

Vale Day 2022

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First Agenda Item

MR. IVAN FADEL: Hello. Can you hear me? I'm not sure if the mic is working. I think it is now, sorry. So we will try to start on time if you can all please take your seat. So thanks everyone for being here. I'm Ivan Fadel, Head of Investor Relations here at Vale. So we're very, very glad to be here with you today for the 2022 Vale Day presentation, where we will go over our equity story, where we will show you some strategic initiatives that are shaping Vale of the future.

So the way this is going to work, we will have a slide presentation here for about one hour and 20 minutes, one hour and a half. And after that, we will have a Q&A session. So of course, we will take as many questions as we can from you here and also online. So I want to thank you and the online audience for being with us today.

And so let me introduce to you the executives that will participate in this presentation. So we have here today Eduardo Bartolomeo, Vale's CEO. We also have our Executive Vice President for Iron Solution, Marcello Spinelli. We have Deshnee Naidoo, the Executive Vice President for Energy Transition Materials. And also Gustavo Pimenta, our CFO. Okay. So I'll come back later here to mediate Q&A. So for now, I hope you enjoy our event. And I'd like to invite Eduardo Bartolomeo to take the stage here. So thanks, everyone.

Second Agenda Item

MR. EDUARDO BARTOLOMEO: Thank you, Ivan. Well, there's water here. So good morning, everyone. Great pleasure to be with you here again. I think last time and by the way, the others on the virtual as well, now we have the new normal, right? We have people everywhere. But last time we were here and I was trying to recap to give the context, was Omicron, I think was after Thanksgiving, I said every Vale Day has an emotion. And I said this one is Omicron. We thought the room is going to be empty. And everybody came, by the way, that time, I think we didn't expect it to be such a hectic year.

We saw Ukraine hitting us February, China decided to have its own COVID problem, the recession in the U.S. So, it's been a quite, very exciting, and hectic year. But what we want to do today is share with you a little bit of transition where we are going through Vale. And I want to bring you two anecdotes just to make you reflect a little bit. One is when I was Base Metals executive director, we had a projection for this year that we would have 3.8 million vehicles. This year we're going to produce 11 million EVs in the world. This is the first point.

And of course, Ukraine brought the attention to everyone about geopolitical tensions, about energy of the world. We're trying to bring to you that we are not in an energy transition. I don't think that it's an energy transition, it's an energy revolution. We are underestimating

what we have in front of us. And that brings me to my second anecdote; if you get the 10 miners market cap and you add it, you get to \$570 billion sorry, \$670 billion. If you get Tesla market cap after the TechCrunch, it's \$500, is \$600, \$570 billion.

So, all the miners together, they don't value what Tesla values. So what I'm trying to do here, and I think this is a mining issue, and Vale, of course, we will show its position within this space as a fundamental problem of position itself and rerating. So with that in mind, what we want to do is to recap this with you. And I promised my team that I'll do it in 20 minutes. I hope. You know this framework very well. People that follows Vale, this is as I mentioned, it's my fourth Vale Day.

I've been I took over after Brumadinho. Obviously, Brumadinho is a defining moment in Vale. And we did this derisking, reshaping, re-rating capital location. And I want to give you just a very quick overview of what we've achieved. We're going back to some of these elements later, so I won't go deeper on those. It's just a matter to understand what we were able to deliver in these last four years.

When you talk about Brumadinho, of course, I think it's something that we are really how can I say that in conscious of the importance and the impact that we caused , but at the same time, we are fully engaged on repairing it fairly and quickly. I think I'm going to go back to that. Mariana we accelerated a lot this year. Dam safety is one of the things

I'm really, I would say, it's a bit hard to choose, even in English, the right words for that, but we are under control.

We know what we don't know. We know everything about the tailing's dams, so I'm coming back to that later. And capacity resumption, we were able to deliver the assets, Spinelli is going to cover this in a while, is the most I'm talking about specific about Minas Gerais, I'm not talking about the northern range. I think we did a lot of things. Everything that we promised, we delivered. We're facing much more difficulty than we anticipate. That will be the that's why if you look at the little balls, it's why we visual the thing.

I think here we checked the box; if you ask me what we did great in Vale in the last four years, we clean Vale, and that allowed us to come to the next chapter in a moment. We cleaned nine business in five countries. We left New Caledonia, we left Mozambique, we left steel. We left everything. We end up with Iron Solutions. If you've got the thing, now Spinelli is not Iron Ore. And we get energy transition materials. Then I think we will come back. Cost efficiency, one thing that is very important, we need to be cycle proof. When Gustavo arrived, we started a very strong program about that.

Rerating and the Brumadinho issue, I think Vale was one of the first companies to leave the station on the ESG Agenda because the ESG Agenda knock our door in a very awkward way, but Vale was and I would go, I'll guide you through these things in my presentation. But fundamentally, we

did a lot of things for people like remuneration, transparency by the way okay, when I put my new framework, I'll explain better to you.

And lastly, I think we checked the box on return to shareholders.

Gustavo will mention this number later; we paid, last three years, \$34 billion Dollars. All the cash that was generated inside the company was returned to the shareholders. We bought back 30% of Vale. We're going to finish our program about 20%. So undoubtedly, we were extremely disciplined on that sense. And that brought us to this.

This is what you're going to, you know, we're very monotonous, like very, very focused and disciplined. That's the framework that I would like you to start following us, and by the way, charging us and saying are you walking the talk? Because I believe that we walked the talk on the previous framework, and it has to do with a very specific thing that's happening in Vale. First of all, you are down the road in four years; you're learning, you're understanding business, you have your team. And this is, if you look at the, I'd say, right hand side of the promote sustainable mining, is the rerating.

I'm going to go through all these elements here. When you see the middle, it's for exactly the Iron Solutions and the energy transition materials. And of course, we have to stay disciplined. And by the way, going back to my \$570 billion and \$670 billion, I don't think this framework is Vale's framework. I think this should be a framework for the industry.

If we're not responsible, I have a very I use this cliché a lot inside Vale; I have a 12-year-old daughter, actually she has all the options in the world, of course, because she was well born. But in my view, why should she come to mining when she's 22? That's what miners should be thinking of. What kind of business are we creating to society? To people think that mining is something, it's not only needed. Because that's what's happening today; we're needed, we're not desired and people has to acquire that. So otherwise, we are not going to get the acknowledgment and attraction of the investors and society or business.

So, this promote sustainable mining is something really important to us. And again, if we are successful, my daughter, I was yesterday at one media company and said, look, this is the kind of work that the iron investor will have to have. We also have to have innovation, autonomous. I don't want to you're going to see some of the technology things with Deshnee, like people underground. We don't need people underground. We have to create decent jobs, skilled jobs. And they're very exciting jobs.

So that's the first part of this. And the last two, Spinelli and Deshnee are going to cover, and Mr. Gustavo. So let me go through this first block because this is the new phase that Vale is going to try to go if we're successful, we are going to be recognized as a sustainable miner. We're going to foster solutions for the low carbon for this energy revolution that I mentioned before. And of course, you cannot expect differently, we're going to do it very disciplined.

And I was thinking about that, of course, just sharing something personal, I joined Vale in 2004. If you remember, when we have the 75% increase in price of iron ore, I think people in the room remember that that was the beginning of the supercycle, right? And what we did with the money in the supercycle, every investor knows; we burned down \$1 trillion. Well, I think all those three elements, they really reach what is taking value out of the business in mining. Mining has to be disciplined.

Of course, we are uniquely positioned, not only as Vale but as a mining industry. We are the new majors. That's another thing that I'd like to say; when you remember the new majors, the oil majors in the last century, we are the new majors. So, this is where all of our mining, all the mining companies should be looking at, how we are going to be able to supply sustainably. Because otherwise, it's going to be the main destruction. Like the OEMs are not going to wait for nickel, either we do the nickel for them. The same for the high-quality iron ore.

You know, there's a huge dependence, and Mr. Spinelli is going to cover that later. So, we need to do all those three things. And of course, I'm selling my fish here. I don't know the word if you have it in English? And Vale is uniquely positioned in that environment because we left the ESG train station much earlier than everybody else. We have been endowed and we were lucky to have the endowment of our assets, and Spinelli and Deshnee are going to cover, and we learned a lesson. We're not going to

burn cash. All the cash that is going to be generated is going to be disciplined used.

So, we will never forget Brumadinho. I said that since the first day here, and people underestimate the impact of Brumadinho in our operations, for the good and for the bad. So, the fact that we are trying to do this, it begins with doing what exactly said from the first day. I think when I said that we checked the box of Brumadinho, 58% of the amounts paid, 35,000 people indemnified, 3.2 billion reais you know those numbers. And no extra claims.

Brumadinho was kind of contained but it's not about money, right? This is about empathy, about talking to people, doing what they expect to be done, but they have to feel compensated. Mariana is a big issue, you know that. We tripled the compensation this year. This is the new Bento. There are more than 400 houses built. They're going to start moving on January because the school years begin. It's a huge construction site, so they cannot move now. And the water is okay. I know very well that the river is much cleaner than before the accident. But fundamentally, going to the framework of the sustainable mining. So, I'm going to just go very quickly because some of you already saw the presentation. It's a buildup; begins with people, down to nature, because that's what we do. We manage people. We are in a 180,000 people organization, 60,000 Vale employees. If you don't treat people well, you don't have the skilled workforce, you don't get what we expect as a cash return or what else.

So, culture for Vale is a very important element. I came from companies that see culture as a competitive advantage, which I believe on that. And we are in this journey since 19. I'm not going to go through all the elements, but the fact that when you measure that, we measure it by the way, I'm an engineer. Engineers love measurements. So, we have remapped more than 25,000 people. You see adherence, are you listening to me too? Okay. But anyhow, you see what's higher in the agenda in Vale, obviously, those are the behaviors that we expect from my employees.

Everybody at least believe they are obsessed with safety. What we need to open up is more transparent in dialog, and of course, ownership for the whole. So, this is done. I think there's a high level of adherence to that. Another element that is very important and it's not brought and was brought, by the way, in the beginning as a lever to do the culture transformation, is the DNI Agenda. That's a very important agenda to us. Those are big numbers. And in a company like Vale, we brought more than 3,800 women to our workforce.

Actually, we anticipated the goal for 2025 was I think 2030 if I'm not mistaken. Another very important agenda is to have women in leadership, and this is for Brazil specifically extremely important. Vale is a 66% black company because of the areas we operate, we are black. Black is the main "negro and pardos" because I don't know how to say that in English, but we only have 28% people in leadership. And we are not talking about men here, we're talking about leadership in a higher level. So, it shows extremely wrong, and we are moving that as well.

And fundamentally, we have a zero tolerance against any kind of harassment and the numbers show that. But culture itself needs a framework. And everybody that knows me, VPS is Vale Production System. We were talking here before, everybody that knows BHP, BHP has BOS. Everybody knows that Toyota has TPS. And it doesn't matter which S it is, but Vale didn't have this framework.

Vale has a state-of-the-art logistics since Dr. Eliezer. And we understood that because we did VPS there. So, what we're trying to do in the Vale is to have this framework, because that's the framework about how we execute our operations. That doesn't go alone for operations, can go to sales, et cetera., how is the method and how it's with people. And just, of course, too mechanical here, but just to have an understanding why Vale is not reliable because that's the biggest issue here, why Vale is not reliable.

On average we have 1.52. The system measures in each dimension like from 0, 1, 2, 3, 4. It's like an isle thing if you understand what I'm trying to say. On average, Vale used to be in 2020 1.52, now we are 1.98. We all are going to be reliable when you get everybody to 3. So, this is the big challenge that we have to go. We did a lot, 52% of reactions, a reduction in areas below 2, and a maturity that increased a lot. But until we don't get that done, we're not going to be reliable.

So that's another very important piece of the strategy that we are trying to implement, we are implementing since 2019 and we are going to get

there. Just to have a reference, BHP did that in 2004. So again, people, process, and of course, what we want to be is a safer company, and we are getting there. We're not there at all; we still have a huge gap.

What we measure, we don't measure leading, because, in safety, you have leading indicators, there's the total recordable injuries like what you measure. Like 3 is everything that people if they cut their finger or if they really lose the finger, is the same thing. So, you see we have the lowest thrift in the industry and in Vale history. It means more or less, less 800 people getting hurt each year at Vale. But more importantly, we want to reduce fatality. And this is the number you see is 66 high injury incidents in 2018, it came down to 12 and our goal is to zero by 2025. But it's not only about people and process, it's about technology as well.

