Q2 2014 Earnings Call

Company Participants

- Deepak Ahuja
- Elon R. Musk
- Jeffrey B. Straubel
- Jeffrey K. Evanson

Other Participants

- Adam Jonas, Morgan Stanley & Co. LLC
- Andrea Susan James, Dougherty & Co. LLC
- Ben J. Kallo, Robert W. Baird & Co., Inc. (Broker)
- Brian A. Johnson, Barclays Capital, Inc.
- Colin Michael Langan, UBS Securities LLC
- Colin W. Rusch, Northland Capital Markets
- John D. Lovallo, Bank of America Merrill Lynch
- Patrick K. Archambault, Goldman Sachs & Co.
- Rod A. Lache, Deutsche Bank Securities, Inc.
- Ryan J. Brinkman, JPMorgan Securities LLC

MANAGEMENT DISCUSSION SECTION

Operator

Good day, ladies and gentlemen, and welcome to the Tesla Motors Second Quarter 2014 Financial Results. At this time, all participants are in a listen-only mode. Later, we will conduct a Q&A session, and instructions will follow at that time.

I would now like to turn the call over to your host, Jeff Evanson. Please go ahead.

Jeffrey K. Evanson {BIO 1535168 <GO>}

Thank you, Patrick, and good afternoon, everybody. Welcome to Tesla's second quarter financial results Q&A webcast. I'm joined today by Elon Musk, Tesla Chairman and CEO; JB Straubel, Tesla Chief Technology Officer; and Deepak Ahuja, Tesla's Chief Financial Officer.

We announced second quarter results today in our quarterly Shareholder Letter. The letter is available at this time as a link to our website at ir.teslamotors.com. There will also be a replay of this webcast available later today at the same link.

Please note that certain financial measures used in this call, such as revenue and income, are expressed on a non-GAAP basis and have been adjusted to exclude the effects of lease accounting used on Model S sales with a residual value guarantee and charges related to stock-based compensation. Our GAAP results and reconciliations to non-GAAP measures can be found in the Shareholder Letter.

During this call, we may discuss our business outlook and make other forward-looking statements. Such statements are predictions based on management's 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.

If you would like to ask a question, please press *1 at this time. And, Patrick, why don't we turn it on over to the first question, please?

Q&A

Operator

The first question comes from Adam Jonas with Morgan Stanley. Your line is open.

Q - Adam Jonas {BIO 3339456 <GO>}

Hey, everybody. First, I had a question on your forward year guidance of 100,000 unit run rate by the end of 2015. Can you give us some sense of how much of that's coming from China? I mean, we understand that demand for your products in China is off-the-charts strong, but we're a little concerned about your ability to deliver and service the volume while focusing 100% on the quality and building the brand authenticity. So maybe how many China stores or service centers would you need by this time next year that might be commensurate with that volume target?

A - Elon R. Musk {BIO 1954518 <GO>}

Sure. Well and just to sort of give you like rough guesses on the 100,000 run rate at the end of next year, which I think it's obviously one of the most interesting things in our newsletter, which you picked up on. We're expecting that to be sort of roughly split between X and S, so we're talking a little over – it's roughly 1,000 units a week of each. And when you look at the market demand for SUVs and sedans, that's about the split; it's almost exactly 50/50. In fact, I think recently, SUVs might have slightly edged ahead of sedans.

So if we – so it's sort of reasonable to expect to that if one has – just, I'll address the demand and then the servicing side of things. It's reasonable to expect that if we see sort of a comfortable 1,000-unit demand on the sedan side, well, probably we should expect that – a similar number on the SUV side. My guess is we'll actually see slightly higher on the SUV side. I think the Model X is going to be a phenomenal car.

On the service front, we are spending a lot of money on service expansion. That's our primary, in the sales and service arena, it's primarily service, like the overwhelming majority is service-related.

Q - Adam Jonas {BIO 3339456 <GO>}

Good.

A - Elon R. Musk {BIO 1954518 <GO>}

So it's not really, like I couldn't say there's not demand generation, but how do we make sure that that demand is well served? So in terms of number of stores by the end of next year – or number of service centers, I should say, by the end of next year, actually I don't have that offhand. But it's probably on the order of 100 in China alone, I'm guessing, by the end of next year. But we are – and probably worldwide, it's on the order of 300. This is – I'm speaking off the cuff here.

Q - Adam Jonas {BIO 3339456 <GO>}

Sure.

A - Elon R. Musk {BIO 1954518 <GO>}

But so probably north of 300 worldwide. And I'd say I've been very impressed with the Tesla China team and the quality of people that we're attracting in China. I mean, I think the Chinese team is smart and they work super-hard. And the pace of progress is just amazing. So I feel pretty comfortable about being able to do good service in China, or great service, actually. In fact, like the key metric we measure in service is the percentage of customers that are delighted, which is a 10 out of 10 score. That's the primary thing we look at, and our goal is to get that worldwide to a majority of customers. And domestically, I believe we're actually sort of-

A - Operator

(5:55)

A - Elon R. Musk {BIO 1954518 <GO>}

Yeah. In the U.S. we're about 70% of customers who experienced service rated as perfect or yeah, 10 out of 10 essentially. And another key metric we measure is the average time to service something. So, our average is less than a day. So the car is – so in most cases, we can actually pick up your car, fix anything that's wrong with it, and give it back to you without you even knowing it was gone. So you just tell us, my car is at my office and this is where it is and we'll pick up the car, fix it and get it back to you before you've finished work.

Q - Adam Jonas {BIO 3339456 <GO>}

Wow.

A - Elon R. Musk {BIO 1954518 <GO>}

Our goal with service is sort of invisible up, which is you don't even – it's like elves serviced you. You don't even see it, it happens so fast, and when it's done you love it. So I think there's an interesting opportunity to revolutionize service as well. It's not just like, oh, just do the same thing as before. I mean, there's a lot of lessons we could learn from the Formula 1 crew approach, because we're not trying to milk customers for the most amount of money possible in a service, which is typical of the conventional auto industry, we want to get the job super-fast and then also make sure that you don't – like we want to anticipate issues so you don't have to come back again. And so, we actually bring the car in and we kind of hit it with a pit crew, like a Formula 1 pit crew.

