

Great. Thank you for taking my question and good afternoon. The first question I had was, going back to some comments you had made on the last quarterly conference call around gross margin visibility. I think if I heard it correctly, you basically said you had a pretty good feel where the fourth quarter was going to be about a month before the fourth happened. Now, given the sequential gross margin expansion that we saw in the third quarter, what update are you able to give us for the fourth quarter at this point? Thanks.

Elon Musk

We expect to track to 25% gross margin in the fourth quarter, excluding Zev credits, so it's excluding the zero emission vehicle credits. Yes. I feel pretty confident about that outcome unless there is some forced reserve of that. Also, almost we were roughly halfway through the fourth quarter, so I think that's almost affected, so I think that's a pretty secure.

Then we will probably deliver more cars. I hope it was clear in the shareholder letter, but maybe it wasn't, is that we really are production constrained not demand constrained, so we are working hard to address the production constraints and then improved the effective deliveries.

The thing that people still don't quite get is that we are different in a fundamental way from other car companies and it doesn't make sense for us to do things to amplify demand if we can't meet that demand of production, so on what we spent our time doing here as a management team is try to figure out how do we ramp up production faster and us to maintain the quality and keep improving the product. That's where we expect to - a lot of these production constraints next year.

Jamie Albertine - Stifel

That's great. As a quick follow-up maybe, some of the announcements that you have made intra-quarter and you alluded to in your shareholders' newsletter what is your sort of feel on the current assembly-line capacity as it stands today. Look like today versus maybe how you felt you three months ago. Thanks.

Elon Musk

The main constraint on our production is really is the cells, and I think I have mentioned that before in talks and I think I alluded on that on prior earnings call, so we were addressing the cell supply constraints and any sort of constraints that are non-cell constraints that exist, but the critical thing is the cell production constraints.

We announced the deal obviously with Panasonic, which is for a much increased volume and when we think about constraint on growth that's the biggest item that gets much broad attention. Like I said, I think we will see some relieve from that constraint next year.

Operator

Okay. Thank you. We will take our next question from Craig Irwin from Wedbush Securities.

Craig Irwin - Wedbush Securities

Good evening. Thank you for taking my question. Elon, I wanted to ask a more philosophical question of you. We are hearing from different sources that the cost of your Model S drivetrain is more or less parity with some of the conventional ice vehicles out there, some of the premium vehicles in the market.

Now with the visibility on battery cost coming down fairly significantly over the next few years, when you look at the gen-three vehicle, would you still want to price that at a premium versus comparable vehicles where you would basically be benefiting from the ROI that you offered the customer basically less expensive gas in the tank considering they are not using, but certainly they will be using clean electricity or would you consider pricing that you more or less parity or possibly the discount versus the conventional competition?

Elon Musk

I think as far as that we wanted to price the gen-three vehicle at around the \$35,000 price point. When you consider the savings from gasoline, today when we consider gasoline to be at that point, I mean, is effectively like buying a gasoline car in U.S. for maybe \$28,000 or a gasoline engine car in Europe for maybe \$22,000. That makes it pretty competitive. And over time, we are going to get better and better at lease offerings with lower interest rates and just better access to capital with a track record and more visibility into residual value. I mean I think our residual value is going to be very good. But to get loads of cost capital you have to prove that and I think, long-term, just like with Solar City, I feel leasing as being overwhelmingly the path to go for electric cars because it just brings the cost of transportation, it makes it immediate. Because you have the lease and you look at your amount you are paying per months for electricity versus your gasoline car lease plus gasoline car and then the gasoline cars also get inherently require more maintenance cost as well and with a lease you don't have to worry about like capturing a savings over some period of time or worry about the battery life or anything like that. You just experience the

savings immediately. So until I see leasing as being the main way that people buy a car and then its going to seem like a very compelling value proposition.

Craig Irwin - Wedbush Securities

Great. Then the second question I wanted to ask was about the priorities for R&D investment in '14 and I guess over the intermediate term. Can you discuss the breadth of projects that you would be looking to fund and whether or not this is an acceleration from your prior plans or if this is consistent with what you have been thinking previously?

