

AMG Critical Materials N.V. ([OTCPK:AMVMF](#)) Q3 2023 Earnings Conference Call
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Company Participants

Michele Fischer - Vice President, Investor Relations

Heinz Schimmelbusch - Chairman and Chief Executive Officer

Jackson Dunckel - Chief Financial Officer

Eric Jackson - Chief Operating Officer

Conference Call Participants

Martijn den Drijver - ABN AMRO

Richard Hatch - Berenberg

Stijn Demeester - ING Groep

Nicola Dalla Torre - Helikon Investments

Operator

Good day, everyone and welcome to today's AMG Q3 2023 Earnings Conference Call. [Operator Instructions] It is now my pleasure to turn the conference over to Ms. Michele Fischer, Vice President of Investor Relations.

Michele Fischer

Welcome to AMG's third quarter 2023 earnings call. Thank you everyone in Europe who is joining so late in the day. Joining me on this call are Dr. Heinz Schimmelbusch, the Chairman of the Management Board and Chief Executive Officer; Mr. Jackson Dunckel, the Chief Financial Officer; and Mr. Eric Jackson, the Chief Operating Officer.

AMG's third quarter 2023 earnings press release issued earlier today is on AMG's website. Today's call will begin with a review of the third quarter 2023 business highlights by Dr. Schimmelbusch, Mr. Dunckel will comment on AMG's financial results and Mr. Jackson will discuss operations. At the completion of Mr. Jackson's remarks, Dr. Schimmelbusch will comment on strategy and outlook. We will then open the call to take your questions.

Before I pass the call to Dr. Schimmelbusch, I would like to expressly refer you to our statement on forward-looking statements and the meaning thereof as we have used at all previous occasions and we use at this earnings call and which explanatory statement has been published as part of our financial presentation and on our website, all in connection with this earnings call.

I will now pass the floor to Dr. Schimmelbusch, AMG's Chairman of the Management Board and Chief Executive Officer.

Heinz Schimmelbusch

Thank you, Michele. The 48% decrease in EBITDA compared to Q3 '22, was driven primarily by the global decline in metal prices within our portfolio, predominantly the lithium price decline. The average quarterly prices of lithium carbonate and ferrovanadium have decreased more than 50% and 29%, respectively, versus the average pricing in Q3 '22.

Cash from operating activities, however, was \$178 million on a year-to-year basis compared to \$111 million for the first 9 months of last year. And we ended Q3 '23 in \$320 million net debt position with \$542 million of total liquidity. AMG Engineering signed \$81 million in new orders during the quarter, 51% higher on a year-to-year basis, in '23 than in '22.

Our order backlog was \$341 million at the end of September '23, the highest in AMG history for the second straight quarter. This was largely driven by the aerospace market, which is experiencing a strong growth period. Our Q3 '23 order intake remains at a very high level, reaching \$323 million year-to-date.

AMG Supervisory Board has authorized the implementation of a new corporate structure, which will be operational January 1, 2024. Our present segmental reporting structure will be replaced by three corporate entities, AMG Lithium BV, AMG Vanadium BV and AMG Technologies either AG or GmbH, each with its own leadership team and operating management. The three new AMG subsidiaries, AMG Lithium, AMG Vanadium and AMG Technologies are clearly distinct as regard to underlying growth trends, industry sectors and peers, business models, and required management skills. Each of the 3 new subsidiaries are global and regional industry leaders.

AMG Lithium PV is on its way to be the premier European lithium refiner based on its own low-cost resources in Brazil and operates a value chain starting with mining and including solid-state lithium batteries in Germany. AMG Lithium BV was formed in 2023 and has already been audited for 2021 and 2022.

AMG Vanadium is the world's market leader in recycling vanadium from oil refining residues. It is also the only U.S. ferrovanadium producer, and it is expanding in the Middle East through the so-called Supercenter project in the Kingdom of Saudi Arabia through Shell AMG Recycling BV Amsterdam. AMG Technologies is the established world market leader in advanced metallurgy and provides equipment engineering to the aerospace engine sector globally. It is also providing the engineering home for our fast-growing LIVA battery.

Each subsidiary will be governed by newly formed management boards that will exercise their control through respective supervisory boards. These supervisory boards will apply the same corporate governance principles currently in place at AMG

Critical Materials N.V. The new subsidiaries will also be the new reporting segments with financial reports as of January 1, '24.

In terms of our expansion projects, there will be a 3-week shutdown of the lithium concentrate plant in the first quarter of 2022 to enable the expansion from 90,000 tons to 130,000 tons. We expect to produce at full run rate capacity beginning of Q3 of next year. Our lithium hydroxide refinery's first 20,000-ton module in Bitterfeld, Germany, is in the initial phases of commissioning with the ramp-up and qualification process planned for the second and third quarters of next year. This will be the first European hydroxide refinery.

