



Questions and Answers

Electric Vehicle Infrastructure Workshop

North Central Texas Council of Governments

William J. Pitstick Executive Board Room

Thursday, November 2, 2017

1:00 pm – 3:30 pm

Presenters/Panel:

Lori Clark—NCTCOG

Chris Marrs—North Lake College

Dave Aasheim—Chargepoint

Jason Buckland—EVIA

Larry Kinder—LilyPad EV

Edward Morgan—Revitalize Charging Solutions

Celia Dayagi—Siemens

Jim Burness—National Car Charging

Questions and Answers: To the full panel

Q1. Can you talk a little about the batteries themselves and their sustainability? What about human rights and fair labor concerns?

A1. Lithium ion batteries are the standard now but others will eventually come on the market. Most batteries have an 8-10 year warranty. In terms of long term sustainability, there is already a market for renewable storage that gives batteries a second life after they can no longer be used for automotive purposes. The batteries are also 95 percent recyclable. Jim Burness noted that, despite the concerns over lithium ion battery flammability, their safety level is high compared to gas-powered vehicles.

Various groups have voiced concerns over human rights and fair labor violations in the countries where the raw elements are mined. According to Jim Burness, lithium comes mostly from Wyoming, Australia, and Chile, where safe working conditions generally prevail.

Q2. Can we make EVs more sustainable with initiatives such as solar panels to provide electricity?

A2. Many customers now wish to co-locate solar panels and EV charging stations. Some wish for the solar panels to supply all of the electricity necessary for operation of the charging station, thus making the solar panels and EVSE integrated, with the possibility of not relying on the grid. Integrating solar and EVSE is possible but generally infeasible today because of high battery costs coupled with the fact that solar is space-intensive. It takes approximately seven parking space-sized solar panels to provide enough power for a single charging station. Thus, for the most part, integrating solar and EVSE is often cost and space prohibitive at this point. However, battery costs are expected to come down so this might not always be the case. Most systems simply co-locate solar panels and EVSE. The solar panels are then pushing energy to the grid and the charging stations are pulling energy from the grid. In this way, the solar panels can offset some costs and greenhouse gas emissions but the unit is not integrated. The batteries themselves are also quite bulky and may create a space/design issue. Again, this will likely change with innovative technologies. Some companies, like EV ARC, are already commercializing this integrated solution.

Q3. Which of your products are proprietary? Do customers have to rely solely on the company responsible for the design for maintenance?

A3. If the vendor is both the manufacturer and the installer, this is a good question. Clearly, Chargepoint products are sold both directly and through re-sellers. Thus maintenance and networking can be purchased directly through Chargepoint or via any of their other vendors. Revitalize manufactures their own units but uses an open standard so that the maintenance and networking are not proprietary. Other EVSE companies could provide these services even if the stations were purchased from Revitalize. The other vendors noted that this is generally true of most charging units regardless of the manufacturer. Tesla is the obvious exception.

Q4. What can early adopters of EVSE do with old Blink stations?

A4. Some vendors offer a trade-in program, including Revitalize, National Car Charging, and LilyPad. EVIA can also assist early adopters in transitioning from old to new systems, including finding trade-in or recycling options. The transition is generally easy since the electrical systems are already EV-ready and it is simply a matter of replacing the charging station.

Q5. How much will it cost to install a charging station?

A5. This is a difficult question to answer without seeing the site since many of the installation costs are highly variable depending on existing electrical systems (locations, capacity, etc.). If the systems are located far from where the stations will be installed or if the systems require major upgrades, the cost will increase significantly. Other variables include what type of station you purchase (Level 2 or DCFC), networking plan, and maintenance contracts. Networking and maintenance are always optional. However, networking is required to charge customers for EVSE use and maintenance will be necessary at some point. Station owners must also keep in mind the cost of electricity provision, particularly if they do not plan to recoup those costs from customers. Representing Revitalize, Edward Morgan added that the Revitalize business model would not require purchase of the unit, maintenance, or networking. Instead, the property owner would pay for part of installation and the electricity provision. Revitalize would continue to own the stations and provide maintenance and networking in exchange for advertising.

Q6. Do any of the vendors provide EVSE for electric shuttles?

A6. Many of these shuttles have proprietary charging stations that come with the shuttle. Some buses use standard connectors but most are proprietary. If standard connectors are present, then any of the standard equipment could be utilized.

Q7. What is the difference between “smart” and “dumb” stations?

A7. Dumb stations provide charging services but without network capabilities or management software making them a good option for station owners who offer charging for free. Smart stations generally include a cloud-based management software that allows the station owner to decide who can use the station (usually via key fobs or access cards), manage the price of services, monitor the condition of the station, and pull reports to analyze usage patterns. Most vendors will allow you to change network providers but it is important to ensure that you have the flexibility to do so. Siemens also noted that they offer “dumb” stations from which data can be manually downloaded for tracking usage, charging customers, diagnosing problems, etc. However, data storage is finite and so data must be downloaded at regular intervals. Siemens noted that data storage is limited to 90 days for their products.