Elon Musk

It's more or less consistent. The thing that we are looking at doing in '14 is expanding Model S deliveries worldwide, particularly into Asia and then more broadly into Europe and as well as the other parts of the world. So it's kind of an international expansion and volume production expansion with Model S and then development to the Model X. It is just refining all of that, getting it really in place and building out a really high volume production line, kind of next generation production line for the S and X. Next year, we will also be doing the design work with the styling, since we have the third generation deco because what we have done with the Model X styling essentially, the fine brush strokes in the next few months. So next year it is going to be really getting that the line of third generation car done. But then it is going to take us a while to build out the capacity for that third generation vehicle and we are going to sort of selling battery pack capacity, maybe because ultimately when you produce 500,000 vehicles, from a new plant then we need self capacity that's commensurate with that which is maybe bigger than all the lithium-ion production in the world today or at least on par with it.

Craig Irwin - Wedbush Securities

That's one. And then my last question, if I can squeeze it in. The Panasonic agreement. 1.8 billion cells over four years. My back of the envelop math is, if we are seeing 85 kilowatt hour Model S is probably one of the larger batteries what you are going to produce over the next few years, something like 30,000 cars, there has obviously been a lot of press coverage of your discussions and qualification of Samsung, I am going to guess there is incremental demand on top of that that you anticipate to have. Can you kind of shape that for us how you potentially see the ramp and how you would look for the staggering in these supply agreements to work?

Elon Musk

Certainly people shouldn't look at the X number of sales over four years and assume that that's the number of cars that we will make. I think we will make towards the back end of that a lot more cars and so there needs to be other agreements with some combination of Panasonic, maybe with others. Panasonic is also our primary partner, but when it comes to the high volume third-generation vehicle it's clear that there is going to need to be incremental production capacity created at this existing look today, so we are in the process of figuring that out and there is going to need to be some kind of giga factory built.

Craig Irwin - Wedbush Securities

Fantastic. Thank you again for taking my questions.

Operator

Okay. Thank you. Our next question comes from Dan Galves from Deutsche Bank. Dan, please go ahead.

Dan Galves - Deutsche Bank

Good afternoon. Thanks for taking my question. I wanted to ask about the kind of the current level of demand. We have seen it's apparently the order to delivery time has expanded over the last couple of months, customer deposit, account went up quite a bit in Q3, and you kind of confirm that you are seeing demand increases. Can you quantify that all in terms of how many orders you took in Q3 versus Q2 or just in kind of a more order of magnitude is the U.S. demand continuing to increase? Where does Europe stand compared to where you were let's say at the same point in kind of the U.S. launch process?

Elon Musk

U.S. demand of regular van has continue to increase. We have actually had to stop North American demand in order to feed Europe, so if we had European customers they have been waiting for long time, so we have had to constrain deliveries to North America in order to get the people their cars. They have been waiting some cases two or three years.

I think, we could sustain 20,000 cars a year in North America, and maybe more than that, but it doesn't make sense for us to try to amplify demand if we aren't able to deliver to that demand. Basically we are happy, so where we are in Europe is we are still at the early stage. I mean, we are kind of in Europe where we were in U.S. maybe in January or February of this year, so European demand is - demand is like from sort of it's on the order of maybe

10,000 units a year, but again it doesn't make sense for us to try to drive that demand higher if we aren't able to meet it.

We want to make sure that we are laying the ground work for future demand increase and I think we could get demand in kind of Greater Europe to be similar to that of North America and it seems like that seems pretty achievable to me.

Dan Galves - Deutsche Bank

Okay. Great. I just wanted to ask about kind of the production ramp. I mean, you said that kind of cell capacity or cell is kind of the biggest constraint. Right now, you seem to be addressing that. Where do you see kind of production per week going over the next few quarters? Also, I would expect you would continue to deliver significantly less than you produce - as you continue to have more and more vehicles on ships at the end of the quarter versus the previous quarter. Is that correct?

Elon Musk

Yes. I mean, as our deliveries to Europe increased and we necessarily have more inventory in transit. Then as we start adding Asia, but - more in transit, we will probably have 60% plus of our sales going outside the US to Europe and Asia and across the globe as well, I mean, I think in Gulf States, South Africa, South America and so forth over time.

