and/or agencies and review of additional costs to manage ongoing remediation activities resulting from Dow's separation from DowDuPont and related agreements with Corteva and DuPont. See Note 16 for additional information.
5. Includes post-closing adjustments on previous divestitures.
6. The Company retired outstanding long-term debt resulting in a loss on early extinguishment. See Note 15 for additional information.
7. Includes a gain associated with a legal matter with Nova, as well as a gain related to an adjustment of the Implant Liability and a charge related to the settlement of the Commercial Creditor matters. See Note 16 for additional information.
8. Includes charges primarily associated with agreements entered into with DuPont and Corteva as part of the separation and distribution which, among other matters, provides for cross-indemnities and allocations of obligations and liabilities for periods prior to, at and after the completion of the separation.

Significant Items by Segment for 2018 In millions	*Pack. & Spec. Plastics*	*Ind. Interm. & Infrast.*	*Perf. Materials & Coatings*	*Corp.*	*Total*
Impact of Dow Silicones ownership restructure [1]	$ —	$ —	$ (20)	$ —	$ (20)
Integration and separation costs [2]	—	—	—	(1,074)	(1,074)
Restructuring and asset related charges - net [3]	(46)	(11)	(21)	(120)	(198)
Gain on divestiture [4]	—	20	—	—	20
Loss on early extinguishment of debt [5]	—	—	—	(54)	(54)
Total	$ (46)	$ 9	$ (41)	$ (1,248)	$ (1,326)

1. Includes a loss related to a post-closing adjustment related to the Dow Silicones ownership restructure.
2. Costs related to post-Merger integration and separation and distribution activities, and costs related to the Dow Silicones ownership restructure.
3. Includes Board approved restructuring plans and asset-related charges, which include other asset impairments. See Note 6 for additional information.
4. Includes a gain related to the Company's sale of its equity interest in MEGlobal.
5. The Company retired outstanding notes payable resulting in a loss on early extinguishment. See Note 15 for additional information.

NOTE 27 - SELECTED QUARTERLY FINANCIAL DATA

2020 In millions, except per share amounts (Unaudited)	*1st*	*2nd*	*3rd*	*4th*	*Year*
Dow Inc.					
Net sales	$ 9,770	$ 8,354	$ 9,712	$ 10,706	$ 38,542
Cost of sales	$ 8,230	$ 7,610	$ 8,371	$ 9,135	$ 33,346
Gross margin	$ 1,540	$ 744	$ 1,341	$ 1,571	$ 5,196
Restructuring and asset related charges (credits) - net [1]	$ 96	$ 6	$ 617	$ (11)	$ 708
Integration and separation costs [2]	$ 65	$ 46	$ 63	$ 65	$ 239
Net income (loss) [3]	$ 258	$ (217)	$ (1)	$ 1,254	$ 1,294
Net income (loss) attributable to Dow Inc.	$ 239	$ (225)	$ (25)	$ 1,236	$ 1,225
Earnings (loss) per common share from continuing operations - basic [4]	$ 0.32	$ (0.31)	$ (0.04)	$ 1.66	$ 1.64
Earnings (loss) per common share from continuing operations - diluted [4]	$ 0.32	$ (0.31)	$ (0.04)	$ 1.65	$ 1.64
Dividends declared per share of common stock	$ 0.70	$ 0.70	$ 0.70	$ 0.70	$ 2.80
Market price range of common stock:					
High	$ 53.75	$ 45.90	$ 51.07	$ 57.73	$ 57.73
Low	$ 22.00	$ 27.04	$ 39.44	$ 45.18	$ 22.00
TDCC					
Net sales	$ 9,770	$ 8,354	$ 9,712	$ 10,706	$ 38,542
Cost of sales	$ 8,230	$ 7,608	$ 8,371	$ 9,134	$ 33,343
Gross margin	$ 1,540	$ 746	$ 1,341	$ 1,572	$ 5,199
Restructuring and asset related charges (credits) - net [1]	$ 96	$ 6	$ 617	$ (11)	$ 708
Integration and separation costs [2]	$ 65	$ 46	$ 63	$ 65	$ 239
Net income (loss) [3]	$ 258	$ (217)	$ (1)	$ 1,264	$ 1,304
Net income (loss) attributable to The Dow Chemical Company	$ 239	$ (225)	$ (25)	$ 1,246	$ 1,235

1. See Note 6 for additional information.
2. See Note 3 for additional information.
3. See Notes 5, 7, 15 and 16 for information on additional items materially impacting "Net income (loss)." The fourth quarter of 2020 includes a gain related to the sale of marine and terminal operations and assets and a gain associated with a legal matter with Nova. The third quarter of 2020 includes a gain related to the sale of rail infrastructure operations and assets and a loss on the early extinguishment of debt. The first quarter of 2020 includes a loss on the early extinguishment of debt.
4. Earnings per common share amounts relate only to Dow Inc. as TDCC common shares are not publicly traded and are all owned by Dow Inc. Due to quarterly changes in the share count and the allocation of income to participating securities, the sum of the four quarters does not equal the earnings per share amount calculated for the year.

2019 In millions, except per share amounts (Unaudited)	*1st*	*2nd*	*3rd*	*4th*	*Year*
Dow Inc.					
Net sales	$ 10,969	$ 11,014	$ 10,764	$ 10,204	$ 42,951
Cost of sales	$ 9,142	$ 9,420	$ 9,377	$ 8,718	$ 36,657
Gross margin	$ 1,827	$ 1,594	$ 1,387	$ 1,486	$ 6,294
Restructuring, goodwill impairment and asset related charges - net [1]	$ 156	$ 65	$ 147	$ 2,851	$ 3,219
Integration and separation costs [2]	$ 452	$ 348	$ 164	$ 99	$ 1,063
Income (loss) from continuing operations, net of tax	$ 156	$ 90	$ 347	$ (2,310)	$ (1,717)
Income from discontinued operations net of tax	$ 445	$ —	$ —	$ —	$ 445
Net income (loss) [3]	$ 601	$ 90	$ 347	$ (2,310)	$ (1,272)
Net income (loss) attributable to Dow Inc.	$ 556	$ 75	$ 333	$ (2,323)	$ (1,359)
Earnings (loss) per common share from continuing operations - basic [4]	$ 0.16	$ 0.10	$ 0.45	$ (3.14)	$ (2.42)
Earnings (loss) per common share from continuing operations - diluted [4]	$ 0.16	$ 0.10	$ 0.45	$ (3.14)	$ (2.42)
Dividends declared per share of common stock [5]	N/A	$ 0.70	$ 0.70	$ 0.70	$ 2.10
Market price range of common stock:					
High [5]	N/A	$ 59.71	$ 52.79	$ 55.99	$ 59.71
Low [5]	N/A	$ 46.76	$ 40.71	$ 43.85	$ 40.71
TDCC					
Net sales	$ 10,969	$ 11,014	$ 10,764	$ 10,204	$ 42,951
Cost of sales	$ 9,142	$ 9,419	$ 9,377	$ 8,719	$ 36,657
Gross margin	$ 1,827	$ 1,595	$ 1,387	$ 1,485	$ 6,294
Restructuring, goodwill impairment and asset related charges - net [1]	$ 156	$ 65	$ 147	$ 2,851	$ 3,219
Integration and separation costs [2]	$ 452	$ 324	$ 164	$ 99	$ 1,039
Income (loss) from continuing operations, net of tax	$ 156	$ 217	$ 324	$ (2,292)	$ (1,595)
Income from discontinued operations net of tax	$ 445	$ —	$ —	$ —	$ 445
Net income (loss) [3]	$ 601	$ 217	$ 324	$ (2,292)	$ (1,150)
Net income (loss) attributable to The Dow Chemical Company	$ 556	$ 202	$ 310	$ (2,305)	$ (1,237)

1. See Note 6 for additional information.
2. See Note 3 for additional information.
3. See Notes 3, 8, 15 and 16 for information on additional items materially impacting "Net income (loss)." The fourth quarter of 2019 included a gain related to the effects of Swiss tax reform and a loss on the early extinguishment of debt. The third quarter of 2019 included a charge related to environmental remediation, a charge related to the settlement of the Commercial Creditor matters, a gain related to an adjustment to the Implant Liability and a gain associated with a legal matter with Nova. The second quarter of 2019 included charges associated with agreements entered into with DuPont and Corteva as part of the separation from DowDuPont.
4. Earnings per common share amounts relate only to Dow Inc. as TDCC common shares are not publicly traded and are all owned by Dow Inc. Due to quarterly changes in the share count and the allocation of income to participating securities, the sum of the four quarters does not equal the earnings per share amount calculated for the year.
5. Dow Inc.'s common stock was solely owned by DowDuPont through March 31, 2019, and on April 1, 2019, Dow Inc. became an independent, publicly traded company.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

Not applicable.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures
As of the end of the period covered by this Annual Report on Form 10-K, Dow Inc. and The Dow Chemical Company (the "Companies") carried out an evaluation, under the supervision and with the participation of the Companies' Disclosure Committee and the Companies' management, including the Chief Executive Officer and the Chief Financial Officer, of the effectiveness of the design and operation of the Companies' disclosure controls and procedures pursuant to paragraph (b) of Exchange Act Rules 13a-15 and 15d-15. Based upon that evaluation, the Chief Executive Officer and the Chief Financial Officer concluded that the Companies' disclosure controls and procedures were effective.

Changes in Internal Control Over Financial Reporting
There were no changes in the Companies' internal control over financial reporting identified in connection with the evaluation required by paragraph (d) of Exchange Act Rules 13a-15 and 15d-15 that was conducted during the last fiscal quarter that have materially affected, or are reasonably likely to materially affect, the Companies' internal control over financial reporting.

Management's Report on Internal Control Over Financial Reporting
Management is responsible for establishing and maintaining adequate internal control over financial reporting. The Companies' internal control framework and processes are designed to provide reasonable assurance to management and the Board of Directors regarding the reliability of financial reporting and the preparation of the Companies' consolidated financial statements in accordance with accounting principles generally accepted in the United States of America.

The Companies' internal control over financial reporting includes those policies and procedures that:

- pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Companies;
- provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the Companies are being made only in accordance with authorizations of management and Directors of the Companies; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the Companies' assets that could have a material effect on the consolidated financial statements.

Because of its inherent limitations, any system of internal control over financial reporting can provide only reasonable assurance and may not prevent or detect misstatements.

Management assessed the effectiveness of the Companies' internal control over financial reporting and concluded that, as of December 31, 2020, such internal control is effective. In making this assessment, management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") in *Internal Control—Integrated Framework (2013).*

The Companies' independent auditors, Deloitte & Touche LLP, with direct access to the Companies' Board of Directors through the Audit Committee of Dow Inc., have audited the consolidated financial statements prepared by the Companies. Their reports on the consolidated financial statements are included in Part II, Item 8. Financial Statements and Supplementary Data. Deloitte & Touche LLP's reports on the Companies' internal control over financial reporting are referenced therein and included herein.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors of Dow Inc.

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of Dow Inc. and subsidiaries (the "Company") as of December 31, 2020, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2020, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements as of and for the year ended December 31, 2020, of the Company and the financial statement schedule listed in the Index at Item 15(a)2 and our report dated February 5, 2021, expressed an unqualified opinion on those financial statements and financial statement schedule.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying *Management's Report on Internal Control over Financial Reporting*. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/S/ DELOITTE & TOUCHE LLP

Midland, Michigan
February 5, 2021

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholder and the Board of Directors of The Dow Chemical Company

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of The Dow Chemical Company and subsidiaries (the "Company") as of December 31, 2020, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2020, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements as of and for the year ended December 31, 2020, of the Company and the financial statement schedule listed in the Index at Item 15(a)2 and our report dated February 5, 2021, expressed an unqualified opinion on those financial statements and financial statement schedule.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying *Management's Report on Internal Control over Financial Reporting*. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/S/ DELOITTE & TOUCHE LLP

Midland, Michigan
February 5, 2021

ITEM 9B. OTHER INFORMATION

None.

Dow Inc. and Subsidiaries
The Dow Chemical Company and Subsidiaries

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

Information relating to Directors, certain executive officers and certain corporate governance matters (including identification of Audit Committee members and financial expert(s)) is contained in the definitive Proxy Statement for the 2021 Annual Meeting of Stockholders of Dow Inc. and is incorporated herein by reference. See also the information regarding executive officers of the registrant set forth in Part I, Item 1. Business under the caption "Executive Officers of the Registrant" in reliance on General Instruction G to Form 10-K.

This information is omitted for The Dow Chemical Company pursuant to General Instruction I of Form 10-K.

ITEM 11. EXECUTIVE COMPENSATION

Information relating to executive compensation and the Company's equity compensation plans is contained in the definitive Proxy Statement for the 2021 Annual Meeting of Stockholders of Dow Inc. and is incorporated herein by reference.

This information is omitted for The Dow Chemical Company pursuant to General Instruction I of Form 10-K.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

Information with respect to beneficial ownership of Dow Inc. common stock by each Director and all Directors and executive officers of the Company as a group is contained in the definitive Proxy Statement for the 2021 Annual Meeting of Stockholders of Dow Inc. and is incorporated herein by reference.

Information relating to any person who beneficially owns in excess of 5 percent of the total outstanding shares of Dow Inc. common stock is contained in the definitive Proxy Statement for the 2021 Annual Meeting of the Stockholders of Dow Inc. and is incorporated herein by reference.

Information with respect to compensation plans under which equity securities are authorized for issuance is contained in the definitive Proxy Statement for the 2021 Annual Meeting of Stockholders of Dow Inc. and is incorporated herein by reference.

This information is omitted for The Dow Chemical Company pursuant to General Instruction I of Form 10-K.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

Reportable relationships and related transactions, if any, as well as information relating to director independence are contained in the definitive Proxy Statement for the 2021 Annual Meeting of Stockholders of Dow Inc. and are incorporated herein by reference.

This information is omitted for The Dow Chemical Company pursuant to General Instruction I of Form 10-K.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

Independent Registered Public Accountants

Information with respect to fees and services related to the Company's independent auditors, Deloitte & Touche LLP ("Deloitte"), and the disclosure of the Audit Committee's pre-approval policies and procedures are contained in the definitive Proxy Statement for the 2021 Annual Meeting of Stockholders of Dow Inc. and are incorporated herein by reference.

The Audit Committee of Dow Inc. carefully considers the qualifications and competence of candidates for the independent registered public accounting firm. In accordance with its pre-approval policies and procedures, the Audit Committee pre-approved all professional services rendered by and associated fees paid to Deloitte, for the Companies, for the years ended December 31, 2020 and 2019. Professional services were performed by Deloitte, its member firms of Deloitte Touche Tohmatsu Limited, and their respective affiliates (“Deloitte Entities”). Total fees paid to the Deloitte Entities are shown by category in the following table:

Type of Fees In thousands	*2020*	*2019*
Audit Fees [1]	$ 21,237	$ 25,142
Audit-Related Fees [2]	2,807	4,438
Tax Fees [3]	2,053	2,780
Total	$ 26,097	$ 32,360

1. The aggregate fees billed for the integrated audit of the Company's annual financial statements and internal control over financial reporting, the reviews of the financial statements in quarterly reports on Form 10-Q, comfort letters, consents, statutory audits, and other regulatory filings. For 2020 and 2019, the fees include $135,000 and $850,000 respectively, which were associated with supporting the DuPont de Nemours, Inc. filings with the U.S. Securities and Exchange Commission ("SEC") for the period prior to the separation from DowDuPont Inc.
2. The aggregate fees billed primarily for audits of carve-out financial statements, assessment of controls relating to outsourced services, audits and reviews supporting divestiture activities, and agreed-upon procedures engagements.
3. The aggregate fees billed primarily for corporate tax consulting services, the preparation of expatriate employees' tax returns and tax compliance services.

Dow Inc. and Subsidiaries
The Dow Chemical Company and Subsidiaries

PART IV

ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES

(a) The following documents are filed as part of this report:

(1) The Company's 2020 Consolidated Financial Statements and the Report of Independent Registered Public Accounting Firm are included in Part II, Item 8. Financial Statements and Supplementary Data.

(2) Financial Statement Schedules – The following Financial Statement Schedule should be read in conjunction with the Consolidated Financial Statements and Report of Independent Registered Public Accounting Firm included in Part II, Item 8. Financial Statements and Supplementary Data:

Schedule II Valuation and Qualifying Accounts

Schedules other than the one listed above are omitted due to the absence of conditions under which they are required or because the information called for is included in the Consolidated Financial Statements or the Notes to the Consolidated Financial Statements.

(3) The following exhibits are filed with or incorporated by reference into this Annual Report on Form 10-K:

Exhibit No.	*Description of Exhibit*
2.1	Separation and Distribution Agreement, effective as of April 1, 2019, by and among Dow Inc., DuPont de Nemours, Inc. (formerly known as DowDuPont Inc.), and Corteva, Inc. (incorporated by reference to Exhibit 2.1 to Dow Inc.'s Current Report on Form 8-K filed with the SEC on April 2, 2019).
2.2	Shareholders' Agreement, dated as of October 8, 2011, between Dow Saudi Arabia Holding B.V. and Performance Chemicals Holding Company (incorporated by reference to Exhibit 99.1 to The Dow Chemical Company's Current Report on Form 8-K/A filed with the SEC on June 27, 2012).
2.2.1	First Amendment, effective June 1, 2012, to the Shareholders' Agreement, dated as of October 8, 2011, between Performance Chemicals Holding Company, Dow Saudi Arabia Holding B.V., Saudi Arabian Oil Company, Dow Europe Holding B.V. and The Dow Chemical Company (incorporated by reference to Exhibit 99.1 to The Dow Chemical Company's Current Report on Form 8-K filed with the SEC on February 14, 2013).
2.3	Transaction Agreement, dated as of December 10, 2015, among The Dow Chemical Company, Corning Incorporated, Dow Corning Corporation and HS Upstate Inc. (incorporated by reference to Exhibit 2.1 to The Dow Chemical Company's Current Report on Form 8-K filed with the SEC on December 11, 2015).
2.3.1	Tax Matters Agreement, dated as of December 10, 2015, among The Dow Chemical Company, Corning Incorporated, Dow Corning Corporation and HS Upstate Inc. (incorporated by reference to Exhibit 2.2 to The Dow Chemical Company's Current Report on Form 8-K filed with the SEC on December 11, 2015).
3.1	Amended and Restated Certificate of Incorporation of Dow Inc. (incorporated by reference to Exhibit 3.1 to Dow Inc.'s Current Report on Form 8-K filed with the SEC on April 2, 2019).
3.2	Amended and Restated Bylaws of Dow Inc. (incorporated by reference to Exhibit 3.2 to Dow Inc.'s Current Report on Form 8-K filed with the SEC on April 2, 2019).
3.3	Amended and Restated Certificate of Incorporation of The Dow Chemical Company (incorporated by reference to Exhibit 3.1 to The Dow Chemical Company's Current Report on Form 8-K filed with the SEC on September 1, 2017).

3.4 Amended and Restated Bylaws of The Dow Chemical Company (incorporated by reference to Exhibit 3.2 to The Dow Chemical Company's Current Report on Form 8-K filed with the SEC on September 1, 2017).

4.1 Indenture, dated as of April 1, 1992 (the "1992 Indenture"), between The Dow Chemical Company and the First National Bank of Chicago, as trustee (incorporated by reference to Exhibit 4.1 to The Dow Chemical Company's Registration Statement on Form S-3, File No. 333-88617, filed with the SEC on October 8, 1999 (the "S-3 Registration Statement")).

4.1.1 Supplemental Indenture, dated as of January 1, 1994, between The Dow Chemical Company and The First National Bank of Chicago, as trustee, to the 1992 Indenture (incorporated by reference to Exhibit 4.2 to the S-3 Registration Statement).

4.1.2 Second Supplemental Indenture, dated as of October 1, 1999, between The Dow Chemical Company and Bank One Trust Company, N.A. (formerly The First National Bank of Chicago), as trustee, to the 1992 Indenture (incorporated by reference to Exhibit 4.3 to the S-3 Registration Statement).

