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CORPORATE PARTICIPANTS

Colleen Kay *Dow Inc. - VP of Investor Relations*
James R. Fitterling *Dow Inc. - Chairman & CEO*
Howard I. Ungerleider *Dow Inc. - President & CFO*

CONFERENCE CALL PARTICIPANTS

Christopher S. Parkinson *Crédit Suisse AG, Research Division - Director of Equity Research*
David L. Begleiter *Deutsche Bank AG, Research Division - MD and Senior Research Analyst*
Frank Joseph Mitsch *Fermium Research, LLC - Senior MD*
Hassan Ijaz Ahmed *Alembic Global Advisors - Partner & Head of Research*
Jeffrey John Zekauskas *JPMorgan Chase & Co, Research Division - Senior Analyst*
John P. Rogers *Moody's Corporation, Research Division - Former Analyst*
John Patrick McNulty *BMO Capital Markets Equity Research - Analyst*
Jonas I. Oxgaard *Sanford C. Bernstein & Co., LLC., Research Division - Senior Analyst*
Kevin William McCarthy *Vertical Research Partners, LLC - Partner*
Laurence Alexander *Jefferies LLC, Research Division - VP & Equity Research Analyst*
Matthew Robert Lovseth Blair *Tudor, Pickering, Holt & Co. Securities, Inc., Research Division - MD of Refining and Chemicals Research*
Prashant N. Juvekar *Citigroup Inc., Research Division - Global Head of Chemicals & Agriculture Research and MD*
Robert Andrew Koort *Goldman Sachs Group, Inc., Research Division - MD*
Steve Byrne *BofA Merrill Lynch, Research Division - Director of Equity Research*
Vincent Stephen Andrews *Morgan Stanley, Research Division - MD*

PRESENTATION

Operator

Good day, and welcome to the Dow Second Quarter 2020 Earnings Call. (Operator Instructions) Also, today's call is being recorded.

I would now like to turn the call over to Colleen Kay, Vice President of Investor Relations. Please go ahead, ma'am.

Colleen Kay ***Dow Inc. - VP of Investor Relations***

Good morning, everyone. Thank you for joining us to discuss the second quarter financial results for Dow. We're making this call available via webcast and we have prepared slides to supplement our comments during this conference call. They are posted on the Investor Relations section of Dow's website and through the link to our webcast.

I'm Colleen Kay, Investor Relations Vice President for Dow. And joining me on the call today are Jim Fitterling, Dow's Chairman and Chief Executive Officer; and Howard Ungerleider, President and Chief Financial Officer.

Please read the forward-looking statement disclaimer contained in the earnings news release and slides. During our call, we will make forward-looking statements regarding our expectations or predictions about the future. Because these statements are based on current assumptions and factors that involve risks and uncertainties, our actual performance and results may differ materially from our forward-looking statements. Dow's Forms 10-Q and 10-K include detailed discussions of principal risks and uncertainties, which may cause such differences. Unless otherwise specified, all financials, where applicable, exclude significant items. We'll also refer to non-GAAP measures. A reconciliation to the most directly comparable GAAP financial measure and other associated disclosures is contained in the Dow earnings release, in the slides that supplement our comments today and on the Dow website.

On Slide 2, you'll see our agenda for the call. Jim will begin with the second quarter highlights and discuss the operating performance of the segment. Howard will provide a financial overview of the quarter and an update on Sadara. He will share the additional actions we are taking to address current market conditions and then move into modeling guidance. Jim will close with some remarks on our outlook and Dow's competitive advantages for growth. Following that, we will take your questions.

With that, I'll turn the call over to Jim.

James R. Fitterling ***Dow Inc. - Chairman & CEO***

Thank you, Colleen, and thanks to everyone joining us this morning. On behalf of the Dow team, we hope that each of you and your families are healthy and safe.

Turning on Slide 3. Despite the impact the COVID-19 pandemic had on Dow's financial results this quarter, the Dow team continued to stay focused, prioritizing cash and maintaining our financial strength. We electively lowered our operating rates to meet demand, reduced inventory and focused on cash to deliver on our priorities. Importantly, we generated $1.6 billion in cash flow from operations, up more than $600 million year-over-year, and free cash flow of $1.3 billion, up more than $800 million year-over-year. Our discipline to focus on cash generation has resulted in an improved cash flow conversion every quarter since spin, delivering 110% conversion on a trailing 12-month basis. Once again, we ended the quarter with approximately $12 billion in cash and committed liquidity, and we continue to see additional cash flow upside.

From a top line perspective, net sales were near the high end of our guidance range, driven by solid demand in pandemic-related applications and in geographies that are leading the economic recovery. We delivered volume growth in consumer staples, including packaging, health and hygiene, home care and pharma end markets. However, it was more than offset by declines in consumer durable end markets.

We achieved notable improvements in Asia Pacific with 3% year-over-year volume growth and 13% quarter-over-quarter, largely driven by China as Asian economies continued to reopen and gain momentum. And while Europe and North America were generally slower to restart, especially with the delay in key industries like autos and construction, we are now seeing positive demand indicators across most of our segments.

In line with our focus on cash generation, we maintained our financial and operational strength and flexibility. In the quarter, we released $526 million of cash from working capital, driving our cash flow from operations higher in yet another quarter, consistent with the expectations that we shared at our first quarter earnings call. We continued to deliver on the expense reduction that we previously committed and strategically idled assets to balance production to demand. And we're taking additional actions to maintain our strength and flexibility by increasing our expense savings target and initiating a restructuring program to ensure our competitiveness, while the economic recovery gains traction. Howard will talk more about this in a moment.

