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Travis Axelrod

Good afternoon, everyone, and welcome to Tesla's Second Quarter 2024 Q&A Webcast. My name is Travis [indiscernible], Head of Investor Relations, and I'm joined today by Elon Musk; Vaibhav Taneja a number of other executives.

Our Q2 results were announced at about 3:00 p.m. Central Time in the update deck we published at the same link as this webcast.

During this call, we will discuss our business outlook and make forward-looking statements. These comments are based on our predictions and expectations as of today. Actual events or results could differ materially due to a number of risks and uncertainties, including those mentioned in our most recent filings with the SEC.

[Operator Instructions] Before we jump into Q&A, Elon has some opening remarks. Elon?

Elon Musk

Thank you.

So to recap, we saw large adoption acceleration of EVs and then a bit of a hangover as others struggles to make compelling UVs.

So there have been quite a few competing electric vehicles that have entered the market, and mostly, they have not done well, but they have discounted their EVs quite substantially, which has made it more difficult for Tesla. We don't see this as a long-term issue, but really it's fairly short term.

And we still obviously firmly believe that EVs are best for customers and that the world has had for a fully electrified transport not just of cars, but also aircraft and boats.

Despite many challenges, the Tesla team did a great job executing, and we did achieve record quarterly revenues. Energy storage deployments reached an all-time high in Q2, leading to record profits for the energy business. And we're investing in many future projects, including AI training and [indiscernible] and great infrastructure to support future products. We won't get too much into the product road map here because that is reserved for product announcement events. But we are on track to deliver a more affordable model in the first half of next year. The big -- really, by far, the biggest differentiator for Tesla is autonomy. And in addition to that, we have scale economies and, I think we're the most efficient electric vehicle producer in the world.

So this -- while others are pursuing different parts of the AI robotics, we're seeing all of them. This allows for better cost control, more scale, quicker time to market and a superior product, applying not to -- not just do autonomous vehicles, but to autonomous humanoid robots like Optimist.

Regarding full self-driving and robotaxi, we've made a lot of progress with full self-driving driving in Q2. And with version 12.5 beginning rollout, we think customers will experience a step change improvement in how well supervises full self-driving works. Version 12.5 has 5x the parameters of 12.4 and [indiscernible] the highway and city stacks.

So the highway [indiscernible] at this point is pretty old.

So often the issues people encounter are on the highway. But with 12.5, we finally merged the 2 stacks.

I still find that most people actually don't know how good the system is. And I would encourage anyone to understand the system better to simply try down that the car drive you around.

One of the things we're going to be doing just to make sure that people actually understand the capabilities of the car is when delivering a new car, and when picking up a car for service to just show people how to use it. And just driving around the block. Once people use at all, that they tend to continue using it.

So it's very compelling. And this, I think, will be a massive demand driver, even unsupervised for self-driving will be a massive demand driver. And as we increase the miles between intervention, we will transition from [indiscernible] full self-driving to unsupervised full self-driving, and we can unlock massive potential in the fleet.

Print

We postponed the sort of robotaxi product unveil by a couple of months where it's shifted to 10/10, to the 10th of October. And this is because I wanted to make some important changes that I think would improve the sort of -- the robotaxi the thing -- the main thing that we're going to show. And we're also going to show up a couple of other things.

So moving it back a few months allowed us to improve the robotaxi as well as add in a couple of other things for the product unveil. We're also nearing completion of the South expansion of Giga Texas, which will [indiscernible] largest training cluster to date.

So it will be an incremental 50,100 [H1], plus 20,000 of our hardware for at Tesla AI computer.

With Optimus, Optimus is already performing tasks in our factory. And we expect to have Optimist production Version 1 and limited production starting early next year. This will be for Tesla consumption. It's just better for us to iron out the issues ourselves. But we expect to have several thousand Optimus robots produced and doing useful things by the end of next year in the Tesla factories. And then in 2026, ramping up production quite a bit. And at that point, we'll be providing Optimus robots to outside customers. There will be a production Version 2 of Optimus.

For the energy business, this is growing faster than anything else. This is -- we are really demand constraint rather than production constraint.

So we're ramping up production in our U.S. factory as well as building our -- building the mega factory in China that should roughly double our output, maybe more than -- maybe triple potentially.

So in conclusion, we're super excited about the progress across the board. We're changing the energy system, [indiscernible] push the economy.

We are taking is massive, but I think the future is incredibly bright. I really just can't emphasize just the importance of autonomy for the vehicle side and for Optimus.