4.1.3 Third Supplemental Indenture, dated as of May 15, 2001, between The Dow Chemical Company and Bank One Trust Company, N.A. (formerly The First National Bank of Chicago), as trustee, to the 1992 Indenture (incorporated by reference to Exhibit 4.4 to The Dow Chemical Company's Registration Statement on Form S-4, File No. 333-67368 filed with the SEC on August 13, 2001).

4.2 Indenture, dated May 1, 2008 (the "2008 Indenture"), between The Dow Chemical Company and The Bank of New York Trust Company, N.A., as trustee, (incorporated by reference to Exhibit 4.1 to Post-Effective Amendment No. 1 to The Dow Chemical Company's Registration Statement on Form S-3, File No. 333-140859, filed with the SEC on May 6, 2008).

4.2.1 First Supplemental Indenture, dated November 30, 2018, between The Dow Chemical Company, Dow Inc. (formerly known as Dow Holdings Inc.), and The Bank of New York Mellon Trust Company, N.A., as trustee, to the 2008 Indenture (incorporated by reference to Exhibit 4.1 to The Dow Chemical Company's Current Report on Form 8-K filed with the SEC on December 3, 2018).

4.2.2 Second Supplemental Indenture, dated May 20, 2019, between The Dow Chemical Company, Dow Inc. and The Bank of New York Mellon Trust Company, N.A., as trustee, to the 2008 Indenture (incorporated by reference to Exhibit 4.1 to The Dow Chemical Company's Current Report on Form 8-K filed with the SEC on May 20, 2019).

4.3 Indenture, dated July 26, 2019 (the "2019 Indenture"), between The Dow Chemical Company and The Bank of New York Trust Company, N.A., as trustee (incorporated by reference to Exhibit 4.3 to Dow Inc. and The Dow Chemical Company's Annual Report on Form 10-K filed with the SEC on February 7, 2020).

4.4 Dow Inc. agrees to provide the SEC, on request, copies of all other such indentures and instruments that define the rights of holders of long-term debt of Dow Inc. and its consolidated subsidiaries, including The Dow Chemical Company, pursuant to Item 601(b)(4)(iii)(A) of Regulation S-K.

4.5* Description of Securities registered under Section 12 of the Securities Exchange Act of 1934.

10.1 Tax Matters Agreement, effective as of April 1, 2019, by and among Dow Inc., DuPont de Nemours, Inc. (formerly known as DowDuPont Inc.), and Corteva Inc. (incorporated by reference to Exhibit 10.1 to Dow Inc.'s Current Report on Form 8-K filed with the SEC on April 2, 2019).

10.2	Employee Matters Agreement, effective as of April 1, 2019, by and among Dow Inc., DuPont de Nemours, Inc. (formerly known as DowDuPont Inc.), and Corteva, Inc. (incorporated by reference to Exhibit 10.2 to Dow Inc.'s Current Report on Form 8-K filed with the SEC on April 2, 2019).
10.3	Intellectual Property Cross-License Agreement, effective as of April 1, 2019, by and among Dow Inc. and DuPont de Nemours, Inc. (formerly known as DowDuPont Inc.) (incorporated by reference to Exhibit 10.3 to Dow Inc.'s Current Report on Form 8-K filed with the SEC on April 2, 2019).
10.4	Intellectual Property Cross-License Agreement, dated as of April 1, 2019, by and among Dow Inc. and Corteva, Inc. (incorporated by reference to Exhibit 10.4 to Dow Inc.'s Current Report on Form 8-K filed with the SEC on April 2, 2019).
10.5	Dow Inc. 2019 Stock Incentive Plan effective as of April 1, 2019 (incorporated by reference to Exhibit 4.4 to Dow Inc.'s Registration Statement on Form S-3 filed with the SEC on April 1, 2019).
10.5.1	Form of Performance Stock Unit Award Agreement under the Dow Inc. 2019 Stock Incentive Plan effective as of April 1, 2019 (incorporated by reference to Exhibit 4.4.1 to Dow Inc.'s Registration Statement on Form S-3 filed with the SEC on April 1, 2019).
10.5.2	Form of Restricted Stock Award Agreement under the Dow Inc. 2019 Stock Incentive Plan effective as of April 1, 2019 (incorporated by reference to Exhibit 4.4.2 to Dow Inc.'s Registration Statement on Form S-3 filed with the SEC on April 1, 2019).
10.5.3	Form of Restricted Stock Unit Award Agreement under the Dow Inc. 2019 Stock Incentive Plan effective as of April 1, 2019 (incorporated by reference to Exhibit 4.4.3 to Dow Inc.'s Registration Statement on Form S-3 filed with the SEC on April 1, 2019).
10.5.4	Form of Stock Appreciation Right Award Agreement under the Dow Inc. 2019 Stock Incentive Plan effective as of April 1, 2019 (incorporated by reference to Exhibit 4.4.4 to Dow Inc.'s Registration Statement on Form S-3 filed with the SEC on April 1, 2019).
10.5.5	Form of Stock Option Award Agreement under the Dow Inc. 2019 Stock Incentive Plan effective as of April 1, 2019 (incorporated by reference to Exhibit 4.4.5 to Dow Inc.'s Registration Statement on Form S-3 filed with the SEC on April 1, 2019).
10.5.6	Form of Restricted Stock Unit Award Agreement (Director) under the Dow Inc. 2019 Stock Incentive Plan effective as of April 1, 2019 (incorporated by reference to Exhibit 4.4.6 to Dow Inc.'s Registration Statement on Form S-3 filed with the SEC on April 1, 2019).
10.6	The Dow Chemical Company Executives' Supplemental Retirement Plan - Restricted and Cadre Benefits, as restated and effective September 1, 2017 (incorporated by reference to Exhibit 10(a)(iv) to The Dow Chemical Company's Current Report on Form 8-K filed with the SEC on November 3, 2017).
10.6.1	An Amendment to The Dow Chemical Company Executives' Supplemental Retirement Plan - Restricted and Cadre Benefits, effective January 1, 2018 (incorporated by reference to Exhibit 10.1.2 to The Dow Chemical Company's Annual Report on Form 10-K for the year ended December 31, 2018).
10.7	The Dow Chemical Company Executives' Supplemental Retirement Plan - Supplemental Benefits, as restated and effective September 1, 2017 (incorporated by reference to Exhibit 10(a)(v) to The Dow Chemical Company's Current Report on Form 8-K filed with the SEC on November 3, 2017).
10.8	The Dow Chemical Company Elective Deferral Plan (Pre-2005), restated and effective as of April 1, 2019 (incorporated by reference to Exhibit 10.8 to Dow Inc. and The Dow Chemical Company's Quarterly Report on Form 10-Q filed with the SEC on May 3, 2019).

10.9 The Dow Chemical Company Elective Deferral Plan (Post 2004), restated and effective as of April 1, 2019 (incorporated by reference to Exhibit 4.1 to The Dow Chemical Company's Registration Statement on Form S-8 POS filed with the SEC on April 1, 2019).

10.10 Dow Inc. Voluntary Deferred Compensation Plan for Non-Employee Directors, restated and effective as of April 1, 2019 (incorporated by reference to Exhibit 10.10 to Dow Inc. and The Dow Chemical Company's Quarterly Report on Form 10-Q filed with the SEC on May 3, 2019).

21* Subsidiaries of Dow Inc.

23.1.1* Consent of Independent Registered Public Accounting Firm for Dow Inc.

23.1.2* Consent of Independent Registered Public Accounting Firm for The Dow Chemical Company.

23.2* Ankura Consulting Group, LLC's Consent.

31.1* Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.

31.2* Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.

32.1* Certification Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.

32.2* Certification Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.

99.1 Guarantee relating to the 9.80% Debentures of Rohm and Haas Company (incorporated by reference to Exhibit 99.6 to The Dow Chemical Company's Current Report on Form 8-K filed with the SEC on April 1, 2009).

101.INS The instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.

101.SCH Inline XBRL Taxonomy Extension Schema Document.

101.CAL Inline XBRL Taxonomy Extension Calculation Linkbase Document.

101.DEF Inline XBRL Taxonomy Extension Definition Linkbase Document.

101.LAB Inline XBRL Taxonomy Extension Label Linkbase Document.

101.PRE Inline XBRL Taxonomy Extension Presentation Linkbase Document.

104 Cover Page Interactive Data File. The cover page interactive data file does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.

*Filed herewith

A copy of any exhibit can be obtained via the Internet through the Investor Relations section of the Company's website (*www.dow.com/investors*), or the Company will provide a copy of any exhibit upon receipt of a written request for the particular exhibit or exhibits desired. All requests should be addressed to the Controller and Vice President of Controllers and Tax of the Company at the address of the Company’s principal executive offices. The referenced website and its content are not deemed incorporated by reference into this report.

ITEM 16. FORM 10-K SUMMARY

Not applicable.

Dow Inc. and Subsidiaries
The Dow Chemical Company and Subsidiaries

Valuation and Qualifying Accounts

Schedule II

(In millions) For the years ended Dec 31,	2020	2019	2018
Accounts Receivable - Allowance for Doubtful Receivables			
Balance at beginning of year	$ 45	$ 42	$ 59
Additions charged to expenses [1]	22	24	10
Additions charged to other accounts [2]	—	—	4
Deductions from reserves [3]	(16)	(21)	(31)
Balance at end of year	$ 51	$ 45	$ 42
Inventory - Obsolescence Reserve			
Balance at beginning of year	$ 35	$ 23	$ 18
Additions charged to expenses	2	19	7
Deductions from reserves [4]	(14)	(7)	(2)
Balance at end of year	$ 23	$ 35	$ 23
Reserves for Other Investments and Noncurrent Receivables			
Balance at beginning of year	$ 2,215	$ 460	$ 430
Additions charged to expenses [1]	7	1,758	44
Deductions from reserves [5]	(129)	(3)	(14)
Balance at end of year	$ 2,093	$ 2,215	$ 460
Deferred Tax Assets - Valuation Allowance			
Balance at beginning of year	$ 1,262	$ 1,225	$ 1,255
Additions charged to expenses	313	140	152
Deductions from reserves	(273)	(103)	(182)
Balance at end of year	$ 1,302	$ 1,262	$ 1,225

1. In 2019, additions charged to expenses for "Accounts Receivable - Allowance for Doubtful Receivables" included $2 million and additions charged to expenses for "Reserves for Other Investments and Noncurrent Receivables" included $1,753 million related to the Company's investment in Sadara Chemical Company ("Sadara"). See Note 12 to the Consolidated Financial Statements for additional information.
2. Additions to allowance for doubtful receivables charged to other accounts were classified as "Accounts and notes receivable - Other" in the consolidated balance sheets. These reserves relate to the Company's sale of trade accounts receivable. Anticipated credit losses in the portfolio of receivables sold were used to fair value the Company's interests held in trade accounts receivable conduits. See Notes 14 and 23 to the Consolidated Financial Statements for additional information.
3. Deductions included write-offs, recoveries, currency translation adjustments and other miscellaneous items.
4. Deductions included disposals and currency translation adjustments.
5. In 2020, deductions from reserves for "Reserves for Other Investments and Noncurrent Receivables" included $77 million related to the Company's investment in Sadara. See Note 12 to the Consolidated Financial Statements for additional information.

Dow Inc. and Subsidiaries
The Dow Chemical Company and Subsidiaries

Signatures

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this Annual Report on Form 10-K to be signed on its behalf by the undersigned, thereunto duly authorized, on February 5, 2021.

DOW INC.
THE DOW CHEMICAL COMPANY

/s/ RONALD C. EDMONDS
Ronald C. Edmonds, Controller and Vice President of Controllers and Tax
(Authorized Signatory and Principal Accounting Officer)

Pursuant to the requirements of the Securities Exchange Act of 1934, this Annual Report on Form 10-K has been signed below on February 5, 2021 by the following persons on behalf of the registrant and in the capacities indicated.

/s/ SAMUEL R. ALLEN
Samuel R. Allen, Director, Dow Inc.

/s/ AJAY BANGA
Ajay Banga, Director, Dow Inc.

/s/ GAURDIE BANISTER JR.
Gaurdie Banister Jr., Director, Dow Inc.

/s/ JACQUELINE K. BARTON
Jacqueline K. Barton, Director, Dow Inc.

/s/ JAMES A. BELL
James A. Bell, Director, Dow Inc.

/s/ WESLEY G. BUSH
Wesley G. Bush, Director, Dow Inc.

/s/ RICHARD K. DAVIS
Richard K. Davis, Director, Dow Inc.

/s/ RONALD C. EDMONDS
Ronald C. Edmonds, Controller and Vice President of Controllers and Tax, Dow Inc.
and TDCC (Authorized Signatory and Principal Accounting Officer)

/s/ JEFF M. FETTIG
Jeff M. Fettig, Lead Director, Dow Inc.

/s/ JIM FITTERLING
Jim Fitterling, Director, Chairman and Chief Executive Officer, Dow Inc. and TDCC (Principal Executive Officer)

/s/ JACQUELINE C. HINMAN
Jacqueline C. Hinman, Director, Dow Inc.

/s/ HOWARD UNGERLEIDER
Howard Ungerleider, President and Chief Financial Officer, Dow Inc. and TDCC;
Director, TDCC (Principal Financial Officer)

/s/ JILL S. WYANT
Jill S. Wyant, Director, Dow Inc.

/s/ DANIEL W. YOHANNES
Daniel W. Yohannes, Director, Dow Inc.

Dow Inc. and Subsidiaries
The Dow Chemical Company and Subsidiaries

Trademark Listing

The following trademarks or service marks of The Dow Chemical Company and certain affiliated companies of Dow appear in this report: ACOUSTICRYL, ACRYSOL, AFFINITY, AMPLIFY, AQUASET, AVANSE, CARBOWAX, DOW, DOWANOL, DOWSIL, DOWTHERM, ECOFAST, ELITE, ENGAGE, EVOQUE, FORMASHIELD, IMAGIN3D, MAINCOTE, MOBILITYSCIENCE, NEOSEED, NORDEL, PRIMAL, RHOBARR, RHOPLEX, SENTRY, SILASTIC, SUNSPHERES, SYL-OFF, TAMOL, TERGITOL, TRITON, UCAR, UCON, VERSENE, WALOCEL

The following registered trademark of Disability:IN appears in this report: Disability Equality Index®

The following registered trademark of Incapital Holdings appears in this report: InterNotes®

The following registered service mark of American Chemistry Council in the United States appears in this report: Responsible Care®

The following registered trademark of Great Place to Work® Institute, Inc. appears in this report: Great Place to Work®

The following registered trademark of The National Safety Council appears in this report: Green Cross for Safety®

® ™ Trademark of The Dow Chemical Company ("TDCC") or an affiliated company, except as otherwise specified.

DESCRIPTION OF REGISTRANTS' SECURITIES REGISTERED PURSUANT TO SECTION 12 OF THE SECURITIES EXCHANGE ACT OF 1934

The following descriptions set forth certain material terms and provisions of the securities of Dow Inc. and The Dow Chemical Company that are registered under Section 12 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). As of the date of the Annual Report on Form 10-K of which this exhibit is a part, the registrants have five classes of securities registered under Section 12 of the Exchange Act: (1) Dow Inc.'s common stock, $0.01 par value per share, (2) The Dow Chemical Company's 0.500% Notes due March 15, 2027, (3) The Dow Chemical Company's 1.125% Notes due March 15, 2032, (4) The Dow Chemical Company's 1.875% Notes due March 15, 2040 and (5) The Dow Chemical Company's 4.625% Notes due October 1, 2044.

DESCRIPTION OF COMMON STOCK OF DOW INC.

The following summary of Dow Inc.'s common stock does not purport to be complete and is subject to, and qualified in its entirety by reference to, the relevant provisions of Delaware law, and by Dow Inc.'s amended and restated certificate of incorporation and amended and restated bylaws, which are incorporated by reference as exhibits to the Annual Report on Form 10-K, of which exhibit is a part.

Dow Inc. is authorized to issue 5,250,000,000 shares of all classes of stock, 5,000,000,000 of which are shares of common stock, par value $0.01 per share, and 250,000,000 of which are shares of preferred stock, par value $0.01 per share. Dow Inc. had 756,717,863 shares of common stock, $0.01 par value, issued at January 31, 2021. Dow Inc. had 743,914,560 shares of common stock, $0.01 par value, outstanding at January 31, 2021. All issued and outstanding shares of common stock are fully paid and non-assessable. Any additional shares of common stock that Dow Inc. issues will be fully paid and non-assessable. Dow Inc.'s common stockholders do not have, or will not have, any preemptive rights.

Voting Rights

Dow Inc.'s amended and restated certificate of incorporation provides that, subject to all of the rights of holders of preferred stock provided for by the board of directors or by Delaware corporate law, the holders of common stock will have full voting rights on all matters requiring stockholder action, with each share of common stock being entitled to one vote and having equal rights of participation in the dividends and distributions of Dow Inc., including upon the dissolution of Dow Inc.

Board of Directors

Dow Inc.'s amended and restated bylaws provide that all of Dow Inc.'s directors are elected each year at Dow Inc.'s annual meeting for a term of one year and until his or her successor is duly elected and qualified. A quorum of directors consists of a majority of Dow Inc.'s entire board of directors then holding office.

Number, Filling of Vacancies and Removal of Directors

Dow Inc.'s amended and restated certificate of incorporation and amended and restated bylaws provide that its board of directors may not have less than six or more than twenty-one members. The actual number of directors is determined by a vote of a majority of Dow Inc.'s entire board of directors. Currently, Dow Inc. has twelve members on its board of directors. Vacancies on Dow Inc.'s board of directors and any newly created directorships are filled exclusively by a vote of the majority of the remaining directors then in office, even if less than a quorum or by the

sole remaining director, and shall not be filled by the stockholders. Directors elected to fill a vacancy or a new position hold office until the next annual meeting of stockholders or until their successors are duly elected and qualified. Subject to the rights of holders of preferred stock, directors can be removed from office at any time, with or without cause, only by the affirmative vote of a majority of the voting power of all the outstanding shares of Dow Inc.'s capital stock then entitled to vote in the election of directors.

Dividends

Delaware corporate law generally provides that a corporation, subject to restrictions in its certificate of incorporation, including preferred stockholders' rights to receive dividends prior to common stockholders, may declare and pay dividends out of:

- surplus; or
- net profits for the fiscal year in which the dividend is declared and/or the preceding fiscal year, if there is no surplus.

Dividends may not be declared or paid out of net profits if the capital of the corporation is less than the aggregate amount of capital represented by the issued and outstanding stock of all classes having a preference on the distribution of assets. Dividends on Dow Inc. common stock are not cumulative. Dow Inc.'s amended and restated certificate of incorporation does not contain any additional restrictions on the declaration or payment of dividends.

Selected Provisions in Dow Inc.'s Amended and Restated Certificate of Incorporation and Amended and Restated Bylaws

Dow Inc.'s amended and restated certificate of incorporation and amended and restated bylaws contain a number of provisions that could have the effect of prohibiting or delaying a third party's ability to take control of Dow Inc.

Advance Notice Provisions for Director Nominations and Stockholder Proposals at an Annual or Special Stockholders' Meeting

Dow Inc.'s amended and restated bylaws provide that a stockholder may make a nomination of persons for election to the board of directors at an annual stockholders' meeting only if the stockholder is a stockholder of record entitled to vote at such annual meeting and complies with the notice procedures and disclosure requirements as set forth below and may propose other business at an annual stockholders' meeting only if such stockholder gives timely written notice thereof to Dow Inc.'s Secretary and any such business is a proper subject for stockholder action. The notice must be delivered to, or mailed and received by, Dow Inc.'s Secretary at Dow Inc.'s principal executive offices:

- not later than the close of business on the 90th day or earlier than the close of business on the 120th day prior to the anniversary date on which Dow Inc. first distributed its proxy materials for the prior year's annual meeting; or
- if the annual meeting is more than 30 days before or after the anniversary date of the prior year's annual meeting, not earlier than the close of business on the 120th day prior to such annual meeting and not later than the close of business on the later of the 90th day prior to such annual meeting or the 10th day after the date on which public disclosure, as defined in Dow Inc.'s amended and restated bylaws, of the date of the annual meeting is first made by Dow Inc.

