



Caterpillar Inc.

Second Quarter 2022 Earnings Conference Call

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C O R P O R A T E P A R T I C I P A N T S

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Tami Zakaria, *JPMorgan*

Nicole DeBlase, *Deutsche Bank*

David Raso, *Evercore ISI*

Jerry Revich, *Goldman Sachs*

Chad Dillard, *Bernstein*

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P R E S E N T A T I O N

Operator

Welcome to the Second Quarter 2022 Caterpillar Earnings Conference Call.

Please be advised that today's conference is being recorded.

I would now like to hand the conference over to your speaker today, Ryan Fiedler. Thank you. Please go ahead.

Ryan Fiedler

Thank you, Emma.

Good morning, everyone, and welcome to Caterpillar's second quarter of 2022 earnings call.

I'm Ryan Fiedler, Vice President of Investor Relations. Joining me today are Jim Umpleby, Chairman and CEO, Andrew Bonfield, Chief Financial Officer, Kyle Epley, Senior Vice President of the Global Finance Services Division, and Rob Rengel, Senior IR Manager.

During our call today, we'll be discussing the second quarter earnings release we issued earlier today. You can find our slides, the news release and a webcast recap at investors.caterpillar.com under Events and Presentations.

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Moving to Slide 2, during our call today 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 be different than the information we're sharing with you on this call. Please refer to our recent SEC filings and the forward-looking statements reminder in the news release for details on factors that individually or in aggregate could cause our actual results to vary materially from our forecasts.

On today's call, we'll also refer to non-GAAP numbers. For a reconciliation of any non-GAAP numbers to the appropriate U.S. GAAP numbers, please see the appendix of the earnings call slides.

Today, we reported profit per share of \$3.13 for the second quarter of 2022, compared with \$2.56 of profit per share in the second quarter of 2021. We're including adjusted profit per share in addition to our U.S. GAAP results. Our adjusted profit per share was \$3.18 for the second quarter of 2022, compared with adjusted profit per share of \$2.60 for the second quarter of 2021. Adjusted profit per share for both quarters excluded restructuring costs.

Now, let's turn to Slide 3 and turn the call over to our Chairman and CEO, Jim Umpleby.

Jim Umpleby

Thanks, Ryan. Good morning, everyone. Thank you for joining us.

As we close out the first half of 2022, I want to thank our global team for delivering another good quarter, with double-digit top line and adjusted profit per share growth, despite ongoing supply chain challenges. Our second-quarter results reflect healthy demand across most of our end markets. We remain focused on executing our strategy for long-term profitable growth.

In today's call, I'll begin with my perspectives on our performance in the quarter, and then I'll provide some insights on our end markets. Lastly, I'll provide an update on our sustainability journey.

For the quarter, sales were broadly in line with our expectations, as we generated better-than-expected price and strong services revenue, which were offset by lower-than-expected sales to users. Similar to previous quarters, our top line would have been even stronger if not for supply chain constraints. We remain focused on executing creative solutions to help mitigate our supply chain challenges. Overall, we remain encouraged by the strong demand in our end markets for our products and services. We're seeing strong momentum in services due to our service initiatives and investments. As I mentioned at our Investor Day in May, our confidence is increasing that we'll achieve our goal to double services to \$28 billion by 2026.

Operating profit margins came in slightly lower than our expectations, mostly due to lower-than-expected volume and unfavorable mix. Price realization more than offset manufacturing cost increases, which occurred earlier in the year than we had anticipated. However, this only partially offset the impact of volume and mix. Dealer inventory remains at the low end of the typical range and rental fleets continue to age as dealers prioritize trying to meet the demand from retail customers. Orders remain solid and our backlog grew by approximately \$2 billion in the quarter. We expected volume and price realization to improve in the second half of the year, which should lead to sales growth in the remaining quarters of the year, both sequentially and year-over-year. We also expect adjusted operating profit margins will improve, both sequentially and year-over-year, in the second half of 2022, as our price realization will more than offset manufacturing cost increases. Despite ongoing inflation and supply chain challenges, we continue to expect to achieve our Investor Day adjusted operating profit margin and ME&T free cash flow targets for the full year.

Moving to Slide 4, sales and revenues increased by 11%, broadly in line with our expectations. The increase was primarily driven by strengthening price realization and higher sales volume. Second-quarter sales and revenues increased across our three primary segments versus the prior year, with sales higher in all regions, except EAME. Sales in North America rose by 18%, with double-digit growth in the three primary segments. Strength in Latin America continued, as 27% sales growth was supported by strong construction activity. In EAME, sales decreased by 3%, primarily due to currency impacts. Asia Pacific sales increased by 3%, as lower sales in China were more than offset by stronger sales elsewhere within the region. Compared to the second quarter of 2021, sales to users declined 3%.

For machines, including Construction Industries and Resource Industries, sales to users decreased by 4%, while Energy & Transportation was flat overall. Sales to users were below our expectations, largely due to the impact of supply chain constraints. These constraints were mostly due to component shortages, which resulted in production delays and shortfalls against our schedules. For example, engine control modules have continued to be one of the most significant bottlenecks, mostly due to shortages of semiconductors. We were unable to completely satisfy strong customer demand for our machines and engines and continue to incur additional costs due to factory inefficiencies and freight expenses.

Sales to users in Construction Industries decreased 4%, primarily due to weakness in China and continued supply chain constraints. North America sales to users declined slightly, mainly due to supply chain challenges. Latin America saw higher sales to end users, while EAME declined slightly. Asia Pacific sales to users were down in the quarter. However, excluding China, the Asia Pacific region sales to users increased. The same holds true for Construction Industries overall.