Our strong cash generation enabled us to also deliver on our capital allocation priorities. We maintained safe and reliable operations, returned $516 million to shareholders via our industry-leading dividend and paid down $600 million in debt during the quarter, with net debt reduction of approximately $740 million year-to-date.

And finally, we continue to advance the key pillars of our ambition for long-term value creation, which you'll see on Slide 4. We stayed close to our customers to manage through this historic period, introducing GPS shipment tracking to help customers better monitor their delivery and plan their operation, something that has proven to be exceptionally valued by our customers. We launched our new MobilityScience platform to enable easier and better access to our solutions for the transportation sector. And as the transportation industry recovers, our expertise, relationships and unmatched product portfolio enable us to innovate across the value chain, increasing our competitiveness. We also launched an ambitious set of new sustainability targets as well as a set of actions that Dow will take to advance anti-racism, inclusion and diversity. We believe these actions are the right thing to do, and they will further drive long-term competitive advantage and value for Dow and all of our stakeholders.

I'm proud of the Dow team for their disciplined execution and their focus on operational excellence and cash generation, which are critical to navigating in this challenging environment. As the economy gradually returns, we will continue to leverage our financial and operational flexibility, deliver differentiated value and advance our ambition, generating superior shareholder returns for the long term.

I'll close my comments on the second quarter with a review of our segment results on Slide 5. Across the company, we took action early in the quarter to idle certain assets and adjust operating rates to match supply/demand dynamics caused by the pandemic.

Packaging & Specialty Plastics' operating EBIT was $318 million, down $450 million from the year-ago period. We saw strong demand in consumer staples like packaging and also benefited from the targeted expense reductions announced last quarter. However, these gains were more than offset by weaker demand in consumer durable end markets as well as lower integrated margins. In the Packaging & Specialty Plastics business, total volumes were flat as gains in EMEA and double-digit gains in Asia Pacific were offset by declines in the U.S. and Canada where the market was impacted by both weaker demand and excess supply.

Total business volume is up year-to-date, and sequentially, the business reported 7% volume growth in packaging application. We saw margins begin to improve at the end of the quarter with improved price in June and the return of the U.S. Gulf Coast ethane advantage.

Industrial Intermediates & Infrastructure operating EBIT was down $374 million due to reduced demand, margin compression and increased equity losses. This segment experienced an almost 20% volume decline based on its broad exposure to COVID-impacted consumer durables market.

Polyurethanes & Construction Chemicals reported reduced volumes due to weak demand for consumer durable applications, including construction, furniture and bedding and automotive as a result of the pandemic. The team responded quickly to the evolving market challenges, lowering operating rates to match production to demand, reducing inventory and operating assets to maximize cash. As the quarter progressed, the business did see double-digit volume improvement in June, off of the May lows, including volume growth in Asia Pacific, and the business order book through July is also up double digits.

Industrial Solutions reported volume growth as gains in pharma and home care were more than offset by declines in industrial and oilfield application as well as consumer athleisure apparel. In response to the pandemic, the business strategically shifted its focus to capitalize on pockets of consumer demand strength, including materials for cleaning and disinfection.

And finally, Performance Materials & Coatings reported operating EBIT of $27 million, down $187 million from the year-ago period. Primarily due to margin compression in siloxane and lower demand primarily as a result of the COVID-19-related lockdown.

Consumer Solutions reported lower volumes as 8% demand growth in home care was more than offset by declines in automotive, construction and personal care end markets with consumer activities limited by COVID-related government mandate. Despite the workplace challenges through the quarter, the business continued to commercialize new innovative products, which will enable growth as the U.S. and European economy continue to recover.

Coatings & Performance Monomers also saw a volume decline due to slower global construction activity as a result of the lockdown, which was partially offset by growth in architectural coatings in the United States and Canada as consumers spend more time on do-it-yourself projects at home. The decline in professional contractor demand due to the pandemic resulted in demand shifting into the do-it-yourself segment, benefiting Dow's Coatings business.

With that, let me turn it over to Howard.

Howard I. Ungerleider ***Dow Inc. - President & CFO***

Thanks, Jim, and good morning, everyone.

Turning to Slide 6. I'd like to start by providing an update on Sadara. Since we last spoke, Sadara and the joint venture partners have continued to make good progress on project completion and debt reprofiling. As we mentioned on our first quarter earnings call, we announced the final logistics service agreement was signed. This was the final substantive step to achieve project completion. Sadara is now in a position to declare project completion but is considering withholding the final administrative step as long as meaningful progress on the debt reprofiling is made. Negotiations with the lead agency creditors are underway with a firm target to complete the reprofiling no later than the end of 2020. Sadara is working in good faith with support from Dow and Saudi Aramco to advance a term sheet acceptable to all parties. We look forward to progressing the negotiations in a timely fashion as it in the group's collective interest to complete the reprofiling by the end of the year. Dow and Saudi Aramco remain aligned in the steps needed to facilitate Sadara, maintaining a position of cash flow self-sufficiency throughout the tenor of the reprofiling.

Together, Sadara, Dow and Saudi Aramco have also made good progress by executing a framework for longer-term structural operating improvements, which are conditional on a successful reprofiling and include a 10-year supply agreement for additional ethane allocation and a 5-year extension to the natural gasoline allocation, further enhancing the crackers' feedstock flexibility. And as indicated previously, Dow continues to expect to contribute approximately $500 million to Sadara this year.

Moving to Slide 7. As Jim mentioned earlier, the team remains focused on generating cash flow to continue to fortify our financial position and fund our priorities. Since the beginning of the year, we delivered a series of costs and cash levers in response to the current environment as well as several unique nonoperational cash inflows that provide us with additional free cash flow optionality through 2021. These actions have further improved working capital and reduced operational and capital expenses in light of the current macro environment. Year-to-date, we've already achieved $1.5 billion of the targeted $2.6 billion of in-flight actions, including $750 million of year-over-year savings related to separation from DowDuPont. Notably, we have now successfully completed all IT separation-related activities in the second quarter, and we've also made good progress on the expense reduction we announced last quarter, which will continue to be a tailwind moving forward.