We can expect a majority of our inventory to be on the water or trains like I think over time and until that being a capital issue, I think that's probably not going to be capital issue because we can get pretty low cost funding for inventory and transit to customers. There is no question, unlike a lot of other products, these cars are going to customers, like to people who actually brought the car. It's not speculative as to whether they actually want the car. We are shipping them their car.

Dan Galves - Deutsche Bank Securities

Got it, and just one more quick one. I mean we heard this morning that the City of Beijing announced that they would further constrain license plate issuances, but at the same time they would issue about 15% of the license plates they issue next year 20,000 units is going to be reserved for EVs and PHEVs and that percentage goes up to about 60,000 vehicles by 2017 reserved for EVs. Do you know if Tesla imported vehicles would qualify for that? And what are your next steps in terms of getting deliveries started into China?

Elon Musk

Yes, I believe we would qualify, we are assuming R and EV and ZEV. So I suspect we would qualify. We have our Beijing store which we have done a soft opening on and then we will start delivering cars in the first quarter, we are aiming for February but it could be March, but we are aiming for February. We have passed all of the China homologation requirements.

Deepak Ahuja

That's right. The homologation is behind us, which is great.

Elon Musk

Yes. So we have all the potential approvals from the Chinese regulatory authority to ship the car and we expect to probably ship out our first cars in January and so they will be arriving in February, if things go according to plan. We will still be somewhat production constrained. It doesn't make sense for us to expand the scope of our sales territories too that if we are production constrained which just amplifies the set of boundary that we have to deal with it, but we do want to get some cars to China in the first quarter and lay the ground work in terms of service centers, superchargers and so forth for, hopefully, a significant growth in the rest of the year in China.

Deepak Ahuja

And despite the soft initial opening, we are seeing pretty good initial demand in China from the market.

Elon Musk

We are not really even trying. We are soft as, when we should say soft, what it really means soft. We not doing anything. It is word of mouth maybe just not really anything beyond that. So, yes. It seems like things are going to probably go pretty well there, I think.

Dan Galves - Deutsche Bank Securities

Yes, thanks very much. I appreciate it.

Operator

Okay. Thank you, and we will take our next question from Andrea James from Dougherty & Company. So, Andrea, please go ahead.

Andrea James - Dougherty & Company

Hi, thanks for taking my questions. Thinking back to the cell supply issue again, and you have got this great track record of in-sourcing and building

your own ERP system and the like, and I guess, can we assume that you have at least looked at building your own battery cell plant? I just wondered what your thoughts were there.

Elon Musk

We are not quite ready to make a big announcement on the cell and battery giga factory, but we are exploring a lot of these options right now and if I were to guess. I think that we would do that giga factory with the raw materials coming in all the way to finished packs with partners and that's probably my best guess and that factory most likely would be in North America, but we are investigating other options as well.

Andrea James - Dougherty & Company

Well, thanks for that. And what is that rank? I imagine, if you look at building a more mass market vehicle car, the cell issue would be probably one of multiple. Where does that rank? Is it in the middle of all the challenges you would look at or is it close to the top?

Elon Musk

The cell production is the biggest single constraint but I mean there are certainly many others that would one look at that on too far behind it, but I think if you look at say what's the critical mass item it is cell production, and I think we can ensure that everything else is no slower than the ramp in cell production.

Andrea James - Dougherty & Company

Thank you. Then just one final. The raw materials, Is that correct to assume that's not an issue raw materials supply?

Elon Musk

Raw materials are not an issue. That is correct. I wouldn't worry about say lithium supply, or there is a lot of lithium out there and the main constituents really in the cell are, by weight or actually nickel and cobalt, aluminum then lithium. Lithium is like maybe 1% of the cell in that. Maybe 2%.

Andrea James - Dougherty & Company

Very exciting. Thank you very much.

Elon Musk

Two-third of the patent one-third of the patent I should say.

Operator

Okay. Thank you. Our next question is from Elaine Kwei from Jefferies. Elaine, please go ahead.

