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Description:	By Matt Henigan and Glenn Connor, from the Department of General Services
Filer:	Tami Haas
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DGS – Electric Vehicle Charging Infrastructure Program

Prepared for CEC - Merit Review and Peer Evaluation Workshop

April 25, 2016

DGS EVSE Program

This presentation will provide a brief overview of the Department of General Services, Electric Vehicle Infrastructure Program.

The presentation will address five questions which should give a thorough overview of the DGS progress in implementing the CEC Grant Program.

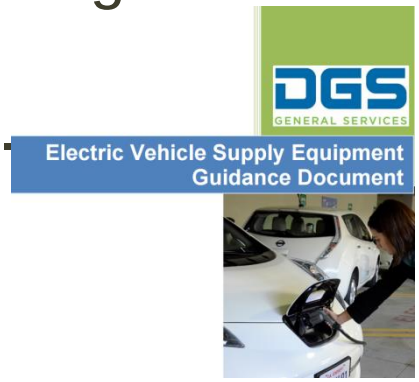
DGS EVSE Program Question 1

How would you characterize and quantify your project's progress in achieving expected objectives under ARFVTP, including the development and commercialization of electric vehicle charging infrastructure?

DGS EVSE Program
Question 1. Progress

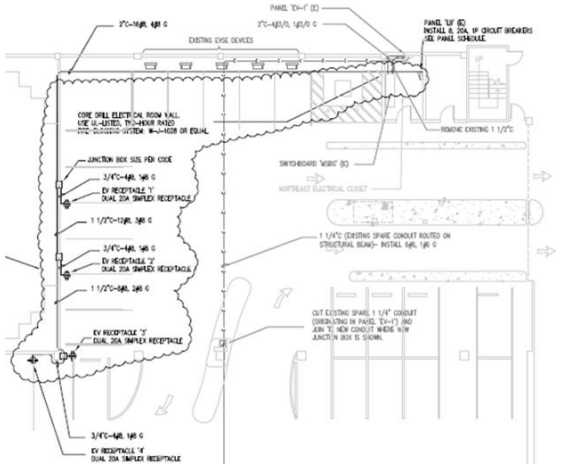
In conjunction with the CEC Grant Program, DGS objectives are to promote, adopt and commercialize EVSE infrastructure in State Facilities. To that end DGS has:

- Written an EVSE Guidance Document and Parking Policy which has been used by other agencies.
- DGS has contributed to the Green Building Code and prepared Building Code Accessibility Sections related to EVSE.



DGS EVSE Program Question 1. Progress

- DGS has set a goal for providing L1 or L2 chargers for 5% of all parking spaces at state facilities. To date, the L2 Program has installed 23 chargers with 19 more to be installed in April and are finalizing the designs for 60 additional L2 chargers. The L1 Program is entering the design phase for 800 charges throughout the state.



DGS EVSE Program Question 1. Progress

- DGS developed statewide contracts for EVSE hardware, software, connectivity and billing that are available for use by state and local governmental agencies.
- DGS has established a procedure to contact departments purchasing ZEVs to offer guidance and support for the infrastructure required to support fleet purchases.

DGS EVSE Program
Question 1. Progress

- 23 EVSE installed and operating in Sacramento.
- Bay Area installation begins 4/26:
  11 EVSE in San Francisco
  8 EVSE in Oakland
- San Diego RFP released 4/20:
  42 EVSE in 4 locations
- LA/Orange County RFP released 4/20
  18 EVSE in 4 locations

DGS EVSE Program Question 2

What are the key ingredients to your project's success (e.g., proven business model, management structure, technology application, financial investment)?

DGS EVSE Program
Question 2. Key Ingredients

- DGS used senior project directors to navigate the complexities inherent in founding and implementing new programs.
- Project directors relied upon top executive support and agency support to encourage legitimization and the ultimate adoption required from all DGS facilities.

DGS EVSE Program
Question 2. Key Ingredients

- DGS identified a range of funding sources including ARFVTP but also budget change proposals, DGS's building rental account, and operating funds.

DGS EVSE Program
Question 2. Key Ingredients

- To prioritize installations DGS researched ZEV adoption rates and found the SF Bay area, LA and SD areas were the most ZEV dense.
- Sacramento was first group of EVSE projects in order to establish program legitimacy and support.

DGS EVSE Program
Question 2. Key Ingredients

- The following are milestones in the development process;
  - Collect and catalogue relevant data for all DGS owned parking lots and garages.
  - Bundle all facilities into groups for the purpose of assessments, bidding and construction.

