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# **Umicore Full Year 2022 Results**

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## Umicore Full Year 2022 Results

**Operator:** Hello, and welcome to the Umicore Full Year 2022 Results Call. Please note, that this call is being recorded. For the duration of the call, your lines will be on listen-only. However, you will have the opportunity to ask questions at the end. This can be done by pressing star one on your telephone keypads.

I will now hand you over to Mathias Miedreich to begin today's conference. Please go ahead.

**Mathias Miedreich:** Thank you very much, and also a warm welcome from my side for our 2022 annual results call.

I have the pleasure to be in the room with Wannes Peferoen today, who has started as CFO of Umicore in October last year. And wanted to introduce himself later, but I can already state that I'm very happy that he joined the team with his broad and deep experience of Umicore, not only from a financial perspective but also from his experience in operations and in business world. So as I said, Wannes will use the chance to introduce himself in a minute.

So if we go to the agenda of today's call on page number three. You will see that we start, as usual, with some highlights of 2022 before I give you more flavour on the different businesses that we have in three business groups. And then I hand over to Wannes to give you a deep dive on the financials, before I will cover our progress in sustainability and ESG and provide an outlook for 2023. And then, as usual, we will have questions.

So let's go now to page number five, where we will talk about the key figures of 2022. 2022, as you all know, was a year marked by multiple external events that had significant impacts to the global economy and also to the end markets that we were in. And with that, we are very proud that we have achieved a strong result, a strong result in earnings but also especially in revenues, up 10% year-over-year despite this significant macro economical headwinds.

And in this environment, Umicore has again proven its resilience and operational excellence because the adjusted EBITDA is the second highest in the history of the Group, standing at €1.2 billion below the record levels of last year because of the cost inflation environment and the less favourable precious metal price levels that we have seen but also because of an increased spending that we have done for innovation and growth preparation. I will cover that aspect in a second.

So Wannes will give you further granularity on the building blocks of this as we're seeing strong and robust results in front of all of the headwinds of 2022. A strength that is, by the way, also visible in our return on capital employed that is reflecting a significant value creation at 19.2%.

So on the next page, we have a reminder of what we have introduced last year, our RISE 2030 strategy. And we can say two things to that. First of all, the underlying megatrends that we have been defining for that strategy are not only confirmed, they are really accelerating. And there is also a portion I will cover a little bit later. But it's also a fact that we have covered already quite some significant milestones in achieving that strategy to build the foundation for the growth. And that's what I wanted to share with you in the next two slides.

So on slide number seven, you can see that we have made significant progress indeed on the customer side, closing value creative contracts for all of our businesses and especially the Battery Materials business. The joint venture with Volkswagen clearly was, as we think, a milestone and even benchmark for the industry. It's a strong signal of recognition of our

product technology and process expertise. And we have, in the last step, with an MOU that we have signed with Volkswagen with PowerCo for the North American business, also giving good momentum for our regional expansion, but also with ACC we have made very good progress on our long-term supply agreement backed by Stellantis and Mercedes as the shareholders.

But also outside of Battery Materials, we are clearly recognised as the reliable transformation partner that we want to be. An example would be the Mercedes Supplier Award 2022 that Umicore has achieved with also this in mind. So overall, very good traction on the discussions with the customer side on our Battery Materials business, especially, has been increased acceleration in the second half of the year with OEMs and cell makers. So I can confirm that we are fully on track for what we have said earlier, a ramp-up of our business already significantly visible in 2024, starting already at the end of '23.

Then also we have made major steps in the technology portfolio in our innovation ecosystem, strong IP creation over the year. If I want to pick one specific topic, it is the HLM technology that we have brought into industrialisation this year and also prepared this last year, of course, with a lot of research work that has been done to solve two of the key issues – and I will go more in detail in the Q&A if you want – to solve the two key issues, technical issues that was standing in front of it, the stability of the material and the connectivity.

And with that, we see a market introduction of 2026 of this solution that is catering the needs of the design-to-cost market that currently LFP is sitting at lower cost and high performance. I can give you more flavour in the Q&A, if you want.

On the next page, we see another very important success. And this is the success of regional value chains. You know that Battery Materials and the battery business is and will even be stronger in the future, a regional business with regional supply chains. And with the opening of our Nysa plant, we have confirmed our leadership position in Europe to be the only company with a Gigafactory up and running and the company with the largest supply chain integration outside of China from refining pCAM and CAM. And we were very happy to supplement it with one very important agreement on the raw material supply.

Nickel, which you know is one of the, if not the most important ingredient, and we have secured a long-term supply of low CO<sub>2</sub> nickel from Finland from Terrafame that are working on a breakthrough process of bioleaching to bring the nickel in a very CO<sub>2</sub> efficient way. And this is completing our picture for the reaping side. And also, we are further progressing on the expansion plans that we have in Canada, dealing with all the momentum that we have through the IRA.

Also in the Clean Mobility Ecosystems, we have made significant steps up. And ESG roadmap is something I will cover a little bit later in the document. So very good progress on implementing proof points for our strategy, setting the foundation.

Now let us share a little bit more granularity on the different business groups, starting with Catalysis and their 2022 results.

So first of all, the underlying market, the most important market for Catalysis is the automotive market, to be more specific, the combustion engine automotive market, as you can see here, two messages. This market is still a big market and will continue over the time to be significant.

However, it didn't move much in the last three years. We know all the reasons for that. It's supply chain constraints, while the end consumer demand is there.

OEMs had to take down their production target, creating a quite volatile environment of many changes in the supply chains, and with levels that are still significantly below the pre-pandemic levels.

And with that, if we move to the next slide, slide 12. It is even more impressive what our Catalysis business group has achieved against this backdrop, another record performance in '22 with both revenues and earnings exceeding the previous results achieved in '21, up 5% and 4%, respectively. And with that, the adjusted EBITDA stands at €490 million and with that largely offsetting cost inflation through increased operational efficiencies and also a quite strong pass-through ability into pricing.

And the result of that, we keep the EBIT margins well above historical levels with 23.6%. So very strong performance by automotive catalysts that I will cover in a separate slide, but also precious metal chemistry activities were quite a performance last year. And fuel cells and stationary catalysts, we had revenues that were in line with '21 that was caused by the shutdowns or lockdowns that we saw in China due to COVID.

But very good progress on the customer side. So additional contracts closed with commercial vehicle customers in China, which is the biggest end market, as well as good traction on implementation – implementing what we have said last year is a fuel cell catalyst plant in China that is on track to be ramped up.

