Q2 2013 Report The EV Project







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List of Acronyms

AC	Alternating Current	
ARRA	American Recovery & Reinvestment Act	
BEA	Battelle Energy Alliance	
DC	Direct Current	
DCFC	Direct Current Fast Charger	
DOE	Department of Energy	
ERM	Extended Range Mode	
EV	Electric Vehicle	
EVSE	Electric Vehicle Supply Equipment	
GPS	Global Positioning System	
INL	Idaho National Laboratory	
PEV	Plug-in Electric Vehicle	
SOC	State of Charge	
του	Time of Use	
U.S.	United States	
USD	United States Dollar	
VAC	Volts Alternating Current	

1 Introduction

1.1 About The EV Project

The EV Project is the largest electric vehicle infrastructure demonstration project in the world; designed and managed by ECOtality North America (ECOtality), with a budget of over \$230 million United States Dollars (USD), equally funded by the United States (U.S.) Department of Energy (DOE) through the American Recovery and Reinvestment Act (ARRA) and ECOtality and its partners. The EV Project will deploy and study approximately 13,000 alternating current (AC) Level 2 electric vehicle supply equipment (EVSE) charging stations for residential and commercial use, as well as 200 dual-port direct current (DC) Fast Chargers (DCFCs) in conjunction with the usage data from approximately 8,300 Nissan LEAF™, Chevrolet Volts, and Smart ForTwo Electric Drive vehicles. This project will collect and analyze data, and publish lessons learned on vehicle and EVSE use, and driver behavior. This material is based upon work supported by the DOE under Award Number DE-EE-0002194.

1.2 About the EV Project Quarterly Reports

Data gathered by The EV Project is aggregated and analyzed to provide information of interest to the general public on a quarterly basis. Idaho National Laboratory (INL) was contracted by The EV Project to conduct the majority of the data analytics. EVSE data is gathered by the ECOtality Blink network and provided to INL. Vehicle data is gathered by Nissan for the Leaf and OnStar for the Volt and then transmitted to INL.

The information presented in this report is generated by EV Project participants driving vehicles enrolled in the Project. Information is also received from EV Project participants' use of residential and non-residential EVSEs, and data collected by The EV Project EVSEs located in public and workplace locations. Use of the data requires agreements with the participants and vehicle suppliers to safeguard personally identifiable information and honor non-disclosure agreement conditions. Consequently, the data used to generate the analysis is not disclosed or generally available to the public. However, the information and plot points used to generate these reports and plots are available to the public. Requests for these plot points can be registered at http://www.theevproject.com/documents.php.

Privacy rules adopted by The EV Project allow only aggregated information to be presented. The minimum number of EVSEs or vehicles required for reporting is 10. Some regions may not be displaying certain information because the number of vehicles enrolled or the number of EVSEs of a certain type installed in the region was below the minimum requirement.

The EV Project fact sheets and reports are based on data from several different sources (vehicle and EVSE manufacturers). The multiple data streams introduce variables in reporting that do not normally occur when data is collected from a single source. Matching vehicle data to charging data, both from different data streams, results in what may seem to be reporting inconsistencies. For example, the Charging Infrastructure Summary Report, Nissan Leaf Vehicle Summary Report, and Chevrolet Volt Vehicle Summary Report are based on data from EV Project participants whose vehicles and charging units have both been used and reported data during the reporting period.

The number of Nissan Leafs and Chevrolet Volts reported represent only the number of vehicles enrolled in The EV Project. These numbers are a subset of the total number of vehicles sold.

The EV Project is an infrastructure study. No information is intended to, nor should be used to quantify vehicle or vehicle battery performance.

1.3 EV Project Status Overview

By the end of the 1st quarter 2013, new applications for residential participation were no longer accepted, because the number of applicants in the installation process was sufficient to reach the Project objectives for both vehicles and residential participants enrolled. The final residential EVSE were installed early in the 2nd quarter. The target enrollment of 8,000 residential participants was actually exceeded, with nearly 8,200 total participants enrolled. There were 554 residential and commercial EVSEs deployed during this quarter, bringing the total to 11,846 AC Level 2 and 87 DCFCs installed and providing data.

The EV Project has four major efforts: 1) planning for the public charging infrastructure; 2) deploying the public and residential infrastructure; 3) collecting data on the vehicles enrolled and EVSEs deployed; and 4) disseminating the information gained and the observations made as Lessons Learned from The EV Project via presentations, white papers, and technical reports. With the deployment nearing target, the major focus will shift toward data analysis and the dissemination of information. ECOtality and INL have identified many questions to be addressed by The EV Project data in these analyses. In the 1st quarter, The EV Project also sought the input of other interested organizations. This Peer Review and two subsequent webinars provided input to additional area of interest in the data analysis. The final plan related to the questions to be analyzed as part of The EV Project scope was published this quarter. This plan is published as "Information Dissemination Plan Presentation" on The EV Project website.



The end date for data collection for The EV Project was originally scheduled for December 31, 2012. The Project was later extended to December 31, 2013. However, several of the early residential participants' agreements included the original termination date. A request to continue their agreement was sent to all residential participants. All were encouraged to continue their contribution to the data through 2013, but some elected to terminate their participation. The EV Project began collecting vehicle and charging data in early 2011 and through the course of time, some participants have sold or wrecked their vehicles, moved out of the EV Project regions, or grown weary of granting permission to send data on every vehicle start. Consequently, data is no longer being collected from some past participants' vehicles and their residential EVSE.

1.4 EV Project Fast Facts

By the end of the 2nd quarter, 2013:

- 93 million miles recorded to date on EV Project vehicles
- Over 2.9 million charging events recorded to date
- Over 24,000 Megawatt hours of energy delivered to EV Project vehicles to date
- Over 8,100 Nissan Leafs, Chevrolet Volts, and Smart ForTwo Electric Drive vehicles participating and providing data
- Consumption of over 2.9 million gallons of gasoline has been avoided by EV Project vehicles to date
- Nearly 8,200 Residential EVSE Installed
- Over 3,750 Commercial (publicly available, workplace, and fleet) EVSE Installed
- 87 DC Fast Chargers Installed



2 EV Project Observations

Data gathered by The EV Project vehicles and EVSEs are analyzed by INL, and a significant amount of information is presented in Sections 3 through 6. Observations related to this information, including comparisons between Project regions and past reports, are provided in this section.

2.1 Project Enrollment

The number of residential participants enrolled in The EV Project exceeded the Project goal during this quarter. Additional participants will not be accepted from this point forward.

The participants by Project region are shown in Table 1.

Region	Total Leaf&Volt
Arizona	505
Los Angeles	762
San Diego	952
San Francisco	1708
Oregon	674
Wash State	1062
Tennessee	986
Texas	298
Wash DC	332
Atlanta	228
Chicago	155
Philadelphia	79

Table 1. Total Leaf and Volt Participants in The EV Project

The growth in Project participation from the first quarter 2011 is shown in Figure 1. Although The EV Project presented a consistent marketing encouragement in the project regions, the monetary incentive provided to offset installation costs was reduced in August 2012 (Q3 2012). However, Figure 1 shows this reduction had little effect on the increase in participation. It is also of interest to note the periods of higher-than-average adoption in the various regions. These increases were driven by local market forces, such as marketing efforts by vehicle dealers, electric utilities, state or local government involvement, and so on.





Figure 1. Growth of Project Participation

The total number of charging events per quarter for all AC Level 2 EVSE and DCFC are shown in Figure 2.



Figure 2. Total Charging Events by Quarter

Figure 3 shows the number of Publicly Accessible AC Level 2 and DCFC deployed and reporting data at the end of each quarter by region.



There was a 17% increase in the number of AC Level 2 EVSE and 21% increase in the number of DCFC deployed in the 2nd quarter 2013, relative to the previous quarter. The greatest increase in the number of publicly accessible AC Level 2 units occurred in Los Angeles, Arizona, and Washington State. The greatest increase in DCFCs occurred in Oregon and San Francisco.



Figure 3. Number of Publicly Accessible AC Level 2 (left) and DCFC (right) by Quarter

Most of the locations for the remaining allotment of publicly accessible AC Level 2 EVSE and DCFC have been identified. Installations are expected to be completed on these by the end of the next quarter.

2.2 Home and Away-from-Home Charging

The percentage of home charging for all regions appeared to stabilize at about 74% of all events for the Leaf and 80% for the Volt, as shown in Figure 4 and Figure 5. Likewise, the away-from-home charging stabilized at 20% and 14% of all events for Leaf and Volt respectively, as shown in Figure 6 and Figure 7. (Some charging locations are identified as "unknown," because the vehicle's location relative to its home charging location is not known due to global positioning system (GPS) data anomalies.)

When the Leaf drivers drove their vehicles, they averaged 1.1 charging events per day. For the Volt driver, the average was 1.5 charging events per day. Although Volt drivers charge their vehicles more often, they tend to take these charges at home.

Leaf drivers in Knoxville, Los Angeles, and San Francisco showed the lowest percentage of charging events at home and the greatest percentage of charging events away-from-home. Volt drivers in Phoenix, Washington State, Dallas/Fort Worth, and Philadelphia showed the greatest percentage of charging events away from home.





Figure 4. Percent Charging Events per Day at Home for the Leaf



Figure 5. Percent Charging Events per Day at Home for the Volt

Before The EV Project began collecting data, common wisdom had been that 80% of charge events for a typical driver would be at home. Data collected thus far appears to validate this assumption for the Extended Range EV (EREV), but the Battery EV (BEV) appears to charge a higher percentage of events away from home in several regions.





Figure 6. Percent Charging Events per Day Away from Home for the Leaf



Figure 7. Percent Charging Events per Day Away from Home for the Volt

2.3 DC Fast Charger Usage

Utilization of the DCFC continues to be significant. The number of DCFC in the San Francisco area increased by three (17%), yet the number of charge events more than doubled. The



number of DCFC charge events in San Diego nearly quadrupled this quarter. Figure 8 shows the number of charging events per region per quarter and the energy consumed through these DCFC charge events. The energy consumed by DCFC in San Francisco exceeded 100 MWh in this quarter.



Figure 8. DCFC Charging Events

Some DCFCs are located in travel corridors, where they provide range extension to vehicles between major metropolitan areas. Some DCFCs are used in the metropolitan areas as a backup to the AC Level 2 infrastructure grid or for a rapid recharge to "get back home."

Access fees will begin for the DCFC in the next quarter. This is likely to have an effect on utilization. Further study will be conducted by The EV Project this year on corridor effects and other factors around the utilization of DCFCs.

