1/22/24; Frosty the Tesla

[HALF SECOND OF SILENCE]

[BILLBOARD]

SCORING IN <Do You Want to Build a Snowman?>

SEAN RAMESWARAM (host): TESLA?

SCORING BUMP

SEAN <sings>: Do you want to drive your EV? / Well, that’s too bad because it’s cold.

And when you haven’t charged your battery, no flattery, your car will feel old!  
It used to be such a good car, and now it’s not, I wish Elon would tell me why!

Do you want to drive your EV?

HADY MAWAJDEH (producer): Then you should have read the instructions!

SEAN: Go away, Hady!

SCORING FADES

HADY: Okay, but we’re gonna talk all about frozen EVs on *Today, Explained*.

SCORING IN <Do You Want to Build a Snowman?>

*<CLIP> CBS Chicago, Electric vehicle drivers stranded*

*Anchor: Some Tesla drivers learned the hard way about how cold weather impacts their battery life*

*<CLIP> ABC 7 Chicago, Frigid cold, broken chargers*

*Reporter: All of these vehicles right here, all of them have dead batteries*

*<CLIP> WRAL, Cold Weather Stalling Electric Vehicles in Chicago*

*Driver: they tell you the chargers are fast. It takes two hours to charge your car.*

*<CLIP> @TeslaFlex, What Happens if my Tesla Model 3 Door Handle Freezes?!*

*Driver: Bro. Bro! I can’t even get in my Tesla!*

*<CLIP> NBC Chicago, Electric vehicle owners face huge challenges*

*Driver: It's terrible.*

[THEME]

SEAN: We reached out to Andrew Hawkins from *The Verge* to find out what’s going on with America’s electric vehicles this winter.

ANDREW HAWKINS (TRANSPORTATION EDITOR, THE VERGE): Yeah, it's a tough situation out there for the, for the EV owners …

SCORING IN BUT UNDER <Triangle Time - Old School Bass Version (hip hop, bass, breaks, old school, 8bit synth, sidechain)>

ANDREW: … in this current weather environment that we have.

SCORING BUMP  
*<CLIP> CBS Chicago, Electric vehicle drivers stranded*

*Anchor: some Tesla drivers learned the hard way about how cold weather impacts their battery life*

*[horn blaring]*

*Driver: i’ve been here for over five hours at this point, and still have not gotten to charge my car.   
  
<CLIP> FOX 32 Chicago, 'Dead robots':*

*[random scream]*

*Driver: Man, this is crazy! This, this it’s a disaster.*

*<CLIP> NBC Chicago, Electric vehicle owners face huge challenges*

*Driver: And it’s a waiting game, it’s a waiting game, it’s a waiting game. And it’s terrible.*

ANDREW: We've known this for a very long time, but I think that, you know, with more people buying electric cars and sort of the numbers increasing out on the road, it becomes, uh, a new story every time the weather turns cold.

*<CLIP> FOX 32 Chicago, 'Dead robots':*

*Driver: We’ve got a bunch of dead robots out here!*

*Reporter: Dead robots?*

*Driver: [laughs]*

ANDREW: People are sort of discovering for the first time that this is not exactly a perfect relationship between EVs and subzero temperatures.

*<CLIP> FOX 32 Chicago, 'Dead robots':*

*Reporter: Is this acceptable?*

*Driver: No. Not at all. I mean, we pay a premium price for these Teslas.*

SCORING OUT

SEAN: And for all the people who have the traditional combustion engine and can't imagine what we're talking about here, what are we talking about here? What goes wrong with EVs when it's cold outside?

ANDREW: The battery in particular loses some of its charge in the cold.

*<CLIP> Hasbro Pulse, Divide and Conquer | Transformers: Generation 1*

*Optimus Prime: Functioning, but energy draining fast.*

ANDREW: It just starts to kind of sap its energy, its capacity. And uh, uh, charging also becomes very complicated as well.

*<CLIP> WRAL, Cold Weather Stalling Electric Vehicles in Chicago*

*Driver: they tell you the chargers are fast. It takes two hours to charge your car.*

ANDREW: And the reason for this is that, you know, electric vehicle batteries are lithium ion batteries for the most part. They contain, uh, liquid electrolytes and liquid freezes in the cold. And so, you know, when you go to turn on your car and you've got a freezing cold battery with, uh, frozen liquid inside of it, it's not going to perform in the same way that it would during normal temperatures or spring or summer temperatures. So the battery needs to basically get nice and toasty warm before it starts to cooperate. And, uh, that takes a little bit of time.

SEAN: Mmmm.

