CALIFORNIA ENERGY COMMISSION

California Energy Commission

Clean Transportation Program

FINAL PROJECT REPORT

Upgrade Electric Charging Infrastructure at the Sacramento State Garage

Prepared for: California Energy Commission

Prepared by: California Department of General Services

Gavin Newsom, Governor

January 2020 | CEC-600-2020-034

California Energy Commission

Richard Shedd – Assistant Chief
Primary Author

Department of General Services
Office of Fleet and Asset Management
1700 National Drive
Sacramento, CA 95834

Agreement Number: ARV-12-011

Aida Escala
Project Manager

John P. Butler II
Acting Office Manager
ADVANCED VEHICLE INFRASTRUCTURE OFFICE

Kevin Barker
Deputy Director
FUELS AND TRANSPORTATION

Drew Bohan
Executive Director

PREFACE

Assembly Bill 118 (Núñez, Chapter 750, Statutes of 2007) created the Clean Transportation Program, formerly known as the Alternative and Renewable Fuel and Vehicle Technology Program. The statute authorizes the California Energy Commission (CEC) to develop and deploy alternative and renewable fuels and advanced transportation technologies to help attain the state's climate change policies. Assembly Bill 8 (Perea, Chapter 401, Statutes of 2013) reauthorizes the Clean Transportation Program through January 1, 2024, and specifies that the CEC allocate up to $20 million per year (or up to 20 percent of each fiscal year's funds) in funding for hydrogen station development until at least 100 stations are operational.

The Clean Transportation Program has an annual budget of about $100 million and provides financial support for projects that:

- Reduce California's use and dependence on petroleum transportation fuels and increase the use of alternative and renewable fuels and advanced vehicle technologies.
- Produce sustainable alternative and renewable low-carbon fuels in California.
- Expand alternative fueling infrastructure and fueling stations.
- Improve the efficiency, performance and market viability of alternative light-, medium-, and heavy-duty vehicle technologies.
- Retrofit medium- and heavy-duty on-road and nonroad vehicle fleets to alternative technologies or fuel use.
- Expand the alternative fueling infrastructure available to existing fleets, public transit, and transportation corridors.
- Establish workforce-training programs and conduct public outreach on the benefits of alternative transportation fuels and vehicle technologies.

To be eligible for funding under the Clean Transportation Program, a project must be consistent with the CEC's annual Clean Transportation Program Investment Plan Update. The CEC issued PON-11-602 to provide funding opportunities under the Clean Transportation Program for alternative fuels infrastructure. In response to PON-11-602, the recipient submitted an application which was proposed for funding in the CEC's notice of proposed awards March 21, 2012, and the agreement was executed as ARV-12-011 on December 11, 2012.

ABSTRACT

This report describes how the Department of General Services, Office of Fleet and Asset Management upgraded nine legacy paddle-type inductive electric vehicle charging stations at the state garage in Sacramento, using $39,427 in grant funds from the California Energy Commission. Match funding from the Department of General Services of $375,083 was used to purchase ten Nissan Leafs for the fleet rental pool. These upgraded, contemporary Level 2 charging stations now support the latest plug-in electric vehicles being acquired by the Department of General Services and rented to state employees for daily business trips. This project is demonstrating how electric vehicles can meet state business needs, thereby bolstering support for widespread adoption. This project is also assisting state government reduce its petroleum consumption and helping to curtail greenhouse gas emissions.

Between March and August 2013, the nine new charging stations provided through this project have logged 632 charging events for over 14,553 hours. Since the Department of General Services acquired the electric vehicles for the rental pool in late December 2012, the vehicles have amassed 14,346 miles. According to fueleconomy.gov, this has resulted in displacing 588 gallons of regular gasoline, when compared to a 2012 Chevrolet Impala using regular unleaded fuel. This equates to lowering greenhouse emissions by 5.2 metric tons of carbon dioxide (CO2). As an added benefit, this project is demonstrating the value and feasibility of communal charging stations that support both fleet and employee electric vehicles via synchronized access. The significance of a shared use strategy cannot be overstated in light of two Executive Orders issued by Governor Brown in 2012: B-16-12 and B-18-12. One public policy accelerates the integration of battery electric vehicles in state government, while the other policy promotes battery electric vehicle adoption by state employees and the public by making charging stations readily accessible at state buildings. Sharing limited charging resources is fundamental to expanding electric vehicle acceptance in California.