So instead of having one person per bay, the car gets slowly worked on over several days. It actually comes in and a team attacks it, and we're constantly improving the tools and the metrics to say, how we can get the car perfect as fast as possible? We're actually bringing in people from Formula 1 to help with the training on this, and I think there's a real opportunity there to revolutionize the way service works.

Q - Adam Jonas {BIO 3339456 <GO>}

That's great color, Elon. Can I just ask a follow up? Outside of BMW, can you say any other parties that have expressed interest in your patent-sharing gesture? And I'm curious to think why the industry is moving towards hydrogen in this – or so much of the industry seems to be pushing hydrogen like crazy in the past few months? Is this some kind of bullshit move to kind of get CARB to rewrite the rules on EVs or do you think they actually believe this stuff? And then just finally, can you confirm the rumor that Mr. Burns tries to kill you by running you over in an I8? Thanks.

A - Elon R. Musk {BIO 1954518 <GO>}

He does intend to kill me in The Simpsons, but not in an I8.

Q - Adam Jonas {BIO 3339456 <GO>}

Maybe a Volt?

A - Elon R. Musk {BIO 1954518 <GO>}

Yeah. Well as you know, I'm not the biggest proponent of hydrogen. It's our view, JB and my view and the rest of the team at Tesla, is like that really if you take a theoretically optimal fuel-celled car and compare that to a current in-production battery electric car on key metrics of mass, volume, complexity, cost, refueling infrastructure, it's a loss. So if the best case in our opinion, if the best case fuel cell car, and obviously, the current fuel cell cars are from best case, cannot beat the current case electric car, well, why even try? That just makes no sense. Success is not one of the possible outcomes. Right? JB, is there anything you'd want to elaborate on that?

A - Jeffrey B. Straubel {BIO 16619298 <GO>}

I think that really is pretty clear. The only real benefits that get touted for fuel cell and hydrogen vehicles are potentially range and refuel time, but both of those are not

any (10:36) benefits when you look at where battery technology is today and certainly where it's going in a few years. So I think people make a mistake of comparing today's technology with future potential technology instead of two technologies at the same point in time.

A - Elon R. Musk {BIO 1954518 <GO>}

Yeah. Even if you take the theoretical optimal, like theoretically perfect fuel cell car, I just don't think you...

Q - Adam Jonas {BIO 3339456 <GO>}

So, but then, JB, why are they doing this? That's why I ask if it's BS. Is this kind of a diversionary tactic? Or do you think they're just not on – what's up?

A - Elon R. Musk {BIO 1954518 <GO>}

We're quite confused about this.

A - Jeffrey B. Straubel {BIO 16619298 <GO>}

Yeah, it does not make a lot of sense. And we didn't even touch on the infrastructure challenges that hydrogen brings, but building out that infrastructure is substantially more expensive than building out any electric vehicle infrastructure, and there's almost none of it today.

A - Elon R. Musk {BIO 1954518 <GO>}

Yeah, also, I don't think people understand, like hydrogen is an energy carrier, not an energy source. So you have to create the hydrogen, which is really inefficient, because you either have to crack a hydrocarbon or electrolyze water.

A - Jeffrey B. Straubel {BIO 16619298 <GO>}

And if you want to do it renewably, the water electrolysis route is really the only game in town.

A - Elon R. Musk {BIO 1954518 <GO>}

Yeah, which is super-inefficient. Yeah. And then hydrogen has very low density, so if you're going to pick a chemical energy storage mechanism, hydrogen is a terrible choice, like at least do methane, CH4, you'd lock up the hydrogen with one carbon atom or something. Anyway...

Q - Adam Jonas {BIO 3339456 <GO>}

(12:16) answers the question.

A - Jeffrey B. Straubel {BIO 16619298 <GO>}

It doesn't make a lot of sense.

A - Elon R. Musk {BIO 1954518 <GO>}

Yeah.

A - Jeffrey K. Evanson {BIO 1535168 <GO>}

All right. Thanks a lot, Adam. We should get to the next caller, please.

Operator

Our next question comes from Andrea James with Dougherty & Company. Your line is open.

Q - Andrea Susan James {BIO 20758120 <GO>}

Thanks for taking my questions. First one's I guess about quality control. Can you talk about the improvements you've made in quality control and where you think it needs to go, maybe with a nod toward with what's going on with the drivetrain systems?

A - Elon R. Musk {BIO 1954518 <GO>}

Sure. We definitely had some quality issues in the beginning for the early serial number cars, because we were just basically figuring out how to make the Model S, and I think we've addressed almost all of those for current production cars. I mean, not all, but the vast majority have been addressed in cars that are being produced today. And we're also getting better at diagnosing what's wrong. Because in some cases, particularly with respect to the drive unit, we would think that something's wrong with the drive unit, but it's actually something wrong with another part of the car.

And then, we'd replace the drive unit and that wouldn't solve the problem, because the drive unit was not the problem. And we had one particular case where there was vibration and it was due to a cable detaching itself and touching the drive unit assembly and causing vibration to be transmitted to the body of the car. And it was somewhat pernicious, because if the cable moved a little bit and so that it didn't provide a conductive path, then the vibration would go away. If you'd replace the drive unit, you'd temporarily tuck the cable back and think the problem was solved, but then the cable would vibrate itself down and transmit the energy. So the cable thing takes us like – it's nothing to fix it. Literally, it's a $3 cable tie to solve it.

