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PRESENTATION

Operator

Good morning, and welcome to the Olin Corporation's First Quarter 2022 Earnings Conference Call. (Operator Instructions) Please note, this event is being recorded.

I would now like to turn the conference over to Steve Keenan, Olin's Director of Investor Relations. Please go ahead, Steve.

Steve A. Keenan ***Olin Corporation - Director of IR***

Thank you, Rocco. Good morning, everyone, and thank you for joining us today. Before we begin, let me remind you that this discussion, along with the associated slides and the question-and-answer session that follows, will include statements regarding estimates or expectations of future performance. Please note that these are forward-looking statements and that actual results could differ materially from those projected. Some of the factors that could cause actual results to differ from our projections are described without limitations in the Risk Factors section of our most recent Form 10-K and in yesterday's first quarter earnings press release.

A copy of today's transcript and slides will be available on our website in the Investors section under past events. Our earnings press release and other financial data and information are available under press releases. With me this morning are Scott Sutton, Olin's CEO; Damian Gumpel, President, Epoxy and Corporate Strategy; Patrick Schumacher, President, Chlor Alkali Products and Vinyls; and Todd Slater, Olin's CFO. Scott will begin with some brief remarks, after which we will be happy to take your questions.

I'll now turn the call over to Scott.

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Yes. Thanks, Steve. Olin's first quarter results met a number of expectations, but we can deliver more. That said, the broad Olin global team delivered remarkable accomplishments in demonstrating that we have control over improving our value delivery in 2022 versus 2021, in the face of major CAPV power asset challenges and now including a multi-month complete Plaquemine site shutdown and an Epoxy market in which Olin absorbed and continues to absorb the demand shortfall. Both CAPV and Winchester delivered the highest quarterly EBITDA in their history.

We were also pleased to announce our Blue Water Joint Venture with Mitsui & Company to substantially grow our participation in global liquidity and better service global demand. Complementing our leading position, Mitsui will bring to the joint venture both existing business and a tremendous global capability to drive long-term growth.

So beginning with Slide #4. There are 2 main themes that I'll review in these remarks. One thematic is our Olin winning model and the other is our Olin growth vectors. Here's the simple story of Olin. We're the global leader in all of our businesses and seek to expand our leadership. Our annual levered free cash flow is $1.7 billion, and it is very repeatable.

We have a unique system value model that breaks the cycle phenomenon. In other words, the Olin winning model. And we have accretive initiatives in every business. We call them Olin growth vectors. So let's start with the Olin winning model theme on Slide #5 and really respond to a very popular question that we get all the time. The application of our new winning model prevents deeply cyclic results that Olin historically inflicted upon itself.

Here's the proposed proof. First, on the left-hand side from the top down, Olin could absorb demand shortfalls like we are doing today in Epoxy, by the way, and run our entire global chemical assets portfolio at 50% utilization rates for a whole year and still deliver close to $2 billion of EBITDA in that same year.

So from the bottom up on the right-hand side, so we are speaking from the $636 million of EBITDA in 2020, we add back material changes that we don't lose in the event of a recession and could still get to at least $1.5 billion of EBITDA. So with demand growth forecasted to be larger than supply growth across all of our businesses, we don't see the recession scenario materializing. But even if we did fall all the way down to $1.5 billion of EBITDA, we could still deliver more than $1 billion of levered free cash flow in that same year. So a recession year yield of 13% at today's equity price.

Continuing the Olin winning model theme on Slide #6, the optionality of the high-level mechanics of our model are important to understand. So we have tried to summarize a day in the life of operating our model. First, we set our broad market participation to the forecasted weaker side of the ECU. In other words, we don't chase the stronger side, and we limit our participation on the weaker side.

Second, we determined which Olin chlorine derivative chains to give preference based on their relative values. Third, we decide how far downstream in each derivative chain we will participate. And finally, as a fourth step, even for the products that we do participate in, it may make sense to purchase liquidity from the global market instead of producing the product. The operation of the model is clearly more sophisticated than this simple summary. And as you might imagine, the operation is really executed across a deep and rational culture of value.