Keywords: California, energy, PEV, electric vehicle, charging station, infrastructure

Please use the following citation for this report:

Shedd, Richard. 2020. *Upgrade Electric Charging Infrastructure at the Sacramento State Garage*. California Energy Commission. Publication Number: CEC-600-2020-034.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

Page

EXECUTIVE SUMMARY

The purpose of this project is to upgrade the legacy paddle-type inductive electric charging infrastructure at the Department of General Services Sacramento State Garage with charging stations to support the plug-in electric vehicles that the Department of General Services is acquiring for the state rental car fleet. By introducing electric vehicles into the Department of General Services rental pool, other state agencies are exposed to the environmental benefits and overall practicality of operating vehicles that do not require petroleum as their main fuel source. This, in turn, has an anticipated result of those state agencies integrating electric vehicles within their own fleets. The ultimate outcome is realized when consumption of petroleum is reduced and greenhouse gas emissions (GHG) emissions are lowered—two important public policy goals.

The Department of General Services Office of Fleet and Asset Management successfully headed this project and accomplished the goals through a public-private partnership with ChargePoint, Inc., who had recently upgraded other legacy charging stations at Department of General Services parking facilities throughout the Sacramento area. These charging stations are all on the same network that is permitting real time access to the charging stations, access controls, synchronization of charging events, and the retrieval of crucial charging data.

In late December 2012, the Office of Fleet and Asset Management purchased ten Nissan Leafs amounting to $375,083 which served as match for the project, and placed eight into the Department of General Services rental car pool at the state garage. Two others were placed in long-term vehicle pools at the Department of General Services and Office of Fleet and Asset Management headquarters respectively. Between March and May 2013, ChargePoint, Inc. installed nine Level 2 charging stations at the state garage. Prior to the electric charging stations being installed, the vehicles were re-charged at charging stations in the adjacent parking facility next door to the state garage and/or by accessing existing 120-volt wall sockets throughout the building. While this makeshift method of re-charging allowed the Office of Fleet and Asset Management to get the new electric vehicles into service right away, it was not optimal from a logistical standpoint. The vehicles, however, became an instant success with the Department of General Services customers and instantaneously began broadening the acceptance of electric vehicles. Between December 2012 and July 2013, the Department of General Services fleet of eight electric vehicles at the state garage has been checked out 796 times and accumulated 14,346 miles of service.

Fueling vehicles with electricity rather than petroleum offers many advantages such as less criteria pollutants, reduced petroleum consumption, reduced GHG emissions, and increased energy security. Between March and August 2013, the nine new charging stations provided through this project have logged 632 charging events for over 14,553 hours. According to fueleconomy.gov, operating the electric fleet has thus far resulted in displacing 588 gallons of regular gasoline. This is compared to another state sedan, the 2012 Chevrolet Impala, using regular unleaded fuel. This equates to lowered GHG emissions by 5.2 metric tons of carbon dioxide (CO2).

After deploying the electric vehicles in the Department of General Services rental pool, the Office of Fleet and Asset Management gained additional knowledge about their rental use and recharging patterns. Many of the vehicles were being checked out multiple times each day and required frequent access to dedicated chargers between trips. A few others, however, were dispatched in the morning and didn't return to the state garage until the end of the work day when they would be recharged overnight and ready for dispatch the next day. The Office of Fleet and Asset Management upgraded four of the chargers in this project with card key access at no cost in order to provide workplace charging for employees' electric vehicles too. Between the hours of 8 AM and 5 PM, while the rental vehicles remain in the field, their respective chargers are now available as workplace charging stations for state employees who park at the Sacramento state garage.

CHAPTER 1

1.1 Purpose of the Project

The Department of General Services Office of Fleet and Asset Management's (OFAM) strategic plan to reduce petroleum use and lower greenhouse gas (GHG) emissions, calls for integrating plug-in hybrid electric vehicles and battery electric vehicles into the Department of General Services (DGS) rental fleet that is used by all state agencies. To do so required the upgrading of existing legacy charging infrastructure at the Sacramento state garage, shown in Figure 1, with the new generation electric charging stations to provide recharging support for the modern-day vehicles.