The notice must include the following information as to each person whom the stockholder proposes to nominate for election or re-election as a director:

- all information relating to such person that is required to be disclosed in solicitations of proxies for election of directors in an election contest, or is otherwise required, in each case pursuant to and in accordance with Regulation 14A under the Exchange Act;

- such person's written consent to being named in the proxy statement as a nominee and to serving as a director if elected and a representation by the nominee to the effect that, if elected, the nominee will agree to and abide by all policies of the board of directors as may be in place at any time and from time to time; and

- any information required to be disclosed in the third following paragraph below if such person were a stockholder purporting to make a nomination or propose business.

In addition, the notice must include the following information as to any other business that the stockholder proposes to bring before the meeting:

- a brief description of the business desired to be brought before the meeting;

- the text of the proposal or business (including the text of any resolutions proposed for consideration and, in the event that such business includes a proposal to amend Dow Inc.'s amended and restated bylaws, the language of the proposed amendment);

- the reasons for conducting such business at the meeting;

- any substantial interest (within the meaning of Item 5 of Schedule 14A under the Exchange Act) in such business of such stockholder and the beneficial owner (within the meaning of Section 13(d) of the Exchange Act), if any, on whose behalf the business is being proposed;

- any other information relating to such stockholder and beneficial owner, if any, required to be disclosed in a proxy statement or other filings required to be made in connection with solicitations of proxies for the proposal and pursuant to and in accordance with Section 14(/a) of the Exchange Act and the rules and regulations promulgated thereunder; and

- a description of all agreements, arrangements, or understandings between or among such stockholder, or any affiliates or associates of such stockholder, and any other person or persons (including their names) in connection with the proposal of such business and any material interest of such stockholder or any affiliates or associates of such stockholder, in such business, including any anticipated benefit therefrom to such stockholder, or any affiliates or associates of such stockholder.

The notice must include information specified in Dow Inc.'s amended and restated bylaws as to the stockholder giving the notice and the beneficial owner, if any, on whose behalf the nomination is made or the other business is proposed, including:

- the name and address of such stockholder, as they appear on Dow Inc.'s books, and the name and address of such beneficial owner;

- the class and number of shares of Dow Inc.'s capital stock which are owned (beneficially or of record) by such stockholder and such beneficial owner as of the date of the notice and a representation that such

stockholder will promptly notify Dow Inc. in writing of the same as of the record date for the meeting promptly following the later of the record date or the date notice of the record date is first publicly disclosed;

- a written representation that the stockholder is the holder of record of Dow Inc.'s shares entitled to vote at the meeting and intends to appear in person or by proxy at the meeting to propose such nomination or other business;

- a description of any agreement, arrangement or understanding (including any derivative or short positions, profit interests, options, hedging transactions, and borrowed or loaned shares) that has been entered into as of the date of the stockholder's notice by, or on behalf of, such stockholder or beneficial owner, the effect or intent of which is to mitigate loss, manage risk or benefit from changes in the share price of any class of Dow Inc.'s capital stock, or maintain, increase or decrease the voting power of the stockholder or beneficial owner with respect to shares of Dow Inc. stock and a representation that such stockholder will promptly notify Dow Inc. in writing of the same as of the record date for the meeting promptly following the later of the record date or the date notice of the record date is first publicly disclosed;

- a representation that the stockholder is a holder of record of Dow Inc.'s shares entitled to vote at the meeting and intends to appear in person or by proxy at the meeting to nominate the person or persons specified in the notice and that such stockholder will promptly notify Dow Inc. in writing of the same as of the record date for the meeting promptly following the later of the record date or the date notice of the record date is first publicly disclosed; and

- a representation whether such stockholder intends to deliver a proxy statement and/or form of proxy to holders of at least the percentage of Dow Inc.'s outstanding capital stock required to approve the election of the nominee and/or otherwise to solicit proxies from stockholders in support of such election.

The notice must also include information specified in Dow Inc.'s amended and restated bylaws as to the stockholder giving the notice or, if the notice is given on behalf of a beneficial owner on whose behalf the nomination is made or the other business is proposed, as to such beneficial owner, including:

- the class and number of shares of Dow Inc.'s capital stock which are beneficially owned (as defined in Dow Inc.'s amended and restated bylaws) as of the date of the notice, by the stockholder or the beneficial owner on whose behalf the notice is given and a representation that the stockholder shall notify Dow Inc. in writing within five business days after the record date for such meeting of the class and number of shares of Dow Inc.'s capital stock beneficially owned by such stockholder or beneficial owner as of the record date for the meeting;

- a description of any agreement, arrangement or understanding with respect to the nomination or other business between or among such stockholder or beneficial owner and any other person, including without limitation any agreements that would be required to be disclosed pursuant to Item 5 or Item 6 of Exchange Act Schedule 13D (regardless of whether the requirement to file a Schedule 13D is applicable to the stockholder or beneficial owner) and a representation that the stockholder shall notify Dow Inc. in writing within five business days after the record date for such meeting of any such agreement, arrangement or understanding in effect as of the record date for the meeting; and

- a description of any agreement, arrangement or understanding (including any derivative or short positions, profit interests, options, hedging transactions, and borrowed or loaned shares) that has been entered into as of the date of the stockholder's notice by, or on behalf of, such stockholder or beneficial owner, the effect or intent of which is to mitigate loss, manage risk or benefit from changes in the share price of any class of

Dow Inc.'s capital stock, or maintain, increase or decrease the voting power of the stockholder or beneficial owner with respect to shares of Dow Inc. stock and a representation that the stockholder shall notify Dow Inc. in writing within five business days after the record date for such meeting of any such agreement, arrangement or understanding in effect as of the record date for the meeting;

Special Meetings of Stockholders

Dow Inc.'s amended and restated certificate of incorporation provides that, subject to the rights of the holders of preferred stock, a special stockholders' meeting for any purpose may be called by the board of directors by a resolution adopted by a majority of the entire board. A special stockholders' meeting will be called by the Chairman upon a written request from stockholders holding at least twenty-five percent of the voting power entitled to vote on the matters to be brought before the special meeting and which request complies with the procedures for calling a special meeting of stockholders as set forth in Dow Inc.'s amended and restated bylaws.

Dow Inc.'s amended and restated bylaws provide that a stockholder notice requesting a special meeting must:

- be delivered to, or mailed to and received by Dow Inc.'s Secretary at Dow Inc.'s principal executive offices;
- be signed by each stockholder requesting the special meeting, or a duly authorized agent thereof;
- set forth the purpose of the special meeting; and
- include the same information required to be included in a stockholder's notice for proposals to be brought before an annual meeting of stockholders (see "–Advance Notice Provisions for Director Nominations and Stockholder Proposals at an Annual or Special Stockholders' Meeting").

Subject to certain exceptions specified in Dow Inc.'s amended and restated bylaws, a special stockholders' meeting will be held within 90 days after such stockholder request to call the special meeting is delivered to or received by Dow Inc.'s Secretary, at such date, time and place as determined by the board of directors. Only the business set forth in the stockholders' notice and any business included in the notice of the special meeting by or at the direction of the board of directors shall be conducted at a special meeting of stockholders.

Stockholder Action by Written Consent

Dow Inc.'s amended and restated certificate of incorporation provides that any action required or permitted to be taken by the stockholders must be taken at a duly called annual or special stockholders' meeting and may not be taken by written consent; provided, however, that any action required or permitted to be taken by the holders of any series of preferred stock, voting separately as a series or separately as a class with one or more other such series, may be taken without a meeting, without prior notice and without a vote, to the extent expressly so provided by the applicable certificate of designation for such series of preferred stock.

Transactions with Interested Stockholders and a Merger or Consolidation

Subject to certain limited exceptions, Delaware corporate law requires the approval of the board of directors and a majority of a corporation's outstanding stock entitled to vote to authorize a merger or consolidation.

In general, Section 203 of the Delaware General Corporation Law ("DGCL") prohibits a publicly held Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a three-year period following the time that such stockholder becomes an interested stockholder, unless the business combination is approved in a prescribed manner. Under Section 203, a business combination between a corporation and an interested stockholder is prohibited unless it satisfies one of the following conditions:

- before the stockholder became interested, the board of directors approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;

- upon consummation of the transaction which resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the voting stock outstanding, shares owned by persons who are directors and also officers, and employee stock plans, in some instances, but not the outstanding voting stock owned by the interested stockholder; or

- at or after the time the stockholder became interested, the business combination was approved by the board of directors and authorized at an annual or special meeting of the stockholders by the affirmative vote of at least two-thirds of the outstanding voting stock which is not owned by the interested stockholder.

Section 203 defines a business combination to include:

- any merger or consolidation involving the corporation and the interested stockholder;

- any sale, transfer, lease, pledge or other disposition involving the interested stockholder of 10% or more of the assets of the corporation;

- subject to exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;

- subject to exceptions, any transaction involving the corporation that has the effect of increasing the proportionate share of the stock of any class or series of the corporation beneficially owned by the interested stockholder; and

- the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation.

In general, Section 203 defines an interested stockholder as any entity or person beneficially owning 15% or more of the outstanding voting stock of the corporation and any entity or person affiliated with or controlling or controlled by the entity or person.

The DGCL allows a corporation to specify in its certificate of incorporation or bylaws that it will not be governed by the section relating to transactions with interested stockholders. Dow Inc. has not made that election in its amended and restated certificate of incorporation or amended and restated bylaws.

DESCRIPTION OF THE DOW CHEMICAL COMPANY 0.500% NOTES DUE MARCH 15, 2027, 1.125% NOTES DUE MARCH 15, 2032, AND 1.875% NOTES DUE MARCH 15, 2040

References to "notes" in this section refers to The Dow Chemical Company's 0.500% Notes due March 15, 2027, 1.125% Notes due March 15, 2032 and 1.875% Notes due March 15, 2040.

The following description of The Dow Chemical Company's ("TDCC") 0.500% Notes due March 15, 2027 (the "2027 notes"), 1.125% Notes due March 15, 2032 (the "2032 notes"), and 1.875% Notes due March 15, 2040 (the "2044 notes" and, together with the 2027 notes and 2032 notes, the "notes") is a summary and does not purport to be complete. This description is subject to and qualified in its entirety by reference to the Indenture, dated as of July 26, 2019, between TDCC and The Bank of New York Trust Company, N.A., as trustee (the "Indenture").

The 2027 notes are traded under the bond trading symbol "DOW/27", the 2032 notes are traded under the bond trading symbol "DOW/32" and the 2040 notes are traded under the bond trading symbol "DOW/40", respectively, on The New York Stock Exchange. Definitions of certain terms are set forth under "Certain Definitions" and throughout this description. Capitalized terms that are used but not otherwise defined herein have the meanings assigned to them in the Indenture, and those definitions are incorporated herein by reference.

General

The 2027 notes were initially issued in an aggregate principal amount of €1,000,000,000 and will bear interest at the rate of 0.500% per year. The 2032 notes were initially issued in an aggregate principal amount of €750,000,000 and will bear interest at the rate of 1.125% per year. The 2040 notes were initially issued in an aggregate principal amount of €500,000,000 and will bear interest at the rate of 1.875% per year. Interest on the notes will accrue from February 25, 2020, payable annually in arrears on March 15 of each year, beginning March 15, 2021, to the holders of record (i) in the case of notes represented by a global security, at the close of business on the business day (for this purpose, a day on which Clearstream and Euroclear are open for business) immediately preceding the relevant interest payment date and (ii) in all other cases, 15 calendar days prior to the relevant interest payment date.

Ranking

The notes are senior unsecured obligations of TDCC and rank equal in right of payment to its other senior unsecured debt from time to time outstanding. The notes are structurally subordinated to all liabilities of TDCC's subsidiaries, including trade payables.

Guarantee Covenant

The notes are obligations of TDCC only. On the issue date, the notes were not guaranteed by Dow Inc. The Indenture contains a covenant from Dow Inc. providing that if Dow Inc. issues a guarantee in respect of outstanding or committed indebtedness under TDCC's Revolving Credit Facility Agreement, it will enter into a supplemental indenture with TDCC and the trustee in the form attached as an exhibit to the Indenture substantially concurrently with the issuance of such guarantee, pursuant to which it will guarantee all outstanding debt securities and all amounts due under the Indenture, including the notes offered hereby, and will become subject to certain covenants and events of default under the Indenture.

The "Revolving Credit Facility Agreement" refers to TDCC's $5,000,000,000 Five-Year Competitive Advance and Revolving Credit Facility Agreement, dated as of October 30, 2018, among TDCC, the banks from time to time party thereto and Citibank, N.A., as administrative agent, as amended, modified, restated, renewed, refunded, replaced or refinanced from time to time, including any agreement extending the maturity of, refinancing, replacing or otherwise restructuring all of or substantially all of the indebtedness under such agreement or any such successor or replacement agreement and whether by the same or any other agent, lender or group of lenders.

Issuance in Euro

Initial holders are required to pay for the notes in euro, and principal and interest payments in respect of the notes and additional amounts, if any, will be payable in euro.

If the euro is unavailable to Dow due to the imposition of exchange controls or other circumstances beyond Dow's control or the euro is no longer used by the member states of the European Monetary Union that have adopted the euro as their currency or for the settlement of transactions by public institutions of or within the international banking community, then all payments in respect of such note will be made in U.S. dollars until such currency is again available to Dow or so used. The amount payable on any date in euro will be converted into U.S. dollars on the basis of the most recently available Market Exchange Rate for the euro. Any payment in respect of such note so made in U.S. dollars will not constitute an event of default under the Indenture. Neither the trustee nor the paying agent, shall be responsible for obtaining exchange rates, effecting conversions or otherwise handling redenominations.

"Market Exchange Rate" means the rate mandated by the U.S. Federal Reserve Board as of the close of business on the second business day prior to the relevant payment date or, in the event the U.S. Federal Reserve Board has not mandated a rate of conversion, on the basis of the most recent euro/U.S. dollar exchange rate available on or prior to the second business day prior to the relevant payment date, as report by Bloomberg.

Optional Redemption

The notes are redeemable, at any time in whole or from time to time in part, prior to the applicable Par Call Date (as defined below), in each case at a redemption price equal to the greater of:

i. 100% of the principal amount of the notes to be redeemed on that redemption date; and
ii. the sum of the present values of the remaining scheduled payments of principal and interest on the notes being redeemed on that redemption date that would be due if the notes being redeemed matured on the applicable Par Call Date (not including any portion of such payments of interest accrued as of the redemption date), discounted to the redemption date on an annual basis (ACTUAL/ACTUAL (ICMA)) at the Comparable Government Bond Rate (as defined below), plus 20 basis points, in the case of the 2027 notes, 25 basis points, in the case of the 2032 notes and 35 basis points, in the case of the 2040 notes,

plus, in each case, accrued and unpaid interest thereon to, but excluding, the redemption date.

On and after the applicable Par Call Date, the notes will be redeemable, at any time in whole or from time to time in part, at TDCC's option at 100% of the principal amount of the notes to be redeemed plus accrued and unpaid interest thereon to, but excluding, the redemption date.

Notwithstanding the foregoing, installments of interest on notes that are due and payable on interest payment dates falling on or prior to a redemption date will be payable on the interest payment date to the registered holders as of the close of business on the relevant record date according to the notes and the Indenture.

The "Comparable Government Bond Rate" will be determined by the Calculation Agent on the third business day preceding the redemption date and means, with respect to any date of redemption, the rate per annum equal to the yield to maturity calculated in accordance with customary financial practice in pricing new issues of comparable corporate debt securities paying interest on an annual basis (ACTUAL/ACTUAL (ICMA)) of the applicable Comparable Government Bond, assuming a price for the applicable Comparable Government Bond (expressed as a percentage of its principal amount) equal to the applicable Comparable Government Bond Price for such date of redemption.

"Calculation Agent" means an independent investment banking or commercial banking institution of international standing appointed by TDCC.

"Comparable Government Bond" means the Federal Republic of Germany government security or securities selected by one of the Reference Government Bond Dealers appointed by TDCC as having an actual or interpolated maturity comparable with the remaining term of the applicable series of notes assuming such series matured on the

applicable Par Call Date that would be utilized, at the time of selection and in accordance with customary financial practice, in pricing new issues of euro-denominated corporate debt securities of a maturity comparable to the remaining term of such series of notes assuming such series matured on the applicable Par Call Date.

"Comparable Government Bond Price" means, with respect to any redemption date, (A) the arithmetic average of the Reference Government Bond Dealer Quotations for such redemption date, after excluding the highest and lowest such Reference Government Bond Dealer Quotations, or (B) if the Calculation Agent obtains fewer than four such Reference Government Bond Dealer Quotations, the arithmetic average of all such quotations.

"Par Call Date" means (i) with respect to the 2027 notes, December 15, 2026 (three months prior to the maturity date of the 2027 notes), (ii) with respect to the 2032 notes, December 15, 2031 (three months prior to the maturity date of the 2032 notes) and (iii) with respect to the 2040 notes, September 15, 2039 (six months prior to the maturity date of the 2040 notes).

"Reference Government Bond Dealer" means each of four banks selected by TDCC, which are (A) primary European government securities dealers, and their respective successors, or (B) market makers in pricing corporate bond issues.

"Reference Government Bond Dealer Quotations" means, with respect to each Reference Government Bond Dealer and any redemption date, the arithmetic average, as determined by the Calculation Agent, of the bid and offered prices for the applicable Comparable Government Bond (expressed in each case as a percentage of its principal amount) at 11:00 a.m., Central European Time (CET), on the third business day preceding such date for redemption quoted in writing to the Calculation Agent by such Reference Government Bond Dealer.

Notice of any redemption will be mailed at least 15 days but not more than 60 days before the redemption date to each registered holder of the series of notes to be redeemed by TDCC or by the trustee on its behalf; *provided* that notice of redemption may be mailed more than 60 days prior to a redemption date if the notice is issued in connection with a defeasance of the notes or a satisfaction and discharge of the notes. Once notice of redemption is mailed, the notes called for redemption will become due and payable on the redemption date and at the applicable redemption price, plus accrued and unpaid interest to, but excluding, the redemption date.

Unless TDCC defaults in payment of the redemption price, on and after the redemption date, interest will cease to accrue on the notes of such series or portions thereof called for redemption. On or before the redemption date, TDCC will deposit with a paying agent (or the trustee) money sufficient to pay the redemption price of and accrued interest on the notes to be redeemed on that date. If less than all of the notes of a series are to be redeemed, the notes of such series to be redeemed shall be selected in accordance with applicable depositary procedures, in the case of notes represented by a global note, or by the trustee by a method the trustee deems appropriate, in the case of notes that are not represented by a global note.