Now let's move to the Olin growth vectors thematic beginning on Slide #7. Considering the backstop of our successful model, we can now cross an inflection point and run growth initiatives. Olin currently sits on the capability to incrementally facilitate the next world-scale PVC plant. We estimate the combined capital cost at about 1/3 of a greenfield project with a much shorter time to market. This project could yield both growth and a broadening of the options available in the operation of our winning model. In other words, we get value back to Olin Ton #1.

So moving to Slide #8. Sustainable hydrogen supply is an untapped opportunity for Olin. We already have one of our smaller chlor alkali facilities supplying hydrogen to the fuel cell market. Last night, we announced the signing of an MOU for a joint venture with Plug Power to supply sustainable hydrogen from our St. Gabriel, Louisiana production facility exclusively to the growing fuel cell market as well.

Taken together, these 2 supplies represent about 6% of our current hydrogen production. We can expand this relationship to other Olin sites, and we have the independent option of replacing previously closed ECU electrolysis cells with water electrolysis cells as well.

In Epoxy, on Slide #9, Olin is positioning its technology to take advantage of robust future demand driven by mega trends. There are clear and specific global growth vectors that will pull on Epoxy demand, namely giant wind turbines, lighter automobiles, electrified vehicles and more sustainable construction methods. For each of these vectors, Olin has developed a proprietary epoxy system to solve a technical and enabling feature needed in the end product.

On Slide #10, Winchester is already highly engaged in materializing benefits from growth vectors in both the commercial and military arenas. Our Shoot United initiative is exposing the positive benefits of wholesome shooting sports with family and friends to millions of potential new participants in this fast-growing sport.

Winchester has also recently been awarded a new contract to kick off the development of the U.S. military's next-generation squad weapon ammunition production facility at our Lake City, Missouri Ammunitions Plant. We expect multiple new fundings to be appropriated to Winchester to manage this effort and additionally to supply the 6.8 millimeter rounds. Winchester is clearly on a growth path.

So that really concludes my opening comments. And operator, we are now ready to take questions.

QUESTIONS AND ANSWERS

Operator

(Operator Instructions) Today's first question comes from Hassan Ahmed with Alembic Global.

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

Scott, I really appreciate you sort of identifying these growth vectors and sort of highlighting them. My question is around capital allocation. Has anything really changed? From the sounds of it, it seems the growth you're talking about, if I may use the phrase, is asset light. So my question, I guess is, how should we, on a go-forward basis, think about capital allocation, how you're thinking about "an asset-light strategy" compared to buybacks, compared to maybe even potential M&A that you guys talked about historically?

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Hassan, yes, and you're right. I mean, the growth vectors that we've identified here so far are very capital light. And what I would say about capital allocation here is that, look, we're generating a lot of cash. We have a lot of cash. And the yield on Olin right now is more than 20%, and it's the absolute best investment in town. And we will be using that cash to repurchase that equity. Even in the case of a recession across a full year, even at today's equity price, it's a 13% levered free cash flow yield. So it even makes sense in that period at today's pricing. So you can book it. That's the direction we're going.

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

Very clear. And I was very intrigued by a line in the slide deck, where you talked about potential for H2O electrolysis, especially where chlor alkali capacity was closed. Look, I mean, obviously, you guys know electrolysis, you know it well. The whole hydrogen thing seems to be, if I may use the word, sexy, these days. And anyone who's in the hydrogen game seems to get a multiple rerating. So what -- I mean, if you could just flesh out the hydrogen opportunity for you and how you're thinking about your ambitions there?