DGS EVSE Program
Question 2. Key Ingredients

- Conduct individual site assessments to determine:
  - early adopters,
  - parking patterns,
  - parking capacity,
  - current ADA compliance,
  - new ADA provisions,
  - utility service levels,
  - electrical capacity limits,
  - panel locations,
  - develop preliminary design, and
  - create a rough cost estimate.

DGS EVSE Program
Question 2. Key Ingredients

- Work with facility managers to identify any local preferences, review designs, analyze ADA path of travel and parking conditions for needed upgrades, review any easement issues, promote project buy-in and elevate issues to regional managers.

DGS EVSE Program
Question 2. Key Ingredients

- Begin construction documents using electrical engineers, civil engineers, structural engineers, if required, along with the project architect.
- Balance the design and estimated construction cost, in order to determine the most cost effective equilibrium between the DGS 5% goal and a realistic budget.

DGS EVSE Program
Question 2. Key Ingredients

- Circulate data to decision makers and establish source of funds.
- Submit plans and specifications to the Division of the State Architect and the State Fire Marshal for review and approval.
- Bid and award construction contract.
- Construct and inspect.
- Activate

DGS EVSE Program Question 3

What are pitfalls to avoid or the key lessons you have learned from your project to date?

DGS EVSE Program
Question 3. Pitfalls

- Establish an organizational policy supported with executive orders and legislation. Solicit executive support of the program definition and acceptance of the overriding goals through written policies.
- Pay attention to policies will drive adoption by like parking fees, priority parking, dedicated parking stalls, time limits, and other issues that encourage staff to invest in ZEV's.

DGS EVSE Program
Question 3. Pitfalls

- Determine if the primary EVSE program focus is for workplace charging, fleet charging or customer charging or a combination early on before any assessments are conducted.
- Determine fund sources and the priorities to allocate funds based upon political realities. Without capital there is little support from the key individuals responsible for the budgets of their departments.

DGS EVSE Program
Question 3. Pitfalls

- When necessary use executive staff to facilitate buy in from all stakeholders.
- Use location assessments to the fullest potential to determine ADA issues, utility service capacity, cost budgets and the wide variety of parking issues.

DGS EVSE Program
Question 3. Pitfalls

- Establish on-site buy in from stakeholders and have the local managers participate in elevating the project to the regional managers.
- Be prepared to address push back, resistance, criticism and project sabotage. Don’t underestimate the realities of a bureaucratic response and ability to stop an unpopular project or program.

DGS EVSE Program
Question 3. Pitfalls

- Many facilities are using 100% of the current parking stalls and find it difficult to cut back the number of parking spaces for ZEV drivers that mat not exist in the same number of planned EVSE installations.
- Due to the high profile of the program, accept getting decisions overridden by executive management due to complaints from key individuals.

DGS EVSE Program
Question 3. Pitfalls

- Do not lose focus of the tangible end goals and press through any issues rapidly to avoid getting bogged down in endless questions or dialogue.
- Do not chase “better ideas or newest technologies” and “faster ways to deliver projects” if it means redesign or delays. Even good intentions can ultimately have an adverse effect.

DGS EVSE Program
Question 3. Pitfalls

- Establish cut off points for any plan changes and communicate the impact of late stage changes to anyone trying to make them.
- Work directly with local utilities at the outset of the project. This helps prevent surprises and cost overruns.

DGS EVSE Program
Question 3. Pitfalls

- Keep up to date with code changes related to EVSE.
- Do not give hard cost estimates for a project early on before the engineering is complete. Many ask for a best guess but later hold the project to that budget.

DGS EVSE Program
Question 3. Pitfalls

- When practical, design the infrastructure for future technology, industry trends, and capacity needs looking five to ten years out. Create performance specifications to address future hardware and software upgrade capabilities.

DGS EVSE Program
Question 3. Pitfalls

- Adopt common technologies to achieve consistency between facilities.
- Prepare for operational costs for electricity and staff to handle billing, maintenance, policing of time limits, vandalism and safety issues.

DGS EVSE Program
Question 3. Pitfalls

- Be aware of other programs planned in facilities that could be impacted. These can range from energy efficiency projects, solar projects, parking lot or structural upgrades, ADA upgrades, lighting projects, equipment purchases with large electrical loads, and facility expansion plans.

DGS EVSE Program
Question 3. Pitfalls

- Consider potential impact on a facility's Demand Response commitment.

DGS EVSE Program Question 4

How has your project contributed to achieving further success and replications in electric vehicle charging technology?