Remember when I started to talk about technology. We have a lot of our intelligence, artificial intelligence that, you know, drowsiness, driving, et cetera, taking people out of the risk. So, this is a very, like we call CARS, Critical Active Risks that really are like this very close to people get killed, and they improve like a lot from 82%.

And again if you go back to the point that really concerns everyone is safety, right? Just to remember you, our dams in the high level of alert. Nobody is below them; nobody is above them. So, there is zero chance to any harm in the community. We built four backup dams, and we have 40% of our upstream dams eliminated. But better to talk is let's see a video.

[Video starts]

At Vale, people are at the center of decision making. And their safety is a priority. The decharacterization of upstream dams reinforces this commitment. Vale will eliminate all upstream structures in Brazil by 2035. It's a long and complex process that requires detailed studies, call for stringent safety measures and custom-made solutions.

Decharacterization consists of reintegrating the structure and its contents to the environment, so that it no longer serves its purpose of tailings containment.

Revegetation is the final stage, which reintegrates the structure to the local environment. In 2022, we completed the decharacterization of another five upstream structures in Minas Gerais. Overall, 12 structures have been eliminated since 2019. We are closing 2022 with 40% of our upstream structures eliminated, as we have planned in the program. We expect to conclude 60% by 2025. Additionally, as of the beginning of this year, we have ended the emergency level of several structures.

We have built downstream containment structures to retain tailings in a hypothetical case of a dam rupture. These structures are monitored 24/7 with the help of satellites and AI. We have developed Emergency Action Plans for mining dams. If there is an emergency, systems like the Lift Line Spider allow for quick evacuation of the site. We have created the Remote Operations Center, reducing our employees' exposure to risk.

The decharacterization operations at the Sul Superior dam and B3/B4 dam are being carried out with remote controlled equipment, unmanned trucks and excavators have presented great efficiency and led us to anticipate B3/B4 conclusion to 2025. By then, we expect Vale to have no dam under critical safety conditions. We are on the right path to a safer and more reliable Vale, reinforcing our commitments to society and to the environment.

[Video stops]

MR. BARTOLOMEO: As you saw last week, we took B3/B4 from level three, I'm really happy with that. I think a lot of people from society from investments say, why don't you hurry up with this thing? There's no hurry up here. We're going to do it very cautiously with a lot of attention. And by the way, we anticipated B3/B4 because we are learning a lot. And people say that need is a mother of innovation. And what happened here, as you saw a lot of remote control, we are learning quite a lot from this thing and we're very happy to have this result.

And by the way, are we going to have the last tool removed until 2025, but we still have dams. So GISTM is a very good tool. We are compliant around 90% already. We did the self-audit now. We're going to be compliant as we're committed to ICM Bureau by 2023 with all of our high-risk structures. So, tailings dams that I mentioned very, very cautiously but extremely under control.

But let's move a little bit outside of our fences, right? We have 2 million people under extreme poverty around Vale's operation. It's not acceptable. Mining cannot live and it cannot prosper if it doesn't share value with society. People like to say, no, you're not government. No, we are not, I'm not government, I'm just the largest company in Brazil. So, if we don't take actions together with the civil society, with government, and promote this, we are not going to be resilient.

When we said we want to build resilient communities it's because we want to build a resilient business. So, we started with this approach. This is a multi-factor; poverty is very complex; we don't have time to go here about that. But fundamentally, as I mentioned in the beginning with about scope one and two, and three, we walk the talk. So, we're going to start this year a pilot program in four areas with 30,000 people, that is going to attack education, health, income generation, and infrastructure. And again, it's not Vale, it's Vale together with society.

For the ones that know the Sustainable Development Goals, it's ESG 17. So, it's a very important thing. And by the way, the UN say leave no one behind, and we cannot leave our neighbors behind. So that's very important, it's key to our business and Vale is taking that very seriously. Second thing, this is one the second part is about being in a relationship with, how do you say it? Relevant issues to society. The indigenous people in Brazil are extremely relevant to us.

This is the first time a CEO went to a Xikrin village in Carajás. We have a relationship with them for 40 years. Carajás is a 40-year-old operation and luckily I was very honored to be invited to go there because we finalized a 15 year settlement with them. It's a very interesting thing. They went to visit us in Carajás, it was a very special moment. But anyhow, this is the part of the society.

Let's go to the climate. And this is, you know, when we came, when I said we hit the train sooner, we were the first ones to aggressively change our targets to Scope 1 and 2. We're the first ones to release a Scope 3 emissions target. We're the first one to open up a curve, a marginal abatement curve for Scope 3. We're the first one to tell we are spending \$6 billion to cover Scope 1 and 2. So we again walk the talk. And by the way, we have some endowments as well because in Indonesia we have we are 100% hydropower.

Brazil is a very clean matrix. So, we are going to be able to be in 25 totally with Scope 2 zeroed. And we are that's the I like to create some new buses; we are a nature-based company. We don't choose where we go. If we choose, we can go to Paris, but we can't. We have to go to Carajás, we have to go to Indonesia, we have to go to Sudbury; we don't choose where the mine is. So, we are nature based and we are nature positive. A lot of people are talking about being nature positive. Yesterday I got a question about biodiversity you know, there's happening COP15 is happening today as we speak and biodiversity is coming online and the person asked me, how are you going to impact the biodiversity? We know

more about the flow of Carajás, then UK knows about its own how can I call the genome. We've mapped out around 1,500 genomes in Carajás. And we protect 600 endangered flora and fauna species in Carajás. This is 12 times larger than what we impact. This 1.19 million, always set one, they made my life harder because of the language, it's 1 million hectares, 1,191,000 hectares. This is really thank you, guys. This is 200 times the size of Manhattan or six times the size of London. So, we can, and we do mine positively with sustainability. And I want to pass a video about the climate change. And this is my last video and I close up and give the word to Spinelli.

[Video starts]

Vale is carrying out initiatives to the environmental and social fields to foster sustainable development. Our goals are aligned with the UN 2030 Agenda and aim to reduce impact and to create and share value. We stay focused on society's needs among them, the challenges brought on by climate change. We're committed to cutting by 33% our Scope 1 and 2 emissions by 2030 and becoming net zero by 2050.

In 2022, the PowerShift Program, which aims at transforming our energy matrix, received its second electric locomotive. Its lithium batteries provide enough power for up to 10 hours without recharging. We're also testing electric offroad trucks. They'll allow us to cut our emissions by about 80 tonnes of carbon dioxide equivalent per month, which is similar

to planting 560 trees to neutralize emissions. The electric trucks will also reduce noise impact in the neighboring communities.

An important delivery for our clean energy consumption goal was the Sol do Cerrado Project, considered one of the largest solar farms in Latin America. The solar farm provides enough power for 800,000 homes, and it will supply 16% of Vale's demand in 2025. We have invested around 3 billion reais in the project. The solar farm is already operational, and it will be fully energized by July 2023.

During the construction phase, about 50% of the staff was sourced locally, and 16% of them women. That way we foster ties with the community in a sustainable cycle, which helps promote local development. Driven by our social ambition, we want to develop self-sustaining communities while promoting a sustainable mining. Let's transform the future, together.

[Video stops]

MR. BARTOLOMEO: This is the roadmap that I mentioned before. Like we want to be very transparent again. And as I mentioned, we need to be radically transparent. There's a lot of questioning around people setting goals and not being able to deliver. Vale is in the path. I'm not going to bother you about this slide, but this slide is very clear. Like with Sol do Cerrado we closed 7 points or percent of the 32%, when we do the biomass and pelletizing and so on. And to conclude, we are uniquely positioned to the second part of our frame.

If we are able to responsibly mine, and in respect of what I'm talking about, Vale was given an endowment. We have the best reserves of the world in iron ore in Carajás and in the south of Brazil, and Spinelli is going to as well explore that. We have a lot of technology. We are a logistics powerhouse and an innovation company in iron ore that nobody is. And this because a lot of people see Scope 3 as a threat; Vale sees Scope 3 as a huge opportunity. The same goes to base metals.

When we arrived and we acquired INCO in 2006, and of course, we haven't done the right job since then but on the other hand, we acquired the best sulfide assets that there are in Sudbury Basin. We have the Carajás, nickel in Indonesia; I was there last week, and we have Brazil. And the intersection point is Carajás. Carajás has the best nickel and the best copper reserves that we can explore. And that's going to make us, our business, uniquely positioned to catch the opportunities that the energy revolution is bringing to us.

So now, I think I run over some minutes and Spinelli is going to save some minutes to us. Now please, welcome Mr. Spinelli, our Iron Solutions guy.

Third Agenda Item

MR. MARCELLO SPINELLI: Thank you, Eduardo. Thank you so much. Good morning, everyone. So today, in my presentation, I'll drive you in a journey starting from the market. And we have a segmentation of the market, that

will be really important to understand; what is the impact of the decarbonization, the steel market, and what is happening in the iron ore industry? Going across our product portfolio and service to supply the clients' needs, and finally deploying in our production plan to support this strategy. We are facing a unique transformation in the steel market. And as Eduardo said, it's a revolution.

We are the only iron solutions in the market today that can supply these needs. So, I'll start with the market. This is the same pitch probably you are going to hear in any presentation from any peer in a presentation like this. We have the Australians; they'll talk about that. They'll talk about and we believe the same, steel demand is not over. Steel demand is not over. Just reach at 8 billion people in the world, and we expect to have another 2 billion come in the next 30 years. Now not only China is playing this role, India is playing this role, Southeast Asia, and Africa.

So, we must have steel to support all the development. And is not about only number of people but also wealth. China just announced a goal to duplicate the GDP per capita. That implies in a 4.61% of growth in average until 2035. Urbanization is not over. We have China reaching 63% of the urbanization. They have a potentiality to reach 80%; that's the standard of a developed country. Global wide, we have 57%. Many actions are coming in many countries like in the US, the onshoring so they are blooming the steel.

And energy transition is not only about Deshnee in base metals, she will talk about that. There will be a lot of information about that, but everything relies on the infrastructure to support that. So, we need steel to support the energy transition. Another information here that the steel intensity is also growing. In China, some years ago, they used to use 0.8% in the construction for housing; now they are reaching 6%. That's because we need to reduce cement also. That's one of the main emissions of CO2 in the world. So, this is the bigger picture about a standard 62 company, but we are not a 62 company in iron ore.

Let's talk about something that is closer to us. That's the same number here of steel demand. But now let's split this in some source of metallics; the kind of way they want you to produce this steel. So, we have a common sense, we've been talking about that, and we talked about this last year, about the pathway of decarbonization in the steel industry. So, we start with the optimization of blast furnace. More than 70% of the steel production is based in blast furnace. They will migrate to direct reduction routes, starting using as energy, natural gas in the first moment, and later to hydrogen.

That's the common sense about a pathway, so. And you see the increase also of the scrap that's a trend. That's a megatrend. But when we need the scrap, to use the scrap, you need to clean the scrap. And also, there is another pressure to bring metallics to the table. So, we have two main source to improve the production of direct reduction routes,

decarbonization pathway, and clean the scrap, so. Okay. This is more about Vale. Let's translate this to iron ore demand.

So, my lefthand side here we have a graph, and probably you see this graph, probably you write about that, the declining business. Iron ore is declining. Every time my boss said oh, you're declining business now, you need to bring something sexy to the table. And so that's a common graph that you see, a decline in business. Okay. Not that way, because everybody's struggling to bring new volumes in the world. Everybody's struggling due to ESG standards. Caves in part of Australia. We have other problems in Brazil.

Everybody is struggling, but what we have here, the quality is decreasing; and the necessity to high quality ores is increasing. But let's see what is in the middle, a growing market. We need to optimize the blast furnace. We need to bring agglomerated products to optimize the blast furnace. I'm talking about agglomeration, and we are talking about pellets and green briquettes. So, there's a growth here, 2%. Now the main number, the main number, we have growth in iron ore business, 30% a year of growth for direct reduction pellets or agglomerated products.

There's one information here; there's a gap of 70 million tonnes of products to supply the market. Nobody's bringing that. And we are the only company that can bring that that can solve this problem. I'm talking about announced projects that we've been discussing with our clients. They need to decarbonize. They need to migrate to that route, but they

don't have the products. How can you solve that? So, with that, there's a decoupling in the market. I've been talking about this in our conference calls, and I want to drag your attention to that.

