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# EDITED TRANSCRIPT

Q2 2022 Dow Inc Earnings Call

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## PRESENTATION

**Operator**

Good day, and welcome to Dow's 2Q 2022 Earnings Call. (Operator Instructions) Also, today's call is being recorded. I would now like to turn the call over to Pankaj Gupta, Vice President of Investor Relations. Please go ahead.

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**Pankaj Gupta** ***Dow Inc. - VP of IR***

Good morning. Thank you for joining Dow's second quarter earnings call. This call is available via webcast, and we have prepared slides to supplement our comments today. They are posted on the Investor Relations section of Dow's website and through the link to our webcast.

I am Pankaj Gupta, Dow Investor Relations Vice President. And joining me today on the call 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 will also refer to non-GAAP measures. A reconciliation of 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, as well as on the Dow website.

On Slide 2, you will see our agenda for the call. Jim will begin by reviewing our second quarter results and operating segment performance. Howard will then share our outlook and modeling guidance. And then to close, Jim will discuss how we continue to advance our decarbonize and growth strategy to deliver value growth. Following that, we will take your questions. Now let me turn the call over to Jim.

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

Thank you, Pankaj. Beginning with Slide 3. In the second quarter, Team Dow delivered top line growth both year-over-year and sequentially. These results reflect the strength of our diverse global portfolio, our focus on execution and our proactive pricing actions. As such, our team was able to navigate dynamic market conditions, the impacts of pandemic lockdowns in China, continued logistics



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constraints, and higher energy and raw material costs.

Sales increased 13% year-over-year with gains in all operating segments and regions. Sequentially, sales were up 3% with gains in all regions except Asia Pacific. Local price increased in all operating segments, businesses and regions, up 16% compared to the prior year period and up 6% sequentially with gains in all operating segments and regions.

Volume was consistent with the prior year as growth in Packaging & Specialty Plastics was primarily offset by declines in Industrial Intermediates & Infrastructure. Sequentially, volume declined 2%, primarily due to lower demand in Europe and China in the quarter. With our low-cost position and industry-leading feedstock and derivative flexibility, we generated cash flow from operations of $1.9 billion and free cash flow of $1.4 billion.

Our disciplined and balanced approach to capital allocation enabled us to further strengthen our balance sheet. We redeemed $750 million of outstanding notes in the quarter, lowering our annual interest expense by $27 million. As a result, we have no substantial long-term debt maturities due until 2027. We also returned more than $1.3 billion to shareholders in the quarter, including $800 million in share repurchases and $505 million through our industry-leading dividend.

Furthering our commitment to transparency and accountability, this quarter, we also published our annual integrated ESG report INtersections. The report highlights our ESG leadership advancements and aligns our data and disclosures with key ESG frameworks. Notably, this year's report features convenient access to data as well as enhanced disclosures and carbon emission reporting for Scope 1 and 2, intensity metrics and full TCFD implementation.

Key highlights from the report include, executing our plan to decarbonize and grow, accelerating sustainability investments to enable design for recyclability and more circular plastics, taking deliberate actions to drive inclusion, diversity and equity, and improving governance, transparency and accountability.

Dow's report is one of few in our industry to receive limited assurance against formal standards by its external audit firm. And with our latest report, we added our Scope 1 and 2 emissions reporting in accordance with greenhouse gas protocol reporting to the assurance review. We're proud of our progress. And if you haven't already accessed the report, we welcome you to do so through the link included in this presentation or on our website.

Now turning to our operating segment performance on Slide 4. In the Packaging & Specialty Plastics segment, Operating EBIT was $1.4 billion compared to $2 billion in the year ago period, which was elevated due to weather-driven events. Price increases year-over-year were more than offset by rapidly rising raw material and energy costs. Sequentially, operating EBIT was up $202 million and operating EBIT margins increased by 120 basis points due to improved product mix and increased integrated margins despite higher raw material and energy costs, primarily in the United States and Canada.

Moving to the Industrial Intermediates & Infrastructure segment, operating EBIT was $426 million compared to $648 million in the year ago period, as increased raw material and energy costs and planned maintenance activity were partly offset by higher pricing. Sequentially, operating EBIT was down $235 million and operating EBIT margins declined by 490 basis points, also primarily due to higher costs and planned maintenance.

And finally, the Performance Materials & Coatings segment reported operating EBIT of $561 million, up $336 million year-over-year as margins expanded by 960 basis points, primarily due to price gains for both silicones and coatings applications as well as improved monomers supply compared to the prior year.

Sequentially, operating EBIT declined $34 million, as lower siloxane prices in Europe and China were partly offset by margin expansion in the Coatings & Performance Monomers business.

I'll now turn it over to Howard to review our outlook on Slide 5.