So a little bit more deep dive on Catalysis because we have to – want to make sure you understand the root cause of the strong performance. So first of all, it's a strong market position. The leadership position has clearly been concerned through the '22 results through market share gains in nearly all global markets, especially in China. So this is a proof point as we see it, those results.

Also from an operational side, the strong cash flows that we have projected for our RISE 2030 strategy are fully on track, are confirmed and especially the resilient and I have to say, flexible operating model is really paying out in an environment where probably volatility will, if at all, increase in the future. That's a strong asset to have, and we are very confident on the value creative nature of that business also on the long-term because now Euro 7 has been confirmed to be a value up for the market in a way for Umicore to even further differentiate through technologies.

And the good thing is also that we're continuing our strong market success with good progress in securing Euro 7 platforms with several customers. So altogether, our revenue profile is structured very beneficial because we are over 80% of our revenue in the longevity segments, so the light-duty vehicle gasoline market as well as heavy-duty diesel. So that's a strong base, where our teams with their operating model and strong abilities in execution have really made a great year.

Next to cover is E&ST, Energy and Surface Technologies on slide 15. Before we go into the review of the performance of E&ST, it's important for me to note a change in the revenue definition that we have decided to apply from 2022 as lithium and manganese are increasingly valuable and volatile components in Rechargeable Battery Materials, it was decided to no longer

treat them as consumables but as hedged metals in order to make the accounting approach consistent with the revenue performance indicators used in Umicore's other business units. And from now on, the pass-through value of purchased lithium and manganese will therefore be excluded from the revenue calculation as it is currently already the case, as you know, for cobalt and nickel and the E&ST 2021 and 2022 revenues have been restated accordingly. I think this is giving also much more clarity and transparency on the fundamentals of the business.

Now on page 16, we again highlight the fact that electrification is not only confirmed, it's rapidly accelerating. It's driven by the stick and carrot approach in the different regions. US providing more carrots with the IRA and the stick in Europe with the combustion engine ban from 2035. That is now fully confirmed.

And you might have heard that the European Parliament has put in a proposal now to even extend that quasi ban to the commercial vehicle side, where now for 2040, a 90% reduction of CO2 is proposed, which of course, would be another strong accelerator of that demand. But also the availability of renewable energies is making strong steps forward. The war and the subsidies can really be seen as a catalyst of renewable energies.

The International Energy Agency, we just saw a report this week, is forecasting 2.4 terawatt, a new renewable energy capacity to be installed until '27, which is actually the current power production of China. So it's gigantic. And you could basically say that the energy crises is a catalyst for the renewables, as COVID was for renewables, as COVID was for communication technology. So now for us, of course, that's a good news in terms of the addressable market.

But for the industry, it provides also a significant challenge because the supply/demand situation in the different regions is by far not balanced, which we will show you on the next slide, which is slide 17.

So you can see that today already in Europe and in North America, the demand and the supply are not balanced between needs of electric vehicles for batteries and battery materials and the capacities of CAM in this instance. And you can see that this gap is continuing at least into 2030.

Now what is today done? Obviously, this gap is bridged by importing materials from mostly Asia. But we also know, and I think agree that this will be more and more difficult if not impossible mainly because of three things. You have the local content requirements that are posed by subsidies and also the geopolitical fences, the carrot, and the stick approach. But more simply speaking, it is the CO2 requirements of the car manufacturers that want to go down, that need to go down in their Scope 3 emissions. And with that a large transport of thousands or millions of tonnes of material, simply not possible across continents.

And last but not least, the lessons learned from the microchip supply chain crisis is that you have to have reliable supply chains being close to your customers, and that's what the customers want. So the consequence, we can see a potential undersupply of CAM until 2030. Of course, these are all announcements today that can change.

I'm personally scared also about the announcements in a way that we know Umicore's strength in building capacities. We don't know that of all of the markets. So you can also, if you want, from the green bar discount, even 10-20% of the capacities that will never come true. And last but not least, it does not include yet some other effects like in the US, I would expect that the

IRA will drive up even more the electric car production, which is the reason why the IRA is existing. And in Europe, it's not yet including the commercial vehicle demand that we just have talked about.

So altogether, quite a tense situation and for companies that have existing supply chains in the regions are just building it up, like we have in Europe and building up for North America, makes us quite confident that we can be of a significant advantage to our customers with that in the future. And ultimately, this will be an advantage for Umicore.

So a little bit more flavour on the 2022 results of the E&ST segment. So we had higher revenues and earnings in the business group, quite substantial increase of them in Rechargeable Battery Materials. The sales volume of Cathode Active Materials from our legacy contracts remained as we had anticipated and previously I think discussed and communicated subdued.

Revenues and earnings were however well up year-on-year, including also favourable exposure to the lithium price in 2022, and this also we had shared at our half year results. This sensitivity of the revenues and earnings to the lithium price will, as discussed before, decreased throughout '23 and this will be further minimised from '24 to the way we have structured our contracts and through hedging mechanisms.

So over the year, the business unit has made strong progress on the customer side with very good traction on commercial discussions as well as product qualifications. And we feel very well on track for what we have said earlier, which is our 2024 volume ramp-up that is in full swing.

And as the next step in the execution of our strategy, it's the – our intention as well to group the global Rechargeable Battery Materials activity within one legal entity. This setup will, as we believe, provide the best foundation for the business unit to scale and will give flexibility on financing options to support the growth of the activity within Umicore.

Cobalt & Specialty Materials also revenues increased substantially versus '21, reflecting an exceptionally strong demand and supportive price environment in the first half of the year before an expected normalisation of the demand pattern happened in the second half in metal deposit solutions and Electro-Optic Materials recorded both stable revenues compared to the previous year.

Now finally, last but not least, Recycling. Let's have a look at the last year performance of our Recycling business group. Year '22 was again marked by a volatile precious metal and PGM price environment. As you can see, the average price of rhodium in '22 decreased versus the record year of '21. And this, of course, is an imported input parameter for our business.

And on the next page, you see that against this volatile precious metal price environment, the Recycling business group indeed delivered another excellent operational and also environmental performance. The revenues in PMR, Precious Metal Refining, were close to the record levels in the previous years, reflecting solid volumes and an overall good availability of complex input material.

The earnings stayed on a very good level compared to previous year, strong, however, below the record year of '21, reflecting only a partial ability to offset the significant cost inflation that is mainly on energy. And in addition, the long-term nature of our contracts in this business

that only allow for a limited pass-through of inflation during the time of the year, and it is a more longer-term process.