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Yes. I mean today, right, we're not getting value for that hydrogen. In fact, a large part of it is strictly exhausted into the atmosphere. Another part is -- burnt at less than fuel value, I would say. And another part, we have some arrangements with gas companies that end over the coming period. So the first objective is to take what we're already producing and essentially monetize it at the exact same time you develop real carbon abatement, because it's going into certainly growing applications. So this step that we took with Plug Power was really just the first step. And now we have 2 sites delivering hydrogen to fuel cells or we will have the 2 sites, and its still a very small amount of the hydrogen we produce. I mean we're actually the largest producer of electrolysis-grade hydrogen in the country at the moment.

Operator

Ladies and gentlemen, our next question comes from Mike Sison with Wells Fargo.

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

A nice quarter and outlook. In terms of Epoxy, I was just curious -- I think you mentioned in the prepared remarks that demand is a little bit kind of soft. And just wanted to get a little bit of color on that and how you see sort of Epoxy performing over the next couple of quarters?

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Yes. Mike, I mean, Damian, gave us just a couple of comments on that. But just to make it even clearer, yes, demand has come down. We've absorbed that demand shortfall. And in fact, the first quarter was the lowest volume Epoxy quarter in the history of this business. And I think Damian can give you a view where demand sort of sits right now.

Damian Gumpel ***Olin Corporation - VP and President of Epoxy & Corporate Strategy***

Sure, Mike. Yes, we look at 3 factors meeting demand right now versus, obviously, the situation -- the unfortunate situation going on in Europe. The second area is the ongoing supply chain issues that are making it difficult to get other materials in to then combine with the epoxy to make a finished good. Automotive is a clear example there. And the third example -- the third area we see is China with the ongoing deep lockdowns that are underway here in the first quarter, all those factors are meeting demand some. That said, we are seeing that second quarter demand is a little better than the first quarter. We would normally expect that with seasonality. So we are seeing that.

The U.S. continues to have good, robust epoxy demand, and we continue to -- but all that said, we continue to set our value point for LER. We don't come off of that value point. We moderate our production based on the demand that's available to us from our customer base. And the last comment I'll say is that even with all that, we're not seeing -- the world is able to make more LER, and that kind of reinforces our point that right now, Olin is -- we continue to absorb the demand shortfall out there.

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

And then, Scott, I thought I'd just maybe get a little bit of color on Slide 7 and kind of your thoughts on finding a vinyls partner, maybe some timing. And what do you think needs to happen to -- for this to be a reality for you over the next couple of years?

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Well, I mean, look, I mean, we're positioned very well to make this a reality all the way up to PVC. So really, all we're looking for here is the right leader partner to put something together with. There's probably no better economics case for the next world-scale plant that sits here with Olin.

Operator

Next question today comes from Aleksey Yefremov with KeyBanc Capital Markets.

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

Scott, just following up on that question. Can you describe how sort of advanced your discussions are with potential partners on this PVC idea?

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Well, I would just say that we've had discussions at this point, but we wouldn't advertise it here if we didn't think it had a lot of possible legs.

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

Okay. It makes sense. Could you discuss Plaquemine and Freeport, maybe across several aspects. One, how much is it holding you back in terms of EBITDA, perhaps in the second quarter, those 2 outages together? And then how much do you think sort of fixing Freeport could cost in terms of capital or outside of CapEx costs?

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Aleksey, I might use your question just to expand a little bit on a lot of combination factors we're having now. And if you just think about the second quarter, it's where the most negatives merge together for us. And so the negatives there are that we're running short on power in Freeport and we will, at least through the fourth quarter. We have the complete Plaquemine site shut down. It's a multi-month shutdown, and will affect almost all of the second quarter.

We have our Stade epoxy and upstream units completely shut down, as Damian said. We're just not going to sell into a poor quality market, and we absorb all the demand shortfall essentially by doing that. And then on top of that, we've declared a system-wide force majeure in our CAPV business. So all of that is coming together in the second quarter. And yet, with all of that, our second quarter will be better than our first quarter and those conditions likely only improve as we move out of the second quarter.

In terms of capital and so forth, this isn't going to materially impact our guidance that we have where we spend between $200 million and $250 million a year of fixed capital.

