

Q2 2016 Earnings Call

Company Participants

- Elon Reeve Musk
- Jason S. Wheeler
- Jeff Evanson
- Jeffrey B. Straubel
- Jonathan McNeill

Other Participants

- Brad Erickson, Pacific Crest Securities
- Brian A. Johnson, Barclays Capital, Inc.
- Charlie Lowell Anderson, Dougherty & Co. LLC
- Colin Michael Langan, UBS Securities LLC
- Colin Rusch, Oppenheimer & Co., Inc. (Broker)
- Emmanuel Rosner, CLSA Americas LLC
- James J. Albertine, Consumer Edge Research LLC
- John J. Murphy, Bank of America Merrill Lynch
- Joseph Spak, RBC Capital Markets LLC
- Neel N. Mehta, Morgan Stanley & Co. LLC
- Patrick Archambault, Goldman Sachs & Co.
- Rod Lache, Deutsche Bank Securities, Inc.
- Ryan Brinkman, JPMorgan Securities LLC
- Tyler Charles Frank, Robert W. Baird & Co., Inc. (Private Wealth Management)

MANAGEMENT DISCUSSION SECTION

Operator

Good day, ladies and gentlemen, and thank you for your patience. You've joined the Tesla Motors Second Quarter 2016 Financial Results Q&A. At this time, all participants are in a listen-only mode. Later, we will conduct a question-and-answer session. As a reminder, this conference may be recorded.

I would now like to turn the call over to your host, Mr. Jeff Evanson. Sir, you may begin.

Jeff Evanson {BIO 17513488 <GO>}

Thank you, Latif, and good afternoon, everyone. Welcome to Tesla's Second Quarter 2016 Q&A Webcast. I'm joined today by Elon Musk, JB Straubel, Jason Wheeler and Jon McNeill.

Our Q2 results are in the update letter at the same link as this webcast. And today during our call, we'll discuss our business outlook, make forward-looking statements. These 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 SEC filings.

We're going to kick it off today with Jason making some quick comments, followed by Q&A. So please press star one now to get in the queue. And during the Q&A, please try and limit yourselves to one question, one follow up. Let's keep it tight because we've already talked once this week.

So, Jason, over to you.

Jason S. Wheeler {BIO 19481227 <GO>}

Sure. Thanks, Jeff, and thanks, everybody, for joining. I just wanted to make a few brief comments to add a little bit more color to this shareholder letter.

We're clearly disappointed with our delivery numbers, but there's some underlying stories that we feel really good about and I'm going to walk you through those briefly. First, automotive gross margin expanded this quarter. Automotive gross margin excluding ZEV credits grew from 20.1% in Q1 to 21.2% in Q2. A couple of different factors here. One was the Model S refresh. There was a modest price increase on the refresh but, more importantly, we had baked a number of cost-downs into that vehicle before the launch. And then the second big factor is obviously X production. We talked a lot about how we have come through the struggles on that and how we've managed to climb that production ramp, so that's looking great.

On a go-forward basis, the way we're thinking about margins is we certainly see opportunities for continued cost-downs, both on the engineering front, also on the commercial front as well. We've got a supplier base that is very excited about the Model 3 and it's giving us the ability to leverage that on commercial cost downs, also continue manufacturing efficiencies. As we mentioned in shareholder letter, labor hours per car is trending quite positively right now and we're laser focused on continued improvement in that key metric.

All right next, talk about the cash position for a second. All right, here's one way to think about it. We ended up with \$3.25 billion on the balance sheet at the end of the quarter. We started off the year - on December 31, 2015, we had \$1.2 billion. We raised \$1.7 billion in our secondary offering and we collected on our Model 3 reservations. Therefore, we are in a very healthy position from a cash perspective.

Couple different factors here to talk about. One, we've got \$678 million drawn on our asset-backed line. This is something that we've talked about in the past. That is definitely backed up by our operations. Two things there. One, approximately 5,000 cars in transit to customers at quarter end, so we're financing our FGI and we're monetizing our direct lease portfolio. Second factor on the cash position that we'd like to highlight is our continued CapEx discipline. As we talked about in Q1, we had \$217 million of CapEx in that quarter; in this quarter \$295 million of CapEx. We compare that to averaging nearly \$400 million a quarter throughout 2015. We're actually very pleased with these results and we're comfortable that we aren't doing anything to adversely impact our future.

On a go-forward basis, thinking about CapEx efficiency, you've heard Elon talk a lot about the machine that makes the machine. A big part of that is focusing on volumetric efficiency. In our call on Monday, I talked about how when we started to review a lot of the Model 3 CapEx plans across the company, there were a bunch of new buildings everywhere. And the reaction to that was, wait a second, we've actually got a nice facilities footprint already and how can we just densify those facilities and not have to invest further in this area? And we're starting to see a lot of that take hold now.

Second, I think we're making an attempt to crush the conventional wisdom that capacity increases only happen in step change increments and the capital that follows that in step change increments as well. And to put a little bit more color on that, there are many ways to optimize our current operations. The way to think about this is we can just drive greater throughput through the same investments. So, that's our cash position.

Finally, I'd just like to talk for a minute about expense management. In addition to our efforts on CapEx efficiency, we're also very focused on OpEx discipline. This quarter, SG&A would have been flat quarter-over-quarter in spite of our continued expansion in service and sales, were it not for the payroll taxes we paid on our CEO's options exercises. SG&A was up \$19 million quarter-over-quarter on a non-GAAP basis. \$17 million of that was the payroll expense associated with those option exercises. R&D now does continue to increase as we continued to march towards the Model 3 launch and continued to invest in our future. This is as predicted and as we've signaled in the past.

So to wrap it all up, we're very happy with the gross margin expansion in the quarter and we have increased our emphasis on OpEx discipline and CapEx efficiency. We believe our Q2 results reflect that and we're not backing down as we move forward.

Jeff Evanson {BIO 17513488 <GO>}

Great. Thank you, Jason. All right. Latif, let's go to the first question please.

Q&A

Operator

Thank you, sir. Our first question comes from Adam Jonas of Morgan Stanley. Your line is open. Mr. Jonas, please make sure your line isn't muted, and if you're on a speakerphone, lift your handset.