2.4 Travel Distances

The cumulative total distance driven by enrolled EV Project vehicles exceeded 93 million miles this quarter. It is anticipated that the 100 million miles milestone will be reached in August 2013. Figure 9 shows the relative contribution to this total by the Project regions. The average growth in miles for all regions was 24%. Because this is a cumulative number, the growth is likely to be a result of the continued use of the vehicles; the increase in the number of vehicles enrolled this quarter and the increase in average distance driven per vehicle that is noted below. This rate of growth was exceeded in Los Angeles, Tennessee, Texas, Washington DC, and the three newer regions of Atlanta, Chicago, and Philadelphia.

Figure 10 shows the growth in the miles driven in each quarter. While it had appeared that the miles per quarter had leveled by the end of 1st quarter 2013, such is not the case. A closer review of the first and second quarter revealed that there were fewer miles driven by the Volt drivers in January (an effect also seen to a lesser degree in the first quarter 2012). In addition, many Volts were added later in the quarter, which tends to reduce the average number. These vehicles only reported data for part of the quarter but were counted as if they reported in the entire quarter. Because the number of participating vehicles is now constant, the quarterly miles are anticipated to become relatively stable and data analysis clearer.





Figure 9. Cumulative Total Distance Driven by Region



Figure 10. Quarterly and Cumulative Miles Driven



Along with the overall miles increase seen in Figure 10, this quarter also saw an increase in average miles driven per Project vehicle in all of the regions. See Figure 11. The average increased to 2,234 miles per vehicle in the quarter. This would be an average of about 9,000 annual miles per vehicle.



Figure 11. Average Distance Driven by Project Vehicle

2.5 Daily Travel

Chevrolet Volt drivers generally drove approximately 39% farther each day than Nissan Leaf drivers, even within the same market area. Figure 12 shows the average distance per day by vehicle type. Leaf drivers have been quite consistent in each of the regions of The EV Project throughout the Project duration. Volt drivers have shown a slight quarterly trend toward increasing daily average usage. How use of the PEV has changed over time in terms of miles driven and in purpose is the subject of a separate report.

Note that Figure 12 shows continued exceptionally high distance driven by Volt drivers in Chattanooga. This could be the result of the small sample size in that region, although this region also has the highest average trip distances and distances between charging events.





Figure 12. Average Distance per Day for Leaf and Volt

Although the Volt driver generally drives about 10 miles farther each day than the Leaf driver, the average distance driven between charge events is strikingly similar between Leaf and Volt drivers, except for Chattanooga. See Figure 13.





Figure 13. Average Distance Traveled between Charging Events for Leaf and Volt



2.6 Charge Events

The number of residential EVSE deployed is now constant as full enrollment has been achieved. The number of residential charge events reflects the final addition of participants. See Figure 14. It is expected the numbers will remain fairly constant now until the end of the Project. The total number of residential charge events has exceeded 2.6 million events.



Figure 14. Number of Residential and Public AC Level 2 EVSE Charge Events

The number of public charging events increased as the number of EVSE and vehicles increased. See Figure 15. This counts all events from EV Project participants and other PEV drivers.





Figure 15. Publicly Accessible EVSE Charge Events

The number of charge events for workplace and fleet EVSEs have been subtracted from the above events, as well as those events recorded by car sharing programs. This is discussed further in Section 2.8 below.

2.7 Publicly Accessible AC Level 2 Utilization

Utilization of the public infrastructure is a subject of high interest to many. Special reports are being prepared on the subject, to be posted with the other documents on <u>The EV Project</u> <u>website</u>. A first look at utilization by venue type is scheduled to be posted to the website in the next quarter. Figure 16 shows the average number of charge events per EVSE per quarter by region for the last several quarters.





Figure 16. Average Number of Charge Events per Public AC Level 2 per Quarter

Usage per EVSE helps to eliminate regional bias based upon quantity of EVSE installed and would appear to be more related to the regional differences in using this public infrastructure. At the same time, there are many sites where more than one EVSE is installed. Utilization at the site, rather than the EVSE, will be the considered in the special reports noted above.

Most regions continue to show increases in utilization, but some regions show very little use. Chattanooga, Tucson, and Houston show the least number of public charging events. The EV Project participants will be surveyed on their use and attitudes toward public charging in the next quarter. A report will be posted to The EV Project website following that survey. It is expected that the public AC Level 2 EVSE target deployment will be achieved in the 3rd quarter, 2013.



2.8 Car Sharing Programs

Car2Go added another 10 PEVs to their already large fleet of EVs in the car share program during the quarter. At the end of the quarter, there were 333 vehicles in San Diego charging at the public infrastructure along with fleet EVSE locations. In addition, there were 30 Car2Go vehicles in Portland. Of the publicly accessible AC Level 2 EVSEs in the San Diego area, 27% of the charge events performed and 35% of the energy consumed were by these car share vehicles. Of the private non-residential EVSEs in San Diego, the Car2Go fleet consumed 85% of the charge events and 92% of the energy. Of the publicly accessible EVSEs in Oregon, 2% of the charge events and 5% of the energy were consumed by these car sharing vehicles. Of the private non-residential EVSEs in Oregon, 33% of the charging events and 44% of the energy consumed were by car share vehicles. It is noted that in Figure 17, the private non-residential EVSEs were counted with publicly accessible EVSEs through the 2nd quarter, 2012.





The influence in the number of public AC Level 2 charge events by the car sharing program is dramatic. This will be the subject of a separate report by The EV Project.

The following plots show the percent of publicly available EVSEs where a PEV was connected and the total power drawn by the EVSE throughout a typical weekday in this quarter. These time-of-day plots are taken from Section 4 Infrastructure Report of this report and explained more fully in Section 2.9 below. In San Diego (see Figure 18), the median percent of EVSEs connected to vehicles (black curve, left plot, Figure 18) hits about 15%, whereas in the Seattle area (see Figure 19), a similar sized EV market, the median value hits about 8% of the total EVSEs. The peak time of connected PEVs is also different. The peak hits in San Diego approximately 2 PM, whereas the peak in Seattle hits approximately 10 AM. The car sharing program then increases the number of public EVSE that are being used and shifts the typical connect times to the early afternoon.





Figure 18. Weekday Charging Availability (left) and Charging Demand (right) in San Diego





The effect on the grid through the electricity demand also shows the impact of these car sharing vehicles. The median power demand value in San Diego (black curve, right plot, Figure 18) during the day reached about 120 kW, whereas the median value in the Seattle area reached about 60 kW -- again with the shift in time of day.

Car2Go in San Diego has plans to add more EVs to the fleet as well as add a dedicated charging depot. This will affect future reports related to private non-residential and public infrastructure charging and energy events.

2.9 Charging Availability and Charging Demand

The Infrastructure Report (Section 4) provides plots of Charging Availability (percent of charging units with a vehicle connected versus time of day) and Charging Demand (range of aggregated electricity demand versus time of day). These plots show the range of both metrics over all the days in the quarter by hour of the day. The median value is shown along with the inner quartiles. Some observations relative to these plots are shown in Figure 20 and Figure 21, and are also included below.



Figure 20. Residential Charging Availability – All Regions



Figure 21. Residential Charging Demand – All Regions

It is useful to compare the charging availability across all regions of The EV Project. Plug-in electric vehicle (PEV) drivers in all regions followed essentially the same behavior, in that the majority of drivers connected their vehicle to their residential charger when they arrived home in the late afternoon and evening. This is shown in Figure 20 with the rising percentage of residential EVSE that are connected to the PEVs. The charging demand shown in Figure 21 is also of interest and this plot for all regions shows the significance of the utility time of use (TOU) rate structure. For those regions without TOU rates, charging began immediately upon connection, and thus the demand increased when the vehicles were plugged in. This can be seen in Figure 21 as the demand begins rising as the vehicle plug in starting about 5 PM.(17:00 hours). However, in regions where the electric utility provided TOU rates, the driver typically programmed the EVSE or PEV to begin charging at the time the lower rate started. This is typically at midnight and is reflected by the spike in demand at midnight in Figure 21. Check the individual regional reports for the demand in each region.

Private non-residential EVSEs include workplace and fleet applications. See Figure 22. Note that the number of vehicles connected increased through the morning hours and decreased as the workday ended. Some EVSEs were connected overnight, which was likely for fleet applications. The demand curve follows the same scenario, as vehicles immediately charged upon connection. There is a slight dip in the median value for connected EVSE at noon, likely due to vehicles disconnected for lunch. The demand curve shows the vehicles connected before lunch may have been fully recharged as the demand decreases before lunch, but then increases again after lunch. For locations where there were substantial numbers of fleet or workplace EVSEs, PEV charging created demand during the electric utility's peak periods. The charging demand curve shows a decline in demand as the workday ended, because vehicles were likely fully charged by this time with these AC Level 2 units.



Figure 22. Private Non-Residential Level 2 Availability (left) and Demand (right) – All Regions

Figure 23 shows the effects of PEV drivers that used publicly accessible EVSE units. Some regions showed a more pronounced rise in availability about 1 PM, but it is interesting to note that most of the public use occurred before noon. Likewise, most of the demand was before noon, since these vehicles would typically charge immediately upon connection. The PEV drivers' use of publicly accessible EVSEs was based upon their desire to obtain some level of recharge for their battery while at the public location.



Figure 23. Publicly Accessible AC Level 2 Availability (left) and Demand (right) - All Regions

The variability in the DCFC availability and demand is shown in Figure 24 by the numerous peaks and valleys in the aggregated data. This is due to the short duration and high power demand of DCFC events. Additional study will be performed on the DCFC during the Project, since its use is significant and many PEV drivers look for more units in their regions. Many of the regions now contain DCFCs, but there may be insufficient numbers to aggregate for the individual regional reports. Note that the use of DCFCs rose during the day and declined at night, as would be expected. The corresponding rise of daytime charging demand occurred during the electric utility's peak periods.



Figure 24. DCFC Availability and Demand – All Regions

3 EV Project Overview Report

3.1 Introduction

The purpose of the Overview Report is to communicate how many charging units and vehicles reported usage data in each of the project's regions. The report also briefly summarizes how much these charging units and vehicles were used to date. The following are points to keep in mind when reading the Overview Report:

- The Overview Report provides cumulative data from the start of the Project. The Infrastructure and Vehicle Reports provide data from the current quarter.
- The Overview Report identifies all EVSEs that have reported a charging event in The EV Project areas. Additional public EVSEs that have been installed but have not reported into the Blink network are not included in this report.
- The Overview Report counts the vehicles enrolled in The EV Project from which data was received. This report includes all reported miles driven, irrespective of whether charging data from a vehicle's residential EVSE was reported, and without regard to when the vehicle entered The EV Project.
- The Overview Report lists electricity consumed by EV Project EVSEs when charging vehicles and miles driven by EV Project vehicles. EV Project EVSEs may be used by vehicles that are not part of the EV Project. Likewise, EV Project vehicles may connect to non-EV Project charging units or standard 120-volts alternating current (VAC) outlets whose usage is not being monitored. Therefore, vehicle and charging infrastructure usage shown on this report are not directly comparable. The vehicles' miles driven cannot be divided by the EVSEs energy consumed to calculate the vehicles' average miles-per-kilowatt-hour efficiency.

