Caterpillar Inc. | Bernstein 39th Annual Strategic Decisions Conference | June 1, 2023

Chad Dillard:

Hi, good afternoon, everyone. My name is Chad Dillard, I'm the lead analyst here at Bernstein for the machinery engineering and construction sector. And I'm really excited to have Caterpillar here today to have a conversation. And joining me is Jim Umpleby, CEO of Caterpillar, and also Ryan Fiedler, the head of investor relations. And so, the way that we're going to work, this is basically like a fireside chat. We're just going to have a good question and answer session. And if those of you in the audience have any questions, please feel free to type it out in the pigeonhole link and I'll be able to ask the questions on your behalf. But before we get started, let me just hand it over to Ryan to give a little disclosure.

Ryan Fiedler:

Thanks Chad, really appreciate it. So, during today's meeting, we'll make forward-looking statements which are subject to risks and uncertainties. We'll also make assumptions that could cause our actual results to differ from the information we're sharing with you today. Please refer to our recent SEC filings and the forward-looking statements reminder in our releases for details on factors that individually or an aggregate could cause our actual results to vary materially from our forecast. Any detailed discussion of the many factors that we believe may have a material effect on our business on an ongoing basis is contained in our SEC filings. Today's meeting whilst referred to non-GAAP numbers for reconciliation of any non-GAAP numbers to the appropriate US GAAP numbers, please see the appendix of our earnings call slides. Lastly, we'll post a transcript note, which will be available on our website as soon as we can at investors.caterpillar.com. With that, I'll turn it over to Chad.

Chad Dillard:

Great, thanks Ryan.

Ryan Fiedler:

Thanks.

Chad Dillard:

All right, Jim, welcome.

Jim Umpleby:

Thank you.

Chad Dillard:

Thanks for joining us.

Jim Umpleby:

It's good to be here.

Chad Dillard:

Great. So first I want to talk about the cycle. Then I want to talk a little bit more about just labor productivity and how Caterpillar impacts that. Spend some time on the energy transition and how Caterpillar influences that theme. And then finish up on just services and just get an update on how you guys are thinking about reaching your $28 billion target. But first off, I guess you've been CEO for I guess almost seven years now.

Jim Umpleby:

Yep.

Chad Dillard:

Okay. So, the first question is just about how Caterpillar's changed under your leadership then versus now.

Jim Umpleby:

Well, it's great to be here, Chad, and we've been asked to speak up, so I'm going to try to do that for all of you. So, we rolled out a new strategy in 2017 and we started by telling our investors that we were going to achieve higher operating margins and higher, more consistent ME&T free cash flows at different levels of revenue. And we laid out a new strategy to accomplish that. That strategy was based on three key elements. One is operational excellence, which is safety, quality, lean in a competitive and flexible cost structure. And that competitive and flexible cost structure is something we've worked very hard on the last few years. Really worked on removing structural costs, really worked hard on ensuring that we receive a return on every dollar of capital that we invest in. And I believe our results have demonstrated that it has paid off.

Another major area of focus is services, and I can talk a lot about that, but we invested heavily in services. Services represents everything we do for our customer after that initial sale and done right, it's good for the customer, it increases their productivity and efficiency. It's good for our Caterpillar dealers and it's good for us. Another area, is expanded offerings, investing in different products to ensure that we have the right products to meet customer price points, different kinds of customers. The most productive piece of equipment was typically sold by Caterpillar, but oftentimes we'd have to discount that product to capture what we would call lifecycle value customers, customers that couldn't afford or didn't need the most productive piece of equipment. So now we're designing products not only those most productive pieces of equipment, but also products that allow us to capture those lifecycle value customers. And then we've added more recently sustainability and it's a wonderful opportunity for future profitable growth and I can talk more about that.

But one of the things we utilize is what we call the operation and execution model, which drove us to understand our business at a much more granular level than we have in the past. Understanding by product, by market, by application, where we were creating shareholder value and where we weren't. And what that allowed us to do was to shine a light on those underperforming products and challenge

our leaders to improve the profitability of those products. In some cases, we concluded that we should exit certain products because of the investment in the time it would take to make them acceptably profitable. But even more importantly, the O&E model leads us to bias our resources towards those areas that represent the best opportunities for future profitable growth, which led to investments and things like services and some other products I can talk about.

But we talked about those adjusted operating profit margin targets and we were met by a bit of skepticism from the investment community when we first rolled those out in early 2017. But we actually were able to achieve those 2017, '18, and '19 as our business improved. And then in 2020 we ran into COVID as everyone knows, and due to the pandemic, our top line dropped [22%] (company corrected after the discussion). And I think we surprised a lot of people by the fact that we were able to still achieve our adjusted operating profit margin target in 2020 and produce $3 billion of ME&T free cash flow in that year when we had that downturn. With the exception of 2020, between 2017 and 2022, we've achieved $5 to $6 billion of ME&T free cash flow. And part of that new strategy you asked, what's changed is we have committed to return essentially all ME&T free cash flow to shareholders over time through a combination of dividends and share repurchases. So again, we've changed a lot in the company. I can talk for 45 minutes about just that issue, but I know you have other questions for me, but that's an overview.