We also expect to benefit from several onetime cash contributions totaling up to $1.5 billion, which includes the contractual reservation payment of approximately $450 million we received from Olin during the second quarter. In addition, we announced earlier this month a definitive agreement to divest our rail infrastructure asset and related equipment at 6 major North American sites to Watco Companies for over $310 million. This transaction continues our commitment to apply a best owner mindset and aligns with our strategy to grow our core business in a capital-efficient manner. And consistent with that transaction, going forward, we will continue to evaluate ownership of additional nonproduct-producing assets across our global portfolio.

And today, we're sharing further proactive actions to ensure our cost structure remains competitive in a market recovery that may be gradual and uneven. This includes increasing our 2020 operating expense reduction targets from $350 million to $500 million. We are also initiating a restructuring program targeting more than $300 million in annualized EBITDA benefit by the end of 2021. Program includes a 6% reduction of Dow's global workforce as well as actions to exit noncompetitive assets that are closely linked to markets impacted by the pandemic. Once finalized, the charge for the program will be taken in the third quarter, and we expect full payback within approximately 2 years. These are very difficult decisions to take. However, they are necessary to ensure our financial strength continues through the cycle.

Turning to our third quarter modeling guidance on Slide 8. We see third quarter sales in the range of $8.5 billion to $9 billion on our expectation of gradual demand recovery through the quarter. We have provided our best estimate of current sales and volume expectations by segment as well as provided corridors again this quarter for high and low ranges, reflecting the potential for an uneven recovery. And although forward visibility remains challenged, we did deliver sales and volumes in all segments consistent with the guidance ranges provided last quarter. And we are now narrowing those ranges this quarter to try to provide even better transparency to our expectations. As usual, we are highlighting the key EBIT drivers in the quarter on a sequential basis.

In the Packaging & Specialty Plastics segment, we expect continued robust consumer-driven demand for our food packaging, health and hygiene applications and the beginning of a recovery in our functional polymers business, which is highly aligned to durable end markets. This demand growth, combined with industry planned and unplanned outages as well as industry inventory levels that are now hovering near 5-year lows, we believe will continue to tighten up the market and support the $0.05 per pound polyethylene price increases expected for both July and August.

In the Industrial Intermediates & Infrastructure segment, we're seeing the beginning signs of consumer durable recovery in the automotive, construction and furniture and bedding markets. We're also seeing stable demand from the higher levels we saw in the second quarter for our solvents and surfactants that help make cleaning products even more effective. It's worth pointing out, however, that we remain at trough MDI spread.

And finally, in Performance Materials & Coatings, we expect continued DIY coating demand strength in the quarter, which benefits Dow as our portfolio is tilted toward retail DIY versus the professional contractor space, an area still challenged by the pandemic. And we expect to see gradual improvement in automotive, construction and electronics segment as well as beginning signs of stabilization in the global personal care market, where our silicone offerings provide notable performance benefits.

We are also providing an updated full year tax rate that is higher versus our previous guidance as the pandemic has reduced our full year earnings expectations and altered the mix of both equity and core earnings, resulting in upward pressure on the operational rate. I'd like to emphasize again that the near-term guidance you see here is based on our assumptions for how the COVID-19 recovery will progress as we move through the third quarter. Starting to reverse the declines of the first half, we are in the beginning phases of what is likely to be an uneven recovery, which the additional expense savings we announced today will help to mitigate. We remain focused on cash flow, protecting our enterprise priorities and driving shareholder value creation.

With that, I'll turn it back to Jim.

James R. Fitterling ***Dow Inc. - Chairman & CEO***

Thank you, Howard. Please turn to Slide 9. I want to take a moment to highlight how our operational levers and our differentiated portfolio competitively position us today and for the long term. This quarter, we intentionally adjusted our operating rates lower to meet demand, reducing inventory and prioritizing cash. Operating rates across the integrated ethylene envelope remains strong at 82%, down only 1% from the year-ago period, reflecting resilient demand. However, in our polyurethanes business, we quickly brought operating rates down to the low 50% range as the extent of the durable end market shutdown became apparent. We will continue this dynamic management of our assets. And in polyurethanes, as end markets recover, we expect to quickly ramp back up above breakeven operating rates.

Our operational excellence, combined with our purposeful focus on cash and liquidity, are critical differentiators at this point in the cycle. We saw the benefit of our disciplined approach as we released more than $500 million of cash from working capital during the quarter, and we used that strength to pay down $600 million of debt. And as many of our chains have experienced compression over the last few quarters, we're starting to see rationalization take place in the industry with delayed and canceled ethylene, polyethylene and isocyanate projects. This will help Dow accelerate upward and capture growth opportunities as the recovery strengthens.

As demand returns, the fundamentals in the markets that we serve remain unchanged and will continue to grow well above GDP. Applications in our core market verticals of packaging, consumer, infrastructure and mobility represent a total of $650 billion in addressable market opportunities. In addition, as we discussed last quarter, our feedstock flexibility and product mix enable us to deliver lower cost and higher, more resilient margin than our peers through the cycle. The approach that we've taken to structurally improve our margin, combined with our cash generation capability, will allow us to capture further incremental uplift as the recovery takes hold. And as the global economy continues to recover, we will leverage our competitive advantages to drive growth above the market within these market verticals.