Payment of Additional Amounts

TDCC or, in the event that payments are required to be made by Dow Inc. pursuant to its obligations under a guarantee it provides pursuant to the covenant described in "—Guarantee Covenant," Dow Inc. will, subject to the exceptions and limitations set forth below, pay such additional amounts as are necessary in order that the net payment by TDCC, Dow Inc. or a paying agent of the principal of, and premium, if any, and interest on the notes to a holder who is not a U.S. person (as defined below), after withholding or deduction for any future tax, assessment or other governmental charge imposed by the United States or a taxing authority in the United States (a "Taxing Jurisdiction"), will not be less than the amount provided in the notes to be then due and payable; provided, however, that the foregoing obligation to pay additional amounts shall not apply:

1. to any tax, assessment or other governmental charge that would not have been imposed but for the holder (or the beneficial owner for whose benefit such holder holds such note), or a fiduciary, settlor, beneficiary,

member or shareholder of the holder if the holder is an estate, trust, partnership or corporation, or a person holding a power over an estate or trust administered by a fiduciary holder, being considered as:

a. being or having been engaged in a trade or business in the United States or having or having had a permanent establishment in the United States;
b. having a current or former connection with the United States (other than a connection arising solely as a result of the ownership of the notes or the receipt of any payment or the enforcement of any rights thereunder), including being or having been a citizen or resident of the United States;
c. being or having been a passive foreign investment company, a controlled foreign corporation, a foreign tax exempt organization or a personal holding company with respect to the United States or a corporation that has accumulated earnings to avoid U.S. federal income tax;
d. being or having been a "10-percent shareholder" of TDCC or Dow Inc. as defined in section 871(h)(3) of the U.S. Internal Revenue Code of 1986, as amended (the "Code"), or any successor provision;
e. being a controlled foreign corporation that is related to TDCC or Dow Inc. within the meaning of Section 864(d)(4) of the Code; or
f. being a bank receiving interest described in Section 881(c)(3)(A) of the Code;

2. to any holder that is not the sole beneficial owner of the notes, or a portion of the notes, or that is a fiduciary, partnership or limited liability company, but only to the extent that a beneficial owner with respect to the holder, a beneficiary or settlor with respect to the fiduciary, or a beneficial owner or member of the partnership or limited liability company would not have been entitled to the payment of an additional amount had the beneficiary, settlor, beneficial owner or member received directly its beneficial or distributive share of the payment;

3. to any tax, assessment or other governmental charge that would not have been imposed but for the failure of the holder or any other person to comply with certification, identification or information reporting requirements concerning the nationality, residence, identity or connection with the United States of the holder or beneficial owner of the notes (including, but not limited to, the requirement to provide Internal Revenue Service Forms W-8BEN, W-8BEN-E, W-8ECI, or any subsequent versions thereof or successor thereto, and including, without limitation, Internal Revenue Service Form W-8IMY and any documentation required to be provided with such form), if compliance is required by statute, by regulation of the United States or any taxing authority therein or by an applicable income tax treaty to which the United States is a party as a precondition to exemption from such tax, assessment or other governmental charge;

4. to any tax, assessment or other governmental charge that is imposed otherwise than by withholding by TDCC or a paying agent from a payment of principal of or premium, if any, or interest on such notes;

5. to any tax, assessment or other governmental charge that would not have been imposed but for a change in law, regulation, or administrative or judicial interpretation that becomes effective more than 15 days after the payment becomes due or is duly provided for, whichever occurs later;

6. to any estate, inheritance, gift, sales, excise, transfer, wealth, capital gains or personal property tax or similar tax, assessment or other governmental charge;

7. to any tax, assessment or other governmental charge required to be withheld by any paying agent from any payment of principal of or premium, if any, or interest on any note, if such payment can be made without such withholding by at least one other paying agent;

8. to any tax, assessment or other governmental charge that would not have been imposed but for the presentation by the holder of any note, where presentation is required, for payment on a date more than 30 days after the date on which payment became due and payable or the date on which payment thereof is duly provided for, whichever occurs later;

9. to any tax, assessment or other governmental charge that would not have been imposed or withheld but for the beneficial owner being a bank (i) purchasing the notes in the ordinary course of its lending business or (ii) that is neither (A) buying the notes for investment purposes only nor (B) buying the notes for resale to a third-party that either is not a bank or holding the notes for investment purposes only;

10. to any tax, assessment or other governmental charge imposed under Sections 1471 through 1474 of the Code (or any amended or successor provisions), any current or future regulations or official interpretations thereof, any agreement entered into pursuant to Section 1471(b) of the Code, any intergovernmental agreement entered into in connection with the implementation of the foregoing and any fiscal or regulatory legislation, rules or practices adopted pursuant to any such intergovernmental agreement; or

11. in the case of any combination of items (1), (2), (3), (4), (5), (6), (7), (8), (9) and (10).

The notes are subject in all cases to any tax, fiscal or other law or regulation or administrative or judicial interpretation applicable to the notes. Except as specifically provided under this heading "—Payment of Additional Amounts," neither TDCC nor Dow Inc., as the case may be, will be required to make any payment for any tax, assessment or other governmental charge imposed by any government or a political subdivision or taxing authority of or in any government or political subdivision.

As used under this heading "—Payment of Additional Amounts" and under the heading "—Redemption for Tax Reasons", the term "United States" means the United States of America, the states of the United States, and the District of Columbia, and the term "U.S. person" means any individual who is a citizen or resident of the United States for U.S. federal income tax purposes, a corporation, partnership or other entity created or organized in or under the laws of the United States, any state of the United States or the District of Columbia, or any estate or trust the income of which is subject to U.S. federal income taxation regardless of its source.

Redemption for Tax Reasons

TDCC is entitled to redeem the notes of any or all series, at its option, at any time in whole but not in part, upon not less than 15 nor more than 60 days' notice, at 100% of the principal amount thereof, plus accrued and unpaid interest (if any) to, but excluding, the redemption date (subject to the right of holders of record on the relevant record date to receive interest due on the relevant interest payment date occurring on or prior to the redemption date), in the event that TDCC or Dow Inc. has become or there is a substantial probability that TDCC or Dow Inc. would become obligated to pay any additional amounts as described under the heading "—Payment of Additional Amounts" as a result of:

- a change in or an amendment to the laws (including any regulations or rulings promulgated thereunder) of a Taxing Jurisdiction, which change or amendment is announced or becomes effective after the date of the prospectus supplement dated February 18, 2020; or
- any change in or amendment to any official position regarding the application or interpretation of the laws, or regulations or rulings of a Taxing Jurisdiction, which change or amendment is announced or becomes effective on or after the date of the prospectus supplement dated February 18, 2020,

and, in each case, TDCC or Dow Inc., as applicable, cannot avoid such obligation by taking reasonable measures available to TDCC (which, for the avoidance of doubt, shall not include assignment of the obligation to make payment with respect to the notes).

Repurchase at the Option of Holders Upon a Change of Control Repurchase Event

If a Change of Control Repurchase Event (as defined below) occurs with respect to a series of notes, unless TDCC has exercised its right to redeem the notes as described under "—Optional Redemption", it will make an offer to each holder of the notes of such series to repurchase all or any part (no note of a principal amount of €100,000 or less will be repurchased in part) of that holder's notes at a price in cash equal to 101% of the aggregate

principal amount of such notes repurchased plus accrued and unpaid interest, if any, on the notes repurchased, to, but excluding, the date of repurchase. Within 30 days following any Change of Control Repurchase Event or, at TDCC's option, prior to any Change of Control (as defined below) with respect to a series of notes, but after the public announcement of an impending Change of Control, it will mail (or with respect to notes represented by a global note, it will electronically deliver) a notice to each holder of such series of notes, with a copy to the trustee, describing the transaction or transactions that constitute or may constitute the Change of Control Repurchase Event and offering to repurchase such notes on the payment date specified in the notice, which date will be no earlier than 30 days and no later than 60 days from the date such notice is mailed. The notice shall, if mailed prior to the date of consummation of the Change of Control, state that the offer to repurchase is conditioned on the Change of Control Repurchase Event occurring on or prior to the payment date specified in the notice.

TDCC will comply with the requirements of Rule 14e-1 under the Exchange Act and any other securities laws and regulations thereunder, to the extent those laws and regulations are applicable in connection with the repurchase of the notes as a result of a Change of Control Repurchase Event. To the extent that the provisions of any securities laws or regulations conflict with the Change of Control Repurchase Event provisions of the notes, TDCC will comply with the applicable securities laws and regulations and will not be deemed to have breached its obligations under the Change of Control Repurchase Event provisions of the notes by virtue of such conflict.

On the Change of Control Repurchase Event payment date, TDCC will, to the extent lawful:

- accept for payment all notes or portions of notes (in a minimum principal amount of €100,000 and integral multiples of €1,000 above that amount) properly tendered pursuant to its offer;
- deposit with the paying agent an amount equal to the aggregate purchase price in respect of all notes or portions of notes properly tendered; and
- deliver or cause to be delivered to the trustee the notes properly accepted, together with an officer's certificate stating the aggregate principal amount of notes being repurchased by TDCC.

The paying agent will promptly mail to each holder of notes properly tendered the repurchase price for the notes, and the trustee will promptly authenticate and mail (or cause to be transferred by book-entry) to each holder a new note equal in principal amount to any unpurchased portion of any notes surrendered; provided, that each new note will be in a minimum principal amount of €100,000 or an integral multiple of €1,000 above that amount.

TDCC will not be required to make an offer to repurchase the notes upon a Change of Control Repurchase Event if a third party makes such an offer in the manner, at the times and otherwise in compliance with the requirements for an offer made by TDCC and such third party purchases all notes properly tendered and not withdrawn under its offer.

TDCC has no present intention to engage in a transaction involving a Change of Control, although it is possible that it would decide to do so in the future. TDCC could, in the future, enter into certain transactions, including acquisitions, refinancings or other recapitalizations, that would not constitute a Change of Control, but that could increase the amount of debt outstanding at such time or otherwise affect its capital structure or credit ratings.

Definitions

"Below Investment Grade Rating Event" means with respect to each series of notes, the rating on the notes is lowered by each of the Rating Agencies and such notes are rated below Investment Grade by each of the Rating Agencies on any date from the date of the public notice of an arrangement that could result in a Change of Control until the end of the 60-day period following public notice of the occurrence of a Change of Control (which period shall be extended so long as the rating of the applicable notes is under publicly announced consideration for possible downgrade by any of the Rating Agencies); *provided* that a Below Investment Grade Rating Event otherwise arising by virtue of a particular reduction in rating shall not be deemed to have occurred in respect of a particular Change of Control (and thus shall not be deemed a Below Investment Grade Rating Event for purposes of the

definition of Change of Control Repurchase Event hereunder) if any of the Rating Agencies making the reduction in rating to which this definition would otherwise apply does not announce or publicly confirm or inform the trustee in writing at its request that the reduction was the result, in whole or in part, of any event or circumstance comprised of or arising as a result of, or in respect of, the applicable Change of Control (whether or not the applicable Change of Control shall have occurred at the time of the Below Investment Grade Rating Event).

"Change of Control" means the occurrence of any of the following:

1. the direct or indirect sale, transfer, conveyance or other disposition (other than by way of merger or consolidation), in one or a series of related transactions, of all or substantially all of TDCC's properties or assets and those of its subsidiaries taken as a whole to any "person" or "group" (as those terms are used for purposes of Section 13(d)(3) of the Exchange Act), other than TDCC, Dow Inc. or one or more wholly- owned subsidiaries of Dow Inc.;
2. the consummation of any transaction or series of related transactions (including, without limitation, any merger or consolidation) the result of which is that any "person" or "group" (as those terms are used for purposes of Section 13(d)(3) of the Exchange Act), other than Dow Inc. or one or more wholly-owned subsidiaries of Dow Inc., becomes the beneficial owner, directly or indirectly, of more than 50% of the then outstanding shares of Voting Stock of Dow Inc. or TDCC, measured by voting power rather than number of shares;
3. TDCC or Dow Inc. consolidates with, or merges with or into, any person, or any person consolidates with, or merges with or into, TDCC or Dow Inc., in any such event pursuant to a transaction in which any of TDCC or Dow Inc.'s outstanding Voting Stock or the Voting Stock of such other person is converted into or exchanged for cash, securities or other property, other than any such transaction where the shares of TDCC's or Dow Inc.'s Voting Stock outstanding immediately prior to such transaction constitute, or are converted into or exchanged for, a majority of the Voting Stock of the surviving person or any direct or indirect parent company of the surviving person immediately after giving effect to such transaction;
4. the first day on which a majority of the members of the board of directors of TDCC or the board of directors of Dow Inc. are not Continuing Directors; or
5. the adoption of a plan relating to liquidation or dissolution of TDCC or Dow Inc.

Notwithstanding the foregoing, a transaction will not be considered to be a Change of Control under clause (2) above if (a) TDCC or Dow Inc. becomes a direct or indirect wholly-owned subsidiary of a holding company and (b) (y) immediately following that transaction, the direct or indirect holders of the Voting Stock of the holding company are substantially the same as the holders of Dow Inc.'s Voting Stock immediately prior to that transaction or (z) immediately following that transaction, no person (as that term is used in Section 13(d)(3) of the Exchange Act) is the beneficial owner, directly or indirectly, of more than 50% of the Voting Stock of the holding company. Furthermore, neither the formation of an intermediate holding company of TDCC that is 100% owned by Dow Inc. (directly or indirectly) or any business combination between TDCC and Dow Inc. or any wholly-owned subsidiaries of Dow Inc. will constitute a Change of Control. Accordingly, a holder of the notes will not have the ability to require TDCC to repurchase such holders' notes as a result of the consummation of such transactions.

The definition of Change of Control includes a phrase relating to the direct or indirect sale, lease, transfer, conveyance or other disposition of "all or substantially all" of TDCC's properties or assets and those of its subsidiaries taken as a whole. Although there is a limited body of case law interpreting the phrase "substantially all," there is no precise established definition of the phrase under applicable law. Accordingly, the ability of a holder of notes to require TDCC to repurchase its notes as a result of a sale, lease, transfer, conveyance or other disposition of less than all of TDCC's properties and assets and of those of its subsidiaries taken as a whole to another person or group may be uncertain.

"Change of Control Repurchase Event" means the occurrence of both a Change of Control and a Below Investment Grade Rating Event.

"Continuing Directors" means, as of any date of determination, (a) with respect to any member of the board of directors Dow Inc., any such member who (1) was a member of such board of directors on the date of the issuance of the notes or (2) was nominated for election or elected to such board of directors with the approval of a majority of the Continuing Directors who were members of such board of directors at the time of such nomination or election (either by a specific vote or by approval of Dow Inc. and TDCC's proxy statement in which such member was named as a nominee for election as a director) and (b) with respect to any member of the board of directors of TDCC, any such member who (1) was a member of such board of directors on the date of the issuance of the notes or (2) was appointed, nominated for election or elected to such board of directors by Dow Inc.

Under a recent Delaware Chancery Court interpretation of the foregoing definition of "Continuing Directors," TDCC's Board of Directors could approve, for purposes of such definition, a slate of stockholder nominated directors without endorsing them, or while simultaneously recommending and endorsing its own slate instead. Accordingly, under such interpretation, TDCC's Board of Directors could approve a slate of directors that includes a majority of dissident directors nominated pursuant to a proxy contest, and the ultimate election of such dissident slate would not constitute a "Change of Control Repurchase Event" that would trigger a holder's right to require TDCC to repurchase the holder's notes as described above.

"Fitch" means Fitch Ratings, Inc., and its successors.

"Investment Grade" means a rating of BBB- or better by Fitch (or its equivalent under any successor rating categories of Fitch), Baa3 or better by Moody's (or its equivalent under any successor rating categories of Moody's) and a rating of BBB- or better by S&P (or its equivalent under any successor rating categories of S&P) or the equivalent investment grade credit rating from any additional Rating Agency or Rating Agencies selected by TDCC.

"Moody's" means Moody's Investors Services Inc., and its successors.

"Rating Agency" means (1) each of Fitch, Moody's and S&P; and (2) if any of Fitch, Moody's or S&P ceases to rate the notes or fails to make a rating of the notes publicly available for reasons outside of TDCC's control, a "nationally recognized statistical rating organization" registered pursuant to Section 15E of the Exchange Act, selected by TDCC as a replacement agency for Fitch, Moody's or S&P, as the case may be.

"S&P" means S&P Global Ratings, a division of S&P Global, Inc., and its successors.

"Voting Stock" means, with respect to any person, capital stock of any class or kind the holders of which are ordinarily, in the absence of contingencies, entitled to vote for the election of directors (or persons performing similar functions) of such person, even if the right so to vote has been suspended by the happening of such a contingency.

Sinking Fund

The notes are not entitled to any sinking fund.

Book-Entry Delivery and Settlement

Global Notes

The notes were issued in the form of one or more global notes in definitive, fully registered, book-entry form. The global notes were deposited with or on behalf of a common depositary for, and in respect of interests held through, Clearstream and Euroclear.

Clearstream and Euroclear

Beneficial interests in the global notes are represented, and transfers of such beneficial interests are effected, through accounts of financial institutions acting on behalf of beneficial owners as direct or indirect participants in Euroclear or Clearstream. Those beneficial interests are in denominations of €100,000 and integral multiples of €1,000 in excess thereof. Investors may hold notes directly through Euroclear or Clearstream, if they are participants in such systems, or indirectly through organizations that are participants in such systems.

Owners of beneficial interests in the global notes are not entitled to have notes registered in their names, and, except as described herein, do not receive or be entitled to receive physical delivery of notes in certificated form. So long as the common depositary for Euroclear and Clearstream or its nominee is the registered owner of the global notes, the common depositary for all purposes is considered the sole holder of the notes represented by the global notes under the Indenture and the global notes. Except as provided below, beneficial owners are not considered the owners or holders of the notes under the Indenture, including for purposes of receiving any reports delivered by TDCC or the trustee pursuant to the Indenture. Accordingly, each beneficial owner must rely on the procedures of the clearing systems and, if such person is not a participant of the clearing systems, on the procedures of the participant through which such person owns its interest, to exercise any rights of a holder under the Indenture. Under existing industry practices, if TDCC requests any action of holders or a beneficial owner desires to give or take any action which a holder is entitled to give or take under the Indenture, the clearing systems would authorize their participants holding the relevant beneficial interests to give or take action and the participants would authorize beneficial owners owning through the participants to give or take such action or would otherwise act upon the instructions of beneficial owners. Conveyance of notices and other communications by the clearing systems to their participants, by the participants to indirect participants and by the participants and indirect participants to beneficial owners will be governed by arrangements among them, subject to any statutory or regulatory requirements as may be in effect from time to time. The laws of some jurisdictions require that certain purchasers of securities take physical delivery of such securities in certificated form. These limits and laws may impair the ability to transfer beneficial interests in global notes.

Clearstream has advised TDCC that it is incorporated under the laws of Luxembourg and licensed as a bank and a professional depositary. Clearstream holds securities for its customers and facilitates the clearance and settlement of securities transactions between its customers through electronic book-entry changes in accounts of its customers, thereby eliminating the need for physical movement of certificates. Clearstream provides to its customers, among other things, services for safekeeping, administration, clearance and settlement of internationally traded securities and securities lending and borrowing. Clearstream interfaces with domestic markets in several countries. Clearstream has established an electronic bridge with Euroclear to facilitate the settlement of trades between the nominees of Clearstream and Euroclear. As a registered bank in Luxembourg, Clearstream is subject to regulation by the Luxembourg Commission for the Supervision of the Financial Sector. As a professional depositary, Clearstream is subject to regulation by the Luxembourg Commission for the Supervision of the Financial Section. Clearstream customers are recognized financial institutions around the world, including underwriters, securities brokers and dealers, banks, trust companies, clearing corporations and other organizations and may include the underwriters. Indirect access to Clearstream is also available to others, such as banks, brokers, dealers and trust companies that clear through or maintain a custodial relationship with a Clearstream customer either directly or indirectly.

Euroclear has advised TDCC that it was created in 1968 to hold securities for participants of Euroclear and to clear and settle transactions between Euroclear participants through simultaneous electronic book-entry delivery against payment, thereby eliminating the need for physical movement of certificates and any risk from lack of simultaneous transfers of securities and cash. Euroclear provides various other services, including securities lending and borrowing and interfaces with domestic markets in several countries. Euroclear is operated by Euroclear Bank SA/NV, which is referred to as the Euroclear Operator, under contract with Euroclear Clearance Systems S.C., a Belgian cooperative corporation, which is referred to as the Cooperative. All operations are conducted by the Euroclear Operator, and all Euroclear securities clearance accounts and Euroclear cash accounts are accounts with the Euroclear Operator, not the Cooperative. The Cooperative establishes policy for Euroclear on behalf of

Euroclear participants. Euroclear participants include banks (including central banks), securities brokers and dealers, and other professional financial intermediaries and may include the underwriters. Indirect access to Euroclear is also available to other firms that clear through or maintain a custodial relationship with a Euroclear participant, either directly or indirectly.

Euroclear is licensed by the Belgian Banking and Finance Commission to carry out banking activities on a global basis. As a Belgian bank, it is regulated and examined by the Belgian Banking and Finance Commission.

TDCC has provided the descriptions of the operations and procedures of Clearstream and Euroclear solely as a matter of convenience. These operations and procedures are solely within the control of those organizations and are subject to change by them from time to time. None of TDCC, the underwriters nor the trustee takes any responsibility for these operations or procedures, and Clearstream and Euroclear or their participants should be contacted directly to discuss these matters.

Euroclear and Clearstream Arrangements

So long as Euroclear or Clearstream or their nominee or their common depositary is the registered holder of the global notes, Euroclear, Clearstream or such nominee, as the case may be, is considered the sole owner or holder of the notes represented by such global notes for all purposes under the Indenture and the notes.