Q - Neel N. Mehta {BIO 18874951 <GO>}

Oh, sorry. It was muted. I'm going to ask this question on behalf of Adam Jonas. He had to drop off the call. This is Neel Mehta. This is coming directly from him. Elon, you have explained the strategic rationale for having SolarCity and Tesla Motors join in a combined company. When we think of SpaceX, is there any conceivable strategic rationale for Tesla Motors and Tesla Energy, or Tesla Solar, to work closely with the efforts of space exploration? And when we're thinking about this, we're thinking proprietary lower orbit satellite network to enhance the connected autonomous car ecosystem. So, yeah, just wanted to get your thoughts on that, first of all, and I have a follow-up as well.

A - Elon Reeve Musk {BIO 1954518 <GO>}

Yeah, I don't think there's a strong product rationale to combine SpaceX and Tesla whereas there is for Tesla and SolarCity. It's really quite tenuous for SpaceX and Tesla. And there's a little cooperation that happens between the companies, but it's not that would justify merging them into one entity.

Q - Neel N. Mehta {BIO 18874951 <GO>}

Got it. And can you also give us an update on Tesla's proprietary mapping initiatives?

A - Elon Reeve Musk {BIO 1954518 <GO>}

I think we would prefer to be confidential in that regard. It would be...

A - Jason S. Wheeler {BIO 19481227 <GO>}

All right. Latif, let's go to the next question.

A - Elon Reeve Musk {BIO 1954518 <GO>}

But what we've said thus far is that there's need to have much higher definition maps than currently exists anywhere in the world in order to have full autonomy. And we're in the process of building those and I think making good progress.

Q - Neel N. Mehta {BIO 18874951 <GO>}

Got it. Thank you.

Operator

Thank you. Our next question comes from the line of Brian Johnson of Barclays. Your line is open.

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

Yes. Thank you for taking my question. Couple of questions very much tied to cash flow and the borrowing capacity. First is just around customer deposits, which were a source of cash in the quarter, but looked to be about \$288 million. As of May, you had 373,000-ish Model 3 preorders, which would imply about a \$375 million inflow, or \$373 million. Could you maybe walk us between that number and what the actual change in deposits were, and in particular, where did Model 3 preorders end the quarter at?

A - Jason S. Wheeler {BIO 19481227 <GO>}

Sure. So in terms of thinking about the cash flow, yeah, you're doing your math correctly, but we also release deposits when we deliver cars. So, there's an inflow and there's an outflow there. And the deposits on the early Model X cars were larger than the later Model X cars as well, so that's one of the impacts there as well. In terms of the Model 3 reservations, the 373,000 number that you referenced is what we've talked about when we did our secondary offering. And we're sticking to that number in terms of disclosure.

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

Okay. Second question around the shift from increased on-balance sheet captive lending. My quick calculations, if you go up 8% in the back half off of your \$50,000 guide, that seems to be at \$100,000, about a \$350 million cash need. Now admittedly, you're paying your - actually it would be less with the cost of goods sold, call it \$250 million, \$280 million. Are you going to finance that out of your ABL? How quickly can you get another lease partner? And what do the amendments to the credit agreement for SolarCity do to your ability to borrow against that for this captive financing?

A - Jason S. Wheeler {BIO 19481227 <GO>}

Sure. So in terms of the - the ABL is definitely available for some of that for sure and then the overall liquidity position gives us confidence that we'll be able to do this. At the same time, we do have many active discussions going on with other lease partners and we're looking at other ways to do this as well. And I don't want to talk a lot about SolarCity on this call. That's not what it is, but they've got some pretty advanced capability and thinking through how to walk through this as well.

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

Okay. Thank you.

A - Jason S. Wheeler {BIO 19481227 <GO>}

Sure. Great questions.

Operator

Thank you. Our next question comes from the line of Charlie Anderson of Dougherty & Co. Your question, please.

Q - Charlie Lowell Anderson {BIO 1465734 <GO>}

Yeah, thanks for taking my questions. My first question is around the sharing of vehicles described in the updated master plan. So, if we're moving from 5% to 10% utilization of the vehicle to some larger number, I wonder what you think the ramifications of that might be on the number of cars that need to be produced every year. And then maybe the ramifications as it relates to the Supercharger if the cars are always driving around. And then I have a follow-up.

A - Elon Reeve Musk {BIO 1954518 <GO>}

Well, I think the demand for autonomous cars will vastly outweigh the production capability. So it's more in our mind that the global fleet of vehicles is about 2.5 billion roughly and total new vehicle production per year is only about 100 million. So, the fleet is basically turning over every roughly 20, 25 years. So we would have to make some truly enormous number of autonomous vehicles for there to be any land saturation because it will basically be the only car anyone wants to buy.

Q - Charlie Lowell Anderson {BIO 1465734 <GO>}

Thanks. And then for my second question, I wonder if you could clarify comments made on the last call about inverter technology. You mentioned having some of the best in the world for power electronics. So I wonder if you could just comment if indeed that's the case that you will be making your own inverter, and if so, what would be the benefit to the overall system with your inverter technology versus what's used today?

A - Elon Reeve Musk {BIO 1954518 <GO>}

Yeah, there's no question Tesla's going to do integrated inverter. It's the logical thing to do. I think we've got the most advanced inverter engineering team in the world, and so it makes sense to, just as we do the inventers on vehicles, to do it with solar as well and have it in a very tight package at a cents per watt level that is I think probably twice as good as anyone else. I think maybe better than that.

So, that's like the obvious move there, and as part of what we're referring to as kind of an integrated product, I mean, if you place yourself in the consumer's shoes, you just want it to work. You don't want to know how it works. You don't care about the details. It's just got to work reliably, look good, not take up a ton of space, the buying process has got to be easy. You can check up on it with the app on your phones. There's only one phone app. You want it to be easy. You want it to just work. You want it to be affordable. You want it to look good. So, that's what we're going to do.

A - Jason S. Wheeler {BIO 19481227 <GO>}

Yeah, and I think, just to add to that, when power electronics work well, you really don't even notice them. I mean, no one thinks about...

A - Elon Reeve Musk {BIO 1954518 <GO>}

Exactly.

A - Jason S. Wheeler {BIO 19481227 <GO>}

...buying an inventor for your electric car. Don't even know it has one.

A - Elon Reeve Musk {BIO 1954518 <GO>}

Most people don't even know what an inverter is. They've never heard of this thing.