ANDREW: Um, uh, so I think what we're seeing out there right now is, um, a lot of people who, um, haven't allowed their, their battery to come to a proper temperature before attempting to charge it and then discovering sort of, uh, what problems that, that actually entails when that happens.

SEAN: And how do they respond when they make this discovery?

ANDREW: Well, they respond by, you know, freaking out and, uh, you know, talking to various local reporters about their buyer's remorse in owning an electric vehicle.

*<CLIP> NBC Chicago, Electric vehicle owners face huge challenges*

*Driver: As far as the drive and everything, it’s real nice. But, not Chicago. Not in Chicago. I couldn't deal with it.*

ANDREW: It sucks. I totally get it. You know, you, you, you buy a futuristic car like a Tesla. You expect to be having a certain ownership experience. And then when that sort of crashes into the reality of, uh, subzero temperatures, I can understand how that turns into a little bit of, uh, of a rude awakening for a lot of people. Uh, but I think as we saw in Chicago, there was a lot of other factors that are going into this. It's not just people sort of without the proper education or understanding about how EVs operate in the cold, there is a lot, a lot of other things going on, too.

SEAN: What's going on in Chicago?

SCORING IN AND RIGHT BACK OUT <Kanye West - Homecoming>

ANDREW: A couple of things. First of all, there were a number of charging stations that were out of order. And that is a big problem.

*<CLIP> ABC 7 Chicago, Frigid cold, broken chargers*

*Reporter: These cars are all dead batteries. That car is stranded. Here comes another one hoping for something good to happen here. All of these vehicles right here, all of them have dead batteries because of those “charging stations.” They’re not working!*

ANDREW: It's a problem across the country. And, you know, EV chargers tend to break down sometimes. We've seen, uh, the same ones with, you know, with the, with the batteries in the cold. The charging equipment also tends to freeze as well. So we were seeing some chargers that were breaking down and not working.

*<CLIP> FOX 32 Chicago, Dead Teslas pack Chicago area Supercharger station due to frigid temps*

*Reporter: Has it been charging?*

*Driver: No, not at all.*

*Reporter: It just isn’t working?*

*Driver: At all. It’s just frozen. And I'm now getting it towed to the Tesla service center because that’s my only option at this point.*

ANDREW: It was just chaos. And I think another factor that was going on here, and I really want to shout out a number of outlets, they did some really great reporting on this, uh, *Inside EVs* and the *Autopian* and *Out of Spec Reviews*, um, actually went down to Chicago and talked to people and checked out what was going on in the scene, and it turned out that a lot of the vehicles that were running out of battery capacity were owned by rideshare drivers, Uber and Lyft drivers.

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ANDREW: What's interesting about that is that those are probably going to be the folks that are the least experienced with electric vehicles. I mean, they're operating, uh, under a number of different conditions. Uber and Lyft, the companies themselves are incentivizing drivers to switch to EVs by offering them more money for their trips if they drive in electric vehicles. There's also a lot of, um, leasing programs for rideshare drivers that allows them to rent these cars for favorable rates.

*<CLIP> WRAL, Cold Weather Stalling Electric Vehicles  
Driver: I rent this through Uber. And I'm really gonna take this back and see if they got gas cars.*

ANDREW: So. you sort of had all of these factors come into play as you had sort of the perfect storm where all of these cars were breaking down, the charging equipment wasn't working. And the, you know, local reporters were there to shine a light on the whole thing. And obviously they don't really tend to mince words, you know, like you're talking about how the charging stations were turning into car graveyards.  
  
SEAN: [chuckles]

*<CLIP> Timcast, Tesla Car GRAVEYARDS In Chicago*

*Tim: In Chicago we have Tesla charging station graveyards because the cars can't charge in the very cold weather.*

ANDREW: And that, you know, tends to sensationalize things a little bit. And I think it has the unfortunate side effect of probably turning a lot of people off to electric vehicles. When I think in reality, most people who are buying electric vehicles, they're just going to be doing most of their charging at home or at work. I think if you can own an EV like I do myself, …

SEAN: Oh!

ANDREW: … and go, you know, for months on end without visiting a public charger, you're going to do fine. There's not going to be any problems with, with your car, especially in the cold weather.

SCORING OUT

SEAN: I want to jump in here and just ask you. I mean, it seems a little counterintuitive that rideshare drivers, people who live in their cars, are kind of surprised in the dead of Chicago winter to find out how the batteries function. Also, this is not the first winter we've had with electric cars. Why are we seeing so many videos on social media of drivers discovering how their cars work in cold weather?