3.2 Report

The EV Project Overview Report is included as Appendix A. To view the Overview report, click here.

4 EV Project EV Charging Infrastructure Report

4.1 Infrastructure Report Notes

The EV Charging Infrastructure Report provides detailed descriptions of how EVSE units were used in each of the project's regions. Up to nine pages of information are provided for each of the project's regions and for all the regions combined. EVSEs are grouped by type, including residential, private non-residential, publicly accessible Level 2 (240 volt), and publicly accessible DCFCs. The private non-residential group contains EVSEs that are located in commercial or public settings, but whose access is limited to certain individuals, such as corporate fleet drivers or company employees. Some publicly accessible EVSEs are located at workplaces. The majority of the public EVSEs are located at non-workplace venues.

For each region and nationally, aggregate usage metrics are provided for each of the EVSE type groups to quantify how much the EVSEs were used. These metrics include the number of charging events performed and energy transferred in the reporting quarter. The time the EVSEs were used relative to the total time they were available for use is presented with two metrics: 1) the percentage of time the EVSEs were connected to vehicles; and 2) the percentage of time the EVSEs were the EVSEs were power.

The question of how often EVSEs were used is answered in two ways: 1) aggregate metrics are broken out separately to describe weekday and weekend usage, and 2) a metric is provided to quantify the average number of charging events per EVSE per day. Because charging events can span multiple days, this metric is calculated using the charging event start time.

Because EVSEs may be used differently, depending on the make and model of the vehicle being charged, information is provided to quantify the amount of charging performed by Nissan Leafs and Chevrolet Volts enrolled in The EV Project. An additional category is provided to quantify the amount of charging performed by vehicles that are not part of The EV Project, whose makes and models are not known. In select regions, EVSEs are also used by PEVs in car-sharing fleets. The amount of charging performed by these vehicles is also noted. It is recognized that some EV Project participant households may have more than one PEV. The EV Project residential EVSE cannot identify which vehicle is being charged, so all charging at residential EVSEs is assumed to be performed by Nissan Leaf or Chevrolet Volt enrolled in The EV Project.

Individual charging event statistics are provided to shed light on the nature of the individual events underlying the aggregate usage metrics. These metrics describe how long an EVSE was connected to a vehicle per plug-in event, how long the EVSE transferred power per plug-in event, and how much energy was transferred per plug-in event.

Finally, charging availability and charging demand versus the time of day for weekdays and weekend days are depicted visually for each of the EVSE type groups and for all EVSEs combined. Charging availability is defined as the percent of EVSEs connected to vehicles at a given time of day. Charging demand is defined as the total power demanded by all EVSEs of a certain type or in a certain region at a given time. Charging availability and demand plots were designed to show the range of vehicles connected and charging demand at a given time of day across all the days in the reporting period.

In the Charging Infrastructure Summary Report, the weekend is defined as the period from 6 AM Saturday to 6 AM Monday. The weekday period is from 6 AM Monday to 6 AM Saturday. This allows charging performed on Friday night/Saturday early morning to be included in the weekday metrics and plots. This is important because charging started on Friday night, which continues past midnight into Saturday, is affected by the amount of driving during the day on Friday (a weekday). Grouping the Saturday early-morning charging with other weekday charging provides a more intuitive link between driving and charging behavior. In a like manner, the charging performed on Sunday night/Monday early morning is included in the weekend metrics and plots.

4.2 Regional Reports

The EV Charging Infrastructure Report is provided as Appendix B. You may select the specific Region of interest by clicking on that region below.

Region: All

Region: Phoenix, AZ Metropolitan Area Region: Tucson, AZ Metropolitan Area Region: Los Angeles, CA Metropolitan Area Region: San Diego, CA Metropolitan Area Region: San Francisco, CA Metropolitan Area Region: Washington, D.C. Metropolitan Area Region: Oregon Region: Chattanooga, TN Metropolitan Area Region: Knoxville, TN Metropolitan Area Region: Memphis, TN Metropolitan Area Region: Nashville, TN Metropolitan Area Region: Dallas/Ft. Worth, TX Metropolitan Area Region: Houston, TX Metropolitan Area **Region: Washington State** Region: Chicago, IL Metropolitan Area Region: Atlanta, GA Metropolitan Area Region: Philadelphia, PA Metropolitan Area

5 EV Project Nissan Leaf Vehicle Report

5.1 Nissan Leaf Report Notes

The Nissan Leaf Summary Report provides information to quantify the driving and charging behavior of Nissan Leaf drivers in The EV Project. Conventional travel behavior metrics are provided, such as the total miles driven, average trip distance, and distance traveled per day. Additional metrics are provided to describe the frequency by which the vehicles were charged, such as the number of charging events per day and the distance traveled between charging events.

Leaf driver preference for charging location is presented with the number and percent of charging events performed at home and at away-from-home locations. Away-from-home locations could be Level 2 (240 volt) or DCFC public charging stations or any conventional Level 1 (120 volt) outlet. Due to anomalies in GPS data, the location of the vehicles with respect to home is not known for every charging event. An additional location category is provided to quantify the number of events at an unknown location.

The Nissan Leaf Summary Report also quantifies the variation in state-of-charge (SOC) before and after charging. This communicates "how empty" the vehicles' battery packs were before charging and "how full" they were at the end of charging.

5.2 Regional Reports

The Nissan Leaf Report is provided as Appendix C. You may select the specific Region of interest by clicking on that region below. Note that Houston is not included because the number of Nissan Leafs reporting in Houston was less than 10.

Region: All

Region: Phoenix, AZ Metropolitan Area Region: Tucson, AZ Metropolitan Area Region: Los Angeles, CA Metropolitan Area Region: San Diego, CA Metropolitan Area Region: San Francisco, CA Metropolitan Area Region: Washington, D.C. Metropolitan Area Region: Oregon Region: Chattanooga, TN Metropolitan Area Region: Knoxville, TN Metropolitan Area Region: Memphis, TN Metropolitan Area Region: Nashville, TN Metropolitan Area

Region: Dallas/Ft. Worth, TX Metropolitan Area Region: Washington State Region: Chicago, IL Metropolitan Area Region: Atlanta, GA Metropolitan Area Region: Philadelphia, PA Metropolitan Area

6 EV Project Chevrolet Volt Vehicle Report

6.1 Chevrolet Volt Report Notes

The Chevrolet Volt Summary Report provides information to quantify the driving and charging behavior of Chevrolet Volt drivers in The EV Project. Conventional travel behavior metrics are provided, such as the total miles driven in the reporting period, average trip distance, and distance traveled per day. Additional metrics are provided to describe the frequency by which vehicles were charged, such as the number of charging events per day and the distance traveled between charging events.

The Chevrolet Volt is an extended range electric vehicle which operates in EV mode or in extended range mode (ERM). In EV mode, the vehicle is powered by energy stored in its battery pack, which was charged from the electric grid. Once the battery pack is depleted, the vehicle transitions to ERM and uses a gasoline-powered auxiliary power unit for propulsion. The Chevrolet Volt Summary Report provides the total distance and proportion of distance traveled in EV and ERM mode. The report also presents aggregate fuel economy and electrical energy consumption metrics to communicate the amount of energy consumed in each mode. With fuel economy, electricity consumption, and proportion of EV versus ERM miles reported alongside other driving and charging metrics, the Chevrolet Volt Summary Report provides insight into the cause-and-effect relationship between vehicle usage, especially the amount of charging performed, and energy consumption. This information is important for determining the effectiveness of charging infrastructure in enabling EV-mode operation.

Volt driver preference for charging location is also presented by listing the number and percent of charging events performed at home and at away-from-home locations. Away-from-home locations could be Level 2 (240 volt) public charging stations or any conventional Level 1 (120 volt) outlet. Due to anomalies in GPS data, the location of the vehicles with respect to home is not known for every charging event. An additional location category is provided to quantify the number of events at an unknown location.

The Chevrolet Volt Summary Report also quantifies the variation in SOC before and after charging. This communicates "how empty" the vehicles' battery packs were before charging and "how full" they were at the end of charging.



6.2 Regional Reports

The Chevrolet Volt Report is provided as Appendix D. You may select the specific Region of interest by clicking on that region below. Note that the regions of Tucson and San Francisco are not listed because the total number of enrolled Chevrolet Volt vehicles was less than 10 in those regions.

Region: All

Region: Phoenix, AZ Metropolitan Area Region: Los Angeles, CA Metropolitan Area Region: San Diego, CA Metropolitan Area Region: Washington, D.C. Metropolitan Area Region: Oregon Region: Chattanooga, TN Metropolitan Area Region: Knoxville, TN Metropolitan Area Region: Memphis, TN Metropolitan Area Region: Nashville, TN Metropolitan Area Region: Dallas/Ft. Worth, TX Metropolitan Area Region: Houston, TX Metropolitan Area Region: Houston, TX Metropolitan Area Region: Washington State Region: Chicago, IL Metropolitan Area Region: Atlanta, GA Metropolitan Area Region: Philadelphia, PA Metropolitan Area

7 Company Profiles

7.1 About ECOtality

ECOtality, Inc. (NASDAQ: ECTY), headquartered in San Francisco, California, is a leader in clean electric transportation and storage technologies. Its subsidiary, Electric Transportation Engineering Corporation (eTec) dba ECOtality North America (ECOtality), is a leading installer and provider of charging infrastructure for PEVs. ECOtality has been involved in PEV initiatives since 1989 in North America and is currently working with major automotive manufacturers, utilities, the DOE, state and municipal governments, and international research institutes to implement and expand the presence of this technology for a greener future.

7.2 About Idaho National Laboratory (INL)

INL is one of the U.S. DOE's 10 multi-program national laboratories. The laboratory performs work in each of the DOE's strategic goal areas: energy, national security, science, and the environment. INL is the nation's leading center for nuclear energy research and development. Day-to-day management and operation of the laboratory is the responsibility of Battelle Energy Alliance (BEA).



