

Zoe Haseman: The urgent need for us to tackle the climate crisis.

Jens Nielsen: Yeah. So it's really a crucial [inaudible]

Zoe Haseman: Impacts of climate change and the risks that these pose to our society.

Jens Nielsen: We need specific plans and actions to drive the CO2 emissions down in the short term.

Zoe Haseman: The climate crisis is the world's most critical challenge right now.

Jens Nielsen: Hello and welcome to the Sparks podcast series. I'm Jens Nielsen.

Zoe Haseman: And I'm Zoe Haseman.

Jens Nielsen: And we'll be your host throughout this special edition podcast series, brought to you by the World Climate Foundation and Jacobs. Come with us as we take you on a journey around world to explore how different countries are taking their climate challenges, sparking ideas and inspiration.

From clean energy innovations in Scotland to sustainable buildings in Dubai, we'll be interviewing global green leaders, financiers and entrepreneurs about the policies, investments, and innovations that are accelerating our progress towards a resilient and sustainable world. Our podcast hopes to educate and inspire, sparking real conversations with the intention to collaborate, act, commit to real change.

Zoe Haseman: With a heavy focus on car based mobility, America's transport network is one of the largest sources of greenhouse gas emissions in the country. With the return to the Paris agreement by the Biden administration and the strong commitments to net zero emissions by many companies in America's transport industry, has marked an important turning point for the country. As America's transport system begins its transition, we're also presented with a window of opportunity to plan a more equitable network to support a healthier, fairer and more resilient future.

Jens Nielsen: In this episode, we'll explore some of the challenges surrounding America's green transportation transition, how innovative solutions could expand electric mobility options and how placing social value at the heart of infrastructure planning will be key to creating a successful network.

Joining us today are two of America's most influential leaders helping shape the future of transportation. We would like to welcome Nick Albanese, head of Intelligent Mobility, Bloomberg New Energy Finance. And Beth Osborn, director transportation for America. Thank you both for joining us today.

Beth Osborn: Thanks for having us.

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those things, but spends a lot of money. I'm not happy with the bill. Can you tell?

Zoe Haseman: I can. You're kind of giving that away a little bit.

Beth Osborn: Yeah.

Zoe Haseman: But appreciate the honesty because it's an important discussion and good to get those opinions out there.

Beth Osborn: I will just add that infrastructure is often used, many terms in transportation are used as a euphemism. So infrastructure is meant to communicate those projects that you personally think should be built without having to say any of them. So everyone sees themselves in the program in spite of the fact that most of them

maintenance and caring for existing communities and putting them in their strongest position economically.

The second thing we really focus on is giving people access to moving around outside of a car. And that really comes down to vehicle speeds. We've seen interestingly over the last year and a half as we've lost rush hour due to COVID, that speeds have gone way up across the country. Apparently traffic congestion

under-investing in public transit, as you say, and not doing enough to reimagine urban city centers to make alternative modes of transportation like scooter sharing, bike sharing, all these other modes of transits safer and more accessible.

So I think that's incredibly important to note. And just to put an emissions angle on this, we spend a bit of time at BNEF thinking about where transport emissions from the road transport space will go over the next two decades, looking at existing trends related to electrification and where private versus shared car ownership goes. And on that note, I think a few things that are important to know. The first year, just off the bat is that of course transport sector is now the largest source of greenhouse gas emissions in the United States.

That's been the case for five years in a row now. That's because although transport emissions have been relatively flat, the power sector has been doing a lot of heavy lifting in pushing down US carbon emissions. So about 20% of generation for the power sector comes from renewables in the US. And another 20% is coming from nuclear. So transport is now in the spotlight, even with rising EV sales over the next decade, next two decades. In BNEF's view, it looks like road transport emissions will continue rising at the global level through 2030.

So just electrifying passenger vehicle sales is not going to do enough to turn the tide, so to speak on climate change. And even through 2050, it looks like North America and China will continue to be the top emitters. And that those are of course, the markets that are seeing the fastest adoption of electric vehicles. So really need a lot of additional policies and investments from corporates to try to jumpstart this emissions trajectory a little bit faster.