In Resource Industries, sales to users decreased 2%, due to supply chain challenges and one-off disruptions, including commissioning delays. Orders remain strong, although slightly lower than recent high levels. We continue to see high equipment utilization and parked trucks remain at low levels, both supporting continued demand for our equipment and services.

In Energy & Transportation, sales to users were flat versus the prior year. Oil & Gas sales to users were down in the second quarter due to lower turbine and turbine-related services, which were partially offset by continued improvement in reciprocating engines. As we mentioned during our last earnings call, we expected Solar Turbines new equipment shipments to be lower in the first half. Power Generation and Industrial sales to users remains strong due to favorable market conditions. Transportation decreased slightly.

Now, I will spend a moment on dealer inventory. Dealer inventory declined by about \$400 million in the second quarter, reflecting typical seasonality, similar to the second quarter of last year. Dealer inventories remain near the low end of the typical range, and we continue to work closely with our global dealer network to satisfy customer demand. As a reminder, dealers are independently owned businesses.

Operating profit increased 9% in the quarter to \$1.9 billion. The increase was driven by higher sales across our three primary segments, which largely reflected favorable price realization and volume, and was partially offset by higher manufacturing costs and SG&A and R&D expenses. Higher manufacturing costs in the quarter reflected increased material and freight costs. As I mentioned, favorable price realization more than offset manufacturing cost increases.

Operating profit margins were 13.6% in the second quarter of 2022, compared to 13.9% in the second quarter of last year. Although our adjusted operating profit margins improved sequentially in the quarter, they were slightly lower than our expectations, mostly due to lower-than-expected volumes and unfavorable mix. Andrew will discuss the consolidated and segment level margins in a few minutes.

Our profit per share was \$3.13, versus \$2.56 in the second quarter of 2021. The adjusted profit per share was \$3.18 versus \$2.60 in the second quarter of last year.

Now, to Slide 5. We generated \$1.1 billion of ME&T free cash flow in the quarter. We continue to expect to be within our \$4 billion to \$8 billion ME&T free cash flow range for the full year 2022. Andrew will discuss this in more detail.

Regarding capital deployment, in the quarter, we repurchased \$1.1 billion of stock and returned \$600 million in dividends to shareholders. In May, our Board approved a new authorization to repurchase an additional \$15 billion of common stock, which was effective on August 1. We also announced we're increasing our quarterly cash dividend by 8% to \$1.20 per share. We remain proud of our Dividend Aristocrat status. We continue to expect to return substantially all of our ME&T free cash flow to shareholders over time through dividends and share repurchases.

Now, on Slide 6, I'll share some high-level assumptions on our expectations for the full year.

Overall, demand remains healthy across our segments. However, the environment remains challenging, primarily due to continuing supply chain disruptions. Our teams are working hard to mitigate the supply chain challenges, and we expect to achieve our Investor Day targets for adjusted operating profit margins and ME&T free cash flow. We expect continued topline growth for the second half of the year, reflecting healthy demand, favorable price realization and our team's persistent efforts to mitigate the supply chain disruptions.

As I mentioned, our total backlog increased by about \$2 billion in the quarter, led by Energy & Transportation. The backlog for Resource Industries and Construction Industries remains elevated. Although we continue to anticipate inflationary pressures in manufacturing costs, we expect price will more than offset these cost increases for the full year.

Now, I'll turn to our expectations for key end markets this year.

In Construction Industries in North America, we expect non-residential construction to continue to be strong, due to construction backlogs. We also expect the ramping of projects from the U.S. Infrastructure Investment and Jobs Act to occur in late 2022 and into 2023. Residential construction is moderating from the very strong levels experienced since early 2021. In China, the above 10-ton excavator market was very strong during the first half of 2021. During our last earnings call, we indicated that the industry would be slightly lower than 2019 levels. We now anticipate the industry will be lower than we previously expected. The rest of the Asia Pacific region is expected to grow due to higher infrastructure spending and commodity prices. In EAME, the EU has proposed an infrastructure investment package. However, business activity has moderated. Strong growth continues for construction activity in Latin America due to supportive commodity prices. Overall, we expect healthy demand for the remainder of the year in Construction Industries.

In Resource Industries, while our mining customers continue to display capital discipline, commodity prices remain supportive of investment, despite recent moderation. We expect production and utilization levels will remain elevated, and our autonomous solutions continue to gain momentum. We expect the continuation of high equipment utilization and a low level of parked trucks, which both support future demand for our equipment and services. We continue to believe the energy transition will support increased commodity demand over the medium and long term, expanding our addressable market and providing opportunities for profitable growth. In Heavy Construction and Quarry and Aggregates, we expect continued growth in 2022.

In Energy & Transportation, we expect improving momentum in 2022, with strong order rates in most applications. In Oil & Gas, although customers remain disciplined, we remain encouraged by continued strength in reciprocating engine orders, especially for large engine replacements as asset utilization increases. In 2022, while Solar services are expected to remain steady, new equipment orders strengthened significantly in the first half, particularly in Oil & Gas, indicating sales growth in late 2022 and into 2023. Power Generation orders remain healthy due to positive economic growth and continued data center strength. Industrial remains healthy, with continued momentum in construction, agriculture and electric power. In Rail, North American locomotive sales are expected to remain muted. We also anticipate growth in high-speed marine, as customers upgrade aging fleets.