ANDREW: Yeah, I think there's a number of things going on here. First of all, uh, 2023 especially has been the year of the Tesla price cuts. Over the last 12 months or more. Tesla has dramatically reduced the price of its cars to the point where it's become extremely affordable for a lot of people.And that's, you know, when you're going to start to see a lot more rideshare drivers deciding that EVs are going to be the right move for them. They want to, uh, cut gas prices out of their cost equations, and they're ready to go full electric. Uh, but I think that, you know, a lot of that adoption is kind of going ahead of where the charging infrastructure is. And we're still dealing with a lot of problems with software, with availability and with uptime, which is, you know, sort of like the amount of time that the charging station is actually operational.

SEAN: Let's talk solutions like, how do we have a happy and safe and warm and functional, you know, winter 2025, in Chicago?

ANDREW: If your car offers you the option to precondition the battery before you start charging and it's below freezing out there, that is the first thing that you need to do. You need to get that battery nice and toasty, uh, before it can start to accept any charge. Another thing that people could do is, uh, try not to rely on the public charging network as, as much to do your charging if you can charge. At a slower charger. For example, like a level two charger, you can charge at work. You can charge at home. You should definitely try to do that. Uh, but otherwise, you know, try to try to avoid those, those ultra fast DC fast chargers during the winter time because not only are the lines going to be long, but the charging is going to be really, really slow. Uh, but, you know, that's, that's going to be a challenge, especially for the folks that live in, that live in dense cities. So I know that that's not really going to be an option for a lot of people, especially for the folks that rely on their, their EVs for work, like rideshare drivers. And so I think maybe a solution there is that we need to start to see, uh, these rideshare companies, uh, start investing in the charging infrastructure as well.

SCORING IN <HARD\_HARD\_0063\_00801\_Let\_Go\_-\_Underscore\_APM>

SEAN: Andrew Hawkins. Transportation editor at *The Verge* dot com.

You know who could help with this freezing EV crisis in the United States? China. We’ll *Today, Explained* when we’re back.

[BREAK]

[BUMPER]

SEAN: *Today, Explained* is back. Andrew Hawkins is gone. But Simon Wright from *The Economist* is here. He wrights about EVs. He doesn’t personally own one.

SIMON WRIGHT (INDUSTRY EDITOR, THE ECONOMIST): But I've driven quite a lot of EVs in the course of my job, including yesterday. Um, I drove the Rolls-Royce Spectre.

SEAN: Wow.

SIMON: And that was quite a lot of fun.

SEAN: That sounds fancy. I did not know Rolls-Royce had an EV on the market.

SIMON: They've got an EV on the market. And if you've got 330,000 pounds to spare. It's not a bad EV to try.   
  
SEAN: <laughs>   
  
SIMON: Give it a go!

SEAN: Okay, so that's like the most expensive EV out there I imagine, what's on the cheaper end. What's on the opposite side of the spectrum?

SIMON: Well, I think that's what we're here to talk about today. And that's probably going to be the Chinese. I know you've been discussing, um, recharging and that's one of the reasons that people don't buy EVs. And what we've seen recently in America and the rest of the world is a slowdown in growth of EV sales.  
  
SEAN: Hm!  
  
SIMON: And that's partly because cost is still the major issue is affordability of EVs. And that pretty much is where the Chinese may well come in.

SCORING IN <KPM\_KPM\_2287\_00303\_Lose\_Your\_Mind\_APM>

SEAN: We reached out to Simon to talk about China’s EVs because it seems like they’re already a game changer there. And we wondered if they could end up being a game changer here. More Chinese EVs in America would mean more infrastructure, would maybe mean fewer people with freezing cold cars in the winter.  
  
We asked him how EVs got so big and so CHEAP in China.

SIMON: Well, this is the thing the Chinese government decided many years ago that it wanted to be a power in the car making industry, but the Chinese realized they could never compete with the intricacies of the internal combustion engine, which these companies have been developing for 100 years. They really knew how to make internal combustion engine cars. Chinese domestic carmakers, outside of joint ventures, made terrible cars.  
  
SEAN: <chortles>   
  
SIMON: The Chinese government saw a while ago that maybe EVs. They took a bit of a gamble. EVs was the way forward. So they brought in, um, subsidies for buying EVs. They built up a battery supply chain. They, you know, brought in protection for domestic EV battery makers. They did all kinds of things to promote EVs. And so now what we have is the Chinese car market, which is the world's biggest car market. They're the world's biggest car producer. They are now selling, uh, something like one in every three cars sold is an electric vehicle or a plug a plug in vehicle, at least, maybe a hybrid.   
  
SEAN: Wow.  
  
SIMON: And most of those are Chinese.

SCORING OUT

SEAN: I imagine the average American cannot name a Chinese automaker. Can you give us the, the menu?