So, there's a bunch of things like which are just misdiagnosis of the problems that we've obviously addressed. There are a few items that will need – a fair number of drive trains will need to be serviced. It's actually related – one in particular is related to the differential and we need to shim the differential. It doesn't require drive unit replacement, it just requires a technician to insert a shim. We're going to have to do that on a fair number of cars. But that's like a $0.50 shim. So it's really – I wouldn't assume that there's going to be some vast number of drivetrains that will need to be replaced, but there's several service bulletins that we'll be instituting at once, many of which we already have instituted to address the issue.

And every week I have a product excellence meeting which is a cross-functional group, so we've got engineering, service and production and we go over all the issues that customers are reporting with the car and the action items that have to be addressed to get the car ultimately to the platonic ideal of the perfect car. That's what we're aiming for, because although I think we've got great service, the best service is no service. That's really what we want is a car that never needs to be serviced. And I think we're getting there quite rapidly.

Q - Andrea Susan James {BIO 20758120 <GO>}

Would you say you're satisfied or more so with the quality control function and team you have in place?

A - Elon R. Musk {BIO 1954518 <GO>}

I think at this point we've got an excellent quality control team and we weren't there in the beginning, but I'm confident that we're there now. I mean, our aspiration is order of magnitude better quality than any other car, and we will keep at it unrelentingly until we get there.

Q - Andrea Susan James {BIO 20758120 <GO>}

Okay. And then just to flip over to the Gigafactory, it says in the shareholder letter you've broken ground in Nevada and I guess it's out there in the blogosphere that construction's paused. So I guess my question is, why slow it down and do you have a drop-dead date for when you really need to make sure you're really up and going?

A - Elon R. Musk {BIO 1954518 <GO>}

Yeah, we've essentially completed the creating of the pad, the construction pad, for the Gigafactory in Nevada. So in terms of creating a flat pad and getting the rocky foundation, that is substantially complete. There's still a little bit of work ongoing. We're going to be doing something similar in one or two other states, which is something I previously said we'd do, because I think it makes sense to have multiple things going in parallel.

Before we actually go to the next stage of pouring a lot of concrete, though, we want to make sure we have things sorted out at the state level, that the incentives are there that make sense and are fair to the state and Tesla. But I do want to emphasize, Tesla's not going to go for deal that is unfair to the state or unfair to Tesla. We want to make sure it's compelling for all parties. And so I think on the Nevada side, at this point, the ball is in the court of the governor and the state legislature.

Q - Andrea Susan James {BIO 20758120 <GO>}

Is Panasonic having any input into the site selection process?

A - Elon R. Musk {BIO 1954518 <GO>}

We're keeping them closely informed so that they're aware of all the details. And they haven't volunteered advice necessarily. We'd certainly listen to their advice if

they provided it, but they seem to be in accordance with our theory on location.

A - Jeffrey B. Straubel {BIO 16619298 <GO>}

Yeah. And Tesla is managing all of the utilities and infrastructure at the Gigafactory sites, so in that regard, Tesla is basically aggregating the inputs and requirements from not just Panasonic, but other potential partners as well. So it's primarily Tesla's role to be evaluating those sites.

Q - Andrea Susan James {BIO 20758120 <GO>}

Appreciate it. Thank you so much.

Operator

Our next question comes from Ryan Brinkman with JPMorgan. Your line is open.

Q - Ryan J. Brinkman {BIO 16417954 <GO>}

Good afternoon. Thanks for taking my question. Earlier in the year, you had discussed a potential, I think, $4 billion to $5 billion investment in the Gigafactory through 2020. Is that still the number that you're working with? And I think, too, you had planned for the CapEx to be shared by the Gigafactory partners. In your press release this morning, you mentioned that Panasonic will provide equipment, you, the buildings, utilities, et cetera. Do you think you're on track to sign suppliers on to provide $2 billion to $3 billion of investment? And over what rough time period might we expect you to announce those partners and their respective investment commitments?

A - Elon R. Musk {BIO 1954518 <GO>}

Sure. That $4 billion to $5 billion number is, we think, probably accurate. I mean, particularly over, through 2020, I think it'll be maybe closer to $4 billion, maybe slightly less than that before we get to initial high-volume production. But then as we do continued investments to improve output and then improve the technology of the pack, I mean, it's probably closer to the $5 billion over the 2020 timeframe, but probably less than $4 billion to get up to serious production. And then of that number, we see Tesla probably providing 40% to 50% of the total; Panasonic, probably about 30% or 40%; the state, maybe 10%; and other industrial partners, about 10%, maybe 15% to 20%, depending upon how vertical we go with the factory.

And with having signed a contract with Panasonic, I mean, I think – well, I was never really – something that wasn't in doubt from my standpoint, but I think some of those people take things that Panasonic says which are – I mean, they're going to be fairly conservative in their words, but I think the actions are really what matter. And Panasonic has always taken the actions of an excellent partner. So we feel confident that there will be the amount of money needed to reach the 35-gigawatt hour level at the cell level and 50-gigawatt hour level at the module and pack level. Now, the module and pack stuff is all Tesla internal. And then, we're expecting a precursor – and the supplies or the precursor materials from the anode cathode separator, maybe the electrolyte to the also presence in the factory.

Q - Ryan J. Brinkman {BIO 16417954 <GO>}

Great. That's extremely helpful and reassuring, too. Switching gears, last question, is there anything you can say at all on the trend to Model X orders? I know you don't disclose backlog, but perhaps you could speak qualitatively to it? Maybe how it compares to when you first started taking Model S orders or how many are maybe returning customers? Is there any difference geographically and who is preferring an SUV versus a van in where the order's coming from, et cetera?

A - Elon R. Musk {BIO 1954518 <GO>}

Sure. Well first of all, it's important to appreciate for the X that – just to put the orders in context. There are no cars available for a test drive. There's no information about the cars in our stores because we're only selling the S. In fact, if somebody comes in and wants to buy the X, we try to convince them to buy the S, so we anti-sell it. And we don't really provide all that much information or details about the car or provide a really definitive statement on when you can get it. Despite all that, there's huge demand from all around the world for the X. Now I think that actually people are right, even though they don't really have enough information to know they're right, but they are.

