

WEBVTT

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Hello, everyone and welcome to our third educational for the New York clean transportation prizes. My name is Robyn Marquis. I'm the program lead for the prizes at NYSERDA. While we're welcoming everyone.

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I just want to call your attention to the poll question. If you could just let us know what industry you're in, and then we'll share the results with everyone. So you can know who else is in the webinar with us today.

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We also have the chat function open so if you want to introduce yourself, if you're looking for partners, feel free to drop your name and organization into the chat.

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So going to first give a brief overview of the prizes.

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And then turn it over to today's moderator and I first want to just not that we are recording this webinar.

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And we will post the recording, the slides, and the transcript on the clean transportation prizes websites.

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And the resource pages,

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for each of the challenges,

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so those 3 challenges of the clean transportation prizes,

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which are led by us in the New York state energy research and development authority in partnership with the New York State Department of public service,

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and the Department of Environmental Conservation collectively,

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this program will support electrifying transportation,

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reducing air pollution and enhancing clean mobility in underserved communities across New York state.

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The prizes provide teams of global experts with the opportunity to directly engage these communities to improve and scale clean transportation options locally across New York state and beyond.

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Those 3 challenges include the clean neighborhoods challenge, which will award innovative projects that address local air pollution at scale.

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The electric mobility challenge, to award projects that demonstrate innovative safe and convenient electric mobility options that meet community needs.

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And the electric truck and bus challenge to award projects that demonstrate electrified solutions to the deployment of medium and heavy duty, electric vehicles.

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Or the replacement through other electrified modes.

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So, today's webinar, which is focused on electric fleet and mobility insights really cuts across the 3 challenges that I just mentioned.

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I also want to note that, in addition to the chat function, if you want to raise your hand, if you're looking for a partner, for example, we also do have the Q&a feature open. So, as we're walking through the discussion with today's panelists, if you have additional questions.

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I'll be moderating the Q&a, after the discussion.

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And also draw your attention to the portal site for the prizes.

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nycleantransportationprizes.org

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If you want to go there, you can navigate to the individual challenges and also, if you have additional questions, there are contact emails for each of the challenges.

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So, with that, I'm going to introduce today's, monitor, moderator.

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Excuse me and it's such a pleasure to introduce my colleague Sarah Kaufman. Sarah's,

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the associate director at the Rudin center for Transportation at New York University and her work focuses on 21st century mobility, crisis impacts to urban flows, transportation tech for people with disabilities.

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Boosting women leaders in the industry, political protests on city streets, and new patterns in micro mobility. She's also the instructor of intelligent cities.

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Technology policy and planning and advanced projects in urban planning at N. Y. U Sarah turning it over to you.

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Thank you Robyn and thank you all for being here today. I'm excited for this discussion Robyn thanks for introducing me as as was mentioned I am at the N. Y. U.

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Rudin center for transportation for those of you unfamiliar with the organization. We focus on timely issues. Most recently we looked at covid's impact on mobility in

New York City.

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We looked at the port authority's 1st 100 years, and the use of micro mobility in cities.

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So, in this panel, in terms of this panel, we Coauthored a study a few years ago, looking at freight deliveries in Manhattan where residents receive about 1Million packages per day and it's likely more after covid.

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3 quarters of Manhattan residents had bought groceries online at the time of the study, which was in 2018.

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so so obviously those numbers are probably greater and people tended to purchase more online after introducing children to the household. The overarching conclusion of this work was necessary.

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Rethinking of our curbs to organize deliveries, both to shops and residences as well as the need to electrify our fleets for reduced air and noise pollution, which of course brings us to today's panel.

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So, first I'll introduce the speakers and then we'll jump into some questions. And if you're interested in that work from the Rudin center, I will post the link in the chat.

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So, today's first speaker is Louis Pappas who is a Co founder and principal at Electric Avenue, a Brooklyn based mobility strategy firm, focused on accelerating the uptake of 2 and 3 wheel light electric vehicles.

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Louis served for 5 years in the Obama Biden White House and before founding Electric Avenue, he led policy and public private partnerships at several mobility companies, including Bird, via. and Uber.

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Our next Panelist is Michael Krauthamer, who is the managing director of EV Advisors Llc, which is a consultancy specializing in all aspects of EV charging.

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Michael also serves as a senior advisor to the Alliance for Transportation electrification. And before this, he was an executive at EVgo.

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When it was a subsidiary of Energy Energy where he successfully built out, the company's EV charging network in the mid Atlantic region.

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Next we from across the pond,

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we have Sture Portvik who is the manager of electro mobility for the city of Oslo his role includes planning and implementing public chargers, fast chargers, mobility houses, electric craft and service vehicles,

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freight vehicles and trucks, car sharing, and innovative projects.

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That's a that's a lot.

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Um, he held previous positions in arts and culture, sports, tourism, and as an advisor on exports and foreign, direct investments.

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And last, but not least Ashley Horvat. She is vice president of AutoOEMs at Greenlots.

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A member of the shell group as a pioneering energy and e-mobility industry.

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Industry executives,

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she's had a leading role in expanding the market over the last decade from building out the nation's first

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statewide fast charging network serving as the nation's only chief EV officer shaping smart communities to electrifying medium,

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heavy duty fleets

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And beyond she also Co, founded women of EVs to elevate women in the industry.

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So, Ashley, I'm going to ask you to drop a link to that organization and the chat at some point. So, people who are interested on this on this webinar can potentially join.

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Uh, so we are going to jump into the panel questions now.

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Very excited to speak with these individuals today and I hope you're excited to hear from them. You can all go ahead and turn on your cameras.

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Excellent. Welcome. So we'll start out, um.

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Looking at top line trends what are some top trends that you're seeing when it comes to truck and bus fleet electrification and how are you, how is your work involved in it?

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And so we'll start with Ashley and then we'll move on to Michael.

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Yeah, absolutely. Hi. Good to talk to everybody here, Sarah and fellow panelists here.

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So we are seeing, you know, the industry is, I think just everyone would probably agree to this is that the industry is moving quickly. There's a lot of competition.

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A lot of investment, a lot of interest in terms of the truck and bus fleet electrification. We are absolutely at an inflection point. So BNEF

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There's some data point there that by 2040 more than 1 in 3 commercial vehicles operating in cities will be electric with the heavy duty, commercial vehicles, reaching 40% of sales in cities by 2040.

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so, all of the contributing factors, as far as city policies on local pollution, noise, corporate sustainability, targets from consumer demand, everything is sort of coming at the confluence. It's really accelerating this trend.

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And in many ways, I was at the beginning part of the modern part of the market integration for light duty vehicles. And in many ways, I think we're, we're there with heavy duty. But I would say it's actually happening quicker. And I think.