AMG's LIVA projects are integral for industrial power management applications and industrial energy transition. The batteries are currently under various stages of bidding and development. One, the first one is operational, three others are under construction, and 13 are in bidding and development stages. LIVA is well on its way to become a market leader for large-scale industrial storage systems.

Shell AMG Recycling or SARBV project development of closed loop circular recycling in the Middle East is progressing. Phase 1 of the so-called Supercenter project, a hydrometallurgical facility to process vanadium-containing gasification ash, is under a long-term contract with Aramco. The gasification ash will ultimately be processed into vanadium electrolytes for use in batteries in the Kingdom of Saudi Arabia. Phase 1 is expected to reach FEL3 status by the end of this year. The Supercenter concept also includes spent catalyst recycling projects, fresh catalyst production, and the manufacturing of vanadium batteries. FEL3 is the term for basic engineering.

I will now pass the floor to Jackson Dunckel, AMG's Chief Financial Officer. Jackson?

Jackson Dunckel

Thank you, Heinz. I'll be referring to the third quarter 2023 Investor Presentation posted today on our website.

Starting on Page 3, this shows an overview of the financial highlights of the quarter. Revenue for the quarter decreased by 13% to \$369 million, Q3 2023 EBITDA of \$54 million, a 48% decrease versus the prior year. As Dr. Schimmelbusch mentioned, this decrease was primarily driven by the global decline in metal prices within our portfolio, predominantly the lithium price, which saw declines of over 50% compared to average Q3 pricing last year.

Net income attributable to shareholders for the quarter declined \$68 million quarter-over-quarter. This decline is partially due to a non-recurring sale in the third quarter of 2023 of an existing supply contract in our silicon business as well as the aforementioned fall in prices compared to Q3 2022. On a year-to-date basis, net income was \$99 million compared to \$127 million for the first 9 months of last year.

Now I'm going to review our 3 segments. Let's start with AMG Clean Energy Materials, which is shown on Page 4 of the presentation. On the top left, you can see that Q3 '23 revenues decreased 25% versus Q3 '22 to \$140 million. This is driven mainly by decreased prices in both lithium and vanadium as well as lower volumes in

lithium concentrate and was partially offset by 48% higher volumes in ferrovanadium versus last year's third quarter. Q3 '23 EBITDA decreased to \$39 million from \$84 million in Q3 '22 due to the decline in metals prices, primarily the lithium price decline. And finally, the quarterly CapEx shown on the bottom left of \$37 million mainly reflects our investment into a battery-grade lithium hydroxide plant in Bitterfeld, Germany as well as the expansion of our lithium concentrate capacity in Brazil.

Turning now to Page 5 of our presentation, which shows Critical Minerals. AMG Critical Minerals revenue for the quarter decreased 38% to \$53 million compared to Q3 '22 due to lower volumes across the segment, largely driven by the silicon metal plant operating 1 furnace during the quarter. Q3 '23 EBITDA decreased 83% compared to Q3 '22 to \$1 million largely due to lower volumes across all three businesses. As noted last quarter, lower volumes in antimony and graphite were caused by a slowdown in their end-use markets, primarily in the housing, industrial and automotive markets. In terms of silicon, we currently plan to continue running 1 furnace in order to satisfy outstanding customer contracts.

Moving on to AMG Critical Materials Technologies on Page 6. Starting on the top left, you can see that Q3 '23 revenue increased by \$24 million or 16% versus Q3 '22. This improvement was driven by strong revenues in our engineering unit as well as higher sales volumes of titanium alloys and chrome metal, partially offset by lower chrome metal pricing. EBITDA was \$13 million during the quarter compared to \$12 million in Q3 '22. This increase was primarily due to higher profitability in our engineering and titanium businesses, partially offset by lower chrome margins, driven by the continued sequential decline in chrome price in the current quarter.

Turning now to Page 7 of the presentation. On the top left, you can see that AMG's Q3 '23 SG&A expenses were \$43 million versus \$37 million in Q3 '22. The increase was attributable to higher personnel costs, driven by increased hiring in our lithium, engineering and LIVA businesses. AMG's net finance cost in Q3 '23 was \$9 million compared to \$14 million in Q3 '22. The decrease was mainly driven by both foreign exchange gains of \$3 million as well as higher interest income earned on an increased cash balance in the current quarter.

In today's rising rate environment, AMG continues to benefit from its low-cost fixed-rate debt facilities and has an average interest rate charge across its two main debt instruments of 5%. AMG recorded an income tax expense of \$13 million in the third quarter compared to \$39 million in the same quarter of '22. This variance was mainly driven by lower profitability in the current quarter.

AMG paid taxes of \$33 million in the third quarter of '23 compared to tax payments of \$10 million in the third quarter of '22. This higher payment was due mainly to the high profitability in Brazil last quarter, in Q2 2023.