Q - Ryan J. Brinkman {BIO 16417954 <GO>}

Great. Thank you.

A - Elon R. Musk {BIO 1954518 <GO>}

Our issue is not – we will not have a demand issue. Yeah.

Q - Ryan J. Brinkman {BIO 16417954 <GO>}

Thanks.

Operator

Our next question comes from Colin Langan with UBS. Your line is open.

Q - Colin Michael Langan {BIO 15908877 <GO>}

Oh, great. Thanks for taking my question. Just on the 100,000 exit rate in 2025, I guess that implies that the battery constraints will be limited. And at what point should we think the battery constraint limiting you until the Gigafactory comes online?

A - Elon R. Musk {BIO 1954518 <GO>}

Sure. I think you can sort of see – we see a path to potentially 150,000 cars a year, maybe if you really push it, 200,000 cars a year without the Gigafactory. So the Gigafactory's needed for that sort of next, that incremental 300,000 cars. But I would guess that probably it could be pushed to a couple hundred thousand units, cars a

year with the existing – without the Gigafactory. That's probably a good guess. So yeah, we'll sort of see where that leads.

Q - Colin Michael Langan {BIO 15908877 <GO>}

And on the Gigafactory, is the chemistry going to be the same battery chemistry that you're currently using or is that part of the discussions that are going on with Panasonic?

A - Elon R. Musk {BIO 1954518 <GO>}

There are improvements to the chemistry, as well as improvements to the geometry of the cell. So we would expect to see an energy density improvement and of course, a significant cost improvement. JB, am I right?

A - Jeffrey B. Straubel {BIO 16619298 <GO>}

Yeah. The cathode and anode materials themselves are next generation, so I mean, we're seeing improvements in the maybe 10% to 15% range on the chemistry itself.

A - Elon R. Musk {BIO 1954518 <GO>}

Yeah, and to energy density.

A - Jeffrey B. Straubel {BIO 16619298 <GO>}

Energy density. And then we're also customizing the cell shape and size to further improve the cost efficiency of the cell and packaging efficiency.

A - Elon R. Musk {BIO 1954518 <GO>}

Right. We've done a lot of modeling and trying to figure out what's the optimal cell size, and it's really not much – it's not a lot different from where we are right now but we're sort of in the roughly 10% more diameter, maybe 10% more height. But it's a cubic function, so it effectively ends up being just from a geometry standpoint probably a third more energy per cell, maybe 30%-ish. And then, the actual energy density per unit mass increases.

A - Jeffrey B. Straubel {BIO 16619298 <GO>}

Fundamentally, the chemistry of what's inside is what really defines the cost position, though. It's often debated what shape and size, but at this point, we're developing basically what we feel is the optimum shape and size for the best cost efficiency for an automotive cell.

A - Elon R. Musk {BIO 1954518 <GO>}

Yeah.

Q - Colin Michael Langan {BIO 15908877 <GO>}

But the chemical formula will be the same. It's just shaped differently? Or...

A - Elon R. Musk {BIO 1954518 <GO>}

No. No.

Q - Colin Michael Langan {BIO 15908877 <GO>}

It's a different formula.

A - Elon R. Musk {BIO 1954518 <GO>}

But – yeah. Yeah.

Q - Colin Michael Langan {BIO 15908877 <GO>}

Okay. And just one last question. It sounds like the Gigafactory might be very vertically integrated. How do you think about that for the assembly for the Model 3? Do you need to be highly vertically integrated or do you you'll probably outsource more of that to reduce the cost of that model?

A - Elon R. Musk {BIO 1954518 <GO>}

I don't think outsourcing decreases the cost. That tends to increase the cost, in our experience. It's just like the reason we don't – the reason we outsource stuff is just because we'd have too many fish to fry otherwise, but it's almost always the case that when we've insourced something, it got cheaper. Yeah, it's just – the thing that makes it really efficient is – or for any given technology level, is to say how far did that molecule move? And if the molecule's taking several roundtrips around the world, that's expensive. If it's just moving from one station to the next, then that's obviously lower cost. And so, the vertical integration just means that the molecule doesn't move as much, and it's not being put in a box and then put on a truck and then on a boat and then going through customs and stuff like that. So, but I think it's generally true that vertical integration and doing things at large scale results in cost reductions. I feel very confident of a 30% cost reduction per unit of energy. We're obviously going to target something higher than that.

Q - Colin Michael Langan {BIO 15908877 <GO>}

Okay, all right. Thank you very much.

Operator

The next question comes from Brian Johnson with Barclays. Your line is open.

Q - Brian A. Johnson {BIO 21263539 <GO>}

Yes. Thank you. Could you maybe help us understand how you think about the gap or how we ought to think about the gaps between production and deliveries? It looks like typically production's been running 900 units to 1,200 units in recent quarters ahead of deliveries. Your 4Q guide would actually imply deliveries roughly equal or actually a little bit higher than production. So can you help us kind of think through that?

A - Elon R. Musk {BIO 1954518 <GO>}

No, production in Q4 will still significantly exceed deliveries. The timeframe from when a car is produced to when it's delivered, it depends on the mix of domestic versus international, because when cars are sent to Europe or China they've got to obviously get on a boat and they've got to go through customs and it's sort of a more lengthy process. So our average time for delivery of a car in North America is about two weeks-ish there, and then for – but for international deliveries, you've got to add probably another three to four weeks on top of that. And we're trying to tighten that down a little bit. But then if you blend the two, then maybe it's an average delivery time of four or five weeks. So for cars made in October, they would all be delivered in Q4.

Q - Brian A. Johnson {BIO 21263539 <GO>}

Okay. I mean (31:10) – go ahead.

A - Deepak Ahuja {BIO 15935173 <GO>}

As we increase our overall production, there are two factors that drive the gap. One is the ramp of production increase. The other one is the mix of international markets.