In the course of '22, there was another important progress we made in Recycling, which is on the Battery Recycling Solutions. We have created an own business unit for that that has now implemented the latest generation of our lithium-ion battery flow sheet into the operations that we are running already since ten years. So a lot of know-how and experience have been put in to increase the recovery yields and also very good steps have been made to extend the customer portfolio with several additional agreements with OEMs and battery makers. So altogether, we are well on track.

Also here, and as we said this year, we will decide on the location for our high-capacity battery recycling plant in Europe with up to 150,000 tonnes of capacity. In the same business group, Jewellery & Industrial Metals were also – had a strong revenue and performance increase across most of the product lines. And precious metal management was slightly below the exceptional strong '21 year level.

So with this granularity, I will now hand over to Wannes, who will give you more colours on the financials of the 2022 business year.

**Wannes Peferoen:** Thank you, Mathias, and good morning to everyone. Obviously, I'm very excited today. This is my first earnings call as the new CFO for Umicore. And I'm very much looking forward to our future interactions.

Let me take a quick moment to introduce myself. I have been with Umicore for 17 years and have had the opportunity to work for different business units across the Group, enrolled in both financial and general management. In my new role, I will continue to focus on performance and on risk management. And my personal ambition is to ensure that we're still on track with the execution of the RISE 2030 strategy.

Now let's have a look at the key figures for '22. As Mathias shared earlier, Umicore's financial results in '22 was driven by strong business performance in a year with plenty of macroeconomic challenges. Think of the unprecedented cost inflation, the continued supply chain disruptions, and the volatile price environment for precious metals.

Now despite this challenging context, Umicore grew revenues with 10% to €4.2 billion. And as we mentioned earlier, we now exclude lithium and manganese pass-through sales from a revenue calculation. This will allow us to better compare the business performance in the Rechargeable Battery Materials business unit.

Now as you can see in the graph on the top right, the revenue increase was driven by the business group's Energy & Surface Technologies and Catalysis. In Rechargeable Battery Materials, we benefited from a sharp increase in lithium price during '22 combined with a time difference between, on the one hand, to purchases, and on the other hand, the sales of the lithium-based products.

Now going forward, the lithium price exposure has been substantially reduced as we started hedging lithium as we do for the other battery metals, cobalt, and nickel. Also in Cobalt Specialty Materials, revenues increased substantially. Here, we benefited from an exceptional strong demand and supportive prices for cobalt and nickel in particular during the first half of '22.

In Catalysis, we were able to grow revenues, largely thanks to the automotive catalyst business outperforming the market. And in Recycling, revenues were again outstanding and in line with last year's record level.

Now if you have a look at EBITDA, the adjusted EBITDA amounted to €1.2 billion, which is 8% down compared to the record level last year. As you can expect, the unprecedented cost inflation did create an important headwind in '22.

Now in the graph on the bottom right, you can find more details on the impact of the external factors on the EBITDA. The year-over-year cost inflation before passed through to customers resulted in a headwind of more than €180 million. And on top of that, the lower price levels for precious metals resulted in €70 million lower contribution versus last year.

So how did we deal with this cost inflation? In Catalysis, and to some extent, in Energy & Surface Technologies, we were able to offset a substantial part of this cost inflation headwind. We did this through a mix of pricing adjustments and efficiency improvements in operations. In Recycling, the bulk of the cost inflation results from higher energy costs. These were harder to pass on because the supply disruptions resulted in an increased competition globally for certain recycling fleet.

Now the bridge on the bottom right clearly shows that excluding for these exceptional external effects, the Group's underlying performance increased substantially year-over-year. And the strong performance of the Group is also reflected in the adjusted EBITDA margin reaching 27.3%.

In Catalysis, the adjusted EBITDA margin is in line with previous year, again demonstrating that we successfully offset cost inflation. The ramp up costs in Energy & Surface Technologies and the energy cost inflation in Recycling did weigh somewhat on our margins. But in all three segments, the adjusted EBITDA margins remained well above the target of 20% that we have set in our 2030 RISE strategy.

ROCE for the Group reached 19.2%, which is still a historic high. And ROCE increased in both Catalysis and Energy & Surface Technologies.

So now moving to the consolidated P&L. Let us first have a look at the bottom line. As you can see, the Group shows a solid net result of €570 million in '22. If you look at some other P&L elements or P&L items, you will see that depreciation and amortisation increased slightly to €286 million, which resulted in an adjusted EBIT of €865 million.

Adjusted net financial charges are now at €125 million up versus last year, which reflects higher interest charges on short-term loans in line with the general market and somewhat higher foreign exchange related costs. Adjusted tax charges were lower versus last year, now at €145 million. Next to lower taxable profit, the adjusted effective tax rate for the Group decreased to a level of 20% versus 23% last year.

The adjusted net profit Group share amounts to €593 million, which results in an adjusted EPS, earnings per share, of €2.47 versus €2.77 in last year. The adjustments had a negative impact on EBIT of €32 million and are mainly related to the increase in environmental provisions for legacy items and also includes restructuring and impairment charges related to the stationary catalyst business in Denmark.

Now moving on to the next slide with the free operating cash flow. Here, I would like to highlight that the free operating cash flow for the Group remained strong at a level of €344 million and continues to support the execution of our growth strategy.

In the top graph, you can see that the operating cash flow after changes in working capital, which is the dark blue line, reached a solid level of €835 million. The working capital in '22 increased by €342 million. The higher metal prices in Rechargeable Battery Materials was one of the main drivers here.

In the bottom graph, looking at the light green line, you will notice that capital expenditures, including capitalised development expenses increased to €491 million in '22. Energy & Surface Technology accounted for more than 60% of the Group's CapEx driven by the expansion of the European footprint in Rechargeable Battery Materials. In the other two segments, Catalysis and Recycling, CapEx slightly decreased.

I would like to emphasise again that within the Group, CapEx discipline remains a key focus area. We continue to make future expenses conditional upon concluding value-creating agreements with our partners.

So moving to the net financial debt. At the end of '22, net financial debt amounted to €1.2 billion, which corresponds to a leverage ratio of 0.96 times last 12 months adjusted EBITDA. So we continue to have a strong balance sheet supporting our 2030 RISE strategy. As you can see in the bridge, net financial debt increased with €144 million versus last year. The solid free operating cash flow of €344 million enabled us to fund €488 million related to taxes, net interest, dividends, and net purchases of own shares.