Chad Dillard:

That's helpful. So, it's certainly been a strange cycle over these last couple of years. How do you make sense of just where we are in the cycle? On one hand you've got a wall of stimulus that's coming. On the other hand, you're seeing some emerging signs that the hallmarks of late cycle. So maybe you can talk about how you're thinking about that and how you're thinking about managing CAT through this next leg of the cycle.

Jim Umpleby:

So, in our first quarter results, we talked about the fact that due to the strength of those results, and just as an aside, so in the first quarter our sales and revenues increased 17%. Our adjusted profit per share increased 70%, seven zero percent, compared to the first quarter of year earlier. And based on the strength of our first quarter results and the strength that we see in most of our end markets, we told investors that we believe 2023 would be better than we had previously anticipated. And I think what's important is one of the ways Caterpillar's changed is we serve a variety of markets. It's not just about one market. So, when we talk about the cycle, we have to think I think more diverse than that and think about the various markets that we serve.

Just to run few through a few of those. The one that people think about most naturally is construction. So, in North America, Construction Industries is quite strong. Globally, about 75% of our Construction Industry's revenue is from what we call non-residential, 25% is residential. To start with residential that represents, again, 25% of CI. The growth rate has started to moderate a bit, but it is still growing. Non-residential is very strong and a lot of that of course is driven by the pieces of legislation that have passed over the last few years. The CHIPS Act, the IRA and IIJA, we're already seeing some of that stimulus manifest itself into orders for us, particularly from the States. But as I'm sure you all know, permitting takes some time. So, we believe that that stimulus will result in improved business for us over time.

But it isn't just a North American story, we're seeing strength in a number of other areas around the world as well. The Middle East is a great example. A lot of strength, there are a lot of construction; Saudi Arabia is one I would highlight. A lot of construction activity. Sticking with CI for a moment, we have said that China has gotten weaker, and we predicted that going into the year it's been a bit weaker than we

thought it would be. And the market for us in China is most, is mostly excavators 10 ton and above. And that market is relatively weak. But the good news is, even with that market weak, we're still having a very good year in Construction Industries and overall. Typically, we say China is 5% to 10% of our total enterprise sales and revenues this year. It'll be less than that range. So there's construction.

Other markets we serve as well. Energy and Transportation is a very important segment for us. Start with power generation. A lot of it is driven by data center strength, but our power generation business is quite strong, and we haven't seen any kind of a slowdown there. Oil and gas is also [strong] (company corrected after the discussion). Many observers believe there's been a 10- or 12-year underinvestment in oil and gas infrastructure. And that business is strong both for CAT branded engines used in oil and gas, whether it's well servicing or drilling and our solar gas turbines which are used for natural gas compression and offshore as well. Caterpillar plays across a wide portion of the natural gas value chain. If you stop and think about what's happening with LNG, those large LNG facilities have to be fed with gas and CAT engines are used for drilling. CAT recip engines drive reciprocating gas compressors for gas gathering. The wellhead were very involved in well servicing.

We made actually an acquisition Weir Oil and Gas or SPM back at the bottom of the cycle there. I think when we were in the process of negotiating that deal, oil prices went negative. So that was good timing. We bought that company and that's enhanced our ability to have a wider range of products and services for our customers in well servicing. And then again, solar gas turbines driving solar natural gas compressors. That's again one of our Caterpillar brands. Solar gas turbines, compressed gas on the pipeline into the LNG plant. That business is quite strong and has shown no sign of slowing down.

Transitioning to mining, one of things we talked about is the energy transition and what an opportunity that represents for Caterpillar. If you look at the projections by the automobile manufacturers for the amount of EVs that need to be built and government policymakers, there's no way around the fact that they will increase commodities that are required for those electric vehicles. The average EV takes six times as many minerals as an internal combustion engine car. And of course, our mining customers use our products to produce the commodities to meet that demand. So again, when we talk about okay, the cycle, we serve a variety of diverse industries and so I think it's more helpful to think about each of the end markets we serve and what's happening in each one of those.

Chad Dillard:

Great. So actually, just picking up on a couple of the end markets, mainly the commodity producers, one unique element of the cycle has been just the extreme level of just capital discipline. How long do you think this could potentially last before they truly ramp up to a more sustained like replacement rate? And maybe you can talk about what's different about Caterpillar now versus the last commodity driven cycle.

Jim Umpleby:

When we talk about capital discipline that our customers are displaying, we typically talk in terms of our mining customers and our oil and gas customers; probably the two.

Chad Dillard:

Exactly.

Jim Umpleby:

Right. And those two groups of customers are displaying capital discipline. However, that doesn't mean that they're not ordering more from us because they are. So, our oil and gas customers are ordering

more products from us, and our sales are increasing. As a matter of fact, particularly with our larger engines, we're struggling a bit. We wish we had shorter lead times; we're struggling a bit meeting all of the demand that's out there and at this point don't see that slowing down. Yes, capital discipline. What that means really for us is the wild, wild swings that we saw in the past aren't there. So, it's more of a muted demand increase which quite frankly I think is better for our customers and it's better for us.