Appendix A - EV Project Overview Report
EV Project Overview Report

Project to date through June 2013

Charging Infrastructure	Number of EV Project Charging Units	Number of Charging Events	Electricity Consumed
Region ¹	Installed To Date	Performed	(AC MWh)
Phoenix, AZ Metropolitan Area	915	169,414	1,259.24
Tucson, AZ Metropolitan Area	194	41,495	286.05
Los Angeles, CA Metropolitan Area	1,141	258,082	2,131.35
San Diego, CA Metropolitan Area	1,473	466,233	4,129.28
San Francisco, CA Metropolitan Area	2,010	591,785	5,626.31
Washington, D.C. Metropolitan Area	371	106,411	715.33
Oregon	1,181	290,325	2,257.15
Chattanooga, TN Metropolitan Area	164	28,301	229.96
Knoxville, TN Metropolitan Area	405	54,075	449.08
Memphis, TN Metropolitan Area	128	26,580	195.07
Nashville, TN Metropolitan Area	1,018	240,128	2,014.21
Dallas/Ft. Worth, TX Metropolitan Area	551	87,050	550.58
Houston, TX Metropolitan Area	256	37,324	244.96
Washington State	1,471	441,022	3,490.40
Chicago, IL Metropolitan Area	181	36,075	241.85
Atlanta, GA Metropolitan Area	328	42,075	346.98
Philadelphia, PA Metropolitan Area	146	15,412	110.72
Total	11,933	2,931,787	24,278.52

Project

Charging Unit Installation to Date by Region



venicies	Nissan Leafs	Chevrolet Volts	Smart Electric Drives	Distance
Region ¹	Enrolled to Date ²	Enrolled to Date ²	Enrolled to Date ²	(mi)
Phoenix, AZ Metropolitan Area	274	143	—	5,279,867
Tucson, AZ Metropolitan Area	80	8	—	1,078,906
Los Angeles, CA Metropolitan Area	424	338	—	8,250,790
San Diego, CA Metropolitan Area	677	275	333	15,203,231
San Francisco, CA Metropolitan Area	1,708	—	—	21,460,580
Washington, D.C. Metropolitan Area	42	290	—	3,632,640
Oregon	541	133	30	8,044,791
Chattanooga, TN Metropolitan Area	59	14	—	928,765
Knoxville, TN Metropolitan Area	96	33	—	1,797,520
Memphis, TN Metropolitan Area	54	31	—	793,452
Nashville, TN Metropolitan Area	645	54	—	7,409,754
Dallas/Ft. Worth, TX Metropolitan Area	21	186	_	2,676,950
Houston, TX Metropolitan Area	5	86	—	1,447,789
Washington State	898	164	_	12,156,789
Chicago, IL Metropolitan Area	26	129	—	1,020,726
Atlanta, GA Metropolitan Area	153	75	_	1,379,229
Philadelphia, PA Metropolitan Area	26	53	_	544,508
Total	5,729	2,012	363	93,106,288

Vehicle Enrollment to Date By Region



Note: EV Project charging units may be used by vehicles that are not part of the EV Project. Likewise, EV Project vehicles may connect to non-EV Project charging units. Therefore vehicle and charging infrastructure usage shown on this report are not directly comparable.

¹ Regions: Oregon region includes the Greater Corvallis, Eugene, Portland, and Salem Metropolitan Areas Washington region includes the Greater Seattle and Olympia Metropolitan Areas

² Vehicle enrollment numbers refer to the EV Project only. Numbers do not reflect total regional or national vehicles sales or production.



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Appendix B - EV Project EV Charging Infrastructure Report

EV Project Electric Vehicle Charging Infrastructure Summary Report

Region: ALL

U.S. DEPARTMENT OF

Report period: April 2013 through June 2013

number of EV Project vehicles in regi	511. 0150		Private	Publicly	Publicly	
Charging Unit Usage		Residential Level 2	Nonresidential Level 2	Accessible Level 2	Accessible DC Fast	Total
Number of charging units ¹		6,141	251	2,675	87	9,154
Number of charging events ²		490,327	11,948	50,729	26,911	579,915
Electricity consumed (AC MWh)		3,808.41	143.89	437.69	222.52	4,612.51
Percent of time with a vehicle connected to cha	rging unit	43%	20%	4%	5%	31%
Percent of time with a vehicle drawing power from	om charging unit	8%	9%	2%	5%	7%
Number of Charge Events Electricity Co		Consumed		Charging L	Unit Utilization	





Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³





Max percentage of charging units connected across all days Inner-quartile range of charging units connected across all days Median percentage of charging units connected across all days Min percentage of charging units connected across all days

Project

Charging Demand: Range of Aggregate Electricity Demand versus Time of Day⁴



¹ Includes charging units that reported at least one use during the reporting period. Some residential charging units are excluded due to incomplete data.

² A charging event is defined as the period when a vehicle is connected to a charging unit, during which period some power is transferred

³ Considers the connection status of all charging units every minute

Based on 15 minute rolling average power output from all charging units

Note: throughout this report, weekdays are defined as the period from Monday 6:00 AM until Saturday 6:00 AM. The weekend is defined as the period from Saturday 6:00 AM until Monday 6:00 AM.





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Region: ALL

Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall
Number of charging events	360,924	129,403	490,327
Electricity consumed (AC MWh)	2,912.03	896.38	3,808.41
Percent of time with a vehicle connected to EVSE	41%	46%	43%
Percent of time with a vehicle drawing power from EVSE	9%	7%	8%
Average number of charging events started per EVSE per day	0.93	0.83	0.90

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³



Inner-quartile range of charging units connected across all days

- Median percentage of charging units connected across all days
- Min percentage of charging units connected across all days







Region: ALL

Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	63%	37%	0%
Percent of electricity consumed	69%	31%	0%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	11.5	11.5	11.5
Average length of time with vehicle drawing power per charging event (hr)	2.3	2.0	2.2
Average electricity consumed per charging event (AC kWh)	8.1	6.9	7.8





Distribution of Electricity Consumed per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event







Region: ALL

Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall
Number of charging events	9,899	2,049	11,948
Electricity consumed (AC MWh)	114.30	29.59	143.89
Percent of time with a vehicle connected to EVSE	21%	17%	20%
Percent of time with a vehicle drawing power from EVSE	10%	6%	9%
Average number of charging events started per EVSE per day	0.66	0.34	0.57

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³









Region: ALL

Report period: April 2013 through June 2013

Vehicles Charged	Car sharing fleet 1	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	53%	6%	4%	36%
Percent of electricity consumed	69%	4%	3%	24%
Individual Charging Event Statistics		Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)		8.6	9.1	8.7
Average length of time with vehicle drawing power per charging event (I	nr)	3.6	4.3	3.7
Average electricity consumed per charging event (AC kWh)		11.5	14.5	12.0





Distribution of Length of Time with a Vehicle Drawing Power per Charging Event



Distribution of Electricity Consumed per Charging Event



¹ Car sharing fleets in the Oregon, Philadelphia, San Diego, and San Francisco regions use private nonresidential EV Project charging units to charge their grid-connected electric drive vehicles. The use of these charging units by car sharing fleet vehicles is included in this report.





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Region: ALL

Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall
Number of charging events	41,621	9,108	50,729
Electricity consumed (AC MWh)	361.19	76.50	437.69
Percent of time with a vehicle connected to EVSE	5%	3%	4%
Percent of time with a vehicle drawing power from EVSE	2%	1%	2%
Average number of charging events started per EVSE per day	0.26	0.14	0.22

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³











Region: ALL

Report period: April 2013 through June 2013

Vehicles Charged	Car sharing fleet 1	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	7%	14%	4%	74%
Percent of electricity consumed	10%	12%	3%	75%
Individual Charging Event Statistics		Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)		4.7	3.6	4.5
Average length of time with vehicle drawing power per charging event (I	hr)	2.3	2.1	2.3
Average electricity consumed per charging event (AC kWh)		8.7	8.4	8.6

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event



Distribution of Electricity Consumed per Charging Event



¹ Car sharing fleets in the Oregon, Philadelphia, San Diego, and San Francisco regions use publicly accessible EV Project charging units to charge their grid-connected electric drive vehicles. The use of these charging units by car sharing fleet vehicles is included in this report.





DC Fast Chargers

Region: ALL

Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall
Number of charging events	19,512	7,399	26,911
Electricity consumed (AC MWh)	160.87	61.65	222.52
Percent of time with a vehicle connected to EVSE	5%	5%	5%
Percent of time with a vehicle drawing power from EVSE	5%	5%	5%
Average number of charging events started per EVSE per day	3.84	3.63	3.78

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³









DC Fast Chargers

Region: ALL

Report period: April 2013 through June 2013

Vehicles Charged	Car sharing fleet 1	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	0%	25%	0%	75%
Percent of electricity consumed	0%	24%	0%	76%
Individual Charging Event Statistics		Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (min)		19.7	19.0	19.5
Average length of time with vehicle drawing power per charging event (min)	19.7	19.0	19.5
Average electricity consumed per charging event (AC kWh)		8.2	8.3	8.3

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Electricity Consumed per Charging Event

> 12. 12 15. 18 18. 18 18. 18 18. 18

Electricity consumed per charging event (AC kWh)

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0.0 9.6

25%

20% 15% 10% 5%

Percent of charging events Distribution of Length of Time with a Vehicle Drawing Power per Charging Event



Length of time with vehicle drawing power per charging event (min)

¹ Car sharing fleets in the Oregon, Philadelphia, San Diego, and San Francisco regions use publicly accessible EV Project charging units to charge their grid-connected electric drive vehicles. The use of these charging units by car sharing fleet vehicles is included in this report.

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EV Project Electric Vehicle Charging Infrastructure Summary Report

Energy Efficiency & Renewable Energy

Region: Phoenix, AZ Metropolitan Area

U.S. DEPARTMENT OF

Report period: April 2013 through June 2013

Number of EV Project vehicles in region: 313

Charging Unit Usage	. 515	Residential Level 2	Private Nonresidential Level 2	Publicly Accessible Level 2	Publicly Accessible DC Fast	Total
Number of charging units ¹		317	27	369	16	729
Number of charging events ²		24,887	605	3,804	1,885	31,181
Electricity consumed (AC MWh)		188.19	4.42	28.84	14.82	236.28
Percent of time with a vehicle connected to cha	rging unit	44%	6%	2%	2%	21%
Percent of time with a vehicle drawing power from	om charging unit	8%	3%	1%	2%	4%
Number of Charge Events	Electricity	Consumed	50% -	Charging L	Init Utilization	
80%	80%-	-2%	40% - 30% - 20% -			

Residential Level 2 Private Nonresidential Level 2 Publicly Accessible Level 2 Publicly Accessible DC Fast



Level 2

Vehicle Drawing Power From Charging Unit

Vehicle Connected to Charging Unit

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³

Residential Level 2

Private Nonresidential Level 2

Publicly Accessible Level 2

Publicly Accessible DC Fast





Max percentage of charging units connected across all days Inner-quartile range of charging units connected across all days Median percentage of charging units connected across all days Min percentage of charging units connected across all days

Project

Charging Demand: Range of Aggregate Electricity Demand versus Time of Day⁴



Includes charging units that reported at least one use during the reporting period. Some residential charging units are excluded due to incomplete data.