A - Elon R. Musk {BIO 1954518 <GO>}

Right.

A - Deepak Ahuja {BIO 15935173 <GO>}

And even if the mix is the same, but we're increasing production, it creates a bigger gap each quarter. And then clearly as we are shipping more to right-hand drive markets and to China, our international mix is increasing, too. So each quarter it's a slightly different story, but certainly there will be a gap as we continue.

Q - Brian A. Johnson {BIO 21263539 <GO>}

Okay. So the implication of that, though, is your production rate in 4Q would be not slightly higher than 1,000 a week, but more than slightly higher than 1,000 a week?

A - Jeffrey B. Straubel {BIO 16619298 <GO>}

Sufficiently higher.

A - Deepak Ahuja {BIO 15935173 <GO>}

Yeah, it'd be sufficiently high that we'd still deliver to our expectations of slightly over 35,000 cars this year.

A - Elon R. Musk {BIO 1954518 <GO>}

Yeah, and at 1,000 cars a week, I mean 1,000 cars a week steady state implies a 50,000 roughly delivery number, in steady state. So it doesn't really need to be all that much beyond 1,000 to achieve our goal on average for the Q4.

Q - Brian A. Johnson {BIO 21263539 <GO>}

Okay. And if you think about the difference between the roughly 500 to 600 deliveries per week this quarter and the 1,000 a week rate you're talking about, how would you waterfall the step-up in terms of the contribution of the three key geographies: Europe, China and obviously, Hong Kong is part of that, and then North America?

A - Elon R. Musk {BIO 1954518 <GO>}

Long term, I'd probably say – well, there's not just China and Asia of course, but I think long term, we're probably looking at – this is just a guess, but it's maybe 40% Asia, 40% North America, 20% Europe as a rough guess. And like Asia is more than China for sure. We think we'll do reasonably well in Japan and we'll at some point go into Korea, Hong Kong. Hong Kong is part of China, of course. It's a special administrative zone, I guess, and Australia and New Zealand and that kind of thing. So it's probably 40% Asia Pacific region. And then we tend to do very well in our home markets in North America, hence the 40% there, and then Europe, the demand is just not generally as strong in Europe. But it's hard to say. Europe could end up being 25% or 30% of the mix. This is just a rough guess.

Q - Brian A. Johnson {BIO 21263539 <GO>}

Okay. Thank you.

Operator

Our next question comes from Rod Lache with Deutsche Bank. Your line is open.

Q - Rod A. Lache {BIO 1528384 <GO>}

Hi, everybody. You brought up a few times the future case electric car and you also mentioned that you're comfortable that even in the near term with a 30% reduction in costs for batteries, for packs, most of which you said is logistics. I wanted to ask you two things on that. One is that additional 10% to 15% that you talked about related to anode and cathode chemistry, and geometry. Is that incremental to the 30%? And if you took a step back and thought about the trajectory for this in the next 10 years rather than the next three years, what do you see on the horizon? Is there a case for $100 per kilowatt hour pack in 10 years?

A - Elon R. Musk {BIO 1954518 <GO>}

I would be disappointed if it took us 10 years to get to $100 kilowatt hour pack.

Q - Rod A. Lache {BIO 1528384 <GO>}

So basically, you're saying that within the next – within that timeframe, you would expect electric vehicles to reach cost parity and maybe even improve upon the cost of an internal combustion vehicle?

A - Elon R. Musk {BIO 1954518 <GO>}

Yes.

Q - Rod A. Lache {BIO 1528384 <GO>}

That's interesting. Now, another – that's a pretty big statement that you're making.

A - Elon R. Musk {BIO 1954518 <GO>}

It seems pretty obvious to me. But I just want to correct something. In your question you had the – something just should be corrected like the – so the 30% savings is not just due to logistics. Logistics is a big factor. We are...

A - Jeffrey B. Straubel {BIO 16619298 <GO>}

It's not even the biggest, though.

A - Elon R. Musk {BIO 1954518 <GO>}

Yeah. Well, logistics if you consider the fact that it's just going from one station to the next instead of going from multiple entities to multiple entities. But really, when you get to the economies of scale that we're talking about, you really get to design custom equipment that's much better at processing each step, and you really get to design the machine that makes the machine. Not just do so with off-the-shelf equipment. So just everything about it is going to get a whole lot better. That's why we think the 30% number when the Gigafactory is at full production is a conservative number. Yeah. And then, yeah, so-

Q - Rod A. Lache {BIO 1528384 <GO>}

To get to those targets beyond the 30%, is there some kind of breakthrough anode chemistries, or things that you're looking at that you think are highly probable that are needed, or is it just a bunch of incremental steps that you see playing out over the next years?

A - Jeffrey B. Straubel {BIO 16619298 <GO>}

We're tracking things that have a whole range of different horizons for implementation. But to realize the Gigafactory in those cost targets, we don't need some fundamental breakthrough in chemistry or material science. Those things are pretty well understood and in front of us. In the long term, there are a lot of very interesting – long term being perhaps the 10 years perhaps you mentioned or more, there's many very interesting things on the horizon with reducing probabilities as you go further out.

A - Elon R. Musk {BIO 1954518 <GO>}

Yeah. Absolutely. It's – yeah. It's heading to a place of no contest with respect to gasoline. But we're trying to make it go there as fast as possible, because time is important here. The sooner this can be done, the sooner we can reduce carbon

output and reduce the probability of a catastrophe. So yeah. But in the absence of the Gigafactory, this progress would be much slower.

Q - Rod A. Lache {BIO 1528384 <GO>}

Yeah. Just wanted to ask a quick kind of nearer-term question. Now that it sounds like you're buttoning down a lot of things with regard to the Gigafactory and expansion of service centers and things like this, can you share any high-level thoughts on how we should be expecting the trajectory of your CapEx, R&D, and SG&A as we look beyond this year? Just maybe some kind of broad ranges into next year?