Operator

And then our next question today from Kevin McCarthy of Vertical Research Partners.

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

Scott, I'd appreciate your updated view on pricing prospects in both chlorine and caustic. With the Plaquemine site down for a multi-month period, we've seen some of your competitors put forth very aggressive or at least high price increase proposals for the second quarter. Can you speak to supply-demand balances in the industry as they are and what that might mean for the price opportunity over the near term?

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Well, Patrick will give us a little color on forward value plays by Olin. I would just tell you that it's been quite tight and all of this makes it even tighter. And even on a long-term outlook, we tried to demonstrate in our last quarterly call that demand growth certainly outstrips supply growth. So that's just setting it up. And Patrick, do you want to expand a little bit?

Patrick Murphy Schumacher ***Olin Corporation - VP and President of Chlor Alkali Products & Vinyls***

Yes. I would just say that prices in the quarter moved up meaningfully from the fourth quarter for all of our businesses. In the market, there was -- as some of you noted in your notes, there's a bit of a lull in Asia, in the middle of the first quarter in that caustic market, but those prices are moving again. You guys saw what -- just settled in Europe for contract prices for the second quarter, that's a reflection of tightness in that caustic market globally. So we see pricing momentum continuing really across the board.

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

And as a follow-up to that, Scott, I think you announced a joint venture with Mitsui several weeks ago. Can you speak to that partnership and what a formal relationship there brings to the table for Olin relative to just trading or parlaying as you call it, with a wide variety of trading companies for international business?

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Yes. I mean sure. What it does is dramatically expand our ability to participate in global liquidity and trading. I mean both parties are bringing existing business into the joint venture, and this will certainly enhance our capability to serve globally in a way that we haven't been able to before. So it effectively brings a significant growth opportunity to Olin and to Mitsui.

Operator

Our next question today comes from Arun Viswanathan with RBC Capital Markets.

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

I guess I just wanted to -- you noted some soft demand in Epoxy. So I guess, first, I just wanted to ask about if you can kind of go through your markets a little bit, let us know what you're seeing? I know -- also you said there's some weakness in Asian caustic in Q1. But structurally speaking, I guess, how do you see your different end markets? And maybe if we could just focus on chlorine, caustic and epoxy and Winchester, that would be great.

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Yes. I mean from a high level, I mean, end markets are generally fine, except where we pointed out that epoxy got a bit slow for reasons Damian went through, be it Asia auto, Europe and a little bit of a lull even in wind blade production that does come back. That has actually stabilized, and that was the nature of Damian's comment where he said that, look, second quarter looks just a bit better than first quarter in terms of demand. I mean, demand is fine everywhere else. Of course, supply is quite tight also. If you take it to our

Winchester business, which we haven't talked about yet on this call, demand looks long-term good. In fact, with all the events going on, with Russia's war, effectively, they were the largest importer of ammunition into the U.S., in fact, about 12% of the market. And I suspect the U.S. isn't long for continuing to import that ammunition. So that's just one more item that enhances the demand profile looking forward for Winchester.

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

Okay. Maybe if I could ask another question on PVC and the vinyls market in general. So you've laid out a kind of a compelling value proposition for a partnership within PVC. Is it also the case that returns are at the point where you expect more kind of brownfield expansion within chloro vinyls? We've gone through a significant amount of pricing here in the last couple of years, and you seem committed to preserving a lot of that. But do you see more supply coming into the market on a brownfield or even greenfield basis in chloro vinyls in the near future?

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Well, I would say right now, you don't hardly see anything announced. So for the next 4 to 5 years, looks pretty good. Look, I mean, there's going to have to be capacity additions, right? I mean Olin is not a player in big capacity additions, though, and we've already said that. We have other ways to grow by using global liquidity that might already exist. But look, I mean, someone's going to have to expand. In fact, it's more than someone, right? The number of plants that need to come online to support growth in the future, considering how tight it already is, is pretty significant. It's just that the complete economics just don't exist yet. You've got to lift a bit more to get to real reinvestment economics considering the risk profile.

