

Dow 2021 Investor Day



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PANKAJ GUPTA: Good morning and welcome to everyone.

Both in person as well as folks who are chiming in through the webcast. I'm very thrilled and pleased to see many of the folks, many of the friends in person, we have been able to do this and I think the last time I saw some of you was almost maybe eighteen months ago or so. So glad that we could do this and then again folks chiming in the webcast hopefully, you can see us and hear us okay. So, thank you for tuning in. My name is Pankaj Gupta, I am the Vice President for Investor Relations for Dow and today we are very excited to share our sustainability and innovation expertise and how will apply to decarbonize and grow the company. So this morning, you saw some of the press releases that came out, some of the information that we pushed and that we will be talking about that in much more detail. As we get to that, plus the financial priorities that you will hear a little bit more detail about as well let's do some housekeeping items. First, safety, you can see that there are two exits to this room. If in the event that we have to evacuate unexpectedly, then please use those two exits to get in the hallway and then there will be staff that will take us to the appropriate location, so that's number one. Number two, restrooms are, I would say, down the hall and to the right. Product displays to my right here or to your left all the way in the end, you can see some of the technology offerings, some of the samples that we will talk about today in various panel discussions, presentations, as we talked about the markets and the growth drivers. If you have any questions about any of those as well as questions that you will hear during the presentation or the Q&A, please feel free to contact me or any of the members in the investor relations team. And in fact, let me point those to you, we have Damien Polansky if you could wave as well as right there in the back and then Richard Thompson as well. Together all of us will be happy to take any questions that you may have either today or in the coming days and weeks. I know we have been talking to many of you over the phone and I know that you will have a lot of questions after our presentation today. So we look forward to that interaction going forward. Today, we have a full session so as you can see on the screen here, the agenda we will start with Jim Fitterling our Chairman and CEO of Dow, who will talk about or give us a strategy update and then also layout the decarbonization and growth plan. Last year if you remember, we talked about our 2050 Net-Zero plan and that's something that you will see the detail adding up to 2030 goals as well as to 2050 goals. And also, as we do that, we will also talk about our financial priorities and our commitments that we laid out of the Spin and how we are doing and then going forward what our near term and midterm earnings drivers. Followed by that, we will have business presidents that will lead panels as well as presentations to talk about our growth drivers in the four market verticals. These will be packaging, infrastructure, consumer and mobility. After that, we will have Jim lead a panel discussion with some of our subject matter experts as well as some of the functional leaders to talk about our plan to decarbonize the company and how do we get to the 2050 plan. After that, Howard will come in, our CFO and president. He will come in and he will talk about our financial priorities as well as layout the near term and the midterm earnings drivers in a lot more detail.

Many of you have already been talking about it as we were mingling in terms of how we're going to do this. What does it mean for CapEx? So save your questions, because we will be talking about all of those today in depth and in detail. Then we'll wrap it up by a Q&A, that Jim and Howard and the business presidents will be leading and will be taking questions from folks here

in the room as well as folks who are watching us through the webcast. If you are online and if you want to submit a question, I think you can go on your screen to the right side. There is a feature where you can type in your question and hit submit. You can do that anytime between now and during the Q&A. And what we will do is, we will see those pop up and you will take it up during the Q&A. As a reminder, we have all the materials posted on our website, dow.com at the investor relations page. You can also see some of the forward-looking statements that we make over there, they will apply to all the presentation materials including the Q&A. And then lastly, we also posted our updated capacities. I know many of you in our conversations in the last few weeks and months we've been talking about what is the latest capacity when it comes to polyethylene and so forth, so we have also updated that and it is also posted on the on the web page. These are I would say our assets aligning to our key value chains in polyethylene, isocyanates and what not. So with that, let me now invite Jim Fitterling our Chairman in Dow to take the stage.

JIM FITTERLING: Thanks Pankaj. Thank you, good morning, and welcome everyone in person and joining and a big thanks to the New York Stock Exchanges for hosting us and letting us kind of barge in and take a couple of days here to get our message out. Today as Pankaj mentioned, we are going to share with you the significant progress that team Dow has made on our commitment since Spin in 2019. We are also going to demonstrate how our purpose-built portfolio is well positioned to meet the increasing needs of our customers and consumers who are demanding more circular and sustainable products around the world. And we will touch on our disciplined plan to continue delivering value growth, while achieving a zero-carbon emissions future. During our time today, you're going to hear from various members of our team on all of these topics and I'll start by talking about how we're going to grow earnings while reaching zero emissions in Scope 1 and 2 and how we will do that while maintaining our commitment to financial discipline and a best owner mindset. All of which will help us advance our ESG leadership while creating value for all of our stakeholders. Let me first summarize why Dow is a very compelling investment opportunity. We are well positioned to increase our enterprise value, both in the near term and the long term. We have additional actions that are underway right now to create another more than \$3 billion in underlying EBITDA with our industry-leading portfolio and cost position. That will be driving growth through some value accretive investments and also providing more sustainable solutions for our customers in almost every one of these portfolios. We also to continue to deliver leading cash flow generation and we remain committed to value growth and disciplined capital allocation where shareholder remuneration is a key priority. Every member of team Dow is not only engaged, but they are empowered, and they will be rewarded for delivering these results. So, let's start by looking at the foundation we've built and the track record that we've delivered since Spin. Our delivering on the commitments that we outlined in 2018 at our investor day as a testament to this team's strong focus on execution. We've achieved two \$2 billion of earnings growth and generated more than \$13 billion in cash flow from operations with top quartile cash flow conversion despite significant headwinds which were amplified by the pandemic. We executed our capital allocation priorities with a strong balance sheet higher return on invested capital and attractive shareholder remuneration. We also demonstrated a clear best owner mindset by unlocking value from divestment of non-strategic infrastructure assets. We delivered all of this while enhancing our ESG profile in support of our long-term ambition. Moving forward, we are not only maintaining this but advancing our commitments in all of these areas.

You'll hear today how our growth strategy is focused on capturing high-value demand in some very attractive end markets through organic investments. Our purpose-built portfolio positioned us very well to solve many of the world's toughest challenges. Our global scale, our leadership and material science in technology and chemistry and our alignment to sectors that have

attractive growth drivers will differentiate our portfolio and our position within our industry, and when you combine that with our structurally advantaged low-cost position and feedstock flexibility, we are uniquely positioned to continue to deliver value for our stakeholders. Our solutions target the packaging, infrastructure, consumer and mobility sectors. Each of those has strong underlying growth drivers such as sustainability, efficiency, connectivity, and they enable above GDP growth. Today these represent a large addressable market of more than \$650 billion but that's expected to be more than \$800 billion by 2025 and a key driver of that is more circular and renewable materials to support the expansion of these sectors. Dow is already addressing these trends and we're well positioned to capture future growth and we'll talk about those investments today. For example, in packaging, our products provide flexible, safe packaging and more design freedom to improve circularity of packages and reduce the amount of material that's used. They improve energy efficiency, longevity and connectivity for global infrastructure systems. We provide safer, higher performing and more sustainable consumer products, and we're innovating to drive the mobility transformation for electric, autonomous and lightweight vehicles. Our team is going to unpack more of that in the presentations that you'll see today. As I stated earlier, we have plans in place to capture an increase of more than \$3 billion in underlying EBITDA. In addition to the \$2 billion that we've already delivered since Spin. That go-forward is a result of three things, improving efficiency with our digital inflight investments and restructuring work that we've done with the portfolio which combined will unlock an additional \$600 million of EBITDA. Our suite of higher return, lower risk and faster payback in capital and operating investments, and you think downstream conversion into higher value products that would yield \$2 billion in accretive EBITDA in the near term. And with our investments in Alberta we'll unlock another billion of additional midterm earnings. Combined, these levers together represent \$3 to \$3.9 billion of EBITDA growth for this company. And when you put that on top of a continued economic recovery and more importantly, the sustainability drivers and growth opportunities, to not only decarbonize the business but grow it, that'll create new earnings potential for Dow. As we work to capture these new opportunities and these sustainable growth opportunities, our plan to decarbonize the assets is a critical part of this journey. To reach our 2050 zero-carbon emissions target, we will replace end-of-life assets with capacity that has lower carbon emissions using new carbon efficient technologies. Notably the new plans build on the 15% emissions reductions we've already achieved since 2005 and we did that at a time where we grew volume by 30%. By 2030 we'll reduce our Scope 1 and 2 emissions again by another 15% and will grow volume by 20%. Together that takes us to 30% Scope 1 and 2 CO2 reductions and we will continue to focus on maintaining our strong cash-generating position, delivering on our return on invested capital targets as we deliver these organic brownfield investments. In line with our track record of disciplined capital allocation, we will adopt a phased-in, site by site approach to these investments, keeping CapEx within depreciation and amortization across the economic cycle, including approximately \$1 billion per year of CapEx deployed for these decarbonizing growth projects

Now, I want to talk about our recently completed TX-9 project which serves as a foundation for our path to the 2030 carbon emissions reductions and growth. That project was delivered with best-in-class execution, capital efficiency and greater than 15% return on invested capital since startup. And that is with ethylene transferred at market price, which follows up on a commitment that we made at Spin. This makes TX-9 a leading asset in terms of reliability, cost and carbon intensity and it makes it the best return in our fleet. Without any specific design for carbon capture or hydrogen, it is our lowest CO2 footprint asset in the fleet. By leveraging the learnings from TX-9 and incorporating circular hydrogen and carbon capture, we have a clear path to reduce another 5 million metric tons of CO2 by 2030, which includes a multi-generation plan to convert our site in Terneuzen in the Netherlands, it'll be a clean hydrogen plant carbon capture, and we're also working on developing e-cracking capabilities together with Shell at that site, we

will take the entire Fort Saskatchewan, Alberta facility to net-zero carbon emissions, while more than tripling the ethylene and downstream derivative capacity and we'll do that by building a new cracker and an auto thermal reformer, and that autothermal reformer will take off-gas from the new cracker and the existing cracker to make hydrogen to fuel both those crackers and will capture that carbon and take it to the Alberta trunk line. I'll talk with the team about that later. And we have broader carbon reduction actions which we announced today, including procuring more renewable energy supplies and we announced today new deals in Europe, Canada and Brazil, which take our alternative energy zero-carbon power purchases to more than 850 megawatts, top in our industry and top 20 in the world. We'll share more about all these plans during the carbon panel discussion today. While the timing of the pathway to carbon neutrality will be driven by affordability obviously, macro and regulatory drivers around the world. Public policy's also a key consideration in investment decisions and that has the ability to help us accelerate the transition to a low-carbon economy. For example, there are current technologies that need supported policies and incentives in order for us to continue to enable affordability and get greater access and de-risk the portfolio. Near term think about hydrogen, carbon capture, modular nuclear, these are technologies that are ready to be implemented at significant scale today. Longer term electric steam crackers, more advanced recycling which Diego will talk about in the packaging section and batteries are in development, but I'm going to give you an example of the scale difference. That autothermal reformer is on the scale of an 850 megawatt power plant, and that electric steam cracking project is on the scale of a 25 megawatt power plant. It's very different in the near-term and in the long-term. Dow is actively engaged in collaborating with governments and community partners around the world to help the industry get the carbon neutrality faster. But what we need in order to do it, is some transparent revenue-neutral market-based carbon price signals that are globally competitive starting, we think in the United States with a market-based voluntary emission trading system. Government incentives and incentives and investments to de-risk the development and adoption of low-carbon and zero carbon technologies are also helpful, because in addition to OpEx, CapEx investments are significant to make this happen. And we also need a very simple, credible framework for measuring and reducing Scope 3 emissions. We have a clear site by site path to get Scope 1 and 2 to zero, and we're working with our suppliers to get our hands around the Scope 3 so that we can set a target for that. But this is a big effort by the company and I want you to know that we're on top of it. As we execute on this path to deliver value growth while achieving zero carbon emissions, we will also maintain a disciplined financial approach. We remain committed to returning greater than 13% return on invested capital through the cycle and keeping CapEx within D&A over that economic cycle.

Our investments roughly break down into three buckets; first and always has been a core to our company is maintaining our foundation. Safe and reliable operations are a hallmark of Dow and they're key to what we do every day. Second will be delivering quick wins with sustainability and that'll come by prioritizing higher return, faster payback, lower risk incremental growth projects, especially in fast-growing downstream and sustainability driven applications. You'll hear a lot about that today in all four of the platforms, but you'll see some real examples of how that growth will drive that additional, more than two billion dollars of near-term earnings and then decarbonizing and growing. In 2020, we intentionally conserved our CapEx to manage through the height of the pandemic. As we move forward, we're going to ramp it back up to D&A. And as we do that, we'll transition to low cost, zero carbon technologies while expanding capacity with best-in-class capital efficiency. These investments are going to allow us to capture increasing demand of low-carbon products at differentiated prices. Our demand for sustainability driven products is growing much faster than the 1.3 to 1.5 times GDP that I talked about today. This year our sales of polyethylene including post-consumer recycled materials more than triple. We're also going to capitalize on process technology, and in the panel today on zero carbon,

Sreeram is going to talk about several process technologies that are significant licensing opportunities for low carbon processes for making ethylene and propylene. So, in addition to our own investments, we have investments that we think will help the industry in their journey to low and zero carbon emissions. Beyond maintaining the disciplined approach to capital allocation, we will continue to execute against our operational and financial playbook. We have continued to rigorously benchmark our performance, and everybody in our leadership team and operations team, we have accountability at all levels of the organization to deliver on those results. We'll maintain our top quartile cost structure. We've had a relentless focus on driving efficiency, removing structural costs, and we're going to focus on decarbonizing and accelerating our investments in digitalization, which are paying off handsomely. Howard will talk about that a little bit in his presentation. And we'll reinforce the best owner mindset continuing to strategically allocate our resources to the best investments and highest return opportunities and look for better owners if there are in the case of those non-revenue generating assets and infrastructure. All of those tenants have served us very well since Spin, resulting in differentiated performance throughout the pandemic with leading cash flow generation and they'll continue to maximize our value creation going forward. So ultimately, all these actions will continue to advance our leading ESG position and they're part of our long-term ambition, which was to create the most innovative, customer-centric, inclusive and sustainable material science company in the world all the time while delivering value growth for our shareholders. More broadly, we've made significant progress on our ambition since Spin. The innovation machine never stopped. We have a strong record, track record of bringing new products to market with more than 400 innovations commercialized, focusing on sustainable solutions that are high margin and fast-growing. We're becoming more customer-centric through digitalization, through e-commerce capabilities and the launch of our MobilityScience platform, which you'll hear much more about today. And we're enhancing inclusion and diversity throughout the organization at all levels. We continue to maintain and develop a strong culture which has been evidenced by our recognition as the only material science company to earn a place on both the great place to work and Fortune 100 best companies to work for list. And our announcement today, we have a clear path to zero carbon emissions while improving transparency and accountability on all of our sustainability efforts and continuing to deliver excellent financial performance. Pursuing this ambition is the core to everything we do every day and it's the core to creating value for all of our stakeholders and driving best-in-class performance. Against that backdrop, our priorities remain very consistent, achieving our ambition and maximizing value for shareholders.