Zoe Haseman: Some great data points there, Nick. Thank you. And also the perfect segue for my next question to Beth. So what parts of the transportation economy do you believe will be the first and also the last decarbonized?

Beth Osborn: One of the big complications in transportation as opposed to utilities is that there are so many points of input. There's so many different actors in the space. And it can be very complicated just to understand across the United States, even the basic ownership of roads. So if you're in a place like Virginia or Delaware, the states own almost every road. But if you're in a place like Wisconsin, it's really the county that are dominant in road ownership.

And in most states, you've got the state owning some, the counties owning some, the localities owning some, the transit agencies are almost totally different from any of those groupings. And often, in one metropolitan area, you

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So each development is an input into our transportation system as well. So I think we're going to see decarbonization happen faster in places that have more

So that trajectory could change, but it's not off to a great start. I think two other areas to note is that there have been some incredible successes in electrifying two and three wheelers, as well as buses. Of course, two and three wheelers are not a primary means of transportation United States, more important in emerging markets and to a lesser extent, some European countries. Just want to share that those have already electrified at a rate of 36% of sales globally.

And buses are already at a 44% electrification rate. So public transit agencies that are buying diesel or natural gas buses today are walking their transit riders into outdated technologies. They really should be pushing the envelope, challenging themselves to switch [inaudible] trains and realize those economic savings today. So a bit of a varied picture across all of those. The good news is that lithium ion battery pack prices are falling rapidly. This is something that we spend a lot of time tracking closely at BNEF.

So each year we sign nondisclosure agreements with battery manufacturers around the world and across the [inaudible] segments to get real world pricing data. And from that exercise, some of our list





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Jens Nielsen: I'll direct this next question to you, Beth. What can be done to help assure that new transportation technologies and other mobility advancements are equitable?

Beth Osborn: Yeah. It's a really good question. I think it actually starts at a pretty fundamental level in terms of defining what we're trying to accomplish and then ensuring

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continues to dominate the US EV market, but there's a growing number of models from companies that will be available for sale soon.

And so ensuring that we are building charging stations that all EV drivers can take advantage of or particularly low income EV drivers will be very important to ensuring that this transition is able to continue and in fact accelerate. So I think probably what you need is additional government investment, more serious utility activity in this space.

And I think there's also, as I mentioned before, some space for ride hailing providers to really step up here and say, "If we're actually serious about hitting that 2030 goal, we need to be providing charging stations in urban city centers today so that we can decarbonize ride hailing operations." And I think on that front, we've seen a few early moves. So I think Uber has a few partnerships in Los Angeles. And a company called Revel, just opened a charging station in New York city. So there's a few early indications that this could take off, but I'm really hoping for more announcements on that front, I would say.

Zoe Haseman: So Nick, a question for you, do you believe that the world is on track to achieve net zero road transport emissions by 2040 or 2050? And if not, what do you think needs to be done to overcome that?

Nick Albanese: So, unfortunately, no. If you look at this on a vehicle segment by vehicle segment basis, I mentioned before that buses are already electrified very quickly, two and three wheelers are doing that as well. So by 2050, I think it's possible for sales to hit a hundred percent electrification rate. Those segments are essentially on track to decarbonizing. But if you look at passenger vehicles and then subsequently commercial vehicles, the passenger vehicle segment is probably lagging the transition that you would need to achieve by anywhere from three to five years.

So you really need to pull forward that adoption curve to get on track to fully decarbonizing the fleet. So that probably means you need to hit a hundred percent fully electric passenger car sales by 2035 at the very latest. Ideally you'd want to do it by 2030. And then on top of that, you would also need to push for early retirements of some of the existing internal combustion engine cars on the world's road.

So of course, that could be a cash for conker scheme, or it could be something else, but there's probably going to have to be a dollar motivation for some folks to want to do that. That is going to be key in that space.

And then in the commercial vehicle space, there's a more significant gap to goal

okay, but medium and heavy duty are barely getting started. So that's where I think most of the regulatory pressure will need to be put.