A - Jason S. Wheeler {BIO 19481227 <GO>}

So yeah. Our goal is...

A - Elon Reeve Musk {BIO 1954518 <GO>}

And that's not... yeah.

A - Jason S. Wheeler {BIO 19481227 <GO>}

Our goal is to basically make them seamless, and make it, as Elon said, easy for people to use so they don't have to worry about what an inverter is, how it works. It's just all integrated into one simple system. Just like it is in the car.

Q - Charlie Lowell Anderson {BIO 1465734 <GO>}

Right. Thanks so much.

A - Elon Reeve Musk {BIO 1954518 <GO>}

Most people don't even know what AC or DC is. If you ask, so what's DC current? Or, what's direct current? What's alternating current? They would not be able to tell you. A lot of people don't even know the difference between power and energy. One's in kilowatts, another one's in kilowatt hours, and they don't need to know, like there's not a good reason for them to know. Stuff should just work and take care of itself.

A - Jeff Evanson {BIO 17513488 <GO>}

Latif, next question?

Operator

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

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

Oh, great. Thanks for taking my question. Can you just give an update of the Model S demand? In the press release, you indicate Model S and Model X orders are up about 65% year-over-year. But if we look at deliveries and production of the Model S, it hasn't changed that much since Q4. And you're rolling out the lower-priced 60

kWh version. So if demand is up so much, why offer a lower-priced model and why hasn't production really been up that much more?

A - Jonathan McNeill {BIO 4091220 <GO>}

So, it's Jon. I'll give you a little bit of color on the demand, which has been healthy for Model S in the second quarter and into the third quarter as well. As we mentioned in the shareholder letter, we didn't have cars in the European market with the new refresh until the last month of the quarter, but despite that, we had year-over-year growth in Model S demand. And we had some very healthy growth in the markets where we had cars in stores, so we had double digit growth in both North America and China, really healthy growth in both of those markets.

That growth has continued into the third quarter, but one of the reasons we introduced the 60 kWh was we saw more Model 3 demand than we anticipated. We talked about that last quarter, and a number of those reservation holders said to us, we'd love to be in a Tesla today if you could provide a more affordable version of the Model S. Our battery technology allows us to do that, and so we introduced the 60 kWh. And that's generated demand out of a new market segment that is reaching down into that Model 3 reservation holder territory and portends really good things for a future Model 3 demand, but it's opened up a very nice segment for us for Model S.

A - Elon Reeve Musk {BIO 1954518 <GO>}

People are not buying the base model. They're like, they buy the 60 kWh, and then they option it up quite a bit. So it ends up having like an average sale price, like over \$80,000, and then actually all the 60 kWh's actually have the 75 kWh capacity. It's just software limited. There's potential for them to upgrade it over time and certainly for the resale value of the car to be enhanced when it's returned to Tesla by unlocking the additional 15 kilowatt hours of that factory capability.

So, I mean, I think in sort of a nutshell, one way to think about Tesla right now is that we're right around 2,000 cars a week and we're trying to balance the mix to be roughly half Model X and Model S. There are some variations depending upon regionality. Some parts of the world prefer more SUVs. Some prefer more sedans. And we do tend to batch up our cars. This is why occasionally you see nonsensical articles about Tesla's demand suddenly rising in some country or suddenly falling. It's got nothing to do with that. It just happens to be when the ship arrived.

But a high-level overview is just we see demand being fairly strong at an average of 2,000 cars a week and we're able to maintain production at that level, notwithstanding occasional supplier hiccups. And then hopefully, we can grow that a little bit towards the end of the quarter and then a little more in Q4. And our aspiration that's unvarnished here, this is just what we're aiming to do internally is to do a little better than 2,000 a week in sales and deliveries in Q4, combined Model S and Model X. I feel fairly optimistic about achieving that goal. Yeah, I think our core business is actually doing quite well right now.

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

Just as a follow up. Any update on stationary storage? I think your original target for \$400 million to \$500 million for this year and the \$5 million for next year, any just color on how that's trending?

A - Elon Reeve Musk {BIO 1954518 <GO>}

Heavily engineering and production constraints. We've got some next-generation technology and we're going to split up that production line. So, it's going to be heavily concentrated in Q4 and probably even heavily in November and December. But I think it's going to be really exciting when people see it. So, that's why I expect kind of exponential growth from there. I think it's really going to go ballistic.

A - Jonathan McNeill {BIO 4091220 <GO>}

Yeah, and we have been making quite a few background investments in the markets where we're growing, setting up the teams and setting up to get ready for expanded product installation and distribution, especially in places like Australia and Germany. So, some of that takes a bit of time but it's laying the infrastructure for faster growth.

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

Okay. Thanks very much.

A - Jeff Evanson {BIO 17513488 <GO>}

All right. Latif, let's go to the next question, please.

Operator

And next question comes from the line of Colin Rusch of Oppenheimer. Your question, please.

Q - Colin Rusch {BIO 15823117 <GO>}

As you look forward and without the residual value guarantee, can you talk about what's going to happen with the warranty expense on the vehicles?

A - Elon Reeve Musk {BIO 1954518 <GO>}

Sure. So, I think the way to think about warranty, and we put this in the shareholder letter, our ongoing reserves is roughly consistent with what it's been, with what it was last quarter. And the RVG really doesn't have an impact on warranty expense. Really, warranty expense is all about reliability, and reliability is something that we are constantly monitoring. And as we see positive things happen or things, they go in the other direction with reliability, that's how we think about the ongoing reserves for warranty.

Q - Colin Rusch {BIO 15823117 <GO>}

Okay.

A - Elon Reeve Musk {BIO 1954518 <GO>}

So I don't think the -

A - Jason S. Wheeler {BIO 19481227 <GO>}

Okay. Yeah, yeah, I feel like the quality, I think, has improved quite dramatically, specifically with respect to Model X. We had a lot of challenges in the production ramp. That's always the most difficult time when you're going from zero to 1,000 cars a week. It's just you've got to pull at this huge baggage train of suppliers along with you and you've got to solve a lot of issues internally so that production ramp is a lot of hurt. But now we're pretty stable at the 2,000 cars a week level. And every time we (22:42), it's getting better. So that each passing week gets better and better. And so I actually feel pretty good about our warranty reserves actually declining over time as a result of that.