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

Thank you, Jim. We continue to closely monitor the evolving economic landscape, including inflation, interest rates, ongoing supply chain challenges and geopolitical risks. And as we have continued to prove, we are well positioned to adapt to market dynamics while continuing to advance our long-term decarbonized and growth strategy.

Recent economic indicators show continued growth in global economic and industrial activity, albeit at a slower pace. U.S. PMI remained positive in the second quarter as higher U.S. industrial production and capacity utilization levels were supported by continuing demand for consumables and services.

In Europe, the geopolitical and inflationary environment is driving moderation in consumer confidence and spending. However, PMI was still at expansionary levels at the end of the quarter. In China, economic activity began to recover at the end of the quarter with manufacturing PMI expanding in June, and Chinese output and new orders lifting to expansionary levels for the first time since February. And as the regional economy continues to reopen, we expect industrial output and consumer spending to benefit from easing supply chain constraints as well.

While the macroeconomic environment remains dynamic, we continue to see areas of underlying strength across our market verticals where demand and consumer spending have been resilient. Our unique competitive advantages, including our global footprint, our industry-leading feedstock and derivative flexibility, combined with our chemistry toolkit and our innovation engine, enabled Dow to remain agile to changing geographic, energy and market conditions.

Importantly, oil to gas spreads, as you can see on the slide, continue to support our structurally advantaged feedstock positions along the U.S. Gulf Coast, Canada, Argentina and the Middle East. These advantages enable us to mitigate the impacts of higher raw material and energy costs as we navigate the market dynamics around the world.

Turning to Slide 6, you'll see our current expectations for the third quarter. In the Packaging & Specialty Plastics segment, we continue to see healthy demand in food packaging and consumable end markets, largely connected to economic expansion in the services and travel sectors.

Higher energy costs and near-term regional supply imbalances are expected to be a headwind of approximately $125 million in the quarter. We also have 3 planned maintenance turnarounds at crackers in Texas, Argentina and Canada that will be a $75 million headwind versus the prior quarter as well.

In the Industrial Intermediates & Infrastructure segment, while industrial activity and infrastructure spending in the U.S. remain resilient, we expect inflation to continue impacting global consumer durables demand, including furniture and bedding and appliance end markets. Industry supply recovery of propylene oxide in China will likely drive higher global polyol and other PO derivative supply and combined with higher energy costs in Europe will likely result in an approximately $125 million headwind.

We completed our significant planned maintenance in Stade in the prior quarter and will execute additional turnarounds at our alkoxylates facility in Seadrift and at our EDC/VCM facility in Germany, in total, contributing an approximately $25 million tailwind in the quarter.

In the Performance Materials & Coatings segment, we expect sustained U.S. consumer spending for home and personal care applications as well as a continuation of seasonal construction activity. Industry siloxane capacity additions and supply recovery in China, along with higher energy costs, are expected to generate a $200 million headwind in the quarter.

All in, for the third quarter, we expect a $500 million net impact compared to the second quarter, which is aligned with current first call consensus for the quarter. We remain confident that our focused and disciplined approach, combined with our competitive advantages, will enable us to maintain our industry leadership and continue to drive value in a dynamic market environment.



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Finally, on Slide 7, we have also updated our full year modeling inputs. Notably, we executed a $750 million make whole call on our 2026 debt in the second quarter in line with our previous full year target. We also raised our expectation of dividends from our joint ventures to $900 million and a year-end estimated share count of 700 million shares due to a strong cash generation profile.

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

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

Thank you, Howard. Turning to Slide 8. We continue to advance our Decarbonize & Grow strategy, which we expect will deliver greater than $3 billion in additional run rate EBITDA while reducing our carbon emissions by 30% by 2030.

As a reminder, our path to decarbonize our footprint and grow earnings is a phased side-by-side approach that both retrofits and replaces end-of-life assets with low carbon emission facilities while also expanding our capacity. This plan will deliver a 30% reduction in our CO2 emissions between 2005 and 2030 through a disciplined approach based on affordability, macro and regulatory drivers around the world.

As a progress update, we continue to invest in renewable energy with access to more than 900 megawatts now. We're also making asset efficiency improvements and investing in innovative carbon-efficient technologies like electric cracking and carbon capture.

Recently, we announced the startup of an e-cracking research scale unit in the Netherlands that represents a key milestone in our joint technology program. Engineering and development efforts are ongoing for our plan to build the world's first ever net-zero carbon emissions ethylene cracker and derivatives complex in Fort Saskatchewan, Alberta, with formal resource loading, vendor selection and project investment decisions by year-end all on track. And work is underway to develop detailed plans to reduce CO2 emissions at our sites in both Europe and in the Americas.

These projects collectively demonstrate Dow's leadership in the transition to a sustainable world while driving underlying earnings growth. To that end, on Slide 9, while we decarbonize, we also continue to invest in higher return, faster payback projects, capture our efficiency levers and capitalize on long-term growth opportunities, including circularity.