Turning to Page 8 of the presentation, you can see on the top left that cash from operating activities was \$25 million in the third quarter of '23 compared to \$75 million in the same period of '22, due both to the higher tax payments this quarter as well as the lower profitability.

AMG's annualized return on capital employed for the first 9 months of 2023 was 28.4% compared to 29.5% achieved in the same period in '22. AMG ended the quarter with \$320 million of net debt. Excluding the municipal bonds due in 2047, our balance sheet would reflect 0 net debt.

As of September 30, 2023, the company had \$347 million in cash and total liquidity of \$542 million. As I've mentioned, AMG has no interest rate risks, since our debt portfolio is fixed at 5% until at least 2026. Our strong liquidity supports the current level of capital expenditures and AMG management remains committed to maintaining a net debt-to-EBITDA ratio below 2.5%.

That concludes my remarks. Eric?

Eric Jackson

Thank you, Jackson. Our management teams proactively managed price risk. However, the sharp drop in lithium and vanadium prices over a short period of time resulted in unavoidable margin compression this quarter as we worked through our inventory positions.

It should be noted, however, that our number of days in inventory compares very favorably to our relevant competitors and peers. In addition to price risk, we are focused on safety, maximizing cash flow and successfully executing our strategic projects. The spent catalyst roasting facility in Zanesville operated at full capacity in the third quarter of '23 and the melt shop has operated at full capacity.

The vanadium team is presently focused on increasing operational availability and reducing cycle times and improving yields. The Zanesville facility has additional sulfur scrubbing capability compared to Cambridge, and provides us with increased flexibility when sourcing and processing spent catalysts and other vanadium-bearing raw materials. We are progressing the arbitration proceedings, seeking compensatory damages for costs and lost profits with the insurance agent of the equipment supplier that provided us with a defective fan for Zanesville, earlier in the year.

Our mine in Brazil delivered a total of 16,000 metric tons of lithium concentrate in Q3 '23. The third quarter experienced low sales volumes due to shipping schedule variances that we noted last quarter. The average realized sales price was \$2,395 per ton CIF China for Q3, while the average cost per ton CIF China was \$529 per ton. The cost per ton is lower than in the second quarter due to higher volumes of tantalum.

In Brazil, the shutdown of our lithium concentrate plant to facilitate the expansion from 90,000 tons to 130,000 tons has been rescheduled to the first quarter of 2024 due to delays in the delivery of electronic components for processing automation. The last electrical center is now tested and scheduled to be delivered on site in November. This will result in lower second quarter sales volumes in 2024.

We expect to produce at full run rate capacity of the 130,000 tons per year starting in the third quarter of 2024. Consequently, AMG Brazil will produce its full nameplate capacity of 90,000 tons in 2023.

In 2024, we anticipate the cost per ton of producing spodumene to rise due to unabsorbed costs during the ramp-up as well as lower relative tantalum sales, which offset our spodumene production. We believe, net of co-product credits, we are at or near the bottom of the global lithium concentrate cost curve. It's also worth restating that a 100% of our tantalum concentrate production is sold at market prices under the terms of our joint venture with JX Nippon Mining & Metals Corporation.

AMG Brazil's project with Grupo Lagoa in Portugal will begin basic engineering in December of this year. From current data, we believe that we will be able to confirm the main assumptions for the construction of a 150,000-ton lithium concentrate plant at the site. This resource, once developed, will provide sufficient feedstock for an additional lithium hydroxide module in Bitterfeld and enable us to continue our vertical integration strategy.

AMG Lithium's battery-grade lithium hydroxide refinery in Germany is in the initial phases of commissioning for the first 20,000-ton module. The ramp-up and qualification process is planned for the second and third quarters of 2024. We expect to produce and qualify approximately 7,000 tons of battery-grade lithium hydroxide in 2024 and the full 20,000 tons in 2025.

Our global vanadium team in Ohio and Germany has developed, engineered and installed process technology at AMG Titanium in Nuremberg, to produce vanadium oxide from roasted spent catalysts. This new process technology will further diversify our ability to accept a variety of vanadium bearing materials to support our vanadium electrolyte expansion. The process is commissioned and processing material from AMG's existing spent catalyst sources.

The vanadium electrolyte plant at AMG Titanium in Nuremberg is under construction. This facility will process vanadium oxides into vanadium electrolyte. The target capacity is 6,000 cubic meters of vanadium electrolyte, the equivalent of approximately 100 megawatt hours, which will serve the electrical storage market as a vertical integration into AMG's LIVA batteries. Production is expected to start in the first quarter of 2024.

AMG Silicon operated 1 of its 4 furnaces throughout the third quarter, and we will operate with the 1 furnace for the remainder of 2023. We continue to review the operational parameters of the silicon business on an ongoing basis.

