Tackling EV Infrastructure. Why Truck Manufacturers Are in for the Long Haul.
Ken Irvin and Dawn Fenton
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Ken Irvin:
The future of commercial transportation is zero emissions. More than one million of these green vehicles could hit the highways by 2031, but as this fleet of commercial, zero-emission vehicles, or ZEVs, continues to grow, the infrastructure to power these trucks must also keep up, and that's looking like a struggle these days. So, major truck manufacturers are now launching an initiative to help speed the deployment of charging stations nationwide.

Dawn Fenton:
We have customers who had delayed their accepting of orders because the trucks have been ready, and the infrastructure's not there, or unfortunately, even canceled orders. It is a big issue that needs to be addressed. We all want to move towards a zero-emission commercial vehicle future. The issue is how to do that.

Ken Irvin:
That's Dawn Fenton, Vice President of Governmental Relations and Public Affairs at Volvo Group North America, a leading commercial vehicle manufacturer committed to shaping the future of sustainable transport and infrastructure solutions. In today's podcast, we'll discuss what businesses should know about the nascent zero-emission commercial transportation industry and what some truck manufacturers are doing to accelerate electric charging infrastructure development.

From the international law firm Sidley Austin, this is Accelerating Energy. We drill down on critical and late-breaking topics in energy transition and policy. We help businesses look over the horizon for what lies ahead. I'm your host Ken Irvin. Hello, and welcome to the third episode of Sidley's Accelerating Energy Podcast. Today we have, as our guest, Dawn Fenton. Dawn. It's great to have you here with us today. Thanks for joining us as

we continue to shine a light on the energy sector and transition here in 2024 and beyond.

Dawn Fenton:
Thanks, Ken. Appreciate your invitation to be here with you today.

Ken Irvin:
Before we start and dive into the different questions, let's talk a little bit more about your company and your role. Volvo Group North America is a collective of manufacturers of heavy-duty and medium-duty trucks and buses. It includes the Mack truck brand. Everybody loves the little bulldog, right? You have a brand portfolio that also includes Nova Bus, and your outfit is separate and apart from Volvo cars. Is that correct?

Dawn Fenton:
That's correct. So, just a moment about Volvo Group. We, as you know, are a Swedish-headquartered company in Gothenburg, Sweden. We're global. We are involved in countries all around the world. And you're right, we are separate from Volvo cars. We are interested in the heavy-duty side of vehicles and equipment. We have, most notably, Volvo Trucks, but we also own the Mack Truck brand here in North America.

We also sell construction equipment through our Volvo construction equipment brand. We have buses within the portfolio. So, you mentioned Nova Bus, which sells transit buses, but we also own Prevost, which is a motorcoach bus company, and we have Volvo Penta, which manufactures marine engines, but also engines that are used in generators.

And we have our newest business unit, which is Volvo Energy, that is developed, in part, because of this transition to zero-emission vehicles. In terms of my personal background, I've been with the Volvo Group for just a little under 13 years. I'm based out of Washington, D.C., serving as Vice President of Governmental Relations and Public Affairs and, currently, very involved in overseeing our regulatory policy and also our engagement in Canada and also many aspects of this electrification journey.

Ken Irvin:
That's terrific. That sounds like a portfolio that would keep you busy every day, every minute. In the United States, our government signed a

commitment in 2022 calling for 100% of all new trucks and buses to be zero emissions by the year 2040. That seems like a relatively short-term, near-term target to me. The years tick by so fast these days, but a short-term target of at least 30% zero-emission vehicle sales by 2030 was also part of that commitment. Given the timeline here, many have since asked whether these goals are truly attainable. If there's a yes, that we can do it, Dawn, how do we get there? What are your top-level views about the landscape, the challenges, as it relates to zero-emissions rollouts?

Dawn Fenton:
Volvo is actually very eager and interested and supportive of this transition to a zero-emission vehicle future. A few years ago, we made a public commitment that we would have 100% of our product offerings being 100% fossil-fuel-free by 2040, and we also included an interim goal of having 35% of our products being zero emission by 2030. So, we are striving very aggressively towards those goals and have made a number of investments to make that a reality. We've actually been selling zero-emission vehicles in Europe and here in North America since 2019.

