

Siting Locations Subgroup - Multi-family, Commercial Properties and Public Locations

**** DRAFT Preliminary Recommendations ****

*Cross-listed with another subgroup

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EV Ramp up Planning MED/HIGH PRIORITY

1. Determine the best locations for EVSE charging stations

- EV infrastructure implementation should not result in net increases in parking spaces
- Allow market forces to compel in general.
- Most charging will likely occur at home.
- Second most likely place is workplace charging.
- Public charging should be provided in strategic locations based upon driver lifestyle destinations—shopping, theater, hairdresser, park & ride _____.
- EV car sharing and rental programs provide additional opportunities
- Charging Station Locations.
 - a. Locations should be based on where the vehicles spend most of their time parked.
 - i. Home – Vehicle spends typically 8 – 12 hours.
 - 1. Single family homes
 - 2. Apartments
 - 3. Other Multiple unit dwellings
 - ii. Work - Vehicle spends typically 6 – 10 hours
 - 1. Office Parks
 - 2. Surface Parking Lots or Garages (especially when workplace is in a city)
 - 3. Hotels (business trips)
 - 4. Convention Centers
 - 5. Hospitals
 - 6. Airports
 - 7. Fleet depots
 - 8. Park and Ride Lots -- shorter mileage commuters
 - iii. Play – Vehicle spends typically 1+ hours.
 - 1. Surface Parking Lots or Garages
 - 2. Shopping Malls or other Retail locations
 - 3. Cultural Centers
 - 4. Restaurants
 - 5. Sporting Venues
 - 6. Universities
 - 7. Curbside in cities
 - 8. Parks and Recreation areas
 - 9. Airports
 - 10. Gas stations only if adjacent to other uses or designed for long stays, such as mixed use locations, “Charging Café’s”, or rest stops
 - iv. Public locations
 - 1. City Halls
 - 2. Town libraries

- v. Car Rental – Special case because it requires an infrastructure of stations to be effective
 1. Car share parking spots (Zip Car, Hertz, Enterprise)
 2. Rental car depots
 3. Area hotels
 4. Area attractions (for DC, this would mean visitor parking or curbside parking at Smithsonian, public buildings, etc.)
 5. Requires special agreement between rental car operators, hotels, attractions.

Considerations:

- Below grade/inside garages require range extender for smart chargers using wifi or cell phone signals (adds on to install cost (~\$1,200)).

2. Identify and overcome barriers to EV adoption in all appropriate locations

- Evaluate cost of the investment vs. the motivation the infrastructure provides for people to purchase EVs. Even though there are nearly 10,000 charging stations installed across the country, some people point to the lack of infrastructure as a reason why the adoption of EVs has not been faster

3. Monitor EV Ramp up and benchmark against other cities to identify any additional needs or barriers

- Define geography – zip codes or county –see program called plug-share—all stations –or NREL – some have home stations too. Begins to help with benchmarking

Considerations:

- Industry is taking it slow at first, then ramp up deployment. Interest to drive demand, reduce costs, improve technology. Most deployments are small pilots to determine usage patterns. MDU adoption is particularly slow.
- EV sales were projected at over 100,000 for 2012, a very ambitious goal. It appears as if it is slower than that due to: delays in vehicles (Ford Focus), slow-down in vehicle sales (Chevy Volt and Nissan Leaf). Need to continue to monitor monthly sales figures.
 - Hybrid fleet penetration can be used as a proxy. COG has data. Need to extrapolate to EV ramp up. Can also use MEA data.
 - Use best practices on EVSE/Total # as a guide
 - Determine the number of vehicles coming into the DC area.
 - Determine a model for charging station deployment based on vehicle sales,
 - Assume 0.8 home charging stations per vehicle deployed (assume 20% will not get a home charging station because they either elect to use 110 volts or live in a place (MDU) where they cannot get approval on a station).
 - Assume 0.5 workplace charging stations per vehicle deployed.
 - Assume 0.3 public charging stations per vehicle deployed
 - Model can be influenced by local, state, or federal incentives.
 - Later, charging station locations can be monitored

4. **Plan for additional capacity in advance to reduce costs and allow expansion as market grows.** Create the readiness for double the current needs. Outfit all new commercial/multifamily residential/major public construction in advance with the necessary technology-enabling infrastructure (e.g., run conduits and transformer pads).

Example: Kane County

■ **S.F & M.F. residential:**

- provide 220-240 V outlet to accommodate potential Level 2 charging

■ **Non-residential:**

- *Rough-in electrical conduit for future potential EVSE in new parking lots*

- Does this warrant requirements for developers for new construction? Refer to Municipal group.