In terms of our Critical Materials Technologies segment, AMG Engineering signed \$81 million in new orders during the third quarter, making the order intake of the \$323 million for the first 9 months, 51% higher than the same period to prior year. We had an order backlog of \$341 million as of September 30. We are also seeing strong improvement in the end markets in our aerospace-related products, specifically titanium aluminides and titanium master alloys.

Our overriding objective, in addition to safety, is to be the low-cost, highest quality, and most environmentally responsible producer of our products, ensuring strong cash flow and profitability even at low prices.

I'd now like to pass the floor to Dr. Heinz Schimmelbusch, AMG's Chief Executive Officer.

Heinz Schimmelbusch

Thank you, Eric. Since the end of July, when we issued the previous 2023 EBITDA guidance of between \$350 million and \$380 million market prices for spodumene and lithium carbonate have decreased by 50% and 43% respectively. Given these price decreases, AMG's new EBITDA guidance for the full year is approximately \$320 million.

Considering the ramp-up of the strategic projects explained earlier as well as the volatility of our key material prices, specifically lithium, it is challenging to provide firm guidance for '24. The recent fall in lithium prices has surprised every industry participant. Establishing the cause for the fall in prices and projecting future movements involves analyzing both the Chinese lithium industry as well as broader macroeconomic factors in China and generally. Given the difficulty of this analysis and despite certain signs of the lithium supply and demand picture remains strong, there is a high uncertainty with regard to the near-term pricing dynamics. Therefore, utilizing today's depressed price levels – today's depressed price levels, AMG's EBITDA will be approximately \$200 million in '24, with a stronger performance in the second half of the year.

Operator, we would now like to open the line for questions.

Question-and-Answer Session

Operator

[Operator Instructions] We will now take the next question from Martijn den Drijver with ABN AMRO. Martijn, your line is open.

Martijn den Drijver

Yes. Thank you, operator. Good afternoon. Good evening, gentlemen. My first question is about the 2023 guidance. You've just mentioned that the expansion itself SP1 plus is delayed, that should actually be positive. And the prices of lithium in the third quarter are obviously known. So I'm struggling to understand the reduction in the 2023 EBITDA guidance. Is there something else besides price that explains this adjustment? Has there been a renegotiation of contracts? That would be question one. Then the second question is, if this is the new reality, regardless of how much headroom you've actually built into 2024 guidance, what does this mean for your strategic projects, the Brazilian conversion plans, negotiations, discussions with Zinnwald? That would be my second question. And then my third question is, given the new reality also on the ferrovandium prices, would you be willing to give us any EBITDA guidance for the combined Zanesville and Cambridge plants for 2024? Thank you.

Jackson Dunckel

I'll start on the first one. So, in terms of 2023 guidance, in July, as you know, the lithium price was \$41,000 a ton. It's currently \$22,000. The entirety of that fall fell onto our Q4 shipments, and we did not expect that fall. So it's entirely price-driven.

Martijn den Drijver

And if I may respond to that, the methodology that we've been – that I've been using to calculate your revenues and EBITDA for lithium have worked extremely well in the last six, seven quarters, and we know the market prices. So I should know what my revenue and EBITDA was going to be in Q4. And it doesn't align with the new guidance. Is it really just price? No other factor?

Jackson Dunckel

Yes, what I would suggest is maybe we take that offline. I think we're going to talk later in this week and we will go through number by number with your model and make sure that we're all aligned. But it is price. The answer is, it's all price.

Heinz Schimmelbusch

Okay. The number two question new reality, how does that affect our strategic projects? It does not. Our financing structure is very robust. Jackson mentioned the net debt figure, excluding a 30-year [indiscernible] payable in 2047. Excluding that, we are net cash. We are not in net debt, but in net cash. So we have – that's extremely important, because if you have a 30-year, 4.5% bond, I would rather – it's better than equity. So, a very strong financial position. A strong cash flow. A fact that the new \$300 million conversion plant to be decided finally by the supervisory board, presented to the – decided by the – in December. I predict a positive, affirmative decision. This is financed by a very long-term financial instrument to the full amount, a low-cost, long-term financial instrument utilizing government-backed structures. So, it doesn't really – it's another version. It's not 30 years, but it's very long-term and very favorable.

Zinnwald and Portugal, because I assume that you also include Portugal in your question. Zinnwald is a very attractive project, and we don't want to comment on this in great detail because we don't want to influence. We are a board member of the Zinnwald PLC in London, and therefore, we are in great discussions about the future of this project, not the future in a sense that's better or not, but the future in a sense of how and rational analysis would consider that the best way of approaching this project is by combining the ore body in Germany with the ore body in Czech Republic, which is one ore body; one-third is in Germany, two-thirds roughly is in Czech Republic. And we are in very constructive discussions with the interstate, the inter-country or inter whatever inter-project discussion to combine those projects. It's financially very attractive to do so, and we have no problems to arrange financing for that among the partners involved. As regard to...