Moving to Slide 7, since our last quarterly earnings call, we published our 2021 Sustainability Report in May, to highlight progress on our sustainability journey. In the report, we reiterated our commitment to further enhance our sustainability reporting and disclosures by utilizing the Task Force on Climate-related Financial Disclosures, or TCFD, framework, and also committed to begin reporting estimated Scope 3 greenhouse gas emissions in 2023. As we continue to advance our sustainability journey through the second quarter of 2022, Caterpillar and our customers announced a number of projects that will help contribute to a lower-carbon future.

In May, we announced a low carbon intensity fuel project with District Energy St. Paul to demonstrate a Combined Heat and Power, or CHP, system fueled by various combinations of hydrogen and natural gas. CHP systems from Caterpillar provide both electricity and heat simultaneously, increasing overall efficiency and reducing exhaust emissions. With support and partial funding from the U.S. Department of Energy, the demonstration project will compare how hydrogen and hydrogen blends can be integrated into a waste heat and power solution.

This quarter, we also announced the acquisition of Tangent Energy Solutions, a U.S.-based energy-as-a-service company. Tangent's suite of intelligent energy solutions will allow us to provide value to customers by helping them reduce energy costs, increase energy efficiency, reduce emissions, monetize electric grid support and provide resiliency for their operations.

In summary, we continue to support our customers' climate-related objectives with new equipment and services that facilitate fuel transition, increase operational efficiency and reduce emissions. We remain committed to contributing to a reduced-carbon future as we help our customers build a better, more sustainable world.

With that, I'll turn the call over to Andrew.

Andrew Bonfield

Thank you, Jim, and good morning, everyone.

I'll start by walking you through our second quarter results, including the performance of our segments. Then, I'll comment on the balance sheet and free cash flow, before concluding with our expectations for the third quarter and remainder of the year.

Beginning on Slide 8, sales and revenues for the second quarter increased by 11%, or \$1.4 billion, to \$14.2 billion. The increase was due to price and volume, partially offset by currency. Operating profit increased by 9%, or \$155 million, to \$1.9 billion, as price realization and volume growth were partially offset by higher manufacturing and SG&A and R&D costs. Our adjusted operating profit margin of 13.8% was slightly below the year-ago level, despite the underlying inflationary and supply chain pressures. Adjusted profit per share was \$3.18 in the second quarter, compared to \$2.60 last year. Adjusted profit per share for both quarters excluded restructuring costs, which had a similar impact on both quarters. Taxes included discrete tax impacts which benefited the quarter by about \$0.10.

Now on Slide 9. As Jim mentioned, the top line was generally in line with our expectations on strong price and services revenues, with a bit of currency as a headwind as the U.S. dollar continued to strengthen. Machine sales to users were impacted by supply chain challenges and were slightly worse than we had anticipated. Overall, we are not seeing signs of slowing demand, as order levels and backlog remain healthy. Our retail statistics or sales to users are normally strongly correlated to demand in a typical environment. However, the ongoing supply chain constraints continue to impact our ability to ship equipment. Dealer inventory changes had a minimal impact on the top line, as the \$400 million decrease, versus the first quarter, was similar to the reduction seen in the prior year. Services remain strong, as we benefit from the impact of our services growth initiatives.

Moving to Slide 10, as I mentioned, second-quarter operating profit increased by 9% on favorable price and volume. Price realization was better than we had anticipated, due to the strong demand for machines. Manufacturing costs were also slightly higher than expected, primarily due to continued material and freight costs pressures, as well as the impact of supply chain on our factory performance. Overall, price exceeded manufacturing costs for the quarter, which reverses the trend we had seen for most of the past year. SG&A and R&D costs increased partly due to investments aligned with our strategy for profitable growth, in addition to higher short-term incentive compensation.

Our second quarter adjusted operating profit margin of 13.8% was a 30-basis-point decrease, versus the prior year. This was slightly lower than we anticipated in April, principally as equipment volume lagged our expectations. We also saw some negative mix within our segments. The net impact of higher price and increased manufacturing costs was about neutral.

Before I discuss segment results, I want to address the impact high inflation and inventory build had on our segment margins in the quarter. For background, in periods with rapidly rising input costs and inventory growth, a portion of these rising costs will be appropriately included in Caterpillar's ending inventory. In order to promote effective management decision-making within our segment results, we recognize material and freight cost changes as soon as they impact our input costs. For enterprise reporting, this negative impact on segment results is offset by a favorable impact at the corporate level. In a nutshell, inflationary cost pressures were elevated, negatively impacting margins at the segment level, while enterprise margins performed much closer to our expectations. This dynamic is timing related, meaning we'll see things balance out as our inventory starts to decline and inflationary costs subside.

Moving to Slide 11, let's review segment performance, starting with Construction Industries. Sales increased by 7% in the second quarter to \$6 billion, driven by favorable price realization. Volume decreased slightly, as lower sales of equipment to end users was mostly offset by higher sales of aftermarket parts. North America had the highest growth in sales dollars, a 20% increase, due to strong pricing, a favorable change in dealer inventory, and continued strength in services. Sales of equipment to end users lagged the prior year slightly, driven by supply chain challenges. Residential and non-residential demand remained healthy, although we saw some moderation in residential. Sales in Latin America increased by 48%, as robust construction activity supported higher sales of equipment to end users. In EAME, sales decreased by 7%, primarily driven by the changes in dealer inventories and currency, while price was a partial offset. Asia Pacific sales decreased by 17%, due in part to lower sales of equipment to end users, primarily in China, which had a strong quarter a year ago. Second-quarter profit for Construction Industries decreased by 4%, versus the prior year, to \$989 million. Price realization more than offset manufacturing costs, but profit decreased due to the impact of lower sales volume and mix. Unfavorable manufacturing costs largely reflected higher material and freight. The segment's operating margin decreased by 180 basis points versus last year to 16.4%, as inflationary cost pressures impacted the segment's margins, as I mentioned a moment ago.