Q - Colin Rusch {BIO 15823117 <GO>}

Okay, great. And then my follow up is around Mobileye and the ending of that partnership and how you guys are going to approach that functionality going forward with the driver assist in the autonomous driving push going forward.

A - Elon Reeve Musk {BIO 1954518 <GO>}

I think we'll have a more significant announcement on that later. So it's not really - earnings call is not the right time for that except that it will be a Tesla solution, internal solution.

Q - Colin Rusch {BIO 15823117 <GO>}

Okay, great. Thanks, guys.

Operator

Thank you. Our next question comes from the line of Ryan Brinkman of JPMorgan. Your line is open.

Q - Ryan Brinkman {BIO 16417954 <GO>}

Great. Thanks for taking my question, which I guess is really for Elon. As Tesla grows very quickly and becomes increasingly diversified going from just the Model S to recently include the Model X and now the Model 3 soon and you've added Tesla Energy to the mix; now SolarCity. So I'm really curious how you think about management focus and attention and what you and your team are going to be doing to ensure strong execution and focus as you head into the very important and, by your own admission, very challenging launch of the Model 3.

A - Elon Reeve Musk {BIO 1954518 <GO>}

Well, I think the Model 3 is overwhelmingly our focus. Yeah. Things feel really quite stable with Model S and Model X. We're kind of in the mode of continuous improvement, but no fundamental issues. So, I feel like the machine that's making Model X and Model S is actually functioning quite well right now. And I definitely burn out of few neurons and a lot of other people did solving the production ramp earlier this year. I feel we're in a good place at this point. So, the focus really is on Model 3 and followed by full autonomy as - well it's our two priorities.

Q - Ryan Brinkman {BIO 16417954 <GO>}

Okay. And then the follow up is, as you're starting here in Q3 to ramp up the spending on both the Gigafactory and the Model 3 development capacity, et cetera, are you seeing that one or the other, the Model 3 or the retrofit of Model 3 (25:23) is providing more or less potential bottlenecks than the other in terms of getting to that July 1 Model 3 launch?

A - Elon Reeve Musk {BIO 1954518 <GO>}

I don't actually know of any - there's not any one standout issue for July 1. Now, I did say this on the last earnings call and I think it probably bears reiterating because - and I think it makes sense if you think about it, but it does require a bit of thinking about it. I don't expect us to be at full production on July 1, but I have to drive all suppliers and internal efforts to that date, knowing that some will fall short. And those that fall short, the suppliers that fall short will be cut out of the picture. And if there are teams internally that fail to execute effectively, we will reorganize those teams.

But if several thousand parts are not driven to a particular date, there is no chance of making any point even past that date. Now in an ideal world, this would be a confidential internal - do I want to a confidential internal - July 1 will be a confidential internal target. Given the amount of attention that Tesla receives and the fact there are several or if you count two to three, three and four suppliers, there's several thousand companies involved. It is obviously impossible to keep that confidential. You can't. So then in order to have a consistent message, internally knowing that that message will also leak externally that's where the July 1 date comes from. There isn't any other way to do it. If anybody's got better suggestions, I'd like to hear what they are. So I expect production to occur at some point after July 1, but I don't know what today would cause us to slip past that date. And if I did, I would take action to address it.

Q - Ryan Brinkman {BIO 16417954 <GO>}

Great. Thanks for the color.

A - Elon Reeve Musk {BIO 1954518 <GO>}

All right, Ryan.

Operator

Thank you. Our next question comes from John Murphy of Bank of America. Your line is open.

Q - John J. Murphy {BIO 5762430 <GO>}

Good afternoon. The first question is, as we think about the 60 kilowatt-hour versions of the Model S and Model X, I'm just curious if you could talk about the profitability of those right now versus the other models or the corporate average as you see it?

A - Jason S. Wheeler {BIO 19481227 <GO>}

Yes, sure. So...

A - Elon Reeve Musk {BIO 1954518 <GO>}

Well...

A - Jason S. Wheeler {BIO 19481227 <GO>}

Go ahead, Elon.

A - Elon Reeve Musk {BIO 1954518 <GO>}

Yes, so I was going to say, because people are optioning up the 60 kilowatt-hour, it actually ends up being decent. Maybe it's sort of like 15% to 20% gross margin where I say something like if somebody orders a Performance Dual Motor that might actually be more like a 30%, 35% gross margin. But there's just a small number of people that want high-performance cars and are willing to pay triple digits – six digits I should say. But it also remains to be seen how many who order the 60 kilowatt-hour then choose to do the upgrade to the 75 kilowatt-hour rate. So there's going to be some number, but it's too early to tell, of people who buy the 60 kilowatt-hour, realize they want the extra range and then they can just order it kind of like an in-app purchase on the car screen and unlock it.

I suspect we'll see pretty decent number of people do that. But it's still very early, so it's hard to say what number that would be. And if they do do that, then it would push the gross margins up into the 20%, like in the mid-20% or so.

Q - John J. Murphy {BIO 5762430 <GO>}

That's helpful. And then just, Jason, maybe two quick housekeeping questions. CapEx at \$2.25 billion, you're running at a run rate that's less than half after the first half of the year. So just curious how realistic that number is for the full year because you guys have committed to it in the Shareholder Letter again. Then also the auto gross margin going up 200 basis points to 300 basis points off of what base? It's not clear what base that's coming off of. Just trying to understand the exit gross margin for the year you're expecting.

A - Jason S. Wheeler {BIO 19481227 <GO>}

Yes, sure. No problem. So I'm going to add just a little bit of color onto the 60 kilowatt-hour gross margin numbers, too. We're aspirational on this. But the way to

think about this is very important. Those cars are gross margin positive and they're producing cash. So if you think about from an overall operating leverage perspective, even if the gross margin profile on those is less than our other variants, it's still producing contribution margin to pay for the fixed cost of the business. So I think it's the right economic thing to do. And even more importantly, it's right for the customer to continue to broaden the market that way.

On your two housekeeping questions, good questions. On the CapEx front, as you heard in my opening comments, we are deadily focused on CapEx efficiency. So I think we can beat the \$2.25 billion number, but we didn't see any need to update that guidance at this time. And then your question about gross margin on the basis, I was just looking at the quarter-over-quarter. In Q1 automotive gross margin, excluding ZEV credits was 20.1% and we expanded that to 21.9% in Q2. And it's expansion on both the Model X and the Model S variants.