Martijn den Drijver

Yes, go on.

Heinz Schimmelbusch

No, no, please.

Martijn den Drijver

I was just wondering, you mentioned strong cash flow. And perhaps this is a question for Jackson. But are you also at the \$200 million EBITDA level for 2024, projecting positive free cash flow?

Jackson Dunckel

No, not free cash flow. Positive operating cash flow.

Martijn den Drijver

Okay. Please continue with Grupo Lagoa.

Heinz Schimmelbusch

Before exiting Zinnwald, there are available for Zinnwald, given that the specific structure and location of that project, various financial instruments in the European Union and in Germany for such projects, which make it additionally attractive. And the same, in a way, applies to Portugal. Portugal, we have, over the years, developed a very close relationship to the feldspar mine in Portugal, which has lithium traces of Brazilian quality. It has the size of one Brazil plus once the commercial plant is operation. We are in basic engineering, actually progress basic engineering of a commercial size pilot plant to ascertain the feasibility of extracting lithium, the lithium content of this ample ore body in addition to Feldspar; the same technology which we used in Brazil, it's almost identical. In order to make sure that we don't overlook anything and to reduce risk, we are doing this commercial pilot plant. It's a large commercial pilot plant. It is very profitable.

And we do so because that also proves then the Portugal, the region in which we are located has other ore bodies. And in order to prove without any questions, the viability of our extraction technology of multi-trace ore bodies, we are building that pilot plant. So that is a very systematic exercise, and the combination of those projects, it's not a project, it's projects ultimately in Germany and in Portugal will each lead to at least one each module in Bitterfeld, additional module. So it's a – as we always have published, it is a resource module, resource module, step-by-step expansion strategy, utilizing a variety of available financial instruments in the sector of grants and other state government supports. So, this is a very detailed plan procedure, and it doesn't show in any way financial crunches or bottlenecks. So that's my answer to your Zinnwald new reality thing, adding Portugal to the fray.

Martijn den Drijver

Thanks for that additional color.

Heinz Schimmelbusch

And there was a third question, I just...

Martijn den Drijver

About the – if you were willing to, at this price level, to give EBITDA guidance for the combined Zanesville and Cambridge units?

Eric Jackson

Well, that will be, as you see from the new legal entity structure be reported in fairly detail in 2024. So we're not really giving out that information right now. But the gearing up of Zanesville is progressing and we're very happy with the progress of it. We mentioned we're processing some fixed price raw material where we purchased it from new sources, and that's compressing our margins a little bit in the first and probably a little bit the second quarter of '24. But you'll see that in some – with much more transparency in 2024.

Heinz Schimmelbusch

Lithuanian and vanadium will be the two large contributors, followed by technology in 2024.

Martijn den Drijver

Thank you, gentlemen.

Operator

We will now hear from the line of Richard Hatch with Berenberg. Richard, please go ahead.

Richard Hatch

Yes, thanks very much for the call. Just a question on the growth strategy in Germany. Obviously, you're bringing on the first module now. Is the expectation that you continue to roll those out over the next few years to reach 100,000 tons a year of hydroxide or is that not a fair assumption? I'm just trying to work out what a sensible kind of strategy is just on that business? Thanks.

Heinz Schimmelbusch

Totally unchanged. We have – as it looks like to us and to you, we have the two mentioned fairly large projects where we are very optimistic to turn that into reality. We have timelines, we have agreements, we have positive response in many ways here, although the negotiations are complicated, as in such things and there are permitting processes involved. We utilize – in the permitting side, we utilize a very specific quality. We have a mine in Brazil which includes, in future, a carbonate plant. And this carbonate plant has had enormous amounts of studies behind it, and we have the benefit of demonstrating to new partners by touring the Brazil facility and the surrounding communities, how positive, in many ways, these activities can be

and how environmentally responsible developments of that nature can be done, not in theory and promising it, but demonstrating it in Brazil. And that is – that has so far played a big role in the political acceptability of these projects.

Now, to give you an indication, the Portugal project once the commercial plant is built, it's about 150,000 tons of spodumene that's a little larger than Brazil. It's amply enough for one module. Portugal is larger, but Germany, Zinnwald, with the extension into Czech Republic is larger. It's north of 30,000 tons. So essentially, that is more than one module. AMG has an exploration team centered in Brazil and Portugal, with new operations in Portugal. We have a pipeline of projects. And we have been approached by lithium producers who have the idea to extend their value chains into lithium refining in Germany, utilizing our infrastructure. So given that picture, we are confident to reach what we originally said, the 100,000-ton situation by 2030.

Richard Hatch

Okay. That's very helpful. Thank you. My second question is just on the cost inflation that you've pointed to in Brazil. Are you able to put some sort of kind of guidance or steer around that number, please?