EV in Different Land Use Types

5. Multifamily residential. HIGH PRIORITY

- 5.1 Requirements should depend upon whether or not the units have/manage a parking facility
- 5.2 Managers could incorporate the EV into the parking ratio
- 5.3 Implement the number of charging facilities needed to meet residents' needs as identified by a survey
- 5.4 Charging installations must address safety issues related to potential upgrades or modifications to the building. Refer to inspections and permitting.
- 5.5 Collect best practice examples and tools, obtain information on pilot programs or projects or policies from other parts of the United States and share.
- 5.6 Develop pilot programs with interested parties in the Metropolitan Washington COG area to develop "lessons learned" and "best practices".
- 5.7 Identify the facilitators of multifamily EV infrastructure adoption and connect them with property managers
- 5.8 Develop messaging and materials that utilize the 'what's in it for me' approach with HOAs and Condo Associations
- 5.9 Identify incentives

6. Single Family Home Charging HIGH PRIORITY

- 6.1 Develop outreach/communications for homeowner safety*
- 6.2 Train building code inspectors*
- 6.3 Streamline processes*

7. Workplace Charging HIGH PRIORITY

- 11.1 New private/private partnerships - Deploy EV at corporate locations, allow use on hourly basis. Have corporate partners agree to provide charging or provide fleet vehicles.

- 11.2 Through COG Commuter Connections, AOBA, and other associations, reach out to employers to connect workplaces with trainings and understand needs, ex. Conduct a survey of needs and plans.
- 11.3 COG can determine the top vehicle trip destinations for work (Ft. Meade, PAX River, Tysons, TAZ 702- Bethesda)

8. Other Destination Charging: Commercial, Hotels, Shopping HIGH PRIORITY

- 8.1 Provide technical assistance and information to other destinations with existing parking

9. Special Case: Tourist Market MED/HIGH PRIORITY

Considerations:

- The DC area is one of the primary tourism markets in the US
- Renting an EV can be a precursor to eventual purchasing
- Incentivizing the rental of EVs requires a global view of the opportunity
- Requires working with rental car companies, hotels, public on-street parking locations close to museums and monuments to set up a mini-rental infrastructure (similar to Orlando project)

- 9.1 Consider a DC EV rental car test program
- 9.2 Work with 2 or 3 key rental car companies
- 9.3 Work with dozens of hotels in the city with parking
- 9.4 Deploy EV-only spots in downtown DC

10. Locations of vehicle sharing programs MEDIUM PRIORITY

- 10.1 Follow current car-sharing models
- 10.2 Encourage existing car-shares to replace current vehicles/spaces with EVs

11. Location of public EVSE infrastructure investments. MEDIUM PRIORITY

- 11.4 Collect and share best practice examples from around the US.
- 11.5 Partner with a local utility to offer rebates for customers who use home charging systems for their electric vehicle, or offer overall reduced rates for customers who are charging electric vehicles at home; Could offer TOU rates for the entire home.
- 11.6 Offer a variety of incentives—such as tax credits, access to HOV lanes, fast-tracking permitting processes and/or free parking benefits to consumers who purchase and drive an electric car;
- 11.7 Identify code changes for new construction to make it easier to install public charging stations; and
- 11.8 Provide education about maintaining grid stability, including charging during off-peak hours, using clean sources of energy and advocating for renewable sources.

EV Technical Issues

12. Membership Network HIGH PRIORITY

- 12.1 Develop a membership network of charging resources that is a combination of commercially available networks.
- 12.2 Influence State utility laws to allow a 3rd party to offer electricity for EV charging for a fee.*
- 12.3 Tap into existing organizations that provide subscriptions across numerous station providers

- 12.4 Encourage Homeowner's Associations to participate in a network*

13. Public charging available on public streets. HIGH PRIORITY

Considerations:

- Public street EV charging stations are important, but installation costs are a barrier. Ex. DOT space cost \$21,000 to install. Pepco requires a separate utility certified meter, which drives up costs. Load is only an issue if 20 spots are concentrated in one area.
 - 13.1 Municipalities should lay down a conduit for future EV parking during redevelopment*
 - 13.2 Companies could sponsor stations.
 - 13.1 Determine how EVSE can be incorporated into existing utility electric lines (e.g., street poles, parking meters) is not known*
 - 13.2 Develop revenue model*
 - 13.3 Develop guidance for non-governmental entities seeking permitting for on-street public charging.*
 - 13.4 Governments can grant special use permits for parking spaces.*
 - 13.5 Certify a meter in the charging station itself instead of including separate utility meter.*

14. 14. Facilitating easier and safe access to short term 110 volt charging. LOW PRIORITY

- 14.1 EV owners suggest municipalities issue EV Charging Passes at low monthly charge that allows EV owners to use a network of simple 110V charging outlets.
- 14.2 Could be a revenue model for municipalities.

15. 15. Accommodating multiple cars with varying levels of charging requirements. LOW PRIORITY

- 15.1 Consider one load control device for a garage that controls multiple parking spots, give control to utility.

16. 16. Managing turnover of EVSE parking spots. LOW PRIORITY

- 16.1 Level 2 should be in locations with high turnover, or with valet service, or with one load control for multiple spots. Level 1 should not be located in high-turnover areas
- 16.2 Allow owners the ability to control turnover, Ex. raise the rate after 2 hours.

Other issues HIGH PRIORITY

17. Recommend dealerships provide buyers with visibility to the network subscription, home charging station information*

- SPX, Air environment—they can connect customers to information

Resources: Kane County, Washington State, C2ES Report, Mitre Report, Installation Guide, San Diego, San Francisco, Snohomish County, Fairfax County