A - Deepak Ahuja {BIO 15935173 <GO>}

Rod, we can share more details towards the end of the year as we look further out. But clearly, given the huge ramp-up in our deliveries and consequently our revenue, we should see a significant improvement in our operating expenses as a percentage of revenue as we move forward. And then we can provide you a little bit more granular guidance as we go further out.

A - Elon R. Musk {BIO 1954518 <GO>}

Yeah, and I should also say, like, in the past Tesla's, we've shown all of our cards, so people have kind of gotten used to us showing all of our cards. We're not currently showing all our cards.

Q - Rod A. Lache {BIO 1528384 <GO>}

Okay. All right. Well, thank you.

Operator

Our next question comes from Patrick Archambault with Goldman Sachs. Your line is open.

Q - Patrick K. Archambault {BIO 4638109 <GO>}

Hi. Thank you very much. Just a question on the cadence of sales. With the guide for deliveries of 78 for next quarter, it does appear that you are going to be starving some demand there, certainly, which is going to clearly get allocated into the following quarter once the changeover is done. But, I guess how do you think about just the risks of – associated with hitting that target? I guess if the math is right, I think you go from 78 to 13,000. It just seems like an awful big ramp, maybe not in absolute units but certainly you think about it almost doubling. So how should we think about that, and managing that?

A - Elon R. Musk {BIO 1954518 <GO>}

Sure. That's – like we try to – because I agree, it does seems like sort of a crazy leap, but we're trying to address that by pointing out that there's two weeks missing in Q3 because of the factory retooling and those are two weeks at fairly high production, so you can add almost 2,000 units to what Q3 really would be if didn't have that

two-week interruption. So it would actually be more like 9,500 units or something like that in terms of Q3 deliveries. And then it's like oh, okay, it's much more of a – you can see how we get from sort of from 7,500 to 9,500 to 12,000 or 13,000, whatever the case may be. The progression is much more sensible in that context, I think.

Q - Patrick K. Archambault {BIO 4638109 <GO>}

Yeah. It certainly helps us understand in terms of the underlying cadence of purchases, if you will, I suppose even though that we're talking about deliveries, but I guess the one question I would have is how about in terms of the number of service centers and just the logistics of actually being able to physically deliver these cars. Is that a constraint or risk in any way, I suppose?

A - Elon R. Musk {BIO 1954518 <GO>}

No, because we actually won't be delivering at the 1,000 or 1,000-plus per week rate at the end of Q3.

Q - Patrick K. Archambault {BIO 4638109 <GO>}

Okay. Understood. And then I guess another related question: if you have any color on this, if you just go through what you've laid out there and hold the regional delivery rates kind of constant with where they came in in Q2. I mean, most people have those through various sources. It does imply again that clearly, you're starving one or more regions in Q3 in terms of demand that they'd want but can't get, but for Asia it implies something like maybe 5,000 to 6,000 units of deliveries, at least on our preliminary math. And I guess that's a similar number that you did initially in the U.S. when you launched and is that something that you've got a backlog for already? I'm imagining the answer is yes, but was just kind of curious.

A - Elon R. Musk {BIO 1954518 <GO>}

Demand will not be a problem. Yeah. It's like an interesting little item, like how many stores are we building? Wow. We're building hardly any, building lots of service centers. We can drive demand up at will, but if we drive it up too much, then people get upset with us, because they wait too long for the car and one guy in China got so upset that when he got his car, he bashed it, which seems self-defeating, but his stated reason for bashing the car was that we took too long to deliver to him. I'm like, okay. But and when I was visiting China, the only unhappiness I saw was that because customers were upset about waiting too long for their car. So, but boy, we'd better not stoke demand in that situation. And sales per square foot on our stores, I believe Apple's normally the leader on sales per square foot. Our sales per square foot are double that of Apple's.

Q - Patrick K. Archambault {BIO 4638109 <GO>}

Thank you. That's helpful perspective. If I could just ask one more, just building on Rob's question, as you think about OpEx, I know you're not giving guidance for next year, Deepak, but clearly what you've laid out for your expansion of service and distribution, obviously that's an expense that we expect to increase in a fairly steady way. How do we think about just R&D in the shorter term? I mean obviously, it's fairly

elevated. I think the math implies more than 400 million this year, if I'm doing it right. Is that something that takes a little bit of a breather in terms of the growth rate or just given the significant product ramp you've got, it's something we should look to continue to increase in short order?

A - Deepak Ahuja {BIO 15935173 <GO>}

Yeah. We are doing a lot of product related actions at this point and that is creating an artificial bump, and especially the Model X and other activities that are going on. That will sort of slow down, but then, we're going to work on so many exciting things. I don't want to just suggest that R&D will slow down. I think if there is one place you want to spend money, it's there and do more exciting stuff. So I think we'll just provide information as appropriate further on.

A - Elon R. Musk {BIO 1954518 <GO>}

Yeah. I mean, in other words, our CapEx and R&D numbers are better than they appear because they're things you don't know about.

Q - Patrick K. Archambault {BIO 4638109 <GO>}

Well, okay. A lot of interesting stuff to look ahead to. Thanks for the color, guys.

A - Deepak Ahuja {BIO 15935173 <GO>}

You're welcome, Patrick.

Operator

Our next question comes from John Lovallo with Merrill Lynch. Your line is open.

Q - John D. Lovallo {BIO 16511598 <GO>}

Hey, guys. Thanks a lot for taking my call here. First question is, there's clearly a lot of excitement and anticipation about China. It just seems that the Chinese government is doing just about everything in their power to kind of favor the domestic OEs. I mean, whether it's the 10% purchase tax avoidance that won't apply to imports, the charging station standards that at this point don't seem to be compatible with Tesla's technology. Even I mean they're allowing, or thinking of allowing non-OEs to have licenses to produce autos, including the owner of Fiskar and A123 who might be in that race. So I guess the question is, how do you see this kind of environment developing? Do you think there's going to just increasing pressure from the Chinese government to kind of favor the domestic guys?