As part of that disciplined approach to capital allocation, we'll target greater than 13% return on invested capital through the cycle. Maintain a strong balance sheet with two to two-and-a-half times net debt, adjusted debt to EBITDA, and continue to target returning 65% of net income to our shareholders through the cycle. We'll deliver profitable growth with an additional more than three billion dollars of underlying EBITDA improvement, capturing demand from some very attractive end markets and executing our capital and operating investment projects. And our commitment to top quartile cost structure remains, and our disciplined execution will continue to support our low-cost operating model. Our best owner mindset remains in place with a culture of benchmarking, enhanced transparency, and unbiased resource allocation and building on our historical priorities, we will also further advance our ESG leadership, decarbonizing and growing this portfolio based on sustainability driven market growth, and aligning our management incentives with long-term shareholder value creation and our ESG goals, including those carbon goals. Overseeing our delivery against these investments is our experienced, refreshed and diverse Board of Directors, and we've welcomed four new directors to the board. In fact, over 80% of our directors have been with the board and join in the past five years. Earlier this year, we elected, Richard Davis as our new lead director. Six of the ten independent directors, including our lead independent director, have served as public company CEOs or CFOs and

they bring strong capital allocation experience to the board and we're proud to have more than half of the board represented by either women or US ethnic minorities. The team's broad perspectives and their deep expertise across the key industries that they've served, and parts of our strategy will continue to guide the efforts and the effective implementation of our strategy and the creation of value for all of you. Similarly, Dow's leadership team brings an unparalleled combination of expertise and talent as well as diverse and unique perspectives to lead Dow into the next phase of our journey. And on that note, today, you will hear from several of these leaders. We'll discuss our plans to capture growth across those four attracted market verticals with addressable markets that are increasing our demand for more sustainable and circular solutions. And later I'll lead a panel discussion on our path to zero carbon emissions, and then Howard will wrap it up by bringing it all together in financial priorities and unpack the earnings drivers. And finally, as Pankaj mentioned, we'll have plenty of time for Q&A at the end. Thank you for being here today. It's really great to see you in person and thank you for all of you who joined via webcast today. We look forward to having constructive conversations together. We always appreciate your continued interest in Dow, and we thank you for being shareholders. Before we move into an overview of our market led growth, our corporate secretary Amy Wilson is going to highlight the key actions that Dow has taken to strengthen its best-in-class governance and accountability.

AMY WILSON: Hello, I'm Amy Wilson. We all know that accountability lies at the heart of good business and is key to how a company's success is measured. The Dow team has a long history of holding ourselves accountable for delivering on our financial, environmental, social and governance commitments. But in typical Dow fashion, we are constantly raising the bar so we can achieve more. Since the last time we were together, we have made a lot of progress on our commitment to improve governance, transparency and accountability across Dow. Earlier this year, building on our 18-year history of annual sustainability reporting, we published INtersections which combines all our ESG initiatives and actions into one holistic public report. We're partnering with Columbia University, The Nature Conservancy, and Honeywell to evaluate new methods to measure carbon emissions and create greater accountability for emission reductions across product life cycles.

And we're working with the World Economic Forum to help develop a consistent international framework of accounting standards for ESG matters. We welcomed additional, diverse talent onto our Board of Directors to continue to refresh the experience and expertise that helps lead our company. In fact, several of our directors are here today. Thank you for joining us, Richard Davis, Jacque Hinman and Daniel Yohannes. Also, we modified our Annual Performance Award and Executive Compensation Program metrics to include ESG components holding every member of Team Dow accountable for the same metrics that we report to all of our stakeholders. And we're not finished. We know that best in class governance means continuous improvement. We're committed to always raising the bar.

DIEGO DONOSO: Hello, ladies and gentlemen, I'm Diego Donoso President of Packaging & Specialty Plastics and I'm delighted to be with you today to cover our perspectives on packaging and the plastic industry. First, let me emphasize one thing. Our business is strong \$23 billion in revenue delivering earnings growth with a top quartile, safe and reliable operations, our product portfolio, our technical capabilities and our go to market strategies positions us to be the leading material supplier to the packaging industry. An industry of \$250 billion addressable market with a healthy growth rate of 1.5 times GDP. The world is changing. Per capita consumption is increasing, creating opportunities around human wellbeing, industrial efficiencies and energy transitions. These changes amplify the need for a differentiated polyethylene and functional polymers, uniquely positioning us to capture value growth. As you hear today, we're

accelerating our strategy to sustainability investments around enabling design for recyclability, circularity through mechanical and advanced recycling, incorporating bio-based feedstocks and decarbonizing our assets. All delivering on our 2030 commitments of “Stop the Waste, Close the Loop and Protect the Climate.” In today’s panel discussion, you will learn more about how our polymers continue to be the most sustainable solutions. How Dow polymers have a purpose, and the actions we’re taking to accelerate our circular and low carbon future, positioning us to win. Actions such as today’s announcement on the Alberta project delivering the first net zero carbon emission polyethylene before 2030. Now let me introduce my panel, leaders on my team representing marketing, sustainability and innovation, Courtney Fretz, Haley Lowry, Mukund Parthasarathy, and by video we have Marco ten Bruggencate. So, let’s get the conversation started. Haley and Courtney, why are our products vital for a low carbon future? And do we see a growth opportunity in this?

HALEY LOWRY: Yeah, Diego, let’s set this stage. The world is set to add two billion people by 2050, and that means we’re going to need 30% more water, 40% more energy and 50% more food. And we will generate more waste. And that’s where our leadership to stop the waste and close the loop and protect the climate really come into play. Plastics actually offer the lowest greenhouse gas emissions, and this is not something that’s common knowledge to most people because I’m sure on your way to work today, you saw waste on the ground, but you don’t often see carbon and compared to a glass jar or a metal can, flexible plastic packaging actually has the lowest carbon footprint versus any other alternative. And actually, to replace 1 pound of plastic, you need 4.5 pounds of other materials. So, if society’s goal is to decarbonize the world, you cannot do that without plastic. So, we are not stopping here with the advancements that you’ll hear about later today, we will continue to offer lower and lower carbon footprint products to our customers because we know that plastics will continue to win today and also in the future.

COURTNEY FRETZ: And Diego to add to what Haley is saying Dow plastics definitely have an inherent advantage to win the market. Plastic low carbon profile offers opportunities across our three market areas that we’ve identified for growth coming from decarbonization and circularity. Today, let’s focus on packaging’s impact to human wellbeing starting with food protection.

One third of all food produced globally is wasted and that waste amounts to 8% of all global greenhouse gas emissions, 8%. Plastic packaging is one of the most efficient ways to protect food. And if you think about Dow’s polymer portfolio, we have products like Affinity and by now that can extend the shelf life of the food in all of your refrigerators by five times compared to not using plastic packaging, and this saves not only the food, but also it is carbon footprint. Beyond food protection, there’s also social benefits to plastics. You look at the medical space. Last year, Dow’s Health Plus product lines enabled a step change increase in vaccine production volumes and speeds contributing to the COVID-19 vaccine delivery roll out.

DIEGO DONOSO: So, it’s clear that our products have a great benefit for the social and carbon footprint of the future. What about the recyclability?

COURTNEY FRETZ: It’s a very fair question, Diego. With plastic recycling at only 9% rate, this is a significant challenge, but it is also an opportunity for the packaging industry. Almost every major brand and customer has made commitments to making their packaging recyclable and to include recycled content by 2025. And at Dow, our team is working across our value chains to enable packaging design thinking about recyclability in mind. And we also have our own product line of recycled content resins under the brand name REVOLLOOP. Demand for sustainable solutions is increasing as Jim said. We see growth rates above our traditional 1.5x GDP, ranging up to 4x GDP in some cases. And as we work on these solutions that are good for

society and the environment, it's also a tremendous business opportunity. Getting recycling ready is a \$5 billion addressable market for Dow in plastic. This is our next wave of growth.

HALEY LOWRY: And Courtney, we actually see that growth now in our recyclability journey and the reality is we are not starting at zero. Today we've enabled 81% of the packaging applications that we sell into to be reusable or recyclable. We started this design journey several years ago with the simplified all polyethylene structure with 7th Generation, and we progressed that further with Kellogg's in their bare-naked granola pouch. And now we're even making new barrier materials for Liby in Asia Pacific. We have converted hundreds of unrecyclable combinations, replacing other materials with Dow polyethylene and compatibilizers that are very unique. So as we continue down this path to enable more recyclability, we expect Dow materials to be 95% of the structure as opposed to the 75% that they were.

DIEGO DONOSO: That sounds like growth to me.

HALEY LOWRY: Exactly.

DIEGO DONOSO: That is great. Thank you, Haley. Courtney, to you, what makes Dow special?

COURTNEY FRETZ: In a word? Pack Studios. This is the innovation model Dow has been developing over the past decade, and we've invested in extensive capabilities that are ten locations around the world to be able to really listen to the market and hear where it's going. And this gives us a head start on where the market is headed. We learned from more than 15,000 trials annually, and we also have more than 100 projects with customers and brands on recyclability. The journey began years ago, developing critical down gauging products like Elite and Innate, and now we've enabled our customers and those segments to reduce their material usage by 30% over the past ten years. We've expanded Pack Studios capabilities, so today we include packaging testing and modeling, as well as transportation simulation, and now recycling capabilities. Our team is working beyond our traditional value chain here, so we're engaging the full community of partners in the packaging ecosystem, and we're able to solve the problems of really incorporating recycling. So, whether it's Dow products or applying our knowledge to help our customers solve their processing challenges, we're able to replicate solutions across millions of pouches, get them on the shelves and into consumers hands quickly. So, the model we have of taking insights rapid prototyping to testing its scale gets packages on the shelf in a fraction of the time. Recent example Reckitt Benkiser we worked with their Finish Dishwasher Soap brand, and we were able to multiply a recyclable structure across 20 million pouches in the last two years.

We reduce the development time for it by 30% on for this key sustainable solution. So, Pack Studios is truly a differentiated capability that we have in our industry and it allows Dow to deliver are polymers with purpose.

DIEGO DONOSO: We are very proud Pack Studio and the evolution of our design for recyclability but Hayley, can you comment a little bit more on mechanical an advanced recycling?

HAYLEY LOWRY: Yeah. Diego, we continue to progress on both mechanical and advanced recycling fronts, because addressing waste and delivering circular products to the marketplace is our growth strategy. Across both of these categories we have more than ten different partnerships to deliver products to the marketplace. So first let's focus on mechanical recycling.

We have had commercial successes selling REVOLoop Dow's mechanically recycled product offering in every single geography, and actually just last week Mengniu was the first Chinese dairy company to announce that they were using recycled content in their secondary packaging and that was made possible by REVOLoop. And secondly on the advanced recycling front we are committed to delivering circular polymer from advanced recycling by 2022. We are building a marketing development unit and we're scaling supply partnerships with Fuenix, Gunvor, and New Hope that you've seen today. On the demand side, we have twelve active agreements with 25 more in the pipeline with added value of over 1,500 dollars per metric ton. So it's clear that the market is placing significant value on circularity. And it's also notable to say that many of our manufacturing facilities have received the international sustainability in carbon certification which is just a key indicator of our readiness to produce these products from our assets. And then finally in regards to community engagement, we've had many venture capital investments through Closed Loop and Circulate Capital where the value team is actually taking money and putting that back into key infrastructure projects to get plastic waste out of the environment and put that back into the circular economy because we believe that plastic is too valuable to be lost as waste. And the point it really here is that we were also recognized by Reuters as a finalist for the circular transformation award. So, the point is that we can eliminate waste, we can still keep products fresh, and we can come up with new business models to infinitely recycle and keep materials in use and that's where our competitive advantage comes from. So now let's hear from Marco in Europe for some on the ground proof points of this next wave of growth.

MARCO TEN BRUGGENCATE: As you noted, our four pillar approach is very much aligned to drive circularity and decarbonization in many parts of the world. In Europe, there is a clear regulatory framework for a 100% recyclable packaging, increasing packaging recycling rates, and mandatory recycled content all by 2030, including specific carbon reduction targets and the policies and the circularity commitment made by our brand owners are reinforcing our innovation pipeline and subsequently driving demand for our circular solutions. So let me give you some examples. We launched two oriented polyethylene technologies, BOPE and MDO which enable the design and the production of 100% recyclable packaging with the same level of superior performance as traditional materials. And we see a rapid increase in the number of brand owner qualifications of our solutions throughout Europe with packaging converter customers like Berry, Plasbel or Zermatt in Spain and Grosso in Turkey, just to name a few. And examples of our resin containing PCR or post-consumer recycled REVOLoop from mechanical recycling include end products such as collation shrink-wrap films, detergent packaging, and heavy-duty shipping sacks. Plus, we have expanded our portfolio of products, containing PCR to high performance applications such as machine stretch wrap for pallets and artificial turf. Our advanced recycling solutions provide higher levels of recycled content with virgin-like properties for high performance and regulated applications such as food packaging and pharma. And with the growing demand we are increasing our capacity through selected partnerships such as Mira and Fuenix Technologies, and in summary our differentiated product offering, partnerships, feedstocks flexibility and deep market knowledge and participation Dow is a leading provider of circular solutions at the lowest possible carbon emissions.

DIEGO DONOSO: Thank you, Marco. And great to hear from Europe, how Europe is transforming along this journey. Let me turn to you Mukund on R&D and our Technical Community, what are we doing to increase our circulatory and low carbon footprint?