Although the numbers sound crazy, I think, Tesla producing app volume with and supervised MSD essentially enabling the fleet to operate like a giant autonomous fleet. And it takes the valuation, I think, to some pretty crazy number [indiscernible] things on the order of \$5 trillion, I think that are probably not wrong. And long-term Optimus, I think, it achieves a valuation several times that number.

I want to thank the Tesla team for a strong execution and looking forward to exciting news ahead.

Travis Axelrod

Great. Thank you very much, Elon. And Vaibhav has his opening remarks as well.

Vaibhav Taneja

As Elon mentioned, the Tesla team rose to the occasion yet again and delivered on on funds with some notable recuts.

In addition to those records, we saw our automotive deliveries go sequentially. I would like to thank the entire Tesla team for their efforts in delivering a great quarter.

On the auto business front, affordability remains top of mind for customers and in response, in Q2, we offer reducing financing options to offset sustained high interest rates. These programs had an impact on revenue per unit in the quarter. These impacts will persist into Q3 as we have already launched similar programs. We're now offering extremely competitive financing rates in most parts of the world. This is the best time to buy a Tesla. I mean, if you're waiting on the sidelines, come out and get your car.

We had a record quarter on regulatory credits revenue as well. On net, our automotive [indiscernible] remained flat sequentially. It is important to note that the demand for regulatory credits is dependent on other OEM's plans for kind of vehicles they are manufacturing and selling as well as changes in regulations. We pride ourselves to be the the company with the most American-made cost, and are continuing our journey to further localize our supply chain, not just in the U.S., but in Europe and China as well for the respective factors.

As always, our focus is on providing the most compelling products at a reasonable price.

We have stepped up our efforts to provide more trims that have estimated range of more than 300 miles on a single charge. We believe this, along with the expansion of our supercharging network is the right strategy to combat range anxiety.

Since the revision of epic pricing in North America, we've seen traction rates increase meaningfully and expect this to be a driver of vehicle sales as the feature set improves further.

Cost per vehicle declined sequentially when we remove the impact of Cybertruck.

While we are experiencing material costs trending down, note that there is latency on the cost side and service reductions would show up in the P&L when the vehicles built with these materials get delivered.

Additionally, as we get into the second half of the year, it is important to note that we are still ramping Cybertruck and Model 3 and are also getting impacted by varying amounts of tariffs on both raw materials and finished goods.

While our teams are working furiously to offset these. Unfortunately, it may have an impact on the cost in the near term.

We previously talked about the potential of the energy business and now feel excited that the foundation that was made over time is bearing the expected results. Energy storage deployments more than doubled with contribution not just from Megapack but also Powerwall, resulting in record revenues and profit for the energy business. Energy storage backlog is strong.

As discussed before, deployments will fluctuate from period to period with some quarters seeing large increases and others seeing a decline. Recognition of storage gigawatt hours is dependent on a variety of factors, including logistics timing, as we send units from a single factory to markets across the world customer readiness and in case of EPC projects on construction activities.

Moving on to the other parts of the business, service and other gross profits also improved sequentially from the improvement in service utilization and growth in our collision repair business. The impact of our recent reorg is reflected in restructuring and other on the income statement.

Just to level set, this was about \$642 million of charge, which got recorded in the period. And I want people to remember that we called it out separately on the financials.

Sequentially, our operating expenses, excluding surcharges, reduced despite an increase in spend for AI-related activities and higher legal and other costs.

On the CapEx front, while we saw a sequential decline in Q2, we still expect the year to be over \$10 billion in CapEx as we increase our spend to bring a 50 GPU cluster on luck. This new center will immensely increase our capabilities to scale FSD and other AI initiatives. We reverted to positive free cash flow of \$1.3 billion in Q2. This was despite restructuring payments being made in the quarter, and we ended the quarter with over \$30 billion of cash and investments.

Once again, we've begun the journey towards the next phase for the company with the building blocks being placed. It will take some time, but will be a rewarding experience for everyone involved. Once again, I would like to thank the entire Tesla team for the reference.

Travis Axelrod

Great. Thank you very much, Vaibhav.

Now let's go to investor questions.

The first question is, what is the status on the Roadster?

Elon Musk

With respect to Roadster, we've completed most of the engineering. And I think there's still some upgrades we want to make to it, but we expect to be in production with [indiscernible] for next year. It will be something special.

Unknown Executive

Fantastic. The next question is about timing of robotaxi event, which we've already covered.

So we'll go to the next question. When do you expect the first robotaxi ride?

Elon Musk

I guess that, that's really just a question of when we expect the first -- or when can we do on supervised full self-driving. It's difficult, obviously, my predictions on this have been overly optimistic in the past.