Same story applies to mining. That business, so if you look over the last few years, with the exception of 2020 and the pandemic induced downturn, our Resource Industries has been improving year-on-year. Not wild swings up, and we talked about this for a number of years, I think Chad, you and I talked about this before. What we anticipate is more of a gradual increase in sales and we've been predicting that for the last four years or so, and that's exactly how it's played itself out. So, I think that's a positive thing for them and for us. To answer your question about potential changes, there again, we feel good about the way we're positioned with our customers. We now have over 1.4 million connected assets. We have a very good handle on utilization rates. And just talk about mining for a moment. The good news is that the number of parked trucks is low.

This is some of the factors we look at to kind of predict what's going to happen with demand for our mining products. And oftentimes we talk about large mining trucks because that's so important to our mining customers and an important part of our business. So, the number of parked trucks is low, the utilization of those trucks that are operating is high, and the age of the fleet, is relatively old. And so those three factors lead us to believe that there's room to run here. If you go back to that period, that really difficult period for the industry between 2012 and 2016, all three of those were the opposite. Utilization was low in mining, there's a lot of parked trucks, and the fleet was not very old. So now we have those three things.

And just to talk about, to pull on the string a moment, talk about aged trucks. Customers make decisions about replacement for a whole variety of reasons. They think about, all right, how much life is left in the mine? What are their capital needs, where they want to invest. And sometimes they'll replace trucks and sometimes they'll decide to rebuild trucks, either way, it's a good thing for Caterpillar because we're there to support our customers with parts and work with our dealer's parts and service to rebuild those trucks. It's not a bad thing, if they buy new ones, that's great as well.

Chad Dillard:

Great. So, CAT's been enjoying pretty stellar pricing power in the supply constrained world. What does that look like when input costs come off? Do you think you'll be able to hold price? How sustainable do you think that will be?

Jim Umpleby:

Yeah, a whole variety of things go into our pricing decisions. We of course look at input costs as you mentioned. We also look at the competitive situation, what's happening in the various markets that we serve. And there isn't kind of one size fits all, it's variable. As of today, we haven't, with the exception of freight costs, which clearly have come down, we haven't seen our input costs, meaning the components that we buy from our suppliers come down. So, we haven't seen that yet. Maybe we'll see it, maybe we won't, I don't know. But certainly, again, a whole variety of factors goes into pricing decisions that we make. We look at the competitive landscape, we look at our input costs and we make one-off judgment calls based on what we see. So, we'll see what happens.

Chad Dillard:

Got it. Okay. So, in terms of how you help dealers manage their inventories, can you talk about what's changed versus the price cycle and how much of your Construction business remains on allocation today? And where do you think there is the greatest mismatch on the construction equipment side supply versus demand?

Jim Umpleby:

We'll start by saying that dealers are independent businesses, and they decide what they buy from us. But we can in fact have conversations with dealers and make suggestions. But in the end of the day, it is their call. We do have a new S&OP process where we look work much more closely with our customers. We look at things like utilization rates. We have a lot of units that are connected. So, when we get an order, we have a conversation with a dealer to say, are you sure you really need that? What's coming? And we have a conversation, but at the end of the day, they make that decision. To answer your second question, as we look at our inventory and Construction Industries, there are some products where dealers wish they had more inventory. And a couple of examples would be earthmoving and some of our building construction products, they wish they had more. In certain products they have enough inventory. And an example of that would be excavation. So again, it's a mixed bag depending on the product.

Chad Dillard:

Okay. So, a question for you on China, I think you alluded to a little bit earlier. Can you just talk about what you're seeing in that market, the ten ton and up excavator market. And then I guess outside of China, probably more like the emerging markets. Are you seeing some of the local Chinese OEMs I guess become a little bit more competitive in some of those regions?

Jim Umpleby:

So as I mentioned earlier, we expected China to be down this year. We had a couple of really strong years in China in '20 and '21, '22 was lower than '21, and we expected '23 to be lower than '22 [in the greater than 10-ton excavator industry] (company corrected after the discussion). And it is, and actually it's a bit worse, lower than we thought. And when I say lower, I mean in total industry, I don't mean any kind of share, it's just a total industry is down more than we had anticipated. Having said that, it's still an important market for us and we still build products in China. We have a vertically integrated supply chain. We highly value our customers, our dealers, and our suppliers and our employees in China. Competition, I've been doing this for more than 40 years, and I'm always focused on the competition. We'll always have competition. My assumption is the competition across all of our businesses, across al' of our products will always get better.

Having said that, we've certainly demonstrated the ability to effectively compete over a long period of time. So one of the advantages of being in China and competing with Chinese OEMs in China is it makes us better. We've vertically integrated our supply chain there. We have local leadership; we've learned how to design products instead of de-featuring premium products to build new products with a clean sheet of paper so they have the right price point. So, it's made us better. And one of the advantages we have at Caterpillar is we have a very well-established dealer network, which has taken us decades to build and is very, very difficult to replicate. So, I think that's an advantage we have as well. But having said that, I always take all of our competitors seriously, whether it's in Energy and Transportation, engines, construction, mining, that's something we always need to be focused on.

Chad Dillard:

Got it. Okay. Got a number of questions from the audience. So first one, can you discuss what the impact of increased penetration of equipment rental in the construction market is and consolidation in the space as well?

