Thank you. First of all, I'd like to thank the Tesla team for exceptional execution in the second quarter despite tremendous difficulties. They've done an incredible job, and it's an honor to work with such a great team. I mean, there were so many challenges, too numerous to name, but they got it done, and just what a great group to work with, like I said, it's just an honor to work with such a great team.

And as a result, we were able to achieve our fourth consecutive profitable quarter, and although the automotive industry was down about 30% year-over-year in the first half of the year, we managed to grow deliveries in the first half of the year. So despite that massive industry decline, we actually went up.

We're also very excited to announce that we're going to be building our next Gigafactory in Texas. It's going to be right near Austin. It will be about -- I'll just go into a bit of detail on this, and then I'm sure there'll be a lot of questions. But the location is five minutes from Austin International Airport and 15 minutes from Downtown Austin, and it's about 2,000 acres, and we're going to make it a factory that is going to be stunning. It's right on the Colorado River. So we're actually going to have a boardwalk where there'll a hiking and biking trail. It's going to basically be an ecological paradise. Birds in the trees, butterfly, fish in the stream, and they will be open to the public as well. So not closed and only Tesla.

So if anyone is interested in looking at Giga Texas, with engineering, production, whatever the case may be, please let us know. This is -- we're going to be doing a major factory there. And it's also where we'll be doing Cybertruck there, the Tesla Semi. And we'll be doing Model 3 and Y for the eastern half of North America.

Now at the same time, I want to say, we will continue to grow in California. But we expect California to do Model S and X for worldwide consumption and 3 and Y for the western half of North America. And then we think probably also the Tesla Roadster, a future program, would also make sense in California.

So I think this is a nice split between Texas and California. And just to emphasize, we'll continue to grow in California, but we'll be creating a massive factory and Cybertruck and Semi programs in Texas.

And I also want to just do a shout out to Tulsa, and just say thank you very much to the Tulsa team, the economic development team and the governor, really, I was super impressed. The whole Tesla team is super impressed, and we will, for sure, strongly consider Tulsa for future expansion of Tesla down the road.

Let's see, is there anything more I want to say about? There's a lot of information. So anything, guys? All right. Well, I'm sure they have lots of questions. We've already started work on the facility, so some initial construction work. So it's already underway, started this weekend.

Let's see, moving on to other subjects, Solar. We recently adjusted the pricing of our retrofit solar. So Tesla Solar is the lowest cost solar in the United States. And we added the lowest cost guarantee and a money-back guarantee. So we're very confident that people will have our solar product, whether it's the Solar Retrofit or Solar Roof.

Our Solar is now 30% cheaper than the U.S. average. After the Federal Tax Credit, Tesla Solar now costs $1.49 per watt. And it's very simple, highly automated single-click experience. So definitely, think about Tesla, whether you want a new roof or Tesla Solar Roof or you want Solar on your existing roof either way, we're the company to go to. And then you also get a Powerwall and have energy independence and be your own utility. So I think that product is really coming together and it's only going to get better later this year. So just very excited about that business potential.

On the additional technology stuff, we introduced the first production car with more than 400 miles range. So the current Tesla Model S now has an EPA-certified range of 402 miles. I mean, you basically can drive from L.A. to San Francisco nonstop and still have some miles left over when you arrive. And this is at highway speed. So you don't have to anything drive slowly or anything drive -- you can just drive normally and go very long distances.

And then for full self-driving, we launched traffic lights and stop signs and we continue to improve that to make them more robust. And we're currently testing full self-driving software for intersections and city streets and narrow streets. So I personally tested the latest Alpha build of the full self-driving software when I drive my car. And it is really, I think, profoundly better than people realize. Yes, really profound. It's like amazing.

So it's almost getting to a point where I can go from my house to work with no interventions, despite going through construction and widely varying situations. So this is why I'm very confident about full self-driving functionality being complete by the end of this year. It's because I'm literally driving it.

In conclusion, I'd like to again say thanks for all the hard-work of the Tesla team, achieving our first full year of profitability in the company history. It was incredibly difficult. And just as a result of the hard-work of a lot of people from Tesla worldwide.

And yes, just think about the next 12 to 18 months, we'll have 3 new factories in place. Things are looking great with Giga Berlin, and we'll have Cybertruck, Semi, Roadster, Full Self-Driving. There's so much to be excited about. It's really hard to kind of fit into this call.

But the sheer amount of hardcore engineering, especially on the autonomy and the manufacturing engineering front is mind blowing. And then, of course, there's Factory Day, which is coming up pretty soon. And I think that's really going to surprise people by just how much there is to see.

So with that, thanks, again, for your support on our long-term mission. And we're looking forward to having a great journey with you, to create amazing products and continue scaling it. And, yes, this is -- I think, I've never been more optimistic or excited about the future of Tesla and the history of the company. Thank you.