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Precipitated by many of those conditions that that I mentioned.

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So, the majority of early adopter fleets have already started piloting or have plans to pilot and purchase meeting heavy duty beds in the near term. And, you know, I would say, trendwise, 90, the majority of fleets.

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I think it's around 90% of the fleets surveyed in one of the reports that we,

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we worked on this sustainable fleets,

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the status of sustainable fleets, plan to use their own chargers. And they also a

3rd of which plan to use energy storage and generation over the next 2 years,

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so we're seeing the motivation of the fleets is reduce maintenance.

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The satisfaction of the drivers of the actual vehicles at the end of the day, you know, it's more enjoyable to drive. The fuel cost savings and especially with managed charging because it can be pretty, prohibitively expensive if it's not managed.

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And so I think the other part of the equation is just the massive amount of utility investment that's going into fleet electrification in particular.

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I think the fleets have the opportunity to scale and to go from science projects to actually scaling. And that's where I had been at that critical lynchpin is, is helping to take these quote, unquote science projects and really operationalize it.

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And look at there's a constellation of funding if you will. And there's high capital costs and not only other high capital costs. There's a lot of barriers to making these projects come to fruition.

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So you really need large corporations, a significant public investment that's

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Sustained right. It can't just be blips on the radar. It really has to be a continue level of investment. So at Greenlots, you know, a lot of what we do is not just on the technical and infrastructure.

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It's also helping to assemble the various budget streams and figuring out how to how to make these projects come to fruition. Because you do need that long term commitment. It takes patience.

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And then there's also a lot of pressures, I think regulatory pressure, societal pressure. There's a surge in package deliveries, like you mentioned, Sarah, and

thanks to lockdowns, really,

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We're seeing that surge and giving that major firms that itch to switch to electric and to get ready. So, there's that readiness factor as well.

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And there's also, I guess the last trend I'll mentioned, there's many trends is the chip shortages are definitely affecting the manufacturing of the equipment, the actual vehicles, but also the chargers.

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So we're having to build those into already the suite of barriers that we have, and figuring out how to operationalize it and plan for those, those slowdowns and then also just increasing adoption with fleets.

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So, California and New York are definitely leading leading the charge in terms of seeding with these important programs.

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Thank you yes, I, you know, the chip shortage has been coming up in every discussion lately.

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So, it's, I'm glad you brought it up today too, because it is.

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So, essential now, Michael, I'd like to hear from you.

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What do you see as some top industry trends and strategies?

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Hi, Sarah. Yeah, thank you so much. And thank you for having me on the panel today. I agree with with all of Ashley's comments we are seeing so much.

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Activity in this space right now. It is accelerating. It is widespread.

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Just in the last week or so, with the announcement of the Ford F150 Lightning coming in, at an MSRP of under 40,000 dollars before the 7,500 dollar federal tax credit.

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Definitely got a lot of attention and as as more vehicles come to market, the excitement is just growing. For the most part, you know, that said we're still early.

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And so deployments for the most part are pretty small today.

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But that's okay, they're given the vehicle operators the opportunity to acclimate.

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To the new technology. The move to go electric is a steep learning curve, even in the best cases.

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And so we're seeing a lot of learnings happen across the industry.

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Now, the transition is being helped in some states by utilities, for example, that are offering fleet advisory services in addition to the programs here in New York.

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Other examples include Excel energy.

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Uh, Southern California Edison and Duke Energy, just to name a few.

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That all have programs to help their commercial customers understand what it takes to electrify their vehicles.

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A typical process begins with tasks,

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like analyzing data to to identify the vehicles,

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and their routes that are most conducive to being fully electric,

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review a customer facility for electrical capabilities.

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Identifying and purchasing vehicles that are suitable for transitioning to electric and finally deploying the charging hardware and software necessary to make the whole process work.

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All participants are are from my perspective, highly receptive to innovations.

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That can help them be successful. And so, for that reason, I really look forward to seeing the applications come in for, for the prizes that are being offered through NYSERDA.

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Thank you very much. Thank you Michael. That was a great overview.

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I want to switch gears a bit and move over to what some advantage some opportunities and challenges might be to expanding individual mobility solutions in disadvantaged communities.

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So, Louis, let's start with you.

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Thanks, Sarah. Great to be on this morning. So just we're saying at the outset that in the US, and in New York, transportation costs are extremely high for disadvantaged communities.

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And in large part, that's because these communities are often dependent on cars and cars are getting even more expensive. There was a stat, late last year that the average new car tipped over 40,000 dollars for the first time.

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And the total cost of ownership is something like 9,000 dollars per year. So, even with those rebates, it's pretty cost prohibitive.

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And as long as access to opportunities, synonymous with access to a car, affordability is going to remain a challenge for disadvantaged communities.

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So,

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as Sarah mentioned,

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by way of a brief intro,

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um,

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my name's Louis Pappas,

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the co

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founder of the mobility strategy firm Electric Avenue,

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and we advise cities and NGOs and mobility companies on how to replace car travel with electric 2 and 3 wheelers like

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E scooters, e bikes, and e Mopeds so called micro mobility and given the right

support. We feel strongly that micro mobility has a big opportunity to affordably expand individual mobility options.

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Especially in disadvantaged communities, these vehicles, they cost in the hundred's or low thousands of dollars versus again tens of thousands of dollars for cars. As a category, they're very adaptable.

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So people are using E cargo bikes for hauling children or groceries or e bikes for longer distance trips and even foldable e scooters here in New York wher space is at a premium in apartments.

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But to be sure, there are big barriers to overcome in making these new individual mobility options, actually accessible to disadvantaged communities and just by way of one example one thing that we're working on at Electric Avenue with other groups.

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Like,

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NYU and transportation alternatives is an initiative called the equitable commute project and in a nutshell,

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we're trying to get 10,000,

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subsidized,

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micro mobility vehicles to front line workers in New York,

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about a quarter Million of them live in transportation deserts and we're designing it with an eye towards the particular hurdles that micro mobility uptake faces amongst disadvantaged communities so as an example helping overcome financial

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barriers by off offering low interest loans to people that are under banked are unbanked or don't have credit history through a local CDFI called spring bank working with employers to actually enroll people and figure out how we make the charging and parking infrastructure

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work at these employment sites that we're hoping people are getting to.

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And from on these micro mobility vehicles.

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And then, finally, actually, growing the, the green jobs and the workforce around this, because these vehicles, they don't take much maintenance. But you still have to have the mechanics and all that stuff. So we're working with the hope program on job training.

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That's just one example of how micro mobility can be harnessed to meet the needs of underserved communities. And our hope is that it starts a conversation both at the New York, local level, but also national level on that front.