Turning to Slide 12, Resource Industries increased by 16% in the second quarter to \$3 billion. The improvement was primarily due to favorable price realization and higher sales volume. Volume increased on sales of aftermarket parts. Second-quarter profit for Resource Industries increased by 2% to \$355 million, as price and volume more than offset unfavorable manufacturing costs, which largely reflected higher material and freight costs. The segment's operating profit margin decreased by 170 basis points versus last year to 12%, as inflationary cost pressures impacted the segment margins, similar to Construction Industries.

Now on Slide 13. Energy & Transportation sales increased by 15% to approximately \$5.7 billion, with sales up across all applications. This included an 8% sales increase in Oil & Gas, as sales of aftermarket parts for reciprocating engines and engines used for well servicing and gas compression increased. Solar Turbines sales and Oil & Gas applications lagged the prior year. Power Generation sales increased by 13% on stronger sales volume in small reciprocating engines and aftermarket parts. Sales of Solar Turbines increased in Power Generation. Industrial sales rose by 24%, with strength across all regions. Finally, Transportation sales increased by 7% on reciprocating engines aftermarket parts sales, and strength in rail services. Second quarter profit for Energy & Transportation decreased by 11% to \$659 million. Higher manufacturing costs, reflecting continued headwinds from inflationary cost pressures in freight and material, were partially offset by favorable price realization and higher sales volume.

As a reminder, Energy & Transportation took price increases later in the year in 2021, given the different market dynamics, as compared to the other primary segments. In addition, SG&A and R&D expenses increased due to investments aligned with our strategic initiatives, including electrification and services growth, coupled with higher short-term incentive compensation. The segment's operating margin

decreased by 320 basis points versus last year to 11.6%, impacted by the same inflationary cost pressures as our other primary segments.

Moving to Slide 14. Financial Products revenue increased by 3% to \$798 million. Segment profit decreased by 11% to \$217 million. The profit decrease was mainly due to an unfavorable impact from movements in equity securities in Insurance Services. A higher provision for credit losses at CAT Financial, primarily relating to reserves associated with Russia and Ukraine, also weighed on profit. A favorable impact from returned or repossessed equipment served as a partial offset.

Moving to our credit portfolio, our customers and dealers continued to perform well, as our leading indicators remain strong. Past dues, which are a good proxy to the financial health of our customers, were 2.19%, compared to 2.58% at the end of the second quarter of 2021. That's down 39 basis points year-over-year. As is typical, retail new business volume improved sequentially versus the first quarter, and while we did see a 12% decrease versus the prior year, nearly half of that decline was attributable to China, where we saw COVID restrictions reinstated. In addition, although our matched funding strategy serves to mitigate our risk from interest rate changes, rising rates typically do benefit banks from a competitive financing perspective. We saw this play out in the second quarter, as our share of machines financed declined slightly. We continue to benefit from robust demand for used machines from both a volume and price perspective. This reflects the underlying demand trends we are seeing for equipment.

Now on Slide 15. We generated about \$1.1 billion in ME&T free cash flow during the quarter, a decrease of about \$600 million, versus the second quarter of 2021. We continue to build production inventory to help manage through supply chain challenges. Looking ahead, we expect stronger free cash flow in the second half due to the absence of the payment of incentive compensation. We also do not anticipate our working capital to rise as it did in the first half of the year. Therefore, we continue to expect to achieve our Investor Day ME&T free cash flow target of between \$4 billion and \$8 billion for the full year.

As Jim mentioned, we paid around \$600 million in dividends, in addition to repurchasing about \$1.1 billion worth of common stock, supporting our objective to be in the market on a more consistent basis. Enterprise cash was \$6 billion, a \$500 million decrease compared to the first quarter of 2022. The decrease was primarily driven by the \$1.7 billion in shareholder return, net of ME&T free cash flow generation. We also continue to hold some of our cash balances in slightly longer dated liquid marketable securities in order to improve the yield on that cash. Our liquidity remains strong.

Now on Slide 16. In light of the current environment, including supply chain constraints, we continue to refrain from providing annual profit per share guidance. However, I will share some thoughts on our third quarter and full year.

As a reminder, the second quarter played out about as we had anticipated on the top line, although the inputs varied somewhat. Pricing was better than expected, while sales of equipment to end users lagged our expectations due to supply chain challenges and additional weakness in China.

Looking to the third quarter, we currently anticipate the top line will increase compared to the prior year on higher sales to users and favorable price realization. Strong demand should support higher sales across the three primary segments, subject to our ability to navigate through the ongoing supply chain challenges. For the second half of the year, we expect revenues to be higher compared to the first half. To reiterate Jim's comment, we remain encouraged by the strong demand in our end markets for our equipment and services. Order levels and backlogs remain strong. Dealer inventory levels remain at the low end of the typical range, and rental fleets are aging. Finally, infrastructure investment later in the year should be supportive.