And again, I'm going to bring Deshnee to the table because every time, and I learn with her, she's talking about a Nickel Class 1 and Nickel Class 2, and Desh says we have the same. Iron ore Class 1 and iron ore Class 2. And my peers, they don't probably they don't like to see the iron of Class 2 because we are in the Class 1 market. You see, agglomerated products and high-grade ores, IOCJ/BRBF, we are a gradual increase of premiums year by year.

And you can see the widening gap when you compare to the low-grade ores. That's the trend and that's what is going to happen. And please, if you want more than our business, don't forget that we are not a standard 62 business. We need to take this in consideration.

So, what is Iron Solutions Company? It's a company that is committed to supply the market a two mainstream lines, two lines of products, products that will bring optimization to the blast furnace. We reduce the use of coke to reduce the use of energy. So we are developing and designing products for that. We are good in that. On the other hand, the second line of products is products that will support the direct reduction route, that we have a lack of demand. That's Iron Solutions Company.

So, let's watch a video now that we can see and we've been developing these for some time, even after Brumadinho, because we've been talking

about it every time, about volumes, volumes, volumes, and volumes in all of their 400 million tonnes, and we didn't talk about that so much. That's a silent revolution. A lot of technology here, a lot of innovation here, and we are really addressing the real value in the market with this technology. Let's watch it.

[Video starts]

Vale is fostering real and pioneering solutions to decarbonize the steelmaking industry, which accounts for more than 8% of global emissions. We offer high-grade ores and promote the development of the new products and technologies to support our clients' emissions reduction. In 2021, we announced the green iron ore briquette. It is a sustainable solution which allows over 10% emission reduction in blast furnace route, by eliminating the sintering process.

The product also has application in the direct reduction route to produce HBI. The briquette production is more flexible, with fewer production stages, using the cold agglomeration process, reducing CO2 and particulates emissions. The first two plants are under construction in the Tubarão port, with 6 million tonnes per year capacity and startup in 2023.

In November 2022, we announced another pioneering initiative. We have signed agreements to develop industrial complexes in the Middle East, the mega hubs, for steelmaking through the direct reduction route. The Mega Hubs flow sheet includes concentration and briquetting plants under

Vale's operation, as well as HBI and premium steel production plants, owned and operated by investors and clients. The Middle East has many advantages, such as area availability, competitive energy prices, and ports to berth large vessels. With the Mega Hubs, Vale will guarantee the supply of agglomerated products, meeting the growing demand.

Throughout the years, Vale has been developing iron solutions for our clients. Decarbonizing the industry is our commitment to society and to the planet. We exist to improve life and transform the future, together.

[Video stops]

MR. SPINELLI: Okay. So, our platform to support that necessity, that demand of agglomerated products we call agglomerated products, pellets. But pellets, we have a capacity of 50, 55 million tonnes of pelletizing plants. But all the growth will come with the agglomeration that we call green briquette. Half of the OpEx, one third of a CapEx, we are bringing online the two plants next year. We're producing large scale now; we're not talking about a design of the future without delivering. We're delivering that.

And pay attention to my lefthand side, what we are doing here, we are bringing by the end of the decade, almost one third of our sales will be based on agglomerated products. We're going after value here. We're going after premiums here to support the segment that is growing that need to be decarbonized. And that's what we're doing. Mega hubs, so you saw in the video but just emphasize two things here. What is a mega hub? Is a

module of 2.5 million tonnes of HBI plant, HBI or a direct reduction full plant.

That implies in a 4 million tonnes of agglomerated of green briquette. We are already designing and committed to design in Saudi Arabia, Abu Dhabi, in Oman, in another plants, not in the same region that we already have a pelletizing plant. There is another facility. And we started to talk about the design in Brazil and the U.S. We have in both countries source of energy, competitive energy. But the main message here is we believe that we will see an offshoring of energy and production of reduction of steel.

Everybody think about energy, green energy being transported by ammonia, being transported by hydrogen, and we think the green energy can be transported inside metallics, closer to the industries that are close to the to the source of energy. That's the trend we see serving all the world. Well, now, how are we going to solve the biggest problem here? And you know that we have a lack of pellet feed. There's no pellets for that. We don't have today. We are struggling to reach for 40 million tonnes because we rely on dams, you know, all the process.

What is the good new here? This one thing that we are really proud, we are really good on that. We are really good on that. We are really good in concentrate ores. And not every iron ore in the world can be concentrated. You know that. Australians, they cannot concentrate their ores. They cannot reach a sixty-seven or sixty-eight with hematite.

That's what we do, and we know how to do it very well. So, what are the solutions for that? We delivered the filtrations. So, it's not enough. It's not enough.

We can just recover our capacity with the filtrations. So, we can extract the water. We don't use dams. We rely on stockpile for that. But we also bring another technology, dry concentration. We are bringing the technology in 2023-2024, that would be part of the design. It's not enough. So, we started to have a kind of hedge; I can say the better word for that, to guarantee that we can supply because our clients are changing; they are moving to direct reduction. They need supply. So have a fallback position here.

We can concentrate ores now in China. We've been doing this for more than one year. And we are designing the hubs to concentrate ores also if you have any constraint in Brazil. But finally, that's a breakthrough here. Nobody knows that you'll be the only one. Even our clients, they don't know that, that we have a solution to guarantee that. We crack it. The code to concentrate Carajás. That's the biggest pool; we have 200 million tonnes here. If you have a necessity of 70 million tonnes, we can concentrate from 65% iron content to 67, 68. We already have the process to do that.

If we're going to do this, we need to be ready by '27, '28 to support that growth that you saw there. Okay. Everything we are talking about circular mining. So, you remember last year we talked about the Vale

sand, so everything is connected. So, we are doing the best to sell this sand as a coal product to support the concentration process in a sustainable way.

Okay. Now we came from market. Now we need to talk about ROM. We need volumes, okay? But before that, you're shifting gears here. It's important to say we're shifting gears here. We are producing high quality ores to support that market that we are talking about. So, remember what you saw here; we have technology. We have innovation for concentration. We are delivering the filtration. We are already delivering the briquette system. We are designing the supply chain for that. We are closer to our clients.

When we're doing this, when we're doing this, we are designing with our client. You're not going to an open market. We are diversifying the geography here, guys. Don't forget that, we're going to MENA, we are going to supply Europe that is suffering first at least before China. We are diversifying also this, reducing risk. But we have to solve a problem of the production.

And let's start with the lessons learned. And we have to say one thing, we couldn't, we underestimate the impact of Brumadinho and our production plan. Definitely, we underestimate. We lost and you remember that 25% of our capacity just after Brumadinho and we brought back a lot of actually all the operations, not in a full capacity, but we brought back. Safety was an issue. Safety of dam was an issue on the beginning, you remember

that. The saga to bring the vibration test we are worried about, you know, dismantling another dam with the operation.

So, we did this. But we had a huge transformation, a huge transformation, guys, in the framework of regulation in Brazil for mining and environment. We have a huge regulation. As an example, you know, about Torto dam that we already done, it's done. But we didn't get yet the permit because we need seven guys to prove that, and they are struggling to organize themselves. Just one permit. Okay, this is part of the game, but we are now correcting our production plant to consider that.

And S11D, we have the legacy of the OBK, the Ore Body Knowledge, you already, you know that. We found a famous jaspilite, very hard rock, and as we have the mine site, the crushers are in the downhill, we cannot transport that. We need to crush in the mine site, we don't have the capacity. We installed ABONs okay? It's not possible to solve the full problem. And we now addressed that with the final crusher until 2026, we are going to bring 120 million tonnes for S11D, S11D is there, we don't have any problem with license. It's just a matter of construction.

And in the north range, the pace of depletion is higher than the speed and the pace to bring new bodies and new license. We are losing the game here. That's the point. Okay. How can address this? How can we solve this? Two things in one hand; strengthen the relationship with the agencies, environmental agencies. Okay. It is an institutional front, yes. Now we can say that mining can be in the, you know, as a priority in

Brazil, we can discuss this. We suffered a lot because after Brumadinho, it wasn't, so we can do that.

But more than that, I'm talking about technical aspects of environmental issues here, two numbers just to figure out. We just committed \$40 million with ICMBio. ICMBio is a federal agency in Brazil, should bring them. The technologies that Eduardo just said about, genoma and DNA of bioanalysis like flower, Carajás, we brought hands, arms to work studies. We cannot skip, you cannot skip a process of license. We don't want to skip. We want to guarantee that we have the bright license process, but we need to bring them.

And we got a good thing here; we got N3. We got N3 the first license after that, just after that, because we could bring a lot of information and they are really feeling well, that okay, can release this first license for that. And don't forget the ITV, Institute Vale of Technology has been investing \$140 million in many initiatives and technology to do that. It is still a problem here be forever. And we have an ESG trend. We have to work a lot and keep the priority of our government in this area.

On the other hand, okay, we'll have to bring the projects. And I want to drag your attention here. You may ask me, why Spinelli, now you believe that you're going to deliver, it is not going to fail again? Okay, I can show you. There's a lot of information, sorry about that. I know we just discussed about it, but I have to drive you through that. Just in the legend, you see main licenses achieved and under license process for the

northern system. Gelado is being commissioned; no license problem at all. So, it depends on us.

And three, it's a good example; we don't have yet the full license, but we've got it. We got the first one. That's a good achievement. And we need to work hard to do that. In one and two, our borders, we are behind. We need to bring this for you, it's tough, we are behind. But there are other things. In S11D, we have plus 10, plus 20 are under construction. No issues with the licenses. So, we are going to bring this volume. We don't have any restriction for that and the pressure also.

In the Southeastern system, Torto, I put Torto here, with the license achieved but we don't have the final one, but we have the main one is the installation license, when you have to start the construction. We already started; it's done. This dam is ready. But we have the final one that we didn't get yet. But we're going to get. We're going to get in some months. There's a delay, but we're going to get. And we have another example like Itabiruçu that we just delivered.

You remember that we promised this last year, the raising of Itabiruçu dam and Torto will improve the quality, not volume, but improve the quality. Remember that the game is a quality game. And we're improving the production of pellet feed and that will be really important for that.

So now I'll bring the numbers, that you are really good, you really like the numbers. The guidances of production. So, first number here, for this year, our guidance is the lower range of the of our guidance, so 310.

For next year, our production guidance is a range between 310 and 320. And with all the restrictions that I mentioned, I can say coincidentally, we have to say that we have a problem, and we are addressing that but coincidentally, that's the balance of the market. You see the market is balanced in supply.

With the kind of products we have, that's the right balance for the market. In the next years, we expect to bring 10 million tonnes a year in average, minus/plus five, and reach the 340, 360. Dragging your attention here, we are increasing the quality. That's the game. And then maybe you may ask me, where is the 400? Where is the 400? We have the capacity for 400 million tonnes in logistics, but the sweet part that we see for this business is this number today. You can go after 400 if you need, but we don't see this now.

We have the restrictions; we have the pathway together and we are doing that. But at the same time, again, it's the most important part of my presentation here. We definitely started to supply the market for the new world, the decarbonization world. We are more worried about upgrading our products, bringing concentration, bringing pelletizing, bringing green briquette, and increasing our value. So, we're bringing more value with this rather than the 400 million tonnes with this pattern of portfolio.

If you compare the 400 now, you have this new number reach 2026 with more value. We're increasing the agglomerated pellets and green briquettes. And we are going to reach the one third that I mentioned. We're

increasing the high-grade ores, IOCJ/BRBF; we're decreasing the low-grade ores. Take a look in this numbers that is in this part, that we have on average, that's all-in premium that is increasing. There's a consequence of that premium that I showed you, it's much better than bring volume.

This is not a value over volume, it's a much more value over volume, much more value over volume than the previous plan. So, when you design us, when you model us, consider that we are not a 62-standard company. We are shifting to this iron solutions business. We're not avoiding the problem that we have and that we had, we're addressing. We are more confident that we have a realistic plan to deliver, but we are shifting to Iron Solutions Company.

To conclude, Eduardo, we have growth. We have growth in iron ore. Guys we have growth. Take a look in segmentation; don't think about it as a whole business because we are, you were educated by the Australians; you are Brazilians. Now you can see we have growth for iron ore. You see it segmented clearly increasing volumes. We have breakthrough initiatives. We are leading that for concentration, for agglomeration. We are doing silently. We've been doing this since Brumadinho.

Now we are showing that we have a real plan for that, not an MOU. We have a plan, definitely a plan, with more realistic, considering all the challenges we have, and we have this report that we have, and we believe that's more balanced in this plan now.

And finally, we are the only Iron Solutions company that are really, really committed to the scope 3, to solve the problems of our clients. Nobody in the industry is still there. They are worried about the Scope 1 and Scope 2 but are not really about how can they solve the problem of the decarbonization in the steel industry. So, I'll be here for further questions. Now I handover to Deshnee. Thank you.