I would like to repeat that going forward, our funding policy remains unchanged, meaning that we continue to have the ambition to maintain our leverage ratio at investment-grade level throughout the 2030 RISE plan. As you know, end of last year, we issued a sustainability-linked US private placement. The amount of €590 million has been drawn early this year in January.

The USPP transaction was a success, in particular, considering the volatile financial market context end of last year. It also illustrates the strength of our relationship with institutional debt investors and it was a strong validation of our 2030 RISE strategic plan.

With this, I would like to conclude my section on the financial performance and hand it back to Mathias. Thank you.

**Mathias Miedreich:** Thank you very much, Wannes. But not only strong performance on the financials, but also a very good progress on sustainability that we can report back to you significant progress in the roadmap that we have called Let's Go for Zero that we started in 2021.

In terms of CO<sub>2</sub> reduction, our targets for Scope 1, 2 and 3 have been validated by SBTi. And the even better news is that we have even slightly overachieved the respective '22 data point on the last year that we have towards our 2035 and 2030 targets. So that's a very good news. And also, we are proud that, already, as of last year, 55% of the energy needs in Europe have been based on renewable energies, quite a high value of that we don't stop and we will further increase.

In terms of zero inequality and harm, we have made also good progress in safety. Safety performance was better in the Group over the year, but also by actively taking the topics of water and biodiversity.

And finally, we have also set a good momentum in further improving our ESG governance not only through the applications of TCFD, but also by adding additional committees to our Supervisory Board, a Sustainability Committee as well as an investment Committee that will provide further guidance and governance for the development of the Group, RISE 2030, and the Sustainability Roadmap.

So last but not least, before we go into the Q&A session, I want to provide you some flavour on the outlook for 2023, starting with Catalysis. Automotive catalysts is expected to benefit from its strong market position in gasoline catalyst applications, a supply chain recovery and an anticipated rebound of the Chinese heavy-duty diesel market. And therefore, adjusted EBITDA of the Catalysis business group is expected to show a further good uplift in 2023 versus the already very good 2022.

In E&ST, in Energy & Surface Technologies, it is expected that the earnings of the Rechargeable Battery Material unit will be in line with the 2022 level considering that in '23, the Cobalt & Specialty Materials business unit will no longer benefit from the exceptional profitability that occurred in the first half of 2022. Adjusted EBITDA of the full E&ST Technologies business Group in '23 is anticipated to be somewhat below the levels of 2022.

Recycling. Finally, in Recycling, the precious metal refining business unit is expected to continue to benefit from an overall supportive supply environment. Assuming the current precious metal prices are to prevail throughout the year, adjusted EBITDA in the Recycling business group in '23 is expected to be below the levels of 22, due to the full year effect of the cost inflation. So overall, adjusted EBIT and EBITDA for the Group are expected to be below the levels of '22, in line with the current market expectations.

So I want to close this introduction on page 23, where if there would be only three things that you would remember from this presentation, I would ask you to remember that, first of all, Umicore has shown a very resilient and strong business performance in a volatile market with improving and confirming the underlying performance of the Group, its resilience.

Second, the megatrends that are based – that are the basis for our RISE 2030 strategy are more than confirmed. They are accelerating. And finally, we have taken big steps, positive steps in implementing the RISE 2030 strategy with key milestones, and, as we think, proof points for the validity of the strategy achieved in 2022, and we are fully energised to take '23 in the same – with the same amount of progress.

So thank you very much for listening to us, and we are now more than happy to answer any questions you might have.

## Questions and Answers

**Operator:** Thank you. Ladies and gentlemen, as a reminder, if you would like to ask a question, please signal by pressing star one on your telephone keypad. We kindly ask you to limit yourself

to one question each. So once again, that is star one for your question today. And our first question comes from Charlie Webb of Morgan Stanley. Please go ahead.

**Charlie Webb (Morgan Stanley):** Good morning, everyone. Thank you very much for the chance to ask a question. Maybe just one on free cash flow and kind of CapEx expectations looking into 2023. Maybe you could just help us and remind us where you expect CapEx to come out in '23. How are you seeing the current inflationary environment as it relates to kind of CapEx? Obviously, you've got a lot of spending to do to position yourself for growth, just understanding the kind of the CapEx profile and kind of remaining on the free cash flow part. Just also working capital. With the Nysa plant now kind of expected to ramp-up in 2023, is that already fully loaded and I'm thinking about the kind of the working capital or the sub-working capital that will go into that plant. Is that already done? Or is that ahead of us? Just so we kind of get a gauge on that kind of working capital dynamic. Thank you.

**Mathias Miedreich:** Yeah. Thank you very much, Charlie. It's excellent that the first question immediately goes to our new CFO. So I will hand this over to Wannes.

**Wannes Peferoen:** Okay. Thank you. So let's have a look at some of the key components, as you mentioned, CapEx for '23. I mean given the value creative agreements that we have concluded in '22, past years, we plan to step up CapEx in '23, in particular for the footprint in Europe. So yes, that's something we anticipate.

Looking at inflation, inflation with respect to CapEx, that is not something – I mean we have also programmes in place to improve CapEx density, where we already see benefit in the course of '22 and also in the course of '23. So from that angle, we don't expect a major impact on the plan for '23.

And looking at your question with respect to the plant in Europe, where we are? That's where we are still in the ramp-up stage, I would say, looking at the capacity utilisation.

**Mathias Miedreich:** Yeah. In respect to working capital, I think the working capital needs in Nysa, they will increase but more at the end of the period, because as we said, the ramp-up will start end of '23 and then be in full swing for '24. So that's what you can expect.

**Charlie Webb:** Okay. So just to gauge a little bit on that. So CapEx, any kind of gauge on where that should be for '23 relative to up, but maybe more in absolute terms relative to '22 would be helpful. And just on working capital, I guess, is it right then to assume if we still got to load the plant in the second half but we should expect further working capital outflows in '23? Thank you.

**Wannes Peferoen:** Yeah. So basically, with respect to CapEx, I mean, looking at consensus and analysing consensus, I would say that we don't feel uncomfortable with what we see in consensus for '23.

**Charlie Webb:** Okay.

**Operator:** Thank you. And now we're moving on to our next question, which comes from Chetan Udeshi of JP Morgan. Please go ahead.

**Chetan Udeshi (JP Morgan):** Yeah. Hi. Thanks. Morning. I had a few questions. First, I'll just start with the mention of carving out or I think putting all of the RBM businesses in a separate entity. I'm just curious what is the next step; because you also mentioned, Mathias,

that this will be within Umicore. So are you actually ruling out any external participation in this business? Because one would think when corporates announced carving out something as an independent entity, the next logical outcome is either it becomes independent wholly or there is a link associated with raising financing through that independent entity. So I'm just curious what are the sort of next thought or milestones on that business in terms of corporate action side?