A charging event is defined as the period when a vehicle is connected to a charging unit, during which period some power is transferred

Considers the connection status of all charging units every minute

Based on 15 minute rolling average power output from all charging units

Note: throughout this report, weekdays are defined as the period from Monday 6:00 AM until Saturday 6:00 AM. The weekend is defined as the period from Saturday 6:00 AM until Monday 6:00 AM.





Region: Phoenix, AZ Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall
Number of charging events	18,022	6,865	24,887
Electricity consumed (AC MWh)	143.14	45.05	188.19
Percent of time with a vehicle connected to EVSE	42%	48%	44%
Percent of time with a vehicle drawing power from EVSE	9%	7%	8%
Average number of charging events started per EVSE per day	0.90	0.86	0.89

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³





units connected across all days Median percentage of charging

units connected across all days

Min percentage of charging units connected across all days

Charging Demand: Range of Aggregate Electricity Demand versus Time of Day⁴





Weekend

Max electricity demand across all days

Inner-quartile range of electricity demand across all days

Median electricity demand across all days

Min electricity demand across all days





Region: Phoenix, AZ Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	53%	47%	0%
Percent of electricity consumed	55%	45%	0%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	12.0	11.8	11.9
Average length of time with vehicle drawing power per charging event (hr)	2.4	2.0	2.3
Average electricity consumed per charging event (AC kWh)	8.0	6.5	7.6

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Electricity Consumed per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event







Region: Phoenix, AZ Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall	
Number of charging events	568	37	605	
Electricity consumed (AC MWh)	4.16	0.27	4.42	
Percent of time with a vehicle connected to EVSE	8%	2%	6%	
Percent of time with a vehicle drawing power from EVSE	4%	1%	3%	
Average number of charging events started per EVSE per day	0.41	0.07	0.31	

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³









Region: Phoenix, AZ Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	11%	7%	82%
Percent of electricity consumed	12%	7%	81%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	4.8	5.8	4.8
Average length of time with vehicle drawing power per charging event (hr)	2.3	2.1	2.2
Average electricity consumed per charging event (AC kWh)	7.3	7.4	7.3

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event



Distribution of Electricity Consumed per Charging Event







Region: Phoenix, AZ Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall	
Number of charging events	3,255	549	3,804	
Electricity consumed (AC MWh)	24.72	4.12	28.84	
Percent of time with a vehicle connected to EVSE	2%	1%	2%	
Percent of time with a vehicle drawing power from EVSE	1%	1%	1%	
Average number of charging events started per EVSE per day	0.15	0.06	0.12	

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³











Region: Phoenix, AZ Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	18%	9%	73%
Percent of electricity consumed	18%	7%	76%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	3.1	2.5	3.0
Average length of time with vehicle drawing power per charging event (hr)	2.2	1.8	2.1
Average electricity consumed per charging event (AC kWh)	7.6	7.5	7.6

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event



Distribution of Electricity Consumed per Charging Event







DC Fast Chargers

Region: Phoenix, AZ Metropolitan Area

Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall
Number of charging events	1,510	375	1,885
Electricity consumed (AC MWh)	11.77	3.05	14.82
Percent of time with a vehicle connected to EVSE	2%	1%	2%
Percent of time with a vehicle drawing power from EVSE	2%	1%	2%
Average number of charging events started per EVSE per day	1.60	0.99	1.42

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³







Max electricity demand across	
all days	

- Inner-quartile range of electricity demand across all days
- Median electricity demand across all days
- Min electricity demand across all days





DC Fast Chargers

Region: Phoenix, AZ Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	23%	0%	77%
Percent of electricity consumed	23%	0%	77%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (min)	17.8	17.8	17.8
Average length of time with vehicle drawing power per charging event (min)	17.7	17.8	17.8
Average electricity consumed per charging event (AC kWh)	7.8	8.1	7.9

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Distribution of Electricity Consumed per Charging Event

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Electricity consumed per charging event (AC kWh)

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0.0

Distribution of Length of Time with a Vehicle Drawing Power per Charging Event



Length of time with vehicle drawing power per charging event (min)



25%

20% 15% 10% 5% 0%

Percent of charging events



EV Project Electric Vehicle Charging Infrastructure Summary Report

Energy Efficiency & Renewable Energy

Region: Tucson, AZ Metropolitan Area

U.S. DEPARTMENT OF

Report period: April 2013 through June 2013



Charging Unit Usage	5	Residential Level 2	Private Nonresidential Level 2	Publicly Accessible Level 2	Publicly Accessible DC Fast	Total
Number of charging units ¹		58	5	52	0	115
Number of charging events ²		4,201	244	368	0	4,813
Electricity consumed (AC MWh)		28.05	1.29	2.23	0.00	31.57
Percent of time with a vehicle connected to cl	harging unit	41%	12%	1%	0%	22%
Percent of time with a vehicle drawing power	from charging unit	6%	4%	1%	0%	4%
Number of Charge Events	Electricity	Consumed	50%	Charging L	Init Utilization	
87%	89%		40% - 30% - 20% -	-		

Residential Level 2 Private Nonresidential Level 2 Publicly Accessible Level 2 Publicly Accessible DC Fast





Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³







Project

Charging Demand: Range of Aggregate Electricity Demand versus Time of Day⁴



¹ Includes charging units that reported at least one use during the reporting period. Some residential charging units are excluded due to incomplete data.

² A charging event is defined as the period when a vehicle is connected to a charging unit, during which period some power is transferred

³ Considers the connection status of all charging units every minute

Based on 15 minute rolling average power output from all charging units

tional Laboratory

Note: throughout this report, weekdays are defined as the period from Monday 6:00 AM until Saturday 6:00 AM. The weekend is defined as the period from Saturday 6:00 AM until Monday 6:00 AM.



Region: Tucson, AZ Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall
Number of charging events	3,034	1,167	4,201
Electricity consumed (AC MWh)	20.81	7.25	28.05
Percent of time with a vehicle connected to EVSE	40%	44%	41%
Percent of time with a vehicle drawing power from EVSE	7%	6%	6%
Average number of charging events started per EVSE per day	0.82	0.79	0.81

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³





- all days Inner-quartile range of electricity
- demand across all days Median electricity demand across all davs
- Min electricity demand across all days





Region: Tucson, AZ Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	82%	18%	0%
Percent of electricity consumed	81%	19%	0%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	12.5	12.3	12.5
Average length of time with vehicle drawing power per charging event (hr)	2.0	1.8	1.9
Average electricity consumed per charging event (AC kWh)	6.9	6.2	6.7





Distribution of Electricity Consumed per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event







Region: Tucson, AZ Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall	
Number of charging events	272	96	368	
Electricity consumed (AC MWh)	1.64	0.58	2.23	
Percent of time with a vehicle connected to EVSE	1%	1%	1%	
Percent of time with a vehicle drawing power from EVSE	1%	0%	1%	
Average number of charging events started per EVSE per day	0.08	0.07	0.08	

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³















Region: Tucson, AZ Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	21%	2%	77%
Percent of electricity consumed	21%	1%	78%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	2.1	2.0	2.0
Average length of time with vehicle drawing power per charging event (hr)	1.7	1.5	1.7
Average electricity consumed per charging event (AC kWh)	6.0	6.2	6.1

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event



Distribution of Electricity Consumed per Charging Event







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EV Project Electric Vehicle Charging Infrastructure Summary Report

Energy Efficiency & Renewable Energy

Region: Los Angeles, CA Metropolitan Area Report period: April 2013 through June 2013 Number of EV Project vehicles in region: 596

U.S. DEPARTMENT OF

Charging Unit Usage		Residential Level 2	Private Nonresidential Level 2	Accessible Level 2	Accessible DC Fast	Total
Number of charging units ¹		589	20	295	4	908
Number of charging events ²		46,300	577	8,105	1,789	56,771
Electricity consumed (AC MWh)		357.31	4.73	71.54	14.85	448.44
Percent of time with a vehicle connected to ch	arging unit	42%	19%	5%	8%	30%
Percent of time with a vehicle drawing power	from charging unit	8%	3%	3%	8%	7%
Number of Charge Events	Electricity Consumed		50% -	Charging L	Init Utilization	
			40% -	-		

16%





Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³





Max percentage of charging units connected across all days Inner-quartile range of charging units connected across all days Median percentage of charging units connected across all days Min percentage of charging units connected across all days

Project

Charging Demand: Range of Aggregate Electricity Demand versus Time of Day⁴



Includes charging units that reported at least one use during the reporting period. Some residential charging units are excluded due to incomplete data.

A charging event is defined as the period when a vehicle is connected to a charging unit, during which period some power is transferred

Considers the connection status of all charging units every minute

Based on 15 minute rolling average power output from all charging units

Note: throughout this report, weekdays are defined as the period from Monday 6:00 AM until Saturday 6:00 AM. The weekend is defined as the period from Saturday 6:00 AM until Monday 6:00 AM.