Jens Nielsen: Thanks. I'll put this next question to you both. What should we watch out for in the next coming five years?

Nick Albanese: One is that I would expect to see additional major government policies put into place. As we've been discussing for provide alternatives to private car ownership. Right now, most of these efforts are sort of side projects for governments. During COVID, we saw, I think it was 15 plus European countries announced a few billion dollars for investments in cycling infrastructure and public transit within urban city centers.

And we've seen a few national governments propose official targets for the share of trips or the share of miles that they want to come from more efficient, they'll say modes of transportation than private cars. One notable indication of that is in the new US nationally determined contribution there's a line that says the US will strive to provide alternatives to private car ownership.

So I think as governments become more aware of just the full scope of decarbonizing the existing vehicle fleet, we're going to see new policies put into place, not only to accelerate electrification, but also to try to reduce the scope of the challenge in unit terms. So I think that's one thing to watch. And another is that I know the autonomous vehicle market has gone through several hype cycles over the past decade in terms of dollars raised and announcements about having autonomous robo taxi fleets in major city centers by 2017 or 2018, et cetera.

Having taken a hard look at what happened in 2020, just based on the significant ramp up in testing that took place in China, going from just around a hundred AVs on the world or on that country's roads to over 600 in a very short period of time, increasingly optimistic about the potential for robo taxis to scale in limited applications within urban city centers in the next five to 10 years. So that's probably going to be tier one cities like Beijing and Shanghai and San Francisco, DC, Austin, et cetera at first. But I think there is real potential now for that to start scaling into other cities and closer to the end of the decade.

Jens Nielsen: And over to you Beth.

Beth Osborn: Right now, because I think our transportation system and built environment makes it so impossible to share a car or share a trip, I think AVs will just make it possible to increase VMT and have just lots of [inaudible] vehicles. Our system's inefficient new technologies will be used inefficiently. However, I do feel like we're reaching an in

I actually think the problems with the existing infrastructure package will actually lead to a reckoning in US transportation policy. I'm noticing that states are starting to ask for help in understanding what are the drivers of how much people drive vehicle miles travel. And there is becoming a recognition that they're digging a deeper hole for themselves that they're hoping technology can build their way out of. That might not work so well.

That is really promising, believe it or not, because still today, most people that reducing carbon is an add on. So I'll build the dangerous highway, but I'll put a bike lane on the side of it because there's no place that children would rather bike than on the side of a ground level highway. It has been part of the yes and world of transportation.

I get to build the stuff I've always built, but I'll throw you a bone on an add on item at the end. I think that especially the more that we expose something that Nick said earlier, that we're actually going to see transportation emissions go up in rather a startling manner for probably another decade and maybe more until we have we're talking 50% of vehicle are EVs it's serving is a bit of a wake up call to folks. And I'm also really excited about change in the press.

The number of reporters that are looking at transportation is something other than how much money is spent discussion. It's not something I've ever seen in the in-depth analysis of what the outputs and the outcomes of transportation investments are that we're seeing now.

And I think that kind of scrutiny is going to upset most state DOTs, but I think it's also going to force us in a better direction. I just think, unfortunately, we're going to lurch in the wrong direction first for the next few years. I expect that, what is it that Churchill once said about the US that we'll do the right thing after we try everything else. We're going to finish trying everything else here. But I think we're about to lurch in the right direction.

Jens Nielsen:

Thank you very much to both of you. That's all we've had time for on this episode. Nick and Beth, thank you very much for taking the time to chat with us today. It's been an incredible insight into the real impacts vehicles have on our planet. As we've heard, greening transportation is one of the greatest challenges to solve for us to reach the net zero economy. And the US needs to lead the way on this.

Thank you also to our listeners for joining us once again, as we journey around the world. We hope you enjoyed the podcast and we'd love to hear your thoughts on America's green transportation transition, its challenges and its opportunities. Tune in next week as we head across to Asia Pacific to discuss energy transition, sparking real conversations with the intention to collaborate, act, commit to real change. Catch you, then.