However, there are challenges to meeting these goals, and probably the two biggest barriers that we face are both the overall total cost of ownership calculation for our customers, which includes not only the up-front cost of these vehicles, but also the operating costs and also the availability of charging infrastructure. I mean, we have sold these zero-emission trucks across many states, and the largest percentage of them have been in California, and that's, in part, because California has been quite generous with purchase incentives that are available for fleets to use to acquire these vehicles.

Today's zero-emission vehicles cost 2 to 3 times more than the diesel counterparts, and while California has some significant incentives in place, most other states do not. There are a few other states that do, but they're not necessarily as generous as in California, and if they do not have these incentives available, the total cost of ownership just does not make sense right now. The other challenge I mentioned is charging infrastructure, and the needs for heavy-duty charging are much different than in the light-duty case.

We're seeing the adoption of zero-emission cars over the last decade growing, and the infrastructure to build those out is growing, but it's very different with heavy-duty. The amount of power that's needed is much greater, and it can take anywhere from 12 to 24 months to get the sufficient charging infrastructure installed if the power is available. It's a tough act that the utilities are facing because, on the one hand, they have to balance this need to build out the brand and build out the infrastructure, and that costs money.

But on the other hand, there's also a tremendous sensitivity to rate payer costs, and this is something that we see playing out in certain states, particularly in New York and California, and so, there's a lot of challenges that utilities are facing right now. Certainly, this infrastructure build-out, but also to change their generation portfolio to be more renewable-focused. There's other demands on the grid, such as data centers and so forth. So, it's a challenging time.

Ken Irvin:
It's definitely a challenging and interesting time, based on the things that we're seeing happening and what clients are asking us. Electrification and how to adapt to that is definitely an interesting or nettlesome issue. There's a lot of hill left to climb before we get there. I hear you about the different states. California certainly leads in terms of mandating zero-emission vehicles. The federal government is doing its part, no doubt, but let's focus a bit on the infrastructure for charging, because an electric truck is only as good as the infrastructure that's charging it, right?

So, your concern, or Volvo Group North America's concern, about it led you guys to form an initiative and bring together other like-minded colleagues in the industry here to try and accelerate the deployment of nationwide infrastructure. Tell us about the group that you formed, Powering America's Commercial Transportation, or PACT. How did that come together, and what are your goals and aspirations for PACT?

Dawn Fenton:
Yeah, so, we launched this new trade association, Powering America's Commercial Transportation, on January 30 this year. So, more than two months ago. The launch event was in Washington, D.C., and this association was really the brainchild, or was initiated, by three major truck

OEMs: Volvo Group, but also with Navistar and with Daimler Truck. The purpose of the association is to achieve the acceleration of charging infrastructure for medium- and heavy-duty vehicles.

We want to remove the obstacles that so many of our fleet customers are facing in the marketplace as they're trying to purchase these vehicles and want to be able to charge them, and they're facing delays in getting that infrastructure in place. There's a number of factors that are involved in building out this infrastructure, and a number of different stakeholders are involved, and that's, in part, why it can take so long. So, the goal of PACT is really to educate and advocate for the removal of these barriers. We are not out there building anything or engaging directly in the building itself.

But rather, looking to educate various stakeholders about this, and it's bringing in stakeholders from the fleets to help them understand how the utility sector operates and considers new load and prepares for that. It's educating utilities about the fact that these vehicles are here today, and that the power needs are here right now and are going to continue to grow, and it's to the commissioners to understand that the utilities are facing pressure to put this infrastructure in place.

So, really, we're trying to align the goals of the utility industry and the trucking industry and the demands of the regulators from both of those industries. So, that's basically who we are, and our membership is really open to any stakeholder that has this same goal and is in alignment with it. So, our membership includes OEMs. We have fleets. We have utilities. We have infrastructure developers. It's a broad cross-section.