**Martin Viecha**

Thank you very much. And I think our CFO, Zachary Kirkhorn, has some remarks as well.

**Zachary Kirkhorn**

Yes. Thanks, Martin. I want to start by thanking our employees, customers and suppliers for your support over the last quarter. In particular to the Tesla team, I couldn't be more impressed with the hard work and the resiliency that you all have shown.

On net income, overall, as Elon mentioned, we achieved our fourth sequential quarter of profitability. This is despite a significant impact to our financials as a result of suspended operations of our U.S. factories and field operations around the world. To ensure the business remains healthy, we took temporary action to reduce costs, including expenses related to personnel and non-critical patent projects.

The direct cost savings -- or the direct cost impact of the temporary shutdown was largely offset by these cost savings actions. Although, the cost were concentrated in COGS and the cost reductions were in both COGS and operating expenses.

On automotive gross margin excluding regulatory credits is this reduced sequentially from 20% to 18.7%. This sequential reduction is fully attributed to idle capacity charges and lower operational efficiency, due to the various shutdowns. Despite these charges, we continue to make progress, reducing our costs, particularly on Model Y in Fremont, and Model 3 in Shanghai. Given the global macroeconomic context, we made the decision in Q2 to

pass-through savings to customers around the world on some of our products.

With the release of stoplight and stop sign recognition and response, we recognized $48 million of deferred revenue in the period. The full profit impact on our P&L is less than half of this, due to costs associated with FSD computer retrofits in the field.

Regulatory credit revenue increased sequentially to $428 million. While difficult to forecast precisely, our best estimate of 2020 credit revenue is roughly double that of 2019. Services and other margin improved yet again, marking the fifth sequential quarter of improvement.

In the Energy business, our Megapack product achieved its first quarterly profit. We remain production-constrained in this business and are continuing to work towards building additional capacity. And our solar installation business was impacted by permit office closures, limiting installation volume.

Stock-based comp increased from Q1 to Q2. This is driven almost entirely by an expense related to the next tranche of the CEO grant, as well as early vesting of the first tranche, which is reflected in SG&A within operating expenses.

On cash flows, our cash balance increased to our highest level yet of $8.6 billion, which included free cash flows of over $400 million. This is a strong result on its own, despite an increase in capital expenses associated with Shanghai and Berlin, as well as movements in working capital.

A few things to note on working capital, particularly accounts receivables. While our AR balance is usually about 20% of revenue, it can fluctuate depending upon a number of factors. First, overall, less than 30% of our receivables is associated with new car sales.

Second, due to payment terms associated with financing and enterprise customers, settlement time lines for certain methods of cash payments and geographic mix of our deliveries, our cash balance and associated receivables are impacted significantly by how many cars are delivered in the final weeks and days of the quarter.

Third, roughly 40% of the balance is attributed to payment terms on regulatory credit sales and statutory EV incentive programs, both of which have been increasing. Customer deposits reduced slightly as well. Note that as we transition to lower order fees across the world, the average deposit per order will continue to reduce driving down this balance.

As we look forward, Tesla was able to navigate through Q2 due to our agile and dynamic culture. We will continue to appropriately manage our cash flows through cost optimization and close working capital management. This is key as we remain focused on expanding production, scaling our operations and preparing for the launch of three new factories over the next 1.5 years.

**Question-and-Answer Session**

**A - Martin Viecha**

Thank you very much. Let's go to questions from institutional investors first. The question number one is, as Tesla continues its journey towards the long-term goal of selling 20 million units per year, what are the most important vehicle programs that will drive volume growth over the next three to five years beyond Model 3, Y and the Cybertruck? Cheaper, smaller versions of 3 and Y? Or region-specific vehicles? Or anything else?

**Elon Musk**

I don't think we can comment on our detailed product roadmap beyond what's announced because I think we want to reserve that for product launches. But it would be reasonable to assume that we would make a compact vehicle of some kind and probably a higher capacity [indiscernible] vehicle of some kind. These are likely things at some point. But I do think there's a long way to go with 3 and Y and with Cybertruck and Semi. So it's a long way to go with those. I think we'll do the obvious things.

**Martin Viecha**

Okay. The second question from institutional is, what is your vision for software at Tesla? What opportunities do you see from monetizing the installed base other than by FSD?

**Elon Musk**

Right now, by far, FSD is just overwhelmingly the most important thing. I think the upgrading of the fleet to full-self driving, especially with an over-the-air software update. I mean, we go down as the biggest asset value increase in history as a step change.

Maybe there's something bigger, but it certainly would be one of the biggest -- I can't think of anything bigger. So overnight, 1 million -- depending on exactly on when it happens and when it's allowed in various regulatory jurisdictions, you have like at least a few million cars, suddenly becoming five times more valuable or something like that.

Certainly five times higher utility. They go from like 12 hours a week of utility, something like that or [indiscernible] to 60, something like that.