The second question was, I was just looking at the corporate R&D, and it's good that it's clearly going up. But I can also see that some of the R&D costs in the corporate line are associated with the new cathode material projects. And I'm curious why is this not in E&ST and why is it sitting in the corporate line? Because it seems it's more directly related to the E&ST business, for sure.

And last question, on Catalysis. The margins have continued to surprise on the upside here for sure. And if I look at second half, the margins are up versus first half. I'm just curious, again, here, you tried to address it during your comments. But are there some temporary factors? Or you think the – structurally the margin level in this business has reached a stage, where EBIT margin closer to 20% is probably going to be a norm, at least for the next few years? Thanks.

**Mathias Miedreich:** Yes. Chetan, thank you very much. Three very relevant questions. Let me start with the first one, RBM and what we have said about the structuring of the entities?

So RBM, the battery material business is an instrumental part of our RISE 2030 strategy. It's the growth engine of the Group, and this does not change with this announcement, right? And what we have said in the Capital Markets Day remains totally true. We are looking on all of the options to finance our business going forward. At this point in time, we don't include – exclude any options, and we have decided to make this step to give to decomplexify also the unit in terms of needed structures like SAP systems or the IT systems, if you do it in an early stage where we are now before you go into the growth of that complexity.

But of course, a key reason is also to have all of the flexibilities for financing options. And as we are – as we said in the same statement, I just can repeat it as we are a public listed Group, we have available probably all of the options you could think of, and we will make good use of this also for RBM.

Now on corporate R&D, yes, it's a very good observation, and it's mirroring the way we are treating R&D in Umicore. We have a stage-gate process, where we have everything that has a trajectory of more than five years for hitting the market in terms of innovation is in our corporate R&D department. So these are things today, especially the activity has increased on the solid-state battery activities.

You might also remember our announcement together to build with Idemitsu a new battery material catalyst. This is all in the corporate R&D. So long-term topics, sodium-ion batteries, other technologies that would bring major breakthroughs to that market, that's in corporate R&D.

And then when it reaches the industrialisation phase. So that means when concrete customer qualification projects and launch preparations are in the – are there, it is handed over to the battery to the RBM business group. And this has just happened now as we speak for the HLM

technology, where we have reached that critical milestones solving the hurdles, that were – the technical hurdles that were there for industrialisation. And for that we bring that then up to scale and scale it up to large quantities. That's the trigger point.

Last question on Catalysis. Do we think that's a temporary effect? No, indeed, we don't think that because there are two effects happening right now. The first one is that the preparation on the operations model, so to bring down the breakeven points to increase the flexibilities. They really pay off now. That's on the one side.

On the other side, we see that the offer that we have to the market, to our customers where we call ourselves the reliable transformation partners, maybe compared to other contenders in the market that might not have that so clearly because we are in – we live in both worlds. And on the long term, combustion engine and electrification also gives us a good traction on being awarded new businesses in the Euro 7 domain that is also largely helping our equation on the profitability.

So that's actually what is behind. So we see it more as a step function. And also for '23, as we said in the outlook, we are quite confident that we can continue or even increase the performance of the business group.

**Chetan Udeshi:** Thank you very much.

**Operator:** Thank you. And up next, we have Geoff Haire of UBS. Please go ahead.

**Geoff Haire (UBS):** Good morning, thank you for the option to ask some questions. I have two questions, if that's all right. The first one, and it's fairly straightforward. If you were to strip out the impact of cobalt and lithium and nickel from the E&ST profitability for the second half, and then obviously, that would apply to the guidance as well for '23, would you still see profitability done in '23? Because it's very – it's hard to see where you're – given the movement of metal prices, where profitability is actually going in that business underlying.

And then the second question I had is that we've obviously had the European Green deal for industrial plan published, or well, proposals published. What do you understand is the differences that's going to make for the EV business in Europe going forward, if any?

**Mathias Miedreich:** Yeah. So let me answer the first question. I'm not sure if I totally understood it, but I would point out the following. What we have said is that we had a step-up in revenues and earnings in the RBM business unit inside of the E&ST business group in '22. And we have said that we think that this will remain for '23.

Now if you go one level above the E&ST, which is the wider business group, there is one big change, a one – not big change, a change that is there year-over-year, which is the Cobalt and Specialty Materials that had an extraordinary demand but also cobalt pricing environment in the first half of 2022. And if you look to the cobalt pricing and the end market demand, it has normalised in the second half. So we see the performance of that business more going forward with that trajectory.

And with that, overall, E&ST, we said should be somewhat below. But the important message, I think, is that the RBM part of it is on track. We also have said that the effects of lithium in '23 will be less like in '22. We are adding other elements that are more on the operational efficiencies of our plant ramp-up in Nysa, as well as the fact that we are now hedging, as Wannes pointed out, hedging lithium as a metal. And also at the end of '23, the first of our

new projects, if you want to say, start, which are stabilising that. And then the big step-up happening in '24 in terms of what volumes is concerned.

Now I hope I've answered your question on that. And now coming to the Green Deal question. So you have seen that the European Union did not copy one-to-one what was the Inflation Reduction Act and I think they shouldn't. And what I personally would see is and what I'm hoping for is, of course, on the funding side, there will be more momentum. And already today, there is quite significant funding available in the EU.

But what I'm hoping for, and I see signals in that regard, that especially on the permitting side, on the speed to market on the ability to keep up with – I've shown you the discrepancy before in demand/supply for the cathode material. This is something that I'm sure the European Union will tackle so that we and other companies can even speed up and follow the demand of our customers.

**Geoff Haire (UBS):** So can I just come back on the RBM business? You said there's a step-up in revenues and profit. Is that excluding lithium, the impact of lithium in '22 as well?

**Mathias Miedreich:** As a whole. So the effect – what I was saying is that the effect of lithium that we have seen in '22 in the good results that those effects will be less in '23 and that they will tail out in '24. And then with the volume ramp up, we are in this new business model where we have lithium as a hedge metal and we are only measuring ourselves on the underlying business performance.

**Geoff Haire:** But for '22, if I take – if you took away the impact of lithium, would RBM revenues and profits still be up?

**Mathias Miedreich:** So I mean, there are several effects that go into that. So the first one is, obviously, the lithium, as I said. Then we have talked about the subdued volumes, which is not a news, which we have said earlier. And you have the mechanism, which is called the take-or-pay contracts that are playing a role in that. So even if the volumes were not as contracted, the expected earnings are contributing, and that all worked together in that equation in '22.