Q - John J. Murphy {BIO 5762430 <GO>}

But the 2 points to 3 points of expansion in Q3 and Q4 is off the 21.9% base in second quarter?

A - Jason S. Wheeler {BIO 19481227 <GO>}

I see you're asking about the forward...

Q - John J. Murphy {BIO 5762430 <GO>}

Yes.

A - Jason S. Wheeler {BIO 19481227 <GO>}

...the forward-looking. Yes, so we expect where we're at today, we'll see another 2 points to 3 points expansion between now and the end of the year.

Q - John J. Murphy {BIO 5762430 <GO>}

Great. Thank you very much.

A - Jason S. Wheeler {BIO 19481227 <GO>}

Yes, sure. No problem.

Operator

Thank you. Our next question comes from the line of Joseph Spak of RBC Capital Markets. Your line is open.

Q - Joseph Spak {BIO 17457170 <GO>}

Thanks. Good afternoon. Jason, just first question to follow-up on that last one. So even 2 points to 3 points on gross margin sequentially, that seems below the prior guidance, which I think called for 30% to exit the year on the Model S and 25% on

Model X. So is it related to the updated mix view on the 60 kilowatt-hour? Was there something else going on or what's the source of the change?

A - Jason S. Wheeler {BIO 19481227 <GO>}

Yes, no, a couple things there, and our previous guidance has been approaching 25% on Model X and approaching 30% on Model S. So I think we're maybe a quarter or two off on that, but you're pointing to the right things. One is just the mix shift that we're seeing with more Model Xs being produced and those margins are healthy and headed in the right direction, but they are obviously less than Model S. And now that we're halfway through the year two, we've talked a lot about just the production issues we've had overall. And this certainly had an impact on the first half of the year and it's just difficult to make up for all of that in the next six months. And then the impact, you talk about the 60s kilowatt-hour. The 60s kilowatt-hour may I have somewhat of a impact on gross margin?

A - Elon Reeve Musk {BIO 1954518 <GO>}

Pretty small, though.

A - Jason S. Wheeler {BIO 19481227 <GO>}

Pretty small, yes.

A - Elon Reeve Musk {BIO 1954518 <GO>}

Yes, it's pretty small. But I'm cautiously optimistic that we will actually meet those numbers by the end of the year. Maybe not for Q4 as a whole. But exiting Q4, my best guess is we're just under 30% for Model S and around 25% for Model X by the end of this year. That's what it looks like to me.

Q - Joseph Spak {BIO 17457170 <GO>}

Okay. And then, Elon, just as a philosophical question, as you transition to an in-house autopilot or autonomous solution, would you consider, in order to help build public support and confidence about releasing regular reports similar to what Google does on what the technology is doing and open the data?

A - Elon Reeve Musk {BIO 1954518 <GO>}

Well, unfortunately and fortunately, Tesla cannot sneeze without there being a national headline. So I think you don't have to worry too much about whether we'll report it because the media will and then inflate it in size by 1,000. Like last year there were 35,000 automotive deaths in the U.S. How many did you read about?

Q - Joseph Spak {BIO 17457170 <GO>}

Right. I guess maybe instead of public support, what about regulator support? What are your views on sharing the data in that respect?

A - Elon Reeve Musk {BIO 1954518 <GO>}

Actually, with the regulators we share the data well in advance of – as soon as we know it. We shared the data regarding, say, the Florida fatality like a month, certainly weeks before and NHTSA actually opened investigation. In fact, we're not totally clear on why they opened the investigation, because they actually had all the information before they made a formal investigation. Like I said, it was a little puzzling as to why they – we would have already given them all the information. So there wasn't really anything more to learn.

Q - Joseph Spak {BIO 17457170 <GO>}

Okay. Thanks.

Operator

Thank you. Our next question comes from James Albertine of Consumer Edge Research. Your line is open.

Q - James J. Albertine {BIO 17420845 <GO>}

Great. Thank you. Good afternoon. Thanks for taking the questions. Real quick, a housekeeping item. I've heard and we saw obviously in the second quarter there was some lumpiness in the production and you ended up, I think, with 50 vehicles, 100 vehicles or so in transit at the end of the quarter. But I've heard Elon and Jason say stable or stabilization here a few times in the call. Just wanted to get a sense for how we should be thinking about the back-half deliveries and back-half expenses. Should it be relatively linear from here as we work toward, for example, your 30% year-over-year expense guidance? Thanks.

A - Jason S. Wheeler {BIO 19481227 <GO>}

Yes, sure...

A - Elon Reeve Musk {BIO 1954518 <GO>}

Yes, I mean, sorry, I would also like to say a few words and Jason can address it. Basically, we were in production hell for the first six months of this year. Man, it was hell. And then we just managed to climb out of hell in like basically partway through June. And now the production line is humming and our suppliers mostly have their shit together. There's a few that don't. One I'm going to be visiting on Saturday personally to figure out what the hell's going on there. But we'll solve it. But just the thing that's crazy hard about cars is that there's several thousand unique items and you move as fast as the slowest item in the whole car.

So, yes, with that said, production is like, it feels like we're – I'm not losing sleep at night literally because of production issues right now. 2,000 feels like a good number with a slow, steady increase in that number, and then continued cost efficiencies, which help with gross margin, some features that are going to come out that will also help on the revenue side. And I feel actually really good about Model S and Model X right now, but I'll get a whole lot of mental scar tissue from first six months of this year. Jason?

A - Jason S. Wheeler {BIO 19481227 <GO>}

Yes, I think, Elon, I think you covered it well. In terms of the modeling question, yes, I think just extrapolating from where we're at now, we're stable. We'll continue to get better on production throughout the course of the year. We've got a couple more holiday weeks in Q4. You might want to think about that when you're doing your modeling. But, yes, I think Elon covered it well.

Q - James J. Albertine {BIO 17420845 <GO>}

Okay, and if I may...

A - Elon Reeve Musk {BIO 1954518 <GO>}

And also to...

Q - James J. Albertine {BIO 17420845 <GO>}

Oh, sorry.