Elaine Kwei - Jefferies

Hi, everyone. Thanks for taking the question. Just going back to the new Panasonic supply agreement real quick, does this require a new factory or lines on their part or is the significant portion already covered by their existing capacity. In other words, how should we think about what needs to happen on their side to meet the supply obligations?

Elon Musk

I think as far as next year is concerned they got cover and we have been working closely with them and it was we spent a of lot time in a Panasonic batteries, As said, we have got high confidence that Panasonic can deliver on their commitment.

Elaine Kwei - Jefferies

Okay. Great. The shareholder letter mentions that you have accelerated development work on the X. Does that mean the launch might not be quite as late in 2014, and if you are starting gen-three design next year are we still looking at that 2017 timeframe for production as well?

Elon Musk

I think for the X, we are aiming for maybe a few units at the end of next year, but volume production is - it's a high volume production is probably Q2 2015, so high volume mean volumes comparable to the Model S at that time.

Deepak Ahuja

That's the normal ramp up production as we while maintaining a very high level of Model S production in the factory, so these are very large numbers at that point.

Elon Musk

Yes. Exactly.

Elaine Kwei - Jefferies

Okay. That's very helpful. Just lastly in the letter you also mentioned that you will be starting production support to launch by Daimler in 2014, Could you just remind us what vehicles you will be supporting and are there any new ones that would under the consideration as well?

Elon Musk

The main one is really the Series B class which is going to be the biggest electric vehicle program in Daimler history and it's going to be a car. I think it would be the most compelling sort of four wheel electric car in the market.

Elaine Kwei - Jefferies

Great. Thanks so much.

Elon Musk

There is - beyond that.

Elaine Kwei - Jefferies

Okay. Thank you.

Elon Musk

I mean, it's just particularly when you look at revenue helps supply constraints. It doesn't make sense for us to be finding new ways to used cells.

Elaine Kwei - Jefferies

All right. It makes a lot of sense. Thank you.

Operator

Okay. Thank you. Our next question comes from Ben Kallo from Robert W. Baird. Ben, please go ahead.

Ben Kallo - Robert W. Baird

Hi. Thanks for taking my question. A good quarter. As you guys think about what you have learned from logistics shipping to Europe and then looking ahead to next year, is there risk around that or have you guys got that ironed out as far as you are shipping to a different continent and delivering there?

Elon Musk

I think, we have mostly got it ironed out with Europe. There were initially a number of challenges shipping, because we ship partially built cars to our assembly facility in the Netherlands. Then they can put it together there. We are actually ramping up our investment in our plant in our Tilburg plant in Netherlands adding more and more capabilities to that and just making that whole process a lot more efficient. In addition to the myriad of challenges delivering it does in different countries, there are also the challenges with the electrical system.

So it's just the nature of the electrical grid that almost every country has their nuances, which you experience as a consumer when you got this plethora of plugs. We experienced that same sort of thing with electric cars and like Norway is our highest sales per capita but one of the challenges there is it has a floating grid. So it's got somewhat unique electrical system. So it takes a bit of an effort to make sure that we are able to charge properly in Norway.

Deepak Ahuja

And overall, we had delivered zero cars in Europe in Q2 and in Q3 we delivered over 1,000 cars, and the first of the cars got delivered in early August. So in just a matter of two months, we could deliver over 1,000 cars which was a significant achievement for the company despite the logistics that Elon mentioned several countries as well as different electrical infrastructure.

Ben Kallo - Robert W. Baird

Yes, I agree. I have heard some customers in different parts of Europe that have waited longer for deliveries and the rumor out there is that the shipping to hauling ahead of a tax reset, how do you balance situations like that and meeting customer satisfaction?

Elon Musk

It is tricky. In some countries there are some tax credits that were due to expire or that we thought might expire because they have not yet been renewed, as was the case in the Netherlands. So obviously if there is a danger of some tax credit not being renewed, then I think the right thing to do is to accelerate deliveries to that country which is what we did with Netherlands. They then went ahead and extended the tax credit, so it turned out to be a false alarm but in balancing like what's the right thing to do, it seemed like the right thing to do was to try to accelerate deliveries to Netherlands to make sure that people could take advantage of the tax credit. Now we are more in kind of a normal delivery mode.