Let me close by sharing our view on the outlook. The extended pandemic-related lockdowns created a delay in the ramp-up for consumer durable applications. But as economies continued to reopen and industries got back to work, we saw continued demand improvement across all of our businesses through the end of May, all through June and continuing into July. Oil demand and pricing have increased as economies continue to reopen. This is providing support for the higher downstream derivative pricing. The oil to gas spread has more than doubled from the lows in the second quarter with considerable ethane in rejection and available for current and future use. Recent economic indicators show U.S. industrial production up 5.4% in June. And consumers are starting to spend more with June retail sales up 7.5%, plus U.S. housing starts up 17.3% for June, all favorable trends for continued broad economic improvement.

On the geographic front, economic recovery patterns have developed generally as expected, with China seeing rapid improvement, reporting last week that their economy has now returned to growth for the first time since the pandemic started with second quarter GDP up 3.2% year-over-year. This is evident in Dow's 31% volume growth in China versus the prior quarter and 13% volume growth versus the year-ago period, a positive indicator for the rest of the world, although the pace of recovery may vary by region.

European and North American economies have been slower to recover but began improving in June. Latin America remains challenged, but we expect them to follow a similar recovery pattern in the second half of the year. We're seeing these patterns in our order books with monthly volumes improving sequentially in key markets and geographies and shipments trending upward across all of our businesses, which we expect to support improved operating rates and margins moving forward.

On Slide 10, as I mentioned earlier, our solutions play into a diverse set of end markets to grow well above GDP. And we also have advanced feedstock flexibility, multiple technologies and geographic reach that uniquely position us to outperform our competitors. This allows us to not only deliver superior operational performance at the trough but also gives us the flexibility we need to take advantage of shifting dynamics across our portfolio, positioning Dow as a leader throughout the cycle and driving value for shareholders. Finally, with this disciplined operational and financial focus, we continue to reward owners with our industry-leading dividend, supported by our strong financial profile and cash flows.

In summary, we will remain agile, taking swift and decisive action to enhance our competitiveness, advancing our digital capabilities to better serve customers, increasing our operational and financial flexibility, and capturing greater value from the market recovery and growth opportunities ahead.

With that, I'll turn it back to Colleen to open the Q&A.

Colleen Kay ***Dow Inc. - VP of Investor Relations***

Thank you, Jim. Now let's move on to your questions. I would like to remind you that our forward-looking statements apply to both our prepared remarks and following Q&A. Operator, please provide the Q&A instruction.

QUESTIONS AND ANSWERS

Operator

(Operator Instructions) And our first question comes from David Begleiter with Deutsche Bank.

David L. Begleiter ***Deutsche Bank AG, Research Division - MD and Senior Research Analyst***

Jim and Howard, on your modeling guidance for Packaging & Specialty Plastics, looking for volumes and sales both to be flat to up 5%. I guess that implies pricing is flat, but you did get pricing up in polyethylene in June and likely in July, maybe even August. So how is pricing flat sequentially given that tailwind from polyethylene?

James R. Fitterling ***Dow Inc. - Chairman & CEO***

David, thanks for the question. We do expect volumes to continue to improve like we saw in the second quarter. We are going to have a little bit of a tailwind from -- or a headwind from some turnaround costs that are in the third quarter. Some turnaround activities have stretched through this year because of the COVID-related issues of workforce. But we do have pricing on the table for July and for August, up 5 in July, up 5 in August. We were successful in getting price up $0.04 in the month of June. And so I think we're watching what's happening there also with input costs and feedstock costs to see what the net is on integrated margin. So this outlook would have the whole integrated margin relatively flat and all the increase on volume.

Operator

We'll take our next question from John Roberts with UBS.

John P. Rogers ***Moody's Corporation, Research Division - Former Analyst***

You highlighted MobilityScience in both Slide 4 and Slide 9. You gave up most of Dow automotive in the DuPont separation. Do you still have a Dow automotive kind of integrated organization? Or is it just spread around all the businesses? And how big is automotive today? And what are your strategies there, longer term?

James R. Fitterling ***Dow Inc. - Chairman & CEO***

John, thanks for the question. We do have a fair amount of business today into the automotive industry, the transportation industry, in the neighborhood of $2 billion to $2.5 billion of sales that goes in there. It's different than the mix of products that went with transportation and high-performance polymers to DuPont. What went to DuPont was glass-bonding adhesives and crash-durable adhesives. But remember, we still have a very large platform of elastomers, silicones into a number of applications in the automotive construction, also polyurethanes and other materials that go into the interior of the cars, coatings for noise vibration and harshness.

So what we did was we pulled together a mobility platform that we could put out to the industry to have that face to the industry. And then what we're doing is pulling the resources that know that industry together from the existing businesses to be able to focus on them and to drive that growth, especially as we see them making changes as they come out of this pandemic to really lean in on next-generation mobility platforms, vehicles and some of the needs that they have there.

Operator

Our next question comes from Jonas Oxgaard with Bernstein.

Jonas I. Oxgaard ***Sanford C. Bernstein & Co., LLC., Research Division - Senior Analyst***

Wondering about Sadara. I'm looking at your Page 17, and debt is flat year-over-year. But according to the repayment schedule, you should have paid back around $250 million. So can you comment on why the debt isn't moving?

James R. Fitterling ***Dow Inc. - Chairman & CEO***

Yes. I'm going to ask Howard to take that, Jonas, because he and the treasury team have been doing the heavy lifting on Sadara.

Howard I. Ungerleider ***Dow Inc. - President & CFO***

Yes, Jonas. I mean, look, Sadara had a challenging second quarter, just like all of our chains because of really the COVID pandemic. So when you look at their equity earnings, to us, they were essentially flat versus prior quarter, but down versus same quarter a year ago. I think some of the comments that I made in the prepared comments, I mean at the end of March, we did achieve that rail agreement. So that was the last substantive step to project completion. So now we are in a position -- Sadara is in a position to declare PCD. We're withholding that at the moment as we are working to negotiate a term sheet that's acceptable to all sides.