Operator

And our next question today, ladies and gentlemen, comes from Steve Byrne with Bank of America.

Stephen V. Byrne ***BofA Securities, Research Division - MD in Americas Equity Research & Research Analyst***

Yes. So I was curious about your multiple pathways on Slide 6, and you're clearly moving downstream into epoxy and vinyls. I was just curious if there might be some other pathways you could consider and one that seems possible would be the isocyanates into polyurethanes? Do you sell phosgene into the isocyanate industry? And is that another potential path for you?

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Yes. I mean, thanks for the question. Look, there's lots of paths that are possible in the ECU world, right? And we're already a supplier either chlorine molecules or chlorine derivative intermediates into many different chains, right? The ones we put on that Slide 6 are the chains that we effectively operate today, right? We are always considering different acquisitions, mergers, whatever the case is, and there's a number of derivative change that could make a lot of sense, especially as Olin's equity value gets lifted as well. It's challenging to do a big move today, considering where we trade at. Not impossible, just challenging.

Stephen V. Byrne ***BofA Securities, Research Division - MD in Americas Equity Research & Research Analyst***

And just wanted to ask a little bit about the plans to produce the green hydrogen with Plug at St. Gabriel. It seems like you could go a variety of paths, you could just simply source renewable power into your existing electrolyzers, is that the plan? Or are you planning to add a 30- or 40-megawatt electrolyzer or could you just change the hydrogen production right now by changing the influent brine concentration?

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Well, of course, today, we already produce this hydrogen, right? It's being produced. It's just being spit into the atmosphere essentially, right? Or used at some lower-value application. So all we're doing is taking that hydrogen and essentially liquefying it and then Plug Power is taking it to their hydrogen distribution, service centers, fuel cell application customers. So it's already there. As soon as we start using it for a more appropriate application, we achieve carbon abatement. If we need to get the definition to green, which we will, there's multiple ways to do it, a simple way to do it is to use RECs available on the market or RECs available from Plug through their other operations.

Operator

The next question today comes from Jeff Zekauskas with JPMorgan.

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

You said that you expected to earn more in your chlor alkali business in the second quarter than in the first, why is that? Given all of the difficulties that you've got, are the operational issues in the second quarter less than they were in the first? And how big were the operational issues in the first quarter?

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Jeff, no, the operational issues in the second quarter are more significant than the first quarter. In fact, it's when all of the negatives sort of merge together. But the path that we're on, Jeff, to continue enhancing the value of the ECU and derivatives from the ECU has a lot of continuing momentum. That continuing momentum overwhelms those negative issues. I think in the press release, we called out that just the Plaquemine event itself has a direct negative of $75 million to our earnings in our CAPV business. The other events have negatives as well, but we overcome all of those based on the momentum that we have in the business to improve the value.

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

Okay. And in your Winchester business, I imagine that you can track shipments of ammunition that come out of Russia. Have those shipments yet begun to diminish? How do you view the shipments out of Russia exclusive of sections?

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Well, there's a lag effect in being able to do that, Jeff. So we don't have complete view to diminishing shipments. What we do have some level of view to is the fact that there is certainly less import permits, in fact maybe zero import permits being issued. And we also have some level of view as to what may be originating in Euro-Asia there as well. And all of those things have come down. We'll have better -- a better view to some actual reductions likely on our next earnings call.

Operator

Ladies and gentlemen, our next question today comes from Josh Silverstein with Wolfe Research.

Joshua Ian Silverstein ***Wolfe Research, LLC - MD and Senior Analyst of Oil and Gas Exploration & Production***

Scott, you talked about potentially the need for more chlor alkali supply into the market. As you're thinking about the PVC plant opportunity, would this be your potential expansion to add more supply into it? Or would this be a shift of supply from where you sell today into this new facility?

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Yes. No, we would not add any more ECU production capability to do this. We already have it, and there's some timing impacts as well where more materializes in that 2- to 3-year window that we put on the scale of this project.