In the near term, our in-flight investments remain on track to deliver an incremental underlying EBITDA run rate of approximately $2 billion by year-end 2025, which includes approximately $300 million of run rate EBITDA in 2022 with growth levers across each of our operating segments.

For example, in Packaging & Specialty Plastics, our 150-kiloton FCDh pilot plant in Louisiana is expected to start up in the fourth quarter of this year. In Industrial Intermediates & Infrastructure, our alkoxylates capacity investments are on track to start up in the second half of this year.

And in Performance Materials & Coatings, we completed 2 debottlenecking projects and 2 growth projects in the second quarter with 9 additional projects expected to be complete by year-end. Importantly, circularity is also a key enabler of our growth strategy as brand owners and our customers increasingly demand more circular solutions. We are leveraging our more than 20 strategic partnerships globally as we accelerate our circular product capabilities and technologies to meet this demand.

Today, we announced a series of circularity projects, including a plan with our existing partner, Mura Technology, to construct multiple world-scale advanced recycling facilities in the United States and Europe. These projects will add up to 600,000 tons per year of plastic waste recycling capacity by 2030, representing Dow's largest commitment to date to scale advanced recycling.

As a major off-taker, Dow's capacity of circular polymer products will expand significantly as we utilize recycled plastic feedstock to produce new virgin grade and 100% circular derivatives serving fast-growing brand owner needs across our market verticals.

In parallel, we continue to accelerate our mechanical recycling capabilities through partnerships like the one we announced today with French recycling company, Valoregen, to build the largest single hybrid recycling site in France. Dow will be the main recipient of its



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post-consumer recycled resin for our REVOLOOP PCR product range, which recently received certification for plastics recycling traceability and content in Europe.

These collaborations will support approximately 2/3 of Dow's 2030 target to enable 1 million metric tons of plastic to be collected, reused and recycled.

In addition, our efficiency levers are on track to deliver roughly $600 million of run rate EBITDA from our restructuring program and digital investments by year-end 2025.

In 2022, we expect these investments to deliver a run rate EBITDA of $50 million to $100 million. We already achieved the full run rate benefits from our 2020 restructuring program at the end of 2021, and we will see run rate benefits from our digital investments ramping up over the next few years.

For example, we have accelerated modernizing and automating our warehouse management systems, and we improved our supply chain planning process using new digital capabilities, enabling us to consolidate multiple customer shipments, lower costs and reduce our carbon emissions. We also improved the customer experience through enhanced real-time delivery tracking capabilities across all modes of product shipping. These digitalization improvements are particularly valuable when global supply chains are as dynamic as they are today.

Moving to Slide 10. Dow is well positioned to generate resilient cash flows and deliver value across a variety of economic environments. This reflects our approach to manage the business with more agility and efficiency, operate with the best owner mindset and continue to ensure accountability, transparency and a disciplined and balanced approach to capital allocation.

Our 3-year average EBITDA is now at more than $9 billion, driven by our early industry cycle growth investments and efficiency programs that have collectively raised our underlying earnings above pre-pandemic levels as well as improved our cost position versus the previous cycle. We nearly tripled our 3-year trailing cumulative free cash flow since spin.

With respect to the balance sheet, we have reduced gross debt by more than $6 billion in spend with a target ratings agency leverage ratio of 2 to 2.5x compared to 2.5 to 3x at spin. All of our debt is fixed rate, with less than $1 billion of maturities due over the next 5 years, which represents a reduction of approximately $7 billion in near-term debt maturities since spin.

Our underfunded pension status now stands at approximately $3 billion, less than half of where it was at spin. The significant progress we've made has been reflected in our credit ratings, including a recent upgrade from Moody's and positive outlook revisions from Fitch and S&P. With ample cash generation, we remain focused on executing our value-creating decarbonize and growth strategy, while continuing to deliver attractive shareholder remuneration.

To that point, we completed our previous share repurchase program in the second quarter and initiated our new $3 billion program, aligned with our target of returning 65% of operating net income to shareholders over the economic cycle.

As Dow looks ahead, our strong cash flow, balance sheet and attractive growth prospects collectively enabled increased optionality to remain agile through a variety of economic environments and continue to deliver value for all of our stakeholders.

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

**Pankaj Gupta** ***Dow Inc. - VP of IR***

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 the following Q&A. Operator, please provide the Q&A instructions.

## QUESTIONS AND ANSWERS



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**Operator**

(Operator Instructions) We will take the first question from Vincent Andrews from Morgan Stanley.

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

Jim, wondering if you could talk a little bit more about the Mura announcement from today and in particular, kind of lay out the path for us. What's going to happen between now and 2030 from a timeline perspective in terms of getting that 600 kt built?

What are the key sort of thresholds that you have to reach, presumably the first plant coming online and so forth is important. And how do the economics of this work in terms of how much capital will you be putting in and in terms of the offtake, are you getting it at cost or some type of cost plus? And how is raw material sourcing and so forth going to work?