A - Elon R. Musk {BIO 1954518 <GO>}

Actually, I've been pretty impressed with the Chinese government at all levels, the city level and the national level. They have done some protocol actions, certainly maybe quite a bit in the past, but I don't think that's going to be the path going forward for them. And actually for the sales tax exemption, it does actually apply to non-Chinese cars, so I think you may have been misinformed there. We have to adhere to Chinese charging standards, but we are going to do so. The challenge was

that most standards weren't defined until about a month ago. So it's a little tricky to adhere to something that has not yet definitively been announced. Now that it has we're committed to meet those standards, and we expect to fit within the sales tax exemption. Yeah.

A - Jeffrey B. Straubel {BIO 16619298 <GO>}

It's actually a very, relatively simple matter to meet the Chinese standards. They're very familiar and quite close to the European standard.

A - Elon R. Musk {BIO 1954518 <GO>}

Right. Yeah, exactly. And we already meet the European standards. So we currently serve the U.S. standard, the European standards and then we'll be serving the China standard, which is as JB said, very similar to Europe.

Q - John D. Lovallo {BIO 16511598 <GO>}

Okay then, that's very helpful. Sorry. Go ahead.

A - Deepak Ahuja {BIO 15935173 <GO>}

Yeah, in Shanghai, we've put the exemption on the license plate fees, which is on an imported EV so it's not just for local EVs that those policies are being applied and we are having discussions in other cities where that's a possibility too. So I think so far, it's been overall a positive reception that we have received. So it's been good.

A - Elon R. Musk {BIO 1954518 <GO>}

Yeah. Yeah. They're genuinely committed to electric cars and it's not just about favoring local manufacturers, so yeah.

Q - John D. Lovallo {BIO 16511598 <GO>}

Okay. That's helpful. And I guess the second question would be recently, Edmunds put out a report on, I guess their first year with the Model S and obviously, everyone has their own opinion on this. But there's been a lot of talk about quality on the call and what Edmunds was saying and you may have read it is that there were something like 28 to 30 service campaigns that were not part of the regularly scheduled maintenance. And because of that, they couldn't recommend the car. So I just was curious how you guys might respond to that?

A - Elon R. Musk {BIO 1954518 <GO>}

Well, there were definitely – there's definitely some genuine issues with the Edmunds car. But they had one of our early production units and that's – in fact, most of the problems that they have encountered there are not present in current cars. We also – I think this may be – ended up being counter-productive, but the service team was ultra-proactive with the Edmunds car. So they would – they were doing their best to make Edmunds happy and I think unfortunately, that resulted in them changing things out that – just on the off chance something might go wrong. So and that drive unit issue that I mentioned earlier where the drive unit was sometimes replaced even

though it wasn't a drive unit problem, that happened with them twice. So it's an unfortunate sort of case, but I don't think it's broadly correct and it's definitely not correct for cars made in the past year.

A - Jeffrey B. Straubel {BIO 16619298 <GO>}

Yeah, if I might add one thing on the drive unit replacements as well, I think it's important to note that the drive unit is a very complicated sort of assembly of different components. And the pieces that have needed service and have failed internal to the drive unit are relatively not very expensive. And they're being replaced in order for expedience and to get the car back on the road for the customer in the minimum time.

A - Elon R. Musk {BIO 1954518 <GO>}

Yeah.

A - Jeffrey B. Straubel {BIO 16619298 <GO>}

But going forward we're looking at ways to repair them and give people back their same drive unit very, very quickly, in about the same amount of time. If you had to replace your internal combustion engine every time something small went wrong...

A - Elon R. Musk {BIO 1954518 <GO>}

Every time you needed a gasket or something.

A - Jeffrey B. Straubel {BIO 16619298 <GO>}

That's the scale scale (52:47).

A - Elon R. Musk {BIO 1954518 <GO>}

It's literally like the sort of small shim that I was mentioning is equivalent to replacing a minor gasket on an internal combustion engine. And normally, you wouldn't give someone a new engine for that, but our optimization was customer happiness, so until we knew exactly what to do, we just wanted to give people back their car right away.

A - Jeffrey B. Straubel {BIO 16619298 <GO>}

Yup.

Q - John D. Lovallo {BIO 16511598 <GO>}

Yeah, thanks a lot, guys.

A - Deepak Ahuja {BIO 15935173 <GO>}

Yeah. Just to add from a cost perspective since these are not significant, the overall impact on our warranty reserves has not been significant.

A - Elon R. Musk {BIO 1954518 <GO>}

Right. And we're going to be at it hardcore until our car is 10x better than any other car on the road.

Operator

Thank you. Our next question comes from Ben Kallo with Robert W. Baird. Your line is open.

Q - Ben J. Kallo {BIO 16897436 <GO>}

Hey. Thanks for taking my question. As we look ahead to next year and the 100,000 unit by the end of next year, is the biggest production increase happening right now over these two weeks? Or is there some other step that has to take place next year to get you to that level?

A - Elon R. Musk {BIO 1954518 <GO>}

Well, there is a big step that's expected to occur in Q1 next year, which is the bring-up of the body line, the SX body line. So what we did the past two weeks is the assembly line, what's basically the bits get put together. But then there's sort of, the body line is where the body itself is welded together, welded and bonded together, so it's like the core skeleton of the car is created. And so you can anticipate probably – well, I'm not sure. It may or may not be – so I take it back. We're going to bring the body line up in parallel with the current line.

A - Deepak Ahuja {BIO 15935173 <GO>}

Yes.

A - Elon R. Musk {BIO 1954518 <GO>}

So unlike this case with the assembly, we couldn't have two complete assembly lines. We had to stop and retool. In the case of a new SX body line, which is a line that's just designed to be capable of 2,500 units a week, maybe more than that, conservatively, 2,500 units a week at a lower cost point. We should be able to do that in parallel.