So, everything else is pretty small by comparison. Now, when things do become full self-driving, so what are we going to do in the car? Well, I guess we're probably going want to do productivity and entertainment of some kind. Or maybe play games and do work. That's in the future. We're already putting some games and stuff on the car, just for fun.

**Zachary Kirkhorn**

Yes, we have been experimenting on that. So, FSD remains, by far and away, the biggest opportunity in the near-term. But we're putting the plumbing in place to be ready to scale other areas when the time is right. So, premium connectivity subscription is something that we've put in place.

And the ability to upgrade your vehicle through the app, for example, on Acceleration Boost or upgrading a Standard Range Model 3 to a Standard Plus, adding rear-heated seats. So, these are things that we have and we're continuing to get feedback from the field and other things that we can launch and we'll trickle those in with time.

**Elon Musk**

Yes. But they're all very tiny compared with like the step change to full self-driving depending upon how you calculate it is probably worth at least $100,000 per car. So, it's a lot of software you have to sell in the App Store or whatever, yes.

**Martin Viecha**

Thank you. The third question is also about Autopilot. What are the most important upcoming self-driving milestones? And how do you think about timing?

**Elon Musk**

Well, the actual major milestone that's happening right now is really a transition of the autonomy system of the cars like AI, if you will, from thinking about things in -- like two and a half feet. It's like think -- things like isolated pictures and doing image recognition on pictures that are [partially] [ph] correlated in time, but not very well and transitioning to kind of a 4D where it's like -- which is video essentially. You're thinking about the world in three dimensions and the fourth dimension being time.

So, that architectural change, which has been underway for some time but has not really been rolled out to anyone in the production fleet, is what really matters for full self-driving.

So, what we've been doing, thus far, is really just things like 2D -- mostly 2D and like I said, not well correlated in time. So, just hard to convey just how much better a fully 4D system would work -- does work. It's capable of things that if you just look -- looking at things as individual pictures as opposed to video -- basically, like you could go from like individual pictures to surround video. So, it's fundamental.

So, the car will seem to have just like a giant improvement. [Indiscernible] probably rolling out later this year. We'll be able to do traffic lights, stop, turns, [trust] [ph], everything, pretty much. And then it will be a long march of nines, essentially. How many nines of reliability are okay. So it's definitely way better than human, but how much better than human does need to be.

So that's actually going to be the real work. There's just a massive amount of work with each, kind of, order of magnitude of reliability. But you'll see it happen. And if you plot the points on the curve, it would be kind of [up-ish[ ph]] where it's headed.

AI, in general, I think, is something -- I've been saying this, banging this AI drum for a decade, we should be concerned about where AI is going. The people I see being the most [wrong] [ph] about AI are the ones who are very smart, because they can't imagine that a computer could be way smarter than them. That's the flaw in their logic. They're just way dumber than they think they are.

**Martin Viecha**

Thank you. And the next question from institutional investors is. Please, may you update us on Alien Dreadnought? How has your thinking evolved and what is needed in order to get closer to fundamental physical limits?

**Elon Musk**

Well, we bring a massive amount of effort into manufacturing engineering, the machine that makes the machine. There's probably 1,000%, maybe 10,000% more engineering required for the factory then for the product itself. So we're certainly making progress. I mean, battery and powertrain factory, Gigafactory in Nevada is, you know, alien dreadnought version 0.5, something like that, starting to approach version 1.

We're getting way better at making cars. You can see that in Giga Shanghai. You'll see that even more with Berlin. And we're really changing the design

of the car in order to make it more manufacturable. The fundamental architecture of Model Y will be different in Berlin, it may look the same, but the internals will be quite different and fundamentally more efficient architecturally than what we've done to date.

Drew, would you like to add to that?

**Drew Baglino**

Yes. I was going to expand on that. I think part of the Alien Dreadnought concept is not just automation, but minimizing the number of process steps and complexity involved in the manufacturing system, which involves really integrating design and manufacturing across from like when the raw materials enter the factory to the finished goods exit. And we're learning so much through doing that.

**Elon Musk**

Vertical integration is extremely important to this. But the supply chain, if you put like a GPS tracker on a molecule from when it got mined to when it was in a usable product, it would look insane.

It would be like, wow, it went around the world like six times. So with vertical integration, maybe you can only go around the world once. It would be a huge improvement, or not even like half -- I think, I get vertical integration in litigation an order of magnitude improvement. So yes. And its -- do you want to Drew...

**Drew Baglino**

Yes. I think the focus for us is increasing CapEx efficiency. This is something that we've been working very hard for the past 3 years. And you can see that we can build new factories for less amount of money and much faster. Those things go together.

**Elon Musk**

It's a better factory for less money in less time.