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

Yes. Vince, thank you for the question. I think importantly, the partnership with Mura today is 2/3 of our 1 million-ton goal by 2030 to stop the waste and will drive a lot of volume growth in our post-consumer recycle markets.

As we know, those are higher-value premiums in the marketplace today, most of our brand owners have 30% PCR targets by 2030, and we're seeing rapid growth in our Dow REVOLOOP brand of PCR containing materials year-over-year. We will be an off taker from Mura for those capacities. It's multiple plants that will be built in the United States and Europe. I don't have all the detailed timelines on which each -- which time each will RTO. But essentially, we will have the offtake, a lot of that material, as you know, to reach the packaging quality that we need for our brand owners.

We'll also have to be worked in with virgin grade materials. So you can think of the 600 kt as additive volumes to virgin materials that we produce today. And then as we get closer to the startup of those, we can give you more details on the margins. Howard?

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

Yes, I would just add a couple of things. And Vince, when you add these announcements out that we made this morning, it will make Dow the largest consumer of recycled plastic globally for polyethylene.

And to your first question, the first asset with Mura is in Teesside, U.K., and that will be starting up next year, and that's in the [20kt ramping to 80kt] (corrected by company after the call) kind of range.

**Operator**

We'll now take the next question from P.J. Juvekar from Citi.

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

Yes. Question on plastics. The polyethylene price increases are not coming through as expected. So maybe you can comment on that. But really, my main question is on Europe, where you have higher energy prices likely this winter. What are you doing to prepare for that? You have assets in Germany, which may be most vulnerable. Can you just talk about that? And what do you anticipate -- and Howard, would you anticipate any write-downs in Europe?

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

Thanks for the question. We have good integrated margin outlook for the United States, Gulf Coast in the third quarter, similar maybe $0.01 lower than what we had in the second quarter. So I think that's very positive. And Howard mentioned the cost positions that we have in our assets that are using ethane and light cracking.

In Europe, I expect it will come off a few cents from the integrated margins in the second quarter. As you mentioned, we have high energy cost today in Europe. So that's reflected in second quarter's numbers already. I think our preparation for the fourth quarter, as we get closer to winter time, you have to be thinking that the government could move into some curtailments. We feel very good about our positions in Spain and in the Netherlands because we have some flexibility there.



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As you know, the Netherlands has our highest percentage LPG cracking. And so that -- we expect that to be an advantage for us as we go into fourth quarter. Spain has LPG cracking as well, but I think that pocket looks pretty good right now. Germany is the place that we have to keep an eye on. We've already reduced our natural gas use in Boehlen, which is really the biggest exposure. And so we've made a natural gas reduction there that is very significant.

And I think we will continue to look at other sourcing capabilities. So we have sourcing capability around the world in low-cost positions that if it was necessary, we could look at sourcing differently to supply the European demand.

Germany, in and of itself, is not -- and especially Boehlen is not the largest footprint for us.

I mentioned on the last call also that Stade, we'd worked on a project there to build long term with a consortium a standing LNG facility, a permanent facility to be able to bring in LNG shipments to help with as much as 15% of the German government's needs.

We did get the indication just recently that Stade is a site that was selected to receive one of the floating storage and regas units for LNG. So that's a big help. That will be a facility that will dock near the Stade site and bring that in. That's about 25% of the United States commitment for LNG to help out the European Union. So we feel very good about that, and I think that improves the resiliency -- energy resiliency at the Dow site in Stade. So our focus will be to get ready and look at what we need to do in Boehlen beyond the natural gas reductions we've already made.

**Operator**

Next question comes from Hassan Ahmed from Alembic Global.

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

Jim and Howard. Just wanted to go back to polyethylene again as it pertains to the Q3 guidance you guys have given. Seems you're guiding to an EBITDA slightly north of $2.5 billion. And Jim, if I heard your commentary correctly in response to the previous question, it seems you guys are baking in maybe like $0.01 a pound decline in the U.S. in terms of that Q3 guidance and maybe a couple of cent a pound worth of sequential decline in polyethylene margins in Europe. So is that correct? And if you could also comment on what you guys are seeing in -- on the polyethylene inventory side of things in the U.S.

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

I think you have the read right, Hassan, in the numbers that you read back there. I would say, in inventories in the U.S. were impacted by 2 things. Half of the increase in inventories in the United States was due to supply chain congestion that was really holding up product exiting the ports down there. Most of that was already packaged and set up for export. So it isn't a product that is likely to come back into the U.S.

The other half, we have to remember that there was some turnaround season. It was pretty heavy in the second quarter, and we've got hurricane season upon us in the third quarter here. So we usually try to build some inventories ahead of hurricane season just to be ready. And I think that would account for most of the increase that you see there. There's still supply chain congestion at the ports and we're still working through that.