Joshua Ian Silverstein ***Wolfe Research, LLC - MD and Senior Analyst of Oil and Gas Exploration & Production***

And then just on the 2 facility outages, are you thinking any differently about how you're going to operate the facilities when the repairs are fixed? And can the repairs actually improve the operational capabilities of the 2 facilities?

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Well, I would say that we won't change our operating philosophy, and our operating philosophy is effectively set by the principles that underlie our model. And those principles are that we won't be selling into a poor quality market, and we will be buying liquidity out in the market instead in certain cases. So it won't change that.

Operator

Our next question today comes from Josh Spector with UBS.

Joshua David Spector ***UBS Investment Bank, Research Division - Equity Research Associate - Chemicals***

Just as a follow-up on your recession scenario analysis. Just curious that -- so it looks like you're taking operating rates down, but you're assuming that you can maintain pricing, at least, on the chlorine side. I was wondering if you could comment on what your pricing assumption is there on caustic side as well? And just going back to chlorine, what gives you confidence on being able to maintain that pricing? Is there something contractually set that locks that in place for you guys? Or are you just assuming you could deselect where it weakens?

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Yes, thanks for the question. I mean it's really like a chicken-or-egg question, right? I mean this is, of course, a hypothetical case, just trying to demonstrate the extent that we're willing to go to, to preserve our product pricing. I mean the reason you would take your complete global chemicals assets down to a 50% utilization rate for a whole year is to preserve product pricing, right? So we control our own destiny there, and we're positioned to do that even in the case of a global recession, particularly on -- you brought up merchant chlorine. That, for many years, sort of priced in the low $100 a ton, and we're directionally moving it towards $1,000 a ton on a pricing ratchet that we won't have to move back from. Even in a recession, when you think about the applications that are left with merchant chlorine, it's things like water treatment and wastewater treatment and pharmaceuticals and agrichemicals, those demands continue.

Operator

The next question today comes from Eric Petrie at Citi.

Eric B Petrie ***Citigroup Inc. Exchange Research - Research Analyst***

Can you just talk about the timing and scalability of furthering your green hydrogen ambitions? And do you need to see stationary and industrial end markets developed to do that offtake? And then how much in the EBITDA uplift would you expect from that business?

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Yes, thanks. I mean we really didn't quantify the complete EBITDA uplift here. But in terms of timing, one of the biggest limiting factors in the hydrogen evolution is actually not necessarily the hardware to use the hydrogen, but it is the reliable supply of hydrogen molecules because you just can't store much. So as soon as we get this joint venture operational with St. Gabriel, it will effectively be 100% utilized. The next one could probably be 100% utilized too, it's just that it's going to take another period of time to develop another asset. So you might imagine that every 6 months to a year, there's an opportunity to do something to expand our hydrogen going into carbon abatement applications. Todd, I mean, what do you think? Is that...

Todd A. Slater ***Olin Corporation - SVP & CFO***

Absolutely. So remember, we are only utilizing with this joint venture and the other application we have another plant, 6% of our hydrogen. So there's a significant opportunity as we move forward.

Eric B Petrie ***Citigroup Inc. Exchange Research - Research Analyst***

And then my second question is on -- could you just refresh your thinking on ECU and chlor-vinyls cost curve. I think there's a new greenfield $2 billion chlor-vinyls plan in the Middle East to supply Southeast Asia. So what's the economics of exporting from the U.S. versus exporting from Middle East to those demand centers?

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Well, I would just say that we're making the cost curve irrelevant, I would say. These materials are going to be about value in use and the ability to service customers in regions at the right time. The cost curves aren't an effective or consequential player in Olin's forward strategy.

Operator

And our next question today comes from Matthew Blair at Tudor, Pickering, Holt.

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

The first is just on your parlay volumes came down to 8% in the first quarter. Can you talk about the drivers there? Was that due to higher caustic prices in Asia? And then what's your outlook for parlay volumes in Q2?