MUKUND PARTHASARATHY: With our continued investment Diego in catalyst design in process development Dow has commercialized an industry-leading portfolio of polyethylene resins and compatibilizers. This is key because while we talk what our four pillars of circularity, it all starts with designing the package for recyclability in the very outset, for which you need this

broad portfolio. With the Pack Studios expertise, we collaborate across the entire value chain, including with machine technology providers like Bobst and Breukner to make sure that we can meet the exacting requirements of the application while including in it the recycling content they need. And as Courtney pointed out that Pack Studios we can do this at scale to speed up market adoption. When it comes to advance recycling, we are talking about feedstocks that are very different from naphtha or ethane, pyrolysis oil as a common example to both external collaboration, and Dow internal efforts we are developing process technologies to convert these feedstocks into preferred intermediates and eventually into circular products. An example of that is the market development unit that Haley mentioned today which is to purify our feedstocks. It's an excellent example of that. While we are focusing on waste plastic, we'd also looking at bio derived and other low carbon stocks as well. And when we take a look at Dow's initiatives to reduce Scope 1 and 2 emissions, they will favorably impact the entire circle any footprints we have. And an example of that is what Jim mentioned and you mentioned with regards to the Alberta project.

DIEGO DONOSO: Yes, we are very excited about at 2030 net-zero polyethylene coming to a theater near you. But what about today, what can we offer today to our customers?

MUKUND PARTHASARATHY: Yeah, we have some examples out there. But today we are focusing on developing a family of products based on bio-based feedstocks, which have a much lower carbon footprint compared to fossil fuel-based resins. An example is Affinity REN, a polyolefin elastomer. Our customer Henkel then uses this product to formulate the hot-melt adhesive with no compromising performance, but it best-in-class carbon footprint. Think frozen pizza boxes, there's one out there for you to see. So, leveraging our core competencies in both catalyst design, application development, process development, and collaboration across the entire value chain, to create products of values for growth markets, and growth markets that are increasingly demanding circularity and lower carbon footprint, Diego.

DIEGO DONOSO: Thank you, Makund, thank you Courtney, thank you Haley, and thank you very much for sharing all these great examples on how we are accelerating against our ambition and moving with agility. We are leading on design for recyclability with brand owners and customers. We are delivering PCR resins with our revenue across all the geographies. We are accelerating our advanced recycling with partnerships and investments, and we're offering net zero carbon resins polyethylene before 2030. Our future is bright. Plastic is the most sustainable material, and we're positioned to capture the value growth through the strategy of increasing our Pack Studio capability, advancing our process and catalyst technology, and our sustainability investments all enhancing our world-class packaging franchise. Our foundation is strong. We're focused on becoming the preferred circular polymer provider at the lowest carbon footprint. We truly have polymers with purpose. Thank you very much.

JANE PALMIERI: Good morning. I am Jane Palmieri, president of the Industrial Intermediates & Infrastructure operating segment. And today, I'm going to talk to you about the infrastructure market. We have a great panel coming up in just a minute but first, I'd like to set the stage with some background in this very important market vertical. Infrastructure is a massive three trillion-dollar industry growing 30% faster than GDP largely due to population growth as well as arising middle class. And that translates to the need for more buildings, bridges, roads, utilities. And the needs for infrastructure are also evolving with future needs squarely centered around things like energy conservation and sustainability. Good news, these are two issues that are squarely in Dow's wheelhouse. In fact, both have been a part of our goals and commitments dating all the way back to our first sustainability targets set in 1995. And Dow has been innovating for the infrastructure market for over a hundred years with energy saving products like our

polyurethane insulation that removes 380 million metric tons of carbon emissions every year. Or our heat transfer fluids into solar concentrating farms that generate clean energy for half a million homes. It's clear that advancements in infrastructure are going to be critical for us to transition to a low carbon world, but infrastructure is also going to be critical in keeping us connected in an increasingly digital, mobile, and globally interconnected world. All of these trends that we talked about align well to Dow's key product chains and create a favorable outlook for businesses like polyurethane systems based on MDI or our specialty chemicals based on ethylene oxide. As for Dow's participation in infrastructure, it's sizeable and broad. Over one-third of our sales flow into infrastructure markets across a very broad range of applications and technologies, and it's backed by a full suite of high performing sustainable solutions relying on all of Dow's material science platforms and our in-depth downstream application knowhow. Infrastructure markets are also benefitting from one of our most recent material science platforms, our innovative silicone hybrids where Dow can unlock new to the industry performance combinations. We've recently combined the elasticity of silicones with the paintability of polyurethanes to commercialize a new to the industry paintable high-performance sealant for contractors. So, these downstream areas are where you're going to see Dow making investments, so that we can capture the faster growth and the higher value that they deliver. So, it's time for us to get to the panel. I'm going to introduce some Dow colleagues, Brendy Lange, Lauren James and Neal Sheorey. What we're going to do today is talk a little bit about what Dow is doing to drive these trends in infrastructure. And Lauren, I'm coming to you first. When you consider the fact that energy, buildings and industrial production account for over 70% of the world's carbon emissions, that's a big opportunity for impact, so can you tell us a little bit about what Dow is doing to reduce carbon in infrastructure?

LAUREN JAMES: Yeah, Jane. You said it well. This carbon reduction is certainly a tremendous challenge for the world but from a material science perspective, it's also a big opportunity. You're hearing a lot today on Dow's path to meet our carbon targets but in parallel, we're also innovating to help our customers solve the same challenge. If you take the energy transition landscape, which is of course a multistep journey for the world to go through, we have solutions both to support cleaner fossil fuels but also the transition to renewables. Our amines chemistry, which is a product family that Dow has sold for more than 50 years is the most proven and mature technology to absorb carbon from a gas stream.

In fact, we've sold it to more than 500 gas plants worldwide and have a leading position both in the technology and also the expertise, which will position us well as blue hydrogen and carbon capture continue to mature. We also have a solution for enhanced oil recoveries. So, for the aging wells that are out there today to boost production up to 30%, which is actually an economic use of captured carbon. If you look more broadly to just the infrastructure out there to support industrial production, we're also bringing solutions for customers to help retrofit what's there today to be more sustainable. In the cold chain, we offer high performance insulation, which enables more efficient refrigeration to temperature dependent markets like food and healthcare. And another exciting example is just earlier this year leading up to the Tokyo Olympics, we launched our ECOFAST Pure technology in partnership with Ralph Lauren, which is a chemistry that enables existing textile mills to retrofit their process and dye cotton using about half the amount of energy and water. And excitingly for those in the room today, we have a few of those Olympic polos that have been sustainably dyed in a less energy and less water usage way for you to check out. So, Jane, just a few examples of how we're helping our customers solve their carbon challenge.

JANE PALMIERI: What I love about your examples, Lauren, is they really show how Dow is using a carbon reduction lens to innovate with our customers. And another place that we're

innovating and leading and winning is in energy efficient buildings. So, Brendy, can you explain maybe why Dow is winning in green buildings?

BRENDY LANGE: Yeah. Sure, Jane, and we are winning in green buildings. And you touched on the key statistic, which is that this segment accounts for about 70% of global greenhouse gas emissions worldwide. So, in this world, that's increasingly focused on resource intensity. This is a segment that's clearly demanding materials that enable more energy efficiency, reduced environmental impact, compliance with more stringent regulation, all while needing to withstand more volatile weather conditions like we're seeing every day. You add in all these factors together and it's contributing to a green building market that represents about a \$50 billion addressable opportunity for Dow and is growing to several times GDP. The better materials are key and here, Dow is a very well-positioned as a leader in silicone sealants, acrylic adhesives, coatings as well as the insulation materials that you mentioned earlier. And we bring these technologies, and we work with our customers throughout the value chain like building material manufacturers, installers like windows door and roof contractors, as well as architects. And together, we innovate to offer solutions that enable development to be as environmentally friendly as it is visually appealing and structurally robust. So, just a couple quick examples, at the top of the building, we have reflective roof coatings that enable cool roofs. This is one and a half billion-dollar addressable market and Dow technology enables energy reduction of about 20% while prolonging the life of a roof system. And at the bottom of the building, Dow's WALOCEL cellulose ethers and re-dispersible latex powders enabled dry mix mortars to utilize up to 70% less raw materials by weight. And through that reduction, lower the carbon footprint. In fact, Dow's technology contribution here alone delivers an estimated 18 million tons of CO2 reduction annually just through a reduced cement consumption. So, these are just two great examples of many where Dow is innovating to support the trending green buildings. And really, Jane, it positioned us to when very well as we move forward.

JANE PALMIERI: Brendy, your comments really highlight that Dow is not only looking at carbon reduction, we're looking much broader at resource scarcity in general doing more with less, because it's very clear that infrastructure of the future is going to need to work harder and smarter. So, speaking of smarter, we have a lot of amazing technologies that are aligned to smart infrastructures. So, Neal, would you care to share a few?

NEAL SHEOREY: Sure. Thanks, Jane. The drive to smarter infrastructure plays directly to Dow's strengths. We have so many technologies that are enabling the shift today and equally exciting is that many of these solutions also carry a great sustainability profile as well. And to that point, I'd like to highlight two examples, and the first one is in road markings. Now, this is a \$4 billion global addressable market and Dow is the global leader in the waterborne segment. Our FASTRACK™ technology is the water born solution of choice, because of its durability, its quick-dry chemistry and its enhanced night-time visibility.

And in fact, FASTRACK today is already directly specified in more than 30 states in the US. But what I think makes FASTRACK even more exciting its sustainability profile which includes significant reductions in material usage, greenhouse gas emissions and reduced VOCs. And as we look forward, we're already working on some exciting next-gen technologies that could enable better and safer autonomous mobility. Now, for my second example, I want to shift over to power infrastructure and in particular, power cabling systems. These are obviously critical in order to get power from where it's being generated, to the grid, and the demand centers. Energy transmission systems are a place where we see \$50 billion of investment globally per year. And part of that growth is driven by increased demand for renewable energy. And with more demand for renewable energy comes a need for more connectivity not just to get the renewable energy

from where it's generated to the grid, which in some cases can be hundreds of miles, but also to seamlessly balance transmission load. And so for all those reasons, we're already seeing strong demand for our solutions such our ENDURANCE™ polyethylene compounds. And the great thing about the ENDURANCE technology is it's also a low-carbon solution. So Jane, those two examples are just a taste for why smarter infrastructure and more sustainable infrastructure will be a great opportunity for Dow. Back to you.

JANE PALMIERI: Very compelling. Thank you, Neal, Lauren and Brendy. I have a few more folks to introduce via video so please meet Christina Yu and Jon Penrice who are going to talk to us about some very exciting Dow growth opportunities in Asia Pacific.

CHRISTINA YU: The drive for more sustainable and circular solutions in a fast-growing Asia Pacific market provides a significant growth opportunity for those who excel in innovation and collaboration. And Dow is playing a critical role in capturing these opportunities in China. A number of Dow solutions enable the reuse of other materials through recycling. For example, Dow, in collaboration with Metjuan Mobike, recycles polyurethane tires that are then transformed into basketball courts made with a polyurethane binder. Dow's ECOGROUND™ and VORAMER™ binder solutions also enable recycling of athletic shoes. Dow is working with the Singapore government to recycle used shoes into running tracks, playgrounds and fitness centers with water-based and solvent-free binder technology. While we continue to deliver sustainable solutions for today's challenges, we're also investing to solve the challenges of tomorrow.

JON PENRICE: As you look at this iconic skyline in Hong Kong, you may be amazed to know that it's Dow's silicone sealant technologies that enable these designs not just to be possible but also more sustainable. We are now taking this high performance to the next level with the launch of the first-ever, commercially available, low-carbon façade solution. With urbanization continuing at a rapid pace especially in Asia Pacific, we seek further growth for Dow as we apply our tailored solutions to help build the infrastructure of the future. With the growing spending power of its middle classes, Asia Pacific is now home to attractive growth opportunities, not just in infrastructure but also in electronics, 5G, electric vehicles, renewable energy, all fast-growing high-value markets where Dow can leverage its material science capabilities. To better enable us to deliver our solutions locally, we are enhancing our in-region sourcing by investing in high-return fast-payback projects. Just 200 kilometers from here in South China, we are planning to establish A Specialties Hub to service local demand for polyurethanes and alkoxyates. This low-capital investment with an existing world-class chemical product offers the opportunity for future development and expansion. Additionally, as part of our near-term growth investments, we are incrementally expanding our specialty silicones footprint in Zhangjiagang, China. This approach plays to Dow's strength in R&D and application knowledge enabling us to deliver growth with high return on capital and lower carbon footprint.

JANE PALMIERI: We shared a lot of examples with you today and honestly, that's just scratching the surface but every one of them show how Dow is positioned to win in the large and growing infrastructure market vertical.

And with every Dow operating segment contributing to this market vertical, the result is a unique depth of offerings versus our competition, and we have a slate of high-payback fast-return -- high-return fast-payback growth projects that are going to help us capture the growth and support the needs of infrastructure in the areas of carbon reduction, energy conservation, sustainability, and smart infrastructure so thank you for your time and attention. Next, we're

going to hear how customer experience and digitalization are helping Dow to accelerate growth and then when we return from the video, Mauro Gregorio is going to cover the consumer segment. Thank you.

DAN FUTTER: At Dow we've been on a three-year journey to improve the customer experience our customers have of doing business with us. It's our intention to be easy, enjoyable, and effective to do business with and that starts with us measuring what those experiences are like. Looking at the journeys our customers have when they're choosing our materials and when they're buying those materials and constantly trying to improve and adjust based on their feedback so that those experiences are intentionally more easy, more effective and more enjoyable. And of course, during the period of COVID, we've had quite a transformation going on. We've had to make our business more digital, make ourselves more accessible to our customers through a digital and virtual means and make sure that those experiences in the on- and off-ramps between people and digital still work and if we get that right, our customers reward us with more share of current pocket. And also, they reward us with a seat at the innovation table and that leads to growth for them and for us that's why customer experience is critical to Dow.

MAURO GREGORIO: Hello. And welcome to the consumer market portion of the business review with you this morning. My name is Mauro Gregorio, I am the President for Performance Materials & Coatings at Dow. The consumer market is a very broad one, it grows on consumer care, personal care, paints, textile, consumer goods, and electronics making for about \$200 billion addressable market that grows at least at 1.5 of GDP. This pursuit of improved standards of living and sustainability are key market drivers for the growth in this segment. And how do we contribute to that? Well, we have a seat at the table with every brand owner and we developed solutions listening to consumers immediately using social listening, artificial intelligence and all the tool they have so we innovate together with them. Second, our global footprint. We have boots on the ground in every corner of the world allowing us to deliver solutions that are tailored to those markets. And last but not least, our robust innovation engine that allow us to innovate faster than anybody else. Those solutions, those products, they enable connectivity and wellbeing, two very important drivers to the growing middle-class. Now that connectivity and wellbeing come along with sustainable materials and circularity. And to demonstrate how we do that, I'll bring you now to our Inspiration Studio in Belgium where Eric Peeters, our Vice President for Sustainability in Performance Materials and Coatings will give us a tour of how we deal with customers when they come to innovate with us. Eric, over to you.