On margins in the third quarter, we anticipate gains across our three primary segments, as compared to the prior year and first half. Construction Industries and Resource Industries margins should improve as price realization continues to flow through and more than offset manufacturing cost inflation. In Energy & Transportation, we expect pricing to continue to gain momentum and offset manufacturing costs. For the second half of the year, at both the enterprise and segment levels, we anticipate adjusted operating profit margin improvement, compared to both the first half and the comparable periods of 2021. The impact of price actions should accelerate, and though we anticipate continued increases in manufacturing costs, we are starting to lap the significant increases, particularly in freight and material costs, that we saw in the second half of last year.

Finally, to assist you with your modeling, we currently expect our accrual for short-term incentive compensation to be around \$1.6 billion this year. We continue to anticipate a global effective tax rate of around 24% and restructuring spend of approximately \$600 million for the full year.

Turning to Slide 17. In summary, we performed well in the quarter, where demand generally remained strong, where our ability to satisfy that demand was constrained by supply chain challenges. Despite this backdrop, we realized \$1.4 billion more in sales and revenue, supported by strong price realization and services. Looking ahead, comparisons should ease in the second half of the year and, despite the challenging environment, we continue to expect to achieve our Investor Day targets for adjusted operating profit margin and ME&T free cash flow for the full year.

With that, we'll now take your questions.

Operator

Your first question comes from the line of Jamie Cook with Credit Suisse. Your line is now open.

Jamie Cook

Hi, good morning. I guess my question ...

Jim Umpleby

Good morning, Jamie.

Jamie Cook

Hi. Understanding challenging environment, it sounds like the second quarter was a little short of your expectations, yet we're raising our short-term incentive comp. So just trying to get some clarification around that; and then any help on confidence level. Sales to users are improving in the back half of the year; are you seeing any improvement in supply chain and sort of how we should think about it? Thanks.

Jim Umpleby

Jamie, I'll answer your first question. We accrue for incentive compensation based on our expectation for full-year results, and as you know from our proxy, primarily, our incentive compensation is based on operating profit, OPACC and services revenues. So, again, the increase in the quarter was not due to the quarter, but it was due to our expectations for the full year.

Your second question, we have not seen significant improvement in supply chain, it's still hand-to-hand combat. Our teams are working a way through those issues. Again, very proud of the team, that they're able to turn in double-digit sales growth despite those supply chain challenges, but we have not seen

them ease. The changes from component to component, one day it's one issue, one day it's another issue, but at the macro level, we have not yet seen an improvement.

Andrew Bonfield

However, let me just add, one of the things, if you recall, Jamie, is normally we have a stronger first half, from a production perspective, particularly in Construction Industries. Obviously, normally, you would see revenues decline in the second half. We don't expect that, because, obviously, we expect to be able to now use some of that production capacity to meet some of the end-user demand. Within Resource Industries, we will expect—we've had some commissioning delays, we continue to see that. We expect those to ease, which will help us in the second half, from a STU perspective, so that's not really supply chain related. Then, finally, in Energy & Transportation, as always, we do expect a stronger second half of the year. That, overall, gives us confidence, without any change in supply chain, that we should be able to see STU improvement in the second half of the year.

Operator

Your next question comes from the line of Tami Zakaria with JPMorgan. Your line is now open.

Tami Zakaria

Hi, good morning, and thanks for taking my question. Could you share ...

Jim Umpleby

Good morning, Tami.

Tami Zakaria

Hi. Could you share what your volume expectation is for the back half? It seems like your volume growth for the first half was in the 3% to 4% range. Do you expect that volume to improve sequentially in both 3Q and 4Q? What about pricing for the back half? Should we expect similar 8% to 9% pricing, as well, like you saw in the second quarter?

Jim Umpleby

To answer your first question, we do expect volume to grow and price to improve sequentially and year-over-year in the third and fourth quarters.

Andrew Bonfield

Yes, and as far as actually the percentage is concerned, obviously—the issue, obviously, in the second half, on a volume basis, there's—volume includes both services revenues, as well as STUs. So, obviously, dependent on how both of those perform, and on the sort of pricing level, as we've said consistently, we expect pricing to improve in the second half of the year, which should drive overall improvement as we go through the year. A reminder, we did have some price increases in the second half of 2021, as well.

Operator

Your next question comes from the line of Nicole DeBlase with Deutsche Bank. Your line is now open.

Nicole DeBlase

Yes, thanks. good morning, guys.

Jim Umpleby

Good morning, Nicole.

Nicole DeBlase

Hi. Maybe just digging into that last question from Tami a little bit, on the outlook for volume, is that improvement that you're expecting in the second half all, or predominantly, a function of end-user demand, or what are your expectations for dealer inventories, as well?

Andrew Bonfield

Yes, I mean, obviously, our expectation is for the full year, that we don't expect a significant change in dealer inventory. As you know, we have had a small build year to date. Obviously, it's dependent again where demand is product-by-product, for how those dealer inventory movements will occur for the remainder of the year, but obviously—and, also, part of the dealer inventory build is within Resource Industries, where we are having some commissioning delays. We expect those to work out as we go through the year. It really is mostly a function of end-user demand. As we say, the challenge for us at the moment is around being able to meet that end-user demand from a supply chain perspective.

Jim Umpleby

And is typically the case, Energy & Transportation will be stronger at the end of the year than they were in the first half of the year, particularly Solar Turbines.

Operator

Your next question comes from the line of David Raso with Evercore. Your line is now open.

David Raso

Hi, good morning.

Jim Umpleby

Good morning, David.