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Well, Patrick will expand on this a bit. I mean sort of the setup of that is we just didn't need as many parlay volumes in the first quarter. But you want to...

Patrick Murphy Schumacher ***Olin Corporation - VP and President of Chlor Alkali Products & Vinyls***

Yes. I would say there's less available. I mean we're always looking for caustic and EDC, in particular. We talked a few minutes ago about caustic prices in Asia. If you look at that key index of Northeast Asia FOB, it started the quarter high 400s, low 400s. It got into the 650s, had a little bit of a gully that I mentioned in my earlier comment, maybe went to the lower 600s, but now it's 700 plus. Price stock is 800. So -- and that's on the back of what's happening in Europe. That marginal supplier into Europe is coming out of Asia, and those prices in Europe are 1,000, 1,100 or higher. So that's where that Asia material to the extent it's available is going. So strong move in prices in aggregate means less supply available. So we tried, we lost a bunch of auctions. We're trying to get liquidity for our customers, but it's tougher to come by.

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

And then sorry if you already covered this, but could you explain why it's taking so long to repair the units at Freeport? Is that like supply chain issues or parts availability?

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Yes. I mean we didn't expand on the details, but please recognize that we have 6 major power generation assets there. And 2 of them experienced significant failures. And new equipment has lead time of 2 to 3 years, we're not after new equipment. But even rebuilding them, we have to access -- difficult to access parts and get them in. So these aren't small projects. They're very large projects.

Operator

And ladies and gentlemen, our next question comes from Angel Castillo with Morgan Stanley.

Angel Castillo ***Morgan Stanley, Research Division - VP***

And just to help us, I guess, better understand the recession scenario. I was hoping to get a little bit more color on kind of that top-down look? And as we think about operating rates, perhaps maybe 2 parts. Could you just give us a sense from where operating rates are today and roughly kind of what that move to 50% would be? And then also on top of that, I guess, part of the strategy, as you've kind of been noting here in terms of the discussion is maybe the parlaying, buying some capacity out of the market. And so could you give us also a sense of where your inventories are today? And maybe what would those go to in that kind of scenario, if it's kind of baked into that?

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Yes, in term -- we don't normally share current operating rates. But what I will give you some color on is that we're practicing this in our epoxy business today, right? There's been a demand shortfall. Olin has absorbed that demand shortfall. And so we had put our global assets somewhere around or just above that 50% rate plan. That's why we made the decision to take Stade offline for a while.

And by doing that, you see the type of numbers that we're able to deliver in the first quarter just rounding that $160 million of EBITDA is under pretty poor conditions yet where we have not and will not back off the principles that underpin our model and that $160 million in 1 quarter is more than the business previously delivered in years. So I think maybe that is the best practical example of saying that if we did that more broadly across our larger assets, if we had to do that in the case of a recession that we could hold this thing around the $2 billion EBITDA mark. So I don't know if that helps. In terms of inventory, probably inconsequential. Todd, do you want to comment on that?

Todd A. Slater ***Olin Corporation - SVP & CFO***

You did see inventories, from a dollar perspective, move up a little bit in the first quarter compared to where we ended the year. But that really relates to higher hydrocarbon costs, especially overseas with being on FIFO. So that's why you saw inventory move up on -- in the financial statement.

Angel Castillo ***Morgan Stanley, Research Division - VP***

And then I just wanted to revisit, I guess, the partnership opportunity that you discussed. Part of it, I guess, as I think about these typical type of agreements or the contract structure that they tend to have, it's usually kind of long-term supply agreements with maybe fixed or just some degree of pass-through for cost, some kind of fixed profitability on it. So how do you balance that with your winning model and the ratchet pricing model as well as the desire to have the flexibility to take product from one kind of downstream opportunity to another versus perhaps this a partnership opportunity that could be kind of a long-term strategy?