A - Elon Reeve Musk {BIO 1954518 <GO>}

...steady improvements in - almost every week, we see an improvement in labor hours per car, which is great from a cost standpoint. Also the Tesla production team has been working super hard and we don't want to burn people out, so it's good to see the hours per car come down almost every week as a sign of improved efficiency.

Q - James J. Albertine {BIO 17420845 <GO>}

Very good. I appreciate the additional color. If I may just sneak in a quick follow-up on the autonomy topic. Elon, as we think about the stages of autonomy, I believe NHTSA's outlined five stages or zero to five. And we've seen some competitors of yours outline with some detail 2017 to 2020 to 2022 type targets. How should we think about your target? And can you help us dimension a little bit more your targets in the path to level five? Let's assume for the moment that nothing's changed and given the accident in May, and if it has incrementally, that'd be helpful. But just wanted to understand in more detail I think how you plan to get to fully autonomous. Thanks.

A - Elon Reeve Musk {BIO 1954518 <GO>}

Well, again, major product announcements are not - I shouldn't do those on an earnings call, obviously. And all I'd say is that full autonomy is going to come a hell of a lot faster than anyone thinks it will. And I think what we've got under development is going to blow people's minds. It blows my mind, so.

Q - James J. Albertine {BIO 17420845 <GO>}

Thank you, again. Thank you.

A - Elon Reeve Musk {BIO 1954518 <GO>}

So, yes, I get it all the time.

Q - James J. Albertine {BIO 17420845 <GO>}

Thank you for taking my questions. I appreciate it.

A - Elon Reeve Musk {BIO 1954518 <GO>}

Sure.

Operator

Thank you. Our next question comes from the line of Rod Lache of Deutsche Bank. Your line is open.

Q - Rod Lache {BIO 1528384 <GO>}

Thanks. I had a couple things. One is just following up on Tesla Energy, can you talk a little bit about the business pipeline, what's the mix of customers you're selling your product to? And is there a significant contingent of solar? And I wasn't clear on - there was an earlier question on whether the business is still tracking to around \$500 million this year. Could you just elaborate on that business line?

A - Elon Reeve Musk {BIO 1954518 <GO>}

Yes, it's heavily dependent on the production ramp in the last few months of the year. So there's definitely nothing even remotely close to demand constraints on the Tesla Energy side. It's entirely getting the engineering done, getting it validated, getting UL certification, scaling up all elements of the supply chain and being able to produce in volume.

So the reason it's tricky to predict is because the volume ramp looks like an exponential and so if you move the dates around even a little bit, it can quite significantly change what occurs in a quarter just because the production ramp is an exponential and shifts up a couple weeks, it can make the quarter look low, but actually it's in vertical climb mode. So the following quarter will look amazing. So what I'm highly confident of is that the next generation of stationary charge is head and shoulders above anything else that I've even heard announced as future plans from other companies.

Q - Rod Lache {BIO 1528384 <GO>}

Okay. It's...

A - Elon Reeve Musk {BIO 1954518 <GO>}

So we've just got to build those damn things.

Q - Rod Lache {BIO 1528384 <GO>}

Yes, the customers that you're anticipating, are there significant renewables in there? Is it commercial, residential?

A - Elon Reeve Musk {BIO 1954518 <GO>}

Yes.

Q - Rod Lache {BIO 1528384 <GO>}

What are you seeing?

A - Elon Reeve Musk {BIO 1954518 <GO>}

Everything.

Q - Rod Lache {BIO 1528384 <GO>}

All of the above? Okay.

A - Elon Reeve Musk {BIO 1954518 <GO>}

Yes.

Q - Rod Lache {BIO 1528384 <GO>}

And...

A - Elon Reeve Musk {BIO 1954518 <GO>}

We've just got to scale up production, and production is a hard thing. It's real hard.

Q - Rod Lache {BIO 1528384 <GO>}

Yes.

A - Elon Reeve Musk {BIO 1954518 <GO>}

Particularly when it's new technology. If it's some standard technology to make for one time, it's fine. It's cutting edge technology, it's really hard to scale up production, because you've got to design the machine that makes the machine, not just the machine itself. But the results can be amazing. Like I said, it's going be head and shoulders above anything else. It's better than anything I've heard anyone even announce that they will do in near future, and we will do it in the present.

Q - Rod Lache {BIO 1528384 <GO>}

Thanks. And on the topic of production, you've said some really interesting things about step-function changes in automotive manufacturing and improving the volumetric efficiency.

A - Elon Reeve Musk {BIO 1954518 <GO>}

Yes, absolutely.

Q - Rod Lache {BIO 1528384 <GO>}

Typically, as I'm sure you know, the bottlenecks in auto manufacturing are really not in the automated functions like the body shop. They're in things like final trim and assembly that are more labor-intensive, when you've got people crawling in and out of vehicles. Do you see a significant step-function improvement there like inside out manufacturing...

A - Elon Reeve Musk {BIO 1954518 <GO>}

Yes.

Q - Rod Lache {BIO 1528384 <GO>}

...or something like that? Is that something that we're going to see on the Model 3?

A - Elon Reeve Musk {BIO 1954518 <GO>}

The Model 3 - the internal name for designing the machine makes the machine is the - we call it the alien dreadnought. At the point at which the factory looks like an alien dreadnought, then you know you've won. It's like, what the hell is that? So we've got alien dreadnought version 0.5 will be Model 3. It will take us another year get to version 1 and probably a major version every two years thereafter. By version 3, it won't look like anything else. It might look like a giant chip pick-and-place machine or a super high-speed bottling or canning plant, and you really can't have people in the production line itself. Otherwise you'll automatically drop to people speed. There's still a lot of people at the factory, but what they're doing is maintaining the machines, upgrading them, dealing with anomalies. But in the production process itself there essentially would be no people.

Q - Rod Lache {BIO 1528384 <GO>}

Yes.

A - Elon Reeve Musk {BIO 1954518 <GO>}

With version 1, not version 0.5. But I don't want people to think, oh, Tesla's going to have a factory without people. It's going to be a huge number of people, but they will be maintaining machines and upgrading the machines and dealing with anomalies. And the output per person will be extraordinarily high.

Q - Rod Lache {BIO 1528384 <GO>}

Sounds like a lot of innovation there. One last just housekeeping thing for Elon or Jason. You'd previously talked about the objective of profitability in the fourth quarter, but I know a lot's changing with the mix and also with the direct leasing. So is that also something that we should think as being pushed out a quarter?