Ben Kallo - Robert W. Baird

Great. My final question is, as you think about the battery capacity for Gen 3, what kind of time frame, if we are building in North America, a factory for cells, would you need and then how difficult of a permitting process is that? And I will jump back in queue. And thank you guys very much.

Elon Musk

Well, like I said, this isn't the right time to talk in detail about our plans for kind of a giga factory but except to say, obviously, we are acknowledging the fact that one needs to be built and we are looking at a variety of different locations. I don't think permitting is going to be the driver here. This is going to be a very green factory. There going to be a lot of solar power. It's going to have essentially zero emissions and there are no toxic elements that are going to come out of this factory and we will build in recycling capability right into the factory. So old packs would come in one side and get reprocessed as new packs. So a way to think of this is like a factory is the machine that works for machine and that itself has a version, just like you have a version of a product. It's like a version of the factory. So we are trying to figure out what's the right way to do version one at this giga factory and we want to be thoughtful about it and it is going to be a really giant facility, like say we are doing that something that's comparable to all lithium-ion production in the world in one factory.

Ben Kallo - Robert W. Baird

Great. Thanks, guys.

Operator

Okay. Thank you, and our next question comes from Adam Jonas from Morgan Stanley. Adam, please go ahead.

Adam Jonas - Morgan Stanley

Thanks, everyone. I don't know if this is a question for Elon or for Deepak, but I was curious if the third quarter, or even your outlook for fourth quarter benefits from any true-ups, some suppliers who might have been gauging you on production that they didn't expect you to do and you were able to do and we are hearing there could some potential for true-ups. Curious if you can comment on that?

Elon Musk

No, Adam. No such luck. Again, no such one-time benefits from suppliers that have been booked. So this is a clean quarter.

Adam Jonas - Morgan Stanley

Okay. That's good. Could you comment on the wait time for car ordered today in Europe on average? I know it can vary dramatically by country, but maybe you can give us some examples of an order placed tomorrow morning, for example, how long someone could expect to wait for a car and also for China, mainland.

Elon Musk

Right. Well, bear in mind that from the point at which a car is manufactured in California, it's about six weeks-ish to seven weeks that it actually gets in the hand of the customers, because we make the cell assembled car kit that then gets transported to Netherlands and get assembled and then the car and goes through final checkout then it will be scheduled for delivery to the customer. So all of that let's say takes six to seven weeks. Then there is a bit of backlog. So I think it's something on the order of three to four months. (Inaudible) three to four months, because there is a couple of months of lead time on top of that.

Adam Jonas - Morgan Stanley

And then for China and Brazil, we will add then just for your live launch for the Beijing dealer, for example like you had a couple of months on top of that or is that China?

Elon Musk

If you order a car for delivery in China right now, you would probably get it in mid to late Q2. I mean I would certainly recommend anyone in China who does want to order a car to place their order fairly soon, because I mean it looks like that wait time maybe accelerating. In other words, the longer you wait, the longer you will have to wait. At least that's what it looks like.

Adam Jonas - Morgan Stanley

Got it. Elon, just finally, any update on when you are going to take that cross country road trip with your family. Everyone is kind of curious to see how that goes or you already done it and we just didn't see the production of it yet. Thanks.

Elon Musk

No. You would have seen. I have been looking at kids' schedules and everything, it looks like we might do that trip during spring break instead of over Christmas holidays, because it's going to be pretty snowy and yes.

Adam Jonas - Morgan Stanley

You don't want your kids in the car over there.

Elon Musk

Yes. I mean just going through a country when it is like the shortest day of the year and it is mostly night time it is probably not the best way to go. I want to make sure they enjoy the trip. So I think I will probably end up doing it in late March.

Adam Jonas - Morgan Stanley

My car is built like a tank. It seems to go through those Mexican concrete walls pretty well. So pretty strong build quality. Thanks a lot everyone.

Elon Musk

You are welcome. Yes, actually the pull through on that is actually it's even crazier than that, but the car actually sheered of something like 17 feet of curve wall, then went through a concrete wall, (Inaudible) behind the wall, then it smashed into a tree. It's like holy crow.