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Region: Los Angeles, CA Metropolitan Area

Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall
Number of charging events	33,535	12,765	46,300
Electricity consumed (AC MWh)	270.23	87.09	357.31
Percent of time with a vehicle connected to EVSE	41%	46%	42%
Percent of time with a vehicle drawing power from EVSE	9%	7%	8%
Average number of charging events started per EVSE per day	0.91	0.86	0.89

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³









Region: Los Angeles, CA Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged Nissan Leaf **Chevrolet Volt** Unknown Percent of charging events 40% 60% 0% Percent of electricity consumed 45% 55% 0% Weekday Weekend Individual Charging Event Statistics (WD) (WE) Overall Average length of time with vehicle connected per charging event (hr) 11.6 11.4 11.5 Average length of time with vehicle drawing power per charging event (hr) 2.4 2.0 2.3 Average electricity consumed per charging event (AC kWh) 7.7 8.1 6.8

> Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Electricity Consumed per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event







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Region: Los Angeles, CA Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall	
Number of charging events	444	133	577	
Electricity consumed (AC MWh)	3.64	1.08	4.73	
Percent of time with a vehicle connected to EVSE	19%	20%	19%	
Percent of time with a vehicle drawing power from EVSE	3%	2%	3%	
Average number of charging events started per EVSE per day	0.37	0.28	0.35	

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³









Region: Los Angeles, CA Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	10%	0%	90%
Percent of electricity consumed	9%	0%	91%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	13.0	16.7	13.8
Average length of time with vehicle drawing power per charging event (hr)	2.1	2.1	2.1
Average electricity consumed per charging event (AC kWh)	8.2	8.1	8.2

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event



Distribution of Electricity Consumed per Charging Event







Region: Los Angeles, CA Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall	
Number of charging events	6,688	1,417	8,105	
Electricity consumed (AC MWh)	59.68	11.86	71.54	
Percent of time with a vehicle connected to EVSE	6%	3%	5%	
Percent of time with a vehicle drawing power from EVSE	4%	2%	3%	
Average number of charging events started per EVSE per day	0.38	0.20	0.33	

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³











Region: Los Angeles, CA Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	3%	3%	94%
Percent of electricity consumed	2%	2%	95%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	4.0	3.2	3.9
Average length of time with vehicle drawing power per charging event (hr)	2.3	2.0	2.2
Average electricity consumed per charging event (AC kWh)	8.9	8.4	8.8

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event



Distribution of Electricity Consumed per Charging Event







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EV Project Electric Vehicle Charging Infrastructure Summary Report

Energy Efficiency & Renewable Energy

Region: San Diego, CA Metropolitan Area Report period: April 2013 through June 2013 Number of EV Project vehicles in region: 733

U.S. DEPARTMENT OF

Charging Unit Usage		Residential Level 2	Private Nonresidential Level 2	Publicly Accessible Level 2	Publicly Accessible DC Fast	Total
Number of charging units ¹		730	74	345	4	1,153
Number of charging events ²		59,492	7,169	12,355	1,362	80,378
Electricity consumed (AC MWh)		483.55	105.37	121.18	11.37	721.47
Percent of time with a vehicle connected to ch	arging unit	46%	34%	8%	6%	34%
Percent of time with a vehicle drawing power f	rom charging unit	9%	20%	5%	6%	8%
Number of Charge Events	Electricity	Consumed		Charging L	Init Utilization	





Vehicle Drawing Power From Charging Unit

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³





Max percentage of charging units connected across all days Inner-quartile range of charging units connected across all days Median percentage of charging units connected across all days Min percentage of charging

Project

units connected across all days

Charging Demand: Range of Aggregate Electricity Demand versus Time of Day⁴



Includes charging units that reported at least one use during the reporting period. Some residential charging units are excluded due to incomplete data.

A charging event is defined as the period when a vehicle is connected to a charging unit, during which period some power is transferred

Considers the connection status of all charging units every minute

Based on 15 minute rolling average power output from all charging units

National Laboratory

Note: throughout this report, weekdays are defined as the period from Monday 6:00 AM until Saturday 6:00 AM. The weekend is defined as the period from Saturday 6:00 AM until Monday 6:00 AM.



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Region: San Diego, CA Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall
Number of charging events	44,117	15,375	59,492
Electricity consumed (AC MWh)	371.13	112.41	483.55
Percent of time with a vehicle connected to EVSE	45%	48%	46%
Percent of time with a vehicle drawing power from EVSE	9%	7%	9%
Average number of charging events started per EVSE per day	0.95	0.83	0.91

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³









Region: San Diego, CA Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	62%	38%	0%
Percent of electricity consumed	67%	33%	0%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	12.0	12.3	12.1
Average length of time with vehicle drawing power per charging event (hr)	2.4	2.1	2.3
Average electricity consumed per charging event (AC kWh)	8.4	7.3	8.1





Distribution of Electricity Consumed per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event







Region: San Diego, CA Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall
Number of charging events	5,547	1,622	7,169
Electricity consumed (AC MWh)	79.86	25.51	105.37
Percent of time with a vehicle connected to EVSE	35%	32%	34%
Percent of time with a vehicle drawing power from EVSE	21%	17%	20%
Average number of charging events started per EVSE per day	1.15	0.84	1.07

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³








Region: San Diego, CA Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Car2Go fleet 1	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	85%	2%	1%	11%
Percent of electricity consumed	92%	1%	1%	6%
Individual Charging Event Statistics		Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)		7.6	8.7	7.8
Average length of time with vehicle drawing power per charging event (h	r)	4.4	4.8	4.5
Average electricity consumed per charging event (AC kWh)		14.4	15.9	14.7





Distribution of Length of Time with a Vehicle Drawing Power per Charging Event



Distribution of Electricity Consumed per Charging Event



¹ Car2Go operates a car sharing fleet of Smart Fortwo Electric Drive vehicles in this region. Usage of private nonresidential EV Project charging units to charge these vehicles is included in this report.





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Region: San Diego, CA Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall
Number of charging events	9,709	2,646	12,355
Electricity consumed (AC MWh)	94.61	26.57	121.18
Percent of time with a vehicle connected to EVSE	8%	6%	8%
Percent of time with a vehicle drawing power from EVSE	5%	3%	5%
Average number of charging events started per EVSE per day	0.47	0.32	0.43

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³





Max percentage of charging units connected across all days
Inner-quartile range of charging units connected across all days
Median percentage of charging units connected across all days
Min percentage of charging units connected across all days











Region: San Diego, CA Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Car2Go fleet 1	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	27%	12%	5%	56%
Percent of electricity consumed	35%	9%	3%	53%
Individual Charging Event Statistics		Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)		4.5	4.0	4.4
Average length of time with vehicle drawing power per charging event (hr)	2.6	2.6	2.6
Average electricity consumed per charging event (AC kWh)		9.7	10.1	9.8

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event







¹ Car2Go operates a car sharing fleet of Smart Fortwo Electric Drive vehicles in this region. Usage of publicly accessible EV Project charging units to charge these vehicles is included in this report.





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EV Project Electric Vehicle Charging Infrastructure Summary Report

Energy Efficiency & Renewable Energy

Region: San Francisco, CA Metropolitan Area Report period: April 2013 through June 2013 Number of EV Project vehicles in region: 1312

U.S. DEPARTMENT OF

Number of EV Project vehicles in regio	11. 1312		Private	Publicly	Publicly	
Charging Unit Usage		Residential Level 2	Nonresidential Level 2	Accessible Level 2	Accessible DC Fast	Total
Number of charging units ¹		1,314	16	135	21	1,486
Number of charging events ²		85,043	278	5,458	11,947	102,726
Electricity consumed (AC MWh)		784.00	2.50	51.79	102.79	941.08
Percent of time with a vehicle connected to charge	ging unit	36%	6%	8%	9%	33%
Percent of time with a vehicle drawing power from	n charging unit	8%	3%	5%	9%	7%
Number of Charge Events	Electricity	Consumed	40% -	Charging L	Init Utilization	





Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³





Max percentage of charging units connected across all days Inner-quartile range of charging units connected across all days Median percentage of charging

Project

units connected across all days

Min percentage of charging units connected across all days

Charging Demand: Range of Aggregate Electricity Demand versus Time of Day⁴



Includes charging units that reported at least one use during the reporting period. Some residential charging units are excluded due to incomplete data.

A charging event is defined as the period when a vehicle is connected to a charging unit, during which period some power is transferred

Considers the connection status of all charging units every minute

Based on 15 minute rolling average power output from all charging units

National Laboratory

Note: throughout this report, weekdays are defined as the period from Monday 6:00 AM until Saturday 6:00 AM. The weekend is defined as the period from Saturday 6:00 AM until Monday 6:00 AM.



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Region: San Francisco, CA Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall
Number of charging events	62,629	22,414	85,043
Electricity consumed (AC MWh)	605.09	178.92	784.00
Percent of time with a vehicle connected to EVSE	35%	37%	36%
Percent of time with a vehicle drawing power from EVSE	8%	6%	8%
Average number of charging events started per EVSE per day	0.74	0.67	0.72

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³









Region: San Francisco, CA Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	100%	0%	0%
Percent of electricity consumed	100%	0%	0%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	12.2	11.5	12.0
Average length of time with vehicle drawing power per charging event (hr)	2.7	2.2	2.5
Average electricity consumed per charging event (AC kWh)	9.7	7.9	9.2





Distribution of Electricity Consumed per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event







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Region: San Francisco, CA Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall	
Number of charging events	252	26	278	
Electricity consumed (AC MWh)	2.29	0.21	2.50	
Percent of time with a vehicle connected to EVSE	7%	3%	6%	
Percent of time with a vehicle drawing power from EVSE	4%	1%	3%	
Average number of charging events started per EVSE per day	0.31	0.08	0.24	

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³









Region: San Francisco, CA Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	City CarShare fleet ¹	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	0%	17%	0%	83%
Percent of electricity consumed	0%	11%	0%	89%
Individual Charging Event Statistics		Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)		6.0	5.9	5.9
Average length of time with vehicle drawing power per charging event	(hr)	2.7	2.1	2.7
Average electricity consumed per charging event (AC kWh)		9.1	8.2	9.0

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event



Distribution of Electricity Consumed per Charging Event



¹ City CarShare operates a car sharing fleet of Nissan Leaf, Chevrolet Volt, and Mitsubishi i-Miev vehicles in this region. Usage of private nonresidential EV Project charging units to charge these vehicles is included in this report.





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Region: San Francisco, CA Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall	
Number of charging events	4,961	497	5,458	
Electricity consumed (AC MWh)	47.70	4.09	51.79	
Percent of time with a vehicle connected to EVSE	10%	3%	8%	
Percent of time with a vehicle drawing power from EVSE	6%	1%	5%	
Average number of charging events started per EVSE per day	0.61	0.15	0.48	

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³











Region: San Francisco, CA Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	City CarShare fleet 1	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	0%	10%	0%	90%
Percent of electricity consumed	0%	8%	0%	92%
Individual Charging Event Statistics		Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)		4.0	3.9	4.0
Average length of time with vehicle drawing power per charging event	(hr)	2.5	1.9	2.4
Average electricity consumed per charging event (AC kWh)		9.6	8.3	9.5

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event



Distribution of Electricity Consumed per Charging Event



¹ City CarShare operates a car sharing fleet of Nissan Leaf, Chevrolet Volt, and Mitsubishi i-Miev vehicles in this region. Usage of publicly accessible EV Project charging units to charge these vehicles is included in this report.