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Thanks Louis and I'm, I'm proud to partner with you on the equitable commute project. Very excited about it. Let's move on to Sture who surely has lessons from across the pond.

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Yeah, thank you. Thank you. Yeah.

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Uh, we do, uh, I'm, uh, the manager for electro mobility in the city of Oslo and that makes me a pretty busy guy, because everything is moving so extremely fast last year.

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80% of all new car sold in Oslo were actually electric. Okay, that's good. But you need a holistic view. So I'm very glad that Louis and others have touched upon important things like Micro mobility, shared mobility.

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And, of course, public transportation is key.

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But you have to make sure that everybody can take part in the green shift. So the price must be, right just for buying a vehicle.

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But also, for using a vehicle and car sharing is a good way to also overcome the hurdles for the less affluent people in the city.

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So, what we do is actually putting our chargers everywhere, where we make sure that they can charge. It's extremely important, also we reserve parking places, only the best spots in city, only for car sharing.

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So, car sharing is important, but also Micro mobility. So the electric bikes, they are everywhere. 7, 8 companies. Yeah, you have to organize it a little bit better, but we want to promote it.

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And of course, we don't want people to drive in the city center. And at the same time we have to electrify.

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All the commercial vehicles, so we have a job to do, but, uh, fortunately, it's going right direction within. Yeah.

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2020 2028 all public transportation, including the ferries will be electric and all the vans will be electric within 2025. so we have a lot to do, and we have to make sure that everybody can take part in this shift. So yeah.

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That's important. Thank yoy, Sture, I'm glad to hear things are going so well, there yeah, and I hope we can emulate it. Sarah can just add on one point to that? Sure, Michael.

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Which are, which I think are just terrific to have the hands on experience and another observation I just want to share.

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Is one that I've learned in working with a lot of the utility and other members of the alliance for transportation electrification because equity and diversity is a very high priority for those companies and one of the best practices that we've identified.

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Is to engage with the community early in whatever your product or service is because it's by talking with individuals out in the community that you'll learn what their needs really are. And then you'll have more buy in, by having them be part of the process from the beginning.

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And so, as applicants, look to apply to the prizes to come up with innovative solutions, we just believe that this is an important, you know.

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An important piece of the process to keep in mind. Another opportunity is remembering that every community is different.

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And that one idea that may work really well in one disadvantaged community may not work well, in another, because not all disadvantaged communities are the same.

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And the differences aren't always obvious now, you know, this communication and outreach isn't easy.

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And that's what that's what makes our job hard. People have a lot going on. They may work long hours. They may not have childcare. They may be suffering from food insecurity.

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So, making it as easy as possible for people to participate is a very important factor to consider and being successful. But but having good engagement is a really good grassroots effort.

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That we encourage in, in this and other endeavors with regard to transportation

electrification.

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Thank you Michael, those are really valuable comments and and I hope that people will take them to heart.

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Thank you. Now, in addition to the equity issues that we've been talking about, there are also technical and infrastructure issues, presented when building and scaling.

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Fleet electrification projects so, Ashley, I want to direct a question to you of how do you overcome what are some of these issues and have you overcome specifically technical and infrastructure challenges?

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Yeah, I think one of the, well, a lot of times when, depending on the size of the one of the first things that they're going to think to look at right.

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Is the type of car or the type of truck that they want and oftentimes that's usually the first step is choose your. So, let's go with the truck example.

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So the first step is deciding which OEM or multitude of OEMs we are going to go with.

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But I think ultimately, and then I can kind of talk them through the cycle of that decision making process but ultimately it's first of all deciding your partner. And I think.

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00:23:34.648 --> 00:23:46.193

What I have seen become successful through those challenges, the technical and infrastructure issues that will come up and there will be a multitude of them as you build in scale is is having it.

169

00:23:46.433 --> 00:23:50.273

Sometimes you can kind of go from the vendor relationship and a lot of times when it's a partnership.

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00:23:50.608 --> 00:24:03.239

It gives you that patience and that fortitude to to handle some of those ultimate issues that we're going to see at the beginning of the market and to see that through and to improve it and work together. I think that's going to be the most important part. Is.

171

00:24:03.239 --> 00:24:12.868

At the beginning, choosing your team, right? So you, you need to choose your product and then from there very quickly, you need to to choose your charging solution for the fleet.

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00:24:12.868 --> 00:24:26.753

And and sometimes I would even actually recommend if you can, if you have the flexibility, to actually start with the charging infrastructure early, if possible. Um, sometimes you can kind of pair that with the, the fleet, the, the cars and the charger.

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00:24:27.054 --> 00:24:32.513

But I would really start to think about the process for charging at the beginning of the.

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00:24:32.818 --> 00:24:37.199

Process, you know, tantamount to success is going to be.

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00:24:37.199 --> 00:24:51.659

How closely intertwined you are with your utility and having that be influential to scaling your total program is really it's one thing to to integrate a few, a few cars and a few chargers, but it's a whole another thing entirely.

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00:24:51.659 --> 00:25:00.209

Of the complex process, so you've got, you know, figuring out what your internal team, how are you going to get through the process of.

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00:25:00.209 --> 00:25:06.653

Planning, purchasing, installing, what are you going to do from an operational perspective because it's not just the initial installation.

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00:25:06.653 --> 00:25:20.963

It's also long term, and so part of what what we do in my day to day is really simplifying, what seems complex of what I'm describing of that purchasing process

and getting the chargers in you might be interested in just owning outright.

179

00:25:20.963 --> 00:25:34.134

But there's also other innovative solutions, like, charging as a service, for example, that we make to help transition customers through their full fleet life cycle because we understand that not all fleets can just turn the dial from a financial perspective. And so how do we.

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00:25:34.528 --> 00:25:44.699

Help kind of like on a monthly plan that's one option and then also estimating the total energy is really important at the beginning of the process because.

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00:25:44.699 --> 00:25:45.384

As a fleet,

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00:25:45.384 --> 00:25:49.284

you're going to have a completely different load profile consumption rate than,

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00:25:49.314 --> 00:25:49.703

you know,

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00:25:49.733 --> 00:25:53.124

if you were going to do just a few different cars and so once you've done,

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00:25:53.124 --> 00:26:07.884

that really estimating your cost to procure the chargers and the vehicles is what's your long term purchase of of electricity to fuel that and then just understanding what your hardware options we're big believers at Greenlots in open standards.

186

00:26:07.884 --> 00:26:13.733

Because if you haven't already noticed, there's a lot of investment going into the various charger OEMs.

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00:26:14.784 --> 00:26:29.273

I think it's really important to have your options, but to also kind of whittle down your option so that you have the best product, the best reliability and that your team really gets more comfortable and familiar with that. And then the design and build the fun part.