I would say, for us, marine packed cargo is the area that we're focusing on. Rail has been relatively good for us. And truck, we don't move as much by truck, but truck has been relatively good as well.

**Operator**

The next question comes from Jeff Zekauskas from JPMorgan.

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

Since the end of the first quarter, oil prices have been relatively stable at about $105 a barrel, but naphtha prices have moved down globally. What do you make of that? And do you think that's changing?



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In your MDI business, are spreads getting worse? And then for Howard, in your Slide 10, you estimate your underfunded pension at $3 billion as of the second quarter. Was that $6 billion in -- as of the end of 2021? And you have gas field investments. Are those ever going to be big? Or it's all small numbers?

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

Thanks, Jeff. I'll tackle the first 2 and let Howard handle the last 2. On oil price, we're still bullish oil, and we expect that these oil-to-gas spreads are going to stay in that $70 to $80 a barrel of oil equivalent in the back half. The reason I say that is there's less than 2 million barrels per day of available capacity and oil derivative demand has been very strong. And so we don't see that abating, and we don't see that the supply is picking up fast enough to close that gap.

A little bit of effort and you've seen a little bit of movement in China towards coal. You've seen it in the energy industry. You've also seen it in coal to chemicals. That's probably taken a little bit off of the naphtha demand. China, Northeast Asia would be some of the largest naphtha demand that's out there. So my guess is that's why you've seen the oil naphtha correlation change a bit.

MDI fundamentals, to your point, are still strong. Our operating rate outlook for MDI through 2025 and 2026 is continuing to increase year-over-year, every year. So I don't think we're going to see any issues with MDI spreads. If byproducts come off a little bit, a lot of byproduct goes into production of MDI. If oil byproducts come off a little bit from the refineries, then that could be actually positive. Howard?

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

Yes. Thanks, Jeff. So yes, the answer on your pension question is correct. So it's $3 billion. By the way, that's total. That's the DB as well as the OPEB. So that's an all-in number. And all it takes is a little bit more rate increase and/or another year of earning EROA and that $3 billion probably goes to almost 0.

So we've almost got that issue completely behind us. Thanks for pointing out Slide 10 in the earnings deck. I have to say that's one of my personal favorite slides this time. I mean I think when you look at everything that we said we would do at spin and what we've done on every single financial metric, whether it's earnings, whether it's cash flow, whether it's capital structure, we are in much better position today than where we were. And I think that's reflected in the credit rating agency upgrades on Moody's and then the positive outlook, both from Fitch and S&P.

Relative to your gas well question, I think you're referring to our Devon investments. And that really -- that deal allows us to hedge I would say both on quantity and duration against rising energy and feedstock costs, and that's just not exactly available in the same way in the paper trading market. So we participate in both -- the hydrocarbons are sold directly into the market, and that obviously offsets the price increases for other sources of feedstock in our U.S. Gulf Coast assets.

We're really pleased with our partnership with Devon. That continues to grow. And it's just another tool in our toolbox of hedging, and that's how we think about it.

**Operator**

The next question comes from Laurence Alexander from Jefferies.

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

Could you give a little bit more detail on how you think about the impact of electricity prices in Europe next year? I mean, or if we mark-to-market current spot rates across Dow's positions.

And secondly, on the circularity side, are you guys seeing enough price traction and customer commitments that you can expect to have a higher average selling price across your polymer portfolio as recycled polymers become larger in the mix?



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

Yes. So the first question on electricity. Obviously, we have an existing purchase power agreement at Stade, and that also helps support Schkopau. And so we are in a good position in terms of a forward look at what our energy cost needs are going to be, and Stade is our largest electricity user.

So I think that is well in hand. I think, obviously, you have to work on what's going to happen with the weather markets in Europe, but that's hard to predict next year at this point. on sales of products containing recycled content, they are wrapping up dramatically. So our REVOLOOP product brand, for example, is up about 140% versus the first half of 2021. They're commanding about $1,500 per metric ton and $2,200 per metric ton price premiums, so $1,500 for advanced recycled materials and $2,200 for bio-based products. And that's compared to the fossil fuel and the virgin alternative.

So as we see that, we're going to see that blend into our existing business. Howard mentioned [20,000 tons] (corrected by company after call) starting up next year in Teesside in the U.K. and then ramping up to that 600,000 tons.

So I do think over time, as we get these numbers larger, we will see it have an impact. And most of that I think premium is there because the demand is much stronger than the supply.

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**Operator**

We will now take the next question from David Begleiter from Deutsche Bank.

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

Two things. First, Howard, on the modeling guidance, how should we think about the roughly $1 billion of lower sales sequentially in terms of applying some sort of decremental margin to that? Or it sounds like it's already embedded in that $500 million headwind. But how should you think about that?

