Models for Promoting Electric Vehicle (EV) Infrastructure Within Your Community Webinar

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Speakers
- Marvin Moon, Director of Power System Engineering Division and Electric Vehicle Program Manager, Los Angeles Department of Water and Power (LADWP)
- Paul Andersson, Environmental Stewardship Initiative Program Administrator, City of Bellevue
- Scott DeWees, Air Resource Associate, Western Washington Clean Cities Coalition/Puget Sound Clean Air Agency (WWCC)

Questions and Answers

1. Can you please share the grant sources? Who provides grants for EV charging infrastructure?

- Marvin (LADWP): Basically three sources for the Los Angeles Department of Water and Power. We received a lot of funding from the Department of Energy through our smart grid demonstration, where we had a few things to prove through studies in order to get receive the grant. The second source of funding was the California Energy Commission. The California Energy Commission (CEC) releases solicitations usually a couple times a year. It’s usually very specific, it could be for workplace charging, it could be for corridor charging. CEC funding can require elaborate proposals, and you may not always qualify for the grants. The third source of funding is from our South Coast Air Quality Management District, they are involved with electric vehicles as well. Those are the three we use.

- Paul (Bellevue): A lot of funding came and went from the federal standpoint. I have no real deep pockets to tap into unfortunately.

- Scott (WWCC): Washington, as a state, has been very successful in deploying electric vehicles without a lot of incentives on the vehicle side. We did have a couple different pots of federal money (U.S. Department of Energy Clean Cities fund and two federal grants directly through the manufacturers), but we believe right now that on a per capita basis of vehicle sales we have the highest level of EV deployment in the country. The only state incentive on the vehicles has been sales tax exemption. I know a lot of times we are looking to tap into grant funding, or different financial opportunities, to roll out the infrastructure and vehicles. Our experience in the state of Washington has been the economics of these vehicles are self supporting, even without state incentives.
2. **How much are the energy costs that the city is incurring since there is no fee for the public EV stations for the first four hours? Is there a plan to charge in the future?**

- **Marvin (LADWP):** The amount of electricity that is being used right now is very nominal. I don’t recall the exact number but it’s about one or two sessions a day. Public charging is a part of our smart grid demonstration, so the costs are covered through the grant. The demonstration is going for another two years, as we do more data collection and reporting, after that point it’s not really sustainable to be free forever. So there will be charging down the road, but at least during the demonstration grant there is no fee.

- **Paul (Bellevue):** I can comment that we spent, last time I checked, a little over $5,000 on energy for our public use stations. That equates to about 9,000 gallons of gasoline which, at $3-4 per gallon, is quite an amount to be spending. I think $5,000 is pretty nominal when you see $34,000 in savings. We are at that point where we are looking to make that more self sustaining by leveling a small fee.

3. **What about ADA accessibility for EV chargers in parking lots and parking garages?**

- **Paul (Bellevue):** I cannot speak very well to that. We certainly looked at this and we tried to site our stations where there is ADA access to sidewalks, etc. We didn’t necessarily go all the way to become fully ADA compliant on every station. My understanding is that there’s some wiggle room in that laws around ADA, but that’s not my expertise. I left it up to some of the site managers and contractors to decide. In most spots we have good access to sidewalks and safe pathways but we didn’t specifically provide specific wider stalls for our EV charging stations.

- **Marvin (LADWP):** I talked to the fellow that does our public installation designs and he said there’s a difference between ADA compliant and ADA accessible. ADA accessible is where you need the wide stalls. In Los Angeles, there isn’t a requirement for that. But our installations are ADA compliant, meaning the handles are a certain height so that someone in a wheelchair could actually operate it.

4. **Has regulation in California/Washington helped or hindered your activities in the EV market?**

- **Marvin (LADWP):** Overall, I think it’s helped. We work very closely with those coming up with the rules and it’s always been positive. They’re always asking for our feedback and we give it to them. There are usually 6-8 laws every year that come out and help to move the industry forward so I say it’s been a positive thing.

- **Paul (Bellevue):** We see more incentives from the state and federal level, than regulations. I can say that the CA regulations are probably helping our markets. People are bringing up electric RAV4’s up from California, which they cannot buy in Washington. I can say that this is an industry and a market that is going to stand on its own two feet, if it isn’t already. Initial investment by federal government and subsidies to spur the market uptake is a great thing. Those will sunset eventually and let the market stand on its own two feet. We haven’t really
regulated the EV market, but we won’t continue to incentivize as heavily as we have. Once people start driving these cars and recognizing the benefits for what they are, most folks say they are never going back.