A - Elon Reeve Musk {BIO 1954518 <GO>}

Well, if you exclude Model 3 CapEx ramp, then - well in fact, really for Q3 and for Q4, Tesla would be profitable excluding the Model 3 CapEx ramp.

Q - Rod Lache {BIO 1528384 <GO>}

Okay. Thank you.

Operator

Thank you. Our next question comes from Pat Archambault of Goldman Sachs. Your line is open.

Q - Patrick Archambault {BIO 4638109 <GO>}

Terrific. Thanks for taking my questions. I guess just an accounting question maybe for Jason. With the residual value guarantee going away, what happens to the accounting for revenues? Do you get to something more close to what we see in other OEM financials, and maybe just have the portion that's direct lease be accounted for as leases? And what would be the timing of changes assuming they do happen?

A - Jason S. Wheeler {BIO 19481227 <GO>}

Yes, no. Absolutely, and the answer to timing of changes is right away. So a car that is sold without an - so with an RVG that drops us into lease accounting. And what we've done historically and we'll continue to do for RVGs is we recognize the full revenue on a non-GAAP basis. What changes when there's not an RVG in the equation is you get full revenue recognition on a GAAP basis as well as a non-GAAP basis. So good things happen on the accounting side.

Q - Patrick Archambault {BIO 4638109 <GO>}

Okay. And then this is something that within the next quarter or something you'll already see a significant reduction in that adjustment obviously.

A - Jason S. Wheeler {BIO 19481227 <GO>}

You'll see that but the other thing I want to point you to is what we've already talked about in uptake in direct leasing. When we have used a partner in the past for leasing that gives us non-GAAP revenue recognition on that. Our non-GAAP revenue recognition is very simply called the cash. If somebody pays us cash for a car, we recognize it in non-GAAP revenue. When we do direct leasing, then that drops us into pure lease accounting. So it will be that way on a GAAP and a non-GAAP basis.

Q - Patrick Archambault {BIO 4638109 <GO>}

And is the 8% to 15% is that just kind of a temporary measure while you're setting up these new partner relationships? Or do you actually expect to stay at 15% for some time?

A - Jason S. Wheeler {BIO 19481227 <GO>}

So 15% is what we're talking about for Q3 and I think I mentioned earlier we've got a bunch of active conversations with new partners. There's another factor too, which is I think important to point out. We've introduced some pretty compelling loan programs, particularly in North America, in the last 90 days, and we're starting to see some shift from leasing towards loans. And to bring the answer to your question full circle, loan is full GAAP and full non-GAAP revenue recognition.

Q - Patrick Archambault {BIO 4638109 <GO>}

Got it. That's helpful. And I think it'll be helpful for just the users of financial statements as well. The ZEV credits, you mentioned that they weren't material. I feel like it's been written that there was kind of a glut of supply on those. And I don't know, is that just the lumpiness of it or is that a revenue process of going away?

A - Elon Reeve Musk {BIO 1954518 <GO>}

Well, yes, actually if I could say something and I'd really want to emphasize this quite strongly and I hope it does get picked up in the media is that the California Air Resources Board is being incredibly weak in its application of ZEV credits. The standards are pathetically low. They need to be increased. There's massive lobbying by the big car companies to prevent CARB from increasing the ZEV credits mandate, which they absolutely damn well should. It's a crying shame that they haven't. And as a result, you can barely sell the ZEV credit for pennies on the dollar.

Q - Patrick Archambault {BIO 4638109 <GO>}

Got it. Okay. So...

A - Elon Reeve Musk {BIO 1954518 <GO>}

CARB should damn well be ashamed of themselves.

Q - Patrick Archambault {BIO 4638109 <GO>}

All right. No, I think that answers my question pretty directly then. The last one, just one housekeeping one. Any chance, and sorry, if I missed it, ex-production for the quarter, are you able to share that?

A - Elon Reeve Musk {BIO 1954518 <GO>}

We haven't worked on. Yeah.

A - Jason S. Wheeler {BIO 19481227 <GO>}

Yeah.

Q - Patrick Archambault {BIO 4638109 <GO>}

Okay. I think that was a no, but fair enough. Those were my questions. I'll let somebody else get in. Thank you.

Operator

Thank you. Our next question comes from the line of Brad Erickson of Pacific Crest Securities. Your line is open.

Q - Brad Erickson {BIO 18494007 <GO>}

Hi. Thanks for taking the question. Just had a quick follow up, I guess, on something that's been asked a couple of times; take another run at it. I guess given that you're obviously no longer working with this key supplier around full autonomy. What are the major hurdles that you see for Tesla here to overcome to get to full autonomy? Is it just a case of software development, lots more miles driven and basically getting the right people in place? Any color on sort of some of the key challenges you're facing and where you're particularly focused for delivering full autonomy at some point? Thanks.

A - Elon Reeve Musk {BIO 1954518 <GO>}

Well, full autonomy is really a software limitation. I mean the hardware is just to create full autonomy, so it's really about developing advanced, narrow AI for the car to operate on. I want to emphasize narrow AI, it's like not going to take over the world, but it needs to be really good at driving a car. So increasingly sophisticated neural maps that can operate in reasonably sized computers in the car. That's our focus. I'm very optimistic about this. It's exciting, it blows me away, the progress we're making. So I think if I'm this close to it and it's blowing me away, it's really going to blow other people away when they see it for the first time.

A - Jeff Evanson {BIO 17513488 <GO>}

All right. Latif, I guess we'll go to the next question.

Operator

Our next question comes from the line of Ben Kallo of Robert W. Baird. Your line is open. Mr. Kallo, your line is open. Please make sure it isn't muted.

A - Elon Reeve Musk {BIO 1954518 <GO>}

All right. I think we'll just take a few more questions. So let's maybe do this and one or two more and call it a day.

Operator

Okay. Our next question comes from the line of Emmanuel Rosner of CLSA. Your line is open.

Q - Emmanuel Rosner {BIO 16323493 <GO>}

Hi, everybody. I wanted to ask just a couple of questions on the update to the master plan. The first one is on the sharing piece. So definitely a very exciting goal. At the

same time, I feel like a lot of automakers as well as municipalities are all working on their version of ride sharing through autonomous driverless cars, and to the extent that a lot of what buyers are looking at in Tesla now is the driving experience, and that it really doesn't matter as much when you're being driven. What do you view as your future competitive advantage in a ride sharing type of environment?