Jim Umpleby:

So, we do believe rental is an area for growth for Caterpillar and our dealers. We created, in recognition of that, we created a new division led by a very experienced senior vice president to lead a rental division. And so, we don't have a rental business, our dealers have a rental business, but what we do is we help our dealers get better at rental, adapt best practices, things like that. So, we have some dealers that are quite good at rental and have been doing it very well for a long period of time. Some aren't as focused on it and aren't quite as good at it, so our job is to help make them better, but we think it's a growth opportunity for us and our dealers moving forward.

Chad Dillard:

So, what kind of ROI or reduction in total cost of ownership does an autonomous truck generate and what's your win rate on autonomy?

Jim Umpleby:

Yeah, we're very excited about our autonomous solution in mining. We've had mining customers publicly state that they've seen up to a 30% productivity increase against their best manned sites. And you stop and think about a mine that operates 24 hours a day, seven days a week. It's all about how much you can produce and obviously do it safely and environmentally responsibly. So, if a customer can get a 30% productivity increase with our autonomous solution, that is a game changer. And we believe that pretty strongly that we have the best autonomous solution. And I'd argue that our customers are voting with their dollars. We're getting a lot of business, autonomous business, and we can do retrofits and we can do new as well. So, it's in a really exciting area.

And one of the things that's changed in autonomy since we first introduced it about a decade ago is it used to be a mine had to be quite large to be able to justify the capital investment for autonomy, 70 trucks or more. And probably only about 10% of the mines around the world had 70 trucks or more. Now by working with our suppliers, by getting better ourselves, we've gotten that down such that if a mine only has 15 to 20 trucks, it can pencil out to make it worthwhile to put autonomy in their operation. And again, it's just a very exciting development and one that we think it's been a game changer for our customers and for us as well.

Chad Dillard:

Great. I actually, I want to pull on that thread a little bit. So, 70 trucks addressed maybe like 10% of the market, maybe around I guess 15 now. Just want to get a sense for just how much does that expand the TAM? And then secondly, can you talk about how you're expanding that autonomous capability into your quarry and aggregate business?

Jim Umpleby:

Sure. So, by reducing the amount of trucks required to make it feasible economically, we've gone from about 10% of the mines around the world to 50% or more, which expands that opportunity. We did certainly receive our first order from a company called Luck Stone. It's the country's largest family-

owned sand, gravel, stone suppliers, a quarry company where they're going to put our autonomous solution into quarry. So, it's the first time that we put autonomy, full autonomy outside of mining. So, we're very excited about that opportunity. One of the things we're also doing in mining as well is we're putting autonomous capabilities in other products beyond trucks. So, we started with big mining trucks. Those are the most visible of course. We also have autonomy now in things like water trucks and drills. And we've also put semi-autonomous capabilities in construction equipment as well. So Chad, you could sit here today and from this room in New York control four or five dozers on the other side of the world, remotely, semi-autonomously.

So, you get one going, it's doing its pass, you get the other one going, you get the other one going and you have a screen and you can monitor all of them. So those are some of the technology changes that are occurring. And I know you'd be an outstanding operator, but because of some of the technologies that we've put in our machines, it makes you a much better operator, grade control, things like that. So, there's a lot of exciting technologies that are going into our products, and that's one of our competitive advantages. We're working very hard to invest in those new technologies to keep ahead of the competition, as you mentioned earlier.

Chad Dillard:

Got it.

Jim Umpleby:

Really important.

Chad Dillard:

And just following on, aside from just all of the original equipment that you can sell with providing autonomy, what sort of incremental service opportunities does that present or additional support equipment at the mine site does that generate? And maybe you can talk about what sort of margin uplift would you get going? Autonomous versus a traditional, I guess, manual piece of mining equipment?

Jim Umpleby:

So, when we put an autonomous solution in, one of the things we're doing obviously is we're very focused on making our customer more productive. And if in fact we can help them become, again, one customer saying 30% more productive against the best manned site, that creates all sorts of opportunities for us. When we put in a large autonomous solution and there are Caterpillar employees that are actually at the mine site helping our customers. So, it's our dealer employees there as well. And so, by being at the site with our customers, it moves us more from a supplier to a partner in their operations. And if we do our job right and we have to, it's not a birthright, we have to earn it every single day. What that allows us to do is to be in an outstanding position to get the next sale when it comes up.

It also puts us in an outstanding position to capture more of the aftermarket, to be able to help our customers be successful in services. Yes, there's a recurring charge. There's a hardware charge, there's a software charge, those little kind of charges that go into it. But the most important thing for us is if we can make our customers significantly more successful, that will drive higher market share, it'll drive higher aftermarket opportunities. And again, there'll be a win in it for the customer, for the dealer, and for us, that's the way we really view it.

Chad Dillard:

Got it. So, can you share with us key learnings for managing a business through an inflationary period? And what might you do differently if inflation comes back?

Jim Umpleby:

Some would say inflation hasn't gone away completely, but there's different views there I know in New York about that. Certainly, a lot of leaders haven't lived through an inflationary period. And I'm embarrassed to say I'm old enough that I do remember the eighties. I was in the workforce, but I wasn't in a senior leadership position. But one of the things that's really important to do is to, of course really not be complacent and be on top of what you're doing with your suppliers to understand when you need to take price increases, all those kinds of things.