**Drew Baglino**

Yes. Less money means less time. So that's a great advantage. And also reducing this -- and there still is a lot, the amount of inefficiencies. We want every operation to add value to the vehicle; value, meaning moving the atoms closer to the final state. So we do not want any robot that just moves things.

**Elon Musk**

Or in fact, it's like we want to be super respectful of people's labor. If we're asking somebody to do something, are we sure it's useful? Are we asking them to spend their timing a way that is respectful of their time? But it's like, wow, the like, the potential for improvement is tremendous. But it's I just want to be clear. At Tesla, we love manufacturing. It's awesome. And I really think more smart people should be working on manufacturing.

**Drew Baglino**

We want more people. We don't find enough people. People are interested in designing new lines and trying to do things different, Tesla's got a job for you. And now we've got jobs everywhere. It's not only in California. Now we've got just in China, in Berlin, in Austin, Texas and in California. So there's plenty of exciting places. And all these places will do original work and challenging meaningful work.

**Elon Musk**

Yes. Absolutely. It's actually extremely exciting and fulfilling to design new production systems. And I think that for some reason, I kind of got a bad rep, especially in the U.S. for a long time. And I think people didn't think that manufactured -- they sort of put manufacturing is like, oh, this is for some boring, just making copies, whatever.

But actually, there's far more opportunity for innovation in manufacturing than in the products itself, order magnitude. So like if there's one thing that comes out of this call, it's like, hey, if you want to help us invent amazing, new manufacturing techniques and have input into the product itself, it's not like you just get touch the product and say, hey, make this product and it's kind of a lousy design.

If you're manufacturing, you get to change the product design, and say, hey, this product, you're asking your manufacturers dumb. Like, great, let's fix it. So it has, if you work on manufacturing engineering, but you don't just get force fed a sandwich. You get to change the product design. So it's super exciting. And we evolve the lines even after they're both this rapid evolution of the production system. So…

**Drew Baglino**

And there's nothing more rewarding than going from 0 cars an hour to 5,000 cars a week or 1,000 cars a day.

**Elon Musk**

Yes. So the long-term sustainable advantage of Tesla, I think, will be manufacturing.

**Martin Viecha**

And the last question from institutional investor is, how many vehicles can Tesla produce in Texas?

**Elon Musk**

Well, right now, 0. But long term, a lot.

**Drew Baglino**

It's our biggest property.

**Elon Musk**

Yes, it's biggest property, true.

**Martin Viecha**

Okay. And now we can shift to retail investor questions on Say.com. The first one is, Tesla Energy seems widely ignored by Wall Street, despite Elon comments about growth rate exceeding automotive. Could Tesla share more detail on calendar planned projects to help investors better understand the business outlook? How disruptive is Tesla's Autobidder technology?

**Elon Musk**

Yes. I can't emphasize. I think long term, Tesla Energy will be roughly the same size as Tesla Automotive. So, I mean, the Energy business collectively is bigger than the automotive business. So you feel like, how big is the Energy sector? Bigger than automotive.

And in order to achieve a sustainable energy future, we have to have sustainable energy generation, which I think is going to be primarily solar and followed by wind. And those are intermittent.

So you need to have a lot of batteries to store the solar energy, because the wind doesn't always blow and the sun doesn't always shine. So there's like three elements of the sustainable energy future: wind and solar sustainable energy generation; battery storage; and electric transport, those three things.

And the mission of Tesla is to accelerate sustainable energy. So I can't emphasize enough. Yes. The battery and solar will both be enormous. And

they kind of have to be in order to -- for us to have a sustainable future. And we've got a great product road map on that front as well. So we're going to ship in the Megapack. It's very well received. Drew, you want to talk about that?

**Drew Baglino**

Yes. I think the Megapack has represented itself and is an integrated rapidly deployable grid tied storage battery of megawatt hour scale. We're working with utilities, large and small, not just utilities, but also just like microgrid and project developers of all type, and building our own projects where it makes sense.

And there's a lot of demand for the product, and we're growing the production rates as fast as we can for that product. And then on Autobidder, Autobidder is basically autopilot for grid-type batteries. It's an autonomous energy market participation system that does high-frequency trading in short...

**Elon Musk**

That's a bad word.

**Drew Baglino**

Sorry.

**Elon Musk**

How should free instant energy called front running. We're not doing that.

**Drew Baglino**

Not doing anything like that. No, it's ensuring that the battery is doing everything it can to manage the grid intermittency of the renewals -- renewables and just grid intermittency of all kinds. I mean, people turn their lights on and off, power plants turn on and off, factories ramp up and down and batteries are great to solve those problems.

**Elon Musk**

Yes. Its just grid stabilization at the most heightened level. So it just shows that things are super smooth. It's like a UPS, uninterruptible power supply of a normal size. But just ensure that this grid has smooth sailing. And then the batteries, the computers like all interact with each other and make sure that they're working together to make the grid smooth. And this can be done

with the Powerwalls and the Megapacks and the Powerpacks all working together and interacting with third-party systems as well.