I would say the other thing that we did in the quarter is we essentially executed a framework for structural improvements. That includes a 10-year supply agreement for additional ethane and a 5-year extension to the natural gas allocation that further enhances the crackers feedstock flexibility going forward. Those changes are conditional on a successful reprofiling. So we're working through that. We've engaged all the lenders in the negotiation. I would say it is on track. And it's in everybody's interest to get that done by the end of the year, and that's our target.

Operator

Our next question comes from Vincent Andrews with Morgan Stanley.

Vincent Stephen Andrews ***Morgan Stanley, Research Division - MD***

If I could just ask in II&I and PM&C, if I look at your volume guidance, and maybe we can focus on the low end and the high end, how should we be thinking about the incremental margin sequentially as that volume comes back?

James R. Fitterling ***Dow Inc. - Chairman & CEO***

Vince, we've got volumes up 10% to 15% in II&I and 5% to 10% in Performance Materials & Coatings. I would think about it in this way. I think it's more around operating rates and the ability to get those volumes moving and get up above breakeven operating rates in polyurethanes and also seeing some increase in the industrial activity. In II&I, a lot of solvent applications there go into industrial coatings. So they would go into things like the automotive industry, the aerospace industry, the oil and gas industry, also oil and gas production. So those have been relatively flat. So I think as those operating rates come up, we'll see an improvement there.

Just to give you an example in Polyurethanes. In the second quarter, we saw automotive rates down 50% year-over-year. They're back in third quarter. They're going to be still below last year, but they'll be about 20% below last year. And some of the other sectors like consumer durables, where they were off 30% year-over-year in the second quarter, we expect them to come back to about 10% below year-over-year. So as that operating rate improves, you're going to see polyurethanes, our target is to be at breakeven operating rates or above in Q3. They'll be about -- probably about 9% below last year in terms of volumes.

I would say that will be the main thing. I don't expect they'll get a lot of benefit from pricing. They may get some benefit from raw material costs because we have seen ethane still stay relatively available. So the ability to have a good price on ethane as we go through the quarter looks stronger than it did in the middle of the second quarter.

Howard I. Ungerleider ***Dow Inc. - President & CFO***

Vincent, this is Howard. Just to give you some numbers on decremental margins. I would say industrial intermediates was low 40s versus same quarter a year ago, and PM&C, which was a little bit better than that, was kind of high 30s. Industrial intermediates, as you would expect, has the more durable exposure, so that's why their number was a little bit worse.

Operator

Our next question comes from Hassan Ahmed with Alembic Global.

Hassan Ijaz Ahmed ***Alembic Global Advisors - Partner & Head of Research***

Jim and Howard, just wanted to revisit Sadara. If I heard you guys correctly, you said that you had sequentially flattish sort of earnings contribution over there. Just trying to get a sense, I mean, obviously, volume-wise, it was a very strange quarter with the pandemic and the like. But in terms of margins, I'm just trying to suss out what happened in Sadara, particularly keeping in mind how some of the heavier feedstocks, how dramatically they sort of came down and kind of went up thereafter. Did you guys -- did Sadara actually benefit from the steep sort of slightly heavier feeds, oil price declines and the like, margin-wise?

James R. Fitterling ***Dow Inc. - Chairman & CEO***

Sadara's input costs are relatively fixed. And so -- and a lot of the volume in Sadara is going into the Asian markets and the Middle Eastern markets. And so we did see a recovery in those markets in the second quarter. So I'd say the ability to move those was good. They were down some on operating rate because just the impact of the automotive and the construction sectors had on them. But as the oil price recovered through the quarter, that actually helps Sadara. That helped pricing in Asia, and that obviously helps our margin.

They also had -- have done well and continue to do well on plastics. So quite a big portion of their output is on the plastic side of the equation. Low-density has done pretty well. They have a nice low-density asset there. And packaging has continued to be strong throughout the pandemic. So I think that combination of things has helped them out. And they've been doing a lot. Obviously, on their own to keep costs under control and minimize costs.

Operator

Our next question comes from Jeff Zekauskas with JPMorgan.

Jeffrey John Zekauskas ***JPMorgan Chase & Co, Research Division - Senior Analyst***

I also have a couple of questions on Sadara. So the EBIT at Sadara has been negative for a few quarters. So is the way that we should understand that, that losses in MDI are offsetting income contributions in polyethylene, is that the main dynamic? Or are there other dynamics?

And secondarily, in the changes in the supply agreements, does this mean that Sadara is being expanded? Or does it mean that it's staying the same, but the raw materials flowing in might be different?

And then lastly, do you expect to still contribute money to Sadara in 2021 or 2022? Or you won't? Or you can't tell?

James R. Fitterling ***Dow Inc. - Chairman & CEO***

Jeff, thanks for the question. 3 questions in one. So I think that's...

Howard I. Ungerleider ***Dow Inc. - President & CFO***

It's one question with 3 parts, I think.

James R. Fitterling ***Dow Inc. - Chairman & CEO***

Very good. I think I can't comment on the EBIT of the different business units in Sadara. I don't have that in front of me. But I can tell you that plastics has performed better than isocyanates and polyurethanes, and that is improving. And so maybe, Howard, you could comment a little bit on the other 2 parts of Jeff's question on the feedstock agreement and the next steps?

Howard I. Ungerleider ***Dow Inc. - President & CFO***

Yes. So the feedstock agreement -- so first, Jeff, I agree. We don't disclose that level of detail, but you're absolutely right. I mean the polyolefin chain is definitely doing much better. On the -- what was the second question?