So I mean, based on the current trend, it seems as though we should get miles between interventions be high enough that too far enough to humans that you could do unsupervised possibly by the end of this year. I would be shocked if we cannot do it next year.

So next year seems highly probable to me based on point simply plus the points of the curve of miles between intervention. That trend exceeds [indiscernible] for next year.

Unknown Executive

Thank you very much.

Our third question is, the cybertruck is an iconic product that wows everyone who sees it. Do you have plans to expand the cyber vehicle lineup to a cyber SUV or cyber van?

Elon Musk

I think we want to limit product announcements to when we have a special -- a specific product announcement events rather than earnings calls.

Unknown Executive

Great.

Our next question is, what is the current status of 4680 battery cell production? And how is the ramp-up progressing?

Unknown Executive

Polish production ramped strongly in Q2, delivering 51% more sales than in Q1, while reducing COGS significantly. We currently produce more than 1,400 [indiscernible] of 4680 cells a weekend. We'll continue to ramp up put as we drive cost out further towards the cost parity target we set for the end of the year. We've built our first validation side of truck with dry cathode process made mass production equipment, which is a huge cyclical milestone, and we're super proud of that. We're on track for production launch with Drysol. And this will enable cell costs to be significantly below available alternatives towards the original goal of the 4680 product.

Unknown Executive

Great. The next question is any update on Dojo?

Elon Musk

Yes.

So Dojo, I should preface this by saying I'm incredibly impressed by NVIDIA's execution and the capability of their hardware. And what we are seeing is that amount for NVIDIA hardware is so high that it's often difficult to get the GPUs. And there just seems there's -- I guess I'm quite concerned about actually being able to get steady in GPUs and when we want them. And I think this therefore requires that we put a lot more effort on Dojo in order to have -- in order to ensure that we've got the training capability that we need.

So we are going to double down on Dojo, and we do see a path to being competitive with NVIDIA with Dojo. And I think we kind of have no choice because the demand for NVIDIA is so high and it's obviously there obligation essentially to raise the price of GPUs to [indiscernible] will bear, which is very high.

So I think we've really got to make Dojo work, and we will.

Unknown Executive

Great. The next question is, what type of accessories will be offered with Optimus?

Elon Musk

There's -- Optimus has tend to be a generalized humanoid robot with a lot of intelligence.

So it's like saying what kind of access where we offer really human. It's just \$1 billion to be able to be backward compatible with human tests.

So it would use any accessories that are [indiscernible].

Unknown Executive

The next question is, do you feel you're treating people out of the joys of owning a Tesla by non advertisement?

Elon Musk

We want some advertising so want to say something?

Vaibhav Taneja

Yes, I'll say something.

Our fundamental belief is that we need to be providing the best for a set reasonable price to the consumers.

Just to give you a fact, in U.S. alone in Q2, over 2/3 of our sales were to -- deliveries were to people who had never owned a Tesla before and which is encouraging. We've spent money on advertising and other awareness programs, and we have adjusted our strategy. We're not saying no to advertising. But this is a dynamic play, and we know that we have not exhausted all our options and therefore, plan to keep adjusting in the later half of this year as well.

Unknown Executive

Great. The next question is on energy growth, which we already covered in the opening remarks.

So we'll move on to the next one. What is the updated time line for Giga Mexico? And what will be the primary vehicles produced initially?

Elon Musk

Well, we currently oppose on Giga Mexico.

I think we need to see just where things stand after the election Trump has said that heavy tariffs on vehicles produced in Mexico.

So it doesn't make sense to invest a lot in Mexico if that is going to be the case.

So we kind of need to see where things play out politically.

However, we're increasing capacity at our existing factories quite significantly. And I should say that the Cybertruck or robotaxi will be produced here at our headquarters at Giga, Texas.

Travis Axelrod

Thank you.

Elon Musk

and as well Optimus towards the end of next year for Optimist production version to the high-volume version of occupants will also be produced here in Texas.

Travis Axelrod

Great.

Just a couple more. Is Tesla still in talks with an OEM to license FSD?

Elon Musk

There are a few major OEMs that have expressed interest in licensing Tesla full self-driving. And I suspect there will be more over time. But we can't comment on the details of those discussions.

Travis Axelrod

Right. And the last one, any updates on investing in XAI and integrating [indiscernible] into Tesla software?