5. **How much does it cost the customer to have a separate smart meter installed on their home station in LA?**

   - **Marvin (LADWP):** From the installations I’ve seen, running a separate line is the big cost. The 240v circuit, whether there’s a meter for that or not. The added cost for the separate service would be a meter box, the stack next to the existing overhead service, and a riser up to the roof. It does add some cost, not too much. We do not charge for the installation of the meter we put in, so all they have to do is provide the additional cost for the socket and the weatherhead.

6. **Where do you see the EV infrastructure in 5 years, overall and in Los Angeles?**

   - **Marvin (LADWP):** The way I see it, right now the direction is only up. We have a long way to go for that seamless experience we are looking for. Where people buy their car, and drive around and know the infrastructure is out there to support it. It’s just like I said earlier, if you only had one gas station to go to that would be very limiting. But if you go to work, or you go out driving around and you know you can get there, I think that’s going to go a long way. I want to get to the point where, when it comes to workplace charging, employers say ‘hey I’m the odd man out because I don’t have charging for my employees’ and I think that’s what you’re going to see in about 5 years.

7. **How do electric vehicles work in colder climates? How do the chargers work in colder climates, snow, ice buildup etc. What kind of maintenance would be required?**

   - **Paul (Bellevue):** For the chargers, I would expect no added maintenance; it’s just like delivering light to a light pole, just a little more intensity. The highest per capita ownership of EV’s, as I understand it right now, is in Norway where they are buying Teslas up like crazy. Tesla really markets their car as being very effective in the snow. The thing you get with colder weather is more use of the heat, windshield wipers, lights, and things like that. So you are running more systems on the battery and that will deplete your battery charge more quickly. We have folks driving from Seattle to Tacoma, which is about a 40 mile stretch, in a Nissan Leaf, and trying to get back on an 80 mile battery pack. Sometimes they are pushing it, especially if they are running the lights, heat, radio and all that. It will knock down your battery capacity by maybe as much as 10-15%. But I think you are seeing a really low center of gravity, great drivetrain systems with some of these electric vehicles in the snow.

   - **Scott (WWCC):** I’d encourage you to look up Stevens Pass Ski Resort. They believe they were one of the first ones to have EV charging on a ski hill. It’s pretty cool they have their charging station suspended from an old lift chair because of course they get so much snow there; the traditional pedestal wasn’t a good option. I don’t know if they’ve had any unique challenges with snow, but they would certainly be a great point of contact to look into that further.
8. **Do you have any experience with the installation and use of level 1 charging in locations where drivers typically park for 8+ hours, such as workplace, home, airport long term parking, etc?**

   - **Paul (Bellevue):** Yes we still have a few of those stations at City Hall, where folks can just plug in to level 1. That works fine; I think a lot of parking lots do have that. I don’t know if it’s signed everywhere as comprehensively, but in most spots it very well be. Drivers relying on that will have their extension cord with them and hopefully be able to find what they need. That infrastructure is certainly still out there.

9. **Is there a reason you have chosen to focus on higher levels of charging such as DC fast charging? Most vehicles being sold (especially in Southern CA) are PHEVs where level 1 infrastructure is adequate, less expensive and easier to manage as an energy provider.**

   - **Paul (Bellevue):** If I understand correctly, as an energy provider perspective, level 1 is going to be your basic 110/120v. Level 2 is basically the equivalent as a dryer outlet, so you might need to add capacity to your service panel, but a lot of times you don’t. It does require pulling a permit and things like that. The thing with the level 2 is that it shortens charging time from 20 hours to 8 hours for a full charge – something like that. A few hours can really help you ‘top-off’ during the day when you are running errands. From an efficiency perspective, each one is going to be more efficient than the next. To get people travelling long distances, with short pit stops, the DC fast charger is still recognized as the best way to do it. Most cars coming out are equipped for level 1 and 2, with the DC fast charging capability at an extra cost.

10. **Research from Sustainable Waterloo Region in Ontario, Canada shows potential grid issues with widespread residential EV charging implementation (10% penetration of level 2 PHEV chargers would require the replacement of 46% of existing secondary distribution transformers). Have you run into these issues, or considered these issues in planning charging station location.**

    - **Scott (WWCC):** It has been our experience with both our investor owned utility and our publically owned utility that at least the initial adoption of electrical vehicles may stand to benefit from it. So much charging is expected to be off-peak that the utilities are seeing this as a potential strategy to more efficiently use the assets they have. I don’t know if Western Washington maybe has a different demand profile throughout the day, but the initial feedback we have heard from our utilities is that they are actually looking forward to some additional demand in the evening.

    - **Paul (Bellevue):** I suppose it’s a case-by-case issue with the type of infrastructure that you have and how old it is. Maybe assigning some demand use, adding some demand type charges for different times of day would be a reasonable response by the utility if they are trying to transition off on-peak hours and onto off-peak hours. We don’t have different demand charges for time of day here in our region, like LA and most parts of the country do, but that maybe something to look into.
11. Have you been able to (quantitatively) connect the dots between public EVSE deployment and increased EV miles, or EV sales? How can you compare different strategies for travel electrification promotion?