In 2006, California's landmark Global Warming Solutions Act (AB 32) was enacted to mitigate and reduce California's GHG emissions. In 2012, Governor Brown issued Executive Order B-16-12 ordering state agencies to begin transitioning their fleets away from internal combustion engines that depend on petroleum. The ultimate goal is to use zero emission vehicles that use no petroleum based fuel.

OFAM has a long tradition of renting alternative fuel vehicles to state employees from the DGS garage as well as providing the alternative fuels necessary to refuel them. State agencies interested in alternative fuel vehicles have long been able to rent compressed natural gas or flex fuel (E85) vehicles from DGS and refuel them at the state garage. In the late 1990s, the state garage also rented electric vehicles. These vehicles had their own charging stations as part of the electric vehicle (EV) Sacramento demonstration project. This project was initiated by the Energy Commission in 1995 with support from the California Air Resources Board, local air quality management districts, and utility companies. The goal was to place 2000 electric vehicles in fleets by 1997. Although that pilot ended over a decade ago, the electrical backbone for the charging infrastructure remained intact and would serve as the foundation for this project, beginning in 2012, to modernize the electric charging stations.

Figure 1: Sacramento State Garage, 1416 Tenth Street

Source: DGS

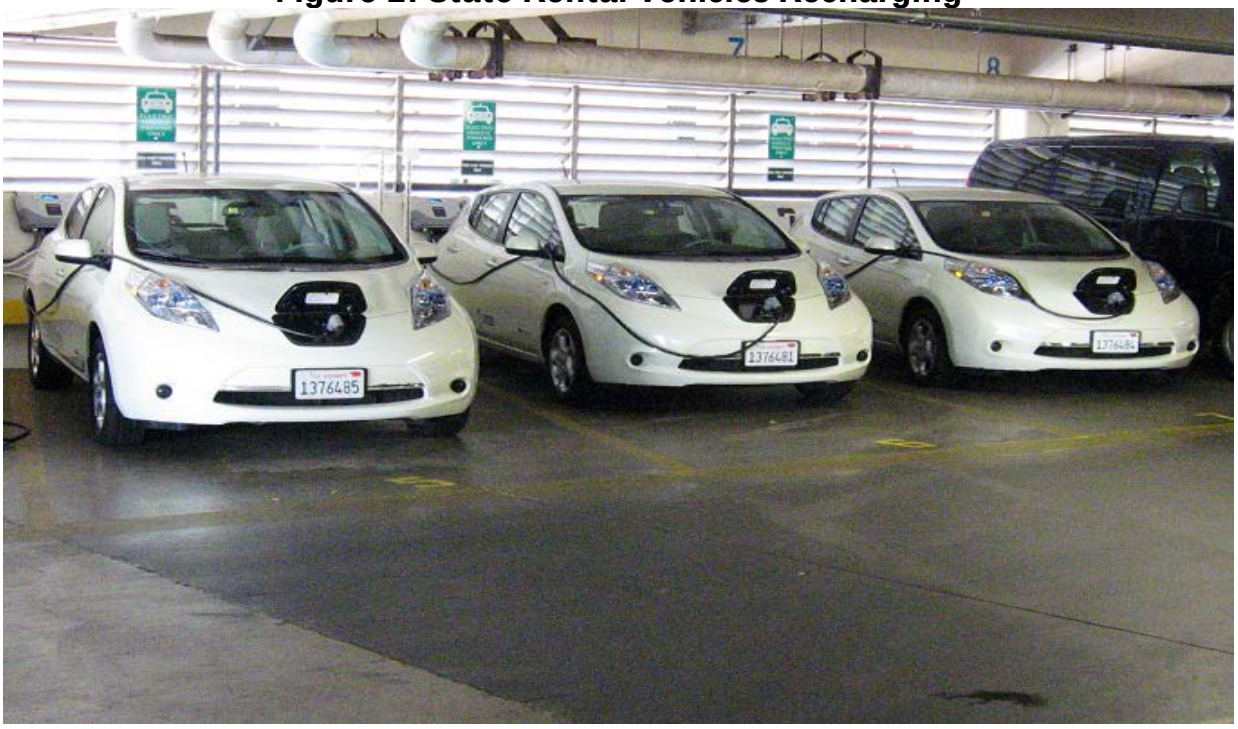
The purpose of this project is to upgrade the electric charging infrastructure at the Sacramento State Garage, procure and install nine new generation electric charging stations, and acquire ten new electric vehicles for the DGS rental fleet. This project helps DGS to reduce its consumption of petroleum and lower GHG emissions, and, ultimately, benefits the state at large by exposing a large number of state agencies to electric vehicles through the DGS rental car program. The anticipated result of that exposure is that other state agencies become familiar and comfortable with this advanced technology, and subsequently begin assimilating electric vehicles within their own fleets.