Elon Musk

I should say at Tesla learning quite a bit from XAI. It's been actually helpful in advancing wholesale driving and in building up the new Tesla data center. With reminding investing in AI, I think we need to have a shareholder approval of any such investment. But I'm certainly supportive of that if shareholders are the group probably I think we need to vote on that. And I think there are opportunities to integrate [indiscernible] into Tesla's software again.

Travis Axelrod

All right. Thanks very much. And now we will move on to analyst questions.

The first question comes from Will Stein from Truist. Will, and meet yourself.

William Stein

And this relates a little bit to the last 1 that was asked. Elon, I share your strong enthusiasm about AI and a recognized Tesla's opportunity to do some great things with the technology. But there are some concerns I have about Tesla's commercialization, and that's what I'd like to ask about.

Specifically, there were some new stories through the quarter that indicated that you redirected some AI compute systems that were destined for Tesla instead to XAI or perhaps it was to X., I'm not sure. And similarly, a few quarters ago, if you recall, I asked about your ability to hire engineers in this area. And you noted that there was a great desire for some of these engineers to work on projects that you were involved with, but some of them weren't at Tesla. They were instead at XAI or perhaps even [indiscernible] again.

So the question is when it comes to your capital investments, your AI R&D, your AI engineers, how do you make allocation decisions among these various ventures? And how do you make Tesla owners comfortable that you're doing it in a way that really benefits them?

Elon Musk

Yes. I mean I think you're referring to a very -- like an old article regarding GPUs.

I think that's like 6 or 7 months old. Tesla simply had no place to turn them on.

So it would have been a waste of Tesla Capital because we would just have to order H100s and have no place to turn them on.

So I was just this wasn't a big XAI from Tesla. There was no -- the Tesla test centers were full. There was no place to actually put them. The -- we've been working 24/7 to complete the South extension on the Tesla [indiscernible] Texas. That self extension is what will house the 50,000 H100s, and we're beginning to move the certain H100 server racks in place there. But we really needed -- we needed that to complete basically.

You can't just order compute -- order GPUs and turn them on, you need a data center.

So I want to be clear, that was in Tesla's interest, not contraries, teeter -- this has no to have to use [indiscernible] that South extension is able to take GPUs, which is really just this week.

We are moving the GPUs then there and we'll bring them online.

With regard to XAI, there's [indiscernible] that only want to work on AGI.

So what I was finding was that we're trying to get people to Tesla, they were only interested in working on ATI. That's not to say problems, and they wanted to start -- do a start-up.

So it was a case of either [indiscernible] startup or -- and not involved or they do a start-up not involved. Those are the 2 choices. This wasn't they would come to Tesla. They were not going to come to Tesla under any circumstances.

So yes.

Vaibhav Taneja

Yes. I mean I would even add that AI is a broad spectrum. And there are a lot of things which we are focused on full self-driving and also Optimus. But there is the other spectrum of AI, which we're not working on, and that's the kind of work which other companies are trying to do in this case, XAI.

You have to keep that in mind that it's a broad spectrum. It's not just 1 specific thing.

Elon Musk

Yes. And once again, I want to just repeat myself here. I tried to recruit him to Tesla, including to say, like, you can work on AGI if you want, and they refused. Only then was XAI [indiscernible].

William Stein

I really appreciate that clarification. If I can ask 1 follow-up. It relates to the new vehicles that you're planning to introduce next year? I understand this is not the venue for product announcements. But when we think about the focus, I've heard on the 1 hand that the focus is on cost reduction.

On the other hand, you also said that the Roadster would come out. Should we expect other maybe more limited variants like similar to the cars that you make today, but with some changes or improvements or different -- some other variability in the form factors. Should we expect that to be a significant part of the strategy in the next year or 2?

Elon Musk

I don't want to get into the details of product announcements. And we have to be careful [indiscernible] here.

So if you start announcing some great things, it could affect our near-term sales. We're going to making great products in the future just like we have in the past, end of story.

Travis Axelrod

Great. The next question comes from Ben Kallo from Baird.

Ben Kallo

When we think about revenue contribution and with energy growing so quickly and Optimus on the come, how do we think about the overall segments longer term? And then do you think that auto revenue will fall below 50% of your overall revenue? And then my follow-up is just on the last call, you talked about distributing compute on your new hardware. Could you just update us and talk a little bit more about that, the time line for it and how you would reward customers for letting you use their compute power in their cars?

Elon Musk

Yes. I mean, as I said a few times, I think the long-term value of Optimus will exceed that of everything else that Tesla combined.

So it's simply just never consider the usefulness utility of a [indiscernible] robot that's do pretty much anything you asked it.

I think everyone know it's going to [indiscernible] so it's [8 billion]people on.