ERIC PEETERS: I'm at our site in Seneffe, Belgium today and this site has been a real trailblazer for renewable energy. Forty percent of the energy needed for this site is supplied by wind turbines and solar panels and the remaining grid-purchased electricity will be all renewable by year-end. At our Seneffe site, we have our inspiration studio where we inspire, collaborate and innovate with customers to develop products that have a lower carbon footprint for a more sustainable world. Let's have a look at the personal care industry. For the personal care industry, sustainability is more important than ever before which is why we are bringing solutions to deliver high-performing products that are both good for people as well as for the planet. We do this increasingly with bioderived, biodegradable ingredients. For instance, we make it much easier to apply high-factor sunscreen to protect your skin from the sun or to care for the unique needs of curly and textured hair. Or as a skin moisturizer for a variety of skin care needs and all of that with bioderived ingredients based on common materials such as starch, sugar, or cellulose.

Home care is another industry where consumers ask for lower carbon footprints and more sustainable materials. Did you know that about 90% of the energy the washing machine uses goes towards heating the water? Dow products enable low temperature washing. As the leading provider of solutions for this industry, we are in a great position to help consumers reduce that footprint. What the leading brand owners in this space love about working with Dow is our in-depth scientific knowledge of the application as well as our ability to leverage a very broad technology set into solutions for this market. So let's talk about a few examples. Wouldn't you love to not have to pre-rinse your dirty dishes before putting them in the dishwasher? People in emerging economies, they spend a lot of time fetching water to wash their clothes. We allow them to use less water by enabling only a single rinse to rinse out the foam. And finally, in auto dishwashing, all ingredients in auto dish tablets have been biodegradable except for one, the ingredient that takes care of shine, and this is exactly what we brought to the market last year – a new ingredient that allows for superior shine with a biodegradable ingredient. Another example is the textile industry. We all love our leather and waterproof athletic gear and winter garments, but we also want the chemicals that are used to be safe. The industry has been moving rapidly away from fuel-based compounds towards the use of more sustainable silicones. Silicones are not only safe, they are giving very durable, water repellency and at the same time a feeling that is soft and supple when wearing the garments. And finally, let's have a look at sustainable footwear. Many people appreciate comfortable Crocs footwear. Thanks to a unique piece of Dow technology, Crocs can now be made from bio-based feedstock, demonstrating one of the ways we can transform how we make plastics. These were just a few examples of how we continue to develop materials that are biodegradable, bio-derived and have the right end application performance. This helps our customers to develop products for a more sustainable future. I am really excited about our journey; I hope you are too.

MAURO GREGORIO: That was great Eric. Thank you very much. And now I am joined on the stage here by Sarah Eckersley, our Global Marketing Director for Coatings and Performance Monomers, and Charlie Zimmer, who is our Global Marketing Director for Consumer Solutions. We'll start with circularity and we talk a lot about many materials and paper is the one that is always publicized as the one that is good for circularity, but it's not as easy as it might look, so obviously we help with that also. So I would like Sarah to walk us through how we're contributing for paper to be truly recyclable.

SARAH ECKERSLEY: Absolutely. So consumers really recognize paper as a sustainable option, but there is a challenge with that because actually 90% of paper cups still go to landfill and that's because the current barrier coating that they have makes them difficult to recycle, and our RHOBARR™ 320 addresses this issue. We make an ultra thin coating that we apply using existing equipment in the paper mills, which makes it super easy for the mills to adopt. It's being used today on hot and cold drink cups and single use bowls, etc., and you'll actually see examples in the coffee station over there. It's a great example of circularity because you recover the value and the paper fiber. We've also got compostable options in the pipeline. So it's a really exciting opportunity, with an addressable market value of \$700 million.

MAURO GREGORIO: Oh, that's awesome Sarah. We're going to have them here, but it will be even better when we see in every coffee shop the RHOBARR moving forward. Now, moving from paper to electronics, Charlie, share with us what we are doing to help with electronics and device manufacturers to be sustainable in how they make their own devices?

CHARLIE ZIMMER: Yeah Mauro, when you look at the market for connected devices, it's right now around six connected devices per person globally. That's more than 40 billion connected devices that are bought and sold each and every year. A connected device could be your

smartphone, it could be your smart watch. It could also be a gaming console or even an appliance in your home. This market is going to grow by 25 billion more connected devices in the next five years. Leading consumer electronic brands are asking for how do we reduce scrap during production and how do we improve recyclability at the end of life. So Dow has developed the world's first Thermal Conductive Silicone Gel for smartphone re-workability. The silicone gel does what I just said, it does reduce scrap, it helps to reduce scrap during production, but it also improves repairability through the end -- through the life of the device and it enables disassembly of the components at end of life for recycling. So this connected device market is going to see strong growth in the coming years and create an \$800 million market for re-workable silicone solutions.

MAURO GREGORIO: That's amazing to see that. It enables growth with sustainability at the same time. And there was another announcement that we made not too long ago about another great recycling program that I would like Sarah to explain on it, and I know you will pay attention to this one because I am sure each and every one of you use that product everyday for many hours. Sarah, what is that?

SARAH ECKERSLEY: Hopefully you use it every day, hopefully for eight hours, because it's a mattress. And so these are well-recognized and those really large items that are either going to landfill or being incinerated today, and this is on the order of roughly 30 million mattresses per year in Europe alone. And if you were to take these mattresses and stack them on top of each other, that would be like 700 times the height of Everest. So it's a lot of mattresses. The RENUVA™ Mattress Recycling Program is a circular economy program with a value chain where basically the mattresses are recovered, the foam is removed from the mattresses and then that foam is recycled back to polyol, which can then used to be -- used again to make more foam, either in insulation or for example to make more mattresses. So it really is a full circle program. We just announced a major milestone of an industrial scale production unit that started up in France. So it's real.

MAURO GREGORIO: Yeah, that's awesome. It's a huge example. So hopefully you are able to see that from your first coffee in the morning, the devices that you use the entire day and when you go to bed at night, Dow is part of the consumer life. We touch the lives of billions of people every day with our technology. Now, going to connectivity now, changing topics, Charlie, tell us a little bit how we make 5G ecosystem work?

CHARLIE ZIMMER: Yeah Mauro, the 5G market was really accelerated in 2020 throughout the pandemic and this created a market opportunity of more than \$1.2 billion for silicone and specialty materials. This is going to double over the next 10 years. Consumers are really asking us for faster speeds, seamless streaming as well as increased bandwidth in their 5G network. Dow defines the 5G ecosystem as you said as all of those connective devices that I spoke about a little bit ago, in addition to the telecommunication infrastructure and the cloud and data center infrastructure. So Dow has developed a portfolio of solutions to improve thermal management, to improve EMI shielding as well as adhesion, sealing and protecting the electronic components. These materials are really critical as these components are becoming higher power and the devices are becoming much more sophisticated.

MAURO GREGORIO: Now, these are great examples that make the system work. Give us one on the cellphone that we touch and see every day.

CHARLIE ZIMMER: Yeah Mauro. The foldable display is an innovation that is really expanding what is possible in consumer electronics. This market is really in its infancy right now, but we

expect strong growth in the coming years, and actually it's a new addressable market for Dow where silicones haven't been used of \$400 million. So this flexible display requires an elastic material that has stable mechanical properties to allow it. Throughout the folding and unfolding action, Dow's breakthrough Flexible Silicone Adhesive answers this call. And it just so happens Mauro that I have Samsung's latest and greatest, Z Fold3 Galaxy that they just launched not too long ago here; I think a couple of months ago, and our adhesives are applied around the electrical connections and it helps to form a gasket or makes the phone waterproof. This is a fantastic innovation from Samsung that is powered by Dow materials.

MAURO GREGORIO: That's great Charlie, foldable and waterproof, so great contributions to the cellphones that we have today. Now, to close on the example, Sarah, wellness, what are we doing in that space?

SARAH ECKERSLEY: Yeah, so we're building on a 50-year legacy of developing ingredients for sustainable coatings, improving environmental and health outcomes for consumers. Examples from the past that you might recognize are reducing titanium dioxide content in solvents and paints. Today, consumers, architects, building owners, they all have a growing focus on healthy interiors and that's because we spend a lot of our time indoors, actually up to 90% of our time indoors, so indoor air quality is really important. And paints that are formulated with our binders and additives can actually improve indoor air quality. In addition to that, consumers are increasingly valuing natural ingredients, so partially plant-based feedstocks. These can have a better environmental profile than their fossil fuel-based counterparts and they can also get a USDA BioPreferred label on the can. They're globally available, seeing global adoption, and all told we're selling roughly \$500 million of products into this space and the wellness component is growing at over 10% a year.

MAURO GREGORIO: Very good. Thank you, Sarah. Eric, Charlie, Sarah, thank you very much for sharing those examples with us today. So the consumer market represents about 30% of Dow's revenue today, and as you can see on this slide, every business unit of Dow contributes to it – a clear demonstration that Dow is uniquely positioned to deliver solutions to those markets. Now, we don't only win because we have this huge product offering; we win because of our innovation engine. That innovation engine is powered by the talented people across the globe developing solutions close to our customers. Now, we're accelerating all of that with digitalization, not only for commerce, but also for innovation. We continue to invest on those fast-payback projects here that enable us to provide \$600 million of the uplift that Jim mentioned before. Now, Dow is ready for growth and for a sustainable future. As we work on those solutions, we have clear line of sight on how to deliver silicones that have a CO2 footprint that is 50% of what it is today by the year 2030, 50% reduction by 2030. So that is really meaningful. But most importantly, we're allowing our customers to develop those solutions that provide a wellbeing and connectivity, allowing them to win as well. And now, we'll move to our fourth market vertical. We'll talk about MobilityScience™. So somebody said the cars of today are just cellphones on wheels. So you saw everything that Charlie just mentioned. He mentioned the transfer to the size of a car. I don't think we're making a foldable car yet, but we are getting close. And as we do that there is a tremendous opportunity for Dow. So just to give an example, silicones alone, as they go from combustion engines to electric vehicles, it multiplies by four the amount of product that goes in the car. That's all because of the electric powertrain and all the cameras and sensors that go in a car. But it's not only silicones, the value of the materials in one car will grow by 24% between now and 2025. So huge opportunities for growth there. And before you leave, for those in the room, I encourage you to touch the car seat that you have there, the synthetic leather enabled by Dow technology. It looks better than natural. Great technology that is helping customers and obviously it has Jane's polyurethane inside the seat

that you see there. Now, to deliver all the message on MobilityScience; what we do for safety, comfort, electrification and assisted driving, I invite now Tim Boven, who is the Global Business Director to walk us through that story. Tim, over to you.

TIM BOVEN: Hello! I am Tim Boven, Global Director of Dow's MobilityScience Platform. We formed MobilityScience to bring the full power of Dow to the transportation industry, to accelerate low carbon mobility. The road to more sustainable high-performance transportation requires solutions using cutting edge material science, and that's where Dow wins. Low carbon mobility is essential to reducing the world's emissions and requires participation across all aspects of the vehicle lifecycle. This is creating tremendous growth opportunities for Dow as the industry moves towards electric, autonomous, connected and more sustainable vehicles. Dow is leading the way with a compelling value proposition as customers prefer suppliers with a comprehensive suite of materials and capabilities. We bring one Dow MobilityScience team forward with global reach and local service. Dow has decades of experience developing application specific advanced materials, including solutions to support the electric and autonomous transition, with the ultimate goal of improving safety, reducing weight, while making the vehicle more comfortable and with more recycled, renewable and lower carbon footprint materials. Dow's materials can be found throughout the vehicle. We have a comprehensive advanced material offering that supports chassis, power train, exterior, interior, and as you can imagine, electric and autonomous application. Now let's take a look at our robust offering. In the chassis, we bring forward silicone and polyurethane adhesives and sealants, polyurethane acoustic foams and water-based acrylic liquid-applied sound dampening solutions to provide safety and lasting comfort for passengers. In the powertrain, you'll find Dow silicone foams for gaskets and sealing various components. Silicone and nylon modified polymers are used in wire harnesses and electrical connectors.

Polyurethane acoustic foams can treat sources of vibration and flammability and silicone and EPDM in hoses, belts and gaskets. Dow's NORDEL™ EPDM brings a patented advanced catalyst system which reduces the manufacturing carbon footprint by 39% compared to the competitive manufacturing processes. Many more Dow materials can be found around the exterior of the vehicle. Our polyolefins are used in body panels, fascia, lift gates and exterior trim. EPDM is a material of choice for weather stripping. Moldable optical silicones are in smart lighting. Silicone and polyurethane innovations are used in self-sealing and acoustical treatments for tires. And silicone electrically conductive adhesives, gels and coatings are used for electromagnetic shielding and grounding. DOWSIL™ Electrically Conductive Adhesives are used in advanced driver assist systems, sensors and power electronics to shield interference across frequencies. We have developed room-temperature cure silicone adhesive materials that reduce energy intensity and CapEx for our customers. Also, many Dow materials can be found within the interior. You can find silicone encapsulates, gels, conformal coatings in electric control units, displays and electronics. Polyolefins in consoles, airbag covers and interior trim. We are a leader in silicones used for airbag coatings and bonding. We produce novel materials in surface skins and acoustic treatments for improved sound, smell, touch and feel. Lastly, polyurethane foams can be found in the seats, headliners and instrument panels. We recently launched SPECFLEX™ and VORANOL™ C circular polyols, targeting seating and acoustic applications to address customers' growing sustainability demand. Let's hear from my colleague Esther and a key customer in Europe about this technology.

ESTHER QUINTANILLA: At Dow, we are passionate about creating products that can offer circularity right from the beginning. We work closely with the industry to make this happen. So recently we have launched new polyurethane solutions for different automotive applications made with recycled raw materials from the same mobility industry using the mass balance

approach. This is a very efficient and validated way for automotive OEMs to meet the regulatory standards and reach their own ambitious sustainability goals. I am joined by Philippe Godano from Autoneum, the leading global acoustic and thermal management automotive supplier at their headquarters in Switzerland to share us more.