But as we said, '23 and '24, the picture will be much more straightened in this regard, which is the important message that we wanted to send today.

**Geoff Haire:** Okay. Thank you.

**Operator:** Thank you. And now we're moving on to Sebastian Bray of Berenberg. Please go ahead.

**Sebastian Bray (Berenberg):** Thank you very much for taking my questions. I have two, please. And the first is on magnitude of state aid. I suspect the answer might be no, but I'm going to try anyway. Can Umicore quantify what it is getting currently for the Canadian plant that it's agreed to build or just the magnitude of state aid more generally? Is it a triple-digit million amount? What is the order of magnitude we should be thinking about?

And then the second question was on the moving parts in the Energy & Surface Tech guidance for '23, '24 and into '25. In the near term, let's look at '23. If you were to have no lithium impact in the year '23, so I assume it's still positive; would the earnings in the cathode bit? So just focusing on the unit margins in cathode be flat, down or up?

And just a quick question on the VW JV. For modelling purposes, given data is quite limited at this stage, is it right to assume that everything in the battery materials area is still fully consolidated until '25 and then the JV only really gets going from '26? Or how should we think about this? Thank you.

**Mathias Miedreich:** Yeah, let me start. Yeah. Thank you, Sebastian. Very good questions. First, state aid Canada, obviously, we cannot disclose our contracts that we have closed and the MoUs with the Canadian government and the Ontario regional government, but I can give you so much flavour as the dimensions we're talking about in percentage of state aid versus the CapEx are quite similar to what you see in the IRA in North America.

I think the big difference between Canada and North America is not so much in the CapEx state aid rates but – or funding rates, but it's more on the what's called the OpEx tax credits that's currently in the discussion on US. We also hear, but as public knowledge, the Canadian federal government has announced that they will come out also with the counterproposal for that part so that they really come at par with what's seen at the IRA because you can – as you have seen, quite a couple of big players have decided for Canada, including ourselves.

So we're rest assured that there will be no differences in state aid on the – between Canada and North America. So it's – but anyway, I think that this is not – for us, has not been the reason to invest in Canada nor in North America. It's driven by the market needs and the demand and our customers are asking to do that. So overall, it is a value-creative business for us in any way, otherwise we wouldn't have – we wouldn't pursue it. And the contracts that we see going forward in that direction is actually saying that.

So in terms of E&ST, I think I come back to what was – yeah, what I have said – we have said end of '21. So we have – in '22 and '23, there is a transitionary time, where we have legacy contracts that we are very happy to have, and we will fulfil them either in volume or take-or-pay. We had some lithium effects that are stronger in '22 than in '23, and we have adopted our business model as we've just shared today.

To be more independent of that, the most important message for us today was to go into this ramp-up that we can now moving much closer. I mean, it was – I understand it's a difficult end of '21 to anticipate something that has happened in '24. But now as we come much closer to that event, we can even bit more confident in saying that we're totally on that trajectory.

And now for Volkswagen, the joint venture, yes, indeed, remember the Volkswagen joint venture is a 50-50 one, as we had discussed, which means that the – for monitoring purpose, I think the assumption from 2026 onwards to use the respective streams as non-consolidated, I think that's the right approach in the modelling.

**Sebastian Bray:** That's helpful. Thank you for taking my questions.

**Operator:** Thank you. And we're now moving on to Wim Hoste of KBC Securities. Please go ahead.

**Wim Hoste (KBC Securities):** Yes. Good morning. I have two questions, please. The first one would be on the ramp-up schedule for RBM towards the end of the year and into '24. Can you provide a little bit of additional colour on where the growth is going to come from in the second half of this year? Is it mainly Nysa? Or is there also improvement in capacity utilisation rates in your Chinese plants, for example? And then also to – yeah, to which kind of customers

is that? Is that to OEMs? Is that to battery cell producers? Can you maybe offer a little bit of additional clarity on that?

And then the second question would be on cost inflation from energy to other things. Can you maybe elaborate a little bit on the cost inflation impact you will see this year? And what's kind of flow over from last year? What is maybe the new elements coming into the picture? Those were my questions. Thank you.

**Mathias Miedreich:** Yeah. Thank you, Wim. Indeed, it's a good opportunity to provide some more flavour on the customer landscape for RBM. In most of these calls, I'm asked about is there any news on the customer side, and I always say there would be a news sometime and then we share the news. I will do the same here again.

So we are in quite advanced discussions with several customers and maybe important to mention customers as well on the OEM side, but also especially on the cell maker side because with the progresses that we have made on the technology road map and on the HLM side, especially that becomes a very hot topic.

Now we're also very confident that in the first half of the year – in the first half of this year, we can announce another major step up from a customer side. It will be a good adding to our regional mix. That's what I would like to say here, regional mix which will more go into utilising the full global capacities of Umicore in the short term and then help us to transfer that into a more regionalised setup. I'm sorry, I cannot be more specific.

You will understand once we are able to share the news. But I would say that the ramp-up will not – my message basically is the ramp-up will not only happen in Nysa. It will be starting in all of our global factories because we need to be fast and our customers need the material. But then most of those things that will start because of the localisation requirements of those customers, over time, they will then either go into the one or the other region. But to start with, we can use our existing capacities. And that's an important point to mention.

Now for the inflation question, I will hand over to Wannas.

**Wannas Peferoen:** Yeah. So looking at the expectations for inflation for this year, we can expect that in Catalysis and E&ST, we will be able to offset given the operational efficiencies that we implement and also some of the volume effect.

In Recycling, where we were primarily hit by the inflation last year because of the energy. Going forward, the energy portion is where we were able to hedge a substantial part of the energy exposure, and as such, reduce the uncertainty there. At the same time, looking at Belgium and the specific situation of the indexation is where we expect further inflation on the payroll with the payroll indexation.

So as we said earlier, in Recycling, we are working on the necessary initiatives to offset the inflation. But this – in this environment, it takes more time. Looking at some of the multiyear contracts and so on, it will take more time to offset it, but it's ongoing, I would say.

**Wim Hoste:** Okay. And can you provide a number? There was €184 million for '22. Can you provide an additional inflation number for '23 based on your current expectations?

**Wannas Peferoen:** Well, again, we will expect still a full year effect, particularly in Recycling. So there will still be a substantial headwind, I would say, more than half relative to that figure.