Eric Jackson

Yes. The Brazilian real has appreciated about 10% over the last year. That's the number we're using for our financial plan. The ratio of tantalum sales to spodumene sales will be a little bit lighter, and tantalum sales have come down – prices have come down a little bit. So it's in the ballpark of around a 15% increase.

Richard Hatch

Okay. Super helpful. Thanks. And my last one is, I suspect the answer is no, but just to clarify, in the worst-case scenario or potentially it gets worse. But on the scenario that the price stays where it is in your EBITDA next year is \$200 million. Obviously, there is a lot of investment there. If the Supervisory Board approves your Brazilian plant, there is more CapEx to be spent in Germany, Brazil, such like leverage increases. Am I right in saying that the key covenant is 3.5x net debt to EBITDA? Would you just be able to just clarify and remind us where the key covenants sit and how you feel about those? Thanks.

Jackson Dunckel

Yes. That's 3.5x net senior secured debt to EBITDA. So excluding our municipal bond.

Heinz Schimmelbusch

So you start from zero debt.

Jackson Dunckel

So today, we're zero. And presumably by the end of the year next year, we will not be zero, but we won't be very tight at all.

Richard Hatch

Okay. So I'd say absolutely zero worries about that. Okay. Understood. Right.

Heinz Schimmelbusch

Yes. But the one issue in your question, which I don't want to overlook is that you mentioned some whether somebody might be hesitant to approve the carbonate plant in Brazil. The financial attractiveness of that plant is substantial. To give you two figures. So we envisage a \$300 million investment CapEx at \$20,000 per ton, which nobody believes sort of, yes, Goldman Sachs believes, but I don't know what they believe really. But at \$20,000 per ton – so below the present market, the incremental EBITDA of this carbonate plant in Brazil is \$60 million. So \$60 million versus \$300 million is a multiple of 5. It's not – our normal multiple is between 3 and 4, but we have strategic elements. And by the way, we have a price leverage. So give me another number. I'll give you another number. At \$30,000 per ton instead of \$20,000 per ton, the incremental EBITDA of that carbonate plant from Brazil is \$150 million. So that's 2x \$300 million. So if the truth is anywhere in the middle, it fits into the 3x to 4x disciplined multiple. And the margins we apply here is normalized, annualized incremental EBITDA over CapEx. That's our strongest investment decision criteria.

But talking about carbonate in Brazil. It, of course, shortens the logistics from Brazil, China, Germany to Brazil, Germany. It also implies accordingly, strong working capital reduction. CapEx, in order to make that calculation precise. But on the other hand, also, we are in a feasibility study to – we have to invest in order to make the refinery in Bitterfeld able to receive carbonate in addition to technical-grade hydroxide and that investment might be counted against that working capital reduction. You also have a CO2 reduction because this – and the CO2 reduction is substantial. And the CO2 reduction is very important in every conversation we have with OEMs. We are – in our marketing efforts of the future of the battery grade qualities we are addressing, of course, cathode manufacturers, battery manufacturers and OEMs. And in the OEM discussions, invariably the CO2 load per ton of battery-grade hydroxide is very important.

The CO2 load presently, Brazil, China, China, Germany is 16 tons – per ton – CO2 per ton. For the straight line, Brazil, Germany, it's 10%. It's a substantial reduction. And while I am at it, the refinery in Germany is moduled, is designed by the basic quality a refinery of that such a thing has to have, which is flexibility to take in to be – taking whatever comes lithium contained in its way in order to utilize optionality, so carbonate, hydroxide. And by the way, also whatever comes out of the recycling variety. We, as you know, are not in recycling. We have a lot of recycling partner discussions. But every recycling – we are in recycling because every recycling plant ultimately will send whatever the result of that recycling effort is to a refinery and hopefully to us, and we are the only one right now in order to create a commercial product because the results of recycling normally is not a commercial product, it has to be refined to create better grade qualities.

Richard Hatch

Understood. Thank you very much for your time.

Operator

[Operator Instructions] We will now take the question from the next line of Stijn Demeester.

Stijn Demeester

Yes. Good evening. Thanks for taking my questions. I have a couple. I will lodge them one by one, if that's okay. First one is on the '24 guidance, if I understand correctly, the 7,000 tons you expect to produce in Bitterfeld is not included. What is the reason for this? Don't you expect any EBITDA contribution from these volumes, or is there another reason why you wouldn't include it? And if you expect EBITDA from it, would the \$3,000 to \$8,000 EBITDA per ton still be a good approximation for this?

Jackson Dunckel

So, we do expect profitability from those tons. It's just a question of the fact that they are not in our control in terms of the timing of the sale because they are subject to our customer qualification, right. So, yes, we will be able to produce them. Yes, they will be profitable. But will they actually get sold in 2024 remains the question and subject to our qualification procedures with our customers. So – and yes, your estimated profitability is about right.