Payments of principal, interest and additional amounts, if any, in respect of the global notes will be made to Euroclear, Clearstream, such nominee or such common depositary, as the case may be, as registered holder thereof. None of TDCC, the trustee, any agent and any affiliate of any of the above or any person by whom any of the above is controlled (as such term is defined in the Securities Act) will have any responsibility or liability for any records relating to or payments made on account of beneficial ownership interests in the global notes or for maintaining, supervising or reviewing any records relating to such beneficial ownership interests.

Distributions of principal and interest with respect to the global notes will be credited in euro to the extent received by Euroclear or Clearstream from the paying agent to the cash accounts of Euroclear or Clearstream customers in accordance with the relevant system's rules and procedures.

Because Euroclear and Clearstream can only act on behalf of participants, who in turn act on behalf of indirect participants, the ability of a person having an interest in the global notes to pledge such interest to persons or entities which do not participate in the relevant clearing system, or otherwise take actions in respect of such interest, may be affected by the lack of a physical certificate in respect of such interest.

Initial Settlement

Investors that hold their notes through Clearstream or Euroclear accounts will follow the settlement procedures that are applicable to conventional eurobonds in registered form. Subject to applicable procedures of Clearstream and Euroclear, notes will be credited to the securities custody accounts of Clearstream and Euroclear participants on the business day following the settlement date, for value on the settlement date.

Secondary Market Trading

Because the purchaser determines the place of delivery, it is important to establish at the time of trading of any notes where both the purchaser's and seller's accounts are located to ensure that settlement can be made on the desired value date.

Secondary market trading between Clearstream and/or Euroclear participants will occur in the ordinary way following the applicable rules and operating procedures of Clearstream and Euroclear. Secondary market trading will be settled using procedures applicable to conventional eurobonds in registered form.

Investors will only be able to make and receive deliveries, payments and other communications involving the notes through Clearstream and Euroclear on days when those systems are open for business. Those systems may not be open for business on days when banks, brokers and other institutions are open for business in the United States.

In addition, because of time-zone differences, there may be problems with completing transactions involving Clearstream and Euroclear on the same business day as in the United States. U.S. investors who wish to transfer their interests in the notes, or to make or receive a payment or delivery of the notes, on a particular day, may find that the transactions will not be performed until the next business day in Luxembourg or Brussels, depending on whether Clearstream or Euroclear is used.

Clearstream or Euroclear will credit payments to the cash accounts of Clearstream customers or Euroclear participants, as applicable, in accordance with the relevant system's rules and procedures, to the extent received by its depositary. Clearstream or the Euroclear Operator, as the case may be, will take any other action permitted to be taken by a holder under the Indenture on behalf of a Clearstream customer or Euroclear participant only in accordance with its relevant rules and procedures.

Clearstream and Euroclear have agreed to the foregoing procedures in order to facilitate transfers of the notes among participants of Clearstream and Euroclear. However, they are under no obligation to perform or continue to perform those procedures, and they may discontinue those procedures at any time.

Certificated Notes

Individual certificates in respect of the notes are not issued in exchange for the global notes, except in very limited circumstances. Subject to certain conditions, the notes represented by global notes are exchangeable for certificated notes in definitive form of like tenor in minimum denominations of €100,000 principal amount and integral multiples of €1,000 in excess thereof if:

- TDCC has been notified that both Clearstream and Euroclear have been closed for a continuous period of at least 14 days (other by reason of a holiday, statutory or otherwise) or have announced an intention permanently to cease business or have in fact done so and no successor clearing system is available;
- an event of default has occurred and is continuing; or
- TDCC determines not to have the notes represented by a global note.

Neither TDCC nor the trustee will be liable for any delay by the holder of the relevant global notes in identifying the holders of beneficial interests in the global notes, and each such person may conclusively rely on, and will be protected in relying on, instructions from Clearstream or Euroclear for all purposes (including with respect to the registration and delivery, and the respective principal amounts, of the definitive notes to be issued).

Certain Covenants Applicable to the Notes

Limitations on Liens

The Indenture provides that, subject to the exceptions described below and those set forth under "Exempted Indebtedness," TDCC may not, and may not permit any restricted subsidiary to, create or permit to exist any lien on any principal property, additions to principal property or shares of capital stock of any restricted subsidiary without equally and ratably securing the debt securities. This restriction will not apply to permitted liens, including:

- liens on principal property existing at the time of its acquisition or to secure the payment of all or part of the purchase price or any additions thereto or to secure any indebtedness incurred at the time of, or within 120 days after, the acquisition of such principal property or any addition thereto;
- liens existing on the date of the Indenture;

- liens on property or shares of capital stock, or arising out of any indebtedness of any corporation existing at the time the corporation becomes or is merged into TDCC or a restricted subsidiary;
- liens which exclusively secure debt owing to TDCC or a subsidiary by a restricted subsidiary;
- liens of carriers, warehousemen, mechanics and materialmen incurred in the ordinary course of business for sums not yet due or being contested in good faith;
- liens arising by reason of any judgment, decree or order of any court, so long as any appropriate legal proceedings which may have been duly initiated for the review of such judgment, decree or order shall not have been finally terminated or so long as the period within which such proceedings may be initiated shall not have expired; or pledges or deposits to secure payment of workmen's compensation or other insurance, good faith deposits in connection with tenders, contracts (other than contracts for the payment of money) or leases, deposits to secure public or statutory obligations, deposits to secure public or statutory obligations, deposits to secure or in lieu of surety or appeal bonds, or deposits as security for the payment of taxes;
- liens in connection with the issuance of tax-exempt industrial development or pollution control bonds or other similar bonds issued pursuant to Section 103(b) of the Internal Revenue Code to finance all or any part of the purchase price of or the cost of construction, equipping or improving property; provided that those liens are limited to the property acquired or constructed or the improvement and to substantially unimproved real property on which the construction or improvement is located; provided further, that TDCC and its restricted subsidiaries may further secure all or any part of such purchase price or the cost of construction of any improvements and personal property by an interest on additional property of TDCC and restricted subsidiaries only to the extent necessary for the construction, maintenance and operation of, and access to, the property so acquired or constructed or the improvement;
- liens arising from assignments of money due under contracts of TDCC or a restricted subsidiary with the United States or any State, or any department, agency or political subdivision of the United States or any State;
- liens in favor of any customer arising in respect of payments made by or on behalf of a customer for goods produced for or services rendered to customers in the ordinary course of business not exceeding the amount of those payments;
- any extension, renewal or replacement of any lien referred to in any of the previous clauses; and
- statutory liens, liens for taxes or assessments or governmental charges or levies not yet due or delinquent or which can be paid without penalty or are being contested in good faith, landlord's liens on leased property, easements and liens of a similar nature as those described above.

Limitation on Sale and Lease-Back Transactions

The Indenture provides that, subject to the exceptions set forth below under the section captioned "Exempted Indebtedness," sale and lease-back transactions by TDCC or any restricted subsidiary of any principal property are prohibited (except for temporary leases for a term, including any renewal thereof, of not more than three years and except for leases between TDCC and a subsidiary or between subsidiaries) unless the net proceeds of the sale and leaseback transaction are at least equal to the fair value of the property.

Exempted Indebtedness

TDCC or any restricted subsidiary may create or assume liens or enter into sale and lease-back transactions not otherwise permitted under the limitations on liens and sale and lease-back transactions described above, so long as at that time and after giving effect to the lien or sale and lease-back transaction, the sum of:

1. the aggregate outstanding indebtedness of TDCC and its restricted subsidiaries incurred after the date of the Indenture and secured by the proscribed liens relating to principal property; plus

2. the aggregate discounted value of the obligations for rental payments in respect to the proscribed sale and lease-back transactions relating to principal property;

does not exceed 15 percent of consolidated net tangible assets at such time.

There are no covenants or provisions contained in the Indenture which protect holders of debt securities in the event of a highly leveraged transaction.

Certain Definitions

The following are the meanings of terms that are important in understanding the covenants previously described:

"Consolidated net tangible assets" means the total assets of TDCC and its consolidated subsidiaries as shown on or reflected in its balance sheet, less:

- all current liabilities, excluding current liabilities that could be classified as long-term debt under generally accepted accounting principles and current liabilities that are by their terms extendible or renewable at the obligor's option to a time more than 12 months after the time as of which the amount of current liabilities is being computed;
- advances to entities accounted for on the equity method of accounting; and
- intangible assets.

"Consolidated subsidiary" means, at any date, any subsidiary or other entity the accounts of which would be consolidated with those of TDCC in its consolidated financial statements if such statements were prepared as of such date.

"Intangible assets" means the aggregate value, net of any applicable reserves, as shown on or reflected in TDCC's balance sheet, of:

- all trade names, trademarks, licenses, patents, copyrights and goodwill;
- organizational and development costs;
- deferred charges, other than prepaid items such as insurance, taxes, interest, commissions, rents and similar items and tangible assets being amortized; and
- amortized debt discount and expense, less unamortized premium.

"Principal property" means any manufacturing facility having a gross book value in excess of 1% of consolidated net tangible assets that is owned by TDCC or any restricted subsidiary and located within the United States, excluding its territories and possessions and Puerto Rico, other than any facility or portion of a facility which TDCC's board of directors reasonably determines is not material to the business conducted by TDCC and its subsidiaries as a whole.

"Restricted subsidiary" means any subsidiary:

- of which substantially all of the property of is located, and substantially all of the business is carried on, within the United States, excluding its territories and possessions and Puerto Rico; and
- that owns or operates one or more principal properties;

provided, however, restricted subsidiary shall not include a subsidiary that is primarily engaged in the business of a finance or insurance company, and branches of that finance or insurance company.

"Subsidiary" means each corporation, of which more than 50% of the outstanding voting stock is owned, directly or indirectly, by TDCC or by TDCC and one or more of its subsidiaries.

Consolidation, Merger and Sale of Assets

TDCC may not merge or consolidate or sell or convey all or substantially all of its assets unless:

- the successor corporation is TDCC or is a domestic corporation that assumes TDCC's obligations on the debt securities and under the Indenture; and
- after giving effect to the transaction, TDCC or the successor corporation would not be in default under the Indenture.

Events of Default

With respect to any series of debt securities, any one of the following events will constitute an event of default under the Indenture:

(1) default by TDCC for 30 days in the payment of any installment of interest on the debt securities of that series;

(2) default by TDCC in the payment of any principal on the debt securities of that series;

(3) default by TDCC in the payment of any sinking fund installment;

(4) default by TDCC in the performance, or breach by TDCC, of any of the covenants or warranties contained in the Indenture for the benefit of the debt securities of that series which is not remedied within a period of 90 days after receipt of written notice by TDCC from the trustee or the holders of not less than 25% in principal amount of the debt securities of that series then outstanding;

(5) TDCC commences bankruptcy or insolvency proceedings or consents to any bankruptcy relief sought against it;

(6) TDCC becomes involved in involuntary bankruptcy or insolvency proceedings and an order for relief is entered against it, if that order remains unstayed and in effect for more than 60 consecutive days;

(7) default by Dow Inc. in the performance, or breach by Dow Inc., of its covenant to issue a guarantee as required by the Indenture; or

(8) any other event of default established in accordance with a supplemental indenture or board resolution with respect to any series of debt securities.

No event of default described in clauses (1), (2), (3), (4) or (8) above with respect to a particular series of debt securities necessarily constitutes an event of default with respect to any other series of debt securities.

The Indenture provides that if an event of default under clauses (1), (2), (3), (4), (7) or (8) above (but only if the event of default under clauses (4) or (8) is with respect to less than all series of debt securities then outstanding) shall have occurred and be continuing, either the trustee or the holders of not less than 25% in aggregate principal amount of the then-outstanding debt securities of the series affected by the event of default, each affected series treated as a separate class, may declare the principal of all the debt securities of each affected series, together with accrued interest, to be due and payable immediately. If an event of default under clauses (4) or (8) above (but only if the event of default under clauses (4) or (8) is with respect to all of the series of debt securities then outstanding) shall have occurred and be continuing, either the trustee or the holders of not less than 25% in the aggregate principal amount of all the debt securities then outstanding, treated as one class, may declare the principal of all the debt securities, together with accrued interest, to be due and payable immediately. If an event of default under

clauses (5) or (6) above shall have occurred, the principal of all the debt securities, together with accrued interest, will become due and payable immediately without any declaration or other act by the trustee or any holder.

If prior to any judgment or decree for the payment of money due being entered or obtained, TDCC delivers to the trustee an amount of money sufficient to pay all interest then due and the principal of any securities that have matured (other than through acceleration) and the trustee's expenses and TDCC has cured any defaults under the Indenture, then such declaration (including a declaration caused by a default in the payment of principal or interest, the payment for which has subsequently been provided) may be rescinded and annulled by the holders of a majority in principal amount of the debt securities of the series then outstanding, each such series treated as a separate class, or all debt securities treated as one class, as the case may be, as were entitled to declare such default. In addition, past defaults may be waived by the holders of a majority in principal amount of the debt securities of the series then outstanding, each series treated as a separate class, or all debt securities treated as one class, as the case may be, as were entitled to declare such default, except a default in the payment of the principal of or interest on the debt securities or in respect of a covenant or provision of the Indenture that cannot be modified or amended without the approval of the holder of each debt security so affected.

The Indenture contains a provision entitling the trustee, subject to the duty of the trustee during default to act with the required standard of care, to be indemnified by the holders of debt securities before exercising any right or power under the Indenture at the request of the holders of the debt securities. The Indenture also provides that the holders of a majority in principal amount of the outstanding debt securities of all series affected, each series treated as a separate class, may direct the time, method and place of conducting any proceeding for any remedy available to the trustee, or exercising any trust or power conferred on the trustee, with respect to the debt securities of such series.

The Indenture requires TDCC to file annually with the trustee a certificate as to the absence of any default or specifying any default that exists.

Satisfaction and Discharge of the Indenture

The Indenture with respect to any series, except for the surviving obligations, including TDCC's obligation to compensate the trustee and to pay the principal of and interest on the debt securities of that series, will be discharged and canceled upon the satisfaction of specified conditions, including:

- payment of all the debt securities of that series; or
- the deposit with the trustee of cash or U.S. government obligations or a combination of cash and U.S. government obligations sufficient for the payment or redemption in accordance with the Indenture and the terms of the debt securities of that series.

Modification and Waiver

TDCC and the trustee may modify and amend the Indenture with the consent of the holders of more than 50% of the principal amount of the outstanding debt securities of each series which is affected. No supplemental indenture may, without the consent of the holders of all outstanding debt securities:

- extend the final maturity of, reduce the rate or extend the time of payment of interest on, reduce the principal amount of, or reduce any amount payable on any redemption of, any debt securities; or
- reduce the percentage in principal amount of outstanding debt securities of any series, the consent of whose holders is required for any supplemental indenture.

Governing Law

The Indenture and the notes are governed by and construed in accordance with the laws of the State of New York, without regard to conflict of laws principles thereof.

Information About the Trustee

The Trustee's corporate trust office is located at 2 North LaSalle Street, Suite 700, Chicago, Illinois 60602.
The Trustee's affiliate corporate trust office in New York City is located at 240 Greenwich Street, New York, New York 10286.

DESCRIPTION OF THE DOW CHEMICAL COMPANY'S 4.625% NOTES DUE OCTOBER 1, 2044

References to "notes" in this section refers to The Dow Chemical Company's 4.625% Notes due October 1, 2044.

The following description of TDCC's 4.625% Notes due October 1, 2044 (the "notes") is a summary and does not purport to be complete. This description is subject to and qualified in its entirety by reference to the Indenture, dated as of May 1, 2008, between TDCC and The Bank of New York Mellon Trust Company, N.A., as trustee (the "Indenture").

The notes are traded on The New York Stock Exchange under the bond trading symbol "DOW/44". Definitions of certain terms are set forth under "Certain Definitions" and throughout this description. Capitalized terms that are used but not otherwise defined herein have the meanings assigned to them in the Indenture, and those definitions are incorporated herein by reference.

General

The notes were initially issued in an aggregate principal amount of $500,000,000

The notes bear interest at the rate of 4.625% per year from the September 16, 2014, payable semi-annually in arrears on April 1 and October 1 of each year, beginning April 1, 2015, to the holders of record at the close of business on the immediately preceding March 15 and September 15, respectively (whether or not a business day). Interest on the notes are computed on the basis of a 360-day year consisting of twelve 30-day months.

Ranking

The notes are senior unsecured obligations of TDCC and rank equal in right of payment to its other senior unsecured debt from time to time outstanding. The notes are effectively subordinated to all liabilities of TDCC's subsidiaries, including trade payables.

The notes are represented by one or more global securities registered in the name of a nominee of DTC. Except as described below, the notes will not be issuable in certificated form.

Optional Redemption

The notes are redeemable, at any time in whole or from time to time in part, prior to April 1, 2044 (six months prior to their maturity date), in each case at a redemption price equal to the greater of:

(i) 100% of the principal amount of the notes to be redeemed on that redemption date; and

(ii) the sum of the present values of the remaining scheduled payments of principal and interest on the notes being redeemed on that redemption date (not including any portion of such payments of interest accrued as of the redemption date), discounted to the redemption date on a semi-annual basis (assuming a 360-day year consisting of twelve 30-day months) at the Treasury Rate (as defined below), plus 25 basis points, plus accrued and unpaid interest thereon to, but excluding, the redemption date.

On and after April 1, 2044 (six months prior to the maturity date of the notes), the notes will be redeemable, at any time in whole or from time to time in part, at TDCC's option at par plus accrued and unpaid interest thereon to, but excluding, the redemption date.

Notwithstanding the foregoing, installments of interest on the notes that are due and payable on interest payment dates falling on or prior to a redemption date will be payable on the interest payment date to the registered holders as of the close of business on the relevant record date according to the notes and the Indenture.

"Comparable Treasury Issue" means the United States Treasury security selected by the Quotation Agent as having a maturity comparable to the remaining term (as measured from the redemption date) of the series of the notes to be redeemed that would be utilized, at the time of selection and in accordance with customary financial practice, in pricing new issues of corporate debt securities of comparable maturity to the remaining term of such series of notes.

"Comparable Treasury Price" means, with respect to any redemption date, (i) the average of four Reference Treasury Dealer Quotations for such redemption date, after excluding the highest and lowest such Reference.

Treasury Dealer Quotations, or (ii) if the trustee obtains fewer than four such Reference Treasury Dealer Quotations, the average of all such quotations, or (iii) if only one Reference Treasury Dealer Quotation is received, such quotation.

"Quotation Agent" means any Reference Treasury Dealer appointed by TDCC.

"Reference Treasury Dealer" means (i) each of Citigroup Global Markets Inc., Deutsche Bank Securities Inc., Mizuho Securities USA Inc. and RBS Securities Inc. (or their respective affiliates that are Primary Treasury Dealers) and their respective successors; provided, however, that if any of the foregoing shall cease to be a primary U.S. Government securities dealer in New York City (a "Primary Treasury Dealer"), TDCC will substitute therefor another Primary Treasury Dealer, and (ii) any other Primary Treasury Dealer selected by TDCC.

"Reference Treasury Dealer Quotations" means, with respect to each Reference Treasury Dealer and any redemption date, the average, as determined by the trustee, of the bid and asked prices for the Comparable Treasury Issue (expressed in each case as a percentage of its principal amount) quoted in writing to the trustee by such Reference Treasury Dealer at 5:00 p.m., New York City time, on the third business day preceding such redemption date.

"Treasury Rate" means, with respect to any redemption date, the rate per annum equal to the semi-annual equivalent yield to maturity of the Comparable Treasury Issue, assuming a price for the Comparable Treasury Issue (expressed as a percentage of its principal amount) equal to the Comparable Treasury Price for such redemption date.

Notice of any redemption will be mailed at least 30 days but not more than 60 days before the redemption date to each registered holder of the notes by TDCC or by the trustee on its behalf; provided that notice of redemption may be mailed more than 60 days prior to a redemption date if the notice is issued in connection with a defeasance of the notes or a satisfaction and discharge of the notes. Once notice of redemption is mailed, the notes called for redemption will become due and payable on the redemption date and at the applicable redemption price, plus accrued and unpaid interest to, but excluding, the redemption date.