A third benefit emerged once the project was underway when OFAM identified that workplace and fleet charging could, and should, coexist through a shared synchronization of the fleet charging stations. Although this benefit was not conceived in the project originally, it nevertheless is considered a value added proposition and furthers the common goals found within Executive Order's B-16-12 and B-18-12 to accelerate zero emission vehicle adoption throughout California as a climate change abatement strategy. Ultimately, the strategy of fueling vehicles with electricity rather than petroleum offers many advantages, such as: less criteria pollutants, reduced petroleum consumption, reduced GHG emissions, and increased energy security.

1.2 Acquire Battery Electric Vehicles and Install Charging Stations

In December 2012, OFAM purchased ten Nissan Leafs for $375,083 and placed eight into the daily rental car pool at the state garage. Two others were placed in monthly rental pools at DGS and OFAM headquarters respectively. Between March and May 2013, nine ChargePoint, Inc. charging stations were installed at the state garage for a cost of $39,427 (Figure 2).

Figure 2: State Rental Vehicles Recharging



Source: DGS

The nine Level 2 electric charging stations were equipped with modems for real-time data transfer and utilized the standard SAE J1772 couplers necessary to charge the modern-day electric vehicles. The ChargePoint, Inc. electric charging stations with network service provides OFAM with the ability to measure the amount of electricity, charging intervals, access controls, payment options, and robust reporting to effectively manage all the chargers throughout OFAM's Sacramento network. OFAM is able to measure the amount of electric energy being used by the electric vehicles accessing the nine charging stations at the state garage as well as the commensurate amount of petroleum and GHG emissions being reduced.

Since their arrival, the electric vehicles have been warmly received by state employees and quickly became the preferred vehicles for day trips within their range (approximately 73 miles round trip).

1.3 Workplace Charging Through Shared Use

Once OFAM had acquired and deployed the Nissan Leafs in the DGS rental pool, new knowledge was gained about their utilization and recharging patterns. Many of the electric vehicles were being checked out multiple times each day and required frequent access to dedicated chargers between trips (Figure 3). Some others, however, were being dispatched in the morning and returned to the state garage at the end of the work day. These were recharged overnight and ready for dispatch the next day.

Four of the chargers in this project provided an opportunity to demonstrate the shared use concept to recharge fleet electric vehicles as well as state employee electric vehicles. Between the hours of 8 AM and 5 PM some of the DGS electric vehicles remained in the field and their respective chargers would sit idle until the vehicles returned to recharge overnight. This usage pattern provided an opportunity to offer limited workplace charging for state employees that also parked at the Sacramento state garage during the time of day when four of the DGS electric vehicles typically would not return for recharging.

Because Executive Order B-18-12 requires workplace charging at state buildings, OFAM sought to accommodate shared use for this purpose. OFAM upgraded four charging stations at no additional cost to include the card key access option that could be used by employees accessing the chargers (Figure 4). OFAM believes this approach added an additional element of high-value to the project by demonstrating how a finite number of electric charging stations can serve more than one purpose. Making four chargers dual purpose now serves both the recharging needs of the fleet vehicles as well as electric vehicles belonging to state employees. This is consistent with the purpose of the project and Executive Order's B-16-12 and B-18-12, to expand zero emission vehicle adoption in California.