So it's \$8 million right there. Then you've got all of the industrial uses, which is probably at least as much they can't wait warm.

So I suspect that the block to demand for general purpose [indiscernible] robots is in excess of 20 billion units. And Tesla has the most advanced human robot in the world, and Tesla is also very good at manufacturing, which these other companies are not. And we've got a lot of experience with -- the most experienced -- we're the word leaders in [indiscernible].

So we have all of the ingredients I think we're unique in having all of the ingredients necessary for a steel, high utility, [indiscernible] robots.

That's why, my rough estimate long term is in accordance with the invest analysis of market capital on the order of \$5 trillion for -- maybe more for autonomous transport, and it's several times that number for general-purpose human robots. I mean, at that point, I'm not sure what money even means, but in the benign AI scenario, we are headed for an age of abundance, where there is no shortage of business services. Anyone can have pretty much anything you want. It's a wild -- pretty wile future we are head for.

Travis Axelrod

And on the the distributed compute?

Elon Musk

Yes.

Just 2distributed compute. It seems like a pretty obvious next to I think the whether distributed compute becomes interesting is with next-generation [indiscernible], which is Hydro, what we're calling AI5, which is from the standpoint of [indiscernible] comparable to B200 and a bit of b200. And we're aiming to have that in production at the next year and scale production in 2016.

So it just seems like if you've got autonomous vehicles that are operating for 50 or 60 hours a week, there's 168 hours in a week.

So we have somewhere above, I think, 100 neural net computing.

I think we need a better with the GPU because GPU means [indiscernible].

So there's a 100 hours plus per week of AI compute, AI first compute from the fleet in the vehicles and [indiscernible] percentage from [indiscernible] that it would make sense to do distributed inference. And if you there's a fleet of at some point, 100 million vehicles with AI5 and beyond AI6 and 7 and what not, and the maybe billions of human robots, that is just a staggering amount of inference compute that could used for general purpose computing. Doesn't have to use it [indiscernible] robot or for the car.

So I think that's a pretty obvious thing to say like, well, it's more useful than how do nothing.

Travis Axelrod

Right. Thank you. The next question comes from Alex Potter from Piper myself.

Alex Potter

Perfect. I wanted to ask a question on FSD licensing.

You mentioned that in passing previously. I was just wondering if you can elaborate maybe on the mechanics of how that would work? I guess, presumably, this would not be some sort of simple plug-and-play proposition that presumably an OEM would, I don't know, several years to develop its own vehicle platform that's based on FSD. I imagine they would need to adopt Tesla's electrical architecture, compute, sensor stack.

So correct me if I'm sort of misunderstanding this, but if you had a cooperative agreement of some kind with another OEM, then presumably it would take you several years before you'd be able to recognize licensing revenue from that agreement. Is that the right way to think about that?

Elon Musk

Yes. The OEMs do not move fast. That's not really a sensor suite. It's just cameras, but they would have to integrate our AI computer and have cameras with a 360-degree view. And at least the gateway like the -- what talks through the Internet and communicates with the Tesla system, it would be you need kind of a gateway computer too.

So it's really a gateway computer with cellular and WiFi connectivity, the Telsa AI computer and 7 cameras [indiscernible] commerce to get a 360-degree view. But this will -- given the speed at which the auto industry moves, it would be several years before you would see this in volume.

Alex Potter

Okay. Good. That's more or less what I expected.

So then the follow-up here is, if you did sign an FSD licensing agreement with another automaker, when do you think you would disclose that? Would you do it right when you sign the agreement or only after that multiple years has passed and the vehicle is ready to be rolled out?

Elon Musk

I think it depends on the OEM. I guess we'd be happy either way.

Vaibhav Taneja

Yes, it depends on what kind of arrangement we enter into a lot of those things are [indiscernible] we're not in the sort yet.

So we'll make that determination as and when we get to that point.

Elon Musk

And the kind of deals that are obviously relevant are only some OEMs willing through this in 1 million cars a year or something significant because not if it's like 10,000 or 100,000 a year. We could just take that ourselves.

Travis Axelrod

All right. The next question comes from Dan Levy from Barclays.

Dan Levy

First, I wanted to start with a question on Shanghai.

You've leveraged Shanghai as an export center really do its low cost, that makes sense. Maybe you can just give us a sense of how the strategy changes, if at all, given the implementation of tariffs in Europe? Also to what extent your import of batteries from China into the U.S., how that might change given the tariffs?

Vaibhav Taneja

Yes.

I think I covered some part of it in my opening remarks. But just to give you a little bit more.