**Wim Hoste:** Okay. Understood. Thank you very much.

**Operator:** Thank you. And up next, we move to Nicola Tang of BNP Paribas Exane. Please go ahead.

**Nicola Tang (Exane BNP Paribas):** Hi, everyone. Thanks for taking the questions. Just wanted to ask a little bit more about the tax incentives around the IRA, which obviously have come into place since you made the decision on the Canadian investment. And considering also the comments you made around undersupply in North America until at least 2030, I was wondering if those two factors at all made you consider adjusting the scope of your Canadian investment in terms of capacity. And at what stage or would you also consider thinking about sort of adding battery recycling in North America as well to kind of create a regional closed loop?

And then on the second question, just in referring to HLM and the developments that you've made there. Can you just remind us in terms of timeframe from sort of where we are today towards commercialisation and how that's sort of shaping up in terms of potential discussions with customers? Thank you.

**Mathias Miedreich:** Yeah. Thank you. Thank you very much. So first question, IRA impact. Of course, and I said this before, the moment this IRA bill was clear and was decided, we received a lot of traction with our customers that had to – today, our future potential customers that had to redo their supply chains for North America because the current setup didn't work. And we see currently also with some discussions that are in the news between a US car manufacturer in the Chinese battery maker how difficult it is to make that happen.

And now, we, of course, are seeing that increased traction. There are two things that we have – which we always keep in mind. The first thing is any type of further investment needs to be value creative and needs to have – we set quite some standards in the contract that we have done together with Volkswagen. It's for both partners a very good contract. And this is something a little bit as the benchmark that we see going forward. And we will always make sure that we have the value creative returns. And this sometimes takes some time to discuss.

The second thing is that we always – when we make commitments, we want to be 100% sure that we can operationally deliver because that maybe you can call it prudent or you can call it conservative, but – and I said it before. I think in this market, the ones who have the biggest announcements are not the ones that will make the business later, but it will be the ones that have plants up and running at the quality that is needed. And that's what we are focusing on.

So I would say at this point in time, it's too early to say that we would extend anything. We are always open for discussions. We have our plan. Our plan is well on track. And for the moment, we're concentrating on that. But as we said, we are always open to provide more value-creative investment opportunities if they are there, but at the time being, we stick to our plan.

Our battery recycling could be, and is already in our more mid to long-term plan for North America included. But also here we want to concentrate first on Europe to implement what we have said, but also we – the next step after Europe, for sure, would then be North America, but it's not yet concretely planned.

Now HLM, it's a very good topic because HLM fits to what has been asked earlier. It has just moved into the industrialisation phase because we have been able to solve two key issues, which is the stability of the material and the connectivity, which is complicated if you have a very high manganese rich environment. So we have developed a proprietary coating and doping technology that solves that.

And now we have moved with – actually it's five different programmes immediately moved into the next stage. These are programmes with OEMs and cell makers in all of the three world regions. So really interest from everywhere in the world. The time frame of that, as we said, would be to be expect to hit our plant in 2026.

Why would you say why does it take so long if you say it's industrialised? It's ready to be produced in the plant, but it's still – there's always a long qualification process that's in our business. And there is a second thing that is more on the OEM side and the battery cell maker side is the adaptation of what's called a battery management system because this is a new battery chemistry, it's now stable and it now can be tested.

And the current battery management system developed for NMC, the algorithms that we use for LFP, you need a third one, right, because it's a different setup. And with that, we are in very close contact with our customers to provide samples and to help them to actually develop this battery management system to harvest the big advantage that we see, like we see a 10% cost advantage of HLM versus LFP based on non-Chinese production.

So for example, the production in the US at a 25 – so measure in euro per kilowatt hour, a \$1 per kilowatt hour. And a 25% better energy density than LFP alongside with the other elements of recyclability, capability to produce in the existing NMC factories, etc. So that's really a breakthrough for us that we are trying to accelerate as much as possible, but we need our customers to be also ready to digest it from their operating system point of view.

**Nicola Tang:** Sounds great. And if I could just squeeze another quick follow-up one on HLM. You mentioned you would use existing facilities. Is it fair to say that whatever sort of CapEx or investment requirement that's factored into your midterm CapEx guidance?

**Mathias Miedreich:** Yes, indeed. So the – we have in our plan, that we have provided, we had said that HLM is part of that. And it's not that HLM does require no CapEx, no additional CapEx compared to an NMC factory, but it's more like adding certain steps on coating and doping. It's not only in the CAM, but also on the pCAM phase. And with that, it's included in our current plan, indeed.

**Nicola Tang:** Thanks very much.

**Operator:** Thank you. And now moving on to a question from Riya Kotecha of Bank of America Merrill Lynch. Please go ahead.

**Riya Kotecha (Bank of America Merrill Lynch):** Hi. Good morning. Thanks for taking my questions. I have a couple ones. My first one is on closing the gap with peers. You've performed well in the legacy business of auto catalysts, but what are maybe the fines of data points you're capping with regards to market share that makes you think you're [inaudible]

**Mathias Miedreich:** Riya, sorry, we can hardly understand you. Can you come closer to the microphone maybe?

**Riya Kotecha:** Yeah, sure. Is this better now?

**Mathias Miedreich:** Yes, let's give it a try.

**Riya Kotecha:** Okay. So my first question is on closing the gap with peers. You performed well in your legacy auto cat business, but what are signs or data points that you're capping with regards to market share in particular that makes you think you're closer to closing this gap, particularly when you maybe expect sort of subdued RBM volumes into '23, while some NMC payers are expecting to grow 30% to 40% into this year?

**Mathias Miedreich:** So let me repeat, if I understood the question correctly. So it was a question how to close the gap versus our peers, right? While you said that LFP capacity or market growth is pretty strong, while we have not that growth. That's your question?

**Riya Kotecha:** Yes. So NMC payers expecting to grow volumes 30% to 40% in '23, whereas you have sort of subdued volumes and does that make it hard to then capture?

**Mathias Miedreich:** Yeah, very clearly. Yes, now very clearly understood. So I think that we are very confident that the assumptions that we have made will play out for us, because as you know, right, we have kind of been very successful with new contracts in the last 18 months, I would like to say, and that's what we will have is going on from now.

The big differentiation that we have with our competitors in terms of speed is capacity, because today, the ability to use capacities that you have in Asia to cater the North American and the European market is there undoubtedly. That's the current business model, and that's why those competitors can do that.