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00:26:29.304 --> 00:26:37.703

Is figuring out where you're going to put your charging infrastructure how are you going to manage those electricity costs? And then, like I said, the ongoing maintenance for.

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00:26:38.068 --> 00:26:50.334

For the charging infrastructure, so some of the issues that we've run into in different areas is kind of this timeline and sort of the expectation for when you actually get the vehicles because these are really expensive assets. Right?

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00:26:50.334 --> 00:27:04.824

So you want to try to use them as much as you can so you really need to be ready for the charging and need to pick a partner that can simplify that process so that you can focus on doing your job and then you can focus on increasing the number of vehicles that you put into that,

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00:27:04.973 --> 00:27:06.384

whether it's a light duty vehicle,

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00:27:06.384 --> 00:27:08.183

or a larger truck.

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00:27:08.183 --> 00:27:21.503

And I think in New York, in particular E commerce is going to be really important in delivering food, and making sure that the communities that these trucks traverse through are reaping the benefits of cleaner air.

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00:27:21.503 --> 00:27:36.384

So, I agree with Michael engaging, engaging early in the community, and I'm not superimposing something that isn't very good or prescriptive. But ultimately it comes down to just preparedness and resiliency and having a good team in place that's passionate.

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00:27:36.384 --> 00:27:36.983

Committed.

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00:27:37.318 --> 00:27:45.298

You know, keeping and retaining that talent. So thank you, Ashley. That was a fantastic summary.

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00:27:45.298 --> 00:27:54.239

I want to kick it over to Louis. Same questions to you. What do you see as some of

the technical and infrastructure issues to consider?

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00:27:55.074 --> 00:28:04.163

When building out the system. Sorry yeah. So I think I'll take it from a micro mobility perspective as the as the 2 wheel guy here.

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00:28:04.163 --> 00:28:06.804

So as you're seeing around New York,

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00:28:06.804 --> 00:28:08.034

other cities around the world,

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00:28:08.513 --> 00:28:10.523

the changes that cities made,

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00:28:10.554 --> 00:28:13.673

and sometimes individual communities made to their street scapes,

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00:28:14.094 --> 00:28:19.193

having a major positive impact on cycling and micro mobility use. Adaptations,

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00:28:19.193 --> 00:28:20.183

like open streets,

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00:28:20.213 --> 00:28:21.624

protected cycling networks,

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00:28:22.374 --> 00:28:23.304

open restaurants.

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00:28:23.304 --> 00:28:37.733

We're not exactly Oslo yet here in New York, but Sture, we're coming for you and so as a result of those investments you're seeing bike share ridership is going up and up and up. Citi bike, I think it's over 100,000 rides a day.

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00:28:37.733 --> 00:28:41.064

It's a hockey stick trajectory lately. It's pretty amazing.

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00:28:42.743 --> 00:28:56.003

It's happening also in places like Paris, where I think there was a city study and 6 out of 10 new cyclists on the corona cycle ways, which the city instituted to help people move when they weren't taking public transport. We're new to cycling.

210

00:28:56.003 --> 00:29:09.054

So, 60% growth and totally new cyclists, which is, it's pretty stunning. So, I think from an infrastructure standpoint, we know what we need to do to help micro mobility thrive. It's it's not really a question of what infrastructure you need.

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00:29:09.054 --> 00:29:10.044

It's the political will,

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00:29:10.044 --> 00:29:15.173

to make it happen to get more people comfortable riding and not being in a car,

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00:29:15.173 --> 00:29:16.134

I think,

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00:29:16.134 --> 00:29:30.713

from infrastructure we also want to consider multimodality so from the survey it looks like there's folks from all over the spectrum here today different modes different stakeholders and we all have an interest in figuring out how our little corner of the mobility world works

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00:29:30.923 --> 00:29:32.394

with your your offering.

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00:29:32.394 --> 00:29:46.493

So, the concept of mobility hubs and bringing together, micro mobility and car sharing and public transit, of course, I think that feels like a really fruitful application of this program. And I hope there's a lot of kind of mobility hub theme submissions.

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00:29:47.723 --> 00:29:54.114

I think last thing is sort of how you define infrastructure this is a conversation in DC right now,

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00:29:54.114 --> 00:30:06.653

what is infrastructure does that include financing infrastructure so that people can access these vehicles more conveniently in the same way that they can when they go

into a car dealership and can have nice financing options and things like that.

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00:30:06.653 --> 00:30:08.453

And what does that look like for micro mobility?

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00:30:10.769 --> 00:30:21.449

Thanks Louis and we'll get to the question and political will in a moment, but first I want to give Michael a chance to answer that question about technical and infrastructure issues.

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00:30:22.253 --> 00:30:36.324

Yeah, thank you, Sarah. You know, again, I agree with with Louis's and Ashley's comments. So generally one of the biggest constraints that I've seen over the years that I've been building infrastructure and with my clients is.

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00:30:36.538 --> 00:30:42.328

Yeah, electrical capacity, um, space constraints in their facility.

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00:30:42.328 --> 00:30:48.028

And figuring out things like utility coordination and energy procurement.

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00:30:48.028 --> 00:30:57.564

And permitting, so, I guess I've run through a bunch of the factors we talked earlier. Maybe added a couple. There was an article just this morning in Canary media.

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00:30:57.653 --> 00:31:03.713

Actually, that described a lot of the permitting challenges, even in states like California.

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00:31:04.048 --> 00:31:11.608

Where there is literally a law on the books to direct local jurisdictions to have expedited permitting for.

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00:31:11.608 --> 00:31:14.669

EV charging, and it's still taking quite a long time.

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00:31:15.503 --> 00:31:28.673

Here on the East Coast, unfortunately, we're not doing that much better. So it's definitely a process that all stakeholders in the industry are learning and trying

to figure out.

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00:31:29.814 --> 00:31:44.153

So, after you figure out things, like the vehicles, how much energy you need, where you're going to get it from which chargers you're going to use where you going to put on. You also have to think about, like, how many chargers do you need? What's your vehicle to charger ratio?

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00:31:44.304 --> 00:31:53.544

How fast should the chargers be? What are the, what are the logistics going to be of getting vehicles in, charged, cleaned, and then out on time.

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00:31:55.554 --> 00:32:08.153

On top of that as if we didn't need more things although again, like, brings me back to why we're here today for the prizes we're looking for lots of solutions. One of the things to remember is that the technology is still in its infancy.

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00:32:08.663 --> 00:32:09.413

And so,

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00:32:10.284 --> 00:32:12.713

as you think of new solutions,

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00:32:12.713 --> 00:32:16.163

whether they be technological or practical,

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00:32:16.523 --> 00:32:24.894

it's really important and I think beneficial to everyone to use open and interoperable standards and protocols,

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00:32:25.673 --> 00:32:29.273

try to stay away from proprietary.