Q - Ben J. Kallo {BIO 16897436 <GO>}

Got it.

A - Elon R. Musk {BIO 1954518 <GO>}

And I should say, sorry. Another thing that's going to see a really big upgrade is the paint shop. There are a few cases where advanced CapEx spending makes sense even though it's going to pay off in two to three years, but it's just such a big improvement that you kind of want to do it even at a high discount rate. So our paint shop is being upgraded. It's going to be the most advanced automotive paint shop in the world.

Q - Ben J. Kallo {BIO 16897436 <GO>}

Got it.

A - Elon R. Musk {BIO 1954518 <GO>}

But it's expensive to do that.

Q - Ben J. Kallo {BIO 16897436 <GO>}

And then we like watching Halle Berry every week, but can you give us any details on when we can see the Model X? And then there's slightly different language about the alpha and beta that I think is new. So could you just tell us the difference between the alpha model and the beta model?

A - Elon R. Musk {BIO 1954518 <GO>}

Yeah. So the X that was produced, the sort of the show car or advanced prototype is sort of pre-alpha. The alpha itself is – the production – it's basically for production design. We're going to move very quickly from alpha to beta. So it's – in this case, like for the Model S, the alpha was a lot more primitive than the X will be, because of course, we didn't even – for the X, we've got all the chassis and powertrain stuff that's been done for the S that we can build upon. In the S case, we didn't have that. So it's really a very advanced alpha car that we are producing through the X. And we'll move to beta within three months. So it's a real fast alpha to beta, and you can expect to see production cars not in customer hands, but kind of on the road doing test and validation in Q1 next year. We'll have quite a few of those.

Q - Ben J. Kallo {BIO 16897436 <GO>}

Great. Thanks so much.

Operator

Our next question...

A - Elon R. Musk {BIO 1954518 <GO>}

And something I do want to emphasize with the X is because we're moving very quickly into a high production mode as opposed to the S. The Model S had a long production slope, starting off very slowly and then taking kind of six months to reach the 400 unit per week level. In the case of the X, we're going to try to move to sort of several hundred units a week within three months of production. So it's half, maybe less than half the length. Yeah. Focus on the X (58:41).

But because of that, we really want to do serious validation on the car, test the heck out of it before going into volume production.

Operator

Thank you. Our next question comes from Colin Rusch from Northland Capital Markets. Your line is open.

Q - Colin W. Rusch {BIO 15823117 <GO>}

Thanks so much, guys. I just wanted to make sure I heard these numbers right. So we're going from 1,000 to 2,000 cars a week in 2015. So if I take the midrange of that, about 1,500 cars a week or production levels of 78,000 cars per year. And if I heard correct on the delivery timeframes, you're at about two weeks in North America and something like five to six weeks overseas, which you're trying to shorten up. So we'd be thinking about works in progress of roughly 10%. So are those numbers right in terms of how I'm thinking about kind of targets for you guys for next year?

A - Elon R. Musk {BIO 1954518 <GO>}

It's difficult for us to predict the slope of next year. Like, so what does the slope – what does the exact curve of the production rise look like next year? We feel confident of X ending next year of 2,000 units a week of production and demand, absent some macroeconomic shock. But it's hard to say exactly what the area under the curve looks like. But it's – yeah. So, assuming more than 60,000, I would think, but yeah.

Q - Colin W. Rusch {BIO 15823117 <GO>}

Okay. That's perfect. And then can you talk about the weight reduction efforts that you've got going on right now with the vehicles and how should we think about the cadence of pulling weight out of the vehicle and potential translation of that into extended range?

A - Elon R. Musk {BIO 1954518 <GO>}

Well the partial on weight versus range, it's not super strong. There is an improvement but it's not a huge improvement. But the Model S has gotten steadily lighter over time. But it's really like, it's a quarter pound here, half pound there, but the Model S in production today is at least a few hundred pounds less than it started production. And we'll continue to see improvements over time.

So but to get to a step-change – I mean, there's so many pieces in the car, like you've got the battery pack, the motor, the transmission or the gearbox, the tires and wheels, the seats. I think if you had a big improvement in any one of those items, maybe with the exception of the battery pack, it only changes the weight of the car by 1%, 2% or something. These are all good things, but there's not one big block of lead sitting in the car that one can remove. It requires whittling away at a whole bunch of things.

A - Jeffrey B. Straubel {BIO 16619298 <GO>}

And the range impact is – the weight is one fraction of the impact on range (1:02:22), so it's even smaller than the direct percentage of weight reduction.

A - Elon R. Musk {BIO 1954518 <GO>}

Yeah.

Q - Colin W. Rusch {BIO 15823117 <GO>}

(1:02:29)

A - Elon R. Musk {BIO 1954518 <GO>}

But it is getting slightly better over time. It's hard for people to sort of perceive it from one month to the next, but if you look at it over the course of a year, you'd notice.

Q - Colin W. Rusch {BIO 15823117 <GO>}

All right. Thank you.

Operator

Our next question comes from Andrea James with Dougherty & Company. Your line is open.

A - Jeffrey K. Evanson {BIO 1535168 <GO>}

And, Patrick, I should've mentioned that we probably need to cut the call off after this question. So have this be the last question, please. Go ahead, Andrea. Sorry.

Operator

Please check your mute button. Andrea James, your line is open.

A - Elon R. Musk {BIO 1954518 <GO>}

Did she drop off, perhaps? We can move to a different question, I guess.

A - Jeffrey K. Evanson {BIO 1535168 <GO>}

I guess she's no longer in queue. So with that, I guess we'll call it a day and thank you, everyone, for joining the call. And we look forward to talking with you for our third quarter earnings release. Good-bye.

Operator

Ladies and gentlemen, thank you for participating in today's program. This concludes the program. You may all disconnect.