Just on the tariff side, the European thoughts did sample certain other OEMs in the first round to establish the tariffs for cars being imported from China into Europe.

While we were not picked up in our individual examination in the first round, they did pick us up in the second round. They visited our factory. We worked with them, provided them all the information, as a result, we are adjusting our import strategy out of China into Europe. But -- and one other thing to note is, in Q2 itself, we started building right hand for Model Ys out of Berlin and we also delivered it in the U.K.

And we're adjusting as needed, but we will keep -- we're still importing Model 3s into Europe out of Shanghai. And we are still evaluating what is the best alternate [indiscernible] all this.

Just on the examination by the European authorities, like I said, we cooperated with them well.

We are confident that we should get a better rate than what they have imposed for now, but this is literally wording, and we are adjusting as fast as we can with this.

It is -- I would also add that because of this, you've seen the impact that Berlin is doing more imports into places like Taiwan, as well as the U.K. I just mentioned.

So it will keep changing, and we will keep adapting as we go forward.

Dan Levy

As a follow-up, I wanted to ask about the robotaxi strategy. And specifically, the shareholder deck here notes that the release is going to be -- 1 of the gating factors is regulatory approval.

So maybe you could help us understand which regulations specifically are the ones that we should be looking for? Is it FMVSS that's standard? And then to what extent does the strategy shift? You've done with FSD more of a nationwide, no boundary approach. Is the robotaxi approach one that's more geo-fenced, so to speak, and is more driven by a state-by-state approach?

Elon Musk

I mean our solution is a generalized solution like what everybody else has.

If you see the [indiscernible] on fit, they have very localized solutions that requires high-density mapping. It's not -- it's quite fragile.

So their ability to expand, I believe, is limited.

Our solution is a general solution that works anywhere. It would even work on a different [indiscernible].

So if you [indiscernible] it on new earth, it would work on new earth.

So it's this capability.

I think in our experience, once we demonstrate that something is safe enough or significantly safer than human, we find that regulators are supportive of deployment of that capability. It's difficult to argue with -- if you have got a large number of -- if you've got billions of miles that show that in the future unsupervised FSD is safer than human, what regulator could really stand in the way of that. They're [indiscernible] obligated to approve.

So I don't think regulatory approval will be a limiting factor. I should also say that the self-driving capabilities that are deployed outside of North America are far behind that in North America.

So with Version 12.5, and maybe 12.6, but pretty soon, we will ask for regulatory approval of the Tesla supervised FSD in Europe, China and other countries. And I think we're likely to receive that before the end of the year. There will be a helpful demand driver in those regions.

Travis Axelrod

Thanks...

Unknown Executive

In terms of like as Elon said, in terms of regulatory approval, the vehicles are governed by FMS in U.S., which is the same across all 50 states. The grided rules are the same across all 50 states.

So creating a generalized solution gives us the best opportunity to deploy in all 50 states recently.

Of course, there are state and even local municipal level of regulations that may apply to being a transportation company, you're deploying taxes. But as far as getting the vehicle on the road, that's all federal and that's very much in line with what Elon was suggesting up the data in the vehicle itself.

Ashok Elluswamy

And to add to the technology point, the end-to-end network basically makes no assumption about the location. Like you could add data from different countries, and it just like perform equally well there. the take almost close to 0 give a specific core in there. It's all just the data that comes from the U.S.

Lars Moravy

Yes. To that end, [indiscernible], gets like we can go as humans to other countries and drive with some reasonable amount of assessment in those countries, and that's how you design the FC software.

Ashok Elluswamy

Yes, exactly.

Travis Axelrod

Great. Thanks, guys. The next question comes from George from Canaccord.

George Gianarikas

Maybe just to expand on the regulatory question for a second. And I could be comparing apples and oranges, but GM canceled their pedalless, wheelless vehicle, and according to the company this morning, their decision was driven by uncertainty about the regulatory environment. And from what we understand, and again, maybe I'm wrong here, but the robotaxi that has been shown, at least in the images of the public is also pedalless and wheelless. Is there a different regulatory concern just if you deploy a vehicle like that, that doesn't have pedal pedals or a wheel and that may that be different from just regular FSD on the traditional Tesla vehicle.

Elon Musk

Well, obviously, the real reason that they can't is because GM can't make it work, not because of regulators, they're blaming regulators. That's misleading [indiscernible] do so because Waymo is doing just fine in those markets.

So it's just that their technology is not at par.

George Gianarikas

And maybe just as a follow-up, I think you mentioned that FSD take rates were up materially after you reduce the price. Is there any way you can help us quantify what that means exactly?