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Well, yes, we wouldn't enter into something that didn't allow us to grow value and grow profitability over time. I mean we would be looking for the right PVC partner. I mean just keep in mind the things that Olin brings to this is all of the upstream brine, ethylene, power, even the chlor alkali plants, the EDC capability, and we possessed the incremental capability to expand VCM as well, right? What we need from a partner is essentially just the PVC and just the outlet from that. So yes, we're not going to use the extreme capability that we bring to end up having it locked up in something that fixes a margin.

Operator

The next question today comes from Mike Leithead with Barclays.

Michael James Leithead ***Barclays Bank PLC, Research Division - Research Analyst***

Congrats on the JV announcement with Plug, just 2 quick ones on that. One, I think in the slides, you kind of talked about expanding or improving Olin sites as part of this long-term. Do you have a sense of how much CapEx or capital spending you would need to do that? And then second, how should we think about the economic structure of the JV? Is it 50-50 ownership? Or are you still kind of hammering out all those details to that?

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Yes. And I'm sorry, what joint venture were you speaking about? Was it the Blue Water Alliance or the hydrogen joint venture with Plug?

Michael James Leithead ***Barclays Bank PLC, Research Division - Research Analyst***

The Plug hydrogen joint venture.

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Yes. Okay. Yes. I mean that's going to be set up as 50-50 joint venture going forward.

Michael James Leithead ***Barclays Bank PLC, Research Division - Research Analyst***

And for the improved or expanded Olin sites, is there a capital rough figure that you would kind of attribute to those projects?

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Yes. No, sorry, we didn't put out the capital cost, but all of this is included in our forward forecast and plans.

Michael James Leithead ***Barclays Bank PLC, Research Division - Research Analyst***

Okay. And maybe just lastly, the Slide 6 where you show the decision tree is super helpful. Just when you look at those different chlorine derivative pathways, any of those products that you flagged as exceptionally favorable? Or just which of those products have, in your mind, kind of the best fundamental balance over the next year or 2.

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Well, I would say in each and every chain, demand growth is likely to exceed supply growth, right? We've already commented on the fact that in Vinyls, we have a lot of untapped capability there. Epoxy, we're able to sort of idle down the business at the level we're running at today with expectations of mega trends actually materializing. So you have pretty good fundamentals there as well. Maybe the best fundamentals on the page are in the merchant chlorine space.

Operator

Ladies and gentlemen, our next question comes from Roger Spitz with Bank of America.

Roger Neil Spitz ***BofA Securities, Research Division - Director & High Yield Research Analyst***

So for partnering with the PVC player, would you rather be shipping them EDC or VCM? And presumably if you contract with them, could that potentially have you produce more caustic than is good for the global industry?

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Well, I would say that we have options there, right? We have options to do -- to stop at EDC, to stop at VCM or to go all the way through PVC, yes. And with regard to the byproduct caustic, I mean it's still going to fall within the parameters of our model that the complete participation of Olin through all of these chains and across all of these ventures and investments will be set by whatever is the weak side of the market between caustic and chlorine. So these kind of things like that PVC venture that you see on Slide #7 have to fit under the umbrella of that model, and they will fit under the umbrella of that model.

Roger Neil Spitz ***BofA Securities, Research Division - Director & High Yield Research Analyst***

The other thing is on the slide in the appendix, you talked about $200 million of debt reduction. Should we assume that you plan to address the $200 million of 5.5s due August 2022 by simply repaying that debt when due?

Todd A. Slater ***Olin Corporation - SVP & CFO***

Roger, this is Todd. Yes. We would expect in August to repay that debt.

Operator

Ladies and gentlemen, this concludes our question-and-answer session. I'd like to turn the conference back over to Scott Sutton for closing comments.

Scott McDougald Sutton ***Olin Corporation - President, CEO & Chairman***

Yes. No, I would just say thanks to everybody for the questions today, and thanks to everybody else for joining us today.

Operator

Thank you, sir. This concludes today's conference call. We thank you all for attending today's presentation. You may now disconnect your lines, and have a wonderful day.