Stijn Demeester

Okay. Understood. Next question is also on Bitterfeld. Does the delay in Brazil impact the tolling agreement? Maybe it's a bit of an irrelevant question if you don't expect – if you are not certain yet to sell these volumes, but could there be an impact on the total agreement and does the profitability of Bitterfeld?

Heinz Schimmelbusch

No.

Stijn Demeester

Okay. That's clear. Maybe another question for you, Jackson. Can you provide an estimate for the remaining CapEx for '23 and also give an idea on what you would spend in '24, given the shift in Brazil, etcetera?

Jackson Dunckel

Yes. So, we would expect – the short answer, we would expect \$175 million, so an incremental \$40 million or so for the remainder of this year. And we would expect about the same level next year. I would probably put a range on that of \$175 million to \$200 million. It will depend upon how quickly we start to build the technical-grade plant.

Stijn Demeester

Understood. Then on the new structure, does it imply any asset sales or other portfolio pruning elements, or will you simply lump everything from critical materials into technology?

Jackson Dunckel

Wait two seconds.

Heinz Schimmelbusch

Yes. So, we have – you will for the first time in the history of AMG, you will experience disinvestments. We have watched those very carefully as regard to what it is because we don't want to create uncertainty or question marks among our corporate population. But there are more than one disinvestments to be expected streamlining the portfolio.

Stijn Demeester

Okay. And I assume these are in the critical materials portfolio?

Jackson Dunckel

Well, we are now calling technologies, correct.

Heinz Schimmelbusch

Not only...

Stijn Demeester

Understood. Okay. Another one on the structure, can you be a bit more precise as to what way this new structure will improve accountability at the subsidiaries, because I didn't fully grasp the leadership changes?

Heinz Schimmelbusch

Well, the basic idea of this new structure, which has been studied now for over a year in every aspect and is very carefully designed. The three divisions have three separate basic growth trends behind them, which are different. The management – the requirement of the management qualification of these new entities show a great deal of synergy within the management teams. The lithium management team has to compete in a very precisely defined industry along the value chain of the lithium industry, and we have that in place, downstream and upstream and even beyond. So, that's ready to go and we have – and this company and the other companies will, by the way, function as fully independent companies where the control function and the management function of the parent company, AMG NV, will be exercised through Supervisory Board as if the three companies were owned by the capital market. The corporate governance structures will be, from day one, implemented in that way. So,

the management models are, as I have said, different. So, in vanadium, for example, which also extends into chromium, and titanium, is a management model where the management has the task to identify feed options has to run conversion plants and be linking it to the changing markets on the output, changing markets in vanadium. As you know, the market in 2030 will be dominated by vanadium batteries according to whatever prognosis you can find. So, it is a conversion activity. And it is a recycling activity in every aspect. So, it's a circular concept. And in Nuremberg, at AMG Titanium, we convert gasification ash into V2O5. And in Ohio, we convert spent catalyst into ferrovandium. And in Ohio, we also have a roaster. And in Nuremberg, we have developed a technology where we can take roasted spent catalyst and turn it into V2O5. So, it's a high degree of optionality and that was the background why we were selected as a partner of Aramco to convert the largest vanadium resource, untapped vanadium resource, namely the gasification ash in Jazan – behind the Jazan gasification complex into V2O5 and later on into electrolytes and later on into battery material. So, this is one complex of value chain in the vanadium, has nothing to do with lithium. It has only philosophical to do with lithium because it's also addressing energy storage markets. And the energy storage markets was the guiding light when we have the segment of clean energy materials, but it doesn't have any management implication. Contrarily, the management of vanadium and the management of lithium do not have to talk to each other to create value. It's a separate concept. Technology is very interesting. It is a very dominant position in the metallurgical – in the high-end metallurgical industry as exemplified by the latest win of the largest plant we have received for a long time. By the time when we got this big new – brand new \$500 million plant in the U.S. where the central – the heart of the plant, namely vacuum furnaces are all supplied by AMG Engineering. So, that leadership is also expanding into anode materials. We are in the market of supplying new concepts of creating synthetic graphite to customers. And that was the leading idea to give the graphite and silicon metal activities, a status of being a subsidiary of ALD technically in this new technical corporation because the future of anode materials, like the past, is depending on natural graphite, increasingly synthetic graphite and much more increasingly silicon metal. And there are very ambitious plans in the area in the R&D sector of ALD. So, then we had to make a decision where to put LIVA. The new fast-growing battery activity should not be in the vanadium area, be in the lithium area. Although it's a lithium vanadium battery, it should be where the management requirements are namely in establishing production lines of different sizes of stationary batteries. Essentially, that is equipment engineering. A typical \$25 million metallurgical plant in ALD, in AMG Engineering, I call it ALD because that's the brand name of our nearing stamp. The ALD is the translation of supplier contracts, say, 20 supplier contracts into an assembly, into a \$25 million machine. And the battery is exactly that. So, in order to avoid being viewed as a venture capital exercise in this battery sector like all the other 100 venture capital activities, we want to quickly avoid that thing and become a senior supplier, a very senior accepted supplier of such things, and those batteries, by the way, are the center of the internal grids of manufacturing plants. And since ALD, our engineering company is associated with in worldwide is about 1,000 metallurgical plants, which they built and they know the operators and they know they have a high reputation. And all of these plants ultimately need energy transformation and the center of the energy transformation in a manufacturing plant is obviously a battery because then it's the only way to create