Fourth Agenda Item

MS. DESHNEE NAIDOO: Thank you, Spinelli. All right. Good morning, everyone.

It's great to be here. And what is my debut Vale Day, and fantastic to be talking about our energy transition materials business today. Spi did an amazing job, but maybe too good a job. So, I'm going to try and pick up the pace and try and streamline the presentation a little bit. So let me start by summarizing the generational opportunity that we have in front of us in terms of the nickel and copper markets. We all know that this is nickel and copper's time on the back of low carbon energy transition.

So let me summarize quickly the driving forces behind what's leading to this exciting opportunity in the market today. Firstly, it's all about EV growth, and the numbers that we are projecting for both nickel and copper is in the back of that EV sales growth that we are seeing by 2030. And if we look at the tightness in the market that this demand growth is creating specifically in Class 1 Nickel today, we are forecasting to see

a tightness in the market in the medium term, but actually leading to a deficit in the market as we continue to see demand outstripping supply.

But a very important trend that we continue to see, and I call it a positive push by the OEMs for more ESG, more low carbon, that is basically translating that basic fundamentals that we're seeing in the market into an upside on price differentiation. And the large last major trend that we are seeing is actually driven by the support that we are seeing from governments in terms of critical minerals policies and more recently, some of the stimulus packages. All of this translates into a bright future for nickel and copper.

So, we are uniquely placed to deliver into the demand growth given where we operate today. In nickel, predominantly in our North Atlantic hub, we have significant mining and processing all the way to refined products footprint that actually creates an opportunity for us, given the substantial global flow sheet that we have that actually links the Indonesian operations as well. In copper, predominantly in South Atlantic, out of Carajás, we have significant mining and processing assets all the way to concentrate that actually delivers a significant opportunity there.

In every geography that we operate in, we occupy the top three positions in terms of reserve and resources today. Therefore, all the OEMs listening, the tonnes are in the ground; it is a matter of how we exploit it and how fast we can exploit it. And given our geographical location in

North America, we are uniquely positioned to take up the demand that we are seeing from gigafactory growth just down the road from us.

But it's not just the what we do and the incredible assets that we have both in the ground and on the ground, it is the how. And that is why today across our nickel laterite, nickel sulfides, as well as our copper businesses, we occupy the quartile one position in low carbon intensity, Scope 1 and 2 across the board. In fact, we've just verified nine of our products that are independently verified that substantiate that.

As Eduardo said, for base metals more than 90% of our electricity comes from renewable sources. 100% of that, as Eduardo indicated, in Indonesia, is all from hydropower. And it's all about building and creating sustainable community relations, which is why that historic agreement with the Xikrins was so important for us in terms of some of the capital decisions that we will go on to make, as well as the IBAs that we have in Canada.

But let me tell you about how we are pivoting our business towards this exciting EV sector full value. So, at the start of the year, we told you that we want to have at least 35 to 40% exposure to EVs. So, at the start of the year, we were about 5% in terms of offtakes that we had with Northvolt and Tesla. We have been guiding on this exciting nickel sulfate project that we are building in Canada, in Quebec. This project will take 25,000 tonnes of our low carbon nickel, pellets, and rounds and will produce battery grade nickel sulfate.

That 25,000 tonnes will result in 110,000 tonnes of nickel sulfate. So, we recently announced that that offtake will go to GM. In that one transaction, we've taken our exposure to EV full value up to 25%. And just to put the numbers into context, that 110,000 tonnes of liquid nickel sulfate is enough to power more than 300 nickel rich EVs annually. That's a game changer. The other business segment that we are working on is actually our circular mining business. And what we are doing there is looking at how can we reintroduce some of the black mass?

And we've tested about 25 different black masses over the last almost four years now. How can we reintegrate that back into our flow sheet? Because we are best placed now with the relationships that we are creating with the OEMs to give them nickel and in return get some of the spent batteries over a period. But not only are we mapping some of the legacy streams that we've had, we have this year actually put this into serious action where we started to retreat some of the legacy waste streams that we have.

And one of the examples there is almost 7,000 tonnes of copper and nickel that we have retreated and sold from our copper ponds at Thompson. But it's all about building stable operational platforms. We know that we've not achieved the results that we've been guiding over the years, and what we are focused on, almost fixated on right now is improving the safe, reliability of the operations. Nothing says it better than showing it. So, I want to show you very quickly some of the work that we've been busy within the last year. Let's move to the iROC video.

[Video starts]

At Vale, we continue to invest in innovation that will transform our business in order to deliver materials essential to the energy transition. One of our boldest recent investments is the Integrated Remote Operations Center, the iROC. The iROC is a next generation facility, located in our North Atlantic Operations headquarter in Sudbury. It was developed to improve safety and our productivity in our minds in Canada.

It is like an air traffic control tower for our mining operations. Linked through underground digital connectivity technology, iROC experts oversee our operations online, in real time, through multiscreen computer station, operating 24/7. This means we can have a better management of the activities, optimizing our operational efficiency and improving our planning.

iROC is an innovation which combines productivity and safety, enabling a more precise location of our personnel and equipment and active risk assessment, reducing emergency response time. The mines will be equipped with geofencing technology, a virtual barrier in underground areas where traffic is not allowed, in order to avoid risk exposure. In its first stage, iROC will connect Creighton, Coleman, and Totten mines in Sudbury with plans to include our other mines and processing plants across Canada.

In 2022, we registered an increase in productivity in our Creighton and Coleman mines. Our goal is to reach productivity growth between 15 and 30% throughout the Sudbury Basin. The iROC implementation means a paradigm shift for the mining sector, creating a safer work environment with more technical knowledge, ushering in a new era in technological progress. We are improving our performance to become the partner of choice to the energy transition and transform the world, together.

[Video stops]

MS. NAIDOO: So iROC, which stands for Integrated Remote Operation Center, is all about integrating what happens below the earth and on the surface to make sure that we can optimize our cycle times. This year alone, we managed to increase the productivity in terms of the number of tonnes that we hoisted out of Creighton and Coleman by more than 10% from the start of the year.

Additionally, we've increased our scoop seat time by 21% year to date at Creighton to allow the optimization of the tonnes that we've hoisted. We've enabled this by the LTE networks that we have underground. And when Eduardo spoke about safety transformation, this is safety transformation in action because we are using technology to make sure that we can better manage traffic underground.

The many initiatives and programs that we have in North Atlantic is starting to deliver the results. I've just mentioned the iROC as one example, but iROC, since it's part of the overall North Atlantic mine's

productivity initiative, something that we started late last year when we started to focus on the bottlenecks per mine to make sure that we can increase the cycle times. So, I've mentioned some of the metrics now. The others include increasing our backfill rates, increasing our production drilling, as well as looking at improving our development rates.

We have seen notable improvements across the five mines in Sudbury, but also the rest of North Atlantic. We've also this year implemented the CCM 1 project, which is the South refurbishment project, and that project is currently ramping up. We're also ramping up VBME. This year was the year of truing up a lot of the backlog maintenance that we've had on the back of COVID in North Atlantic.

I'm very happy to say that the bulk of that work is now behind us and that extended maintenance shuts we took this year is resulting in reliability that is now enabling some of the best daily or production rates that we've seen across Sudbury. In fact, the rates today between 12 to 13,000 tonnes is the most that we've seen in the last three years. All of this ramps up now to over 17,000 tonnes per day across North Atlantic, which ideally sets us up for what we need to deliver next year. Still work to do, but the results are coming.

But if I turn my attention to South Atlantic, and this is where we've not been able to erode some of that backlog maintenance from COVID as we would have wanted. And we know why; Carajás is incredibly remote. And through COVID, we've had quite a high turnover of people. So, what we are

finding, instead of going back and fixing the backlog, we are now having to fix a lot more of the asset integrity issues that are affecting our runtimes and hence availability.

Instead of and harder approach to try and get the assets to perform, we are taking action to take a step back and make sure that we can erode this backlog whilst we operate over the right period of time. An example of that is what we saw at Sossego earlier this year, where we had planned for a 45 day shut to actually replace the gearless mill drive on the mill. And when we went in, we saw we had far more deterioration on the discharge trunnion. We had to extend the shutting in order to replace the discharge trunnion as well.

But what I'm encouraged about in South Atlantic Copper is the mine movement that we've been able to not just sustain but improve this year. This is important for Salobo because now we are moving around 127 million tonnes of both ore and waste truck. This does not only de-risk the current Salobo operations but will de-risk the ramp up of Salobo 3. We have started something called the Asset Recovery Program across the current Salobo operations that will see us catch up the majority of that backlog maintenance throughout the course of next year.

There's only one way to do things; do it right, take the time. So, in copper, we will be growing copper next year. Two key drivers, that is the Salobo 3 ramp up, as well as the progressive improvements that we will see in the current Salobo operations as we erode that backlog of

maintenance. In nickel, we will continue to consolidate the productivity improvements that we have made this year.

We will continue to ramp up VBME. As we indicated earlier this year, VBME is one year delay. That delay hits us next year at a time when we are still ramping up VBME but also having to deplete the Ovoid pit, which is why we see almost a delta 10 to 11,000 tonnes difference on VBME. We do have some major overhauls as in the case of Creighton as well as the Onça Puma furnace now coming up to ten years of life of asset to actually replace next year.

So, when we take all of that into account, remove the one offs. Nickel is actually stable year on year. We are doing the right things in terms of making sure that the asset integrity is what it needs to be. And that is why we are guiding between 160,000 tonnes to 175,000 tonnes next year. We have had a busy year, not just in terms of the current assets and the work that we have been doing to make sure we get to a safer, reliable, solid foundation for the business. But we have worked hard to progress the pipeline of projects that we've had, starting with exploration.

So, over the last three years, we've increased the number of meters drilled across base metals alone by over 60%. And year on year we're starting to see the results that comes from increased exploration. As Eduardo said, we're mining some of the most attractive nickel sulfide deposits in the world, the Sudbury Basin, the Thompson Basin, and

Voisey's Bay. Year on year, we've managed to increase our reserves in nickel sulfide to over 35% and our resources by 10%.

Similarly, in copper, with the amount of drilling that we've increased both in Carajás as well as in Indonesia, we have been able to increase our resources year on year by 25%. So, if you put it all together, the increase in drilling, the acceleration of the study works to start taking decisions to move projects closer to approvals, this year saw projects like Creighton 5, CCM Pit moving into feasibility study. It also saw us approving the Bahodopi project, the Pomalaa early works, as well as Onça Puma Furnace 2, we have concluded the project of CCM1, and we have started Salobo 3.

Turning to Salobo 3, Salobo 3 started, as we said last year, this time at the end of November, beginning of December. This project has been delivered on time and on budget at \$1.1 billion. I have been in the mining industry for almost 25 years now and I've had the pleasure of either building projects or watching projects build. I am particularly fond of concentrated plants because I'm a chemical engineer. This project has some of the best engineering designs I have seen.

And if you look at the geography that this project is in, it is quite a feat to be building a project of this size in the middle of the Carajás forest, but the team has done it. And it's not just the what we've done on Salobo 3 that has been exciting, it is the how. We have for the last two years been piloting a new Vale operations readiness program at Salobo

that basically saw us now having recruited more than 90% of the people that we've needed in the jobs already there.

In addition to that, we are learning. So, we have used all the pain points that we have in the Salobo 1 and 2 plant to make sure that we can make sure that we can alleviate that in Salobo 3. In addition to that, we have built quite a few optimizations, like reducing the number of conveyors, increasing the amount of stockpile capacity ahead of the mill to make sure that we can introduce buffers.

But I am most excited about two things, the fact that this complex, the one mine and now the three plants will reduce our overall unit cost for over 15%. But in addition, we will start Salobo 3 with more than 40% women. That is the highest number of women across any site in Vale.

So, let's turn very quickly to the projects that we have approved this year. And I am noting the time I was not as successful as I was hoping to try and claw back that time Spi. So very quickly, on Onça Puma, 12 to 15,000 tonnes of ferronickel, it will bring down the entire complex cost by 15%, \$555 million of capital. We have already started the mobilization of Onça Puma after having approved it in September this year. And that is because all of the licenses for Onça Puma are already in place.

We have approved both Bahodopi and Pomalaa early works, and I'll combine some of this very quickly. Bahodopi is a 73,000 tonnes ferronickel plant. We will be responsible for 100% of the mining that will cost \$400 billion, and we have entered into a JV with our Chinese partners, and

that's Tisco, a division of Baosteel as well as Xinhai to build the RKEF plant, that we will then have a 49% offtake on.