**Drew Baglino**

Yes. Essentially, are distributed. It does both.

**Elon Musk**

Yes.

**Drew Baglino**

Yes. I mean, we've…

**Elon Musk**

It’s just necessary in order to solve the sustainable energy problem.

**Drew Baglino**

Yes, you can't plan power plants on the hourly scale in a renewable world. You need to optimize them on a minute-by-minute scale, and that's what we're doing.

**Elon Musk**

Yes. The real limitation on Tesla growth is cell production at affordable price. That's the real limit. So that's why we're going to talk about a lot more about this on Battery Day because this is a fundamental scaling constraint. And any part of that supply chain or pricing at the cell level will be the limiting factor.

So whatever maybe an error from mining to refining, those many steps that are refining to cathode and analog formation, cell formation, whatever the truck point is, that will set the growth rate. And so we expect to expand our business with Panasonic, with CATL, with LG, possibly with others. And there's a lot more to say on that front on Battery Day.

**Martin Viecha**

Thank you. And the second question is, now that it's time to bring the Tesla Semi to volume production, can you share more detail on production plans? What weekly production rate is considered volume production? And when does Tesla expect to reach that rate?

**Zachary Kirkhorn**

Yes. So we'll start production next year, as we announced it before. I'm personally very excited about the project. I can't wait. We do have a few trucks that keep driving around and like keep delivering cars. But we're going to accelerate that.

I want to be clear that the first few units, we will use ourselves, Tesla to carry our own freight, probably mostly between Fremont and Reno, which is a fantastic test route. We're going to prove that we have very good reliability. And so far, the early units do have it, but we'll do that at a larger scale. And we have also promised some early units to some long term, very patient and supportive customers, and we'll do that.

Now we have more sales coming up in next year, as Elon just pointed out. So we can increase the diversity of the portfolio. It didn't make sense up to now to do it. But we'll be ready. And that's maybe a little biased. I'm very excited about this. And we have a lot of very unique technology that we're always dreaming about that we will be putting into that Semi. It will be just awesome. Yes.

**Elon Musk**

Yes. And there's like two general classes of cell. There's like iron phosphate, and then the nickel based, the nickel based cells have higher energy density so longer range. Obviously, those are needed for something like Semi, where every, every unit of mass that you add in battery pack you have to subtract in cargo. So it's very important to have a mass efficient and long range pack for four batteries. What we're seeing with our passenger vehicles is that our powertrain efficiency and tire efficiency, drive coefficient like basically all of the things that, like, you know, our HVAC, going to a heat pump, basically our total vehicle efficiency has gotten good enough with Model 3, for example, that we actually are comfortable having an iron phosphate battery pack in Model 3 in China and that that'll be in volume production later this year. So, we think that getting a range that is in the high 200 -- basically, we think you probably getting a range of almost 300 miles with an iron phosphate pack, taking into account a whole bunch of powertrain and other vehicle efficiencies.

And that frees up a lot of capacity for things like the Tesla Semi and the other projects so far higher energy density. So, yes, so you have like two supply chains that you can tap into iron phosphate or nickel. We use very little cobalt in our system already and that's -- that may to zero along, so it's basically about nickel.

**Martin Viecha**

Thank you. The next question is, Tesla recently decided not to produce Standard 3 Range version of Model Y. No longer offers a Standard Range Model S or X and has announced ramping of the Semi. Does this shift from smaller pack vehicles suggest that Tesla is not battery constrained as in the past? What are the biggest constraints now?

**Elon Musk**

Well, I'd just like to reemphasize, any mining companies out there, please mine more nickel. Okay. Wherever you are in the world, please mine more nickel and don't wait for nickel to go back to some long -- some high point that you experienced some five years ago or whatever, go for efficiency. As environmentally friendly, nickel mining at high volume.

Tesla will give you a giant contract for a long period of time if you mine nickel efficiently and in an environmentally-sensitive way. So, hopefully, this message goes out to all mining companies. Please get nickel.

With regard to passenger vehicles, I think the new normal for Range is going to be just in U.S. EPA terms approximately 300 miles. So, I think people will really come to expect that as some number close to 300 miles as normal. That's a standard expectation because you do need to take into account, like, is it very hot outside or very cold? Or are you driving up into a mountain with a full load? And it's -- people don't want to have -- get to the destination with like 10 miles range, they want some reasonable margins.

So, I think 300 is going to be really -- or close to 300 is going to be a new normal. Call it 500 kilometers basically -- roughly.

**Martin Viecha**

Thank you. Next question on insurance. What is the hold up for Tesla Insurance outside of California? Will you release numbers from that part of the business? Will Tesla Insurance be required to participate in the Tesla ride hailing network as a driver?