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00:32:29.608 --> 00:32:32.669

Technologies because that just limits.

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00:32:32.669 --> 00:32:36.838

Options for customers limits options for partners.

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00:32:36.838 --> 00:32:40.858

Generally speaking, it's as much better to gravitate toward.

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00:32:40.858 --> 00:32:48.838

Open standards like OCPP, OCPI, others of that general type.

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00:32:48.838 --> 00:32:53.128

Um, another thing to remember is that, from the customer perspective.

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00:32:53.128 --> 00:33:06.838

EVs bring up a whole new set of considerations to, to people like fleet managers. Service and maintenance is completely different. Logistics are different. Instead of buying fuel by the gallon. Like they've done for decades.

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00:33:06.838 --> 00:33:09.898

From known sellers, that they have relationships with.

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00:33:09.898 --> 00:33:15.239

Now, they're buying fuel by the kilowatt hour and thinking about it to send a completely different way.

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00:33:15.239 --> 00:33:23.909

But they're also buying energy from utilities in some states. They customers have the option to buy energy from competitive suppliers.

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00:33:23.909 --> 00:33:34.949

Which again is something that some people in some organizations have been dealing with for a long time. If you're in charge of managing your real estate portfolio, you have been buying energy out on the open market.

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00:33:34.949 --> 00:33:43.888

But people in the transportation, part of the company have not been buying electricity from competitive suppliers. And so those people might not even know each other.

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00:33:43.888 --> 00:33:50.038

So, fortunately, those relationships, bridging those gaps.

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00:33:50.038 --> 00:33:59.729

Can really bring up, you know, great value to the customer. It's just you have to

remember it's just an entirely new way of doing business for a lot of people.

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00:33:59.729 --> 00:34:04.919

And so anything we can do to make this transition easier will really be great dividends.

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00:34:06.568 --> 00:34:14.548

Those are great takeaways, Michael. I, um, if we can stay with you for a moment, do you have any.

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00:34:14.548 --> 00:34:25.434

Any items to consider anything to consider for companies looking to partner with local governments on electric mobility projects? Yeah, absolutely.

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00:34:26.333 --> 00:34:30.534

I mean, learning all of the regulatory hurdles.

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00:34:30.809 --> 00:34:34.768

Upfront is really important. There is just.

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00:34:34.768 --> 00:34:39.478

A really long list of boxes that need to be checked.

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00:34:39.478 --> 00:34:48.418

And things that need to be done, they will vary based on the type of project you have, they will vary based on the jurisdiction.

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00:34:48.418 --> 00:34:52.289

Um, sometimes it's, you know.

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00:34:52.289 --> 00:34:57.568

Sometimes it's trying to fit a square peg into a round hole.

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00:34:57.568 --> 00:35:11.518

Sometimes you're asking regulators who are administrators to do things they've never had to do before and so you have to make sure that everybody's on the same page with what's going on because you don't want to have any surprises later on.

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00:35:11.518 --> 00:35:22.259

So, it's never too early to meet with regulatory and administrative staff. And even if you're trying something, that's even remotely novel.

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00:35:22.259 --> 00:35:27.568

I recommend go down to city hall or wherever the permitting offices.

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00:35:27.568 --> 00:35:33.838

Show them your idea, getting everyone, getting everyone around a table and figuring it out.

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00:35:33.838 --> 00:35:48.509

Because you just don't want to have surprises later on if you can at all uh, avoid that. One last recommendation I guess I might suggest is to also include on your list of people to meet with is elected officials and their staff.

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00:35:48.509 --> 00:35:53.458

Keep them involved now they have a different set, a different set of constituents.

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00:35:53.458 --> 00:35:57.179

And they can be very helpful to you. Should the need ever arise.

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00:35:59.818 --> 00:36:03.983

That's a great takeaway, avoid all possible surprises. Thanks.

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00:36:05.063 --> 00:36:19.164

And Louis, I want to ask you the same question any recommendations since you've done a lot of partnering with government any recommendations or things that to consider that people may not have thought of already.

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00:36:19.974 --> 00:36:28.943

Sure, just two quick ones, I think one get comfortable with working with competitors. So I can totally understand from a commercial perspective.

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00:36:29.034 --> 00:36:36.503

It can be unappealing to share budget or project visibility with, with a direct competitor or somebody kind of adjacent in the space.

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00:36:36.534 --> 00:36:45.684

But by the same coin, it's very unlikely that one company or one product can meet public needs in the same way that a great team can. So I think a good example.

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00:36:45.684 --> 00:36:54.983

Here is the city of Pittsburgh a couple years ago did something called the Pittsburgh mobility collective and instead of having an e scooter pilot and a mobility hub pilot and a MaaS pilot,

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00:36:54.983 --> 00:37:02.724

they said you'll come to us with a cohesive set of solutions as a group of firms that help us meet our goals of expanding car,

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00:37:02.724 --> 00:37:06.474

free travel or personal car free travel and expanding equity.

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00:37:06.474 --> 00:37:20.574

And so they got a really interesting collection of companies that are doing not only car sharing, but carpooling, micro mobility, mobility, hubs mobility as a service, and they're able to sort of elevate the game and find those synergies that you couldn't do on your own island.

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00:37:20.574 --> 00:37:33.233

So, pick up the phone talk to people. I think it's probably more likely to meet public needs. As Michael said, just getting started now engaging in the process there's probably more process to understand and that's that's a good one.

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00:37:33.474 --> 00:37:42.684

and then, I think lastly, engage cities on how to engage communities, engage on engagement cities in a micro mobility world.

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00:37:42.864 --> 00:37:57.083

I think a common pitfall is that there's some very good sort of equity offerings from micro mobility providers, in the form of discounted rides. But the problem usually falls apart in actually getting people to know about the programs and enroll.

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00:37:57.563 --> 00:38:03.173

But cities are doing that sort of engagement all the time. And they can really provide a roadmap for who to talk to and how to do it.

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00:38:03.418 --> 00:38:16.253

The city of San Francisco, you know, with their E scooter permit program. They actually have like, a 5 point playbook for companies. Hey, if you come into San

Francisco and operate, Here's how we recommend you speak with communities.

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00:38:16.253 --> 00:38:23.574

Here's a sort of list of how to do that. And I think that's been really helpful for that city having a really good equity engagement for their scooter program.

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00:38:26.159 --> 00:38:28.795

That's a really good tip. Thank you Louis.