Vaibhav Taneja

Yes. We've shared that how -- that we've seen a meaningful increase. I don't want to get into specifics because we started from a low base, but we are seeing encouraging results. And the key thing here is, like Elon said, we need to experience it because words can't describe it till the time we actually use it. And that's why we are trying to make sure that every time a car is getting delivered, people are being sure how this thing is working. Because when you see it working, you realize how great it is. I mean, just to give you 1 example.

So again, there's a [indiscernible] example, but I have more than 20-mile commute into the factory almost every day. I have the 0 interventions on the latest [indiscernible], and the car just literally drives me over. And especially with the latest version wherein we're also tracking your eye movement, the steering wheel lag almost not there as long as you are in glass.

Elon Musk

We're fixing the [indiscernible]. It's coming soon.

So you will be able to -- you'll be able to have some glasses on and had to contract -- so -- but there's these number of times I've talked with smart people who like live in New York or maybe downtown Boston and don't ever drive and then ask me about FSD, I'm like, you can just get a car and try it. And if you're not doing that, you have no idea what's going on.

Travis Axelrod

The next question comes from Pierre from New Street. Pierre.

Pierre Ferragu

So it's on robotaxi, again, and I completely get it that with a universal solution we will get like regulatory approval. We get there eventually clicking up miles and confident, et cetera. And my question is more how you think about deployment? Because I'm still like -- I'm thinking once you have a car that can drive everywhere that can replace me, it can replace a taxi. But then to do the [indiscernible] service, you need a certain scale. And that means a lot of cars on the road.

And so you need an infrastructure to just maintain the cars, take care of them, et cetera.

And so my question is, are you already working on that? Do you have already an idea of what like your plan to deploy looks like? And is that like a Tesla-only plan? Or are you looking at partners, local partners, global partners to do that? And then I have a quick follow-up.

Elon Musk

This would just be the Tesla network.

You just literally open the Tesla app and summon a car and we sent a card and quickly open take somewhere. And our -- we will have a fleet that's on the order of 7 million [indiscernible] soon. In the U.S. come it will be over 10 million, then over 20 million. This is in that scale. And the car is able to operate 24/7 unlike the human drivers.

So the capability to -- like this basically instant scale with a software update. And now this is for a customer-owned fleet.

So you can think of that as being a bit like Airbnb, like you can choose to allow your car to be used by the fleet or cancel that and bring it back. It will be used by the fleet all the time, can be used by the fleet and some of the time and then Telsa take we churn the revenue with the customer.

If you can think of the drive fleet of Tesla vehicles as like each equivalent [indiscernible] Airbnb on wheels. I mean in addition, we would make some number of cars for Tesla that would just be owned by Tesla and be added to the fleet. I guess that would be a bit more like Uber. But this will be a Tesla network. And there's an important [indiscernible] we've put in every Tesla purchase, which is that the Tesla vehicles can only be used in the Tesla fleet. They cannot be used by a third party autonomy.

Pierre Ferragu

Okay. And do you think that scales like progressively, so you can start in a city with just a handful of cars, a new you grow the number of cars over time? Or do you think there is like a critical mass you need to get to, to be able to offer like a service that is of competitive quality compared to what like Uber would be typically delivering already?

Elon Musk

I guess I'm not -- I'm not conveying this correctly. The entire Tesla fleet basically becomes active. This is obviously -- maybe there's some number of people who don't want their car to earn money. But I think most people will. It's instant scale.

Travis Axelrod

Thank you.

Our next question comes from Colin from Oppenheimer.

Colin Rusch

I've got 2 questions around energy storage.

With the types of [indiscernible] the stationary storage, can you talk about your pricing strategy? And how you're thinking about saturation in given geographies given that some of these larger systems are starting to shift wholesale power markets in a pretty meaningful way quickly.

Vaibhav Taneja

So yes, I mean, we are working with a large set of players in the market and our pipeline is actually pretty long. And there is actually a very -- there's actually a long end in terms of where you enter into a contract to where delivery starts happening.

And so far, we have good pricing leverage, and I'll Mike chime in on this, too.

Unknown Executive

Yes. I mean there's a lot of competition from Chinese OEMs, just like there is in the vehicle space.

So we're in close contact with our customers and making sure that we're remaining competitive in where they're needing to be competitive to secure contracts to sell power and energy in the markets. We had a really strong contracting quarter and continue to build our backlog for 2025 and 2026.

So we feel pretty good about where we are in the market. We realize that competition is strong, but we have a pretty strong value proposition with offering a fully integrated product with our own power electronics and site level control so...