Pomalaa is a game changer. Pomalaa is in the southeast Sulawesi province in Indonesia. That will be the single largest, HPAL plant globally today once bought. We are partnering with Huayou, who now has an established track record in Indonesia to do this. Eduardo was in Indonesia last week and he had the privilege of going and the pleasure of going to the Pomalaa groundbreaking ceremony.

Both of these projects have something in Indonesia called the Pearson, which are basically the strategic projects of national importance in Indonesia, which means that all of the licenses, permits that they need will be granted.

Too many numbers, and all you should take from the nickel replacement projects is that we have projects in the pipeline to replace about 44, 45,000 tonnes of nickel and copper between 2027 and 2029. And on copper, we've changed our approach in Carajás on the South Hub. We are now looking at the synergies that we can bring in terms of getting the approvals of Bacaba and Cristalino, in quick succession from next year onwards because these projects are very important for the replacement of Sossego that will last us up until 2026, 2027. This is where the focus is.

But there are other opportunities and I'm not going to go through all of the details. And that's what makes the pipeline exciting. In here, like

Hu'u for an example, Hu'u today is the single largest copper project being worked on in the world. And we have that within our portfolio. It is more than a billion tonnes of reserve and resources, and it could give us a mine as much as 350,000 tonnes of copper. But Hu'u is more also offer a gold and a silver deposit as well. It has an extremely large amount of gold. That project is in early stages but again, another game changer.

And just keeping with the waste to value, we're already looking at how we can take our previously discarded limonite from the Sorowako operations in PT Vale and looking at how we can then convert that into value by working with Huayou on a head of agreement on a potential 60,000 tonne H power plant there.

Thompson remains a little bit of blue sky, but what an amazing opportunity. That exciting R&R that I mentioned does not include the 5 million tonnes of contained nickel we have in Thompson. And although South Hub in Brazil is all about replacement, North Hub a bit more in a blue sky, 70 to 100,000 tonnes are pure growth for us in Carajás.

So, to save time, I'm going to do what my boss didn't ask me to do and put both slides together. When we combine all of the numbers and all of the projects that I've just mentioned, in copper, we can get to about 420,000 tonnes in the midterm and almost 900,000 tonnes in 2030, a longer term, because of the projects that we will execute. In nickel, and I want to make a distinction very quickly, we take the current production

levels, and this is very much a year that we will continue to ramp up our projects, with 245,000 tonnes in 2026 and above 300,000 tonnes in the long term.

This makes a very important assumption that PTVI will be at 36%. So, this is the equity contribution. If you add back the 100% of PTVI, that 245 in the middle can be as much as 290,000 tonnes, and the greater than 300,000 tonnes, almost 400,000 tonnes. Remember PTVI, although it has an exciting growth, it will enable a lot more because I am equity adding PTVI at 100%. PTVI's growth means that in the next five years, it can grow from the current 80,000 tonnes to above 330,000 tonnes alone.

So, all that's left to say, this is the right time for nickel and copper. We have a differentiated business in terms of the resources we have in the ground. Our mineral endowment is unparalleled. We have the assets in the right geographies, incredibly low carbon in order for us to unlock that value.

And if you look at the actions that we are taking, we are taking targeted actions to make sure that we can bring back the stability of the current operations, to create a far more stable platform in order to grow from. We have an unparalleled project pipeline that we are turbocharging in order to get these projects delivered to a very expectant market right now. Thank you. I'm now going to hand to Gustavo.

Fifth Agenda Item

MR. GUSTAVO PIMENTA: Thank you. All right. So, thanks, Deshnee. Good morning, everyone. You've heard a lot, so I'll try to be very quick and so we have time for the Q&A. But there is one couple of important slides that I want to spend a little time on because I know it's top of mind for everyone. And the first one is on base metals, right? We've been debating and discussing with you the different strategic alternatives that we have to unlock base metals. And today we want to share what is the strategic path that we have discussed with our board and the one that we are moving forward with.

So, the first thing that it's important to highlight, Deshnee has spent a lot of time on how unique these assets are. We are sitting on a tremendous number of resources. There is a lot of fundamental support for the business in terms of EV, electrification growth. So, the business has a lot of good value proposition, but we are convinced that we have to change the way we manage this business. Over the last several years, we've been managing base metals through a combination of functional model with some local support.

So, the way to understand this is a lot of the functions today sitting in Rio supporting base metals. We think this is not the right way to take this business to the next level. So, we'll change that. And the way we are going to manage base metals going forward is through a board. So base

metals will have all the capabilities sitting in there, with the CEO of Base Metals, they'll have the project capability, procurement, sourcing, all the key activities that today don't sit in base metals will start to sit there.

Right. So that's an important change in a way to ring-fence the business from Vale. And the reason for that is that this business has a very different fundamental dynamic as compared to iron ore. This is a growth business, substantially more complex than iron ore from a processing standpoint. So, we think that change is needed. Once we do that, we'll manage this business through a board.

That board will have the CEO of Vale, Eduardo in this case sitting in there as a representative and a few other members of the executive committee. But we'll take this change and the benefit of this change to independent board members. So, we are already in the process of talking to very high-profile board members that can join this story, people with deep underground mining experience, people with deep EV transition experience. So, people that will help the management team to think through what is next and how to take this business to the next level.

Once we ring fence, we are convinced that we will also be able to bring technical talent to the base metals team. So that's another positive element of this transition. So, this is moving forward. We've been talking to people. We are very excited with everything we are hearing.

And stay tuned we'll bring more details about the structure in the second half, on the first half of next year.

In parallel with the governance separation, we are also bringing a minority shareholder to the base metal's platform. And why we are doing this, we are doing this for several reasons. One is because it will help to solidify and accelerate this operation. We are clear that this is going to be an enabler and will create an acceleration of this operation. And to highlight, this is going to be done at a multiple that it's substantially bigger than the multiple that Vale trades at. So, we'll start to see one thing that is very important here, a currency.

Base metals is different from iron ore, will call for a significant amount of capital to deliver on that story. I mean, Deshnee highlighted some of the goals there. To get to 900 kilotons of copper, double nickel, we'll need more than \$20 billion of equity. So, it is fundamental for us to create a vehicle here that can fund itself without competing with the use of proceeds of iron ore. And we all know that this enterprise should trade at a substantially higher multiple as compared to the iron ore. So, we are moving in that direction. It is a first step of that vision. We are not going to unlock value here in one year, but we are going to unlock value in the long run. If we have a team, a fully dedicated team with the right capabilities, a board with the right capabilities, its own balance sheet, being able to raise capital in the market, sitting on the level of resources that we are sitting at, we are very confident that we will unlock substantial value on the long run. This initial transaction

allows us to keep all the optionality to do other deals down the road, to grow the business, go public, do different things. So, this is going to be a path and we appreciate that over time. And we're very confident that over time we will unlock value. So that's an important one. We want to make sure we check the box on this with you guys. Now moving back to the flow of the presentation, we were very happy to see this year, the evolution that we had on our ESG rating assessment. This is super important. You guys are in the investment community, you know how important this is to attract new investment, right. We were impacted by Brumadinho maturely, right, and with all the progress we've done, this was a key priority for Eduardo. We at some point in time, we recall in 2019, we had 63 ESG gaps, we closed 90% of them.

Eduardo highlighted some of the attributes, the first company to come up with Scope 3 prediction targets. The first one to put ESG targets in executive compensation, long term executive compensation. So, we've moved a lot earlier than our competitors from our perspective and we are starting to see some progress there.

So, you see, for example, MSCI, very important there, moving us to the same rating that we had pre Brumadinho. It's not yet a good rating. We should definitely improve from where we are. But we started to see some benefits and a result of that work. Sustainalytics, we know the team is doing their own assessment. Today we are optimistic and hopeful that we'll see some improvement there. So, all of that just validates that we are on the right track.

We are also looking into our future. Deshnee highlighted something that is very important; one of the key competitive advantages of Vale. We don't have to go anywhere to grow. I mean, we are in Canada, we are in Carajás, and we are in Indonesia, three of the best provinces of mineral deposits in the world and we are sitting in tremendous amount of resource. Serra Sul we have 40 years of reserves, right, high-grade, low carbon intensity as compared to our competitors. So, when you look at that future, we have the product to serve it, right.

But we have to explore them, we have to bring them faster at the right cost to the market. So we've been since last year, accelerating the spend, I think Deshnee has shown some highlights there in terms of what we are seeing. We are very excited with what we are seeing. This is going to secure long term value creation, and we are very excited with that. Now shifting to cost and I'll talk a little bit about capital allocation as well. So last year, we came here, and I said, look, this is a priority, we are seeing inflation picking up, we are going to work very hard to cut cost, and we've done it, right.

We've reduced cost across the board at Vale by changing the way we do sourcing, revising spark, putting technology, reducing overhead, all of that has been done, which allowed us to offset pretty much all of the inflationary impact, ex-fuel cost during 2022. So, you'll see our projection for 2022 on C1 here, 19 and half to 20. And you see that all the impacts are due to volume, we are coming with lower volume this year as compared to last year, so unitary cost and the variable cost driven by

diesel. Diesel is 60% up year over year. So that's a relevant impact for us.

For next year, we are assuming diesel will stay as high, so if it drops it could be a benefit. But we'll continue to push very hard on the cost efficiency initiatives. This is something that we continue to do.

Overall, we expect to deliver vessels last years, \$800 million of savings through some of the examples that I've highlighted. And some of the benefits that we are intending to capture in '23 will be offset by two major elements.

So, one is the new way to operate. Spinelli highlighted, you know the filtration plants are coming online, dry stacking, that way of operation is more expensive, right. Still highly accretive, but more expensive. We are going to see an impact on C1, and we are seeing an impact of what we call geological inflation especially in the northern range, right. Some of the licensing challenges that we highlighted in the northern of Brazil is impacting our cost of operations, right. We are having to driver longer, dig deeper for us to maintain productivity.

Now it is still highly accretive. When the team ask for money there, that's a place we say go and do it because the margins that we capture in the northern range, in the north of Brazil are very attractive. So even though we haven't increase here, it's still a very competitive C1 for the industry, but more importantly, in the next one we see the all-in.

That's what drives margin as you guys know at the end, right. So here we

have '22, '23, '26. We are highlighting '26 here as a target year for all the business. I'll show you later why.

And you see that there is an improvement in all of those metrics towards 2026. We'll bring more volume; we'll continue to perform on the cost efficiency initiatives, and you'll see iron ore getting closer to 40 and you'll see nickel at 10 thousand. So, the business will continue. I think the key message here is Vale will remain a T1 cost producer in the industry, which will make us resilient across the cycle that the commodities will usually have.

Capex very stable, this year around \$5.5 billion. Next year, we are targeting \$6 billion. A lot of the investment done on reliability of our operations, but also, we are investing about \$2 billion of accretive growth opportunity, right, VBME, starting to do Onça Puma furnace 2 so we continue to see good investment opportunities. But it's a very disciplined Capex program as compared to anyone in the industry, right. So that's one thing that we feel very proud of.

This one is for you guys to help you guys model because this is always a question in terms of what is the impact on our cash flow related to some of the reparations. I've said that last year, that '22, '23, and '24 are the heavy years for us in terms of disbursement, especially for Brumadinho and Mariana, right. This year particularly, if you see Brumadinho here was a very heavy year, the highest in terms of cash out flow. Next year should start to normalize a little more, then Mariana

picks up, right. So, it's something that will stay with us especially until 2024 and it starts to come down afterwards.

This is a little bit of a propaganda. We've done, we walk the talk in terms of cash return to shareholders. We've return \$34 billion to shareholders in the last three years, 50% of our market. That shows how much capacity we have in terms of remunerating our shareholders. And I would like to close some of my remarks with this slide. When you look at the 2026 projections that we've laid out in terms of productions for all the business, and we run some sensitivities on price. So, we've run based on \$90 per tonne as the low end, to \$110, you guys can pick any range here. And then we do for nickel from 20 to 24,000 per tonne and then copper from seven and a half to 10 and a half. You see that this company can generate anywhere between 6 to \$12 billion of free cash.

This is available cash for distribution almost so it's post CAPEX, post reparation post everything, right, available cash for distribution. We can generate anywhere between 6 and \$12 billion of free cash. This includes, in my prior slide, \$1.8 billion of reparation. Right. So, if you were to do the math, this 6 is almost like 8 and the same with the 12. So, if you do what is the implied free cash flow yield of Vale, you'll see this company can be a high single digit to a mid to high double digit free cash flow company and this based case that we work with is low double digit, right.