**Elon Musk**

Sure.

**Zachary Kirkhorn**

Yes. We were joking before the call that we get the quarterly insurance question that -- funsay.com [ph] here. We are working super hard on insurance. I'll go into a little bit more deal here than I have in the past.

Currently, we have a product in California, as I've described before, it's been quite well received and I would largely describe it as a fairly standard insurance product with elements of it that are unique to our cars. So you can think of it as a version one of Tesla Insurance…

**Elon Musk**

Version 0.9 is it getting at least.

**Zachary Kirkhorn**

0.9. What we're working on now is -- we can call it version two, or we can call it the first version of our Telematics product. And so really ultimately where we want to get to with Tesla Insurance is to be able to use the data that's captured in the car, in the driving profile of the person in the car, to be able to assess correlations and probabilities of crash and be able then to assess a premium on a monthly basis for that customer.

And what makes this very exciting for us is the amount of data that is available, with the customer's permission to use, is not available on any other product or any other vehicle in the world. So this gives us a unique advantage in terms of information.

And we have a decision point here where we could take the California product and replicate that into other states, or we could delay going into additional states and instead put more effort into the Telematics side of this. And we chose the latter.

And where we are now is nearly complete with the risk and cost analysis associated with the first version of the Telematics product. We hope to be filing that in a handful of states with regulators very shortly. And assuming that regulatory approvals go smoothly, we hope to have this in a handful of states by the end of the year.

And then we'll continue to file for approval in additional states. With regulatory approval there, we'll continue to roll this out nationwide as quickly as we can. And then that product, as we continue to collect more data and reiterate on it, there'll be version two, version three, et cetera, as we continue to refine that.

**Elon Musk**

Yes. I mean, at the heart of being competitive with insurance is what is the accuracy of your information. Like are you dealing with -- are you forced to assess people statistically looking in the rear-view mirror Or can you assess people individually, looking ahead with smart projections, and inform the

driver that -- how they may reduce their -- what actions they can take to reduce their insurance, as Zach was alluding to, it's like, okay, you're driving too fast, you're on this that, the other thing, it's like if you want to pay more for insurance, you can. But if you want to pay less, then please don't drive so crazy.

Then people can make a choice. Like, okay, they want to drive aggressively, in the case, it'll be higher insurance, or they want more capital enter driving and pay less. This was actually very helpful for us to have a feedback loop to see what is driving insurance expense. A lot of it is just -- it's like a little fender bender and the net fender bender because of the way that the body collision repair is being done, it cost like $15,000 or something crazy, and like, and then we can actually adjust the design of the car and adjust how the repair is done to actually have the fundamental cost of solving that problem would be less.

So this has helped us under a whole bunch of facility things that we were doing basically without realizing it. But this is a problem with, in general, with insurance is like if the insurance is like, all you can eat, then the feedback loop for improvement is sweet.

So this gives us a great feedback for improvement, because it's basically a fundamentally better insurance product. I'd also like to say, I'm inspired of recruiting because if there's one thing I'd like to come out of this call, it's that a lot of great people want to join Tesla. That's the other one thing I'd like to take on this call.

And on the insurance front, I want to be clear. We're building a great, like a major insurance company. If you're interested in revolutionary insurance, please join Tesla. I would love to have some high energy actuaries, especially. I have great respect for the actuarial profession. Your guys are great at math, please join Tesla. Especially if you want to change things and you're annoyed by how slow the industry is. This is the place to be. We want revolutionary actuaries.

**Martin Viecha**

Thank you very much.

**Zachary Kirkhorn**

Sorry. So there was the second part of this question, will Tesla Insurance be required to participate in the Tesla ride-hailing network? And so, I think I've answered this before in prior calls, but by the time the ride-hailing network is available, we will -- Tesla Insurance coverage will be provided to folks who are in this network.

It's a different type of insurance because of the use of the car. It's not decided whether third-party insurance versus Tesla Insurance will be required. There might be some things we need to think through there. But Tesla Insurance, at least, will be working, working for the ride-hailing network.

**Martin Viecha**

Thank you very much. And in the interest of time lets go to the Q&A of analyst from the line.

**Operator**

Thank you. Our first question will come from Dan Levy with Credit Suisse. Please go ahead.

**Dan Levy**

Hi good afternoon. Thank you. I'll ask a question on quarter and then just a question more broadly on strategy. Just on the quarter, if you could give us an update on gross margin. Was China accretive to gross margin in the second quarter? And give us an idea of how far Model Y gross margin was versus Fremont Model 3?

And then just more broadly on strategy, it seems like your approach to in-sourcing is varying by region. You're in-sourcing a lot more in Fremont, but you're relying a lot more on the supply chain in Shanghai. What do you expect your approach to be on in-sourcing when you eventually open up Berlin? And what your Texas factory is going to be? Thank you.