I probably won't go into a lessons learned or things I wished to do differently because we don't have enough time for that. But I'd argue that we have demonstrated the ability through an upturn, through a severe down period in 2020, through an inflationary period to have the business perform at a much higher level than we have in the past. Again, if you look at all of our stats, if you look at again, the ME&T free cash flow that we're achieving much more consistently, if you look at our operating margins, I'd argue that we've changed the business fundamentally and are operating at a higher level. And I think the numbers bear that out.

Chad Dillard:

So, another question from the audience. How comfortable are you with inventory levels and is there evidence of double ordering and what does it mean for pricing?

Jim Umpleby:

Yeah, I assume the question is dealer inventory. And so, the typical range is

3 to 4 months of dealer inventory. That's where we are today. So, it's kind of in the typical range. As I mentioned earlier with some products, our dealers wish they had more inventory. Some of the BCP products and Earthmoving, with some inventory, they have enough like excavators and a lot of that's driven by the downturn in China. So, we have enough of that.

But I am comfortable with the dealer inventory that we have and one of the things that we've said is we did see an increase in dealer inventory in the first quarter. Not unusual because typically dealers build inventory ahead of the spring selling season. We expect dealer inventory to come again, they're independent businesses, they make these decisions. But we anticipate that dealer inventory will come down in the last half of the year and that we'll end the year about where we came in the year in terms of dealer inventory. So, it'll be about flat, January 1st to January 1st.

Chad Dillard:

Okay. So, I want to shift gears over to the energy transition. Can you describe Caterpillar's role to play in there? Maybe you can talk about all the segments from Construction Industries to Resources to E&T.

Jim Umpleby:

I will. One of the things we told our investors last May on our Investor Day is that we believe the energy transition and growing global energy demand is increasing Caterpillar's total addressable market. And we haven't discussed, we haven't used the TAM figure that I can remember ever, but we're very excited about the opportunities that this represents. Again, stop and think about the commodities that need to

be produced to support the energy transition. Average electric vehicle, again, takes six times as many minerals as an internal combustion engine car, so you can decide what you think the rate of the energy transition will be. Look at the projections by automobile manufacturers about the shift to EVs and what government officials say as well that there's no way around that requiring a large increase in commodities that need to be produced. And again, our mining customers use our products to produce those commodities.

Those commodities are also used for things like wind turbines and solar panels and transmission lines. So that should all benefit our Resource Industries or our mining business. Construction - Think about all the construction that has to go on to build the high-tension lines, to put in the infrastructure to support the energy transition in a whole variety of ways. Again, that's positive for construction, wind turbine construction, all the rest. And in Energy and Transportation, some great opportunities there as well first of all, global energy demand continues to increase and our customers use our products to produce the commodities to meet that growing global energy demand and energy demand isn't just increasing in the developing world, which is classic over the last 40 years as standards of living increase, energy demand goes up. But even in the developed world, we stop and think about all the new uses over the last decade or so.

We all plug in four or five devices now. The amount of data centers that are going in, AI, everything moving to the cloud, that creates energy demand as well. And again, our customers use our products to produce the commodities for that. As more renewables are added to the grid, we're seeing grid instability issues. So, grid instability issues used to be what we'd see in the developing world and not so much in the developed world. Now we are seeing it in the developed world because renewable energy sources are intermittent. The sun doesn't always shine, the wind doesn't always blow.

That is creating an opportunity for us, which we're already starting to see a bit of, but we think it's going to grow over time for us to sell generator sets in distributed power applications. So that's both reciprocating engine generator sets, and gas turbine generator sets and our gas turbines and our engines and those generator sets can burn a whole variety of fuels that can burn natural gas, that can burn biofuels, landfill gas, hydrogen blends, and all the rest.

So, we believe that growing global energy demand and that the fact that renewables are being added to the grid is also expanding our total addressable market. And we're already starting to see some of that happen, but we think it's going to accelerate over time as more renewables get added to the grid. So we're quite excited about what we see with the energy transition.

Chad Dillard:

So, as we go deeper into the energy transition, how does, say your service and aftermarket, how does your FinCo need to adapt to that new world?

Jim Umpleby:

So again, for our traditional products, it'll be much as it is now of course, but we continue to invest in our digital capabilities and services and we can talk more about that later if you would like. But a lot of things that we're doing there, if the purpose of your question is to think about maybe batteries and machines, which is maybe where you're headed, we do believe there's plenty of opportunities there in terms of, think about a battery in a machine. Well, first of all, let's step back a minute. People often ask me, well, isn't this like a car you just put a battery in and replace a diesel engine and move on? Well, what people often don't understand is the amount of power required in a large piece of construction or mining equipment is very different than what it is in an automobile.

As an example, a fully loaded mining truck, that battery will degrade to zero in about 90 minutes. So think about the fact that that large mining truck operates 24 hours a day, seven days a week. A typical automobile, how many hours is it used a day? I don't know, four maybe? Something like that, so think about a mining truck operating 24/7. We're very excited about the fact that last November, we demonstrated to a group of our customers a fully loaded mining truck battery powered, it's a prototype, operating at diesel performance, going up a grade, going on the flat. But what we really need to do is to find a way to dynamically charge that mining truck as it operates. And that creates some really interesting challenges, but also some opportunities as well. And we believe we have a competitive advantage because we have an Energy and Transportation portfolio.