Figure 3: Dedicated Fleet Charging Stations without Card Key Access

Source: DGS

Figure 4: Dual Purpose Workplace/Fleet Charging Stations w/Card Key Access

Source: DGS

DGS also believes that this dual use approach will serve as a model for other state agencies that are obligated to implement both executive orders. Fleet vehicles are more likely to be in the field during the day and can recharge overnight, while workplace charging for employees is more likely to occur during the day when fleet chargers may sit idle. This shared approach will more rapidly expand workplace charging by leveraging the fleet charging infrastructure

that is being deployed. The sharing of charging units where practical is a cost effective and efficient use of limited charging resources at state facilities. OFAM continues to use all the chargers that are part of the project, but with the flexibility for employees charging when fleet vehicles are in the field.

This charging network funded by the Energy Commission allows OFAM to collect data, control access, regulate charging, and develop robust reports. Because only minor electrical upgrades were needed to accommodate the new charging stations at the Sacramento state garage, the project was accomplished for just $39,427, out of total available funding of $41,475.

This project is now broadening the acceptance of electric vehicles by state agencies and the public. The electric vehicles acquired for the DGS rental pool have been widely embraced by customers. Acceptance of new technology requires early adopters to demonstrate its feasibility and value. OFAM historically uses the DGS rental car fleet to infuse new vehicle technology into the consciousness of state employees and, in turn, the public. Over the past twenty years, OFAM has led the introduction of methanol, propane, battery-electric, compressed natural gas, plug-in hybrid electric, hydrogen fuel-cell, and ethanol vehicles into the state fleet. This tradition continues with the next generation of electric vehicles being introduced into the DGS rental fleet. OFAM is now providing high visibility for electric vehicles by renting them to state employees for local business trips. OFAM has now reintroduced electric vehicle charging at the state garage for state fleet vehicles as well as state employees.

CHAPTER 2

2.1 Project Results

In late December 2012, OFAM purchased ten Nissan Leafs and placed eight into the DGS daily rental car pool at the state garage. Two others were placed into long-term pool assignments at DGS and OFAM headquarters respectively. Between March and May 2013, ChargePoint, Inc. installed nine charging stations at the state garage. Prior to the electric chargers being installed, the vehicles were re-charged at charging stations in the adjacent parking garage which is next door to the state garage or by using existing wall sockets throughout the state garage. While this makeshift method of re-charging allowed OFAM to get the new electric vehicles into service right away, it was not optimal from a logistical standpoint. Staff resources were required to shuttle vehicles to and from the neighboring building after 5 PM and before 7 AM to avoid conflicts with the employee and public charging units. When necessary, the vehicles were also plugged into available 120-volt circuits at the state garage. However, the longer recharge times from the Level 1 performance meant that some vehicles may not have fully recharged when dispatched to a rental customer. In these cases, customers were advised of abbreviated range and used the vehicles for shorter trips accordingly. The vehicles, however, were an instant success with DGS' customers and immediately began broadening the acceptance of electric vehicles with state agencies in the Sacramento area.

2.2 Number of Fleet and Employee Vehicles Fueled

Between March and August 2013, eight fleet electric vehicles and two employee electric vehicles have accessed the charging stations at the Sacramento state garage. Beginning in August 2013, three new Ford Focus battery electric vehicles were added to the DGS rental pool and will now recharge using these chargers.

2.3 Number of Days Vehicles are Fueled

Between March and August 2013, the eight fleet electric vehicles and two employee electric vehicles have utilized the charging stations a total of 495 days, as shown in Table 1.