Unless TDCC defaults in payment of the redemption price, on and after the redemption date, interest will cease to accrue on the notes or portions thereof called for redemption. On or before the redemption date, TDCC will deposit with a paying agent (or the trustee) money sufficient to pay the redemption price of and accrued interest on the notes to be redeemed on that date. If less than all of the notes are to be redeemed, the notes to be redeemed shall be selected by lot by DTC, in the case of notes represented by a global security, or by the trustee by a method the trustee deems to be fair and appropriate, in the case of notes that are not represented by a global security.

Repurchase at the Option of Holders Upon a Change of Control Repurchase Event

If a Change of Control Repurchase Event (as defined below) occurs, unless TDCC has exercised its right to redeem the notes as described above, TDCC will make an offer to each holder of notes to repurchase all or any part (no note of a principal amount of $2,000 or less will be repurchased in part) of that holder's notes at a repurchase price in cash equal to 101% of the aggregate principal amount of notes repurchased plus any accrued and unpaid interest on the notes repurchased to the date of repurchase. Within 30 days following any Change of Control Repurchase Event or, at TDCC's option, prior to any Change of Control (as defined below), but after the public announcement of an impending Change of Control, TDCC will mail a notice to each holder, with a copy to the trustee, describing the transaction or transactions that constitute or may constitute the Change of Control Repurchase Event and offering to repurchase notes on the payment date specified in the notice, which date will be no earlier than 30 days and no later than 60 days from the date such notice is mailed. The notice shall, if mailed prior to the date of consummation of the Change of Control, state that the offer to repurchase is conditioned on the Change of Control Repurchase Event occurring on or prior to the payment date specified in the notice.

TDCC will comply with the requirements of Rule 14e-1 under the Exchange Act and any other securities laws and regulations thereunder, to the extent those laws and regulations are applicable in connection with the repurchase of the notes as a result of a Change of Control Repurchase Event. To the extent that the provisions of any securities laws or regulations conflict with the Change of Control Repurchase Event provisions of the notes, TDCC will comply with the applicable securities laws and regulations and will not be deemed to have breached its obligations under the Change of Control Repurchase Event provisions of the notes by virtue of such conflict.

On the Change of Control Repurchase Event payment date, TDCC will, to the extent lawful:

- accept for payment all notes or portions of notes (in a minimum principal amount of $2,000 and integral multiples of $1,000 above that amount) properly tendered pursuant to its offer;
- deposit with the paying agent an amount equal to the aggregate purchase price in respect of all notes or portions of notes properly tendered; and
- deliver or cause to be delivered to the trustee the notes properly accepted, together with an officer's certificate stating the aggregate principal amount of notes being purchased by TDCC.

The paying agent will promptly mail to each holder of notes properly tendered the purchase price for the notes, and the trustee will promptly authenticate and mail (or cause to be transferred by book-entry) to each holder a new note equal in principal amount to any unpurchased portion of any notes surrendered; provided, that each new note will be in a minimum principal amount of $2,000 or an integral multiple of $1,000 above that amount.

TDCC will not be required to make an offer to repurchase the notes upon a Change of Control Repurchase Event if a third party makes such an offer in the manner, at the times and otherwise in compliance with the requirements for an offer made by TDCC and such third party purchases all notes properly tendered and not withdrawn under its offer.

TDCC has no present intention to engage in a transaction involving a Change of Control, although it is possible that it would decide to do so in the future. TDCC could, in the future, enter into certain transactions, including acquisitions, refinancings or other recapitalizations, that would not constitute a Change of Control, but that could increase the amount of debt outstanding at such time or otherwise affect its capital structure or credit ratings.

Definitions

"Below Investment Grade Rating Event" means the rating on the notes is lowered by each of the Rating Agencies and the notes are rated below Investment Grade by each of the Rating Agencies on any date from the date of the public notice of an arrangement that could result in a Change of Control until the end of the 60-day period following public notice of the occurrence of a Change of Control (which period shall be extended so long as the rating of the notes is under publicly announced consideration for possible downgrade by any of the Rating Agencies); provided that a Below Investment Grade Rating Event otherwise arising by virtue of a particular reduction in rating shall not be deemed to have occurred in respect of a particular Change of Control (and thus shall not be deemed a Below Investment Grade Rating Event for purposes of the definition of Change of Control Repurchase Event hereunder) if any of the Rating Agencies making the reduction in rating to which this definition would otherwise apply does not announce or publicly confirm or inform the trustee in writing at its request that the reduction was the result, in whole or in part, of any event or circumstance comprised of or arising as a result of, or in respect of, the applicable Change of Control (whether or not the applicable Change of Control shall have occurred at the time of the Below Investment Grade Rating Event).

"Change of Control" means the occurrence of any of the following:

(1) the direct or indirect sale, transfer, conveyance or other disposition (other than by way of merger or consolidation), in one or a series of related transactions, of all or substantially all of TDCC's properties or assets and those of its subsidiaries taken as a whole to any "person" or "group" (as those terms are used for purposes of Section 13(d)(3) of the Exchange Act), other than TDCC or one or more of its subsidiaries;

(2) the consummation of any transaction or series of related transactions (including, without limitation, any merger or consolidation) the result of which is that any "person" or "group" (as those terms are used for purposes of Section 13(d)(3) of the Exchange Act), other than TDCC or one of its wholly-owned subsidiaries, becomes the beneficial owner, directly or indirectly, of more than 50% of the then outstanding number of shares of TDCC's Voting Stock, measured by voting power rather than number of shares;

(3) TDCC consolidate with, or merge with or into, any person, or any person consolidates with, or merges with or into, TDCC , in any such event pursuant to a transaction in which any of TDCC's outstanding Voting Stock or the Voting Stock of such other person is converted into or exchanged for cash, securities or other property, other than any such transaction where the shares of TDCC's Voting Stock outstanding immediately prior to such transaction constitute, or are converted into or exchanged for, a majority of the Voting Stock of the surviving person or any direct or indirect parent company of the surviving person immediately after giving effect to such transaction;

(4) the first day on which a majority of the members of TDCC's Board of Directors are not Continuing Directors; or

(5) the adoption of a plan relating to TDCC's liquidation or dissolution.

Notwithstanding the foregoing, a transaction will not be considered to be a Change of Control under clause (2) above if (a) TDCC becomes a direct or indirect wholly-owned subsidiary of a holding company and (b) (y) immediately following that transaction, the direct or indirect holders of the Voting Stock of the holding company are substantially the same as the holders of TDCC's Voting Stock immediately prior to that transaction or (z) immediately following that transaction, no person (as that term is used in Section 13(d)(3) of the Exchange Act) is the beneficial owner, directly or indirectly, of more than 50% of the Voting Stock of the holding company.

The definition of Change of Control includes a phrase relating to the direct or indirect sale, lease, transfer, conveyance or other disposition of "all or substantially all" of TDCC's properties or assets and those of its subsidiaries taken as a whole. Although there is a limited body of case law interpreting the phrase "substantially all" there is no precise established definition of the phrase under applicable law. Accordingly, the ability of a holder of notes to require TDCC to repurchase its notes as a result of a sale, lease, transfer, conveyance or other disposition of

less than all of TDCC's properties and assets and of those of its subsidiaries taken as a whole to another person or group may be uncertain.

"Change of Control Repurchase Event" means the occurrence of both a Change of Control and a Below Investment Grade Rating Event.

"Continuing Directors" means, as of any date of determination, any member of TDCC's Board of Directors who (1) was a member of such Board of Directors on the date of the issuance of the notes; or (2) was nominated for election or elected to such Board of Directors with the approval of a majority of the Continuing Directors who were members of such Board of Directors at the time of such nomination or election (either by a specific vote or by approval of Dow Inc. and TDCC's proxy statement in which such member was named as a nominee for election as a director).

Under a recent Delaware Chancery Court interpretation of the foregoing definition of "Continuing Directors," TDCC's Board of Directors could approve, for purposes of such definition, a slate of stockholder-nominated directors without endorsing them, or while simultaneously recommending and endorsing its own slate instead. Accordingly, under such interpretation, TDCC's Board of Directors could approve a slate of directors that includes a majority of dissident directors nominated pursuant to a proxy contest, and the ultimate election of such dissident slate would not constitute a "Change of Control Repurchase Event" that would trigger a holder's right to require TDCC to repurchase the holder's notes as described above.

"Fitch" means Fitch Ratings Ltd.

"Investment Grade" means a rating of BBB- or better by Fitch (or its equivalent under any successor rating categories of Fitch), Baa3 or better by Moody's (or its equivalent under any successor rating categories of Moody's) and a rating of BBB- or better by S&P (or its equivalent under any successor rating categories of S&P) or the equivalent investment grade credit rating from any additional Rating Agency or Rating Agencies selected by TDCC.

"Moody's" means Moody's Investors Services Inc.

"Rating Agency" means (1) each of Fitch, Moody's and S&P; and (2) if any of Fitch, Moody's or S&P ceases to rate the notes or fails to make a rating of the notes publicly available for reasons outside of TDCC's control, a "nationally recognized statistical rating organization" registered pursuant to Section 15E of the Exchange Act, selected by TDCC as a replacement agency for Fitch, Moody's or S&P, as the case may be.

"S&P" means Standard & Poor's Ratings Services, a division of McGraw-Hill, Inc.

"Voting Stock" means, with respect to any person, capital stock of any class or kind the holders of which are ordinarily, in the absence of contingencies, entitled to vote for the election of directors (or persons performing similar functions) of such person, even if the right so to vote has been suspended by the happening of such a contingency.

Sinking Fund

The notes are not entitled to any sinking fund.

Book-Entry, Delivery and Form

The notes were issued in the form of one or more global notes in definitive, fully registered, book-entry form. The global notes will be deposited with or on behalf of DTC and registered in the name of Cede & Co., as nominee of DTC.

DTC, Clearstream and Euroclear

Beneficial interests in the global notes will be represented through book-entry accounts of financial institutions acting on behalf of beneficial owners as direct and indirect participants in DTC. Investors may hold interests in the global notes through either DTC (in the United States), Clearstream Banking, société anonyme, which is referred to as Clearstream, or Euroclear Bank S.A./N.V., as operator of the Euroclear System, which is referred to as Euroclear, in Europe, either directly if they are participants in such systems or indirectly through organizations that are participants in such systems. Clearstream and Euroclear will hold interests on behalf of their participants through customers' securities accounts in Clearstream's and Euroclear's names on the books of their U.S. depositaries, which in turn will hold such interests in customers' securities accounts in the U.S. depositaries' names on the books of DTC.

DTC has advised TDCC that:

- DTC is a limited-purpose trust company organized under the New York Banking Law, a "banking organization" within the meaning of the New York Banking Law, a member of the Federal Reserve System, a "clearing corporation" within the meaning of the New York Uniform Commercial Code and a "clearing agency" registered under Section 17A of the Exchange Act.
- DTC holds securities that its participants deposit with DTC and facilitates the settlement among participants of securities transactions, such as transfers and pledges, in deposited securities through electronic computerized book-entry changes in participants' accounts, thereby eliminating the need for physical movement of securities certificates.
- Direct participants include securities brokers and dealers, banks, trust companies, clearing corporations and other organizations, some of whom, and/or their representatives, own DTC.
- DTC is owned by a number of its direct participants and by The New York Stock Exchange, Inc., the American Stock Exchange LLC and the National Association of Securities Dealers, Inc.
- Access to the DTC system is also available to others such as securities brokers and dealers, banks and trust companies that clear through or maintain a custodial relationship with a direct participant, either directly or indirectly.
- The rules applicable to DTC and its direct and indirect participants are on file with the SEC.

Clearstream has advised TDCC that it is incorporated under the laws of Luxembourg as a professional depositary. Clearstream holds securities for its customers and facilitates the clearance and settlement of securities transactions between its customers through electronic book-entry changes in accounts of its customers, thereby eliminating the need for physical movement of certificates. Clearstream provides to its customers, among other things, services for safekeeping, administration, clearance and settlement of internationally traded securities and securities lending and borrowing. Clearstream interfaces with domestic markets in several countries. As a professional depositary, Clearstream is subject to regulation by the Luxembourg Commission for the Supervision of the Financial Section. Clearstream customers are recognized financial institutions around the world, including underwriters, securities brokers and dealers, banks, trust companies, clearing corporations and other organizations and may include the underwriters. Indirect access to Clearstream is also available to others, such as banks, brokers, dealers and trust companies that clear through or maintain a custodial relationship with a Clearstream customer either directly or indirectly.

Euroclear has advised TDCC that it was created in 1968 to hold securities for participants of Euroclear and to clear and settle transactions between Euroclear participants through simultaneous electronic book-entry delivery against payment, thereby eliminating the need for physical movement of certificates and any risk from lack of simultaneous transfers of securities and cash. Euroclear provides various other services, including securities lending and borrowing and interfaces with domestic markets in several countries. Euroclear is operated by Euroclear Bank S.A./N.V., which is referred to as the Euroclear Operator, under contract with Euroclear Clearance Systems S.C., a Belgian cooperative corporation, which is referred to as the Cooperative. All operations are conducted by the Euroclear Operator, and all Euroclear securities clearance accounts and Euroclear cash accounts are accounts with

the Euroclear Operator, not the Cooperative. The Cooperative establishes policy for Euroclear on behalf of Euroclear participants. Euroclear participants include banks (including central banks), securities brokers and dealers, and other professional financial intermediaries and may include the underwriters. Indirect access to Euroclear is also available to other firms that clear through or maintain a custodial relationship with a Euroclear participant, either directly or indirectly.

The Euroclear Operator is licensed by the Belgian Banking and Finance Commission to carry out banking activities on a global basis. As a Belgian bank, it is regulated and examined by the Belgian Banking and Finance Commission.

TDCC has provided the descriptions of the operations and procedures of DTC, Clearstream and Euroclear solely as a matter of convenience. These operations and procedures are solely within the control of those organizations and are subject to change by them from time to time. None of TDCC, the underwriters nor the trustee takes any responsibility for these operations or procedures, and DTC, Clearstream and Euroclear or their participants should be contacted directly to discuss these matters.

TDCC expects that under procedures established by DTC:

- upon deposit of the global notes with DTC or its custodian, DTC will credit on its internal system the accounts of direct participants designated by the underwriters with portions of the principal amounts of the global notes; and
- ownership of the notes will be shown on, and the transfer of ownership thereof will be effected only through, records maintained by DTC or its nominee, with respect to interests of direct participants, and the records of direct and indirect participants, with respect to interests of persons other than participants.

The laws of some jurisdictions may require that purchasers of securities take physical delivery of those securities in definitive form. Accordingly, the ability to transfer interests in the notes represented by a global note to those persons may be limited. In addition, because DTC can act only on behalf of its participants, who in turn act on behalf of persons who hold interests through participants, the ability of a person having an interest in notes represented by a global note to pledge or transfer those interests to persons or entities that do not participate in DTC's system, or otherwise to take actions in respect of such interest, may be affected by the lack of a physical definitive security in respect of such interest.

So long as DTC or its nominee is the registered owner of a global note, DTC or that nominee will be considered the sole owner or holder of the notes represented by that global note for all purposes under the Indenture and under the notes. Except as provided below, owners of beneficial interests in a global note will not be entitled to have notes represented by that global note registered in their names, will not receive or be entitled to receive physical delivery of certificated notes and will not be considered the owners or holders thereof under the Indenture or under the notes for any purpose, including with respect to the giving of any direction, instruction or approval to the trustee. Accordingly, each holder owning a beneficial interest in a global note must rely on the procedures of DTC and, if that holder is not a direct or indirect participant, on the procedures of the participant through which that holder owns its interest, to exercise any rights of a holder of notes under the Indenture or a global note.

Neither TDCC nor the trustee have any responsibility or liability for any aspect of the records relating to or payments made on account of notes by DTC, Clearstream or Euroclear, or for maintaining, supervising or reviewing any records of those organizations relating to the notes.

Payments on the notes represented by the global notes will be made to DTC or its nominee, as the case may be, as the registered owner thereof. TDCC expects that DTC or its nominee, upon receipt of any payment on the notes represented by a global note, will credit participants' accounts with payments in amounts proportionate to their respective beneficial interests in the global note as shown in the records of DTC or its nominee. TDCC also

expects that payments by participants to owners of beneficial interests in the global note held through such participants will be governed by standing instructions and customary practice as is now the case with securities held for the accounts of customers registered in the names of nominees for such customers. The participants are responsible for those payments.

Distributions on the notes held beneficially through Clearstream will be credited to cash accounts of its customers in accordance with its rules and procedures, to the extent received by the U.S. depositary for Clearstream.

Securities clearance accounts and cash accounts with the Euroclear Operator are governed by the Terms and Conditions Governing Use of Euroclear and the related Operating Procedures of the Euroclear System, and applicable Belgian law (collectively, the "Terms and Conditions"). The Terms and Conditions govern transfers of securities and cash within Euroclear, withdrawals of securities and cash from Euroclear, and receipts of payments with respect to securities in Euroclear. All securities in Euroclear are held on a fungible basis without attribution of specific certificates to specific securities clearance accounts. The Euroclear Operator acts under the Terms and Conditions only on behalf of Euroclear participants and has no record of or relationship with persons holding through Euroclear participants.

Distributions on the notes held beneficially through Euroclear will be credited to the cash accounts of its participants in accordance with the Terms and Conditions, to the extent received by the U.S. depositary for Euroclear.

Clearance and Settlement Procedures

Initial settlement for the notes were made in immediately available funds. Secondary market trading between DTC participants will occur in the ordinary way in accordance with DTC rules and will be settled in immediately available funds. Secondary market trading between Clearstream customers and/or Euroclear participants will occur in the ordinary way in accordance with the applicable rules and operating procedures of Clearstream and Euroclear, as applicable, and will be settled using the procedures applicable to conventional eurobonds in immediately available funds.

Cross-market transfers between persons holding directly or indirectly through DTC, on the one hand, and directly or indirectly through Clearstream customers or Euroclear participants, on the other, will be effected through DTC in accordance with DTC rules on behalf of the relevant European international clearing system by its U.S. depositary; however, such cross-market transactions will require delivery of instructions to the relevant European international clearing system by the counterparty in such system in accordance with its rules and procedures and within its established deadlines (European time). The relevant European international clearing system will, if the transaction meets its settlement requirements, deliver instructions to the U.S. depositary to take action to effect final settlement on its behalf by delivering or receiving the notes in DTC, and making or receiving payment in accordance with normal procedures for same-day funds settlement applicable to DTC. Clearstream customers and Euroclear participants may not deliver instructions directly to their U.S. depositaries.

Because of time-zone differences, credits of the notes received in Clearstream or Euroclear as a result of a transaction with a DTC participant will be made during subsequent securities settlement processing and dated the business day following the DTC settlement date. Such credits or any transactions in the notes settled during such processing will be reported to the relevant Clearstream customers or Euroclear participants on such business day. Cash received in Clearstream or Euroclear as a result of sales of the notes by or through a Clearstream customer or a Euroclear participant to a DTC participant will be received with value on the DTC settlement date but will be available in the relevant Clearstream or Euroclear cash account only as of the business day following settlement in DTC.

Although DTC, Clearstream and Euroclear have agreed to the foregoing procedures to facilitate transfers of the notes among participants of DTC, Clearstream and Euroclear, they are under no obligation to perform or continue to perform such procedures and such procedures may be changed or discontinued at any time.

Certificated Notes

Individual certificates in respect of the notes will not be issued in exchange for the global notes, except in very limited circumstances. TDCC will issue or cause to be issued certificated notes to each person that DTC identifies as the beneficial owner of the notes represented by a global note upon surrender by DTC of the global note if:

- DTC notifies TDCC that it is no longer willing or able to act as a depositary for such global note or ceases to be a clearing agency registered under the Exchange Act, and TDCC has not appointed a successor depositary within 90 days of that notice or becoming aware that DTC is no longer so registered;
- an event of default has occurred and is continuing, and DTC requests the issuance of certificated notes; or
- TDCC determines not to have the notes of such series represented by a global note.