Operator

Okay. Thank you. Our next question comes from John Lovallo from Bank of America. Please go ahead with your question.

John Lovallo - Bank of America

Thanks for taking the call. I guess the first question would be, it looks like in the second quarter North American volumes rose about 250 units, sequentially. The third quarter, looks like they declined by 650 units, sequentially, and I know you have talked about the supply constraints, but I guess the question is that do you think that we could be hitting a point where maybe the early adopters have had kind of been their orders have been filled and maybe demand is this leveling?

Elon Musk

No. I think there is a huge amount of untapped demand in North America.

Deepak Ahuja

We saw a pretty solid increase in reservations in Q3 in North America compared to Q2. The fact that we delivered less cars is a not an indication of demand. It's just a matter of how we mixed our production between Europe and North America, so we don't want to create any misimpression of how production happened versus demand.

Elon Musk

Yes, but we have said a [finite] number of cars that we produced and we at some point we have to start delivering cars to Europe.

John Lovallo - Bank of America

That's helpful guys. Thank you. And then looking at free cash flow, it looks like you guys generated about \$26 million in the quarter, which is encouraging. Now you are forecasting about flat free cash flow in the fourth quarter. So it looks like you will burn through about \$50 million this year and, I guess, the expectations would be that CapEx is gone continue to ramp, I mean given the capital intensity of this business. So how should we think about free cash flow maybe heading into next year and then maybe even further out, just high level?

Elon Musk

You want to say anything?

Deepak Ahuja

We prefer to give 2014 guidance in a bit more detail at the next call but certainly our goal is to generate a significant amount of cash from our operations and offset as much as if not all of our capital expenditures as we go forward. It also depends, to some extent, how much we accelerate development of new products and how much we continue to grow globally in 2014 and we have big ambitions of that. So I think it's probably best that we hold on and give you a bit more granular sense of this in the next quarter.

John Lovallo - Bank of America

That's fair. Sorry, go ahead, Elon.

Elon Musk

Yes, the general course we are trying to take is to make steady modest improvements in our available cash while growing the business at a really rapid percentage rate relative to the rest of industry I mean these are super big percentage growth rates compared to you know what is normal in cars business. So if we can we can actually generate a little bit of positive cash

flow while having an ongoing very high percentage growth rate, that seems like a pretty good outcome.

Deepak Ahuja

And that's how we look Q3 results, considering how much we have invested globally in our infrastructure and our growth and we still generated positive cash flow. It is a great outcome for the quarter.

Elon Musk

Yes, exactly. Just like supercharger alone, we were aiming to have essentially all of North America covered in detail by the end of next year. So not by different cases. It will be some part like some people will travel will be potentially double or triple covered with superchargers and we expect to be able to travel anywhere in Europe or at least Western Europe and maybe across Eastern Europe by the end of next year. So despite all that and growing production volume and then developing Model X despite all that, I think we can still be positive cash flow.

John Lovallo - Bank of America

That's very helpful, guys. If I could just sneak one more in. Can you just tell us what the effective the GHG and CAFÉ credits were in the quarter, the effects on gross margin ?

Deepak Ahuja

It was really small. That effect continues to decline every quarter, John, and it was slightly over 1%.

John Lovallo - Bank of America

1%, okay. Thanks, guys.

Operator

Thank you, and our next question comes from Colin Rusch from Northland Capital. So please go ahead with your question.

Colin Rusch - Northland Capital

Thanks so much. Can you talk about the improvement in tack time and the elimination of overtime in the quarter for your production run rate ?

Elon Musk

I think, overall our production efficiency is continuing to reduce. So as a result, we are using less overtime and our cost per car per unit continues to decrease.

Deepak Ahuja

Yes, I mean I think there is room to improve in our labor cost per car and we have a number of initiatives underway to reduce labor cost per car which we kind of need to do, otherwise we simply can't fit enough people at the factory. So we will continue to grow headcount, but our headcount per car should get much better in the ensuing quarters.