We sell generator sets that are recip driven. We sell gas turbine gen sets, we have microgrids, we have that capability. So, one of the things we're doing, and I'm taking a bit of a tangent, I'll come back to your question. One of the things we're doing in Tucson at our mining site is developing the mindset of the future for electrified mine sites. We think there's an example, as that moves forward, it's an opportunity for us to sell more Energy and Transportation products, but also, we think there are service opportunities around battery replacement, battery management and things like that as well. Right now, as we look at the pull from customers for battery powered machines, the biggest pull is from our largest mining customers. They're really focused on reducing their scope one and scope two emissions. So that is the impetus and we're committed to help them through that transition.

We see less pull, quite frankly in construction equipment, a bit in Northern Europe, but it's quite minor. So, I suspect it's going to take some time for that to manifest itself. If you stop and think about the different applications that our construction equipment goes into, one can very much see a situation where a lot of it's probably going to be driven by government regulation. So, let's say 'the city of New York says, all right, no more diesel engines and automobiles and construction equipment and anything, everything has to be battery powered. I think construction products, building a new building here in New York could probably figure out a way to certainly charge that piece of construction equipment overnight. I think that's really feasible.

If you stop and think about the challenges though, if you're in the middle of Texas or Nebraska or India or Australia or some other place and you're building a highway in the middle of nowhere, there's no grid. Where do you plug something in? Two o'clock in the afternoon, the machine is dead. Do you fire up a diesel gen set for a fast charge? Well, that negates the reason of having batteries in the first place instead of a diesel engine in the machine. Do you try to change batteries in a really big machine? Do you try to move that machine back to a place where you can get it charged? So, there's a lot of complexity to have to be worked out.

So, my own sense, with the exception of mining, this is going to take quite some time before there's widespread adoption of batteries in machines. Everybody can have a prediction in the room. My sense is it's going to be quite a long-extended period that takes decades and that adoption rate will vary by geography and what happens in Amsterdam and New York and London, probably different to what's going to happen in some other countries around the world. And we're a global manufacturer and it'll depend upon application as well. Again, is it an urban application where it's relatively easy to charge something? Or is it a situation where much of our business, which is non-residential, it's out in the middle of nowhere as we build new infrastructure.

So again, it remains to be seen how this manifests itself over time.

Chad Dillard:

Got it.

Jim Umpleby:

But we think there's opportunities there embedded for us that will work hard to be positioned to move forward. We created a new division within Caterpillar about a year and a half ago to focus on electrification, alternative drivetrain. So, they're doing things with hydrogen, we think it's longer term, we think shorter term with batteries. And at the recent CONEXPO show in Las Vegas, we showcased four prototype construction machines with batteries in them. So, our strategy is to have the products ready when the customers pull on them. So, we'll continue to invest in our traditional machines that are diesel powered. We'll continue to have more technology there, and we'll have the battery powered machines, and our customers will decide what that rate of that transition will be.

Chad Dillard:

Got it. So maybe on the mining side, when you do make that transition to electrification, what do you think that does to parts intensity? If you compare that to-

Jim Umpleby:

To what intensity?

Chad Dillard:

Parts. Yeah, parts intensity compared to internal combustion.

Jim Umpleby:

And so again, it's a mixed bag. So, one of the things that people often make that, again, the analogy to automobiles, which isn't that appropriate, if you think about something that digs in the dirt. There's still lots of things that wear out. We still have hydraulics. There's still lots of opportunities to replace parts. And also, we also see the opportunity, as I mentioned earlier, to have more equipment on site. We'll have our Energy and Transportation products on site, which exist in a relatively small way today. We also believe there's opportunities, will mining customers really want to deal with, let's say batteries and battery change outs and battery disposal and battery service. We think there's an opportunity for us there as well. So again, it'll play out over time, but we think there's plenty of opportunities there as we move forward in services as batteries are adopted.

Chad Dillard:

Great. So, let's actually switch over to service. Can you talk about where you are in your journey to attaining $28 billion of service revenues by '26? And then secondly, can you lay out the roadmap to closing that gap over that timeframe?

Jim Umpleby:

Certainly. So again, as I mentioned earlier when we rolled out our strategy in 2017, services is a big integral part of that. Why? It's good for our customers, it's good for our dealers and it's good for us. We established a bold goal of doubling services sales between 2016 and 2026 to, as you say, $28 billion. We started at 14. Last year, we were at 22 and we increased services sales 17% last year and we've told our investors that we are increasingly confident in our ability to achieve that goal.

So, we're doing a whole variety of things to capture that business. We've invested heavily in our digital capabilities, whether it's e-Commerce. We've also recently rolled out an app for your phone. So, if you're a small construction customer, you may have not gotten the same attention as maybe a big

customer has. Our Caterpillar dealers do a very good job taking care of some of their biggest customers, big construction customers, mining customers, oil and gas customers. But if you're a relatively small company, a small contractor, say you own 12 machines and again, you're relatively small, you probably haven't gotten the attention from a Caterpillar dealer that a large customer has.