- **Paul (Bellevue):** Connect the dots, I’d say yes. Basically the strategy is to get the infrastructure out there and start using the vehicles to prove the costs and the environmental benefits. Both of those strategies have led to widespread use of stations and have been shown through the Nissan Leaf sales uptick. There has also been significant uptick in charging station usage, even at public facilities, so obviously people are using chargers in their homes if they’re using our public infrastructure at our community centers and parks. This really shows that the infrastructure is being utilized and that strategy is probably driving some of that investment by the community in that technology.

- **Scott (WWCC):** A great question, and a hard one to answer. I do know that the City of Kirkland, Washington, which neighbors the City of Bellevue, was tracking unique charging events with their infrastructure. They found a pretty exponential growth curve in the number of unique visitors to their charging stations between 2012 and 2013. It’s an anecdotal point but I do think we are seeing a more varied user group as time progresses with these charging stations.

12. Does the City of Bellevue have a target for total charging capacity by a certain date as outlined in a city plan, or is it strictly based on available funding?

- **Paul (Bellevue):** We operate fairly opportunistically on funding, and right now we think we have pretty ample service throughout the city. Many businesses and residences are stepping up and investing in their own charging stations. We hope to get some on-street EV charging stalls put into our on-street parking over the next couple years perhaps, because that’s not a form of EV parking we have right now. So we’d like to expand a little bit in that area, but we don’t have a target like energy consumption rate or anything like that. Our overarching goals, with regards to greenhouse gas emission reductions and carbon neutrality by a certain date or X percentage by a certain date, are a little loose right now. We are trying to hone in on a really good regional target with some other players, but we haven’t stepped up and set any targets in that regard.

13. How did you get your senior management and council on board?

- **Paul (Bellevue):** The grant funding has got to be the number one thing. When money is delivered and we set it into an innovative, kind of ground breaking technology, to lead the region in something new then our council will always go for that. They have been traditionally fairly conservative, in that they don’t want to incentivize too much. They want the private sector to do its work. So we just love talking up the economic development benefits of this, of how people are buying these cars, it’s driving up car sales in our city, it’s driving clean air and clean water initiatives which everyone can get behind, it’s saving people money at the pump which they can then turn around and use in other ways. Really having that economic development discussion with them, time and time again, is important. Showing that what we’ve put into this
has seen tremendous payoffs and this is really establishing Bellevue as a regional leader on this front, and our constituents like that and they like this technology, so let’s keep going with it.

14. Based on your experience with plugged-in vehicles what do you think are the needs of local or city authorities in developing on-street un-plugged charging infrastructure on roads in urban areas? This could be either inductive or conductive charging methods.

- **Scott (WWCC):** That’s a tough question; I believe the City of Seattle’s Office of Sustainability has definitely looked pretty closely at providing stations on-street because so many homes in Seattle don’t have garages or off-street parking. I think they are really still grappling with some right-of-way issues with allowing that and disallowing other activities that might be desirable for particular users of the public space. Although there is a desire to help foster the market there are some challenges and I don’t know if there’s a clear path forward. Then of course there’s the most obvious one, if the city pays for that infrastructure, how they recover those costs. So I think those are the two issues that they are grappling with.

15. How optimistic are you about the future?

- **Paul (Bellevue):** I just keep reiterating someone’s phrase that we will be all driving electric cars by 2030, and I really do believe that. Cars are coming so far, if you look at the battery plant that Tesla is building, the declining costs of batteries and the number of cars on the road. It was only three years ago that electric vehicles in this region didn’t exist, and now you are seeing handfuls of them every day. I think trucking fleets, bus fleets and other fleets are going to be headed this direction and I think this will be the future. That’s what I look forward to seeing. Cars are so unique to the American experience and if you can get into Americans mind heart and wallet with a great new car technology, then you can win them over. Where people argue that it’s better to drive a gas-powered car in states where electricity is produced by coal, that might sometimes be the case now but that energy grid can always get cleaner. We’re seeing so many people who are adopting EV technology looking at the next steps because it starts making sense to them; we won their hearts with clean technology in their car, so everything else is just a lot easier from there.

- **Scott (WWCC):** I’m employed by a local air agency and our largest single greenhouse gas contributor in the state is transportation emissions. In Washington we are blessed with having a very low greenhouse gas profile for our electricity, and we are seeing the highest per capita adoption of electric vehicles in the state that really has almost no incentive beyond the federal tax credit to see the adoption of these vehicles. We are seeing great momentum and it’s helping us as a state to reduce our greenhouse gas impact and diversify the sources of energy we use for transportation. I think there is a lot to be optimistic about and I believe that this is going to translate into other markets in the United States and worldwide in due time.