Ken Irvin:
It sounds like a very worthwhile endeavor to help build out the ecosystem for medium- and heavy-duty truck charging. I know, across the United States, there are 62 thousand public charging stations, but those are mainly for passenger vehicles, right? Like, not for trucks, and the way a truck is going to engage with a charging station is going to be different than a car. Maybe you could say more for everyone about what are the differences in the charging infrastructure that would be needed for heavy-duty trucks, medium-duty trucks, versus light-duty or passenger vehicles. What are the key issues there that you need to see develop so the ecosystem supports your zero-emission vehicles?

Dawn Fenton:
There's significant differences between a light-duty or passenger vehicle charger and charging station and those for heavy-duty vehicles. Some of it is just a matter of the amount of power that is needed. The batteries in these trucks are much greater than in passenger cars. In fact, the capacity of the batteries can be 10 times that of what we find in passenger vehicles, and so, because of that, you have each individual vehicle requiring that much more energy.

But then, if you were thinking about a truck stop or a fleet owner who wants to charge multiple vehicles at one time at their warehouse, say, the power demands are really significant. There have been several studies about this, including one that came out from National Grid, I think it was, last year, saying that the power needed for, say, a public charging station that you might find along the highway could range anywhere from 5 to 20 megawatts, which is really the size ranging from a sports stadium all the way to a small city.

So, certainly, the power demands are different. Also, in terms of the station itself and how it's structured, I mean, it's obvious, but these heavy-duty Class A trucks are much bigger than passenger cars, and so, they really need to be arranged in such a way that the vehicles can conveniently pull up to the charger and then pull straight ahead. It's difficult to turn around and back into spaces, and if trucks do have to do that, they have a certain turning radius.

So, it's even the design of the station itself that's very different, and so because of these differences, it really is not suitable for a light-duty charging station to be used by heavy-duty trucks. However, the reverse is not true. A heavy-duty charging station can be used by passenger vehicles. So, this is why we are so interested in having more heavy-duty charging stations built that also have some light-duty chargers on site. This way, you're helping all vehicles.

Ken Irvin:
Yeah, I appreciate that it's a much different application than installing a charger for my electric vehicle in my garage, right? So, if it's a fleet that returns to a depot, I'm going to need multiple charge capability for the fleet, which all comes home at five o'clock after our workday, and it needs to

power up and be ready to go the next morning at eight, and so, it's definitely clear to me that it's a lot of electric demand. That's a lot of maybe real estate, too, to try and figure out how to reconfigure people's warehouses, distribution centers, loading bays.

It definitely is something that requires some development of our infrastructure. You mentioned earlier, however, that there continues to be a lot of growth and demand for the vehicles themselves. Information I see indicates that heavy-duty, zero-emission vehicle sales increased by 250% just year over year. We touched a little bit about the regulatory demands, but what's your perspective on the driver of that demand for zero-emission, heavy-duty trucks?

Dawn Fenton:
Yes, you're right that the adoption of heavy-duty trucks is growing quite significantly by percentage, but I will say that it is beginning from a small base. So, these demands are really driven by a number of factors. Certainly, federal and state governments have adopted various climate policies so that they're encouraging vehicles that reduce emissions.

I mentioned before about California and having a number of incentive programs, and that is certainly helpful in terms of driving additional demand, and then there are several corporations that are looking at these because of the public pressure they're facing to reduce emissions, and quite honestly, their own sustainability commitments. So, just as I mentioned before, that Volvo has significant commitments, obviously, there are lots of companies in this space.

And so, they are looking to do everything they can to reduce their emissions, and then there's interest from the operational side, as well. I mean, we have seen, through our initial project we did in Southern California, Volvo LIGHTS, and then through ongoing customer experiences, that drivers love these vehicles. They are very quiet. They are much more comfortable to drive. You don't get the noise of the diesel vehicle. There is better pickup. They're fun to drive.

Ken Irvin:
You don't have to shift gears, right?

Dawn Fenton:
You don't have to shift gears, although you didn't have to shift gears even before this. There has been advances in the technology, automatic transmissions, but still, there's vibration. There are other issues. Some drivers have said, well, they like not having to fuel up or go into gas stations or fueling stations where you smell the diesel fuel, and so, they really enjoy driving these trucks. There are companies who are seeing this as a potential way to both attract and retain drivers, because, as you may know, there is a significant shortage of drivers in the trucking industry right now.