Neither TDCC nor the trustee will be liable for any delay by DTC, its nominee or any direct or indirect participant in identifying the beneficial owners of the notes. TDCC and the trustee may conclusively rely on, and will be protected in relying on, instructions from DTC or its nominee for all purposes, including with respect to the registration and delivery, and the respective principal amounts, of the certificated notes to be issued.

Certain Covenants Applicable to the Notes

Limitations on Liens

The Indenture provides that, subject to the exceptions described below and those set forth under "Exempted Indebtedness," TDCC may not, and may not permit any restricted subsidiary to, create or permit to exist any lien on any principal property, additions to principal property or shares of capital stock of any restricted subsidiary without equally and ratably securing the debt securities. This restriction will not apply to permitted liens, including:

- liens on principal property existing at the time of its acquisition or to secure the payment of all or part of the purchase price or any additions thereto or to secure any indebtedness incurred at the time of, or within 120 days after, the acquisition of such principal property or any addition thereto;
- liens existing on the date of the Indenture;
- liens on property or shares of capital stock, or arising out of any indebtedness of any corporation existing at the time the corporation becomes or is merged into TDCC or a restricted subsidiary;
- liens which exclusively secure debt owing to TDCC or a subsidiary by a restricted subsidiary;
- liens of carriers, warehousemen, mechanics and materialmen incurred in the ordinary course of business for sums not yet due or being contested in good faith;
- liens arising by reason of any judgment, decree or order of any court, so long as any appropriate legal proceedings which may have been duly initiated for the review of such judgment, decree or order shall not have been finally terminated or so long as the period within which such proceedings may be initiated shall not have expired; or pledges or deposits to secure payment of workmen's compensation or other insurance, good faith deposits in connection with tenders, contracts (other than contracts for the payment of money) or leases, deposits to secure public or statutory obligations, deposits to secure public or statutory obligations, deposits to secure or in lieu of surety or appeal bonds, or deposits as security for the payment of taxes;
- liens in connection with the issuance of tax-exempt industrial development or pollution control bonds or other similar bonds issued pursuant to Section 103(b) of the Internal Revenue Code to finance all or any part of the purchase price of or the cost of construction, equipping or improving property; provided that those liens are limited to the property acquired or constructed or the improvement and to substantially unimproved real property on which the construction or improvement is located; provided further, that TDCC and its restricted subsidiaries may further secure all or any part of such purchase price or the cost of

construction of any improvements and personal property by an interest on additional property of TDCC and restricted subsidiaries only to the extent necessary for the construction, maintenance and operation of, and access to, the property so acquired or constructed or the improvement;

- liens arising from assignments of money due under contracts of TDCC or a restricted subsidiary with the United States or any State, or any department, agency or political subdivision of the United States or any State;
- liens in favor of any customer arising in respect of payments made by or on behalf of a customer for goods produced for or services rendered to customers in the ordinary course of business not exceeding the amount of those payments;
- any extension, renewal or replacement of any lien referred to in any of the previous clauses; and
- statutory liens, liens for taxes or assessments or governmental charges or levies not yet due or delinquent or which can be paid without penalty or are being contested in good faith, landlord's liens on leased property, easements and liens of a similar nature as those described above.

Limitation on Sale and Lease-Back Transactions

The Indenture provides that, subject to the exceptions set forth below under the section captioned "Exempted Indebtedness," sale and lease-back transactions by TDCC or any restricted subsidiary of any principal property are prohibited (except for temporary leases for a term, including any renewal thereof, of not more than three years and except for leases between TDCC and a subsidiary or between subsidiaries) unless the net proceeds of the sale and leaseback transaction are at least equal to the fair value of the property.

Exempted Indebtedness

TDCC or any restricted subsidiary may create or assume liens or enter into sale and lease-back transactions not otherwise permitted under the limitations on liens and sale and lease-back transactions described above, so long as at that time and after giving effect to the lien or sale and lease-back transaction, the sum of:

(1) the aggregate outstanding indebtedness of TDCC. and its restricted subsidiaries incurred after the date of the Indenture and secured by the proscribed liens relating to principal property; plus

(2) the aggregate discounted value of the obligations for rental payments in respect to the proscribed sale and lease-back transactions relating to principal property;

does not exceed 10% of consolidated net tangible assets at such time.

There are no covenants or provisions contained in the Indenture which protect holders of debt securities in the event of a highly leveraged transaction.

Certain Definitions

The following are the meanings of terms that are important in understanding the covenants previously described:

"Consolidated net tangible assets" means the total assets of TDCC and its consolidated subsidiaries as shown on or reflected in its balance sheet, less:

- all current liabilities, excluding current liabilities that could be classified as long-term debt under generally accepted accounting principles and current liabilities that are by their terms extendible or renewable at the obligor's option to a time more than 12 months after the time as of which the amount of current liabilities is being computed;

- advances to entities accounted for on the equity method of accounting; and
- intangible assets.

"Intangible assets" means the aggregate value, net of any applicable reserves, as shown on or reflected in TDCC's balance sheet, of:

- all trade names, trademarks, licenses, patents, copyrights and goodwill;
- organizational and development costs;
- deferred charges, other than prepaid items such as insurance, taxes, interest, commissions, rents and similar items and tangible assets being amortized; and
- amortized debt discount and expense, less unamortized premium.

"Principal property" means any manufacturing facility having a gross book value in excess of 1% of consolidated net tangible assets that is owned by TDCC or any restricted subsidiary and located within the United States, excluding its territories and possessions and Puerto Rico, other than any facility or portion of a facility which TDCC's board of directors reasonably determines is not material to the business conducted by TDCC and its subsidiaries as a whole.

"Restricted subsidiary" means any subsidiary:

- of which substantially all of the property of is located, and substantially all of the business is carried on, within the United States, excluding its territories and possessions and Puerto Rico; and
- that owns or operates one or more principal properties;

provided, however, restricted subsidiary shall not include a subsidiary that is primarily engaged in the business of a finance or insurance company, and branches of that finance or insurance company.

"Subsidiary" means each corporation of which more than 50% of the outstanding voting stock is owned, directly or indirectly, by TDCC or by TDCC and one or more of its subsidiaries.

Consolidation, Merger and Sale of Assets

TDCC may not merge or consolidate or sell or convey all or substantially all of its assets unless:

- the successor corporation is TDCC. or is a domestic corporation that assumes TDCC's obligations on the debt securities and under the Indenture; and
- after giving effect to the transaction, TDCC or the successor corporation would not be in default under the Indenture.

Events of Default

With respect to any series of debt securities, any one of the following events will constitute an event of default under the Indenture:

(1) default by TDCC for 30 days in the payment of any installment of interest on the debt securities of that series;

(2) default by TDCC in the payment of any principal on the debt securities of that series;

(3) default by TDCC in the payment of any sinking fund installment;

(4) default by TDCC in the performance, or breach by TDCC, of any of the covenants or warranties contained in the Indenture for the benefit of the debt securities of that series which is not remedied within a period of 90 days after receipt of written notice by TDCC from the trustee or the holders of not less than 25% in principal amount of the debt securities of that series then outstanding;

(5) TDCC commences bankruptcy or insolvency proceedings or consents to any bankruptcy relief sought against it;

(6) TDCC becomes involved in involuntary bankruptcy or insolvency proceedings and an order for relief is entered against it, if that order remains unstayed and in effect for more than 60 consecutive days; or

(7) any other event of default established in accordance with a supplemental indenture or board resolution with respect to any series of debt securities.

No event of default described in clauses (1), (2), (3), (4) or (7) above with respect to a particular series of debt securities necessarily constitutes an event of default with respect to any other series of debt securities.

The Indenture provides that if an event of default under clauses (1), (2), (3), (4) or (7) above (but only if the event of default under clauses (4) or (7) is with respect to less than all series of debt securities then outstanding) shall have occurred and be continuing, either the trustee or the holders of not less than 25% in aggregate principal amount of the then-outstanding debt securities of the series affected by the event of default, each affected series treated as a separate class, may declare the principal of all the debt securities of each affected series, together with accrued interest, to be due and payable immediately. If an event of default under clauses (4) or (7) above (but only if the event of default under clauses (4) or (7) is with respect to all of the series of debt securities then outstanding) shall have occurred and be continuing, either the trustee or the holders of not less than 25% in the aggregate principal amount of all the debt securities then outstanding, treated as one class, may declare the principal of all the debt securities, together with accrued interest, to be due and payable immediately. If an event of default under clauses (5) or (6) above shall have occurred, the principal of all the debt securities, together with accrued interest, will become due and payable immediately without any declaration or other act by the trustee or any holder.

If prior to any judgment or decree for the payment of money due being entered or obtained, TDCC delivers to the trustee an amount of money sufficient to pay all interest then due and the principal of any securities that have matured (other than through acceleration) and the trustee's expenses and TDCC has cured any defaults under the Indenture, then such declaration (including a declaration caused by a default in the payment of principal or interest, the payment for which has subsequently been provided) may be rescinded and annulled by the holders of a majority in principal amount of the debt securities of the series then outstanding, each such series treated as a separate class, or all debt securities treated as one class, as the case may be, as were entitled to declare such default. In addition, past defaults may be waived by the holders of a majority in principal amount of the debt securities of the series then outstanding, each series treated as a separate class, or all debt securities treated as one class, as the case may be, as were entitled to declare such default, except a default in the payment of the principal of or interest on the debt securities or in respect of a covenant or provision of the Indenture that cannot be modified or amended without the approval of the holder of each debt security so affected.

Notwithstanding the foregoing, at TDCC's election, the sole remedy for an event of default specified in clause (4) above relating to the failure by TDCC to comply with the covenant in the Indenture requiring TDCC to file with the trustee copies of the reports and other information it files with the SEC ("TDCCs SEC filing obligations") and for any failure by TDCC to comply with the requirements of Section 314(a)(1) of the Trust Indenture Act of 1939, as amended (the "TIA"), which similarly requires TDCC to file with the trustee copies of the reports and other information it files with the SEC, shall for the first 270 days after the occurrence of such an event of default consist exclusively of the right to receive additional interest on the debt securities of such series at an annual rate equal to 0.25% of the principal amount of the debt securities. This additional interest will accrue on the debt securities from and including the date on which an event of default relating to a failure to comply with TDCC's SEC filing obligations or the failure to comply with the requirements of Section 314(a)(1) of the TIA first occurs to but not

including the 270th day thereafter (or such earlier date on which the event of default shall have been cured or waived). On such 270th day (or earlier, if such event of default is cured or waived prior to such 270th day), such additional interest will cease to accrue and, if such event of default has not been cured or waived prior to such 270th day, then either the trustee or the holders of not less than 25% in the aggregate principal amount of the debt securities of such series then outstanding may declare the principal of all the debt securities of such series, together with accrued interest, to be due and payable immediately. This provision shall not affect the rights of holders in the event of the occurrence of any other event of default.

The Indenture contains a provision entitling the trustee, subject to the duty of the trustee during default to act with the required standard of care, to be indemnified by the holders of debt securities before exercising any right or power under the Indenture at the request of the holders of the debt securities. The Indenture also provides that the holders of a majority in principal amount of the outstanding debt securities of all series affected, each series treated as a separate class, may direct the time, method and place of conducting any proceeding for any remedy available to the trustee, or exercising any trust or power conferred on the trustee, with respect to the debt securities of such series.

The Indenture requires TDCC to file annually with the trustee a certificate as to the absence of any default or specifying any default that exists.

Satisfaction and Discharge of the Indenture

The Indenture with respect to any series, except for the surviving obligations, including TDCC's obligation to compensate the trustee and to pay the principal of and interest on the debt securities of that series, will be discharged and canceled upon the satisfaction of specified conditions, including:

- payment of all the debt securities of that series; or
- the deposit with the trustee of cash or U.S. government obligations or a combination of cash and U.S. government obligations sufficient for the payment or redemption in accordance with the Indenture and the terms of the debt securities of that series.

Modification and Waiver

TDCC and the trustee may modify and amend the Indenture with the consent of the holders of more than 50% of the principal amount of the outstanding debt securities of each series which is affected. No supplemental indenture may, without the consent of the holders of all outstanding debt securities:

- extend the final maturity of, reduce the rate or extend the time of payment of interest on, reduce the principal amount of, or reduce any amount payable on any redemption of, any debt securities; or
- reduce the percentage in principal amount of outstanding debt securities of any series, the consent of whose holders is required for any supplemental indenture.

Governing Law

The Indenture and the notes are governed by and construed in accordance with the laws of the State of New York, without regard to conflict of laws principles thereof.

Information About the Trustee

The Trustee's corporate trust office is located at 2 North LaSalle Street, Suite 700, Chicago, Illinois 60602. The Trustee's affiliate corporate trust office in New York City is located at 240 Greenwich Street, New York, New York 10286.

Subsidiaries of Dow Inc.

EXHIBIT 21

At December 31, 2020

	*Location**
This list includes companies for which the effective ownership by Dow Inc. is 50 percent or more.	
Dow Inc.	Delaware
The Dow Chemical Company	Delaware
American Mortell Corporation	Texas
Mortell Company	Delaware
Arabian Chemical Company (Latex) Ltd. (1)	Saudi Arabia
Arabian Chemical Company (Polystyrene) Limited (1)	Saudi Arabia
Battleground Water Company	Texas
Chemars III LLC	Delaware
Chemtech II L.P.	Delaware
DCOMCO, Inc.	Delaware
Dow Chemical (China) Investment Company Limited	China
Dow Chemical (Guangzhou) Company Limited	China
Dow Chemical (Shanghai) Company Limited	China
Dow Chemical (Sichuan) Co., Ltd.	China
Dow Chemical (Zhangjiagang) Company Limited	China
Zhejiang Pacific Chemical Corporation	China
Dow Chemical China Holdings Pte. Ltd.	Singapore
Dow Chemical Costa Rica S.A.	Costa Rica
Dow Chemical Delaware Corp.	Delaware
Chemtech II L.P.	Delaware
Chemtech Portfolio Inc.	Texas
Chemtech Portfolio II Inc.	Michigan
Dow Chemical International Ltd.	Delaware
Dow Chemical Costa Rica S.A.	Costa Rica
Dow Chemical Thailand Ltd.	Thailand
MTP HPPO Manufacturing Company Limited	Thailand
Dow International Holdings Company	Delaware
Petroquimica-Dow S.A. (Petrodow)	Chile
Univation Technologies, LLC	Delaware
Univation Technologies (Hong Kong) Limited	Hong Kong
Univation (Zhangjiagang) Chemical Company Limited	China
Univation Technologies International, LLC	Delaware
Dow Chemical Kuwait B.V.	Netherlands
Dow Chemical Singapore Holdings Pte. Ltd.	Singapore
Dow Chemical Telecommunications Corp.	Delaware
Dow Deutschland Inc.	Delaware
Dow Chemical Inter-American Limited	Delaware
Dow Quimica de Colombia S.A.	Colombia
Dow Engineering Company	Delaware
Dow Engineering, Inc.	Michigan
Dow Financial Services Inc.	Delaware
Dow Global Financial Management, Inc.	Delaware
Dow Global Technologies LLC	Delaware
Chemtech Portfolio Inc.	Texas
Dow Technology Investments LLC	Delaware
Dow Hydrocarbons and Resources LLC	Delaware
Cayuse Pipeline, Inc.	Texas
Dow Intrastate Gas Company	Louisiana
Dow Pipeline Company	Texas
Fort Saskatchewan Ethylene Storage Corporation (1)	Canada
Fort Saskatchewan Ethylene Storage Limited Partnership	Canada
K/D/S Promix, LLC (1)	Texas
Dow International Holdings Company	Delaware
Dow Luxembourg Spectrum Holding S.a.r.l.	Luxembourg
3308597 Nova Scotia Company	Canada
Dow Luxembourg Galaxy Holding S.a.r.l.	Luxembourg
Dow Switzerland Holding GmbH	Switzerland
DC Fin. (Singapore) Pte. Ltd.	Singapore
Dow (Shanghai) Holding Co., Ltd.	China
Dow International Holdings S.A.	Switzerland
Dow Europe Holding B.V.	Netherlands
BASF DOW HPPO B.V. (1)	Netherlands
BASF DOW HPPO Technology B.V. (1)	Netherlands
Dow Austria Gesellschaft m.b.H.	Austria
Dow Belgium B.V.B.A.	Belgium

Subsidiaries of Dow Inc.

EXHIBIT 21

At December 31, 2020

	*Location**
This list includes companies for which the effective ownership by Dow Inc. is 50 percent or more.	
Dow Benelux B.V.	Netherlands
Polyol Belgium B.V.B.A.	Belgium
Terneuzen Partnership Services B.V.	Netherlands
Valuepark Terneuzen C.V. (1)	Netherlands
Valuepark Terneuzen Beheer B.V. (1)	Netherlands
Valuepark Terneuzen C.V. (1)	Netherlands
Dow Benelux Integrated Center B.V.	Netherlands
Dow Chemical Company Limited	United Kingdom
Dow Chemical Services UK Limited	United Kingdom
Dow Limited	United Kingdom
Dow Services Trustees UK Limited	United Kingdom
Hyperlast Limited	United Kingdom
Dow UK Limited	United Kingdom
Dow Chemical East Africa Limited	Kenya
Dow Chemical Iberica S.L.	Spain
Terminal de Atraque de Productos Petroquimicos, A.I.E. (1)	Spain
Transformadora de Etileno A.I.E. (1)	Spain
Dow Chemical Korea Limited	Korea
Dow Chemical OOO	Russia
Dow Chemical Romania S.R.L.	Romania
Dow Chemical West Africa Limited	Ghana
Dow Corning de Argentina S.R.L.	Argentina
Dow Danmark A/S	Denmark
Dow Europe GmbH	Switzerland
Dow Chemical IMEA GmbH	Switzerland
Dow Egypt Services Limited	Egypt
Dow International Finance S.a.r.l.	Luxembourg
Dow Mideast Systems S.A.E. (JSC)	Egypt
Dow Netherlands Tulip Holding B.V.	Netherlands
Dow Hellas Single-Member AVEE	Greece
Dow Hungary Kft.	Hungary
Dow Industrial Chemical Products Nigeria Limited	Nigeria
Dow InterBranch B.V.	Netherlands
Dow Chemical East Africa Limited	Kenya
Dow Industrial Chemical Products Nigeria Limited	Nigeria
Dow Material Sciences Ltd.	Israel
Dow Materials Science Saudi Arabia Limited	Saudi Arabia
Dow Mideast Systems S.A.E. (JSC)	Egypt
Dow Morocco SARL	Morocco
Dow Norge A/S	Norway
Dow Quimica de Colombia S.A.	Colombia
Dow Silicones Belgium SPRL	Belgium
PT Rohm and Haas Indonesia	Indonesia
Rohm and Haas International SNC	France
Rohm and Haas Latinoamerica, S. de R.L. de C.V.	Mexico
Rohm and Haas Mexico, S. de R.L. de C.V.	Mexico
Dow Italia s.r.l.	Italy
Dow Italia Divisione Commerciale s.r.l.	Italy
Rohm and Haas Italia S.r.l.	Italy
Dow Material Sciences Ltd.	Israel
Dow Mideast Systems S.A.E. (JSC)	Egypt
Dow Egypt Services Limited	Egypt
Dow Morocco SARL	Morocco
Dow Olefinverbund GmbH	Germany
Dow Deutschland Anlagengesellschaft mbH	Germany
Dow Deutschland Verwaltungs Vertriebs GmbH	Germany
Dow Produktions und Vertriebs GmbH & Co. OHG	Germany
Dow Stade Produktions GmbH & Co. OHG	Germany
Dow MF Verwaltungs GmbH	Germany
Dow Produktions und Vertriebs GmbH & Co. OHG	Germany
Dow Stade Produktions GmbH & Co. OHG	Germany
Dow Pipeline Gesellschaft mbH & Co. KG	Germany
Dow Pipeline Verwaltungsgesellschaft mbH	Germany
Dow Silicones Deutschland GmbH	Germany
Dow Verwaltungsgesellschaft mbH	Germany

Industrienetzgesellschaft Schkopau mbH	Germany
ROH Venture GmbH	Germany

Subsidiaries of Dow Inc.