David Raso

Your backlog, surprisingly, went up sequentially, and the backlog right now seems like it covers most of your back half of the year, but, historically, not all the backlog ships that quickly, so I'm just curious. The order flow that you're getting for '23 right now, can you give us some insight into—we know you have a big backlog and still some supply chain issues, price/cost is getting better, but really trying to think about demand into '23. You do have some window with some of the order programs, the BOM program that you have where guys can order early for '23. Can you just give us some perspective on what you're seeing for equipment appetite for next year?

Jim Umpleby

Yes, a couple of comments. Our backlog increase of \$2 billion was primarily driven—was led by Energy & Transportation. As we've mentioned previously, we have seen an increase in orders from Solar Turbines, Oil & Gas customers, that will start to impact us in late 2022, and into 2023. Our backlog in Resource Industries remains healthy and would have increased if not for some Russia cancellations that we had. So, again, as we look forward, we're not making a prediction about 2023, but, again, that strong backlog does help us feel good. The other thing is, in Construction Industries, the Infrastructure Bill, we believe it will start to impact us in late 2022, and into 2023. So, again, for those—I'll provide that as color, although, obviously, we're not making a 2023 prediction at this point.

Operator

Your next question comes from the line of Jerry Revich with Goldman Sachs. Your line is now open.

Jerry Revich

Hi, good morning, everyone.

Jim Umpleby

Hi, Jerry.

Jerry Revich

Jim, I'm wondering if you could just weigh in with your views on how your mining customers will respond given the commodity price volatility we've seen over the past months, you know, how different is this environment versus 2018, where for a brief period of time and the correction we saw slowing replacement demand as the miners hit the pause button. Just wondering if you could compare and contrast based on your conversations with mining customers on prospective orders today. Thanks.

Jim Umpleby

Well, certainly, our mining customers continue to display capital discipline. Having said that, we're encouraged by the conversations that we're having with our mining customers. They're making decisions based on a very long-term view, and, of course, the energy transition is creating perceived additional demand for many commodities moving forward. Think about electric vehicles, think about other kinds of minerals that will need to be mined to support the energy transition. But, having said, we mentioned that we had some cancellations in Russia, but, again, we remain quite positive for the medium and long-term outlook for mining based on the conversations that we're having with the customers.

Operator

Your next question comes from the line of Chad Dillard with Bernstein. Your line is now open.

Chad Dillard

Hi, good morning, guys.

Jim Umpleby

Hi, Chad.

Chad Dillard

I have a question for you guys on manufacturing costs. You did about—I think it was \$966 million year-on-year increase. Is that the high-water mark for the year? Then, I'm just trying to think about the—or if you can quantify that inventory impact on corporate expenses for the quarter, and how to think about it for the year.

Andrew Bonfield

Yes, Chad, first of all, obviously, as we started the year, we did expect moderation of supply chain—of manufacturing cost increases as we went through the year, and obviously we start to lap some of the significant increases in the back half. Both material costs and freight cost inflation remains. I think we've taken the appropriate pricing actions, so we're optimistic about the ability for us to more than offset. Obviously, I'm not going to predict about where we are looking in Q3 and Q4. However, the delta between price and manufacturing costs, which is really the most important part from our perspective, will actually get wider, and that really is to help us, actually, catch back up some of the shortfalls we've seen over the previous few quarters. So, from a margin perspective, that will be a positive.

With regards to the corporate expenses, again, just to reiterate, corporate items and eliminations include a lot of items which are—they relate to the business units, but, obviously, they're not accounted for on a business unit-specific basis. The inventory impact is a reasonably sized number. It was about a hundred odd million last quarter and a similar number this quarter. The other things in there include things like warranty costs and profit in inventories. All of those things are impacts which actually do underlyingly impact the overall margins within the segments. Just one thing challenging for you guys to model, but, obviously, we're just trying to be as clear as we can about it.

Operator

Your next question comes from the line of Michael Feniger with Bank of America. Your line is now open.

Michael Feniger

Hi, everyone, and thanks for ...

Jim Umpleby

Hi, Michael.

Michael Feniger

Hi, everybody, and thanks for answering my question. North America retail sales in Construction, obviously, minus 3%. You discussed the supply constraints. I'm curious, when we look at—some of the rental branches and companies reported another quarter of double-digit growth there. Do you feel there's any competitive dynamics going on there, maybe losing share, in maybe smaller construction equipment by chance because of the supply constraints? How does Caterpillar kind of deal with this issue with rental continuing to, it feels like, gain share in this tight market? I'm curious of your views there. Thank you.

Jim Umpleby

Well, thanks for your question, Michael, and of course we have a rental business, as well, that our dealers are very focused on, and, again, we are in a supply chain constrained environment, so a dealer has to

make a decision between putting something in their rental fleet or selling it to a retail customer who wants that equipment, and so our rental fleet is aging. Having said that, we're not concerned about share, we're holding our own. It's really an issue of still strong demand and just our ability to completely meet that strong demand. Again, we did turn in a total company level double-digit sales growth.

Andrew Bonfield

Fundamentally, I mean, obviously, rental is a financing decision and obviously has cost implications. Obviously, for a lot of our customers who are using the machine on a more frequent basis, rental is not necessarily the best option because of the cost implications. That's why we do believe, over time, as the supply chain eases, they will be buying machines, and we know they do want those machines, but, obviously, on a short-term basis, they may use rental as a stopgap, until they are able to get their machine from us.

Operator

Your next question comes from the line of Stephen Volkmann with Jefferies. Your line is now open.

Jim Umpleby

Hi, Steve.