SIMON: I bet you're like a name one. They wouldn't realize that. They, they might name Volvo.   
  
SEAN: <laughs>

*<CLIP> Volvo SIPS commercial*

*Announcer: Volvo, a car you can believe in.*

SIMON: Which is of course owned by Geely, which is a Chinese company.

SEAN: That's right, that's right.

SIMON: I mean, they are, they're a European car company in the sense that based in Europe, but they’re Chinese owned. But, you know, no, you're absolutely right. They've yet to make much of an impression in America. But if you came to London, you would see plenty of, uh, MG's on the road, which are from, uh, SAIC [Motor Corporation Limited], um, one of the Chinese state owned car companies,

*<CLIP> Morris Garages India, MG Hector*

*BENEDICT: What makes us human? Sometimes it feels like we’ve forgotten. Maybe we can learn again? From someone who’s been learning from us?*

*HECTOR: Welcome, Benedict.*

*BENEDICT: Hello, MG.*

SIMON: And increasingly we're going to see cars from BYD,

*<CLIP> BYD Europe, BYD ATTO 3*

*NOT BENEDICT: We are BYD. you've probably never heard of us so we could tell you that we are one of the largest manufacturers of new energy vehicles in the world and our commitment to sustainable Mobility but hey we know you just want to drive a great electric car…*

SIMON: Uh, it’s the biggest EV maker in China. It sells most EVs. And last quarter overtook Tesla in sales of pure, uh, battery powered cars. It makes plug in hybrids as well, but just for pure battery for our cars, it actually overtook Tesla in sales. So this this is extraordinary company which in 2017 it was saying something like 400,000 cars a year mind the internal combustion engine hit cars last year it sold 3 million cars.

SEAN: Hm.

SIMON: Um, and they were all either EVs or plug-ins. And in the last quarter of last year overtook Tesla in the global sales of pure battery powered cars, which is extraordinary.

The year before last, it sold something like 1.2 million. I don't think we've got a final figure, but it's a little bit more than that. Maybe last year. But it's it's, you know, it's considerably bigger than Tesla if you count plug ins as well as, uh, pure battery EVs. So it's got a remarkable journey. And it's one of the powerhouses of the Chinese electric car market.

SEAN: Tell me what a Chinese electric car looks like, typically an MG or a BYD. I think when we think of a Tesla, we think of something that's very sleek, something that's very modern. What about the, uh, what about the Chinese market?

SIMON: Look, there's an enormous range of Chinese cars. That's the other thing that's going to, you know, why they're going to be able to take on, on the global markets because they produce all kinds of cars, but they're pretty nicely styled. That's the thing. China has gone from making terrible cars to very nicely styled cars that are pretty cheap, have pretty good tech, and they're really quite desirable.

SEAN: So why aren't any of them in the United States?

SIMON: They're not in the United States yet, although they've started to export to Europe and they have big plans because Europe is going to be the main battleground in the near future for the Chinese.

SEAN: Ohhhh.

SIMON: It's only in the last sort of three years that the EVs have really taken off in China. Up until then, it was mainly, uh, fleet vehicles and government vehicles. Um, but because these cars are now really quite snazzy, they look good. And they're really very, very cheap in China. They're, um, you know, a BYD is almost half the price in China - they're selling in Europe. You can buy a BYD for the price of $12,000 or something like that.

SEAN: 12,000! That's the price of a used car!

SIMON: One of the cheaper cars is something like that. with Tesla drivers. The initial people who bought a Tesla they were out there making a statement about what they did. You know, these are expensive vehicles. We get to the point where for the EV market to really take off, they just have to be like cars. Now in China, they're both as cheap as internal combustion engine cars and arguably better because they have better tech, the driving is nicer. So the Chinese are just going out not to be an EV. They're going out to buy a car that happens to be an EV, and that's what we're going to see happening in the West. As long as the prices can come down sufficiently and the way those prices are going to come down. Two ways, one through Chinese exports and eventually Chinese companies producing cars in the West, and secondly, through the competition that's going to bring to the sort of foreign carmakers whose lunch they want to eat.

SEAN: <chortles> Yeah. If these Chinese EVs arrive in Europe and arrive in the United States, are they still going to cost $12,000 or are they going to cost, you know, 20, 25 with taxes?