James R. Fitterling ***Dow Inc. - Chairman & CEO***

It was about the feedstock. Does that mean...

Howard I. Ungerleider ***Dow Inc. - President & CFO***

We are not -- no, we are not expanding Sadara. The framework agreement is executing additional feedstock flexibility. So it's additional ethane allocation as well as extending the natural gas allocation for a number of years. So basically, that increases feedstock flex in the range of 30% to 40%, but it's not expanding it.

And then your third question -- or your third part of the first question, around 2021 and beyond. Look, we're going through the lender reprofiling today. We still expect $500 million in cash to go into Sadara this year. But our target remains that starting in 2021, Sadara will be cash flow self-sufficient. That is the target. And it obviously is contingent on the successful reprofiling of the debt.

Operator

We'll take our next question from Frank Mitsch with Fermium Research.

Frank Joseph Mitsch ***Fermium Research, LLC - Senior MD***

A bit of a broader question. Obviously, there's been a lot of restructuring that's been going on with the combination and then the separation of DowDuPont. And you announced this morning the 6% headcount reduction, which was a bit of a surprise, at least to me. Over what time period do you plan on executing that? And I guess this might be a little bit unfair, but I mean should we be taking this as a sign that Dow is not seeing a return to pre-pandemic levels for several years? Or how should we think about it?

James R. Fitterling ***Dow Inc. - Chairman & CEO***

I think a couple of things to take into consideration as we look at it. Obviously, we're seeing volumes come back. We also need to see margin improvement to get back to pre-COVID levels. We have some industries that we serve that have been hit pretty hard. So automotive and construction have been hit pretty hard. We're seeing people go back to construction sites but on existing projects, and we're watching closely to see how new construction projects get permitted. And a fair amount of product that we sell goes into products that help support the construction market. So we're watching that.

On the consumer side, those demands and volumes look much better. And so we need to see ourselves get to a point where operating rates and margins improve before we get ahead of ourselves. We did finish in the second quarter all the IT separation from DuPont. So that's good. We're going to swing IT activities over to digitalization to help better serve our customers. We've had good success there in silicones. We're making great progress there in coatings. We want to take the whole platform over to an e-commerce platform that can make it easier for customers to interact with us. We turned on a lot of capabilities for them in the second quarter.

So what we're trying to do is look at how to be more efficient as we move forward and also look at our structure in terms of the fact that we -- I don't expect us moving CapEx up until we get back to pre-COVID-type volume levels and margin levels. And so that would mean probably a couple of years before you see us ramp back up into that kind of space.

Howard I. Ungerleider ***Dow Inc. - President & CFO***

And Frank, this is Howard, to answer your question on run rates. Our target is to be at a 50% run rate on that restructuring program by the end of second quarter next year and 90% by the end of next year.

Operator

Our next question comes from P.J. Juvekar with Citi.

Prashant N. Juvekar ***Citigroup Inc., Research Division - Global Head of Chemicals & Agriculture Research and MD***

Yes. My question is related to your ethylene crackers. And how did U.S. ethylene cracker margins compared to your European assets, let's say, for the month of July? Because 2Q is kind of crazy with raw materials, so maybe you can talk about July.

And Jim, you had talked about -- that the limit on feedstock flexibility was your ability to dispose of butadiene. So as the economies open up and butadiene demand improves with autos and all that, do you anticipate change in your feedstocks in U.S. or Europe as butadiene becomes more in demand?

James R. Fitterling ***Dow Inc. - Chairman & CEO***

Ethylene margins came under some pressure in the U.S. at the beginning of the second quarter, obviously, because what had happened was U.S. and the Canadian economies were essentially shut down for the quarter. And it took a while for the export channel to open up for polyethylene and volumes to start moving back into Asia and other economies around the world. So very dynamic difference between the first 6 weeks of the quarter, first 2 months of the quarter, and the last month of the quarter where we saw volumes increasing almost everywhere.

I'd say European ethylene margins improved because naphtha got as low as $150 in the first part of the quarter in April, but then it steadily ramped up as oil came back. So we got whipsawed a little bit, the industry did by this massive drop in oil and then the recovery through the rest of the quarter.

So it's improving now. I would say we're starting to see some margins come back in ethylene. Ethylene has been tightening up. There's been some outages that have extended. There are some outages coming in Q3 that we expected were going to happen in Q2 but have been delayed for some reasons into Q3. And so I think we're going to see things and ethylene remain relatively tight.

We are co-cracking more C4. So we have the ability with flexibility to co-crack C4s. There's a little bit of a penalty for that. But the biggest problem on naphtha cracking on the Gulf is just the byproducts. With refinery rates down, they're back into the 70s now, but that's still relatively low, with the gasoline pools and the other pools being low, with rubber being down due to automotive demand and construction demand. What you see is that it's very heavily favoring ethane cracking and ethane and propane cracking because you create less byproducts. So I think we were able to navigate that relatively well because we were basically 80-20 ethane and propane on the Gulf in the quarter. And we were able to co-crack the crude C4s, and so I think that gave us a little bit of an advantage. And we didn't have to fire sale byproducts, and we didn't have to cut rates just to manage those balances.

Operator

Our next question comes from John McNulty with BMO Capital Markets.

John Patrick McNulty ***BMO Capital Markets Equity Research - Analyst***

In the second quarter, you had a number of facilities that you temporarily shut down or idled and reduced the production levels. Is there a way to quantify what that negative impact or the cost was of doing that? And as we look to 3Q, should we be kind of reversing that? And then I guess an associated question would be, as far as some of the fixed cost absorption issues, should we be thinking about any hitting in 3Q on maybe inventory working its way through the P&L that might be a little bit higher cost because of all those actions? How should we be thinking about all that?