Ken Irvin:
Well, that's a very interesting knock-on benefit that helps attract people to being truck drivers and being in the logistics business. I think about the retail brands that you see on the side of tractor trailers as they're rolling down the highways, and a lot of those names are committed to having zero emissions, right, committed to being very sustainable, and I could see where they would want the fleet of trucks bringing the product to their stores, likewise, to be zero-emission. So, it's not surprising ….

Dawn Fenton:
Absolutely. Absolutely.

Ken Irvin:
Yeah, it's not surprising to see this demand.

Dawn Fenton:
It is hard when you've got smaller fleets, smaller companies, and even individual owner-operators who have their own truck that they're operating. In that case, those types of fleets and customers can't make this transition unless it makes business sense for them. That total cost of ownership equation balances out, that I mentioned earlier, and so, major corporations can take some risk on the technology they feel they're not familiar with and how it is going to fit in and put out some additional capital to purchase these.

The smaller fleets and the independent operators really need to have purchase incentives in place. They need to make sure that the infrastructure is in place and that there's not only infrastructure for them, but it's got to be public charging, because the smaller fleets or the

independent operators are not investing in their own infrastructure. Just like today, they require fueling stations, specifically publicly available charging stations.

Ken Irvin:
You're listening to Sidley Austin Accelerating Energy Podcast. We're here with Dawn Fenton, Vice President of Governmental Relations and Public Affairs at Volvo Group North America. Dawn is taking us on a deep dive into the electrification of medium- and heavy-duty, zero-emission vehicles and how charging infrastructure plays a huge role in the adoption of ZEVs. Picking up on what you were saying about the needs for the economics to justify this and getting the incentives correctly, it does sound like our governments, at the state and federal level, are applying themselves to that.

We've talked, also, about corporates creating demand, but how does it look when we look out the curve, right? We have these commitments we talked about at the start of the podcast … about 2030, 2040. Do you expect continued demand for the vehicles? And then is the charging infrastructure keeping pace, running alongside, so that it's going to be there to enable a fleet of EVs that gets us to these targets, being 100% emission-free? It sounds like a lot of charging infrastructure. Is it going to be there?

Dawn Fenton:
It is a large need that exists, and we certainly hope so. We're trying to do everything we can to make sure that it's there, but recognizing that we are a truck OEM, we don't have the ability to make this infrastructure appear. Whether we meet those goals or not is going to depend on fleets having both the access to adequate, reliable, and affordable power, and this is where it really comes down to a function of the utility industry and their ability to provide this infrastructure in a quick enough and reliable enough way.

The timelines of the trucking industry and of the utility industry are very different, and I am by no means an expert on the utility industry. I'm just beginning to scratch the surface and understand, but they usually build out the grid in response to a known growing load. Let's say they know that a new data center is moving into the area, and so, they can plan for that, and it'll take a while for that to be built. At the same time, they're building up and

planning for that power, and that could take a couple of years. In this case, you have a fleet that orders a truck, and that truck might be available within, you know, several months' time, or maybe they're ordering 5 or 10 or more trucks, and those can come within six months, but the amount of power, as we talked before, is so different. It's so large, what that would mean, that the utility can't move that quickly to build that. I mean, my understanding is that utilities operate on more of a schedule of years, where they will do rate cases, say, every four years when they have their plan on what they see and what buildout they're going to need.

And then it justifies the expense of creating and developing that infrastructure, and then there are issues beyond the timing for the buildout, but also things like permitting is a huge issue that we face, whether it's at a local level or a regional level. It can vary depending on a number of factors and where the actual station is located. It can take 1 to 2 years to get sufficient permitting, and then, whether you're talking about upgrades to just the distribution network or whether it requires a new substation or new transmissions lines, I mean, you can look at delays of anywhere from 3 to 10 years.

There's also a shortage of supply chain issues with the utility sector in terms of the availability of electrical steel that's used for substations, and my understanding is the current wait for a new substation is five years, and so, there's a lot of complexity here, which is why, in the end, we've had some cases where, unfortunately, we've had customers who have delayed their accepting of orders because the trucks have been ready, and the infrastructure's not there, or unfortunately, even canceled orders. It is a big issue that needs to be addressed.