A - Elon Reeve Musk {BIO 1954518 <GO>}

I think the quality of the ride is always going to matter, and yeah, nobody wants to drive if you're sitting in stop-and-go traffic. That's boring. But if you're driving on a beautiful country road or along the seaside, then I think it feels wonderful to drive, and you want to do that. So I don't think cars are going to just become some boring utility.

Q - Emmanuel Rosner {BIO 16323493 <GO>}

Got it. And I guess on the piece about expanding the product lineup to other major segments, what do you view as your target timing for that? I know there was a mention of some of these cars being available to be unveiled next year. So does that mean that we're looking at the following year? Or is that into the next decade? And what capital needs are we looking at for that?

A - Elon Reeve Musk {BIO 1954518 <GO>}

I think we want to postpone anything that's a heavy capital impact until after the Model 3 production is ramped. We don't want to stack Model 3 CapEx on top of other program CapEx, but there's a lot we can do. Because the development of a vehicle, there's a long sort of tail at the beginning of a development of a vehicle which involves a lot of time, but doesn't involve a lot of cost. It's only when you begin tooling up for production that the cost really ramps dramatically.

So there's a lot we can do before we actually dive into ramp CapEx, and we won't do that for any products until after Model 3's in high production. Yeah, but I think there's going to be some pretty exciting unveils for the Tesla Semi and Tesla Minibus or bus. We don't actually have a name for it yet. That's just off of the Model X platform, so just doesn't involve a lot of CapEx actually.

But we expect to probably unveil those, I think, for the middle of next year, maybe in the next six months to nine months type of thing, and then have a better, a more fleshed out plan for when those would enter production. But they would enter production within like low single-digit years, not like - I mean I consider like anything past five years as infinity.

Q - Emmanuel Rosner {BIO 16323493 <GO>}

All right. That's very helpful.

A - Elon Reeve Musk {BIO 1954518 <GO>}

Yeah. I mean, also to be clear like the priority vehicle development after the Model 3 would be the Model Y, I guess, the compact SUV, because that's also a car that where

we expect to see demand in the 500,000 to 1,000,000 unit per year level. So it's the obvious priority after the Model 3.

Q - Emmanuel Rosner {BIO 16323493 <GO>}

Great. Thanks.

A - Jeff Evanson {BIO 17513488 <GO>}

All right. Latif, if there's one more, let's have that one and then wrap it up.

Operator

Yes, sir. Our final question comes from the line of Tyler Frank of Robert Baird. Your question, please.

Q - Tyler Charles Frank {BIO 20108167 <GO>}

Hi, guys. Thanks for taking the question. Two short questions. One, can you discuss when you expect to be profitable on a non-GAAP basis? And then number two, you had mentioned on the last call that the Gigafactory may actually have the ability to produce about three times of your original estimate. Will that entail significant CapEx in the future, or are you preparing that foundation right now to reach over 100 gigawatt hours? Thank you.

A - Jason S. Wheeler {BIO 19481227 <GO>}

Yeah, sure. On the profitability question, just reiterate what Elon said earlier. If we can execute on our production and our delivery goals in the second half of the year, we got a great chance to be non-GAAP profitable. So...

A - Elon Reeve Musk {BIO 1954518 <GO>}

Yeah, excluding Model 3 CapEx. The real question on profitability is where do we set the dial on growth? And obviously, if you set the dial on growth to be super high, then you face dilution because of that increased capital. If you set it too low, there's less dilution but then you grow slower. So you want to set it at the right level where your - the right mix of dilution and growth. I mean, as it is, it's just important to bear in mind, like as a manufacturing company, our percentage growth, I think it's unprecedented in the modern era. It's really nutty.

I mean, in 2010, we were making 600 cars a year and Lotus was doing the chassis, body and chassis. And then five years later, we are making 50,000. And it was a much more sophisticated car with Model X and we were doing the whole car without any partner. So when you have like an insane percentage growth like that in the manufacturing company, it's not like you're shipping copies of software here, it's a real tricky strategic business to, where do you set things from a solution versus growth standpoint?

So, I mean, the right way to look at the product line - the company's - let's just say the product line and say and value them as - sort of do an NPV of the product lines.

And then for any given product line you can say, okay, this is what that is likely to be worth. The Model S, the Model X, the Model 3 and then you can parse it out relative to the CapEx on new vehicles.

And to the degree that the past predicts the future, then you can pretty much count on like the new vehicle program also being incredibly valuable and something where it would be mad not to spend the money to do it. But when all of that's lumped together can be confusing. And then they will think Tesla's a money-losing company but well, not really. Not if you're growing at like 100% a year or in the case of next year, I mean our unit volume - we'll probably exit next year at unit volume that's 200% or 300% what our current volume is, maybe 400%.

So it's just real important to parse things out and to understand what the real health of the business is. Right now, I mean in a nutshell, we're shipping \$10 billion a year of product on an annualized basis at somewhere around 23% to 25% gross margin.

Q - Tyler Charles Frank {BIO 20108167 <GO>}

Right.

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

And just quickly to your Gigafactory question, this is JB. A lot of the improvements that we've made are actually increasing the density of the Gigafactory.

Q - Tyler Charles Frank {BIO 20108167 <GO>}

Yeah.

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

And the density of how much equipment and (1:02:19) the existing footprint. So in that case, there's a lot of investments we've already made: preparing the site, some of the infrastructure for the site that we would get to continue leveraging as we grow capacity even higher than our original plan. There would be some other investments, of course, and equipment and things like that. They would be incremental tied to that much higher volumes, those would also be enabling vehicle volumes and energy product volumes way beyond what we'd initially predicted.

A - Jeff Evanson {BIO 17513488 <GO>}

All right, guys. We're at the hour mark. Shall we call it a day? Yep. Let's do it. All right. Thanks a lot, everybody for joining us, and we look forward to talking to you next quarter. Bye-bye.

A - Elon Reeve Musk {BIO 1954518 <GO>}

All right. Thanks a lot, bye.

Operator

That does conclude your program. Thank you for your participation, and have a wonderful day. You may disconnect your lines at this time.

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