Q8. **Online question: We have heard that the state of Texas doesn't allow state resources (i.e. electricity) to be given away for free. We have also heard that state agencies (i.e. universities) can't be resellers of electricity. We seem to be stuck since we can't charge customers for charging (we become a reseller) or give it away for free (giving away a state resource). What advice do you have for us to navigate this area? UT Austin uses a company like Chargepoint. Is this the best option?**

A8. This is a salient and complex question. Some states have exempted charging stations from public utility regulations but Texas has not. In Texas, this is complicated by the fact that there are both regulated and non-regulated portions of Texas. Charging by unit of time in the deregulated portions of Texas is the most common solution but is not an option for regulated areas. Another option is to partner with a utility company, such as between Austin Energy and the City of Austin. Other creative solutions include a local public university that chose to provide “free charging” on campus where students with electric vehicles are automatically upgraded to a higher-cost parking permit, or where EV drivers are charged to use the parking space by the hour.

Q9. Can Tesla and DCFC stations be used by the same vehicles?

A9. Tesla charging stations can only be utilized by Tesla vehicles but stations based on other DCFC standards, such as CHAdeMO and CCS, can be used by all EV drivers. Tesla drivers will need to use an adapter that costs around \$400 as of November 2017.

Q10. Is there a dashboard component to management software?

A10. Yes, a dashboard can be included in the purchase of a smart station and associated management software with networking capabilities. Different stations and vendors will offer different options in terms of user management, dashboard look and feel, etc. Chargepoint allows the owner to set administrative levels for various parts of the organization. Siemens noted that there are lots of portals available that can be used on different systems depending on user needs and budgets. In other words, stations and management software do not have to come from the same vendor or provider.

Q11. For units with connectors for both DCFC charger standards (CHAdeMO and CCS), can you use both simultaneously?

A11. No, only one car can charge at a station at a time. It is similar to a gas pump with separate nozzles for diesel and gasoline where only one nozzle can be used at a time.

Q12. Do any of you have experience with large municipal projects? How do users pay for charging?

A12. Siemens recently completed a large installation in Los Angeles. It was grant funded via the California Energy Commission Grant. The grant paid for the chargers and installation but charging will not be free. Users will pay for charging to fund maintenance and networking. It included 15 sites and a roll out period of three months. Jim Burness of National Car Charging noted that they completed a municipal project at Red Rocks Park in Colorado. The Parks and Recreation Department of Denver has decided to make charging free for now but may charge at some point in the future. They included the installation of charging stations in the renovation of the park gift shop and surrounding area. Most of the vendors noted that they had the ability to perform large municipal projects.

One complication with municipal projects is payment due to public utility regulations, regulated versus deregulated portions of the state, state and local procurement and accounting policies, etc. Jim Burness noted that an escrow account (where charging revenues are deposited) can be utilized to pay networking and maintenance fees if that better complies with fiscal regulations.

Q13. What are some good solutions for condominiums/multi-unit properties?

A13. Multi-family property owners must consider station access, payment capabilities, and placement when contemplating the addition of charging stations to their property. If property owners wish to limit access to residents rather than the general public, the stations must either be geographically set apart (behind a fence or gate) or networked so that residents can identify themselves as authorized users. Whether the EVSE is placed in common or private areas (with or without additional, physical security measures such as a gate) is another consideration. If placed in private areas with the intent to limit access to particular residents, some means of access restriction would be necessary. Property owners must also decide whether they will charge for use of the station, either for profit or to recoup electrical costs, and devise an appropriate cost allocation or pricing structure. Again, this will be dependent on whether the stations are accessible to the general public, select residents, or all residents. Dumb chargers would allow anyone to utilize the equipment but there would be no way to allocate costs among residents or ensure that only residents utilized the equipment. A smart station would allow for restricted access, payment management, and ease of maintenance. Multi-unit properties should also consider whether they need residential or commercial grade stations, potential additional construction costs (such as gates or fences), and where to place stations to minimize electrical installation costs.

Questions and Answers: To specific vendors

Revitalize Charging Solutions:

Does Revitalize's business model work for multi-family properties such as condominiums?

This question was initially asked to Revitalize Charging Solutions but opened to the entire panel after the break. See "What are some good solutions for condominiums/multi-unit properties?" above.

Revitalize Charging Solutions answered in the affirmative but noted that they had not worked with multi-family units in the past. The other vendors agreed that their products could be integrated into multi-unit properties though none of the vendors had specific expertise in the area.

Does all revenue come from advertising?

Yes, in this business model.

Is that expected to continue?

The company has different models in addition to the advertising model, such as selling direct and on a subscription basis, but the advertising model is expected to continue.

Does Revitalize create their own equipment? Does it comply with national standards?

Yes, Revitalize produces their own units. Edward Morgan noted that Revitalize tries to strike a balance in terms of design between size, safety, and advertising ability. All of the equipment complies with national electrical standards (J1772). Larry Kinder noted that all Level 2 chargers are on this standard and that it is set by the Society of Automotive Engineers (SAE).

Is it possible to own the charging station?

Yes, Revitalize sells the units directly. A customer can then purchase networking and maintenance from Revitalize or from another provider.

Do we get to decide what advertising goes on the product? Are the screens interactive? Are they outdoor rated?

Revitalize owns the product but gives customers 72 hours to vet the advertising (videos and wraps) before it is deployed. The screens are touch screens and outdoor rated.

Chargepoint Technologies:

Is it possible to own the charging station and not pay any ongoing fees?

There is an annual subscription fee if you want to be networked, as well as optional maintenance fees, but you can go “dumb” with no annual fee or pay another provider for those services.