We think this company can generate low double digits on a sustainable basis. And we'll continue to walk the talk in the sense that we will continue to return cash to shareholders. Share buyback as you know; we continue to believe is one of the most attractive investment opportunities that we have. And by doing so we are convinced that we will re-rate Vale, right. Overtime, Vale will get re-rated as we continue to deliver on those performance. So that's what I had. And for the benefit of the time, we will skip the closing remarks with Eduardo.

This is the message we want to convey, of being a sustainable mining company, we think this is going to re-rate Vale, but also the entire sector. Very focused on quality, I think the message today you guys heard loud and clear. It's a quality play with a very disciplined way in terms of managing the business balance sheet and capital allocation. So, with that, I'll invite Ivan to set up the Q&A so we can get started. Thank you.

Sixth Agenda Item

MR. FADEL: Anybody who is here already knows the drill very well, right? I'm trying to queue the questions as I see hands going up and then they all go together, right. So, yes, and let me just wait a few seconds, we're going to get some chairs here so we can all sit in front of you and get your questions. We also have our audience online. We'll try to gather questions, capture them, and see if I can combine questions as well. We

need to be very disciplined also in our answers here because I think we have about 35, 37 minutes for the Q&A session. Yes, so let's get accommodated and then we'll start soon.

Okay. So, John, I think Tiago was second, Carlos I'm just going to, let's do like this. Yeah. There will be time for everyone. Okay. So let me just get a seat here maybe. We'll be okay. Put that one over there. Right. So, bear with us, guys and we'll start soon. Thank you. And I can be here. Yeah, thank you. And also, if you miss, for those that are here of course in the audience, if you can introduce yourselves, name, company, it's going to be better for everyone here. Okay. So, John, yeah, go ahead.

MS. NAIDOO: You are amazing.

MR. PIMENTA: You are amazing.

MR. JOHN BRANDT: John Brandt, HSBC. Thank you for the presentation. Both of my questions relate to base metals. I'm wondering if you can expand a little bit on the 10% minority investor, the type of investor you're looking for, depending on the valuation of the multiple that you get. Maybe there's an inflow of cash of several billion dollars, but correct me if I'm wrong, you mentioned that to go up to 900,000 tonnes of copper could cost you upwards of 20 billion.

So, three billion, it's a good start, but surely, you can still finance this, you know, given your, the balance sheet that you have, etcetera. So, I'm wondering, other than sort of several billions of dollars that

potential investor would bring in what other benefits do you see? I mean, is there anything else, could be a minor with expertise, so are you looking purely at a financial company that just is bringing in money.

So, if you can expand a little bit on that, on the rationale behind, because you painted an optimistic scenario for nickel and copper and EV so I'm wondering, is it more beneficial for shareholders to keep a 100% of that rather than sell 10%. Even at an attractive multiple, if you could think the market will continue to grow. And my second question again, on base metals, I'm wondering how you're going to monetize the, the attractiveness of your assets in terms of you know, we know it's low carbon and we know it has, you know, very good geographical location.

And I understand why companies like GM and other OEMs would want your material, but truly there's going to be sort of competition from other OEMs, over the next decade given the rise of EVs. So, what are you getting out of securing long term contract with GM, are you getting a premium? If you could help me understand how you're actually monetizing your low carbon strong geographical presence. Thank you.

MR. PIMENTA: Maybe I'll get started on base metal. Look, we are looking for a potential partner that will be additive to the story, right, in the sense that will be additive to the story, right, in the sense that it's someone that will help us elevate the ESG profile, someone with industrial knowledge, so technical capabilities. So those are the elements. It's not about a financial play. As you said, we don't either, but it's someone

that will accelerate that transition. I think the way to see this is, this is a journey of unlocking value in the long run, right.

And we believe by bringing a strategic partner that will help us make that transition we will accelerate the ring-fence; we'll accelerate the value creation. We'll continue to maintain the operational ties because remember, I've said up to 10% will remain with 90plus% of this business so we'll remain all the upside of the business going forward, but we have to do to it right, right, we have to make sure we execute in the transformation, we have to show we form up the growth plan.

MR. BRANDT: Yeah.

MR. PIMENTA: And once we are there if we do have a currency then we may want to tap that instead of using our own cash. It's not mandatory, Vale can continue to follow, right and continue to fund with its own balance sheet. So, it creates options for us down the road to support that growth because as I said, the growth is very substantial and will fall for a lot of capital. This is a business that should be yielding a 14 to 16% iron ore on that under develop, so it's attractive.

But it's very important that we raise the most competitive capital, especially if our thesis that over time multiple of future-facing platforms will decouple from the rest and it's going to be substantially more competitive to raise capital in that platform as compared. So that's a thesis. If we get re-rated as well as, as base metals, we'll continue

to fall so that creates avenues of growth and avenues for us to raise competitive capital.

MR. BARTOLOMEO: Just to add on Gustavo's comment, we are buyers by VLI rate.

Do you know VLI story? VLI was created in 2010 by myself and Spinelli. It was inside Vale. When we brought the partner, is where the real game starts. So, in the ideas it's all about execution, right. We don't want to leave money on the table, but money's being left on the table as we speak because we are not running the business well so there is a huge bet that execution is going to be improved in that sense and we are not leaving anything to that chance. So, if that's what Gustavo mentioned.

We are bringing a partner as you asked, we're not bringing a financial institution that pays more or less because they will this will anchor the execution of the business because this is key. Because we have today that worth \$14 billion inside Vale that can worth \$35 or \$40, depends, depends on and that's the value creation, right. So, we're not letting money go on table, but for sure we're going to bring a partner and we're going to do that very cautiously, very because what we saw in VLI was exactly that when it got the right governance, the right incentive it grew. And then I think that Deshnee can go over the nickel sulphate plant.

MS. NAIDOO: Yeah.

MR. BRAND: Sorry, is there an update on the timing of when you want to do all these?

MR. BARTOLOMEO: Yes.

MR. PIMENTA: So, there are lot of interests. As you can imagine, people really like this story and really see the value long term. We are very advanced so expectations that first half next year, we'll be able to highlight the detail.

MR. BARTOLOMEO: And answering your question, we are in a condition of choosing. That's I think a very important thing. And if we don't find the right partner that meets these requirements, we're going to do it by ourselves anyway. Actually, I was interviewing somebody yesterday and made this exactly question to him. If we don't find the right partner, would you come with us because that's the attraction part, right and the guy said, yes, I'm with you.

MR. BRAND: Yes.

MR. BARTOLOMEO: So again, I'm not tied to that to do the ring-fencing. The ring-fence is the most important action for us.

MS. NAIDOO: All right. Maybe the question on what does it mean for us in terms of some of these offtakes that we have done. So today we produce around that 175 to 180,000 tonnes of nickel. Unlike the rest of the nickel industry, we actually swab it, we produce 75% of Class I, only 25% of the rest so we already get a premium above LME for a lot of those products. In terms of the agreements that we've had, you know, they've the various agreements and we have both in some premiums for value in that as well. But the relationships that we're building with the OEMs is not just a transactional one on offtake, we are looking at strategic relationships

in terms of how we can leverage each other's technology to further progress some of the waste value opportunities, etcetera. In addition, as I said, you know we really want to start that recycling business not in terms of just creating our own supply chains to do it but leveraging OEMs supply to do it as well. So yes, our products currently attract market driven and we are working agreement by agreement to look at how the low carbon can give us an additional premium on top of that and that is what we have looked in already. Thank you.

MR. FADDEL: Can I just also let's keep one question at a time and we can just circle back if necessary. Tiago, go ahead, please.

MR. THIAGO LOFIEGO: Thiago Lofiego, BBI. So, my one question goes to Spinelli. So N3 seems to be the key issue there in the northern system, right and you mentioned the presentation you expect the license for mid2024. So, what are the risks you see there and if this process if further delayed should we expect a further increase in the C1 because I believe you have to go deeper, there's water issues as well, so what the dynamics we should expect if this licensing process gets further delayed?

MR. SPINELLI: Thank you, Tiago. We have two main sites, that's S11D and north range. So north range, you've said entry is not a big pit, no it's not a big burden so it's that will support us in three four like Morro 1 that we had in three years ago so that will support a bridge to reach the N1 and 2. That will be in the streamline. It's ahead of that. So, we expect to have we are in a middle of the process, so we have the LP so there's a

previous license, we have the installation license we expect for next year and we have the one year to build the pit and start for that.

It's not that is going in north range, we also have we are extracting ores from radios around cavities that we can also add mass so that's another one, it's just launched one. And we expect another one. So, what you have said that that's a main challenge we have S11D is coming with plus 10, plus 10 is almost commissioning. Gelado actually in north range is going really well and we have S11D plus 20 that is coming with the crusher. So, we don't expect to bring back 140 billion to north range anymore.

So that we need to keep this in mind. So, it's quite difficult to keep the flow of depletion equal to N3, N1 and 2. So that will be an average of 100 million tonnes. That's what we expect, but the offset is inside S11D with a lower cost actually. But you mention this, yes, we have to go deeper, you have to haul longer, but it's, it's in average, it's in our calculation that we saw here. There's no higher deviation because of that because S11D can offsets that going down actually.

MR. BARTOLOMEO: Just let me it is even cheap, right, the C1 for S11D is much cheaper. That's the C1 for S11D. If we switch from S11D to north range actually, it's better, but remember when we we're launching S11D everybody is saying oh, it's going to destroy the market. Now, S11D is the salvation of the market. So, in C1 basis I think we can overcome that, but it's a huge challenge that we have been very aware of. I think

if we struggle to have 100 tonnes on the north range that's where the growth is going to come.

It's from S11D. The bet that has to be done is on the execution and on the projects. But in that sense, to not over promise. We are on our hands. This doesn't need any by the way the license for the plus20 took two years, two years to get it. And we are just got it last, I think two months ago so now it's totally in our hands. So like you saw Salobo we do when we got to do we know how to do. So that's that, I think is in our hands to execute.

MR. FADEL: Okay. I think the next one is Leo because he has the microphone, right, or is it Carlos or Leo? Okay. Go ahead, Leo, sorry.

MR. Leo: Okay. Good morning, everyone and thanks, Vale for the presentation. My question is on iron ore. For many years we talked about the aspirational volumes target of 400 million tons, right, I don't think anyone was incorporating that in their numbers, but that was the, the target, right. Today you're down running rating number to 350, right, or 340, 360. It's been highly debated, I think, over the past hours in the market.

So just wanted to first of all to hear you on exactly what's driving the move a bit more, a bit more detail on what's driving the move. And second, is this more of an aspirational target, does it depend on the value over volume, or this is a firm target that we should incorporate, and we should assume Vale really is reaching for that 350, 360 mark. So,

there's been a big debate on how we should view this, this longer-term target.

MR. BARTOLOMEO: Yeah, I think Leo I think Spinelli explained that in detail, but I think it's very important to understand what we're facing here. When we had Brumadinho we always wanted to go back and I'm talking here because I'm the only one that was there, so we've had this deal to go back. And we actually underestimate what's in front of us and we like struggling with something that we saw, that was the northern system, the Minas Gerais system.

You saw the numbers. And even there was much deeper than we expect or like hitting the, the knife. And then we started to understand what's going on, but the real issue was coming from the north, from the northern range. And of course, the ramp-up of S11D. So, we started to learn, that's a learning process here.

Look, why should we get back to . Everybody was really scared about Vale bringing volumes because if we bring 80 million tonnes, we destroy the market by the way so we start to match what we are able to do and what is a sweet spot that we can do. So why we need to rush, why did you put this rope in our neck to pull, then we started to say, look, let's and we started to position ourselves in this high-end system, do the agglomeration on the pelletizing because we're moving. Spinelli didn't mention it in his presentation the 310 next year is not the 310 of this

year. In this basis it's \$500 million more in EBITDA. We're not talking about the same 310.

It doesn't matter the 310, it matters what's the barrel content of who is there. So, what is the huge challenge? And that is why we, we position ourselves in the much slower ramp up because in the end we find a sweet spot between the restrictions that we have, and we have to be humble and honest to face them.

And you saw in that graph that Spinelli mentioned on the orange things, then you can look in details. It's very clear where is in our hands, where it's not in our hands. And again, makes more money than 400 million hectares sorry of armature [phonetic] base guy. So, 400 million ton, why should I still put this over my neck, I have the elephant to kill with the arm to kill elephants.