**Zachary Kirkhorn**

Yes. Just to start with the gross margin questions. We did see progress on gross margins in China, and that was despite pricing action that was taken. The factory is still not running at full capacity yet as it continues to ramp. So we think there's think there's a continued opportunity to optimize the cost structure there.

Model Y, as we mentioned last quarter, was profitable in its first quarter of production. And despite the inefficiencies that we had due to the shutdown, we did see pretty substantial improvement in the Model Y margin. And as we said before, the Model Y cost structure and Model 3 cost structure will converge. They're not quite there, Model Y is still slightly more expensive than Model 3, and it's not yet at full production. And with Model Y carrying a slightly higher price point, you can kind of back into the math there on the relative gross margins.

**Elon Musk**

Yes. I mean the Shanghai factory is a pretty big factory. And it's continuing to do more and more internally. But it's also -- the thing that's really helping is like there were previously a ton of parts that were made in other parts of the world that were being shipped to Shanghai from every part of the world.

And just locally sourcing those components makes a massive difference to the cost of the vehicle. And I mean, the proportion of local sourcing has literally been rising at like 5% to 10% a month, from 40 -- it was like 40% at the beginning this year, something like that, it will be like 80% by the end of this year, maybe more.

**Zach Kirkhorn**

There is also a lot -- very strong, very competent and very eager suppliers around the factory in China.

**Elon Musk**

Yes. I will say it like this. The suppliers in China have been extremely competitive, possibly the most competitive in the world.

**Zach Kirkhorn**

And so far, we're in negotiations with -- for Berlin and we've awarded a lot of business. Also a lot of suppliers in Germany or the rest of Europe that are eager to support the factory in Berlin. Yes.

**Elon Musk**

Yes. Well, obviously, Germany has a great automotive industry and supply chain. So, actually, a ton of our suppliers are in Germany within like a few hundred kilometers of the factory.

**Martin Viecha**

Thank you very much. Let’s go to the next question please.

**Operator**

Our next question will come from Toni Sacconaghi with Bernstein. Please go ahead.

**Toni Sacconaghi**

Yes. Thank you. You mentioned in the slide deck a couple of times that you were pleased with gross margin with PTI margin progress and you expect it

to achieve industry-leading operating margins over time. Maybe you could shed a little light on that?

Industry-leading for luxury vendors is 8% to 10% PTI. For Porsche, it's smaller, at 17%. For mass market vendors, it's 5% to 8%. What do we think about? And how much, ultimately, do you believe that EV credits will contribute to that margin? Because I know your margin has been 5% over the last 12 months, but it's actually less than 1%, excluding EV credit, so it's a 4 point contribution right now. How do we think about ultimately what industry-leading margins are? And how much of that you think is coming from EV credits, regulatory credits? And I have a follow-up, please.

**Zach Kirkhorn**

Sure. I've mentioned this before in terms of regulatory credit. We manage the business, said differently, we don't manage the business with the assumption that regulatory credits will contribute in a significant way to the future. I do expect regulatory credit revenue to double in 2020 relative to 2019, and it will continue for some period of time, but eventually, the stream of regulatory credits will reduce.

**Elon Musk**

Yes. I mean, it's worth telling that we're -- buyers of our car in the U.S. received 0 federal tax credit. Whereas many of our competitors are like, they get a $7,500 pack tax credit. And yet our sales have continued to do well. Yes.

**Zach Kirkhorn**

Yes. And so what we see is a continued decline in the cost to produce manufacturing and distribute our cars. That cost curve, even for mature products, like the S and the X, continues to come down as we work on that. Model 3, which is our second most mature product, that continues to come down.

You then layer on top of that, as Elon was discussing earlier, the potential for software-based revenue, particularly full self-driving, there's the revenue recognition portion of that, that we have today, that, that will expand as we release more features. And then you can layer on top of that, in the future, revenue from a ride-hail network.

Operating expenses continue to come down and become more efficient as a percentage of revenue. There's still incredible opportunity there that we were working on, particularly on how customers interact with the company from sales and service and what their flow is and how we get cars to them.

So we continue to see efficiencies there. So in the medium term here, what our modeling shows is in the low teens operating margin level. And I think there continues to drive the opportunity to drive that up. So I hear your point on the 5% and the 1%. We're on a bit of a journey here, and we're continuing to be partner [ph].

**Toni Sacconaghi**

Thank you. And if I could just follow-up, Elon, you've talked a lot about the mission of the company in -- and really trying to drive EV adoption globally. So how do you think about that trade-off between driving towards industry-leading profitability, yet trying to make your cars more affordable and broader? It feels like, historically, you've always picked the path of, I'd rather drive more growth and more adoption because ultimately, that's the mission of the company, and we even saw it a little bit this quarter with price reductions, you could have probably kept price where it is, sold some units and had better profits, but that's been an ongoing choice that Tesla, as a company has made. So how do you personally think about that trade-off between, even if you were to get to industry-leading margins, wouldn't you be inclined to give more of that back to drive a greater adoption more quickly?