And two, Jim, overall, in Europe, in terms of the natural gas curtailments, higher costs. Can you frame how much Dow will benefit or could benefit from the situation in the near and medium term?

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

Yes, David. Look, when you think about that $500 million guidance down, which again is in line with the current third quarter consensus. We're not giving incremental margins, but the way I would talk and have you think through it, it's about $125 million in P&SP. On the EBITDA line, it's about $125 million in Industrial Intermediates, again, on the EBITDA line, and $200 million on PMC.

And then you got to add the net $50 million turnarounds on top of that, and that's really split primarily P&SP $75 million headwind. PM&C flat, and then there's a tailwind sequentially in Industrial Intermediates at $25 million because the turnaround -- the big turnaround was behind us.

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

David, in the European market, for several years, the European market has been fairly well self-contained. It isn't -- with a few exceptions, it isn't an export market. And so the higher costs in Europe are really what's pushing the integrated margins over there.

So I think we're looking at it from a standpoint of maintaining the business in Europe and trying to keep everything running in the event of a curtailment that would mean that we'd have to slow something down, we'd obviously look to bring in import materials from one of our other lower-cost facilities.

But there's a cost to doing that as well. And I think we don't look at it as being advantaged because of a curtailment in Europe. What we really want to try to do is help Europe get some additional sources of gas supply in there, which is why we're doing what we're doing at Stade because we think that's necessary for them for the long term. They need to have more sources of supply for a better balanced energy policy in the EU.

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**Operator**

The next question comes from Frank Mitsch from Fermium Research.

**Frank Joseph Mitsch** ***Fermium Research, LLC - President***

I was just curious, on Slide 5, you did a nice job of pulling together some of the macro indicators looking out over the past several months, and the direction is modestly concerning. So I'm just curious in terms of the demand outlook that you have, how would you judge the second half order book for Dow today versus what your expectations might have been 3 months ago?

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

Frank, good question. I would say the businesses that are still strong on order book. Packaging continues to be strong. Our volumes in second quarter were up 5% year-over-year, without some logistics constraints could even have been higher than that.

Industrial electronics for big telco 5G data centers has been strong. Pharma incipients and Dow DIS continues to be strong. Obviously, United States, Canada, we expect to still be strong. India has shown good strength. So I think that's going to continue. And I think China will come back in a big way in third and fourth quarter. We're seeing between 4% and 5% GDP outlooks in China.

If you look at things that are steady to where we were in the first, second quarter, infrastructure continues to be very steady. Autos, even though autos have had issues with chip supply, we still are looking at year-over-year unit build and improvements in the 2023 forecast on auto. So I think as we get through chip supplies, we'll see that move.

Right now today, our tier OEMs, as they get delays in orders, we see that roll through, but we're managing that. Industrial markets, China has picked up in construction and residential housing and EVs pretty strongly because of programs supporting that. So we see that.

And I'd say the industrial markets are coming, but they're lagging that a little bit. Oil and gas is up. So we saw a lot of ethylene oxide derivatives into oil and gas, drilling and cleaning up natural gas. So that's up -- gas production in the U.S. is up to 97 Bcf a day from 95, and I think it's headed to 98 or higher.

Residential housing, I would say, the de-urbanization, I don't think is as big or as we continue to see commercial construction and multiunit construction tends to be strong. Single-family homes and home resales are slowing a bit with the higher mortgage rates. But I think that commercial construction side still looks good. And then we keep an eye on single-family home unit builds here in the U.S.

The ones that are showing a little bit of weakness right now, year-over-year, appliances are slowing a bit and consumer electronics. So I would just think big ticket items for the consumer and people that are paying higher food prices and higher transportation costs and higher utility bills, they're pulling back on some of those things.

On the other hand, they're traveling. So we see those services and tourism numbers up. And so that feeds back into the packaging business and some of the other things I started with.

**Operator**

The next question comes from Kevin McCarthy from Vertical Research Partners.

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

Jim, at your Investor Day last October, you provided a helpful trough to peak EBITDA range of $9 billion on the low end to $15 billion on the high end. And today, the run rate is right in the middle at $12 billion. So it seems as though you've got a fair amount of cushion down to your self-defined trough range.

But obviously, a lot's changed in terms of geopolitics and the energy volatility we're talking about here. Is that still the right range? And if so, can you flesh out what sort of assumptions you're baking into the trough level? And whether it might be better in a mild recession scenario or a little bit worse if we stress test further.



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

Yes. Thank you, Kevin. Look, the new range that we laid out is still intact, and we still feel good about that. 9 to 15, and that's including the expansion at Alberta, the net zero emissions facility in Alberta. If you look where we are to 2025, probably that $8 billion to $14 billion range for that 2025 window, because the Alberta expansion doesn't come in until '27 and '29 in a couple of phases there. And I would think about it this way.