James R. Fitterling ***Dow Inc. - Chairman & CEO***

Yes. Howard, why don't you take a shot at that?

Howard I. Ungerleider ***Dow Inc. - President & CFO***

Yes. When you think about the assets that we idled because of the pandemic, I would say it's roughly about $140 million of lost EBITDA as a result of those idlings. Obviously, as we bring that back, you'll start to see the incremental margins come back. It really is operating rate related. And you look at the guidance that we gave for the third quarter. Clearly, we're looking for, I would say, the biggest increase, but obviously off of a much lower base in Industrial Intermediates & Infrastructure, as a lot of those durable good manufacturers have started back their production like the automotive folks. But you'll see improvements -- you should see improvements in all 3 segments, Industrial Intermediates the most, P&SP the least, just because it was the most resilient. We talked about it in the prepared comments, but our polyethylene demand was up sequentially and up versus the same quarter last year, 6% that went into packaging.

James R. Fitterling ***Dow Inc. - Chairman & CEO***

I'd say on your inventory question, John, our inventory units were down 10% year-over-year. And so as those units come back on, we'll be meeting that demand with improved operating rates. So we're not planning on putting a lot of material into inventory. We're planning on maintaining tight working capital discipline, as we talked about earlier in the year, all throughout the year and then matching Dow's operating rates to the demand that we see coming through.

Operator

We'll take our next question from Bob Koort with Goldman Sachs.

Robert Andrew Koort ***Goldman Sachs Group, Inc., Research Division - MD***

Jim, I'm curious how you see regional dynamics in the polyethylene world playing out. It seemed like at the height of the pandemic problems, the U.S. took capacity down, inventories got pretty lean, and now you're getting some pricing power. But maybe the naphtha-based crackers are starting to lose that ray of light they had. Is your expectation, as we go through the second half and into '21, that if global demand is a little less than supply, you'll start to see what we saw at the end of '19 where maybe the Asian crackers or maybe the European start to take some of that excess supply out and the U.S. industry starts to produce at rate again? Or do you think it's more measured globally, where all regions are going to maybe keep rates in check in order to keep the supply/demand balanced?

James R. Fitterling ***Dow Inc. - Chairman & CEO***

Bob, thanks for the question. With what we saw in China, coming out of the third quarter and going into the fourth quarter and volumes, plus the fact that naphtha had moved up to $350 a ton, so it's almost a $200 a ton increase from the beginning of the quarter until the end of the quarter. That's also helped support pricing movement up in Asia. And I think the volume and the pricing movements are going to continue. Our outlook on oil, obviously, is this going to continue in this range, maybe higher. It could get as high as $48 by the end of the year but somewhere in the range of where we are today in that kind of a ballpark. I would say as the demand comes back in automotive, especially in construction, and that complements the really positive demand that we've seen in consumer food packaging, specialty packaging, health and hygiene markets, I think you're going to see rates tighten up.

We are seeing right now in some of the naphtha crackers -- them at reduced rates, so maybe down 20% off of the rates that they were at the beginning of second quarter. We have some that are idled. MTO is essentially out of the money until oil gets back above something like $50 a barrel. So I think what you're going to see is the European crackers have improved, the margins have improved. That was our results in the second quarter. I think IHS data would support that.

And with the ethane advantage coming back and enough ethane in rejection in the U.S. Gulf Coast, that's going to help the U.S. position. And I think we're starting to see some polyethylene come on. So the ethylene side of the house is starting to tighten up a little bit.

Operator

Our next question comes from Chris Parkinson with Crédit Suisse.

Christopher S. Parkinson ***Crédit Suisse AG, Research Division - Director of Equity Research***

Just on the polyurethane side and construction and II&I, just how do you see the demand spectrum -- hit on this a little bit. How do you see the demand spectrum evolving in 2021 versus 2019 levels? So put simply, if you were to index your outlook for the key end markets to '19 versus where you see supply trends heading into '21, just how would you assess supply/demand dynamics as well as spreads? Just any additional color there?

James R. Fitterling ***Dow Inc. - Chairman & CEO***

Yes. So I think when you look at volumes in PU, and you look at that segment, we talked about volumes being down 20% and prices being down on top of that. What we're starting to see is automotive production is coming back. Automotive is back at about 80%, maybe as much as 90% of where it was in Asia. It's not back to those levels yet in the U.S., but it's trending back in that direction.

I think it will take polyurethanes a little longer to come back than plastics, for example, because that demand is going into much more ratable consumer applications. So our view would be you'll probably see polyurethanes back above breakeven operating rates before the end of this year. And then next year, you'll start to see them building some positive trends and maybe pre-COVID levels, maybe out to the '22 kind of time frame.

Operator

We'll take our next question from Steve Byrne with Bank of America.

Steve Byrne ***BofA Merrill Lynch, Research Division - Director of Equity Research***

Your monthly volume trend slides were helpful. Jim, you mentioned that you're seeing some cancellations in ethylene, polyethylene and isocyanate projects. Can you elaborate on that and perhaps frame it by just addressing what you see in terms of the global supply and demand outlook for those commodities over the next year?

James R. Fitterling ***Dow Inc. - Chairman & CEO***

Yes. So operating rates obviously came down mainly because the economies were shut down. If you go back to the beginning of the year, January, February, we were off to a rocky start at the beginning of the year. And then it was the economic shutdowns that really locked everything in during the months of March and April and May, April and May being the 2 worst. And so I would say operating rates, for us, on ethylene, polyethylene right now are pretty much like they were last year and the volumes are continuing to build.