PHILIPPE GODANO: Thank you. SPECFLEX and VORANOL C are setting new standards in terms of sustainability, which makes them a valuable complement to the unsustainable product portfolio. We are now able to supply our customers with more sustainable foam-based components, which is good news. The new foam systems, not only offer the same benefits as current automotive polyurethane foams, such as geometrical adaptability and lightweight, but also lower the carbon footprint of car components significantly. By making use of recycled and locally obtained automotive waste, the products are also in line with Autoneum's effort in exploring shorter and more sustainable raw material supply chains.

ESTHER QUINTANILLA: Thank you Philippe. It takes collaboration with the leaders and automotive suppliers like Autoneum to meet the demand for more sustainable products that can deliver the performance that the OEMs expect.

TIM BOVEN: Dow has been engaged since the beginning of the e-mobility trend decades ago. Our innovative portfolio of solutions is helping the industry face ever changing challenges, including extending the life of the battery. Dow engineered materials can be found throughout applications such as battery, power electronics, e-motors, sensors, electric control units and e-drives. Coolant fluids, engineered silicone and polyurethane are critical for thermal management. Silicone adhesives and sealants, encapsulates, gels and conformal coatings are used in battery systems, power electronics, e-motors and safety and transmission systems. Lastly, engineered silicones and polyurethanes are used in thermally conductive gap fillers and battery assembly adhesives. Dow has a long history of being involved in the vehicle electronics and energy storage applications and we continue to use and develop those core competencies as we work with customers on next generation applications. As we invest in our future, we seek out partners who share our ambition and goals. This year, in our race to innovate, we began working with Jaguar Racing's Formula E team. Formula E is where the next generation of electric vehicle technologies are proven on the race tracks of today and introduced into the cars of tomorrow. Let's hear from our partner.

JAMES BARCLAY, JAGUAR RACING: In Dow we have a fantastic partnership. The amount of material science knowledge and capability is phenomenal, and for us as a race team, and as a partnership already, there is some really exciting areas of collaboration. In the short space of time we've been working together, we are looking at all sorts of material science, including things like silicones and how we can use silicones to reduce electrical noise and in the power train architecture. That means you have to be on the cutting edge of everything. You're trying to get every nanosecond you can of performance and that pays dividends for consumers by delivering a more efficient faster racing car, delivers better range for consumers, by delivering the most sustainable racing car and because of the materials we use that ultimately has a knock-on benefit, not only for consumers, but for the planet as well.

TIM BOVEN: We see tremendous growth opportunities in the transportation industry. As we join our customers at their design tables, offering Dow's world leading material science capabilities. Our broad product portfolio, our deep science expertise is creating profitable growth opportunities. We are innovating and providing differentiated solutions today and down the road.

JIM FITTERLING: Thanks. Sustainability is not new to Dow. It's been part of our foundation for more than 30 years. And last year in the pandemic, we announced new breakthrough targets focused on reducing our carbon footprint and addressing plastic waste. Both of those targets build on the targets that we've set for a long time and the progress that we've made. As I mentioned earlier, in the past 15 years, we've reduced our overall emissions by 15%, while growing volume by 30%. We also run some of the most efficient assets in the industry and we're announcing today our intention to build the world's first ever zero-carbon ethylene cracker complex in Fort Saskatchewan in Alberta. Beyond this, I am very proud of the team, they've spent the last two years developing our own plans, site-by-site to take our Scope 1 and 2 emissions around the world to zero by 2050. 15% by 2020, another 15% by 2030 gets us to 30% and growing the portfolio. We have clear line of sight to delivering that zero emissions by 2050. Widespread support for decarbonizing the emissions is driving a lot of demand across the value chain. You've heard many examples today. All of our customers are asking for more information about how our products impact their CO2 footprint. We are well positioned to continue to lead and benefit from this evolution. So today I am joined by Jack Broodo, who is President of our Dow Feedstocks and Energy Division. John Sampson leads Global Operations, Manufacturing and Engineering. Our Chief Technology Officer, Dr. Sreeram, he is going to be talking to us today about some of the new technologies we'll be using. And Eunice Heath is one of our resident experts in Environment, Health and Safety and Sustainability, and she is going to talk to us about what we're doing on the measurement and reporting front and what some of the trends are in that area. We are going to give you a deeper look at carbon neutrality, help you see that we have the talent, the science, and the technology to get there, not only to decarbonize, but to grow the enterprise at the same time. And that path to zero emissions, as you'll hear from the team today includes both strategic and value driving actions such as a phased site-by-site approach that will allow us to make these investments and keep our financial commitments to you. We are looking at replacing end of life assets, many of which will have to be replaced in this 30-year time period anyway, with high carbon intensity assets, with more efficient and lower cost solutions. That's especially true in our power and steam, part of our operations, and continued integration of cost-efficient clean energy that we talked about with our renewable partnerships today, and doing all that while generating high margins and capacity to support long-term growth for products that are being demanded by our customers worldwide. So first, I want to take you on a virtual tour to Freeport, Texas, home of TX-9, the most cost and carbon efficient cracker in our fleet, and Keith Cleason, who also by the way happens to be here today, is on video to walk you through why our latest investment is already setting the standard for both cost and greenhouse gas efficiency. And then after that the panel and I will talk about what Dow is doing on the next steps in low carbon emissions manufacturing.

KEITH CLEASON: I am Keith Cleason, Vice President for Dow's Hydrocarbons Business. This is our TX-9 cracker. In every dimension the TX-9 investment has truly been a success, from the original project execution, through startup, to steady state operations, TX-9 has and continues to set the standard in the industry. It all started with the build. Dow is well recognized for best-in-class project execution and the TX-9 project is no exception. Our early mover advantage allowed us to lock in strategic resources and move the project forward efficiently. We completed the TX-9 project 12 months faster than the average cracker built in this wave of US Gulf Coast Investments. And once completed, the unit started up and reached targeted design capacity within one month. That benchmarks best-in-class for both project execution and ramp up the full rates. From there, we began to optimize production, consistently producing well above nameplate capacity. And as planned, we expanded the cracker last year to its current capacity of 2 million tons per year. Our teams again have been able to consistently run it at more than 10% above that new nameplate capacity. Simply stated, TX-9 is the largest, most capital and operationally efficient cracker in our fleet, with 65% lower conversion cost. Since startup, it has

delivered a return on invested capital of more than 15% and is generating \$400 million or more of EBITDA per year depending on where we are in the cycle. Additionally, TX-9 has the lowest carbon intensity in our fleet, producing 60% less CO₂ per ton of production than average. And as we look to the future, we expect the cost of carbon to further differentiate crackers like TX-9. This asset is an industry-leading example of how we can profitably grow while we continue to improve our sustainable footprint. It's an important foundational element for Dow's path to zero emissions and sets the stage for technology breakthroughs that can take our performance to the next level.

JIM FITTERLING: So we are very proud of the results that we're seeing out of TX-9 and we're excited about how we can build on that success in the future. So now I would like to invite Jack to explain how we're building on that advantage in our path to deliver low carbon emission materials to our customers. Jack.

JACK BROODO: Thanks Jim. As Jim said, since 2005 we've reduced our carbon emissions 15%, mainly through renewable energy and efficiency projects, and we will reduce by another 15% by 2030, which will be about half renewable applications and the other half will be project-related. This is on our path to getting to zero carbon by 2050 while growing the company. So how are we going to do this? It sounds like a bit of a hat trick. So we began working on this -- about how we're going to manage our carbon with the global team five years ago. In the last couple of years, we've put together the zero-carbon plan for Terneuzen and for the new cracker in Alberta. And simultaneously we built a multigenerational plan based on engineering for each of our top 12 sites, which composes 90% of our carbon emissions mainly in about half in power plants and about half in the olefins plants. We made the announcement around Terneuzen, which will create net-zero ethylene, the cracker in Terneuzen, when that project's implemented. And taking these plans forward we know what we need to do, we know when we need to do it, and we have a rough cost timeline to do that, billion dollars a year, about one-third of our D&A covers that number. What are we going to do? Well, all of our power plants, all of our power assets reach end of life over the next 30 years, so they will all get replaced as that occurs. We will replace them with known proven technology, little fire hydrogen, or we will buy renewable power off the grid and simultaneously we will grow our capacity and we will build zero carbon crackers. We're going to design a state-of-the-art efficiency. And then beyond that, we take all of the off-gas from the facility, we run it through a reformer to make hydrogen, and then the hydrogen is fueled in our furnaces, in our power plants and in our gas turbines. The CO₂ comes off of that reformer and goes to a carbon capture utilization and storage system, and that carbon is stored to prevent CO₂ emissions. John is going to go into some more details about that in just a moment. Today's announcement to triple our capacity out of Fort Saskatchewan is our first proof point, along with doing the cracker, and we'll also take that opportunity to bring the whole site to zero carbon emissions -- net-zero carbon emissions in a couple of phases.

This investment will decarbonize 20% of our global ethylene, grow our polyethylene capacity by 15%, create approximately a billion dollars in EBITDA. It doubles our Alberta advantage competitive edge, which has some of the lowest natural gas prices in the world and the distance to market there allows us to create long-term ethane contracts, supply contracts that act as a hedge on ethane forex spreads. It expands our geographic diversity. And in Alberta, we are very fortunate to work with a business-friendly government where they're focused on getting rid of the red tape, building competitive carbon capture utilization and storage systems in the province, and they strongly support this project. Successful decarbonizing and growing the company is going to require a few things. We need government support. The Dow's long history in sustainability and activity around sustainability gives us credibility and puts us at the table with policymakers and lets us help define and attract subsidies and build that pragmatic means

to put a price on carbon, which is really key to making some of this stuff happen. And our scale, which is quite large in each of these regions, lets us build multiple partnerships; we are not relying on single partners, we have multiple partnerships and that creates competition for Dow's business, which ensures low cost, for carbon capture, for hydrogen systems and also for clean energy options. Jim, as we discussed, zero carbon is going to be challenging for everyone and Dow is going to remain aligned with affordability, subsidy, availability, regulatory dynamics and access to clean energy. And we are going to target growth in the most attractive regions as time develops. Our full 2050 plan is going to evolve over time as we develop, improve, or adopt new technologies which can lower CapEx and OpEx. We will remain flexible in our technology decisions to enable our teams to implement the most effective, attractive financial -- financially attractive facilities going forward and Sreeram is going to go through some of those opportunities in a minute. We're relying on proven Dow capabilities. We have a plan that is clear and based on known existing technology. We'll maintain strict financial and capital discipline. We will continue our proven excellence in delivering, engineering and capital execution, which we're the best in class. We will grow and leverage our structural feedstock hedges in Canada and Alberta and we will continue to expand our industry leading feed flex in the US Gulf Coast, and Europe. And last but not least, we will continue to use and expand the use of clean power, where we're the largest user in our sector and one of the 20 largest users of clean energy in the world. Jim.

JIM FITTERLING: Well, as Jack mentioned, the path to carbon neutrality includes upgrading with low carbon emissions technologies at many of our sites and the top 12 represent 90% of our emissions. John Sampson is going to talk a little bit about the specifics about how we are going to do that. So John, maybe a little bit more color into what we are engineering and what we are investing in near term in manufacturing operations and how that's going to allow us to remain both best in class in terms of cost and carbon intensity.

JOHN SAMPSON: Sure. Absolutely. Thanks Jim. Great to be here today. We are taking a site by site approach to look at low carbon opportunities at our entire Dow fleet. And as we do that, we are developing an implementation plan and focusing really on two primary objectives. First, we want to implement commercially available technology that minimizes the risk of doing this. And I will also add in doing this we want to invest in regions, as Jack said, where we have partners that will partner with us and invest in things that we need, like carbon capture storage technology and hydrogen technology. So the second thing that we are really going to focus on is on identifying investments that will continue to lower our capital intensity, even while we are putting carbon capture and storage technology in place. And that's why today's announcement is so exciting for us. The investment at the Fort brings together a lot of these key priorities for us as we have got competitively priced feedstock in the region. We have got carbon transportation that's already available right outside our fence line, right there in the region. We have got storage options in the region. And we know of course how to do the other part, which is build the cracker and build it very efficiently, as you heard about our TX-9 investment. So what are we going to do at the Canadian site? We are going to construct a clean hydrogen plant as they said today, an autothermal reformer that will take byproducts from our core production processes and convert them into hydrogen and CO2. The circular hydrogen will then be used as a fuel in our process and the CO2 will be distributed in that third party infrastructure that I talked about earlier. Now, the thing that's most exciting about this Jim is this Fort Saskatchewan investment, despite the carbon capture and storage addition to the scope, is going to be 15% less capital intensive than our TX-9 plus derivatives investment on the Gulf Coast. So that's truly game changing.

And as Jack said, we have gone a similar path in Terneuzen, The Netherlands, a large integrated site there, where we are going to reduce carbon emissions by another 40% by 2030 using the similar sort of technology. And this will put that site on the path to carbon neutrality by 2050. Lastly, I will just say that we will continue to develop and implement plans to take additional technologies to replace traditional fuels in our process with clean fuels and carbon neutral fuels, which will ultimately end up with our sites being carbon neutral by 2050. Jim, we have got a history of game changing manufacturing innovation. We were the first to work with Westinghouse many years ago on cogeneration. And we have heard today about the TX-9 facility that was recently started up. That was a real game changer in efficiency and carbon reduction. So as a natural course of our business we will renew our assets, we will abate emissions, all while continuing to grow.

JIM FITTERLING: Yeah, and just as an opportunity, as we look at renewing the manufacturing fleet in a strategic way around the world in a way that helps us maintain the cost advantage and also reduce that carbon emissions, there is more than one solution, and we are focused right now in Terneuzen on retrofitting an existing facility into circular hydrogen and we are focused on Alberta on tripling our capacity and bringing in circular hydrogen, but there are other technologies and we are working on several of them right now. I would like Sreeram to talk about some of the R&D work that's happening in both propylene production, with FCDh, and ethylene with EDH and electric steam cracking.