The day that I unbottleneck both Minas Gerais state and Serra Sul and the market is there. We have logistics for after we are discussing this with the governor of Para. We have 40 million tonnes of excess surpassing in Carajás. How can we work together to fill the gap because of course for C1, as Tiago mentioned, of course we want to produce iron ore in Carajás who doesn't want it.

We have the from Simandou there so it's a matter of learning, okay. It's not like we decided to shift. Let's stop overpromising, let's do what we are able to do and let's do it. It's totally in our hands. What we are

actually if you see what in Torto, Torto is coming on the in our PADI, this probabilistic, whatever it is from, I think, second quarter, right?

MR. PIMENTA: Yes.

MR. BARTOLOMEO: That's ridiculous. We have Torto built since April, but we going to only operate in April, April, one year to get our license. The day I have Torto I can put Brucutu to operate then I have high quality feed. But I don't have that now, so why should I push the guidance to the market above 35 million tonnes of pellet, let's do what we can do. That's basically the decision.

And this is more accretive to the shareholders as we speak than trying to find just to be running to be the largest share iron ore company. I don't want to be the largest iron ore company. First of all, I don't want to be a large iron ore company, I want to be an iron ore solution company. And I want to be the best iron ore company.

And again. That's what we can do, I cannot do it differently. Although we and I'm not resting in this because what Tiago mentioned that C1 is extremely important to us. It's a lot of money on the table because 40 million tonnes of iron ore at north is \$4 billion or even \$5 billion on the. So that's more or less what our mindsets are guiding.

This is natural, this is reasonable and what we can do if we're able to debottleneck in the north and the southern system we can switch capacity that we always talked about switching capacity for high-cost operations, right, then we can actually do the value over volume strategy. Maybe on a

more concise way, it's a learning. We learnt and we're taking the right direction, but we're not giving up because we do have the capacity, the capacity, infrastructurally speaking, and we have to debottleneck the run of mine.

MR. PIMENTA: I mean, just to close, because it's important, you should put that in the model, right, because I think what Spinelli said is there is a lot less reliance. One, it's more conservative. I mean the speed that Eduardo is referring to is a very deep probabilistic scenario that we've ran I mean we've modelled in a very different way this year. So, our you know, confidence in terms of delivery it's substantially because the reliance, especially in S11D on licensing is a lot lower, right. Yes, this is a business of licensing at the end, but it's less reliant on license as compared to the prior guidance so we should certainly consider that.

MR. FADEL: I think next one now is Sasson. Go ahead.

MR. DANIEL SASSON: Yeah, thank you, guys. Daniel Sasson, Itau BBA. My question comes from the cost front to remember that you used to say a few years ago, that your delivered in China cost would be something between 25 to 30 and then you'd be comfortable with foreign oil prices around maybe \$70 per ton, right, would be a level that you'd be profitable and would not stimulate new entrance to the market.

But given the cost inflation on your new delivered in China cost expected to be around 42 medium to long term, has your forecast or the level that

you feel comfortable with long term prices change, what would be the level that you see that you believe would be decent for you to work on and that you'd aim to have to reach a profitability level that you would deem adequate for you guys?

MR. PIMENTA: Good question. Look, I think, the cost curve of the sector changed completely, right and we've been saying this for a while. I think you've seen all the majors coming with big higher numbers and we the \$70 per ton I mean our recent exercise has shown that in a sustainable basis \$70 per tonne would remove 200 million tonnes out of the market. So that 70 doesn't exist. Forget that number, right.

And we've seen this this year even with China having a new starts 30% lower than last year, the price hasn't dropped. And it went to 80 then it came back so there's a lot of support from our perspective, long term, for something around 90 to 100. That's for us that's why we've modelled around a 100 because we believe that's where the prices should be so at 100 with my all-in at 42 this is a very profitable and we've shown this in the free cash flow generation, right. So certainly, has change it the all-in in the entire sector has doubled and it's not coming back.

MR. FADEL: Okay. Next one now is Carlos, go ahead.

MR. CARLOS: Carlos de Alba with Morris Stanley. Good morning. Thank you very much for the presentation. Staying on cost on the nickel side there is a bigger step down in cost between 2023 and 2026. And more progressive decline in copper. How should we think about remodeling that, that bigger

step down in between those three years. It's a gradual decline, or it's a more of really 2026 once you maybe get to certain level of volumes or a deployment of initiatives.

And in iron ore is coming back and there is no guidance for 2026 on cost, but there is on premium realization which really increases and it's a wide margin in 2026. Should we assume that the cost would potentially also increase together without, and margins do not expand that much or should we expect a big expansion or a significant expansion in margins because cost don't increase as measure?

MS. NAIDOO: So maybe just start on nickel.

MR. PIMENTA: On nickel.

MS. NAIDOO: Yeah, and Gustavo will add. But starting on nickel. So, what's driving the cost decrease of cost we've got a lot more fixed cost dilution coming into it in terms of tons, number 1, but it's a different sort of tonnes, right. And I want to explain a little bit about that. But the bigger driver is today, because we have the gap in the downstream processing capacity because of the ramp up we're still expecting, especially on projects like VBME. We are opportunistically treating third party material. That third party material hits cost on a 100% basis.

So we do make a marginal of it, but it comes into the cost. Next year we'll treat some of our highest volumes that we've ever treated that we've ever treated on third party material closer to around 23 to 24,000

tonnes. So, what then happened in 2026, our project starts to ramp up in operations like VBME. And although I'd love to go back to there's kind of the cost base of where we were with the Ovoid but VBME ramps at and becomes two underground operations.

So, there's going to be a little bit more cost coming in then. But that's simply to explain it. We get rid of, then at that stage, the third-party material will of course always look at whether it opportunistically makes sense to treat third party. So fixed cost diluting will eliminate some of the third party. And although we get the volume benefit it does come like an operation, like at VBME slightly higher. But we have our CFO in the audience and I'm not going to put him under pressure. I think we all agree that the nickel cost and although at today's prices is incredibly competitive. We need to do more. So, we are relooking at our entire cost base over the coming year.

Gustavo of course put a lot of pressure on us to do that to look at where we can start to relook at the portfolio differently to being those cost down. But today, I think, 13,000 tonnes against 29,000 tonnes nickel price is not too shabby.

MR. PIMENTA: On iron ore, I think, all in we've given the guidance for 26 rates going to 42 so there's a drop there. It's similar path. I'm not providing guidance here, but similar path on C1 because we're going to benefit by dilution, higher volumes and especially dilution with products

that have lower C1 like S11D, right. That's we should a benefit there as well.

MR. FADEL: Okay. Alex, I think you're, you're next.

MR. ALEX HAKEN: Yeah. Thank you. Good morning. Alex Haken [phonetic] from Citi. My question is on the base metal separation. How much autonomy is the board of directors going to be given, the base metals board of directors, particularly as it comes to capital allocation and the reason I ask is that if base metals is tied in Vale's net debt target and tied by Vale's dividend policy, and doesn't start to erode some of the kind of value creation opportunities that might be there? Thank you.

MR. PIMENTA: Yeah, that's on the spot why we are doing the separation, right, we want to make sure that this business has its own balance sheet. It has its own source of capital; it has its own dividend policy. This business shouldn't be paying dividend eventually, right, because it's a growth business different from iron ore so that's why it's so important for us to start creating that vehicle that overtime will run by itself. So, we'll make sure that whatever we define in alliance with Vale board, it's very important to make sure that Vale's board is supportive.

We'll create a very lean board structure, provide the team with the right incentives, the right framework in terms of what good looks like for Vale and how the balance sheet should behave and then projects will have to come up for us to approve so that we'll have the right governance to protect ourselves and create value on the long run, but that on the spot

why we're doing this because this business has a very different dynamic as compared to iron ore, right and we want to benefit from it.

MR. BARTOLOMEO: But I think, just to on a soft side because you asked about time spent. Like myself, I'm not going to be the chairman, but myself or whoever else is in my position is going to be sitting there. It's a Vale business, we are not selling this, we're keeping our heads over it, but it's going to have to have the different incentives. We are humble enough to learn what we learn again, from the last 16 years. And that's a different path that we want to go through, but of course, we're going to and by the way benefit from the Vale infrastructure, on the Vale influence on the ESG.

For instance, that I mentioned in the beginning of the meeting, that we operate in Carajás by the way. It's the same idea about VLI again, VLI is entrenched in our business. It is a separate business, and we learnt a lot about how to deal with the business mistakes, and the things that we did right. So, we are very well aware that we need to be there, spend time there, give attention to the business because it's a different kind of animal and can be really big.

That's one of the things we are willing to see happening in a different kind of profile and from the Vale iron ore solutions, guy, it's a safe harbor because you know you're going to keep on growing. Because Spinelli is making a joke because I'm pushing him against the base metals challenge. But it's still a huge growth. Which iron ore company in the

world can grow what Vale can do? Nobody can do. Every other pier is struggling to keep its production. So, and going down grading or actually by the way going down with lower grades. That's one thing that people are not putting.

I think we should stop looking at this as in a mass over volume base. You should start asking where is the one third of high grade agglomerates that you said you're going to provide to us in 2/10/2020, whatever date we are 2022. So that's where because that's the one third that move us out from China that leaves us on a very sweet spot to really capture the margin. What happened with the margin with the pellets this year, of course, this is assymetry, we cannot count on the \$100 above 65, but when Ukraine left the market, we did a \$100 of premium.

But we don't want that because there's a very important thing here, we suffer a substitution, right, when Deshnee start talking about the nickel business, the EV. Somebody asked about OEMs; we are partners of the OEMs. When nickel price hit \$70,000 in 2007, we made more money than we made in iron ore. What the Chinese did, they developed . We were 10 years with \$9000 of price. We never want to get that back again. We want to supply decently with the right price, our EVs, manufacturers or what else so this is a very important mindset. In the iron ore solution is the same, everybody's scared about high grade ore.

We need to tell and that's why I think the Carajás concentration is a breakthrough, its's a huge breakthrough. If you didn't get it, it's

important. We can manage to concentrate 200 million tonnes of iron ore because we can't supply the high end because people are scared. We are all over our clients, I talked to them. They say where I talk to, I'm not naming I'm not going to name clients. Said where is going to come the high grade, that I cannot rely on you because then I'm doomed. So, what we do in the mega hubs is exactly that.

Middle East is there already, middle East has their cheap energy, they are shifting to energy to hydrogen, they're shifting to solar because they are, and they want to build so they and they have all the reactors for DRI. What we want to do is to stimulate the constructions of the reactors because we are saying to the guys, say look, guys, I can supply you, I can guarantee that you're going to have supply of high quality. And that's a totally different game from a 58% iron ore company. I hope I answered your question.

MR. HAKEN: Yeah, .

MR. BARTOLOMEO: Yeah.

MR. HAKEN: We should maybe once the base metal is separated that the company could revisit its capital allocation framework to fit the needs of an independent base metals company.

MR. PIMENTA: Within base metals GS?

MR. BARTOLOMEO: Yes.

MR. HAKEN: Overall capital allocation framework, Vale as a whole.

MR. SPINELLI: Yeah.

MR. PIMENTA: For Vale I look, I think at the end, what is the capital allocation framework that we've been maintaining at Vale, right. Most of the cash has been returned to shareholders either through dividend or shares so one of the benefits of doing this carve out in creating a potential vehicle that can fund itself is to continue to preserve that because if tomorrow I have an opportunity to do something highly accretive at base metal, but at a higher multiple, I don't have to compete with that framework so it makes the framework even more preserved in the sense of this business continues to return most of its cash for shareholders, meaning the Vale share.

MR. HAKEN: I guess what about sorry, I don't want to monopolize it. What about the net debt target though, right, let's say base metals has a great opportunity, doesn't want to issue, like would you pay for it so we're going to borrow money independently. That's going to affect Vale's overall net, that framework can constrain the amount of money that the iron ore business will be able to take. Yeah, like how does that interplay?

MR. PIMENTA: Yeah, we'll take that in consideration, for sure not to impact base metals recourse. If they can raise themselves so those things will be taken but for that we need to have the balance sheet, right so they can perform on that balance sheet.

MR. FADEL: Okay. So, we have about 17 minutes for the session to end. So yeah, now we have Caio. Go ahead.

MR. CAIO RIBEIRO: Yes, hi. Good morning. Caio Ribeiro here from Bank of America. Thank you for the presentation and the opportunity to ask a question. So, my questions are there's been some discussion lately on the US and EU potentially adopting a carbon tax, right, on steel export out to China. So, I'm just curious to hear your thoughts on how that would impact, you know, your BF, DF agglomerate demand growth projections going forward and also your strategy to become an iron solutions provider. Thank you.