So, one of the things we're doing is making it easier for customers to do business with us and our dealers by having an app on your phone. We're putting serialized QR codes on machines now. So, one of those small contractors can take their phone, scan that QR code, and they can pull up an app and they'll know exactly what part to purchase to get the right part for their machine. That saves time. They don't have to make the call, they don't have to do any check-in. It's all right there. They can have that part delivered to them or they can push a button and have the dealer come and help install that part for them. If they're in the right country in the world, they can use a Cat Card, we'll have loyalty programs. All those things are being rolled out and developed as we speak. So, we think that's a big opportunity for us to increase services sales. We're also using AI. We have what are called prioritized service events. Because we have over 1.4 million connected assets, we know the number of hours those assets have. We know if they're running or not. In some cases we're actually monitoring more features than that, so we can actually give our dealer leads and our dealer can go to our customer proactively to sell them parts, to give them service, to make sure they know a maintenance that's coming up. If there's more sophisticated monitoring, to let them know that something's maybe out of tolerance.

They need to have a service call. So again, we're investing in a whole variety of things and we're quite excited about the progress that we've made. Again, 14 billion to 22 billion between 2016 and 2022. And we did tell our investors when we rolled out that target that it would not be a straight line. It'd be back end loaded, but we feel good about the progress we're making.

Chad Dillard:

Great. So, a question for you on construction technology. Can you lay out the product roadmap and talk about the level of adoption that Caterpillar is seeing on current products such as Command, the Smart Grading, I think you recently launched Vision Link.

Jim Umpleby:

Yeah, so it's one of the things, as I mentioned earlier, we're investing heavily in technology, which is one of the things that we are doing to maintain and strengthen our competitive advantage. So, a whole variety of new technologies is going into a product now. I mentioned things like grade control. One of the examples we like to use is digging a basement for let's say residential to build a house or to build a new building. Pretty challenging thing to do because it has to be done well. Now with the operator shortage, shortage of trained operators, with the technology, Chad, we could train you in a day or two and you could dig a really good basement with the technology that we have.

Grading, again, much better. We have, I talked earlier about semi-autonomous machines that you can, and you can operate them halfway around the world, or you can stand off and do line of sight remote operation as well. And that's often used for hazardous kinds of applications where an operator can be out of harm's way, can control the machine in hazardous [applications] (company corrected after the discussion).

So, we're doing a lot of things with new technology. It's one of the things we're very excited about. In terms of R&D, one of the areas that we said we're going to invest more in is what we call AACE, which is autonomy, alternative fuels, connectivity and digital, and electrification. And we're investing more in those areas because again, we really do believe that that's a great area for competitive advantage.

Chad Dillard:

That's actually a good segue to the next question. So, can you talk through CAT's approach on building its technology stack? Where do you excel and where do you need to improve?

Jim Umpleby:

Yeah, so we develop technology in a variety of ways, both internally with our own folks, and a great example of that is autonomy. We started an autonomy journey long before the automobile manufacturers many, many years ago, and we developed most of that in-house. Obviously, we bought LiDAR and things like that, but a lot of that technology was developed in-house. But in some cases, we make acquisitions as well. We make selective acquisitions to get certain kinds of technology. So, we bought a company called Marble Robotics to help us with autonomy. We bought other companies as well where we look across the landscape and there's certain technologies that we believe we need to advance our journey. We'll go ahead and buy those companies. Sometimes we make venture capital type investments to stay close to those companies. And sometimes that results in an acquisition later on, sometimes it doesn't. But again, we're doing a whole variety of things and it's a combination of developing things internally, but also having a keen eye on the outside as to what technologies are developing and again, acquiring those when it's appropriate.

Chad Dillard:

Okay. So where does the incremental dollar of R&D go today? What do you consider the highest ROI opportunity ahead for you?

Jim Umpleby:

Yeah, so we use, again, back to that O&E model. That's what we use, and we allocate those R&D dollars to those areas that we believe represent the best opportunities for future profitable growth. And so, I've talked about AACE, that's an area we're growing. Again, autonomy, alternative fuels, connectivity and digital, electrification. That's an area that is growing in terms of investment. We invest a lot in services as well because again, we believe that's an excellent area for future profitable growth. So those are a couple of areas. Obviously, we continued to invest in the areas that you and I talked about earlier. We're on Construction, continue to make autonomous solution better. I think about autonomy, it isn't just you develop it once and you're done. We're continually making it better to make our customers more productive, to maintain what we believe is a lead in technology against our competitors there.

So again, the good news is that our financial results give us the wherewithal to make those investments. We have a strong balance sheet. Answer a question you didn't ask here, but we have a strong balance sheet, and we went into the pandemic. Unlike many other companies, we didn't have to worry about securing funding to make payroll. Worked out very well for us. We have that strong balance sheet for investment and for opportunities, but also we have committed to return essentially all ME&T free cash flow to shareholders over time through a combination of dividends and share repurchases. And we've had a number of dividend increases over the last few years, high single digit. And we've also hit our 29th year as a dividend aristocrat.

Chad Dillard:

So, here's another question from the audience. So, with connected equipment, are you seeing any step function changes in the ability to do more with say like the second or third generation owners of that equipment?