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00:38:28.795 --> 00:38:30.744

I'm going to stay with you for the last question,

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00:38:30.744 --> 00:38:32.844

but I a reminder to our audience,

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00:38:33.114 --> 00:38:36.804

we have one more moderated question and then we will move on to Q&a,

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00:38:36.804 --> 00:38:47.485

so feel free to load up your questions into the Q&a window on your screen while we discuss my final question for the panelists,

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00:38:47.724 --> 00:38:48.385

so Louis,

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00:38:48.385 --> 00:39:00.295

I'm going to stay with you and ask if you have any case study or a story from an inspiring mobility project or fleet electrification project something that worked really well,

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00:39:00.355 --> 00:39:04.824

and something that our audience today might be able to learn from.

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00:39:05.605 --> 00:39:17.574

Sure, so I'll sort of talk about kind of a mosaic of projects. So the e bike boom over in Europe, which, I think is interesting, because it's happened in sort of a top down and bottom up manner.

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00:39:17.965 --> 00:39:26.635

So national governments, Norway and Sweden. Maybe, it's like a 1000 dollars, they subsidize e bikes, people to buy their own personal e bikes.

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00:39:26.635 --> 00:39:39.594

It's something like 200 euros in France 350 euros and a few other countries and sales are up a time year over year because of it. And that was before the pandemic. In Germany I think you're seeing 30% increase year over year for e bike sales.

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00:39:41.550 --> 00:39:52.619

So, it's pretty fantastic and I think there's a report last year by a bike OEM, a grain of salt, but they found that 1 in 4 Europeans either had or planned to buy an E bike.

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00:39:52.619 --> 00:40:05.579

In the coming year, so that's on one side of the national sort of top down side but we're also seeing a lot of activities from individual employers making it easier for their employees to commute by bikes. So doing things like.

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00:40:05.579 --> 00:40:11.489

You know, sort of directly paying for, at least to own a bike from their paychecks.

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00:40:12.385 --> 00:40:25.644

Offsetting the costs of of commuting and making it easy for them to park at the office. And so the results there, I think there's a stat that 1.6 million Germans are commuting on employer owned or employer provided e bikes.

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00:40:25.644 --> 00:40:40.525

Now, which is pretty amazing for a country of what 80Million or something. So, let's, let's do policy from sort of both angles and work at that individual firm level to have that e bike or micro mobility offering that works for people.

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00:40:43.380 --> 00:40:50.909

That's fantastic to hear. Of course, I want to hear from Sture whether.

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00:40:50.909 --> 00:41:03.510

That is a similar experience you're seeing in Oslo as well. And if you have an inspiring story or anecdote that we can, we can learn from as well.

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00:41:05.184 --> 00:41:09.655

Yeah, I do, but I had to select one.

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00:41:09.715 --> 00:41:10.525

uh,

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00:41:10.824 --> 00:41:11.304

I think,

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00:41:11.394 --> 00:41:11.815

uh,

303

00:41:11.815 --> 00:41:12.144

One,

304

00:41:12.204 --> 00:41:12.534

uh,

305

00:41:12.565 --> 00:41:12.864

very,

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00:41:12.864 --> 00:41:18.054

Low weight project is probably the wireless charging of taxis,

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00:41:18.085 --> 00:41:18.474

uh,

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00:41:18.474 --> 00:41:23.635

that's a joint venture with the momentum dynamics an American company,

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00:41:23.664 --> 00:41:24.355

but also,

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00:41:24.385 --> 00:41:24.925

Jaguar,

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00:41:24.954 --> 00:41:25.585

LandRover,

312

00:41:26.184 --> 00:41:28.344

and what we tried to do is actually,

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00:41:29.514 --> 00:41:30.894

Test out the wireless technology,

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00:41:30.894 --> 00:41:31.735

fast charging,

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00:41:31.735 --> 00:41:34.885

not AC charging but real fast charging.

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00:41:36.204 --> 00:41:38.425

I think that's it. Well.

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00:41:39.144 --> 00:41:51.744

At the moment, we are digging down the ground, uh, equipment. So, in a couple of weeks, the taxis can just come into the taxi rank and line up in the queue.

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00:41:51.775 --> 00:42:03.954

And when they get a passenger, they can just go away. And the next one can advance in the queue and so on. So I think it's probably a game changer because it makes it so simple.

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00:42:03.954 --> 00:42:12.175

And the taxi driver doesn't have to quarrel in the queue, which happened from time to time, believe it or not. So, I think that's a good idea.

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00:42:12.445 --> 00:42:17.304

And the other one is probably a launch German transport company,

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00:42:17.304 --> 00:42:18.505

came to us and said,

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00:42:18.894 --> 00:42:20.125

within next year,

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00:42:20.155 --> 00:42:26.364

we want to drive all the transport within Oslo border with zero emission and we bought,

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00:42:26.574 --> 00:42:26.934

like,

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00:42:26.965 --> 00:42:29.394

19 big trucks from Volvo,

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00:42:29.875 --> 00:42:34.914

But we don't have anywhere to charge. Can you help us and we will give you zero emission?

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00:42:35.425 --> 00:42:47.514

Of course, that was the start of Oslo City Hub, which is now expanded with a couple of new, big transporting companies.

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00:42:48.630 --> 00:42:56.605

That's, a nice touch, could mention a taxi lane, because it was actually a pop group, A-ha.

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00:42:57.985 --> 00:43:10.855

One of the big ones in the eighties with "Take on Me" and "The Sun Always Shines on TV" and stuff like that really challenging the city because they were driving in and out of this area. From the more.

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00:43:11.190 --> 00:43:11.670

Yeah,

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00:43:11.695 --> 00:43:20.394

outside areas and they refused to pay the toll road into the city because it was a tax, an environment tax,

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00:43:20.394 --> 00:43:23.184

and they were driving this small Donald duck,

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00:43:23.184 --> 00:43:24.954

like electric cars,

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00:43:24.985 --> 00:43:28.465

the thing is a Norwegian product, so I don't offend anybody,

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00:43:28.824 --> 00:43:30.144

but they refused to pay.

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00:43:30.144 --> 00:43:44.275

So we have to confiscate their car and we did it like, 4 or 5 times and it became quite embarrassing because they actually had a point. So, from that time, we did the same as Governors Schwarzenegger in California.

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00:43:44.485 --> 00:43:49.375

We said, if you have a zero emissions car you don't have to pay when you are going into the city.

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00:43:49.735 --> 00:44:00.414

And that was maybe one of, it's not a rational choice for our city, hard to admit it, but sometimes the good idea is actually coming from the grassroots.

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00:44:00.445 --> 00:44:08.875

So, yeah, that makes us a little bit aware when we are waiting we need the good ideas from the bottom up. Yeah.

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00:44:10.800 --> 00:44:20.039

Thank you Sture and and I'm sorry that you didn't get a chance to sing "Take on Me" to the group, but maybe next time.

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00:44:20.039 --> 00:44:24.659

Another time. And Ashley, how about from your end?