MR. BARTOLOMEO:

MR. SPINELLI: That's a main game change we got to face so. That is one of the components to increase the value for direct production so the premium will come not only for the VIU, but also for the taxes that will support the transition in every place. So that's the reason why we are also designing a mega hub. We are studying that mega hub in the US to support their demand. So, the steel business, we don't see steel being traded. So is more trading steel as a finished product.

But as in the intermediate product like HBI or iron ore product like pellets or, or briquette you have the trade, so the design is this, let's locate an industrial park close to the source of energy and supply this so that's the benefit of that. That's the beauty of that because we can design the possibility where you can trade like HBI, you can take an

advantage and produce the reduction close to the source and transport after that.

It's difficult to transport steel, but it's easier to transport raw materials and these intermediate products. So, the US, yes, is a target or us like, is a target for. And I just visited one month ago, a client in Europe. So, they are installing a DRI site inside Germany, so they're doing that first one. But they need to have another one because they need to avoid the blast furnace they have there. Where is the second one? Now, they understand that they can have an offshoring of the direction reduction park to the that's the first park at HBI and keep the downstream in Germany because they are supplying BMW so they can keep the quality of the downstream and outsource the metallics to BOF and keep the downstream there.

So, there's a kind of design you see in the world it's not only bringing energy or trading steel, but we need to design source of energy, iron ore quality and be close to the source of energy. And another point is in this transition, you're going to talk about natural gas. You also have carbon capture.

That is important and carbon capture is closer to the geology of the gas. In the US they are stimulating with IRA. You know, they are stimulating hydrogen and also carbon capture in a very competitive way. So, we're installing industrial hubs actually in this kind of countries. And the candidates are the US and also Brazil. That's the kind of thing.

MR. BARTOLOMEO: But I think I just to add on that. I think this is the key element that we're trying to convey since second one we sat here to talk to you. Is what about the energy. When people start putting carbon tax on borders is because they are protecting their borders. There's a new geopolitical arrangement going on. We never thought we would do it back to the US, never and we are developing MOU or one client to develop hub in the Gulf of Mexico.

So that's one thing you have to put in your mind. That's why we are joking with Spinelli again. There is a green steel going on. Steel is going to still be needed even to put the poles to transmission the EVs, to put the EVs is different by the way, the steel for the EVs is different from the normal steel. So, there's a huge steel need on this green world that people are underestimating. There is all the time they talk about Vale; they talk about China. That really bothers because it's not about China only.

Of course, it's about China, China is the price seller in the world, how can that be different, but where is the premium, why we have partner with GM, we're not given anything for free and they are not going to pay anything more than they should by the way because this is a win win solution, because there is a huge carbon amount of taxes that can come and we do that by on our price carbon or any investments and they do the same. Nobody goes doing investment and don't take it that carbon is going to be taxed. Otherwise, they are taking wrong decisions.

Any project in Vale has a phantom price carbon of \$50 for instance, and maybe people are taking more aggressive price for that by the way, they should be doing by the way if they don't want to make wrong investment decision. So, we welcome the carbon taxation on borders because this game has to be play and that is a fair game for everybody. Because in the end we want to decarbonize the world otherwise we won't decarbonize the world. And you see what's happening with climate change. Like now in Brazil, every year is the strangest rain like we had a very strong rain this year. We had a very strong rain in, we're in '2, in '20. Climates change is there. If people are not aware of that we're going to pay very expensively or that, not only the carbon, by the way.

So that's the game that we're playing here. That's what I talk about the energy revolution. People are still like talking, oh, there's trillions, there's that why we're so keen to look, we are not playing this game here. We are really acting on the game. We are going to reduce our scope 1 and 2. And why is that because it's about not only doing the right thing because it's obvious doing the right thing, but because it's our business. That's what make our business so unique now and why should I go after that or against that. So in a nutshell, we welcome the carbon tax.

MR. SPINELLI: Just one point. Believe that China is running, okay, they are going after that. The first offtake of the hub in Saudi is a Chinese so they are going after that. It's really clear in the party congress that environment is a key strategy so believe that they will grow in taxation

and in all the environment to foster the decarbonization in the industry. As we have young fleets, but yes, but they are going after that.

MR. BARTOLOMEO: We promise to short answers, but one thing that everybody comes again, where is your premium Vale. Where is the premium, margins, and energy, that's all about but people I'm a metallurgical engineer. They pay premium because they need a recipe that delivers them productivity. If they are not making money, they don't need. If the price of energy is cheap, they don't need. That's what they are doing now. They're buying crap and putting there in the blast furnace.

We don't sell crap. We sell thing that is good for when the energy is high, and the margins are high. So I want my client to make money, I need them to make money and energy is going to be high. If people think energy is going to be low, we're not going to win the climate challenge. That's all. So that's why if we believe in the climate transition price of energy hydrogen is not something cheap.

It's water of course, it's available, but anybody that understands the business know it's extremely expensive and then luckily people make money as well so then we get the premiums. Then we're going to have those huge premiums. I think was Leo that mentioned, right. That's the premium, because then you have one third of our productions high end, Class 1 like nickel and people are making money. So that's the whole narrative on what's behind your question by the way.

MR. FADEL: Okay. Raphael.

MR. RAPHAEL: thanks or the presentation. I have a quick most of my questions were answered but I have a quick question on nickel. So, with this new production outlook, I mean what is your breakdown between Class 1 and 2 going forward and how could this help profitability as well? Thanks.

MS. NAIDOO: Yeah, thank you. So, Class 1 will continue to stay at that today is about 75% of our production so Class 1 will continue to stay at that level which is around 145 150,000 tonne mark because a lot of my nickel projects are replacement projects, you know, like, VBME, Creighton 5, etcetera. So, we will maintain that. On the Indonesia side, even in that equity nickel that we bring in, that will stay either ferronickel or it will be amature P which is for use for batteries. That will be over and above. So, I would say the way to look at the business is maintaining the current Class 1 nickel production rate around 145 to 150,000 tonnes even in some of those mixes. Okay.

MR. FADEL: Okay. Rodolfo [phonetic], please.

MR. Rodolfo: Hi. Rodolfo from JP. Morgan [phonetic]. Just shifting gears, a little bit. So, we've seen miming companies in that in you know, the recent years all trying to position themselves into the new mega trends, right. Some did enormous changes. And I think what Vale is saying, listen, I have a very good position on the iron ore side, nickel and copper are the obvious players as well. So, as we think about capital allocation and also your portfolio businesses is really where this management team wants the company to be or is there you know, you sold a

few assets in the past. The question is there anything missing, could we see, you know, anything different, is there room for eventually as we go into this to see M&A or to see investments in different basis?

MR. BARTOLOMEO: Thanks, Rodolfo. We are very, I would say, not creative. I don't know, I think one of the things I think we lost the bandwagon was lithium. I think that this company could take a look at the lithium, but on the new Co. I don't think Vale is necessary to look at it. On the iron company, no, I think we have the best assets, obviously some synergies there are in Brazil with Anglo, you know that was already in the press. Though we might do something. We have talking to the Australians to be there. We want to have our foot in Australia, but not M&A, we learned a lesson. Today is the learning so that our culture is learning together by the way, right. So, the fact that we're not we're never going go to Australia to operate any asset. Well, we can go there and talk there, we have partners there. We can bring our knowledge and concentration, do things like that on a JV basis not on there's no huge influx of money to M&As, our minds are not there. Our minds are still on the execution side. We are very mindful that we need to execute. Remember my VPS chart, when I get to three when I get this thing stable, when I'm able to deliver, but well, look, we are fortunate. We have the best assets, why bother us.

The only thing we regret, if you ask me, was that we regret we lost the wagon was Lithium that we eventually we could have done that when lithium

was not rating at 20 types, right. But without that because I think that if you remember the framework, we are very discipline. We are very disciplined. We're not trying to be the largest anything. We're not looking for that. We will want as a team to create the largest value, but then again, but that's let's leave this to the end.

MR. PIMENTA: Maybe if I can add. I think what Eduardo said is important. We have already the resource I mean our key competitive advantage at Vale is the fact that we are sitting in tremendous number of resources with infrastructure knowledge of the environmental regulatory so for us the value is accelerating the development of the we don't need to go to other places, right. And two, we don't have the courage to do it. And I think one of this one of the upsides that we start in create by having this strategic move with base metal is to start having an entity that eventually can do something. Today, just see what the recent transaction multiple that we've seen in our space, 10 times, right. Very challenge for us to pursue something at those levels, in the future, it may be enough. So we have to create that path.

MR. BARTOLOMEO: You were with us in the trillion-dollar adventure, remember? We learned something about the trillion-dollar adventure.

MR. FADEL: Maybe we have three more minutes to go. Most of the online questions have been answered already. But there is one here and since we're talking about premiums, I think it's good to talk about the short-term premium Spinelli. So, the question here is that we've seen the price

premium decline significantly and because of the low profitability of the steel makers in China, so we're talking about the very short term here.

So, in your opinion, Spinelli what should be the trigger for this trend to bet to revert in the short-term medium term and to incentivize production of Vale for premium products. And also making a reference here about the potential decline in iron ore prices coming from higher usage of scrap in those of over different routes you explained so maybe you can go over that topic.

MR. SPINELLI: Okay. Premium short-term, Eduardo just mentioned have a combination or you want to improve the efficiency of the blast furnace, or you want to reduce the cost of energy, that's why we need the volumes, or we need to reduce the cost of energy. So, coke price in China now is increasing due to the seasonality so that is uptrend, upside risk to, to premiums.

But on the other hand, we need to make money. So, the problem today, that 80% of the steel maker are not making money. And this is related to, to the price of steel. So, the systematic of growing must be sustainable and short a bit long term we expect to be a sustainable business. So that will happen in China.

And regarding that, we expect two components here; COVID relaxation that is going on. Is undergoing also all the stimulus to have a smooth reduction in the properties can support the first quarter and the second quarter, the rebound of that, of the premiums. From the pellet side, it

reflects direct reduction. We just reduce for our first quarter, but it's a high premium, very good premium, more than 50 balls. So that's where they're going today. And regarding the market, the direct reduction market today, MENA competes with products that come from Turkish.

And this craps today, are in the lower level so it's close to 30 \$200 a ton. It's still to the seasonality again. So, this winter is getting higher gas in Europe, so they are competitive, so they decrease the price so that's the reason why we are together with them, decreasing the premiums, but it's a high, very high-level premiums. Blast furnace premiums, it's totally related to Europe today.

So, we sell to Europe. And Europe is facing, you know, very well, the problem of the gas. But you are now getting out of that, but they reduced our clients, direct clients reduced more than 20% of their production. But these two have a balance market for pellets. We are keeping \$48 a premium, over 65. It's a huge amount of value. So that's the trend. And as we leave the winter, we can see the blast furnace with more demand and that when also we see a rebound in the first half of next year for pellets.

Seven Agenda Item

MR. FADEL: Perfect. So, we ran out of time. Before we conclude here, I just want to hand over to Eduardo.

MR. BARTOLOMEO: Okay. Thank you, Ivan. Well, thanks a lot for your attention. I think it's two and a half hours, I believe is a long time of your time, so really, really thank you for taking the time to be here with us, listen to our story. And I have a personal story I want to share with you that I think relates to the moment that we live in today. In '15 I was taking a ride with a very successful investor in Brazil. And I was talking to him like he was going to a fund, I said, how do you make money?

As we end the conversation, the question I asked is I said, look at Vale this is 2015, Vale is \$2. You remember S11D being built, price of iron ore actually \$35. He's a very funny guy, like it's wrong, it's wrong. And he made a lot of money, and I was beside him, and I didn't buy Vale. So that's not why I have to work. But funny enough, the fact that the valuation of the mining company in Vale, it's wrong. That's the bond that we want to make with you. If we really believe what's going on the next five years, the next ten years, we need to re-rate the entire industry. And again, to sell my fish, to sell our fish, we believe we are taking the very, very disciplined actions and thoughts to act to capture this value. So, the next time we meet, please ask what you have done to be a responsible miner. Are you fostering the low carbon solutions? Do you like Rodolfo asked, are you still disciplined? So, if we're able to answer yes to you, I think we did our job.

And again, thanks a lot for your time. Thanks a lot. And again, hope to see no, hope to see, no see you next year. Okay. Thanks a lot.

[END RECORDING]