Jim Umpleby:

Yeah, there's an advantage of connecting an asset because when a customer sells a piece of equipment, if it's connected, a lot of times a dealer in the past didn't know if a piece of equipment showed up in their territory. So that's helped us. So yes, it has made a difference.

Chad Dillard:

Got it. Okay. So, I'm assuming this is a construction question, construction equipment question, can you discuss the long-term drivers of owning versus rent and what are you seeing in terms of, I guess near term impacts related to I guess the credit tightening and rates being higher?

Jim Umpleby:

Yeah, so customers make different decisions. Some prefer to own, some prefer to rent, many prefer to do both. So, they'll have a certain number of units that they own, and then if they need a piece of specialty equipment, they'll go out and rent it. So again, I can think of a number of our big construction customers, they do both. We're not concerned about tightening credit markets. So, if you stop and think about at the beginning of our talk here, Chad, I described the end markets that we serve. So, if you stop and think about the customers, whether it's let's start with construction and infrastructure, those infrastructure funds are coming. So, my sense is that those projects that are government funded will not be impacted by tightening credit. Oil and gas customers. My sense is that ExxonMobil, Chevron, ConocoPhillips and others will have the wherewithal to buy our equipment without concern about tightening credit conditions.

Same with BHP and Rio Tinto, our mining customers. Same with some of our power generation customers for data centers. Microsoft, companies like that, AWS. Where could those tightening credit conditions impact customers, conceivably smaller customers, if in fact regional banks tighten lending standards? Well, we have a captive finance arm and we are not dependent upon deposits. CAT Financial is very conservatively managed. They match duration risk and they're in a very good position to step in and help our customers buy our equipment. Our equipment serves as a collateral, all that equipment is connected so we know where it is. And our past dues in CAT Financial are near or at record lows at the moment, 2%. So again, at this point we feel good about that situation. We're not concerned.

Chad Dillard:

Okay. Another question from the audience, is there a view on allowing consolidation of the dealership network in the US to improve dealer performance by bringing some of the best practices in from the others?

Jim Umpleby:

So, we continually try to have our dealers share best practices with each other. I won't predict consolidation. There has been some in North America over the last five years. And again, that'll play out over time based upon individual dealers' interest and performance and all the rest. As a reminder, dealers are independent businesses. We certainly have a role to play in that, but they are independent businesses. But there has been some consolidation over the last few years.

Chad Dillard:

So maybe moving over to the Oil and Gas business, there is this interim period between kind of fully, I guess zero emissions and where we are today. Can you talk about some of the products, some of the

opportunities you see from, and maybe we can talk about dynamic gas blending and to what extent are you seeing that level of uptake from some of your customers right now?

Jim Umpleby:

You bet. We certainly believe that oil and gas, and particularly natural gas will be around for a long time. Think about the investments that are going in the LNG facilities. And one of the things that our oil and gas customers are very focused on, and we believe we have a competitive advantage in, is helping them reduce their Scope 1 and 2 Emissions. So, they're reducing their carbon footprint as they produce more oil and gas. I mentioned dynamic gas blending allows customers to substitute up to 85% of diesel with natural gas that we have in well servicing. We have what's called e-Frac now. So instead of having a bunch of diesel engines, you can have either gas turbine driven or reciprocating engines that burn field natural gas, electricity is produced in a generator. And now through the acquisition we made of Weir Oil & Gas (SPM), we have electric driven frac pumps that can operate on the site.

We've developed a new control system to help our customers with frac trailers. Let's say if it is a diesel engine, it's a diesel engine, a CAT transmission, a CAT SPM pump that we make. We have the flooring iron around it. And oftentimes operators would not operate at the right transmission speed. It's kind of like buying a Ferrari and driving it to work every day in first gear. And that creates a situation where you're not very efficient, so you're burning more fuel. So, what we've been able to do with this control system is it automatically controls the speed of the transmission and it dramatically improves the emissions profile of that trailer because you're now running at the right speed. Lots of other things we're doing in terms of investing in gas compressors to help customers put out flares by compressing gas. It's a whole variety of things that we're doing with oil and gas customers to help them reduce their greenhouse gas emissions. And again, that business as we sit here today is quite strong.

Chad Dillard:

Okay. So, I guess I got 40 seconds left. One last question for you. So, you talked about your capital allocation priorities right now it's basically returning virtually the majority of cash back to shareholders, but maybe looking beyond that from an M&A perspective, are there any particular strategic gaps that you think you would need to fill as we look towards these kind of large scale mega trends over the coming one to two decades?

Jim Umpleby:

So, we ask all of our business leaders to continually evaluate the landscape and there's always companies we're thinking about and we don't make those public, obviously. We think about what could be helpful to us from a technology perspective. Sometimes there's a product gap and where SPM is a great example of that. And so again, we think about the capabilities we have internally. We look at the external landscape and we look at valuations. Always obviously want to get a return on an acquisition that we make. Sometimes we'll do it for technology's sake, but there's a whole variety of things that we follow and oftentimes it comes down to waiting for the right time to do it.

Chad Dillard:

Okay. We're all out of time. Jim, thank you very much.

Jim Umpleby:

Thank you, Chad. Thank you all.