A.N. SREERAM: Thank you Jim and a very good morning to all of you. I want to let you know there are several process innovation projects in flight. But before I do that, one point I want to emphasize that many leaders have made today, that Dow products and solutions are vital. They are vital to a low carbon and ultimately zero carbon emissions economy. Without that we just cannot deliver. Whether it's on helping on food, going to waste savings or packaging, cold storage, cold chain being more efficient, power generations on renewable electricity and transmission, lightweighting, both use less materials, so use less energy to transport them if they are part of the mobility cycle, right, so all of those are extremely important. Two of the projects highlighted here take into account two monomers that ultimately through their derivatives are 80%, 90% of the CO₂ emissions for Dow. FCDh stands for Fluidized Catalytic Dehydrogenation of propane to propylene. And typically what our industry and unit operations improvement have done in the past half century or so is get more and more capital and energy efficient by making the units larger and larger, so a world scale, world-class propane to propylene unit is three-quarters of a million tons a year. That's our PDH one, world-class operations. What we did with FCDh is reduce the energy and capital intensity by 20% and thusly reduce CO₂ by at least 20%. And in doing so we broke the tradeoff barrier, which is you don't have to make these units gigantic; the next being a million tons a year for example of propane to propylene. This can be just as efficient, capital efficient at 50 kilotons an annum or growing 20 times larger. That allows for us to retrofit in existing assets. And also allows it to license to other companies, because there is a lot of infrastructure that already exists and if you can retrofit it and significantly reduce CO₂ footprint at the same time and improve capital efficiency, it's massively beneficial to us as Dow and to our planet at large. We are building a unit, LA-3, 150 KTA, which is the retrofit in Dow Louisiana site, should be fully operational about this time next year. Our licensee is building a unit more than three times larger than that from ground up. So that will also be coming couple of years behind that. On ethane to ethylene dehydrogenation, you heard a lot about TX-9. Relative to TX-9, which is already two to three times lower CO₂ footprint or lower CO₂ intensity of the world average, it will be 40% more efficient, and just like that can be scaled up or down, don't have to be gigantic and retrofitted across most of the facilities. And both of these will produce very low carbon, so in the coming decades, if geology allows, other conditions are met, you can add CCS to a real zero emissions economy.

Moving to the next slide, in parallel, we are also developing electric cracking. In a very simple manner you use natural gas or methane to heat, to generate the heat, instead of using that, use renewable electricity. It is a hard problem because massive amount of heat is used, but we have partnered with Shell in a joint development agreement and a research unit is being built in Amsterdam through government subsidies also. And once that is demonstrated, we are going to pace its expansion or scale up as the green electricity becomes more and more available. To give you an idea, 600 KTA ethylene unit in Terneuzen is going to require about 450 megawatts of green power. So as that infrastructure develops, we will expand. So where I want to end is Dow engineers or scientists are extremely passionate to simultaneously deliver products and solutions that are sustainable and higher performing because that's how our customers make label claims and win. When they win, Dow can capture more value for us and our shareholders. Thank you Jim.

JIM FITTERLING: And as Sreeram mentioned and maybe is not obvious, but one size doesn't fit all. So what happens at an existing site may be different and the economic and the macro drivers may be different. So we will have the capability to use circular hydrogen, like we are doing in Terneuzen or Alberta, we will also have the capability to use our own technologies on FCDh and EDH as they become commercially viable. And we are working long-term on electric cracking, and if we can get that cost competitive, that will be down the road, but you should think that that's probably more than 10 years down the road for e-cracking. So another key element to all of this is having a strong governance framework on the path forward. We can talk about all these numbers but reporting requires a lot of governance and Eunice is one of our resident experts in ESG, and spends a lot of time with our brand owners, a lot of time with NGOs and third parties who look at this space. And I would like Eunice, you to talk about a little bit of what's driving transparency for our stakeholders in ESG and what's Dow doing on the reporting side and how we're going to make sure that we can actually back up our claims.

EUNICE HEATH: Thank you so much Jim. Transparency is a foundational expectation among our stakeholders. It's a tenet of good governance in terms of ensuring accountability. Our stakeholders are interested in Dow's ESG aspirations and our performance towards our sustainability Dow 2025 Sustainability Goals, as well as the new carbon and plastic targets that we introduced last year. Dow has a longstanding track record of voluntarily reporting our sustainability commitments as well as our progress. We have tracked and we have disclosed to the Climate Disclosure Project for the last 18 years. We are also working and engaging with governments and community partners in order for us to help our industry achieve carbon and neutrality faster. Our carbon neutrality targets are rooted in climate science and we recognize that our world needs to achieve net-zero by mid-century. We have concrete plans to decarbonize our Scopes 1 and 2 emissions by 2050, but we are also partnering with our suppliers to address Scope 3 emissions. And we also realize that for hard-to-abate sectors like ours to have meaningful impact on Scope 3 emissions, we need an industry-wide framework. And that framework needs to be simple, credible, auditable, transparent in order for us to address Scope 3. And we are very proud to join Columbia University, The Nature Conservancy and Honeywell in the launching of the Carbon Accounting Project. It was just a build on existing methods to track where and how carbon emissions are created as well as reduced in all points of the product life cycle. Now, throughout today we have shared our plan. It's a credible path to zero through our investments, our product innovation, and our partnerships and we will continue to report our progress primarily in our ESG report. This year's ESG report is titled INtersections and it's nearly two decades of voluntarily reporting. I am so proud of this report. In this report we provided all of our ESG priorities in one holistic comprehensive and transparent report.

For our 2020 report, we also engage Deloitte, our financial auditor to provide limited third-party assurance to better align our assurance process with our external audit process as well. Our actions represent an ongoing commitment to transparency and accountability. We have the plans and the partnerships in place to drive decarbonization and circularity. We have clear metrics to ensure our progress and we have a strong governance framework to ensure accountability. Jim, Team Dow is poised and ready to deliver on our path to carbon neutrality.

JIM FITTERLING: Yeah, no doubt on my mind. Ultimately, I want to leave you with one message. This is the best investment you can make in the material science sector. Next year is our 125th anniversary, we are turning a corner to make this a zero carbon sustainable company, and we have evolved through some tremendous shifts in technologies, market needs, cultural changes, and we have done it with leading technology and always having a sharp eye on the needs of customers and consumers. We have the ability to innovate the solutions that are going to solve these challenges and I hope we have showed you some of those today. When Dow people get their head focused on a challenge, a lot of you think about labs and scientists making products, you should also think about process engineers and manufacturing people who are actually putting it to work at massive industrial scale. That's what we need to solve these challenges. This is a distinct advantage that we have. John talked about low cost and capital efficiency, some of that was delivered through some pretty advanced construction techniques which Dow is uniquely positioned to deliver. We're going to win this challenge. We're going to grow this company and we're going to decarbonize. We can do both and we can do it while delivering more than \$3 billion of additional EBITDA in this near-term timeframe. So thank you to everybody on the carbon team in the panel, it's been fantastic to see your work. We did not waste the last 18 months of this pandemic; we are ready to go. And now I would like to invite Howard Ungerleider, our President and CFO to come up and put some numbers to this and bring it home. Howard.

HOWARD UNGERLEIDER: Thank you. Thanks Jim and thanks again to all of you for joining us today. To round out what you have heard from Team Dow, I would like to outline how our strategic priorities and our clear financial goals will enable us to continue to deliver disciplined value growth. First, we build from a track record of delivering on our commitments. Since Spin, we have delivered even in the face of a global pandemic. This is a direct result of our disciplined and balanced approach to our capital allocation. To that end, we kept CapEx well within D&A as our best-in-class execution that you heard about from Keith on the completion of our US Gulf Coast assets really enabled us to be agile in response to the evolving market dynamics. We also significantly improved our balance sheet. We reduced our net debt by more than \$4.5 billion, and just like we told you we would, we successfully reprofiled Sadara's debt as well. We also returned more than 65% of our operating income to shareholders. The investments we completed are delivering improved returns. As of the second quarter of this year on a trailing 12-month basis our return on capital was greater than 14%. We also removed a significant amount, \$1.2 billion of structural cost, and we executed a series of incremental higher return, low risk, and faster payback projects, improving the underlying EBITDA of the enterprise by \$2 billion per year. Our focus on cash, which as most of you know is one of my favorite metrics, we have delivered since spend a 95% average cash conversion rate, well above the target that we committed to you at Spin. And we have significantly increased our transparency and our accountability by our annual benchmarking. This benchmarking clearly highlights how we have performed amongst our peer group.

And I am very proud to share on behalf of team Dow, that the team that you heard today achieved top quartile performance since Spin in cash flow, in cost structure, in net debt reduction and in shareholder remuneration. And hopefully what you took away today from all of

the panels as a leadership team, we will continually challenge ourselves to deliver to you industry leading performance. Going forward, our financial goals are clear, and our management incentives remain fully aligned to shareholders. And we will continue to raise the bar by adding ESG to our long-term incentive program, that aligns to our strategy to decarbonize and grow the enterprise value. Now, as we summarize our financial goals, our top priority as always is to run our operations safely and reliably. Our disciplined and our balanced approach to capital allocation remains consistent as is our commitment to a strong investment grade credit profile. And to that end, we will now target a two to two and a half times debt to EBITDA ratio, replacing our higher two and a half to three times target. Why? To simply ensure we continue to have the flexibility to deliver on our strategic priorities across the economic cycle. We'll also continue to be disciplined with our organic investments, keeping our spend within D&A and continue to target an ROC above 13% all while reducing carbon emissions and further enhancing the circularity profile of our product portfolio. I'm pleased to share that our dividend remains a cornerstone of our investment thesis and we'll continue targeting that at a 45% of our net income, and we will also opportunistically execute share repurchases. One, at a minimum to cover delusion, but also to ensure that we give 65% of our net income return to shareholders in total shareholder remuneration over the economic cycle as well. Now, in order to ensure we maintain that approach, our financial position continues to be key, with approximately \$13 billion of available liquidity. Our proactive liability management actions have resulted, as I said, in lowering our net debt by \$4.5 billion dollars since Spin. This coupled with the pension actions we took earlier in the year provides us with enhanced financial flexibility. To that end, we now have only \$1 billion dollars in long term debt maturities due over the next four years. And we have zero mandatory pension requirements for our US pension plans over that same time frame. These actions have lowered our interest expense by \$200 million a year well ahead of what we committed to you in 2018. Now, shifting to our earnings growth opportunities. As Jim mentioned, we have in flight actions to further increase our underlying EBITDA for the enterprise by another \$3 billion dollars. Our restructuring and our digital programs or expected to deliver about \$600 million dollars of earnings uplift. Our growth levers include \$1 billion of earnings from higher return, low risk capital investments that we announced on our first quarter earnings call. And we have an additional \$1 billion of earnings that we can deliver through investment in our operations to improve our product and production capabilities, our product mix as well as our focus on higher growth, higher value markets. And as we look beyond 2025, we expect to further grow earnings by another \$1 billion as we decarbonize and grow through our Alberta investment. Let's take a closer look at each of these levers. First, our restructuring program remains on track to deliver on a \$300 million run rate basis by year end. To that point, we'll deliver \$150 million of that this year and another \$150 million of hard dollar savings next year. And for those of you keeping track at home, our implementation spend is anticipated to be materially complete by the end of next year. And our digital investments, as you heard from Dan Futter, are already delivering results including digital sales which have increased more than 30% year-over-year. In fact, we now have more than 10,000 products on our Dow.com product catalog.

And our company sales leads, half of our company sales leads today are now coming from Dow.com. That's a 3x increase versus last year and 40 times increase than 2019. We also launched our digital end-to-end integration in our supply chain and what that allows us to do is connect our demand signals to our production plans and ultimately to our inventory targets. And we're also accelerating our product development with artificial intelligence. Just an example in our Polyurethane franchise that Jane runs, development time for solutions that used to take several months can now be accomplished in literally days. We also continue to progress our higher return, faster payback and lower risk projects that you heard about today. In Packaging & Specialty Plastics we'll deliver projects that increase our feedstock flexibility and our derivative

capacity and we'll implement the innovative and exciting FCDh technology that you heard Sreeram talking about. All well advancing product and process improvements and our suite of circular and lower carbon products. In Industrial Intermediates & Infrastructure, we're investing in higher margin polyurethane systems and alkoxylation capabilities to serve high growth regions like our recently announced investments in South China and we'll continue to deliver next generation infrastructure and mobility solutions as well. And in Performance Materials & Coatings, we'll continue to focus on incremental debottlenecking projects to support high growth silicones, adhesives, and coating emulsions as well. And as Jim and the team just discussed we'll utilize our success with the TX-9 Project as a blueprint to execute the world's first net zero carbon emission site in Alberta, Canada, to support attractive growth and importantly produce certifiable low to zero carbon emission products. And the great news from a financial perspective is these solutions command differentiated margins in fast growing applications where our material science enables us to win. This is all in a time when market fundamentals remain constructive for our key value chains. Demand continues to be strong with growth forecasts at or above GDP, and data suggesting we are still very early in the stages of a global economic recovery. To that point, we expect a further uptick in demand as the world continues to increase vaccination levels and high growth areas such as Brazil, India, Southeast Asia begin to return to more normalized consumption patterns. And we continue to see like we have for the last several years, industry supply projections being overstated to both delays as well as cancellations. We also remain intensely focused on our return on capital and on our cash flow generation. Our benchmarking shows that we have increased our return on capital performance by more than 200 basis points above the peer benchmark since Spin. We remain committed and as you see on the slide, we still have room to improve in this area as we continue to advance our goal to deliver greater than a 13% return on capital across the economic cycle. We'll do that with capital spending decisions aligned as Jim talked about to affordability, overall returns, market attractiveness as well as public policy developments around decarbonization. And as you heard from Keith Cleason, we will maintain our track record of best-in-class project execution just like TX-9, leveraging our technologies and our engineering capabilities to deliver projects on time, on budget and with industry leading operational performance. We'll do this by executing on our earnings levers, maintaining our low-cost operating model, and continuing to focus on higher return, faster payback, and lower risk projects. To that end, we've aligned our CapEx as you see on the slide by ramping up value accretive investments for quick wins and sustainability as well as in decarbonizing to deliver enterprise growth. We will also continue to use our best owner mindset to evaluate value creation through a nonproduct producing assets as well. And finally, back to my favorite, our focus on cash flow. Since Spin, we have demonstrated our commitment to deliver industry leading free cash flow across the economic cycle, and we will continue to improve in this area with additional unique to Dow working capital efficiency opportunities, the lower interest costs that I talked about earlier, the higher earnings that Jim and I unpacked as well as the market panels and higher dividends from our joint ventures as well.