Ken Irvin:
Listening to all that echoes a lot of what we see for data centers and the struggles that they face in getting sited and getting set up. I can see several different kinds of business ways to engage with providing charging. You know, there's owning the charging network and having customers, like EVgo and things like that for cars. Charging-as-a-service, just letting people have a fleet card and buy electric charging, like you used to do with diesel.

Owning the real property and letting somebody "rent time" on your space to charge, or charging infrastructure itself as a service and working that all

out, and I hear you about the supply chain issues, about locating all this, the buildout. Like, that definitely is infrastructure and working on an infrastructure timetable, and utilities definitely work on a multiyear, integrated resource planning mode, although we've seen them here lately having to rejigger those, because electrification is happening at a pace a lot faster than many had anticipated just as recently as a couple years ago.

So, these types of activities are definitely increasing demand. It sounds like part of what PACT is about is educating about this, helping people convene on these issues and come to consensus about it. If you have the right audience here, what would you do to incentivize them, to help them understand and get them motivated the right way? If you're talking to utility regulators and commissioners, what are you saying to get them motivated and in alignment with your goals?

Dawn Fenton:
That's a full set of questions in there, Ken, that you just put forward. Let me go back to where you had started about there being a number of different solutions that are available. I think you're seeing that in the marketplace because this is so new, and there are challenges, and people in the marketplace are being creative and innovative.

And so, you know, you mentioned you've got charging-as-a-service, fleets-as-a-service, people trying to figure out how they can quickly make these vehicles available. Volvo Group and PACT really don't have a position on the best way forward. I mean, time will tell as this technology gets more integrated into the marketplace.

Our focus, really, at PACT is just to advocate for allowing the flexibility, trying to expedite the timing of whether it's permitting or whether it's how a site is assessed, how the utility responds. We're trying to make things as easy as possible in the process and looking at the situation at hand and finding the right solution, and this is why it's so helpful, within PACT, to have so many different stakeholders involved, because you can try and solve for one problem, and if you're not careful, create another problem.

Ken Irvin:
The law of unintended consequences looms large, right?

Dawn Fenton:
Yes, exactly, and so, that's why having these various interests at the table, we hope, is going to help better inform people in the marketplace to come to the right solution and minimize the trial and errors that they go through. You know, we saw it just recently by the administration, with the release of the National Zero-Emission Freight Corridor Strategy, and this is an example of the federal government doing what it can to try and accelerate things, as well.

I mean, everybody wants to see this move quickly, and that strategy was really important, in that it tried to help focus attention on a method by which we try not to boil the whole ocean at one time, you know, but rather, address this issue in a targeted way to better ensure success. And in that strategy, they talk about focusing on, really, building out this infrastructure in certain hubs around the country where we know that there either is conducive policies or there is a lot of truck traffic, or we know that there are ports nearby or other intermodal units or intermodal locations.

The strategy also looks, from an environmental justice perspective, at where some of the air quality concerns are the greatest, and so, trying to put all that together and really provide some direction. You know, unfortunately, the strategy, while it's trying to direct attention and effort, it does not, in and of itself, provide any additional funding or does not have any kind of authority to mandate expedited operations or expedited decisions, but it is important in terms of signaling how we can go about this and where we might want to focus our efforts, at least initially, and then build out.

Ken Irvin:
I appreciate that. That's a multitude of issues, from environmental justice to supply chain to working with initiatives, like the National Zero-Emission Freight Corridor Strategy that the Biden Administration has put forward. You'll pardon the pun, since we're talking about trucking, but looking ahead, looking over the horizon, what's your vision for the future here? What does Volvo Group North America and PACT aspire to see as part of our future here for electrification of trucking?

Dawn Fenton:
We definitely are committed to doing, as I said before, everything we can to try and achieve these goals, and you know, it's interesting that, so often, there's a focus on what is different between various industries or between industry and government, but in this case, I think there is a lot of commonalities. I think we all want to move towards a zero-emission commercial vehicle future. The issue is how to do that and how to be most successful in achieving that.