SIMON: Now, listen, at the moment, um, if you look at the way the Chinese are pricing their cars and B, what they get is the example, they're pricing them cheaper than the sort of cars they're competing with the EVs are competing with. But they've got a lot more wiggle room. I mean, they're making a profit, and they could still make a profit by bringing prices down. Because China has built up this enormous EV market. They have scale in battery production. They dominate the global battery production, something like 70% of the world's EV batteries, which is one of the most expensive parts of a car, come from China. They have the scale that's been built up in the Chinese domestic market, where they've really they're giving the foreign car companies a real kicking. And by doing that, they've managed to bring prices down. And that's that's what we're seeing.

SEAN: So you're saying there's a certain degree of inevitability here with Chinese auto manufacturers?

SIMON: I think so. Look, if the question is should we worry about this? If we look at, um, the Japanese and to a lesser extent, the Koreans, more recently, where the Japanese did exactly the same thing. There was all these fears going around about a sort of influx of Japanese the takeover. It hasn't happened. The Japanese have a decent share of the market. No one's scared of the Japanese anymore. People in the US will readily buy a Toyota. And those choices are made in the US. So one of the things that could happen when the Chinese localize production, okay, that will take market share away from American carmakers, potentially. But also it would provide jobs in America. So it sort of swings and roundabouts. And that also brings, you know, local defenders for uh, car companies that do that. So as I say, we look at the Koreans and the Japanese as an example. But what I would say is that it took decades for the Japanese and Koreans to do that. And they only really succeeded, succeeded when they did localize production. In China. Everything's happening much, much faster. There's the … one of the big bosses of Volkswagen puts it very neatly, but I've heard this referred to many, many times. They call it ‘China's speed.’

SEAN: Hm.

SIMON: And everything happens so much faster in China, because I think because they have young people, they have these new companies that can just move much faster because the software is so much more important.

SEAN: And because their government is authoritarian.

SIMON: Well, maybe so. I mean, I think that authoritarian governments probably get in the way of things like this rather than using them. I really think it's the Chinese consumer that is pushing this China speed, but it means they bring out new models much, much more quickly. They update soft software much more quickly. They're just much more sort of versatile and flexible than Western carmakers. But if for 100 years they've been making the cars the same way, they have a model cycle that's sort of 6 or 7 years, um, that's just not going to work in the new and the new world of car making, where car firms have got to be more like Tesla or the Chinese. They've got to be software firms, and they've got to be nimble, and they've got to sort of respond to consumers much more quickly. So I think it I think we're going to sort of see a big change in the car industry as a result of the Chinese and as a result of Tesla.

SEAN: Do you think if, you know, American lawmakers, American automakers can get over their fear of Chinese automakers, or whatever it may be, that ‘China speed’ could expedite the transition to electrical, to electric vehicles in this country, and thus get us out of this winter rut that we're in right now, where people aren't savvy enough about how their cars work. And maybe we don't have enough infrastructure to charge these vehicles.

SIMON: Affordability is the key thing here, and cheap electric vehicles have two advantages. Cheap electric vehicles from China could have two advantages. One is they are cheaper so more people will be able to afford them. And secondly, it will make car companies more competitive. And look the end point is very clear. We're going to be 100% electric some point in the future.  
  
SEAN: Mmm.  
  
SIMON: And at some point sooner than that, electric cars are going to be at sticker price parity. Not entirely sure when, but it should be, you know, in a few years time and they'll be much cheaper to run. So they'll be absolutely no reason not to buy an electric car at that point. So it sort of almost doesn't matter who makes them, though. We will be going electric and the infrastructure. I think we'll have to catch up and I think it will catch up. I think we'll look back and wonder why we were worried about it so much.  
  
 SCORING IN <CEZ\_MAG\_6067\_00401\_Lift\_Off\_APM.wav>  
  
SIMON: What we're seeing, I think, is, is teething troubles with infrastructure.   
  
SEAN: Hm.  
  
SIMON: Electricity everywhere, it's not a hard thing. The lamppost outside my house was converted to an electric car charging point. I didn't even notice it happen.   
  
SEAN: <chuckles>  
  
SIMON: And that's just going to get more prevalent as more electric cars are on the roads. I think. I think, you know, it's just a question of the the charging people and the electric car sales getting in the right balance. And I think I think we will, we will see that, you know.

SEAN: It's funny because all of this sounds, like, totally inevitable, but it still feels very far away that the lamppost outside my house gets converted into an electric vehicle charger.  
  
SIMON: <laughs>   
  
SEAN: But I cannot wait.

SCORING BUMP

SEAN: Simon Wright is the industry editor at *The Economist*. Economist dot com.

The program today was produced by Hady Mawajdeh. It was edited by Amina Al-Sadi, fact checked by Laura Bullard, and mixed by Patrick Boyd.

I’m Sean Rameswaram, and this is *Today, Explained*.

[10 SECONDS OF SILENCE]