Executing on each of these initiatives will enable us to continue to deliver industry-leading cash flow as we grow earnings. And with an improved cash generation profile, we have the ability to focus on additional near-term value creating options. We'll deliver on our capital allocation priorities while remaining flexible to take advantage of these attractive opportunities. Those options include accelerating our organic growth, growing the dividend, pursuing bolt-on M&A opportunities and, of course, executing value accretive share repurchases. In all cases, we will continue to remain disciplined, delivering in our goals while always staying focused on maximizing shareholder value. So, to wrap up what you heard today, Dow is focused on growing our enterprise value while driving to zero carbon emissions and a more circular economy. Dow is a compelling investment opportunity as we continue to deliver on our priorities

and execute on our strategy as an industry leader because we're well-positioned in attractive end markets that you heard this morning. We have a robust technology and product pipeline to deliver the solutions our customers need, and frankly, that all of us as consumers are demanding. We have further increased our earnings profile through higher return, lower risk growth investments. We'll continue to focus on leading cash flow generation with discipline and balanced capital allocation and will return 65% of our operating net income to shareholders over the economic cycle. And importantly, we will continue to hold ourselves as a leadership team accountable to compensation that is squarely aligned to these financial goals. And now I'd like to invite Jim and the business presidents back on stage for the Q and A on cash. Pankaj will you lead us through the Q and A procedures.

PANKAJ GUPTA: Yes, thanks, Howard. We'll do the Q and A here. We'll take a few questions in the room, go online and come back. So, the process will be especially for the folks online, as we talked about earlier, if you could submit your questions, I think it's on the right screen of your webcast. There's an opportunity to type in your question and hit submit, and then we'll take it up here. In the room, just raise your hand and either myself or Damien, I think he's on the other side. We'll come to you and get you a microphone. So, I think you picked up first, so maybe let's go with the other thing is, please state your name as well as your affiliation. Thank you.

PJ JUVEKAR: Thank you, Pankaj. It's PJ Juvekar from Citi. Jim, congratulations on moving the company towards zero carbon company and the goals. A couple of questions on that. You first wanted to applaud the circularity that you're pushing towards, but when you talk about PCR and other recycled plastics, there is additional cost involved in that. Who pays for that? Is it the CPG companies that pay for that? Is it the consumer? That's my question number one and related to that, your Canada project sounds great. Do you have to assume a premium price for your zero carbon polyethylene or do you think the renewable energy prices and clean hydrogen prices come down enough that you don't need a premium price? Thank you.

JIM FITTERLING: Two really good questions. Let's start with PCR. I'm going to ask Diego here in a second to add some color to this. But today, the demand for post-consumer recycled materials is much more than the supply. And that's largely because when you're bringing waste supply back in to manufacturing process, it's a very discreet operation. It is more expensive to do that. That distribution to get it back in is more expensive. But today, brand owners are earmarking higher prices for PCR materials and we see they're willing to pay that. I'll ask Diego to make a couple of comments here in a minute. On your long term, I don't know the answer yet to your long term. We're assuming similar cycle margins in those billion-dollar numbers that we showed you on the earnings, we think that there will be demand and people will want zero carbon polyethylene so we believe we'll be able to get some differentiated pricing, but we're not counting on it. And so, we'll see what happens. Energy complex as you can tell from what's going on right now is very volatile, kind of hard to predict but we believe we'll have a good low-cost solution. It's a no regrets move to do what we're doing in Alberta. It'll be structurally advantaged and low cost. Diego?

DIEGO DONOSO: Yeah, maybe just to highlight on PCR, there's two ways that we're going to enter that market and how you should see it versus the mechanical recycling, which I think is the one you're mostly referring to. The category cycling does create an opportunity. There is more demand and supply. And as all the brands and all the converters are seeking for more, particularly the clean streams, because mechanical recycling is mostly about clean streams of products. Now we're advancing also on advanced recycling, which takes the product back to a virgin like material. So, you take it to the paralysis, you put it back into the cracker and that one is a certified PCR advance recycle. That one, he goes back and that there is definitely a

premium there because many of the applications that could not be recycled before in the old system can now be certified recycled. This is the new path of the world. All of them will have a demand, and all of them have today a constraint supply. And we're all investing to ensure that we can match what our customers need.

PANKAJ GUPTA: I think Damien you're going to get that. Thank you.

JOHN ROBERTS: John Roberts from UBS. Jim, you're investing across a lot of areas, what areas aren't getting capital in the portfolio? And then should we be comparing CapEx to depreciation only or why are we comparing CapEx to depreciation and amortization? Sounds like you think bolt-on acquisitions will be even above the D&A.

JIM FITTERLING: I would say everything on the downstream is getting some capital. I would say on the upstream, there is not a big need for capital in siloxanes, for example, or in monomers for coatings and downstream there. We don't have big capital in here for the upstream and Jane's business, it's a mostly downstream investment. So, there are a lot of big assets that don't get a lot of capital. Big capital on upstream side is really focused on the decarbonization and growth that we just talked about. D&A, the way that we built up this approach to the spending was we wanted to be able to support the business from a maintenance standpoint and support the downstream growth with our depreciation levels and then reserve that increment for investments and decarbonize and grow by the difference between depreciation, depreciation and amortization so that's what we're focused on. And to the acquisition point, we don't have anything active on acquisitions right now. We've got our work cut out for us with organic investments and the good high return investments. We still have some work on divestment of infrastructure assets and we'll continue to selectively look at that.

DAVID BEGLEITER: Thank you, Dave Begleiter at Deutsche Bank. Jim, on CapEx, a very high level, the \$3 billion over the next three years is above expectations versus consensus. It's almost most well above the last four years of about \$2 billion. So, a very high level, why is now the right time to really ramp up CapEx? It's all about decarbonizing growth or are there other things driving the thought process here? And one more question after that.

JIM FITTERLING: I think the big reason is demand. Demand is stronger right now than I think any of us anticipated. And I think if you go beyond the pent-up demand coming from shutting down the economies last year and coming back strongly, we see some very strong demand growth as we move into EVs in the construction space. And so, the outlook right now is I think this year it's going to take us most of this year, beginning of next year to get back into a reliable supply position. And then at that point, we still have to rebuild the pipeline for an awful lot of industries. We hardly have an industry value chain in any industry that we sell to today that isn't tight on supply. And so, we need some more capacity to grow.

DAVID BEGLEITER: And just curious on your thoughts on a very topical issue today is China, dual control, common prosperity. Does that impact or limit future capacity expansion in China potentially keep all these markets tight for a longer period of time? Just your thoughts on this issue.

JIM FITTERLING: I don't think it does long term. I think in the short term, what you're seeing happening right now is driven by the coal situation and what's happened with power and really not having enough coal inventory going into the winter. Mauro's closer to that. Silicon metal is probably be one of the things that would be most affected to make siloxane, so maybe you can comment on that Mauro.

MAURO GREGORIO: Sure. I think it's not a long-term issue answering your question. I think it's very short term for what's happening now. The impact to Dow is very limited as compared to the rest of the industry. We are the only silicone producer that has back integration in every major region, we have in our North America, Europe and Asia. So they're not dependent on export of siloxane out of China to feed our machines across the globe. In China, where we are located, we can run our asset today. We are limited by the availability of silicone metal and the local teams are doing a great job to procure it locally. We also have capacity on our sites in Brazil, US, and Canada that we can export to China and we have right now, silicon metal from Brazil on the water going to China so we can continue to run. And last but not least, we had a turnaround plan for December that you have it in the schedule already so that will help us to smoothen out the need for silicone metal in the quarter and beginning of next year, we hope we'll be back to normal, but it's not only hope, we are putting silicone metal in inventory as much as we can.

ARUN VISWANATHAN: Arun Viswanathan, RBC. Thanks everybody, all the details. I guess I just had two questions. First off, you appear to have increased your earnings range, your EBITDA range from 6 to 12, now to 9 to 15 billion. My question is, is there anything that you could do to reduce that range? It's still a relatively large range, 6 billion or so in range. I would have thought that maybe there's something to tighten that up. And then, secondly, you've also laid out some aggressive paths as a lot of the brand owners have as well for recycled content as you noted. Are there any consequences or what would you see as the consequences if you don't meet those targets? That'd be something I'd be interested in as well. Thanks.

JIM FITTERLING: Yeah, it's a good question on the range. I think the nature of many of our businesses is there is a cycle to them. I would like to believe that as we move forward with investments to decarbonize and to grow the business, we'll be able to mute that somewhat and as we move more of the portfolio into higher value products, we'll be able to mute that somewhat, but we continue to work on productivity and efficiency and that's 600 million near-term is meant to lower our cost position. And that's one of the things that we're committed to is always fine tuning on the cost side to make sure that even at the bottom of that earnings trough, we can still generate good money and pay the dividend out. In terms of the long-term on the post-consumer recycle, I think the demand is going to be that we see a lot of money moving in right now to investments and both mechanical and advanced recycling. There's the recycling partnership that we work with today is talking about as much as \$5 to \$7 billion moving into that space. Maybe Diego, you share a few comments about that?

DIEGO DONOSO: Yeah, what do we see on a day-to-day is that the converters and the brand owners are extremely serious about their commitment. There is no doubt. Let's say two years ago, three years ago, maybe, but now it is action you saw the amount of work that are pack studios are having to enable recyclability. So, changing some of the packages that were not recyclable to becoming recyclable. At the same time, they are starting to work on finding streams and pushing all the industry including us to find the streams like REVOLoop to deliver on recycled content resins. And to enable that, you need high-performance resins as a backbone to take that PCR content with it. So, we are very well positioned to do that. And I would say third, we are all advancing very fast in advanced recycling because we need to have some virgin like materials to help our converters and our brand owners to deliver on those commitments and that is highly accelerated across the world. I think we're all going to meet those commitments.

PANKAJ GUPTA: Yeah, the question here?

STEVE RICHARDSON: Thanks, Steve Richardson, Evercore. I was wondering if you could talk a little bit about the competitive context. You've outlined these pretty significant investments in circularity and innovation and I was just wondering from a competitive perspective, what are you seeing from the company to square off against? Are they equally as intense on this? Are you seeing some pull back post the pandemic? And then -- so I have a follow-up as well. Thanks, Jim.

JIM FITTERLING: Sure. No. I see increasing intensity. I think all of us have seen increasing enquiries and increasing customer pressures on this. You always hope that you're out in front of what's going on in the market. I think we have a very detailed plan on how to get there and we know the technologies to scale up. Alberta is clearly a first mover in this space, but we signed on just recently to a consortium of 11 partners that want to build a hub in Houston for carbon capture. So, I would say the only hold back right now is are the policies in certain regions there to actually make this happen. In Canada right now, you have a \$45 a ton price on carbon. It's going to go to more than \$100 a ton in the time frame that we're talking about this investment and there's an existing carbon trunk line that we've contracted to be able to take our CO2. So, you've got that infrastructure in place. Now, we need our infrastructure investments here and our incentives to go to these low carbon technologies to build this out. And we need some sort of a market-based price on carbon, not a tax for revenue-raising, but a market-based price on carbon that really brings the financial markets in to drive this acceleration. It's working in Europe. It's working in Canada. We think it can work here, but we've got to get a little bit farther on policy.

STEVE RICHARDSON: Yeah, that's actually exactly was my follow-up but in terms of how important the policy framework is to clear around carbon. Back on the previous point though in terms of investment, are you seeing anybody particularly in olefins that isn't innovating as rapidly meaning decarbonizing existing assets, just harvesting cash flows and really not getting ahead of some of these issues?

JIM FITTERLING: I think there will be some. I think everybody's looking at hydrogen as a solution. Hydrogen and carbon capture, I would say everyone is looking at that right now. I think Dow and Shell are out front on electric steam cracking. We have to realize its longer term and longer risk and investment, we are talking about vis-à-vis, the size of the investments. We're talking about how Alberta is very different but nobody is moving forward like we are on FCDh and EDH. I think that's technology potential that could create some uplift. We think we could tap as much as 10% of the global market for ethylene and propylene production with those two technologies. So, that I think is another way to play the market and upside for us.

DAMIEN POLANSKY: Let's take a pause for the room for a second. Take an online question. So, a question here says, seems the share price does not reflect the current and future earnings power of the company, why not be more aggressive with share buybacks?

JIM FITTERLING: Well, as Howard mentioned, Howard, do you want to talk about what we've done on shared buybacks and our philosophy there and then I'll talk a little bit about the share price.

HOWARD UNGERLEIDER: Yeah. When we announced at Spin, we did announce a \$3-billion open program and year-to-date through the end of the third quarter, we did \$1.2 billion so half of that was actually done this year and the other half was done prior to the pandemic. I think I would take you back to our capital allocation priorities and our capital allocation priorities, it's all

about discipline and balance, right? So, number one priority, safely and reliably operates our plants. Number two, continue to pay that dividend as well as we ramp earnings and ramp cash flow that dividends should grow 45% net income going back to shareholders over the economic cycle. Ramp the organic growth investments. We've got a lot of significant opportunities. I'd encourage you to talk to Keith Cleason who, not just in the video, but as Jim said, he's here today that TX-9 is a benchmark project. It delivers 15% return on capital project to date. That is a very good use of shareholder money and then finally, we will use stock buyback. We have and we will and we'll use it as a flywheel at least to cover dilution, but preferably to get 65% of that net income back to our owners.

JIM FITTERLING: I think in the near term, the share price is a reflection of the outlook that people have for next year being lower than this year. And of course, for the last 12-15 months, there's always been this idea that next quarter, prices are going to decline in demand's going to fall off the cliff. That has not happened. I think demand is going to be strong in the rest of this year and all the way through 2022. And if you want an evidence point drive by a used or a new car lot and you're not going to see anything there, we've got to get all these values chains back to some reliable sort of supply chain and in some cases, that means get the supply chains back here. I think that's one of the factors. I think the other short-term factor right now is this whole energy situation going into winter that has everyone scared. We're well-positioned to look through that and we've got a good portfolio. We've got good feedstock flexibility. And we know how to navigate through that situation. What that's going to do is it's going to show you that the Americas, both North America, Latin America, as well as the Middle East are going to be advantaged through that and the high-cost producers in Europe and in Asia are going to see some pretty elevated cost coming in. That's an advantage for Dow and people sometimes overlook that, so that doesn't always show up in the near-term share price.