Vaibhav Taneja

Yes. And again, the aspect which people do not fully understand is that there's also a whole software stack which comes with Megapack, right? And that is a unique proposition, which we have -- which is only available to us, and we're using it with other stuff, too, but that gives us a much more of an edge as compared to the competition.

Elon Musk

Yes, we find customers that they can sort of put together a [indiscernible] solution and then sometimes they'll pick our solutions. And then that doesn't work, and then they come back to us.

Unknown Executive

Yes. And we're not really seeing saturation like on a global scale. There's little pockets of saturation in different markets, but we're more seeing that there's markets opening up given demand on the grid just continues to increase more than anyone expects.

So that just opens up markets really across the world in different buckets.

Vaibhav Taneja

Yes. I mean just even on the AI compute side, these lease GPUs are really powerful. And the amount of new pipeline, which we're getting for people, for data center backup and things like that is increasing at a pretty large scale.

Colin Rusch

And then there is there in the 4680 process technology in the older process, there's some news around your equipment suppliers. Can you talk about how far along you were in potentially qualifying an incremental supplier around some of those critical process technology steps?

Lars Moravy

Yes, I can talk about that. as you're probably referring to the lawsuit that we have with 1 of our suppliers. Look, I don't think this is going to affect our ability to roll out 460.

We have very strong IP position in the technology. And the majority of the equipment that we use is in-house designed and some of it is in-house build.

And so we can take our IP stack and have someone else build it if we need to.

So that's not really a concern right now.

Elon Musk

Yes.

I think people don't understand just how much demand there will be for storage. They really just like the pure I think are understanding this demand by product orders [indiscernible].

So the actual energy -- total energy output of say, the U.S. grid is, if the power plants can operate at steady state is at least 2 to 3 times the amount of energy currently produces. Because there are a huge gap -- because there's a huge difference in the -- from peak to trough in terms of entity or power generation.

So in order for a grid to not have blackouts, it must be able to support the load at the worst minute of the worst day of the year. The coldest or hardest day, which means that for the rest of the time -- the rest of the year, it's got massive excess power generation capability, but it has no way to store that energy.

Once you add battery packs, you can now run the power plants at steady state. Steady state means that basically any given grid anywhere in the world can produce in terms of cumulative energy in the course of the year, at least twice what it is currently producing. That's cases maybe 3x.

Travis Axelrod

All right. Thank you.

Elon Musk

That's a very profound thing.

Travis Axelrod

Thank you, Elon. The next question comes from Colin Langan from Wells Fargo.

Colin Langan

Great. Thanks for taking my questions. Do you hear me? Yes. Yes. I guess we can ask Trump wins, there's a higher chance that IRA could get cut.

I think Elan, you had commented online that Tesla doesn't survive on EV subsidies. But when Tesla lose a lot of support via goes away, I think Model 3 and Y get IRA held for customers, and I think your batteries get production tax credits.

So just can you clarify if the [indiscernible], would it be a negative for your profitability in the near term? Why might it not be a negative? And then any framing of the current support you get IRA-related.

Elon Musk

I guess that there would be like some impact, but I think it would be devastating for our competitors, but -- and we're that slightly. But long term probably actually helps Tesla would be my guess -- yes -- but as I said this before earning calls, it -- the value of Tesla overwhelmingly is autonomy. These other things are in the none relative to autonomy.

So I recommend anyone who doesn't believe that too old, big autonomy should keep not cold Tesla stuff. They should sell it Tesla stuff.

If you believe Tesla will solve autonomy, you should bake as a start. And all these other questions are in the noise.

Vaibhav Taneja

Yes. I mean I'll ask this just to clarify a few things that -- at the end of the day, when we are looking at our business, we've always been looking at it whether or not AI is there. And we want our business to grow healthy without having any subsidies coming in, whichever you look at it. And that's the way we've always modeled everything. And that is the way internally, also even when we're looking at battery costs, yes, there are manufacturing credits which we get, but we always drive ourselves to say, okay, what if there is no [indiscernible] benefit? And how do we operate in that kind of an environment?

Like Elon said, we definitely have a big advantage as compared to our competition on that front. We've delivered it and you can see it in the numbers over the years.

So there is -- you cannot ignore the fundamental side of the business. And then on top of it, once you add autonomy to it, like Elon said, it becomes miles to and think about the short term.

Travis Axelrod

Okay.

I think that's unfortunately all the time we have for today. We appreciate all of your questions. We look forward to talking to you next quarter. Thank you very much, and goodbye.