P&SP always -- Package & Specialty Plastics always performs well in these type of environments. We're well above mid-cycle EBITDA margins right now. And our look is for next year that we will still be above those mid-cycle numbers. So that underpins that lower part of the quarter pretty strongly.

II&I, if you take a look at 2022, where we've been with historical peak type of numbers, and I think we're seeing a little bit of softness in a couple of areas there. But we've got growth in Industrial Solutions. They're still well above, they're within a percentage of their high EBITDA margins.

And then PM&C is right at the peak on their EBITDA margins. So I feel good about the quarter. I think we proved through 2020 and what happened with COVID that we have a very good model to understand the peak and the trough. As Howard mentioned, and I mentioned on the script, we have made a lot of improvements to the balance sheet of the company and lowered our cost position with the investments we've made over the last few years. So we go into this with a much better position. And that oil-to-gas spread really underpinned it because we've got very good low-cost assets around the world.

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**Operator**

The next question comes from Michael Sison from Wells Fargo.

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**Michael Joseph Sison** ***Wells Fargo Securities, LLC, Research Division - MD & Senior Equity Analyst***

Nice quarter. In terms of the export market of China, do you think it's opened up? And if it does, does that potentially improve the outlook for integrated margins in the Gulf Coast?

And then as a quick follow-up, in 2020, demand for polyethylene was up 2%, pretty tough time. If we head into a recession, which seems to be impacting everybody these days, at least sentiment-wise, what do you think demand from polyethylene would do given there is not a lot of durable goods and such in a mild recession?

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

Yes. Good question. I think China is opening up, I would say, export demand in our business, China is still a net importer of our materials. And so I think our focus in supplying into China, whether it's through our investments on the ground in China or through our imports, is really to support the local Chinese market.

We will, I think, start to see pickup in movement of things, like parts that will help instrumentation electrical business and controls and think mobility parts for the automotive industry. I think we'll start to see that improve, which will really debottleneck things back here.

But Asia Pacific cost positions, when you think about ethylene and other basic chemicals, are still negative. And the switch over to MTO and CTO, I don't think is really fundamentally going to change that. So I doubt in petrochemicals, we'll see them be an exporter. I think they'll be focused more on getting the domestic economy ramped up and moving.

Global growth for PE is still strong. Still in the 1.4 to 1.5x GDP rate. Operating rates are in the high 80s, low 90s, and I think they're going to be that way over the next few years. So if we're able to navigate through this in a soft landing scenario, you could actually see things move and continue to stay above these mid-peak numbers over the next several years. Any comments Howard?

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

Yes, Michael, the only other comment that I would make to your question about what happens in an economic slowdown in terms of P&SP volumes. If you go back and look in history, we can get you some of this data, if you need, offline.



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But essentially, I mean, you're right, in the 2020 pandemic economic trough, you saw P&SP volumes actually increase. I would say, historically, when you go into an economic recessionary type of environment or an economic slowdown, you don't lose a lot of volume growth in P&SP. I would say it's typically maybe 2%, 3% reduction in volume. But because people move back to smaller package types, which then basically has more square inches or square meters of packaging, and that actually drives consumption of polymers up a little bit in an economic slowdown environment.

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

And by focusing our investments in lower cost positions and we have over the time taken our higher cost assets as well, we've increased our unit margins by greater than 20% each cycle. So higher peaks and higher troughs has been the mantra for the business.

You get higher trough versus the last one when you invest in flexibility and lower cost positions like we have been, and you get higher peaks when things tighten up.

**Operator**

We will now take the next question from Christopher Parkinson from Mizuho.

**Christopher S. Parkinson** ***Mizuho Securities USA LLC, Research Division - MD and Senior Industrials Equity Research Analyst***

Can you just give us a quick update on your JVs? I mean, the additional disclosure has been very helpful. But just a quick outlook specifically on Sadara for the back half and any preliminary thoughts on '23 would be greatly appreciated.

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

Yes. Thanks, Chris. Sadara should improve in the back half as they had some maintenance activity in the second quarter. So they have our first quarter, second quarter was a little bit better. And then the back half of the year, they should be running at full rates.

They've also paid down some debt position. So on a relative basis, their balance sheet is in better shape than it was last year. So I feel good about what they're doing there. Kuwait JV is still generating good returns, obviously, watching for China to open up and see if that has an impact that rolls through to MEG pricing, and that's probably the biggest drag on Kuwait right now, although the results are still good.

And then the Thai JVs obviously is the most exposed with Naphtha costs. And as we mentioned earlier, Naphtha is actually coming down. And we'll see how pricing evolves in Asia on plastics polyethylene. Functional polymers on plastics continues to be good, and the Thai JVs have a fair amount of capacity in the functional polymer space as well. So that should be positive for them.

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

The other positive, just to reinforce on the equity earnings, is the dividends. That's the cash that we received. So in the modeling inputs for the full year that we updated, the dividends expected from our JVs, it's now expected to be about $900 million of cash. That was a $300 million increase versus the earlier estimate from earlier in the year, and that's now up $600 million versus last year. So that's a nice cash tailwind for us.