So, part of the answer, in terms of trying to be most successful in achieving those goals, lies in being very thoughtful and being very focused. Just as the administration is trying to focus attention in terms of the development of corridors, I think it also makes sense to look at the technology, and where does that make most sense, and really focus on trying to accelerate the adoption of these vehicles, where they make most sense. You know, I talked before about the importance of the total cost of ownership, and if that's not there, then trucking companies will not buy these vehicles.

So, maybe focusing on where that total cost of ownership is closer to being there or where the technology is naturally more suited to certain duty cycles or applications. Things like transit buses or medium-duty vehicles or short-hall or medium-hall delivery trucks, that's certainly one thing we'd like to see going forward, is a way to address this issue. Also, you know, we're going to get there by efforts such as that we've talked about today and what PACT is trying to do, just trying to get greater cross-fertilization of the vernacular, the understanding between these different industries.

Also, you know, in light of the fact that this charging infrastructure is going to take a while, you know, I mentioned before about thinking creatively and being innovative. We might need to focus on some temporary solutions, and there are a number of companies out there now in the marketplace developing mobile charging units or the use of microgrids to try and fill that gap from the time that vehicles might be received until that power can be readily available.

And then, just one other idea I'll throw out that Volvo, in particular, is supportive of is encouraging regions or states to do demonstration of actually, really, commercial pilot projects, and for that, you know, I look back to our experience at Volvo Group with a project that I had mentioned

before: Volvo LIGHTS. It was a card-funded project with the California Air Resources Board. It was, at the time, one of their largest, if not the largest, public-funded project they had ever undertaken.

And certainly, for Volvo, it was the largest one we had been involved with to bring these battery electric trucks into commercial operation in Southern California. What was really unique about that project, which ran from 2019 to 2022, was that we had a number of stakeholders involved in that project. We actually had 14 different project partners that ranged from, certainly, Volvo and our fleet customers, that were Dependable Highway Express and NFI, but also, a number of others, including the local utility there, Southern California Edison, and the two ports of LA and Long Beach.

We had two local community colleges involved that were doing workforce training for future mechanics and people who could work on these vehicles. We had a local community development organization involved that was helping with everything from translating some of the information to Spanish, to helping to facilitate meetings and building relationships with local government officials that were so important from a permitting standpoint. So, out of that project, all of the stakeholders or partners learned so much. It certainly affected the way we went to market or continue to build our offer to customers.

I know that, for the utility, it had influence on how they make their services available to customers, and it certainly affected the fleets, and so, I think that others states and other regions should look at similar kind of cross-sectoral deployment projects so that they can get their own experience, because you don't know what you don't know until you actually get into it, number one, and number two, just because something worked in one region of the country doesn't mean it's going to work someplace else.

I mean, the situations are different. The governments are different. The sources of power are different. The fleet operations are different. An inland state does not have port operations, and so, there's a number of things at play. So, this is why we're very supportive of having deployment projects with multiple stakeholders, then getting that experience, and then replicating that based on what you learn. So, a lot of things that can be done to try and meet these very aggressive, but very important, goals.

Ken Irvin:
That all sounds terrific. I totally understand the value of having experience, like the project you described in California and seeing that replicate across different parts of the United States. We are a tapestry made up of a whole bunch of differences, right? So, it's good to try to ways that work for each different reason. So, Dawn, it's been terrific talking with you. Thank you so much for walking us through all this. It sounds like very exciting times for you. It sounds like you got your work cut out for you. Look forward to keeping in touch, and maybe we can come back in a little while, and you can give us a grade on how things are going and whether people are responding like you want them to.

Dawn Fenton:
Well, thank you so much for having me. It's been a pleasure talking to you, as well. You're right that there is a lot going on, and it's exciting. It's daunting, but it's exciting at the same time, and I'd be happy to come back at any time and let you know where we are at some point down the road.

Ken Irvin:
You've been listening to Accelerating Energy. I'm Ken Irvin. Our executive producer is John Metaxas. Our managing editor is Karen Tucker, and our associate editor is Darren Schabdach. Subscribe on Apple Podcasts or wherever you get your podcasts.