Stephen Volkmann

Hi, good morning, guys. Thanks for taking the question. My question is on the cost side. We've seen decreases in some of the metals and energy and freight indices that are sort of big and broad, and I'm wondering if you're starting to see any moderation in those costs yet, or if there's perhaps another quarter or two before that would start to kind of flow through.

Jim Umpleby

We're still dealing with an inflationary environment, and we have not seen a decrease from our suppliers as a result of commodity price reductions. As you know, it takes a while for those kind of changes to work their way through the supply chain, and, of course, there's volatility there, as well. So, no, the short answer to the question is, no, we haven't seen any moderation in those costs.

Operator

Your next question comes from the line of Mig Dobre with Baird. Your line is now open.

Mig Dobre

Thank you. Good morning.

Jim Umpleby

Hi, Mig.

Mig Dobre

Going back to the pricing discussion, you've done a little better than 9% in a quarter, but I'm sort of curious. If we're sort of thinking about the order intake that you had this quarter, relative to what actually

flowed through the P&L, can you give us a sense for how the pricing is looking for the most recent orders that you had here? I'm also thinking about your competitors, right? We saw some of your Japanese competitors report much lower price increases. So, I'm curious how you think about competitive dynamics globally around that. Thank you.

Andrew Bonfield

Yes, I mean, obviously, as we go through—I mean, obviously, as you know, we do have some price protection on orders in the backlog. That, as we say, is always taken into account when we're thinking about the decisions.

As far as the competitive dynamic, we are not seeing any impact on share as a result of the price increases we've taken. Obviously, we'll always keep a close eye on that. But, generally, as we said, we actually saw price being slightly better than we expected in the quarter, so that is a net positive for us, and, obviously, demand for machines remains strong, which helps from a pricing environment perspective.

Jim Umpleby

As you know, we've been very focused on services the last few years and one of the main elements of that is to increase the value that we provide to our customers, so it's not simply always a price discussion. We know we must be competitive, that's very important, but we also strive to deliver increased value to our customers, minimizing downtime, maximizing availability, great parts support, the dealers do a great job supporting them. So, again, it's more than just price we're really focused on through our services initiatives, increasing the value that we provide to our customers, and that's all part of their purchasing decision.

Operator

Your next question comes from the line of Kristen Owen with Oppenheimer. Your line is now open.

Kristen Owen

Great.

Jim Umpleby

Hi, Kristen.

Kristen Owen

Good morning. I wanted to follow up, actually, on the services and aftermarket strength that you reported in the quarter, and just if you could offer some context around how much of that is owing to some of the service alert capabilities and the agreements that you've been signing over the last several years, versus just what you're seeing from a utilization perspective, how much of the aftermarket parts is related to just equipment that's being used more frequently.

Jim Umpleby

Yes, it's a whole variety of issues, and certainly utilization is up, which we feel good about, but we're also gaining traction on our service initiatives, everything from the investments that we've made to increase parts availability using a system that we call PIC, which allows us to work with our dealers to ensure that

we have the right parts and anticipate what customers will need. We now have 1.2 million connected assets. So, that gives us much better visibility for everything, from getting the right parts to the right dealer, so that the customers get them when they need it, to allowing us to help customers avoid downtime, maximizing availability, maximize production. We've also invested significantly in our e-commerce capability and we're seeing good progress there. Again, a whole range of digital investments that we're making are really starting to produce results, and we're very bullish on that. It's really a combination of both. Certainly, utilization is up, but also we're seeing positive results from all the hard work of our teams over the last few years.

Operator

Your next question comes from the line of Steven Fisher with UBS. Your line is now open.

Jim Umpleby

Hi, Steve.

Steven Fisher

Thanks. Good morning. Just a regional question on the Construction segment. On Europe, first, you talked about—or can you talk a little bit more about what you're seeing from the end-user demand there and the feedback you're getting from dealers in the wake of softer market conditions? Is this kind of maybe a one-quarter thing ahead of what some of the stimulus might flow through there, or do you think we're kind of settling in for something that could be a little bit longer period of weakness there? Similarly, in China, are you getting any sense that recent announcements around stimulus could start to move the needle there more in a positive direction? Thank you.

Jim Umpleby

Starting with Europe, revenues were down in the quarter, largely a result of the strengthening dollar, so it's really a currency issue. General business activity has moderated in the EU, and we'll keep a close on that, but there are—as you know, there was an EU infrastructure package that passed and we're watching that closely, as well, and that certainly could positively impact us moving forward. So, again, we're watching it very closely. There's some positives and there are some things that aren't so positive, so we'll see how it all plays out.

In China, we have seen the market weaken, as I mentioned. We had a couple of very strong years in 2020, and particularly in 2021. It's too early for us to really predict what's going to happen there, to your specific question. Again, we'll continue to support our customers there. Again, what we see now, of course, is a weaker market for that 10-ton and above excavator market than we had previously.

Operator

Your next question comes from the line of Matt Elkott with Cowen. Your line is now open.

Jim Umpleby

Hi, Matt.

Matt Elkott

Good morning. Thanks, guys. Good to see the continued strong net growth in the backlog. I was hoping you guys can tell us if you've had any backlog cancellations, not related to Russia, as you discussed, but ones that can be attributable, directly or indirectly, to higher interest rates, lower commodity prices or the cooling in the housing market; and since the answer to this question may be short, on the locomotive side, I was hoping if you can comment on—I think your competitor just received a \$1 billion order from a class one on locomotive mods. I was hoping you can talk about your outlook for locomotive upgrades going forward, and do loco upgrades go into your service revenue?