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00:44:24.659 --> 00:44:33.389

Okay, yeah, I have to admit, Sture, I don't have any pop stars or rock star stories. Mine are a bit more more boring.

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00:44:33.389 --> 00:44:36.599

Um, but I love the story.

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00:44:36.599 --> 00:44:48.690

The punitive measures that you had to take. So, I think we'll focus in terms of a case study and I can speak about Volvo lights from, from a particular case study on on heavy duty.

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00:44:48.690 --> 00:44:59.280

You know, fleet electrification, but I will mention from kind of some of the discussions that have been happening from the city perspective. You know, we did help the city of Los Angeles, go electric where they would integrate 500.

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00:44:59.280 --> 00:45:03.840

Fully electric cars across the Los Angeles police department.

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00:45:03.840 --> 00:45:17.369

And part of that was load balancing for high density charging, fleet management integration. It, it crossed all of the different parts of the, the city, right? So, it was the sanitation department, bureau of street lighting.

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00:45:17.369 --> 00:45:32.304

Um, parks and rec, LAPD, fire department, DOT, libraries, you know, their general service so they really required that open standard mindset and kind of giving them visibility into before we charge vehicles.

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00:45:32.304 --> 00:45:35.184

So it was, it's definitely a big undertaking. I think.

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00:45:35.550 --> 00:45:48.025

What Louis was was mentioning and Michael, in terms of getting your team in place that maybe think of like the Marvel team assembling that the superheroes, and get your team in place in the beginning, get everybody around the table.

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00:45:48.025 --> 00:46:02.005

Understand what resources are needed not just from the private sector, but also from the, from the public, right? Because we're seeing the same people get the same permits going through from telecommunications to charging and they're having a hard time kind of keeping up with some of that.

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00:46:02.034 --> 00:46:11.755

That scale, so we're getting that pressure from the regulatory regime, but we need to make sure we have the right resources in place to handle that expeditious.

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00:46:12.150 --> 00:46:20.219

Um, permitting and and we are, we're seeing that on the same token from from heavy duty, but just on a grander scale and quite frankly.

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00:46:20.219 --> 00:46:23.730

The heavy duty fleets, you know, they don't have.

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00:46:23.730 --> 00:46:28.650

The business model is such that that the routes are so tight.

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00:46:28.650 --> 00:46:34.469

And the delivery windows, and if so meticulously planned that any.

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00:46:34.469 --> 00:46:44.070

You know, thing that hinders that that plan is really going to be an issue. So, what we've developed with all the Volvo lights program is this blueprint essentially for fleet electrification where.

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00:46:44.070 --> 00:46:52.139

You have both the truck operators, the OEM and the charging infrastructure provider, all assembled as that that team and working with.

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00:46:52.139 --> 00:46:52.614

You know,

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00:46:52.644 --> 00:46:54.054

the public sector,

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00:46:54.054 --> 00:47:08.425

and so I think what's important is for as these prizes are developed and ideas is to really render a project that is within a regulatory and policy environment that will stimulate future expansion of of that pilot.

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00:47:08.425 --> 00:47:22.585

And kind of having those various budget streams in place, and that experiential lessons learned. So we've, we've had issues with having the charging infrastructure not installed and having to come up with options for charging in the interim.

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00:47:22.585 --> 00:47:29.605

Because the vehicles delivered earlier than the charging was able to be installed. So, again.

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00:47:29.969 --> 00:47:33.599

It's cliché, but you really need to have a tight knit partnership with with.

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00:47:33.599 --> 00:47:33.894

You know,

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00:47:33.894 --> 00:47:38.934

the partners that are that are involved and have those resources from a teaming perspective,

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00:47:38.934 --> 00:47:42.385

so pay proper attention at the beginning to the SLAs,

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00:47:43.014 --> 00:47:44.364

as you're developing the contract,

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00:47:44.364 --> 00:47:45.054

make sure that,

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00:47:45.235 --> 00:47:45.954

you understand,

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00:47:45.954 --> 00:47:50.574

who's going to be responsible for that upkeep and make sure that user experience is,

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00:47:50.574 --> 00:47:51.025

is,

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00:47:51.054 --> 00:47:51.925

is paramount,

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00:47:51.925 --> 00:47:53.125

because essentially,

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00:47:53.215 --> 00:47:53.454

you know,

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00:47:53.454 --> 00:47:55.824

we've learned that with the lights project in order to scale.

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00:47:55.824 --> 00:48:05.724

It. You need to think about there's various customers. Right? You have the dealerships that sell the trucks. You have the fleets that actually drive those trucks and understanding what sort of.

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00:48:06.090 --> 00:48:09.659

Creativity is, is need needed, but also again.

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00:48:09.659 --> 00:48:14.130

Don't want to harp on it too much, but how do we operationalize that? So.

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00:48:14.130 --> 00:48:23.070

Um, and then again, getting into kind of renewable, renewable energy resources to kind of compliment that that existing, but there's enough.

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00:48:23.070 --> 00:48:34.739

Resources and work that needs to be done on just the core part of getting that infrastructure in that. I would highly recommend continuing to invest in projects that that will build upon upon that project into the future.

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00:48:36.900 --> 00:48:49.230

Thank you. Absolutely that was great. I want to turn it over now, back to Robyn Marquis who is going to take some of the questions in the Q&A now.

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00:48:51.150 --> 00:48:54.300

Thank you Sarah and thank you to our panelists today.

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00:48:55.375 --> 00:49:06.985

First off, there's a quick question just for Louis, you had mentioned the Pittsburgh example, and there's a question if there's a document that describes the process for pulling together, that consortium.

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00:49:06.985 --> 00:49:12.684

So, I don't know if there, if you can direct people to a website or drop something into the chat, but just wanted to make sure that.

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00:49:12.929 --> 00:49:17.099

People can find that resource because they're interested in that particular example.

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00:49:18.329 --> 00:49:22.619

I'll drop something in the chat. I think it's pretty Google-able.

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00:49:22.619 --> 00:49:25.860

I'll check it out. Okay, great. Thank you.

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00:49:25.860 --> 00:49:35.789

There is a specific question about car sharing, so we had discussed a bit and I know Sture had mentioned this as well.

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00:49:35.789 --> 00:49:46.949

There is a question about if there's data available about adoption or kind of what, what is leading up to believe that car sharing in particular and I think electric vehicle, car sharing.

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00:49:46.949 --> 00:49:55.889

Uh, will be an improved option in disadvantaged community so I will just first insert a little bit of a response here and note that.

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00:49:55.889 --> 00:50:03.239

And these are just two of many examples, probably the two, most prominent, or at least front of mind for me right now.

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00:50:03.239 --> 00:50:11.485

Um, there, I believe about a month ago, in New York City, they announced the expansion of their car share pilot program.