Table 1: Charging Station Days

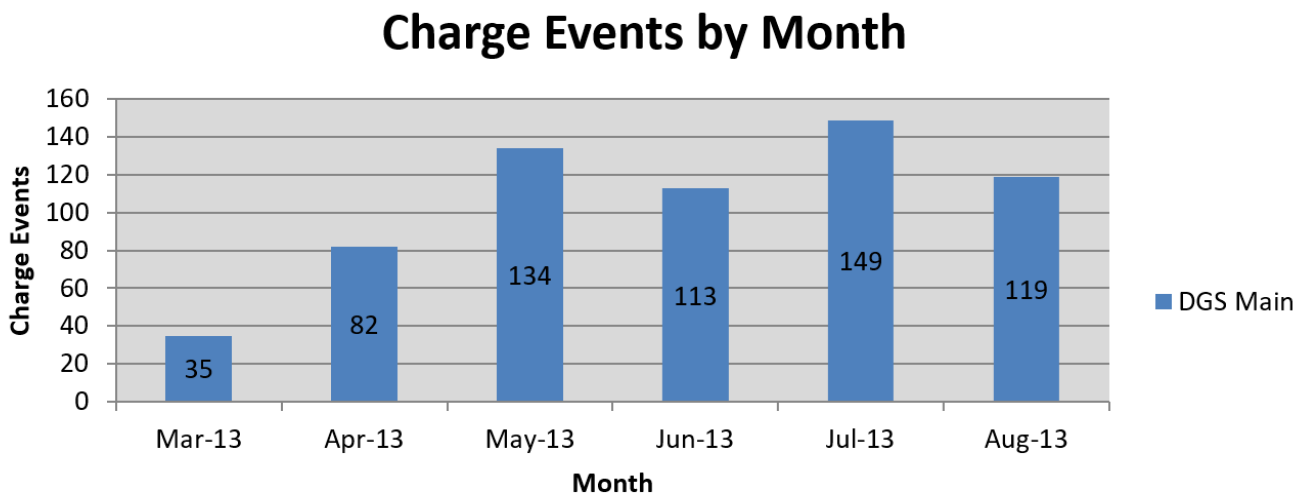
Date	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Aug-13	Total
Station 1	0	0	5	7	15	9	36
Station 2	0	0	10	11	13	11	45
Station 3	0	0	9	16	11	12	48
Station 4	0	0	8	11	11	11	41
Station 5	4	13	18	12	13	12	72
Station 6	4	16	18	11	9	11	69
Station 7	5	9	11	12	15	11	63
Station 8	3	13	11	11	14	7	59
Station 9	4	15	15	10	10	8	62
Total	20	66	105	101	111	92	495

Source: ChargePoint, Inc.

2.3 Number Charging Events

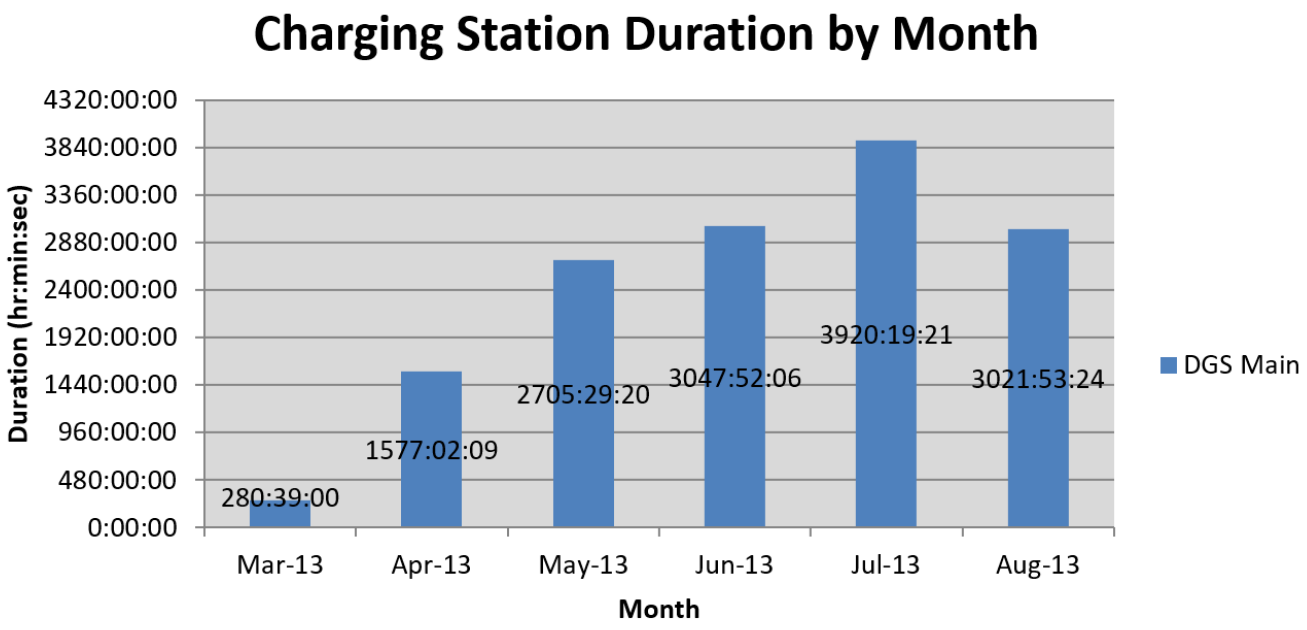
Between March and August 2013, the nine new charging stations provided through this project have logged 632 charging events for over 14,553 hours. This data is shown in Figures 5 and 6.