**Operator**

We will now take the next question from Alex Yefremov from KeyBanc.

**Aleksey V. Yefremov** ***KeyBanc Capital Markets Inc., Research Division - Research Analyst***

On Slide 10, you show a bucket of additional value creation for uses of cash. So in that context, how are you thinking about buy versus build decisions? Do you see potential scenario where there's inorganic investment comes around if we do face a downturn and there is a significant acquisition opportunity? Is this something you would roll out or something that remains an option?

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

Well, we obviously have to weigh that, vis-a-vis, our organic growth investments. So the Decarbonize and Grow strategy is very attractive for us. And with the market moving towards zero carbon and also more circular products, we have a lot in front of us that is really high



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value and high return.

I think Howard and the team, we still continue to look at nonrevenue-generating infrastructure assets from a standpoint of -- the market is there to take on that infrastructure and us be able to liberate some cash from deals like that and then deploy it into organic growth strategy.

We look for strategic bolt-on M&A, bolt-on, meaning millions, not billions, for gaps that are in our technology as we move forward. And as you look at things, like growth in sectors like mobility, adhesives, things that have really good drivers to them. If there were opportunities there, I think we'd take a look at it. Any other comments, Howard?

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

Yes. Alex, I appreciate the question. I mean, look, I think what you've seen, hopefully from us now since before spin, is focused, disciplined and balanced. And our capital allocation priorities have remained the same.

Our mindset on that additional value creation will be to do the most value-creating thing for long-term shareholder value creation. Our return on invested capital target over the economic cycle is still at least a 3% spread above our weighted average cost of capital. And so that will be the primary focus with which we view any of those bars in that value creation potential bucket.

**Operator**

We will now take our next question from John Roberts from Credit Suisse.

**John Ezekiel E. Roberts** ***Crédit Suisse AG, Research Division - Research Analyst***

Nice quarter. Hydrocarbon and energy contributed 2% of total overall company year-over-year volume growth. Does that imply it was the majority of volume growth in the Plastics & Specialty segment, the Packaging & Specialty Plastics segment? And how did benzene, steam and other energy-related products impact the net earnings in that segment?

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

Yes. John, thanks for the question. No, I don't think that's what is implied in the volume numbers. Obviously, we have a lot of moving parts in olefins, and so byproduct sales can ebb and flow with things.

I would say that functional polymers, if you take a look at margin results and price momentum, delivered a really strong margin result on that price momentum, and that drove a lot of the upside in revenues and in the beat because infrastructure really drives the demand for those functional polymers and we have a pretty significant sized functional polymers business there.

But I think on olefins, we really try to run olefins to keep our integrated margins healthy and then try to move the byproducts into the market, and we see some byproducts that were moving off a little bit as well. So I think packaging, especially plastics packaging volume was up 5% year-over-year. And so I think those trends are still well intact, and I don't expect that those are going to change.

**Operator**

We will now take our next question from Arun Viswanathan from RBC Capital Markets.

**Arun Shankar Viswanathan** ***RBC Capital Markets, Research Division - Senior Equity Analyst***

I guess I have just 2 quick follow-ups on polyethylene and polyurethane. So in polyethylene, do you expect ethane to kind of stay in the $0.40 to $0.60 per gallon range and that kind of provides some support to pricing? Or do you expect pricing to kind of maybe decline $0.03 to $0.06 per pound over the next couple of quarters? And then similarly on PU, now that we're running full or running a little bit at BASF Geismar and some of the other facilities that were down, do you expect MDI prices to kind of moderate over the next couple of quarters, especially given what you said on durables demand slowing?



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

I do expect that ethane will bounce around. There's plenty of ethane in rejection, so it's not a supply-driven issue. I think events have caused the prices to move around. Frac spreads right now are about $1.25. And they've ranged in from $1 to $1.50 and that's kind of that $0.40 to $0.60 range at today's natural gas prices. So I think that's a reasonable expectation. As gas production improves, we might see it come off.

You got to remember, you had the ONEOK plant fire in July, which put some upward pressure on prices. You've got a couple of startups of crackers in the second half here, which are going to put a pull on demand. But I think it's a reasonable range. And we'll watch natural gas and what happens with natural gas because that could pull the prices down a little bit.

**Operator**

And thanks, everyone for joining our...

**Pankaj Gupta** ***Dow Inc. - VP of IR***

Yes, thanks [Vivian] -- I know we are up at time here. I know we couldn't get to all the questions. So for folks who are in queue, we'll talk to you this afternoon as well.

And I want to thank everyone for joining our call. We appreciate your interest in Dow. For your reference, a copy of our transcript will be posted on Dow's website within approximately 24 hours or so. This concludes our call. Thank you.

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