DGS EVSE Program Question 4. Replication: Experimenting with Parking Policy

- All state employees that drive BEV, PHEV, and FCVs qualify for a discounted flat rate parking fee of $40 per month, representing a savings of up to 55 percent off of standard rates.
- This discount applies at all DGS managed lots regardless of whether electric vehicle charging is currently available.

DGS EVSE Program Question 4. Replication: New Cost Recovery Rate

- Rate Structure

$0.12 per kilowatt (kWh) hour rate

$0.31 per hour service fee

$1.15 per hour for any vehicle that exceeds the 4-hour maximum utilization period.

- One hour of Level 2 charging will cost approximately:

$0.74 per hour for vehicles that charge at 3.3kWh draw rate.

$1.13 per hour for vehicles that charge at 6.6kWh draw rate.

$1.18 per hour for vehicles that charge at 8.8kWh draw rate.

DGS L2 EVSE max output is 7kw.

DGS EVSE Program
Question 4. Further Success

- Providing the CEC data for analysis.
- Providing policies and program templates for other agencies to use as guidance.
- Provide project management services to any agency needing assistance.
- Evaluate design standards and performance specifications for actual projects.

DGS EVSE Program
Question 4. Replication

- Look at future technologies and collaborative technologies such as battery storage.
- Address consumer's range anxiety through policy, design and innovation at the project level.

DGS EVSE Program Question 5

How has your project helped contribute to achieving public policy goals?

DGS EVSE Program
Question 5. Public Policy Goals: Achieving EO B-16-16

- Providing fleet charging opportunities furthers achievement of the 10% ZEV procurement rule in Executive Order B-16-12

IT IS FURTHER ORDERED that California's state vehicle fleet increase the number of its zero-emission vehicles through the normal course of fleet replacement so that at least 10 percent of fleet purchases of light-duty vehicles be zero-emission by 2015 and at least 25 percent of fleet purchases of light-duty vehicles be zero-emission by 2020. This directive shall not apply to vehicles that have special performance requirements necessary for the protection of the public safety and welfare.

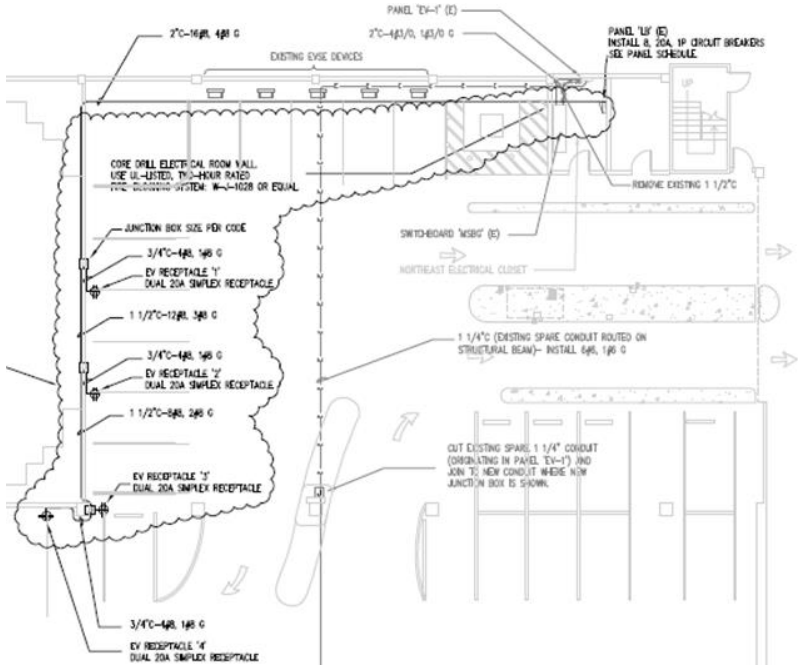
DGS EVSE Program
Question 5. Public Policy Goals: Achieving EO B-16-16

- Providing workplace charging to enable ZEV ownership by multi-family building residents.

IT IS FURTHER ORDERED that these entities establish benchmarks to help achieve by 2025:
• Over 1.5 million zero-emission vehicles will be on California roads and their market share will be expanding; and
• Californians will have easy access to zero-emission vehicle infrastructure; and

DGS EVSE Program
Question 5. Public Policy Goals: Level 1 Workplace Charging

- Installed outlets at designated spaces
- No time limits
- No cost recovery
- Immediate adoption
- L2 Availability Increase



DGS EVSE Program Questions/Answers

Program Team

- Matt Henigan, Deputy Secretary for Sustainability
  Government Operations Agency
  (916) 651-9063

- Glenn Connor, Project Director
  Department of General Services
  (916) 375-4903