Figure 5: Charge Events by Month



Source: ChargePoint, Inc.

Figure 6: Charging Station Duration by Month



Source: ChargePoint, Inc.

2.4 Maximum Capacity of the New Fueling System

Each of the nine charging stations at the Sacramento state garage has the maximum capacity to re-charge two fully discharged vehicles and one half-discharged vehicle within a 24 hour period or a total of 22.5 vehicles for the nine stations. This calculation is based on connecting one fully discharged vehicle to a single charger between the hours of 7 AM-3 PM; switching to a half-discharged vehicle between 3 PM-7 PM; then connecting another fully discharged vehicle between the hours of 7 PM-7 AM.

2.5 Gallons of Gasoline Displaced

Since DGS acquired the electric vehicles and placed eight into the state rental pool in late December 2012, the vehicles have amassed 14,346 miles. According to fueleconomy.gov, this has resulted in displacing 588 gallons of regular gasoline—compared to a 2012 Chevrolet Impala using regular unleaded fuel.

2.6 Emissions Reductions

Displacing 588 gallons of regular gasoline equates to lowering GHG emissions by 5.2 metric tons of CO2. According to fueleconomy.gov, the only GHG emissions associated with electric vehicles are those from the production of electricity. Based on this project's location of Sacramento, California, fueleconomy.gov rates the Nissan Leaf's CO2 emissions from electricity production at 120 grams per mile. This compares to 500 grams per mile for the average gasoline powered car of similar size. There are no tailpipe emissions associated with these electric vehicles.[1]

2.7 Duty Cycle of the Fleet

DGS rental vehicles are typically in service for about seven years and accumulate a minimum of 120,000 miles before being retired. Between December 2012 and July 2013, the DGS fleet of eight electric vehicles at the state garage had been checked out 796 times and accumulated 14,346 miles of service. This data is shown in Table 2. In August 2013, three new Ford Focus electric vehicles are being added to the DGS rental pool.

1 Source: US Department of Energy Website (www.fueleconomy.gov) using 14,000 miles for a 2012 Nissan Leaf using electricity vs. a 2012 Chevrolet Impala using regular unleaded gasoline.

Table 2: Vehicle Rentals

	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Totals
Number of vehicle rentals	25	79	164	104	101	125	110	88	796
Average transactions per day	2.3	4.0	8.6	5.0	5.3	6.0	5.8	4.16	4.48
EV mileage per month	492	1609	3166	1964	1850	1671	1820	1,774	14,346
Average mileage per vehicle	61.5	201.1	395.8	245.5	231.3	208.9	227.5	197.0	221

Source: OFAM's Fleet Focus System

2.8 Jobs and Economic Development

This project resulted in $39,427, being paid to two in-state companies: ChargePoint, Inc., of Campbell, California; and, their subcontractor, Linc Lighting and Electrical, of Pleasanton, California. These two companies installed nine new Level 2 charging stations at the Sacramento state garage and are providing the maintenance and data access. Match funding of $375,085 were used to purchase ten Nissan Leafs which were sourced from local California dealers.

2.9 Renewable Energy at the Facility

At this time there is no renewable energy being used at the Sacramento State Garage.

2.10 Source of the Alternative Fuel

The electrical power for the charging stations at the Sacramento State Garage is provided through the Sacramento Municipal Utility District.

2.11 Energy Efficiency Measures

The Sacramento state garage had a lighting evaluation performed in September 2012 by ABM Electrical Services of Pleasanton, California. Potential savings from the analysis include: a 38 percent reduction in Energy usage and $167,100 energy cost savings over a 20-year period. This and other energy efficiency measures are being considered at this time.