EXHIBIT 21

At December 31, 2020

	*Location**
This list includes companies for which the effective ownership by Dow Inc. is 50 percent or more.	
Dow Performance Materials (Australia) Pty Ltd	Australia
Dow Polska Sp.z.o.o.	Poland
Dow Portugal - Produtos Quimicos, Sociedade Unipessoal, Lda.	Portugal
Dow Saudi Arabia Holding B.V.	Netherlands
Dow Saudi Arabia Investment B.V.	Netherlands
Dow Materials Science Saudi Arabia Limited	Saudi Arabia
Dow Silicones Australia Pty Ltd	Australia
Dow Corning (Thailand) Limited	Thailand
Dow Silicones Belgium SPRL	Belgium
Dow Silicones UK Limited	United Kingdom
Dow Southern Africa (Pty) Ltd	South Africa
Dow Starfish Holding B.V.	Netherlands
Dow Suomi OY	Finland
Dow Sverige AB	Sweden
Dow Turkiye Kimya Sanayi ve Ticaret Limited Sirketi	Turkey
Rohm and Haas Kimya Sanayi Limited Sirketi	Turkey
DowAksa Advanced Composites Holdings B.V. (1)	Netherlands
EQUATE Marketing Company E.C. (1)	Bahrain
Finndisp Ltd.	Russia
HPPO Holding & Finance C.V. (1)	Netherlands
MTP HPJV C.V.	Netherlands
MTP HPJV Management B.V.	Netherlands
Palmyra do Brasil Indústria e Comércio de Silício Metálico e Recursos Naturais Ltda.	Brazil
Polyol Belgium B.V.B.A.	Belgium
Rohm and Haas (UK) Limited	United Kingdom
Rohm and Haas Denmark Holding Company ApS	Denmark
Rohm and Haas Espana Production Holding, S.L.	Spain
Rohm and Haas Espana, S.L.	Spain
Rohm and Haas Europe Services ApS	Denmark
Rohm and Haas Europe Trading ApS	Denmark
Rohm and Haas Kimyasal Urunler Uretim Dagitim ve Ticaret A.S.	Turkey
Rohm and Haas International SNC	France
Dow France S.A.S.	France
Rohm and Haas Nederland B.V.	Netherlands
RUS Polyurethanes Holding B.V.	Netherlands
Dow Izolan OOO	Russia
Dow Izolan Ukraine LLC	Ukraine
Dow Silicones (Shanghai) Co., Ltd.	China
Dow Silicones Holding Japan G.K.	Japan
Dow Toray Co., Ltd.	Japan
Site Services Japan, Co., Ltd.	Japan
Dow Silicones Netherlands Holding B.V.	Netherlands
Dow Chemical Silicones Korea Ltd.	Korea
Dow Silicones Pte. Ltd.	Singapore
Dow Corning (Thailand) Limited	Thailand
Dow Siloxane (Zhangjiagang) Holding Co. Private Ltd.	Singapore
Dow Siloxanes (Zhangjiagang) Co., Ltd.	China
DowBrands Inc.	Delaware
Rohm and Haas Company	Delaware
Dow Chemical Philippines, Inc.	Philippines
Dow Japan Holdings K.K.	Japan
Dow Chemical Japan Limited	Japan
Japan Acrylic Chemical Co., Ltd.	Japan
ROH Holdings 1, LLC	Delaware
Rohm and Haas Equity Corporation	Delaware
Dow Luxembourg Spectrum Holding S.a.r.l.	Luxembourg
ROH Holdings 2, LLC	Delaware
Rohm and Haas Chemicals LLC	Delaware
Morton International, LLC	Indiana
Rohm and Haas (Far East) Limited	Hong Kong
Rohm and Haas Chemical (Thailand) Limited	Thailand
Rohm and Haas China, Inc.	Delaware
Beijing Eastern Rohm and Haas Company Limited	China
Rohm and Haas International Trading (Shanghai) Co. Ltd.	China
Shanghai Eastern Rohm and Haas Co., Ltd.	China

Rohm and Haas Denmark Finance A/S	Denmark
Dow Chemical International Private Limited	India

Subsidiaries of Dow Inc.

EXHIBIT 21

At December 31, 2020

	*Location**
This list includes companies for which the effective ownership by Dow Inc. is 50 percent or more.	
PT Rohm and Haas Indonesia	Indonesia
RH DK Vietnam Holdings ApS	Denmark
Rohm and Haas Vietnam Co., Ltd.	Vietnam
Rohm and Haas (China) Holding Co., Ltd.	China
Rohm and Haas (Foshan) Specialty Materials Co., Ltd.	China
Rohm and Haas Chemicals Singapore Pte. Ltd.	Singapore
Rohm and Haas Denmark China Investment ApS	Denmark
Rohm and Haas Latinoamerica, S. de R.L. de C.V.	Mexico
Rohm and Haas Singapore (Pte.) Ltd.	Singapore
Rohm and Haas Korea Co., Ltd.	Korea
Rohm and Haas Malaysia Sdn Bhd	Malaysia
Rohm and Haas Texas Incorporated	Texas
Battleground Water Company	Texas
Rohm and Haas Equity Corporation	Delaware
Rohm and Haas New Zealand Limited	New Zealand
Rohm and Haas Quimica Ltda.	Brazil
Dow International Technology Corporation	Delaware
Dow Netherlands Tulip Holding B.V.	Netherlands
Dow Brasil Industria e Comercio de Produtos Quimicos Ltda.	Brazil
Dow Chemical Pacific (Singapore) Private Limited	Singapore
Dow Chemical (Malaysia) Sdn. Bhd.	Malaysia
Dow Chemical (Myanmar) Limited	Myanmar
Dow Chemical Bangladesh Private Limited	Bangladesh
Dow Chemical International Private Limited	India
Dow Chemical Pacific Limited	Hong Kong
Dow Chemical Vietnam Limited Liability Company	Vietnam
PT Dow Indonesia	Indonesia
Voltas Water Solutions Private Limited (1)	India
Rohm and Haas Canada Investments Limited	Canada
3229809 Nova Scotia Company	Canada
Dow Investment Argentina S.R.L.	Argentina
PBBPolisur S.R.L.	Argentina
Dow Quimica de Colombia S.A.	Colombia
PBBPolisur S.R.L.	Argentina
Rohm and Haas Canada LP	Canada
Dow Investment Argentina S.R.L.	Argentina
Rohm and Haas Canada LP	Canada
Dow Chemical Canada ULC	Canada
3308597 Nova Scotia Company	Canada
3294027 Nova Scotia Limited	Canada
Dow Brasil Industria e Comercio de Produtos Quimicos Ltda.	Brazil
Dow Brasil Sudeste Industrial Ltda.	Brazil
Rohm and Haas Quimica Ltda.	Brazil
Dow Corning de Argentina S.R.L.	Argentina
Dow Quimica de Colombia S.A.	Colombia
Fort Saskatchewan Ethylene Storage Limited Partnership	Canada
Palmyra do Brasil Indústria e Comércio de Silício Metálico e Recursos Naturais Ltda.	Brazil
Pétromont and Company, Limited Partnership (1)	Canada
Pétromont Inc. (1)	Canada
Siam Polyethylene Company Limited (1)	Thailand
Sentrachem Limited	South Africa
Dow Olefinverbund GmbH	Germany
Dow Peru S.A.	Peru
Dow Quimica de Colombia S.A.	Colombia
Dow Quimica Mexicana S.A. de C.V.	Mexico
Dow Roofing Systems LLC	Delaware
Dow Silicones Corporation	Michigan
DC Alabama, Inc.	Delaware
DCC Litigation Facility, Inc.	Delaware
Devonshire Underwriters Ltd.	District of Columbia
Dow (Shanghai) Management Co., Ltd.	China
Dow (Zhangjiagang) Holding Co., Ltd.	China
Dow Chemical International Private Limited	India
Dow Corning (Thailand) Limited	Thailand
Dow Luxembourg Spectrum Holding S.a.r.l.	Luxembourg

Dow Netherlands Tulip Holding B.V.	Netherlands
Dow Silicones (Zhangjiagang) Co., Ltd.	China

Subsidiaries of Dow Inc.

EXHIBIT 21

At December 31, 2020

	*Location**
This list includes companies for which the effective ownership by Dow Inc. is 50 percent or more.	
Dow Silicones Deutschland GmbH	Germany
Valley Asset Leasing, LLC	Delaware
Warbler I LLC	Delaware
Dow South Africa Holdings (Pty) Ltd.	South Africa
Sentrachem Limited	South Africa
Cisvaal (Proprietary) Limited	South Africa
DowBrands Inc.	Delaware
DuPont Asia Pacific Limited	Delaware
DuPont (Taiwan) Electronic Materials Limited	Taiwan
DuPont Performance Materials (Shanghai) Co., Ltd.	China
Materials Science (India) Private Limited	India
Performance Material Products Korea Ltd.	Korea
Performance Materials (Australia) Pty Ltd	Australia
Performance Materials (Thailand) Limited	Thailand
Performance Materials Japan Kabushiki Kaisha	Delaware
Dow-Mitsui Polychemicals Company, Ltd (1)	Japan
PM International Holding 3 B.V.	Netherlands
Performance Materials do Brasil Comercio de Plasticos e Polimeros Ltda.	Brazil
SP International Holding 5 B.V.	Netherlands
Performance Materials do Brasil Comercio de Plasticos e Polimeros Ltda.	Brazil
Performance Specialty Products (Hong Kong) Limited	Hong Kong
PM EMEA Holding 2 B.V.	Netherlands
PM EMEA Holding 3 B.V.	Netherlands
PM EMEA Holding 3 B.V.	Netherlands
Performance Materials Rus LLC	Russia
PM International 1 B.V.	Netherlands
Performance Materials Products (Singapore) Pte. Ltd.	Singapore
Performance Materials (Thailand) Limited	Thailand
PM Japan, Inc.	Delaware
PM LATAM, Inc.	Delaware
Performance Materials Argentina SAU	Argentina
Performance Materials Colombia S.A.S.	Colombia
Essex Chemical Corporation	New Jersey
Flexible Products Company	Georgia
Forbanco Inc.	Delaware
General Latex and Chemical Corporation	Massachusetts
GNS Enterprises, LLC	Georgia
GWN Holding, LLC	Delaware
Dow Saudi Arabia Product Marketing B.V.	Netherlands
Ifco Inc.	Delaware
Chemtech II L.P.	Delaware
Liana Limited	Delaware
Dorinco Reinsurance Company	Michigan
Dorintal Reinsurance Limited	Vermont
Materials Science Holding, LLC	Delaware
Rohm and Haas International Holdings Inc.	Delaware
Dow Chemical Singapore Holdings Pte. Ltd.	Singapore
Dow Chemical (Australia) Pty Ltd	Australia
Dow Chemical (Myanmar) Limited	Myanmar
Dow Chemical (NZ) Limited	New Zealand
Dow Chemical Bangladesh Private Limited	Bangladesh
Dow Chemical International Private Limited	India
Dow Chemical Korea Limited	Korea
PT Dow Indonesia	Indonesia
Terneuzen Investments Holding B.V.	Netherlands
Dow Chemical Taiwan Limited	Taiwan
Rohm and Haas Taiwan, Inc.	Taiwan
NuvoSun, Inc.	California
Performance Materials NA, Inc.	Delaware
Performance Science Materials Company	Canada
PM EMEA Holding 1 B.V.	Netherlands
Performance Materials Netherlands B.V.	Netherlands
Dow Chemical Pakistan (Private) Limited	Pakistan
DuPont Performance Materials Deutschland GmbH	Germany
DuPont Performance Materials Proprietary Limited	South Africa

E&C EMEA Holding 1 B.V.	Netherlands
DuPont Performance Materials International Sarl	Switzerland

Subsidiaries of Dow Inc.

EXHIBIT 21

At December 31, 2020

	*Location**
This list includes companies for which the effective ownership by Dow Inc. is 50 percent or more.	
Material Science de Mexico DDM, S. de R.L. de C.V.	Mexico
Materials Science (India) Private Limited	India
Performance Materials (Thailand) Limited	Thailand
Performance Materials Belgium BVBA	Belgium
PM EMEA Cooperatief U.A.	Netherlands
Performance Materials Bulgaria EOOD	Bulgaria
Performance Materials Czech Republic s.r.o.	Czech Republic
Performance Materials Finland Oy	Finland
Performance Materials France SAS	France
Performance Materials Iberica, S.L.	Spain
Performance Materials Italy srl	Italy
Performance Materials Poland Sp. z o.o.	Poland
Performance Materials Ukraine LLC	Ukraine
PM EMEA Cooperatief U.A.	Netherlands
DuPont Performance Materials UK Limited	United Kingdom
Performance Materials Belgium BVBA	Belgium
Performance Materials Ukraine LLC	Ukraine
PM EMEA Holding 4 B.V.	Netherlands
Performance Materials Turkey Endustri Urunleri Limited Sirketi	Turkey
PM Mexico, LLC	Delaware
Material Science de Mexico DDM, S. de R.L. de C.V.	Mexico
Material Science Servicos de Mexico DDM, S. de R.L. de C.V.	Mexico
Material Science Servicos de Mexico DDM, S. de R.L. de C.V.	Mexico
POLY-CARB, Inc.	Ohio
Rofan Services LLC	Delaware
H Hotel Holding LLC	Delaware
MVCC Limited Partnership	Delaware
MVCC Limited Partnership	Delaware
Rohm and Haas Mexico, S. de R.L. de C.V.	Mexico
Sentrachem US, Inc.	Delaware
Hampshire Holdings, Inc.	Delaware
Hampshire Chemical Corp.	Delaware
Siam Polystyrene Company Limited (1)	Thailand
Siam Styrene Monomer Company Limited (1)	Thailand
Siam Synthetic Latex Company Limited (1)	Thailand
Terra Two Taiwan Limited	Taiwan
Tianjin Panda Terminal Holdings Pte. Ltd.	Singapore
Union Carbide Corporation	New York
Amerchol Corporation	Delaware
Calidria Corporation	Delaware
Carbide Chemical (Thailand) Limited	Thailand
Dow International Holdings Company	Delaware
Dow Quimica Mexicana S.A. de C.V.	Mexico
Global Industrial Corporation	New York
Peñuelas Technology Park LLC	Delaware
Seadrift Pipeline Corporation	Delaware
South Charleston Sewage Treatment Company	West Virginia
UCAR Louisiana Pipeline Company	Delaware
UCAR Pipeline Incorporated	Delaware
Dow Peru S.A.	Peru
UCAR Emulsion Systems FZE	United Arab Emirates
Umetco Minerals Corporation	Delaware
Predate Properties (Pty) Ltd.	South Africa
Union Carbide Asia Pacific, Inc.	Delaware
Union Carbide Chemicals & Plastics Technology LLC	Delaware
Dow Technology Investments LLC	Delaware
Union Carbide Customer Services Pte. Ltd.	Singapore
Union Carbide Middle East Limited	Delaware
Union Carbide Philippines (Far East), Inc.	Philippines
Union Carbide South Africa (Proprietary) Limited	South Africa
Westbridge Insurance Ltd.	Vermont

* Location of incorporation or organization. Primary location of organization is reported for partnerships.

1. These companies are 50 percent owned, nonconsolidated affiliates of Dow Inc. and are accounted for using the equity method. Separate financial statements of these companies are not included in this Annual Report on Form 10-K. These companies are not controlled, directly or indirectly, by Dow Inc. Subsidiaries of these companies, if any, are not listed in this Exhibit 21.

Consent of Independent Registered Public Accounting Firm **EXHIBIT 23.1.1**

We consent to the incorporation by reference of our reports dated February 5, 2021, relating to (i) the consolidated financial statements and financial statement schedule of Dow Inc. and subsidiaries (the "Company"), and (ii) the effectiveness of the Company's internal control over financial reporting, appearing in the Annual Report on Form 10-K, filed jointly by Dow Inc. and The Dow Chemical Company, for the year ended December 31, 2020, in the following Registration Statements of Dow Inc.:

Form S-3:

No. 333-230668
333-232862

Form S-8:

Nos. 333-220352-01
333-230680
333-230681

/s/ DELOITTE & TOUCHE LLP

Midland, Michigan
February 5, 2021

Consent of Independent Registered Public Accounting Firm **EXHIBIT 23.1.2**

We consent to the incorporation by reference of our reports dated February 5, 2021, relating to (i) the consolidated financial statements and financial statement schedule of The Dow Chemical Company and subsidiaries ("TDCC") and (ii) the effectiveness of TDCC's internal control over financial reporting, appearing in the Annual Report on Form 10-K, filed jointly by Dow Inc. and The Dow Chemical Company, for the year ended December 31, 2020, in the following Registration Statements of The Dow Chemical Company:

Form S-3:

No. 333-232862-01

Form S-4:

No. 333-88443
333-234108

Form S-8:

Nos. 33-61795
333-40271
333-91027
333-103519
333-220352

/s/ DELOITTE & TOUCHE LLP

Midland, Michigan
February 5, 2021

Ankura Consulting Group, LLC ("Ankura") hereby consents to the use of Ankura's name and the reference to Ankura's reports in this Annual Report on Form 10-K of Dow Inc. and The Dow Chemical Company for the year ended December 31, 2020, and the incorporation by reference thereof in the following Registration Statements of Dow Inc. and The Dow Chemical Company:

DOW INC.

Form S-3:

No. 333-230668
333-232862

Form S-8:

Nos. 333-220352-01
333-230680
333-230681

THE DOW CHEMICAL COMPANY

Form S-3:

No. 333-232862-01

Form S-4:

No. 333-88443
333-234108

Form S-8:

Nos. 33-61795
333-40271
333-91027
333-103519
333-220352

/s/ AMY BROCKMAN

Amy Brockman
Senior Managing Director
Ankura Consulting Group, LLC
February 5, 2021

Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Jim Fitterling, certify that:

1. I have reviewed this Annual Report on Form 10-K of Dow Inc. and The Dow Chemical Company;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrants as of, and for, the periods presented in this report;

4. The registrants' other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrants and have:

   a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrants, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) evaluated the effectiveness of the registrants' disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) disclosed in this report any change in the registrants' internal control over financial reporting that occurred during the registrants' most recent fiscal quarter (the registrants' fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrants' internal control over financial reporting; and

5. The registrants' other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrants' auditors and the audit committee of registrants' board of directors (or persons performing the equivalent function):

   a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrants' ability to record, process, summarize and report financial information; and

   b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrants' internal control over financial reporting.

/s/ JIM FITTERLING

Jim Fitterling
Chairman and Chief Executive Officer
February 5, 2021

Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Howard Ungerleider, certify that:

1. I have reviewed this Annual Report on Form 10-K of Dow Inc. and The Dow Chemical Company;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrants as of, and for, the periods presented in this report;

4. The registrants' other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrants and have:

   a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrants, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) evaluated the effectiveness of the registrants' disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) disclosed in this report any change in the registrants' internal control over financial reporting that occurred during the registrants' most recent fiscal quarter (the registrants' fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrants' internal control over financial reporting; and

5. The registrants' other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrants' auditors and the audit committee of registrants' board of directors (or persons performing the equivalent function):

   a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrants' ability to record, process, summarize and report financial information; and

   b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrants' internal control over financial reporting.

/s/ HOWARD UNGERLEIDER

Howard Ungerleider
President and Chief Financial Officer
February 5, 2021

Certification Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

I, Jim Fitterling, Chairman and Chief Executive Officer of Dow Inc. and The Dow Chemical Company (the "Companies"), certify that:

1. the Annual Report on Form 10-K of the Companies for the year ended December 31, 2020 as filed with the Securities and Exchange Commission (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

2. the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Companies.

/s/ JIM FITTERLING

Jim Fitterling
Chairman and Chief Executive Officer
February 5, 2021

Certification Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

I, Howard Ungerleider, President and Chief Financial Officer of Dow Inc. and The Dow Chemical Company (the "Companies"), certify that:

1. the Annual Report on Form 10-K of the Companies for the year ended December 31, 2020 as filed with the Securities and Exchange Commission (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

2. the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Companies.

/s/ HOWARD UNGERLEIDER

Howard Ungerleider
President and Chief Financial Officer
February 5, 2021