Colin Rusch - Northland Capital

Okay, and then, go ahead. I can follow-up offline with a couple of other things. And then on the evolution of the relationship with your battery suppliers. Can you talk about how much they are contributing towards the IP and the evolution of the cell designs and new materials integration and are you having to contribute more there than you would have thought when you started working with these folks a few years ago?

Elon Musk

Well, we are contributing a fair bit to the optimization of the cell for automotive purposes. In a lot of ways, the cell still looks the same from the outside because it is roughly the same 18 millimeter diameter by 65 millimeter long cell, well it takes tiny changes like 18.3 or 18.4 millimeter, that type of thing, but the internal of the cell are evolving quite a lot and we are trying to be as helpful as we can with working with our partners, really our primary partners Panasonic on that. I think Panasonic is doing a really great job and has really exciting things in the pipeline for future cell chemistry improvements and we want to bring those to fruition with them as possible.

Colin Rusch - Northland Capital

Just one follow-on. Can you just comment on the cycle time for some of those improvements? I mean, are we talking about things that have been in works for a couple of years just making the cars and now or can you turn things around?

Elon Musk

Our internal goal is to make a meaningful step change improvement in the path technologies [cell] technology every roughly four years, so we started production a year-and-a-half ago, so one would expect in roughly two years

there will be a significant change. There will be small changes before then, but probably a more significant step change in the two to three-year timeframe. I think the key thing is to have that step change in place for the third-generation vehicle. Of course I would have benefit to Model S to premium line of cars as well.

Jeff Evanson

All right, John, we probably have time for one more question. We are going to go a little bit over, but just trying to fit one more in please?

Operator

Okay. We will take our next question from Patrick Archambault from Goldman Sachs. Patrick, please go ahead.

Patrick Archambault - Goldman Sachs

Okay. Thanks for squeezing me in here. I wanted to actually follow up on the last question. If I remember well, like part of the rationale for using 18650s was to take advantage of the scale that was already there when you are talking about building a new factory on your own, you are sort of bringing your on scale to the table, Right? It probably opens a lot of options, so as we think about battery technology for the gen-three might you actually rotate away from that sort of 18650 architecture and it is something that's maybe a little bit more compact and simple will be my first question.

Elon Musk

I think you are asking, it will be audit a 18 millimeter diameter and 65 millimeter length just happened to be a perfect size of a cell. That said if it's a flat optimization there is no reason to go away from that form factor, so we are still investigating that we are not 100% one way or the other.

I would imagine though that we don't go particularly far away from that size. We will either stick to that size or we will have something that's not hugely bigger. It's somewhat of a misconception that like a bigger cell is cheaper. It is not cheaper. In our experience we have yet to see a situation where large format on those cells are actually cheaper on a cost per kilowatt hour basis.

Patrick Archambault - Goldman Sachs

Got you. If I can, just one more just on, how you are going to configure your manufacturing sort of going into the end of this year? Does your current line have flexibility or will have flexibility to build Model Ss and Xs going through the same line or are you going to have to sort to build a parallel one.

Ultimately, I think the original expectations you put out was 40 to 50 global units of demand for S. Clearly, that would probably at some point the setup you have now but just kind of wondering when that additional capacity would go in and how it might be configured?

Elon Musk

We have a game plan on that front because, obviously, if we are doing 40 or 50 in Model S volume, if Model X turns out to have a comparable demand and we are on the order of 100,000 units then clearly our current production line is not going to do the trick. So we are going to need something else and we are looking at reconfiguring a part of the factory, maybe using one of the moving production lines that's still there from the new days but I feel pretty confident. I mean it's not going to be any, the production of vehicle is not going to be constraint. That's not a limiting factor. No doubt we have got some sort of huge capital, training thing that's going to need to happen. I think we have got a handle on how to get there.

Patrick Archambault - Goldman Sachs

Okay, terrific. Well, thanks for taking my questions.

Elon Musk

Alright, you are welcome.

Jeff Evanson

Alright, thank you very much, everyone for joining us this afternoon. We look forward to seeing many of you tomorrow at R.W. Baird's Industrial Conference in Chicago or next week at Barclays Auto Conference in New York City. Have a great day.