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DC Fast Chargers

Region: San Francisco, CA Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall
Number of charging events	8,959	2,988	11,947
Electricity consumed (AC MWh)	76.94	25.84	102.79
Percent of time with a vehicle connected to EVSE	10%	8%	9%
Percent of time with a vehicle drawing power from EVSE	10%	8%	9%
Average number of charging events started per EVSE per day	7.05	5.84	6.71

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³







Max electricity demand across	
all days	

- Inner-quartile range of electricity demand across all days
- Median electricity demand across all days
- Min electricity demand across all days





DC Fast Chargers

Region: San Francisco, CA Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	City CarShare fleet ¹	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	0%	27%	0%	73%
Percent of electricity consumed	0%	26%	0%	74%
Individual Charging Event Statistics		Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (min)	20.4	19.8	20.3
Average length of time with vehicle drawing power per charging event	(min)	20.4	19.8	20.2
Average electricity consumed per charging event (AC kWh)		8.6	8.7	8.6





Distribution of Electricity Consumed per Charging Event

> 12. 12 15. 75 18. 78 18. 18 21. 18

Electricity consumed per charging event (AC kWh)

Ch.

6. TO 9. 572

0.0 9.6 Distribution of Length of Time with a Vehicle Drawing Power per Charging Event



Length of time with vehicle drawing power per charging event (min)

¹ City CarShare operates a car sharing fleet of Nissan Leaf, Chevrolet Volt, and Mitsubishi i-Miev vehicles in this region. Usage of publicly accessible EV Project charging units to charge these vehicles is included in this report.

WD

WE



25%

20% 15% 10% 5% 0%

Percent of charging events



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EV Project Electric Vehicle Charging Infrastructure Summary Report

Energy Efficiency & Renewable Energy

Region: Washington, D.C. Metropolitan Area Report period: April 2013 through June 2013 Number of EV Project vehicles in region: 305

U.S. DEPARTMENT OF



Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³

Residential Level 2

Private Nonresidential Level 2

Publicly Accessible Level 2

Publicly Accessible DC Fast



Residential Level 2

Private Nonresidential Level 2 Publicly Accessible Level 2 Publicly Accessible DC Fast





Accessibl Level 2

Residential

Level 2

Private

Level 2

Vehicle Drawing Power From Charging Unit

Nonreside

Vehicle Connected to Charging Unit

Project

Charging Demand: Range of Aggregate Electricity Demand versus Time of Day⁴



Includes charging units that reported at least one use during the reporting period. Some residential charging units are excluded due to incomplete data.

A charging event is defined as the period when a vehicle is connected to a charging unit, during which period some power is transferred

Considers the connection status of all charging units every minute

Based on 15 minute rolling average power output from all charging units

Note: throughout this report, weekdays are defined as the period from Monday 6:00 AM until Saturday 6:00 AM. The weekend is defined as the period from Saturday 6:00 AM until Monday 6:00 AM.





Region: Washington, D.C. Metropolitan Area

Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall
Number of charging events	21,485	7,967	29,452
Electricity consumed (AC MWh)	146.69	44.27	190.95
Percent of time with a vehicle connected to EVSE	49%	59%	52%
Percent of time with a vehicle drawing power from EVSE	10%	8%	10%
Average number of charging events started per EVSE per day	1.16	1.08	1.14

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³









Region: Washington, D.C. Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	12%	88%	0%
Percent of electricity consumed	14%	86%	0%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	11.1	11.3	11.2
Average length of time with vehicle drawing power per charging event (hr)	2.1	1.7	2.0
Average electricity consumed per charging event (AC kWh)	6.8	5.5	6.5

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Electricity Consumed per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event







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Region: Washington, D.C. Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall	
Number of charging events	198	40	238	
Electricity consumed (AC MWh)	1.89	0.44	2.32	
Percent of time with a vehicle connected to EVSE	2%	1%	2%	
Percent of time with a vehicle drawing power from EVSE	1%	1%	1%	
Average number of charging events started per EVSE per day	0.13	0.07	0.11	

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³















Region: Washington, D.C. Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	0%	9%	91%
Percent of electricity consumed	0%	4%	96%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	3.2	3.7	3.3
Average length of time with vehicle drawing power per charging event (hr)	2.3	2.3	2.3
Average electricity consumed per charging event (AC kWh)	9.6	10.4	9.8

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event



Distribution of Electricity Consumed per Charging Event







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EV Project Electric Vehicle Charging Infrastructure Summary Report

Region: Oregon

U.S. DEPARTMENT OF

Report period: April 2013 through June 2013







Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³





Max percentage of charging units connected across all days Inner-quartile range of charging units connected across all days Median percentage of charging

Project

units connected across all days

Min percentage of charging units connected across all days

Charging Demand: Range of Aggregate Electricity Demand versus Time of Day⁴



¹ Includes charging units that reported at least one use during the reporting period. Some residential charging units are excluded due to incomplete data.

² A charging event is defined as the period when a vehicle is connected to a charging unit, during which period some power is transferred

³ Considers the connection status of all charging units every minute

Based on 15 minute rolling average power output from all charging units

Note: throughout this report, weekdays are defined as the period from Monday 6:00 AM until Saturday 6:00 AM. The weekend is defined as the period from Saturday 6:00 AM until Monday 6:00 AM.





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Region: Oregon

Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall
Number of charging events	31,358	10,791	42,149
Electricity consumed (AC MWh)	236.68	72.43	309.11
Percent of time with a vehicle connected to EVSE	42%	45%	43%
Percent of time with a vehicle drawing power from EVSE	9%	7%	8%
Average number of charging events started per EVSE per day	0.97	0.84	0.94

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³





Median percentage of charging units connected across all days

Min percentage of charging units connected across all days







Region: Oregon

Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	69%	31%	0%
Percent of electricity consumed	75%	25%	0%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	11.0	11.4	11.1
Average length of time with vehicle drawing power per charging event (hr)	2.2	1.9	2.1
Average electricity consumed per charging event (AC kWh)	7.5	6.7	7.3





Distribution of Electricity Consumed per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event







Region: Oregon

Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall	
Number of charging events	747	80	827	
Electricity consumed (AC MWh)	5.44	1.11	6.54	
Percent of time with a vehicle connected to EVSE	32%	34%	33%	
Percent of time with a vehicle drawing power from EVSE	9%	5%	8%	
Average number of charging events started per EVSE per day	0.63	0.17	0.50	

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³









Region: Oregon

Report period: April 2013 through June 2013

Vehicles Charged	Car2Go fleet ¹	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	33%	0%	0%	67%
Percent of electricity consumed	44%	0%	0%	56%
Individual Charging Event Statistics		Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)		16.8	10.6	16.2
Average length of time with vehicle drawing power per charging event (h	r)	4.0	3.4	3.9
Average electricity consumed per charging event (AC kWh)		7.3	13.2	7.9





Distribution of Length of Time with a Vehicle Drawing Power per Charging Event



Distribution of Electricity Consumed per Charging Event



¹ Car2Go operates a car sharing fleet of Smart Fortwo Electric Drive vehicles in this region. Usage of private nonresidential EV Project charging units to charge these vehicles is included in this report.





Region: Oregon

Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall	
Number of charging events	4,672	1,211	5,883	
Electricity consumed (AC MWh)	30.28	8.69	38.97	
Percent of time with a vehicle connected to EVSE	5%	5%	5%	
Percent of time with a vehicle drawing power from EVSE	1%	1%	1%	
Average number of charging events started per EVSE per day	0.19	0.12	0.17	

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³





Max percentage of charging units connected across all days Inner-quartile range of charging units connected across all days Median percentage of charging units connected across all days

Min percentage of charging units connected across all days

Charging Demand: Range of Aggregate Electricity Demand versus Time of Day⁴





Max electricity demand across all days

Inner-quartile range of electricity demand across all days

Median electricity demand across all days

Min electricity demand across all days





Region: Oregon

Report period: April 2013 through June 2013

Vehicles Charged	Car2Go fleet ¹	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	2%	22%	3%	72%
Percent of electricity consumed	5%	21%	3%	71%
Individual Charging Event Statistics		Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)		7.7	4.4	7.0
Average length of time with vehicle drawing power per charging event (hr))	1.9	2.1	2.0
Average electricity consumed per charging event (AC kWh)		6.5	7.2	6.6

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event



Distribution of Electricity Consumed per Charging Event



¹ Car2Go operates a car sharing fleet of Smart Fortwo Electric Drive vehicles in this region. Usage of publicly accessible EV Project charging units to charge these vehicles is included in this report.





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DC Fast Chargers

Region: Oregon

Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall
Number of charging events	3,150	1,335	4,485
Electricity consumed (AC MWh)	25.36	10.43	35.79
Percent of time with a vehicle connected to EVSE	4%	4%	4%
Percent of time with a vehicle drawing power from EVSE	4%	4%	4%
Average number of charging events started per EVSE per day	2.97	3.13	3.02

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³











DC Fast Chargers

Region: Oregon

Report period: April 2013 through June 2013

Vehicles Charged	Car2Go fleet ¹	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	0%	27%	0%	73%
Percent of electricity consumed	0%	26%	0%	74%
Individual Charging Event Statistics		Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (min)		20.3	18.4	19.7
Average length of time with vehicle drawing power per charging event (n	nin)	20.2	18.4	19.7
Average electricity consumed per charging event (AC kWh)		8.1	7.8	8.0

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event



Length of time with vehicle drawing power per charging event (min)

Distribution of Electricity Consumed per Charging Event



¹ Car2Go operates a car sharing fleet of Smart Fortwo Electric Drive vehicles in this region. Usage of publicly accessible EV Project charging units to charge these vehicles is included in this report.





EV Project Electric Vehicle Charging Infrastructure Summary Report

Energy Efficiency & Renewable Energy

Region: Chattanooga, TN Metropolitan Area Report period: April 2013 through June 2013 Number of EV Project vehicles in region: 52

U.S. DEPARTMENT OF



Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³

Publicly Accessible Level 2

Publicly Accessible DC Fast





Max percentage of charging units connected across all days Inner-quartile range of charging units connected across all days Median percentage of charging units connected across all days Min percentage of charging units connected across all days

Vehicle Connected to Charging Unit

Vehicle Drawing Power From Charging Unit

Project

Charging Demand: Range of Aggregate Electricity Demand versus Time of Day⁴



Includes charging units that reported at least one use during the reporting period. Some residential charging units are excluded due to incomplete data.

A charging event is defined as the period when a vehicle is connected to a charging unit, during which period some power is transferred

Considers the connection status of all charging units every minute

Based on 15 minute rolling average power output from all charging units

Note: throughout this report, weekdays are defined as the period from Monday 6:00 AM until Saturday 6:00 AM. The weekend is defined as the period from Saturday 6:00 AM until Monday 6:00 AM.