a bridge between renewable energy input into the plant and optimizing the various streams of electricity in the plant. That is, by the way, under construction in several customer areas and in our own plants, including in Nuremberg and including in Hanau. So, therefore LIVA is housed in AMG Engineering in Hanau, housed because it's a very special activity. It needs the engineering environment around itself, but it is highly specialized, and we want to have LIVA as a company which might take one day off on its own path.

Stijn Demeester

Thanks. A short one in the interest of time, and it's a bit silly question as my friend has. I also failed to grasp the magnitude of the guidance cut on '23, let's call it, \$30 million on the low end of the previous \$350 million, given that you had the three months lag in prices and you don't lose the volumes from the Brazil shutdown because you now lose them in Q2 next year. So, what would be your volume – what would be the shipments in Q4 for Brazil? Would it be as low as Q3, or do you expect to be at 90 kilotons per annum run rate?

Heinz Schimmelbusch

No, I think we don't want to go into those details. It's really – we might be misunderstood. I see my colleagues have complicated tables here. But let me say that the disappointing factor is our vanadium price,. Vanadium price has fallen, too.

Jackson Dunckel

Also lithium price...

Heinz Schimmelbusch

Vanadium price has fallen, too.

Jackson Dunckel

Also, vanadium price, yes.

Heinz Schimmelbusch

But when we did this in July, this guidance, the visibility forward in the lithium market, which is three months...

Eric Jackson

It depends on shipping schedule and...

Heinz Schimmelbusch

July, August, September, that leads a lot of months, and the fall was 50%. And that – and combined with vanadium, that is the explanation, and it's – we can do this mathematical offline and show it to you. It's just simply – it's a very straightforward calculation. There is no other cases, so take this, please, as an answer.

Stijn Demeester

Okay. Understood. Just one more on the '24 guidance, do you spot prices for all the metals or simply for lithium?

Jackson Dunckel

All.

Heinz Schimmelbusch

All metals.

Stijn Demeester

Okay. Thanks.

Operator

We will now hear from the line of Nicola Dalla Torre with Helikon Investments. Please go ahead.

Nicola Dalla Torre

Thank you for taking my question. Given the depressed valuation of the company, in your capital allocation decision process, would you consider share buyback at a certain point?

Heinz Schimmelbusch

The share buyback is competing with the project development in especially lithium and also vanadium, and also in the battery sector as regard to build, own and operate models, which we have a mixed situation where we sometimes want to be involved as an owner in those batteries. But – and secondly, the base one – not the, but one of the considerations of the new corporate structure is we can see scenarios where lithium projects and vanadium projects and battery projects starting to compete with each other for corporate – for corporate funds. And that is not even unlikely. So therefore, we want to be in a position, purely optionality wise, to not lose interesting growth opportunities by having to delay situations because the parent company is notoriously undervalued, and therefore, the equity has to come somehow from the subsidiaries if the subsidiaries are needing equity components to project finance to the expansion. This is a high-growth strategy and foresees – in this project development foresees that there might be certain clusters, which cannot be handled together unless we find ways of having conservative logic financings. And therefore, I think given those goal scenarios, it's highly unlikely that we – the goal scenarios are more attractive than the share buybacks.

Nicola Dalla Torre

Okay. Understood. Thank you. And second question, very quickly, on the module expansion in the refinery plant in Germany, in your opinion, when should we expect the final investment decision for module two?

Heinz Schimmelbusch

I think in beginning of – end of '24, beginning of '25.

Nicola Dalla Torre

Okay. Thank you very much.

Heinz Schimmelbusch

And that has to do, of course, with the timing because it is an intricate exercise to – you have to be reasonably sure that you – the resource projects are interfacing this with the module so that we don't have to have too much leakage to sell or buy materials for interim periods, which you obviously will understand. That is an integral thing. So, it is – this is not a hard plan. This is my best answer I can give you.

Nicola Dalla Torre

Completely understand. Thank you very much.

Operator

This does conclude the AMG third quarter 2023 earnings call. Thank you for your participation. You may disconnect at any time.