**Elon Musk**

Well, I think we actually achieved both when you factor in autonomy. I think we can go way beyond industry margins and have the car be affordable to more and more people and potentially almost everyone when you're factoring in autonomy. But that was really a mega game changer, giga game changer.

Yes. But I mean, it is important for people to distinguish between two things. There's value for money that our product has; and then there's affordability. And even if you rail value for money and have value for money, like infinite, if people don't have enough -- if people do not have enough money in their bank account to buy the car, they simply cannot.

So then you used to have this cycle or something that nobody can buy. So it is important to make the car affordable, and we will not succeed in our mission if we do not make cars affordable.

Like the thing that bugs me the most about where we are right now is that our cars are not affordable enough. We need to fix that. So we're all making progress in that regard, just sort of steadily gaining progress. So yes, we need to not go bankrupt. Obviously, that's important because that will fail in our mission. But we're not trying to be super profitable either, obviously, profitability is like 1% or something, this 1% or 2%.

It's not crazy. Last quarter, it was only like 0.1%. So we want to be profitable. Like I think just we want to be like slightly profitable and maximize growth and make the cars as affordable as possible, and that's what we're trying to achieve.

**Martin Viecha**

Thank you. Let’s go to the next question, please.

**Operator**

Our next question will come from Emmanuel Rosner with Deutsche Bank. Please go ahead.

**Emmanuel Rosner**

Hi, good afternoon. Could you please characterize the current near-term demand environment for your vehicles? These are obviously unusual times. I think back in Q1, you had indicated record backlog, I guess, at the beginning of this past quarter. I haven't seen any specific comments about new orders or backlog in the release today. So, can you give us some color?

**Elon Musk**

Demand is not a problem. Definitely not. We do have some production supply chain challenges we're trying to slow right now. For example, the Model Y, we're body casting, obviously, because it's new technology, it's been tricky to maintain rates and keep growing the rate for Model Y casting, which is -- it's a two-piece casting with a bunch -- and there's about half dozen other parts that are added on, that will transition to a one-piece casting.

In fact, I'm super excited about this. We're going to have a -- the world's biggest casting press is getting assembled right now actually in Fremont for the Model Y rear body casting. It's enormous and looks awesome. So, it's -- look, the things that are troubling us right now are not demand, that they are just a bunch of firefighting on supply chain and production issues.

**Emmanuel Rosner**

Okay. So --

**Elon Musk**

Sorry. Yes. Don't worry about demand. That's not the issue.

**Emmanuel Rosner**

Okay. So, when you're saying achieving 500,000 deliveries has become more difficult, was it really just a function of the recent shutdowns and some of these supply dynamics?

**Elon Musk**

Yes. It's not true at demand. It's really just a production issue. It's been pretty hard when you've got like a global supply chain, and it's kind of whatever the most effective part of supply chain is that sets your rate.

I mean the number of rabbits do know how to pull out of a hat for supply chain is insane, team has done an amazing job. So, I think also some of our costs were related to having to use a lot of airplanes to get parts around because of part shortages. So, we'll hopefully use fewer airplanes. That will improve our costs, but demand exceeds supply right now. That's where we are now.

**Martin Viecha**

Thank you very much. And the last question please.

**Operator**

Our last question today will come from Philippe Houchois with Jefferies. Please go ahead.

**Philippe Houchois**

Yes. Good afternoon. Thank you. You mentioned a few times the constraint to growth is battery capacity still. And I was hoping you could clarify the scope of the Berlin plans for building right now. Will there be the battery capacity consistence with the amount of assembly volume you expect to come out of the -- ?

And if not, would you be able to source, your battery requirements, out of Europe? Or would you have to import batteries from outside Europe to ensure production in Berlin?

**Elon Musk**

Okay. We can't say too much about this. Except that, where there will be local cell production and -- that will serve the needs of the Berlin factory. Drew, is there anything? Berlin factory. Drew, is there anything -- yes?

**Drew Baglino**

I mean, no, that's straightforward enough. I think just adding to what you said earlier about talent and people, like the same goes in all areas of cell, supply chain, manufacturing materials, design, we are solving this problem. And we -- we're treating it like any other problem that we have solved. We will solve this problem, talented people to join us as we solve this problem.

**Elon Musk**

Yes. And like, so my biggest concern for getting our talented people is just probably Berlin, because the labor mobility in Europe is not as low. I would recommend changing this. Like somebody wants to leave and join another company, sometimes they have to spend six months on Garden Leave. It's called garden, hanging out in the garden, basically. And like this is not a good use of people's time. I mean, if they want us to hang out on the garden, that's fine, but they shouldn't have to.

**Philippe Houchois**