But when we take the next steps and when the IRA kicks in and when we have the respective regulations in Europe kicking in also on the CO2 especially, what counts is that you have capacities in those regions. And today, we are the only ones that have capacity in Europe, and we are not the first one, but in the very first group of players to play in the North American fields.

So with that, we see a strong acceleration possible for us when our new programmes hit the factory. So actually, it's a time advantage that is based on a regional differentiation of the different markets.

**Riya Kotecha:** Okay. And can you maybe talk about your stage of contracting with customers in North America externally? It seems as that payers are announcing contracts at a faster pace. I just want to understand this. Is this because you're trying to negotiate tighter contract structure similar to the Volkswagen JV or they're more competitive? And then related to that, is there one more contract to be announced is my understanding. Is that correct?

**Mathias Miedreich:** So yes. So first of all to answer, so in North America we apply the same principles we have applied in Europe we have applied with the Volkswagen joint venture. We take enough time to create value creative contracts. There's a strong demand to work with us. You have seen maybe that we have already signed an MoU again with Volkswagen also to expand. That is not yet decided whether this will be part of the joint venture or will be a separate initiative, but you can rest assured that the same principles will apply in terms of value creation.

Now, on top of that, there are other very active and very advanced discussions for North American entry. At this stage, it's even more demand than we have planned to put in capacity. So we are in a good situation to negotiate in the right way, if you know what I mean. And yes, I can also confirm that we are very confident to have at least one more announcement in the first half of this year on a major customer contract.

So with that, I can just repeat what we said. We feel very confident on this ramp-up that we have already proclaimed one year ago for end of '23, beginning of '24.

**Riya Kotecha:** Okay. Thanks very much.

**Operator:** Thank you. And as we're nearing the end of the call, we will take a few more questions from people in the queue, but we kindly ask to please limit to one question per person. Thank you. And with that, we are moving on to JB Roland of Credit Suisse. Please go ahead.

**Jean-Baptiste Rolland (Credit Suisse):** Hi. Good morning. And thank you for taking my question. I would just would like to ask about what difference it makes for your battery materials business for the differential that you see between the US IRA and the European Green Industrial plan. My sense it makes more – it is more important to have a local value chain in the US than in Europe. And I would like to understand whether that is basically a valid perception or not. The reason why I'm asking is because it's not clear from the European regulation that there is a push for having the full value chain within Europe, i.e., the local – there are plants for batteries, there are plants for EVs, that's clear. But it is not clear that actually the materials has or will also have to be produced in Europe, whereas in North America, there are signs that suggest that the full value chain, including materials, will have to be local. I would just like to understand what's your take on it, whether it's a misperception or anything you can comment on? Thank you.

**Mathias Miedreich:** Yeah. No, it's not a misperception. And that's basically because the plans on the European Union have not been fully finalised. So it's very clear that in the US through the IRA there is – what will – if it really turns out like it is said today, it will be a closed shop, right? It would be a local-for-local market that it's clearly incentivised by the tax credits for the cars at the end of the day that at the end of the value chain.

In Europe, this has not been so clearly outspoken yet. But for Europe, we see from the beginning, and that was why Umicore had invested, we saw another strong driver that has the same effect, which is the customer voice. Because what is there in Europe and will be is expected in the future is that CO2 becomes a cost and that the Scope 3 of an electric vehicle is pretty bad today. The CO2 emissions producing a battery is the biggest contributor to the Scope 3 footprint of a car.

And some of the OEMs in Europe have already – when they're sending out their RFQs for battery materials, you have to commit to a certain CO2 level that you are dealing with. And with that, being not in the region with a fully integrated supply chain, you will have no chance to meet that target. And I can clearly speak because it's open and public. BMW, for example, has – it's an in and out requirement, either you do it or not and others have that as well. We know with our work on Volkswagen that they're also very much sensitive on CO2.

So I think the consequence is the same. The root cause is a different one. In IRA, it's more a carrot approach. So you get money if you're there. In the EU, it's more a stick approach. If you're not there, you will have additional cost because the CO2 operation doesn't pay out.

And then we will see how the subsidy scheme is looking like. There is also – the last word has not been spoken. But from a strength point of view, currently, I see both arguments similarly strong from a different angle of reasoning.

**Jean-Baptiste Rolland:** Thank you very much.

**Operator:** Thank you. And we have come to our last question, which comes from Ranulf Orr Citi. Please go ahead.

**Ranulf Orr (Citi):** Great. Thank you for taking the questions. Firstly, please, could you just clarify the RBM outlook for 2023? I think you said it will be – earnings will be in line with 2022, but what earnings you're talking about, given the shift? Are we EBIT, EBITDA? And can you give kind of a guide on volume growth relative to the overall NMC demand numbers for next year, in line well below perhaps?

And secondly, if I could just squeeze in. On HLM, could you clarify if or how you're able to protect your recent developments in the coatings and the dopings. I mean, is this something we expect peers to follow very quickly, or is this really a differentiator for you? Thank you very much.

**Mathias Miedreich:** Yeah. Thank you. So the earnings on – also the development on the E&ST side, we traditionally never disclose the concrete numbers below the level of the business groups, and we will also not change this going forward. But I can provide you so much of a guidance that the – when we say performance, then it's meant the EBIT/EBITDA equation of the business group – of the business unit, in this case is expected to be in similar territories than it was in 2022.

And with the effect that we have described in other parts of the questions, and that's, let's say, next level, the difference on the E&ST business group is that the Cobalt and Specialty Materials, they have better performance in H1 than in H2 in 2022 because of the price environment of cobalt and the end market demands. And this on the full year effect for 2023 will somewhat reduce the EBITDA of the whole business group. So this is the math again on E&ST.

Now for HLM, indeed, this specific – I mean HLM per se is not a new technology. It's well there in the market. However, those two points that we have now here, the breakthrough to basically make it from a lab thing into an industrialised product. We have protected this also with patents that we have put in place. And of course, with the usual trade secrets that we put around it. So we are confident that we have something that is representing a considerable competitive advantage versus our peers.

**Ranulf Orr:** Okay. Great. Thank you very much.

**Operator:** Thank you. And that concludes today's question and answer session. I would now like to hand the call back over to Mathias Miedreich for any additional or closing remarks.

**Mathias Miedreich:** Yes. Thank you very much. Thank you very much again for the very well educated and deep questions. I very appreciate the discussion. Thanks for listening to us, and

I wish all of you a very good continued day and hope to meet you soon again in person, maybe in the next days when we're doing our road show. Thank you very much and take care.

**Operator:** Thank you. That concludes today's call. And you may now disconnect.

[END OF TRANSCRIPT]