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00:50:11.905 --> 00:50:23.815

The goal of that was to target lower income areas, especially that have less access to transit. And since they announced an expansion, it clearly was successful.

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00:50:23.815 --> 00:50:35.574

Here and I think maybe the one that people are more familiar with or kind of point to, as an example of why don't we do that here is the blue LA service.

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00:50:36.570 --> 00:50:50.724

So, EV car sharing specifically targeting low income communities in Los Angeles area. So there is, I think a really fantastic actually, probably also from shared use mobility center, being the link Louis that you've just dropped in there.

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00:50:51.355 --> 00:51:01.284

I believe they also have a really great report about all the results there. So just wanted to add a couple of quick examples, but also just open it up.

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00:51:01.284 --> 00:51:06.534

If, if there's someone whether it's Sture, if you have any insights on.

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00:51:06.869 --> 00:51:15.570

The success of EV car share specifically as an improved alternative in these lower income or disadvantaged communities.

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00:51:15.570 --> 00:51:25.679

Yeah, I I think especially for this community, a car sharing is a very good idea because often they cannot afford their own car.

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00:51:25.679 --> 00:51:39.780

So, if they are going to take part in the green shift, that's a good way to do it. The same of course, with the public transit, but the blue L.A. and also the example from New York is yeah.

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00:51:39.780 --> 00:51:42.715

Very good and I think it is the way to go.

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00:51:42.985 --> 00:51:55.614

So what we do is just securing the space in the downtown areas and popular areas all around, but also making sure that they are close to the right neighborhoods, or the wrong.

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00:51:56.429 --> 00:52:08.010

You may say, but anyway, I, I think it's very important and, uh, of course not everybody can afford a car, we mustn't forget that.

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00:52:08.010 --> 00:52:20.070

For us as a city, it's not really I hate to say this, because EV is my thing, but of course, we need public transit. We need cycling we need also shared mobility.

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00:52:20.070 --> 00:52:26.760

Because we don't need too many cars, especially in the more central areas of the city. So, car sharing

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00:52:26.760 --> 00:52:31.829

By all means and the blue L. A. I think it's a fantastic idea. Absolutely.

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00:52:31.829 --> 00:52:36.119

So, yeah, thanks, Sture.

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00:52:36.119 --> 00:52:49.224

I'm seeing that we have about 5 or so minutes left. I have been getting a few questions specifically about community engagement, which are really central component across all 3 prize areas.

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So, Louis, I think I want to turn it back to you on this one. And what are some ways that similar to considering infrastructure issues, or partnerships for these

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How can some of the participants for the prizes be thinking about engaging with their target community in advance of these projects?

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And I think especially since some of our responses has have been a little bit New York City centric, acknowledging the other communities across New York state. Some of the smaller or potentially more rural areas.

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00:53:21.775 --> 00:53:29.275

If there's any differences and engaging based on, maybe their local needs or their local governance structure.

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00:53:29.820 --> 00:53:33.960

Yeah, that's a big question. I mean, I think the.

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00:53:34.675 --> 00:53:45.894

An okay byproduct of the last year or so, is that, you know, doing stuff remotely and just kind of awkwardly starting that conversation over zoom feels a little bit more approachable or just more normal.

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00:53:47.005 --> 00:53:55.914

So finding folks and just having a conversation using the technology that we have. Yeah. Let me think about that one more. I mean, I think.

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00:53:56.699 --> 00:54:11.550

It's starting, I guess, as a sort of bigger goals, like, not starting from the solution, like, starting from the problem and learning. I think that's really the way to get to a project that is.

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00:54:11.550 --> 00:54:22.710

That will be successful and meets community needs. So I think coming from the sort of vendor commercial side, it can be tempting to start with the solution but that's that's probably not the right way to go.

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00:54:23.789 --> 00:54:28.860

So, Michael maybe same question to you from your experience.

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00:54:30.449 --> 00:54:34.320

Yeah, you know, just follow up on my comments from earlier.

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00:54:34.320 --> 00:54:40.409

Remember that, you know, every community is different not just.

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00:54:40.409 --> 00:54:48.059

Geographically, but also just behaviorally and culturally, and in terms of like, what their needs are.

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00:54:48.059 --> 00:54:56.730

And that varies across the New York City, but also just across the state more broadly.

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00:54:56.730 --> 00:55:09.900

So, thinking about who your audience is, and, like, what are the existing organizations that you can leverage to engage in a dialogue with those folks?

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00:55:10.405 --> 00:55:22.824

Can be helpful while also keeping in mind that although transportation electrification is like, it's all that we do. Like, it's our life right? For others.

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00:55:22.824 --> 00:55:37.135

Especially these, you, especially other community based organizations and other outreach or religious or community organizations that we want to work with. Like, this is just like one of many, many items that's on their plate.

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00:55:37.855 --> 00:55:38.635

And so.

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00:55:38.969 --> 00:55:47.400

It's important to keep in mind, like, what their other considerations and missions are and how we can kind of fit into that framework.

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00:55:47.400 --> 00:55:53.969

And still demonstrate that we're offering value to our shared.

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00:55:53.969 --> 00:56:02.579

Our shared customers, thank you. I think that's a fantastic point to really think broadly about who the local stakeholders might be.

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00:56:02.579 --> 00:56:14.635

And what is sort of meant by community and addressing their specific needs and with that, seeing that we have a couple minutes left, I'm just going to wrap up with a few housekeeping items.

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00:56:14.994 --> 00:56:20.875

First just really want to thank all of our panelists today. This was a really fantastic discussion.

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And hopefully, just based on the questions that we received, and the lively chat, it seems like a lot of your comments really resonated with the participants. So, thank you for joining us today.

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Just a reminder to everyone that this has been recorded will be posted to the prize websites.

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00:56:39.594 --> 00:56:46.315

And also, if there are questions that we were unable to get to today, please direct them to the questions@nycleantransportationprizes.org

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Especially questions that were kind of more about eligibility considerations, we'll be better able to address them through that particular email.

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Also, a reminder that the registration deadline is July 22nd at 3 PM Eastern, the entity that will be the principal organization is required to register in order to submit a proposal.

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And speaking of registration there will be a series of 3 Pre registration Q&a webinars held by Carrot, our prize administrator.

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That will be June 22nd, 23rd and 24th for clean neighborhoods, electric mobility and electric truck and bus, respectively. So, a different time, one for each of the specific challenges.

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And again, a reminder to please visit nycleantransportationprizes.org for more information and to be directed to more information about each of the specific challenges. So, thank you to all of our attendees, to all of our panelists.

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00:57:47.280 --> 00:57:52.829

And hope you all have a great day. Thank you.