We're seeing some -- obviously, projects that we thought were going to be completed this year are still being under construction and haven't started up and they're moving out. And we're also seeing investment decisions moving out. And we're seeing projects, including ones that we had on the books, moving out. And what I've said to the team here and to all of you is that we need to get ourselves back to pre-COVID-type demand levels before we start talking about CapEx and growth beyond that, and we've got to get some better visibility. I like what I'm seeing in the month of June. I like what I'm seeing in July and the outlooks for August. But we got to get ourselves a longer-term visibility here and some buildup in rates and some momentum going into this.

Operator

We'll take our next question from Kevin McCarthy with Vertical Research Partners.

Kevin William McCarthy ***Vertical Research Partners, LLC - Partner***

As part of your new $300 million restructuring plan, I think you mentioned you'll be exiting some uncompetitive assets in addition to the workforce reduction. So I wonder if you could comment on the nature of those assets, what the aggregate size of that bucket would be and what timing we should expect for those announcements.

James R. Fitterling ***Dow Inc. - Chairman & CEO***

Yes. So let me just make a comment on the top. So we announced $300 million in workforce reduction, and that is just people-related. The asset shutdowns and any charge we take for that would be over and above that number. We're working through all the details of that right now. The way we looked at that, Kevin, was we looked -- we had done some work here to take a look at the footprint of the company and where we wanted to be in a decade. And with this pandemic, I think it challenged us to take a look at which of these assets are struggling right now and may, for the long term, struggle to be competitive in any scenario, and that's what we're focusing in on. So it isn't a wholesale business unit. It's one-off assets here and there that are at the wrong end of the cost curve. And that's what we're focusing in on.

And Howard, maybe you can help him a little bit with how to quantify that?

Howard I. Ungerleider ***Dow Inc. - President & CFO***

Yes. I mean, Kevin, I would say, look, we're still working through the accounting, obviously, in each one of the decisions. But if I were to ballpark it today, it will be roughly a total charge of about $1 billion, plus or minus $300 million is kind of the range that we're in. Obviously, $300 million of it related to severance and then the other 2/3 then related to either asset actions or contract termination fees that would have to be paid based on the assets. Almost no cash out this year, and the vast majority of the cash out in 2021 and 2022 and a little bit of a tail there at the end.

Operator

Our next question comes from Matthew Blair with Tudor, Pickering and Holt.

Matthew Robert Lovseth Blair ***Tudor, Pickering, Holt & Co. Securities, Inc., Research Division - MD of Refining and Chemicals Research***

Just want to clarify on the $350 million OpEx expense savings. How much of that was realized in Q2? And do you have any targets for Q3? And then also, do you have a breakdown by segment?

Howard I. Ungerleider ***Dow Inc. - President & CFO***

Yes. I would say, so 20% of that $350 million was done in the second quarter. So you'll have 80% of that $350 million that will come through in Q3 and Q4. And then obviously, this morning, we upsized the $350 million to $500 million. So all of that upsize, $150 million will come in the third and the fourth quarter as well.

Operator

Our next question comes from Laurence Alexander with Jefferies.

Laurence Alexander ***Jefferies LLC, Research Division - VP & Equity Research Analyst***

Can you just sort of flesh out a little bit your thoughts on permanent shutdowns versus new projects that are delayed? In your restructurings, how much capacity over the last -- say, last year and then what you have planned now, what's your kind of net volume reduction across the portfolio? And are you seeing sort of permanent asset closures of existing assets in the different chains that you operate in? Or is it just new projects are being delayed?

James R. Fitterling ***Dow Inc. - Chairman & CEO***

Yes, Laurence. I would say I'm seeing right now rate cuts in Asia on crackers, as I mentioned, as much as 20%. We've seen some new projects that are sitting idle such as the rapid project in Malaysia. We've seen some shutdown of older crackers, not much, where newer crackers were built and have been started up, but we haven't seen much of that yet. And the margins that have been in have meant that there's been positive cash out of running the units. So we haven't seen that kind of pressure on those margins.

We're seeing a little bit of issues that are going to positively impact operating rate due to operation of the asset. So it could be things like byproducts and the inability to move byproducts. It could be things like maintenance. These assets are designed and they run better when they run hard. So when you try to run them at reduced rates, sometimes things happen. And so we've seen some of that. We've seen postponements of turnarounds. So maybe about 8% capacity losses in EMEA in July right now in spite of the fact that you had a couple of outages that were pushed out. So you're seeing the age of some of the fleet start to show up and start to show up when you're trying to flex things, and I think that's having an impact.

Howard I. Ungerleider ***Dow Inc. - President & CFO***

Laurence, I also think you got to look at the CTO/MTO assets. There's about 6.5 million metric tons of CTO/MTO. And those are hard-pressed to generate positive cash flow if oil is below $50 a barrel. So those are also potentially in jeopardy if oil stayed in that range.

James R. Fitterling ***Dow Inc. - Chairman & CEO***

Yes. Our look right now is that if you just look at the cost curve today, there's about 21 million metric tons. It's about 11% of ethylene capacity that's at risk, either due to age, scale, high conversion cost. The vast majority of that's in the Pacific and in Russia. So more than half of that is in the Pacific and in Russia. 3 million to 4 million tons in the U.S. and in North America. So those are the ones that we're keeping an eye on. And we can talk to you off-line about it as well if you want to talk about individual projects.

Operator

That concludes today's question-and-answer session. At this time, I will turn the conference back to Colleen Kay for any additional or closing remarks.

Colleen Kay ***Dow Inc. - VP of Investor Relations***

Thank you, everyone, for joining our call today. We appreciate your interest in Dow. For a reference, a copy of our transcript will be posted on Dow's website within 24 hours.

This concludes our call. Thank you, and have a great day.

Operator

Once again, that does conclude today's conference. We thank you for your participation. You may now disconnect.