Jim Umpleby

The answer to your first question is, no, we haven't seen cancellations, outside of Russia. Again, demand remains strong across most of our end markets, and, as we've been discussing here this morning, our backlog is up. So, again, we haven't seen cancellations. In Rail, yes, there are—obviously, we're always working to produce our—to maximize our service revenue in locomotives, and, yes, upgrades that we perform do go into services if we do service work on those locomotives. So, again, as you know, the number of stored locomotives is still high, it's below the 2020 peak, but, again, we continue to support our customers and that produces service opportunities for us in Rail.

Operator

Your next question comes from the line of Tim Thein with Citigroup. Your line is now open.

Jim Umpleby

Hi, Tim.

Tim Thein

I just wanted to circle back—hi there—just to circle back to the discussion earlier on rental, but more from the standpoint of the potential opportunity for CAT into '23. You mentioned the aging of the fleet, but we're hearing a lot from dealers, at least in the U.S., about the size of the rental fleet being smaller than they'd like, so I'm just curious is there a—I know you're not going to give us a point estimate, but is there a way to think about a range of outcomes in terms of reinvestment in rental assets into '23 by the dealer base, and, obviously, what that could mean from CAT's standpoint, just as you replenish those rental yards? Thank you.

Jim Umpleby

Thank you, and, certainly, dealer inventory and dealer rental fleets are lower than most dealers would like at the moment due to a combination of strong demand and the supply chain constraints we have. I do believe that when supply chain constraints start to ease, both of those represent an opportunity for us to get our dealer inventory back more towards what would be typical for them to expect, and also give them an opportunity to increase their rental fleets, as well. So, I do believe, again, not time-bounding that, but certainly when supply chain conditions ease, that does create an opportunity for us.

Operator

Your next question comes from the line of Dillon Cumming with Morgan Stanley. Your line is now open.

Dillon Cumming

Hey, good morning, guys, and thanks for the question.

Jim Umpleby

Hi, Dillon.

Dillon Cumming

I was just wondering if you could kind of expand on your prepared remarks in terms of what you're seeing on the resi side of the Construction portfolio, versus the non-res side. I think you mentioned resi, in particular, has been pretty strong for you guys for almost the past two years, so I'd imagine dealer inventories are probably pretty lean at this point, but, I guess, do you feel that part of the portfolio might start to become a drag in the back half of the year and into next year, just given some of the softening that we've seen and the housing-related data points.

Jim Umpleby

Well, you know, residential demand today remains healthy for us. Certainly, it could moderate somewhat due to some interest rates and inflation. However, non-residential demand is stable, outside of China. Again, as I mentioned, due to the Infrastructure Bill, we are bullish that non-residential construction in North America, the U.S. particularly, will improve due to the Bill in late 2022 and into 2023.

Andrew Bonfield

Just a reminder to everybody, when we do see demand softening in certain areas, that always—because we're in a supply chain constrained time, and particularly around things like engine control modules, that means those can be reallocated to areas where there's stronger demand. So, net/net, shouldn't actually have any impact on us, overall.

Ryan Fiedler

Operator, we have time for one more question.

Operator

Your final question today comes from the line of Rob Wertheimer with Melius Research. Your line is now open.

Rob Wertheimer

Hi, thanks. Good morning, everybody.

Jim Umpleby

Good morning, Robert.

Rob Wertheimer

My question is really on kind of production and manufacturing. The segment discussion that you gave was interesting, sort of maybe a leading indicator given the current cost accounting on the segments, and so one question is does price alone get you to your margin expectations for the back half, or do you have to improve anything on supply chain and manufacturing to get there, given the segments look lower than the total?

Then, more fundamentally, Jim, I don't know if you can address how you feel the production system is working, how other metrics you look at, whether it's quality or safety or flow, are doing? Are we seeing just cost inflation and a mismatch with price versus cost, or are we seeing any tangles in the production system that are more fundamental? Thank you.

Andrew Bonfield

Obviously, yes, Rob, we are still seeing issues in the factories which are causing some impact on variable labor and burdens across that. Obviously, our assumption in the second half is that those will be slightly better, but not necessarily flowing through as efficiently as possible. We're continually working through as best as we can to make sure of that. But, price is the biggest driver, because obviously, as you know, we put through those increases in order to try and offset some of that material costs and inflation that's gone through. But, yes, there is inefficiency, but we're hoping that some of that will ease as we go through the remainder of the year.

Jim Umpleby

Rob, just to add on to that, as you know, we worked very hard on our Lean manufacturing processes over the last few years, and it has been a struggle just given the supply chain challenges that we have. We all learned a new term call "decommit," where our supplier, or one of their suppliers, decommits, so we get some last-minute surprises. We're certainly not operating our factories as efficiently as we would like, as efficiently as we did before we started to come out of the pandemic, but, again, we're continuing to work those issues hard. Again, it's something that I'm proud of the team. Despite those issues, which is creating some inefficiencies, which is creating some additional costs, we were still able to turn in double-digit top line growth during the quarter.

Ryan Fiedler

All right, thank you, Jim, Andrew, and everyone who joined us today.

A replay of our call will be available online later this morning. We'll also post a transcript on our Investor Relations website as soon as it's available. You'll also find a second quarter results video with our CFO and an SEC filing with our sales to users data. Click on investors.caterpillar.com and then click on Financials to view those materials.

If you have any questions, please reach out to Rob or me. The Investor Relations general phone number is (309) 675-4549.

We hope you have a great rest of the day. Now, let's turn the call back to Emma to conclude our call.

Operator

Thank you for attending today's conference call. You may now disconnect.