2.12 Future Expansion

The OFAM is in preliminary discussions with the Sacramento Municipal Utility District about a potential vehicle to grid project that would involve a large expansion of charging stations at the Sacramento state garage to accommodate over 100 electric vehicles. A project of this size

would require the Sacramento Municipal Utility District to upgrade its power supply to the building among other upgrades. Vehicle to grid is a concept that allows the transfer of electrical energy from the batteries of electric vehicles at the charging stations into the power grid under specific conditions. This pilot project is conceptual at this point and intended to demonstrate the viability for using battery electric vehicles to augment power shortages.

2.13 Project Performance

This project has met its goals and objectives through the installation of nine new Level 2 charging stations; the purchase of 10 plug-in electric vehicles (PEVs); the introduction of electric vehicles to all state agencies; the reduction of petroleum and GHG emissions; and the demonstration of co-sharing electric chargers between fleets and employees.

Fueling vehicles with electricity rather than petroleum is providing advantages such as less criteria pollutants, reduced petroleum consumption, reduced GHG emissions, and increased energy security. Between March and August 2013, the nine new charging stations provided through this project have logged 632 charging events for over 14,553 hours. Since OFAM acquired the electric vehicles and put eight into the DGS rental pool in late December 2012, the vehicles have amassed 14,346 miles. According to fueleconomy.gov, this has resulted in displacing 588 gallons of regular gasoline when compared to a common state sedan, the 2012 Chevrolet Impala, using regular unleaded fuel. This equates to lowered GHG emissions by 5.2 metric tons of CO2.

An added benefit of this project is the successful demonstration of the value and feasibility of communal charging stations that support both fleet and employee electric vehicles via synchronized access. Sharing limited charging resources is fundamental to expanding PEV acceptance in California.

GLOSSARY

CALIFORNIA ENERGY COMMISSION (CEC) - The state agency established by the Warren-Alquist State Energy Resources Conservation and Development Act in 1974 (Public Resources Code, Sections 25000 et seq.) responsible for energy policy. The Energy Commission's five major areas of responsibilities are:

1. Forecasting future statewide energy needs
2. Licensing power plants sufficient to meet those needs
3. Promoting energy conservation and efficiency measures
4. Developing renewable and alternative energy resources, including providing assistance to develop clean transportation fuels
5. Planning for and directing state response to energy emergencies.

CALIFORNIA DEPARTMENT OF GENERAL SERVICES (DGS) – Serves as business manager for the state of California. DGS serves the public by providing a variety of services to state agencies through procurement and acquisition solutions; real estate management and design; environmentally friendly transportation; professional printing, design and web services; administrative hearings; legal services; building standards; oversight of structural safety, fire/life safety and accessibility for the design and construction of K-12 public schools and community colleges; funding for school construction; and disability access.[2]

CARBON DIOXIDE (CO2) – A colorless, odorless, nonpoisonous gas that is a normal part of the air. Carbon dioxide is exhaled by humans and animals and is absorbed by green growing things and by the sea. CO2 is the greenhouse gas whose concentration is being most affected directly by human activities. CO2 also serves as the reference to compare all other greenhouse gases (see carbon dioxide equivalent).

ELECTRIC VEHICLE (EV) – A broad category that includes all vehicles that are fully powered by electricity or an electric motor.

GREENHOUSE GASES (GHG) – Any gas that absorbs infrared radiation in the atmosphere. Greenhouse gases include water vapor, carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), halogenated fluorocarbons (HCFCs), ozone (O3), perfluorinated carbons (PFCs), and hydrofluorocarbons (HFCs).

OFFICE OF FLEET AND ASSET MANAGEMENT (OFAM): provides general oversight of the state's vehicle and mobile equipment fleet, and ensures compliance with state and federal environmental, energy, and fiscal policies; the Office provides a fleet of rental cars to support state agencies' transportation needs; manages DGS' parking facilities; oversees the

2 California Department of General Services (https://www.dgs.ca.gov/)

reutilization of state and federal surplus property; disposes of state surplus property; manages the state's travel planning programs; and provides short-term warehouse services.[3]

PLUG-IN ELECTRIC VEHICLE (PEV) - is a general term for any car that runs at least partially on battery power and is recharged from the electricity grid. There are two different types of PEVs to choose from - pure battery electric and plug-in hybrid vehicles.

3 DGS Website (https://www.dgs.ca.gov/OFAM/About)