FRANK MITSCH: So if you ask a question online, you can be anonymous and those of us in the room have to identify ourselves. Is that I'm hearing here? Oh, was it? Okay, Frank Mitsch, Fermium Research, congrats on the progress you guys have made since the last investor day. If I could follow up on that last question, just asking about the energy costs, et cetera, obviously, we just went through a hurricane margins, we're probably better in the third quarter than people had anticipated by buying's are probably impacted, if you wanted to make a comment and update us there. And then secondly, as I'm watching the presentations, it's clear that you have invested a lot in recyclable plastics, obviously one single-use plastics are a four-letter word these days and you are advantaged in that regard in terms of recyclability of plastics and so forth. There's proposals out there to raise taxes on virgin plastics that the industry is objecting against. And just curious as to what will it take to drive greater adoption of recycled plastics, because as you said, the demand is far greater than the supply right now? And it seems like you guys would be advantaged.

JIM FITTERLING: Yeah, in terms of the current supply demand situation, I would say right before hurricane Ida, I think the industry here had recovered from the Texas freeze and kind of gotten to a stable supply situation and then Ida hit, and of course if you hit Louisiana on the back of Texas just recovering and that's kind of a one-two punch for the industry. Luckily, we didn't have much impact to Plaquemine. So Plaquemine was operating the following week. And right now as we sit here, St. Charles, the two crackers or backup, and that's the heart of that. We've had power for a little over a week and a couple of assets running, but St. Charles will be back in the grid. So we'll have good asset utilization and good operating rates for the fourth quarter. And our plan, obviously, for the foreseeable future is to run hard, because we really need to rebuild some inventory and get our supply reliability back up. In terms of the resin tax, just in terms of what's going on in DC right now, a lot of this policy is not about smart circular

sustainability policy. It's about taxes to raise revenue to fund spending. And so, since plastics are viewed as a social issue that's out there in a big way, they look at 20 cents per pound resin tax to both penalize plastics, but also it's kind of an anti-fossil fuel tax. I don't think it has legs, the whole industry and the value chains are supporting it. It would be one of the most regressive taxes that's in that whole package because it hits the pocketbook of everything people use every day and a great example for that is a baby diaper. It's going to be a 40% increase in cost on one of those kind of items. So these are disposable items that hit your pocketbook just like filling up your car with fuel or recharging. And that's the message that we've been taking to the hill. I think that'll work. Post-consumer recycle is a big opportunity because it's technology-driven. You can't just take mechanically recycled waste and just blend it in a bucket and make plastics out of it. You've got to have other chemistry to make this all work. That's advantaged Dow. And so, that's why we're in this space and we're trying to figure out the best ways to do it, the right combinations, and also meet some pretty stringent requirements if you want to go into something like a food contact or human contact application.

JOHN MCNULTY: John McNulty, BMO. Jim, one of the big benefits Dow has had over the years has been its geographic location, focus on low cost raw materials and access to them. I guess, when you think about the focus on renewables going forward, the need for more access to recycling and recyclability, I guess, how should we think about how that may change your geographic footprint and where investment goes going forward?

JIM FITTERLING: Well the key part of what we need from our inputs is for the products that we make. So it's for the ethane, the propane, the petrochemicals that we convert into materials. And so, obviously, that is based on having the ability for natural gas and abundant natural gas capability. And that's an advantage obviously for Alberta, as we sit here with close to \$6 a million BTU gas in America, it's about half that in Alberta. And by the way, as we sit here, United States energy prices are about a half to the third of what they are in the rest of the world. So we're still investing to take advantage of our feedstock cost and our input cost to make these happen. Energy depends on the location. In some places, alternative energy is being subsidized, and that doesn't necessarily mean that it's sustainable low-cost, long-term. And so you've got to be eyes wide open into what's driving the policy and whether it's really going to be there and be reliable. For us with big capital investments that require a 24/7 operation and absolute full reliability of power, we can't be totally dependent on wind and solar. It helps us a lot, it makes a big contribution, but we've got to have baseload and that's why we talked a little bit about modular nuclear in the future. I think this country has the capability to make investments in modular nuclear, a small modular nuclear unit at a facility we could offtake power and steam from that and take an entire manufacturing site to net zero overnight. That's something that we have to take a look at because that would be both low cost and low carbon.

MIKE SISON: Hi, Mike Sison, Wells Fargo. Two quick ones. When I look at the market fundamentals chart that you put up, everything looks nice and steady growth for the next five years, it's great. In the event it isn't and we have a dip, does that change your sustainability investments at all? And then as a follow-up, what are you doing to help change the perception on plastics? Meaning, you know, it's the most sustainable, again, and I was kind of thinking, maybe in the Super Bowl with the Browns, you could have Frank do a commercial for you. I think he'd happy to do that. But what are the investments to help change sort of the perception on plastics.

JIM FITTERLING: Super Bowl with the Browns, there's a lot in that question, right? So, let's go back. Obviously, these are kind of annual average trends on supply demand and things have been, and this past 12 months have been crazy all over the map. So we've gone from oil that

was you were being paid to take a year ago minus \$20 to now \$80 a barrel. But we have to live with that volatility. No, I don't think it will stop our sustainability investments. We will manage our cash and you saw us manage cash through the pandemic. We were very quick to address that. We managed our cash very well and we paid down debt during that timeframe. Paid the dividend, and we're able to continue to maintain our assets and run reliably. So, we'll know how to navigate that when the time hits. As far as plastics, a lot of what -- there's a lot of information out there on plastics. Some is valid, some is not. It is the lowest polyethylene, has lowest CO2 footprint of any package type in the world, and all of our brand owners know this. Though concern is around recycling. And it's around waste. And so, we focused on the alliance to end plastic waste, which is a whole value chain initiative, which was to get infrastructure going. And infrastructure investment, if it includes things like mandates on recycling, our industry called for the United States to adopt a 30% recycled content and all packaging. I think that would be a good move towards getting investment into recycling which is needed. That will change the perception. But you need to, at home, you need to have the confidence that if you put something plastic in the recycle bin, it's going to get recycled, just like, well you want that same confidence on paper or anything you put in there. But the people of America don't have that confidence today. And so, we've got to build that up. And that's more than just a plastics industry issue. That's a whole waste system issue. So we're working on it. It's not easy, but we think the better answer is give them good technology solutions that are cost-effective and zero carbon and recyclable. And if the Browns are in the Super Bowl, then we'll get Frank to work with us on it.

JEFF ZEKAUSKAS: Jeff Zekauskas from JP Morgan. I have a general question and a specific one. In your path to zero carbon emissions, do your investments increase your return on capital or lower your return on capital or keep them the same? And the second question is there's volatility in the environment. European natural gas prices are above \$30 in MMBtu, is that good for you? Is that bad for you? Is it very good? Is it very bad? And in the United States, I think in 2022, 2023, maybe we're going to add nine billion pounds of ethylene capacity, similar amount of polyethylene capacity. What happens with that? That does it go offshore? Does it stay in the United States? Does it affect profitability in the United States? How do you view those issues?

JIM FITTERLING: Sure. Take me back to where your first question of the three was.

JEFF ZEKAUSKAS: Does going to zero carbon emissions raise your capital?

JIM FITTERLING: There're higher return on capital projects. There are lower conversion costs, there are lower capital intensity, 15% lower capital intensity than Texas-9, significant growth for us out of the Alberta pocket. And that pocket has structural cost advantage to the Gulf Coast right now. So it will increase our return invested capital. To the 30 dollars a million Btu in Europe, what it means for us in Europe is we're not cracking as much LPG in Europe right now. It's not much available to do that. It means we're cracking naphtha. And so, we are able to do that. And that's more on the basis of \$80 oil. So it raises the floor or the high cost producers in terms of their cash break evens both in Europe and in China similar size, and coal does the same thing in China. It's so far out of the slate right now. It's not funny, so that's really what we're focused on right now. When gas is low, Europe gets an advantage from that, but when gas gets this high in Europe, it's really oil that you've got to go back to on the denominator. So I don't think it's going to last forever and that's why I'm not concerned about. We just have to navigate through it and we'll do that by cracking naphtha.

JEFF ZEKAUSKAS: And in the United States with the addition of roughly nine billion pounds of polyethylene over the next couple of years. Does it go to the export markets? Does it stay in United States? How does it change the PE Market?

JIM FITTERLING: It'll move around the world, I mean China's still a net importer. We are still seeing Europe is going to have to import materials. Middle East Asia is growing. Latin America still needs import material. So we'll be able to move it around the world and the demand growth has been good. Despite all the things that you read, demand for plastics is up significantly even though there's more post-consumer recycled material, we are down gauging, we're light-weighting, there's strong demand for plastics.

JEFF ZEKAUSKAS: Thank you.

KEVIN MCCARTHY: Kevin McCarthy with Vertical Research Partners. Jim, in addition to the new green projects like the one you announced today in Alberta, you alluded in your prepared remarks to upgrading assets as they come through their end of life. And so, I was wondering if you could expand on that. What are the assets that may come to end of life for Dow over the next five years or so? And is that a meaningful component of the capital budget that you put forth through 2025 or is it more of a next decade phenomenon and how might those returns compare to newer greenfield or brownfield investments?

JIM FITTERLING: Sure. Maybe, Jack, give one example on power with Plaquemine, the power investment because that's energy asset for power and steam at Plaquemine that's end of life right now and we're revamping that. And that will be converted and also reduce our CO2 footprint by about 580,000 tons, talk about that because power and steam is a lot of those end-of-life assets that need investment.

JACK BROODO: Sure. So gas turbines have about a 40-year life and steam turbines maybe have a little bit longer. The assets in Plaquemine, the steam turbines are 60 years old and the gas turbines that we're replacing are 40 years old. So they're literally metal fatigued end of life. And so, that's what we're replacing. And we're going to do some of it with boilers. We are going to do it hydrogen ready. And we're going also -- the efficiency also eliminates some of our carbon emissions, and that's our thought process globally. As we look at assets, we're not going to shut down viable assets, but they do come to end of life and as they do, we have opportunity to find maybe best owner mindset, about half of our power assets aren't Dow-owned. We lease them and operate them. So we may change to the ownership and we'll also take all the power and steam assets to zero carbon as we do that. And the similar thought process is working on the olefins plants. They do reach an end of life and you have to either invest to do a lifetime extension and sometimes you have a disadvantage of scale and so forth. So we work through that process. We have a roadmap. We won't follow it because it's a plan and you have to wind your way to the point, but that's the thought process in all of our assets is they reach mechanical end of life and we're going to optimize by building single larger assets and maybe shutting down some of those things. We don't have anything in the next five years other than Louisiana assets and then behind that, the next one on the power side is the Fort Saskatchewan assets.

JIM FITTERLING: Yeah, so I would imagine you won't see us replace an end-of-life cracker until after we get the Alberta project done. But if this works, as we have expected to and have engineered it to, then you have the option to build a very low cost, low carbon asset which gives you a capacity for growth while you retire an old one. And that's a win-win for us on several of our existing sites.

KEVIN MCCARTHY: Thank you for that. The second question, which is really a follow-up on China. In recent weeks, we've seen coal prices go parabolic so to speak and we've heard of power being rationed in many provinces within China. And so, my simple question would be, how are you managing through that? Do you view it as a net positive to the extent that it might steepen the cost curve in some markets or a challenge to the extent that you or your customers may not be able to run as hard?

JIM FITTERLING: Yeah, I think it's never a great thing when a government has to come in and take a drastic move like that. So that gets everybody's attention. But so far, as Mauro mentioned, we think it's a short-term issue and we'll navigate through it. And I think I don't know if it was purely the Australian situation or maybe they were caught by surprise and not having as much inventory as they thought going into winter, maybe a combination of both. And they've had to buy up as much coal as they can get their hands on. The key to the energy market and the reason we always talk about an all-of-the-above energy policy is the most fundamental thing in winter is you have to keep people warm and that will become the number one priority. I don't think it's going to curtail us, but we've been working hard to have the supply chain ready so that we can run through the rest of this year and into next year.

VINCENT ANDREWS: Thank you very much. Vincent Andrews from Morgan Stanley. Jim, maybe if you just give us some more stage gate or goalposts on e-cracking, I know you said more than ten years out, but what are the points at which you'll make go or no-go decisions? What are the critical things that we should be thinking about watching for as you develop this technology?

JIM FITTERLING: Sure, maybe Sreeram, you're probably the most up-to-date on that. Do you got a microphone? Can you maybe make a couple of comments, kind of on where we are, and when do you think the pilot will be ready?

A. N. SREERAM: Yeah, so what we have to prove with the Research Unit is a heat flux or thermal flux of 80 kilowatts per meter square. It's a 5000 kilowatt unit. That is a critical milestone and we will begin running that next year. Middle of the year, we should start collecting the data. Once that happens, the pilot unit would make about 40, 45 KTA, or I should say 15 to 45 KTA and you would need tens of megawatts of green electricity to run that. And that's a 2025 type timeframe. Assuming multi-gigawatts of green electricity is available and abundant in Netherlands. If that milestone is not happening, we should not be developing it faster than that because you know, using normal electricity is going to increase CO2 footprint and will be a poor return on that capital, hope that helps.

JIM FITTERLING: And I think Vince, our view on solar and wind is they're hugely important and they're going to play a big role in decarbonizing the power grid, but for industrial sector based on those kind of usages, it's a little bit crazy at this point. We've got a lot of technology to prove. If we were to try to decarbonize all the industrial sector with alternative energy, you're talking about two to three times the amount of electricity that's produced in this country today just to do something like green hydrogen. And green hydrogen is going to cost 20 times natural gas. So that isn't a realistic opportunity. This was why circular hydrogen off the back of a cracker is the right step forward. That's a very clean, efficient design. We've got scalable capabilities today. We've got carbon capture and sequestration. We've got a price on carbon. That's the right thing to do. But we're working it. I don't want to say never but we just want to stage gate this thing so we get it, right?

PANKAJ GUPTA: Well, that's all the time we have for the Q and A. Let's thank our speakers. That concludes our formal event today. As a reminder, our presentation materials are available on the website, especially the investor relations webpage under events and presentations. You can download that. And also, please pay attention to the forward-looking statements, the disclaimers that applies to all the presentations as well as the Q and A. A transcript of the Q and A as well as the entire event will be available in the next 48 hours or so. With that, folks online, thank you very much for your time and attention. Until next time.