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Region: Chattanooga, TN Metropolitan Area

Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall
Number of charging events	3,167	1,110	4,277
Electricity consumed (AC MWh)	25.65	7.49	33.13
Percent of time with a vehicle connected to EVSE	42%	43%	42%
Percent of time with a vehicle drawing power from EVSE	9%	7%	9%
Average number of charging events started per EVSE per day	0.99	0.86	0.95

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³





Min percentage of charging units connected across all days







Region: Chattanooga, TN Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged Nissan Leaf **Chevrolet Volt** Unknown Percent of charging events 76% 24% 0% Percent of electricity consumed 79% 21% 0% Weekday Weekend Individual Charging Event Statistics (WD) (WE) Overall Average length of time with vehicle connected per charging event (hr) 10.8 10.9 10.8 Average length of time with vehicle drawing power per charging event (hr) 2.3 1.9 2.2 Average electricity consumed per charging event (AC kWh) 7.7 8.1 6.8

WD

WE

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Electricity Consumed per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event







Region: Chattanooga, TN Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall	
Number of charging events	130	65	195	
Electricity consumed (AC MWh)	0.80	0.42	1.22	
Percent of time with a vehicle connected to EVSE	0%	1%	1%	
Percent of time with a vehicle drawing power from EVSE	0%	0%	0%	
Average number of charging events started per EVSE per day	0.06	0.07	0.06	

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³





Max percentage of charging units connected across all days Inner-quartile range of charging units connected across all days Median percentage of charging units connected across all days Min percentage of charging

units connected across all days

Charging Demand: Range of Aggregate Electricity Demand versus Time of Day⁴





Max electricity demand across all days

Inner-quartile range of electricity demand across all days

Median electricity demand across all days

Min electricity demand across all days





Region: Chattanooga, TN Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	43%	7%	50%
Percent of electricity consumed	33%	7%	60%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	2.2	2.1	2.1
Average length of time with vehicle drawing power per charging event (hr)	1.7	1.5	1.6
Average electricity consumed per charging event (AC kWh)	6.2	6.3	6.2

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event



Distribution of Electricity Consumed per Charging Event







EV Project Electric Vehicle Charging Infrastructure Summary Report

Energy Efficiency & Renewable Energy

Region: Knoxville, TN Metropolitan Area

U.S. DEPARTMENT OF

Report period: April 2013 through June 2013 Number of EV Project vehicles in region: 109

Charging Unit Usage	ion. 103	Residential Level 2	Private Nonresidential Level 2	Publicly Accessible Level 2	Publicly Accessible DC Fast	Total
Number of charging units ¹		110	31	114	3	258
Number of charging events ²		8,030	739	1,262	112	10,143
Electricity consumed (AC MWh)		60.03	5.58	10.14	0.67	76.41
Percent of time with a vehicle connected to ch	arging unit	42%	7%	4%	0%	21%
Percent of time with a vehicle drawing power f	rom charging unit	7%	3%	1%	0%	4%
Number of Charge Events Electricity Consumed		50%	Charging L	Unit Utilization		
70%		-7%	40% - 10 8 30% -			







Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³





Max percentage of charging units connected across all days Inner-quartile range of charging units connected across all days Median percentage of charging units connected across all days Min percentage of charging

Project

Min percentage of charging units connected across all days

Charging Demand: Range of Aggregate Electricity Demand versus Time of Day⁴



¹ Includes charging units that reported at least one use during the reporting period. Some residential charging units are excluded due to incomplete data.

² A charging event is defined as the period when a vehicle is connected to a charging unit, during which period some power is transferred

³ Considers the connection status of all charging units every minute

Based on 15 minute rolling average power output from all charging units

National Laboratory

Note: throughout this report, weekdays are defined as the period from Monday 6:00 AM until Saturday 6:00 AM. The weekend is defined as the period from Saturday 6:00 AM until Monday 6:00 AM.



Region: Knoxville, TN Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall	
Number of charging events	6,060	1,970	8,030	
Electricity consumed (AC MWh)	46.86	13.17	60.03	
Percent of time with a vehicle connected to EVSE	41%	45%	42%	
Percent of time with a vehicle drawing power from EVSE	8%	6%	7%	
Average number of charging events started per EVSE per day	0.88	0.72	0.84	

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³





units connected across all days

Median percentage of charging units connected across all days

Min percentage of charging units connected across all days







Region: Knoxville, TN Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	66%	34%	0%
Percent of electricity consumed	71%	29%	0%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	12.2	12.1	12.2
Average length of time with vehicle drawing power per charging event (hr)	2.2	1.9	2.1
Average electricity consumed per charging event (AC kWh)	7.7	6.6	7.5

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Electricity Consumed per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event







Region: Knoxville, TN Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall	
Number of charging events	723	16	739	
Electricity consumed (AC MWh)	5.51	0.07	5.58	
Percent of time with a vehicle connected to EVSE	9%	0%	7%	
Percent of time with a vehicle drawing power from EVSE	4%	0%	3%	
Average number of charging events started per EVSE per day	0.37	0.02	0.27	

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³









Region: Knoxville, TN Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	7%	3%	90%
Percent of electricity consumed	6%	3%	91%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	5.9	1.7	5.8
Average length of time with vehicle drawing power per charging event (hr)	2.3	1.3	2.3
Average electricity consumed per charging event (AC kWh)	7.6	4.5	7.6

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event



Distribution of Electricity Consumed per Charging Event







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Region: Knoxville, TN Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall	
Number of charging events	1,120	142	1,262	
Electricity consumed (AC MWh)	9.28	0.86	10.14	
Percent of time with a vehicle connected to EVSE	4%	2%	4%	
Percent of time with a vehicle drawing power from EVSE	2%	0%	1%	
Average number of charging events started per EVSE per day	0.17	0.05	0.14	

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³











Region: Knoxville, TN Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	29%	2%	69%
Percent of electricity consumed	24%	1%	75%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	6.7	6.3	6.6
Average length of time with vehicle drawing power per charging event (hr)	2.4	1.7	2.3
Average electricity consumed per charging event (AC kWh)	8.3	5.8	8.0

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event



Distribution of Electricity Consumed per Charging Event







EV Project Electric Vehicle Charging Infrastructure Summary Report

Energy Efficiency & Renewable Energy

Region: Memphis, TN Metropolitan Area Report period: April 2013 through June 2013 Number of EV Project vehicles in region: 72

U.S. DEPARTMENT OF

Charging Unit Usage	jion. 72	Residential Level 2	Private Nonresidential Level 2	Publicly Accessible Level 2	Publicly Accessible DC Fast	Total
Number of charging units ¹		71	1	18	0	90
Number of charging events ²		5,950	61	161	0	6,172
Electricity consumed (AC MWh)		39.81	0.67	1.53	0.00	42.01
Percent of time with a vehicle connected to ch	narging unit	41%	30%	3%	0%	34%
Percent of time with a vehicle drawing power	from charging unit	8%	8%	1%	0%	6%
Number of Charge Events	Electricity	Consumed	50% -	Charging L	Unit Utilization	
96%	95%		40% - e 30% -		-	







Vehicle Drawing Power From Charging Unit

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³







Project

Charging Demand: Range of Aggregate Electricity Demand versus Time of Day⁴



¹ Includes charging units that reported at least one use during the reporting period. Some residential charging units are excluded due to incomplete data.

² A charging event is defined as the period when a vehicle is connected to a charging unit, during which period some power is transferred

³ Considers the connection status of all charging units every minute

Based on 15 minute rolling average power output from all charging units

National Laboratory

Note: throughout this report, weekdays are defined as the period from Monday 6:00 AM until Saturday 6:00 AM. The weekend is defined as the period from Saturday 6:00 AM until Monday 6:00 AM.



Region: Memphis, TN Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall	
Number of charging events	4,420	1,530	5,950	
Electricity consumed (AC MWh)	30.77	9.04	39.81	
Percent of time with a vehicle connected to EVSE	40%	44%	41%	
Percent of time with a vehicle drawing power from EVSE	8%	6%	8%	
Average number of charging events started per EVSE per day	0.98	0.85	0.94	

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³









Region: Memphis, TN Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	51%	49%	0%
Percent of electricity consumed	56%	44%	0%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	10.6	10.6	10.6
Average length of time with vehicle drawing power per charging event (hr)	2.1	1.8	2.0
Average electricity consumed per charging event (AC kWh)	7.0	5.9	6.7

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Electricity Consumed per Charging Event









Region: Memphis, TN Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall	
Number of charging events	144	17	161	
Electricity consumed (AC MWh)	1.35	0.18	1.53	
Percent of time with a vehicle connected to EVSE	3%	3%	3%	
Percent of time with a vehicle drawing power from EVSE	1%	0%	1%	
Average number of charging events started per EVSE per day	0.13	0.04	0.11	

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³





Max percentage of charging units connected across all days Inner-quartile range of charging units connected across all days Median percentage of charging units connected across all days Min percentage of charging units connected across all days









Region: Memphis, TN Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	40%	40%	20%
Percent of electricity consumed	39%	32%	28%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	6.2	5.7	6.2
Average length of time with vehicle drawing power per charging event (hr)	2.5	2.6	2.5
Average electricity consumed per charging event (AC kWh)	9.4	11.0	9.5

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event



Distribution of Electricity Consumed per Charging Event







EV Project Electric Vehicle Charging Infrastructure Summary Report

Energy Efficiency & Renewable Energy

Region: Nashville, TN Metropolitan Area Report period: April 2013 through June 2013

U.S. DEPARTMENT OF

Number of EV Project vehicles in region: 566

Number of EV Project vehicles in reg	10n: 566		Private	Publicly	Publicly	
Charging Unit Usage		Residential Level 2	Nonresidential Level 2	Accessible Level 2	Accessible DC Fast	Total
Number of charging units ¹		568	6	190	6	770
Number of charging events ²		45,114	232	3,674	1,047	50,067
Electricity consumed (AC MWh)		362.55	2.08	30.96	8.27	403.86
Percent of time with a vehicle connected to ch	arging unit	41%	13%	5%	3%	32%
Percent of time with a vehicle drawing power	rom charging unit	8%	4%	2%	3%	7%
Number of Charge Events	Electricity	Consumed	50% -	Charging L	Unit Utilization	
90%	90%		- 40% - 30% - 30%	-		







Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³





Max percentage of charging units connected across all days Inner-quartile range of charging units connected across all days Median percentage of charging units connected across all days Min percentage of charging

Project

units connected across all days

Charging Demand: Range of Aggregate Electricity Demand versus Time of Day⁴



Includes charging units that reported at least one use during the reporting period. Some residential charging units are excluded due to incomplete data.

A charging event is defined as the period when a vehicle is connected to a charging unit, during which period some power is transferred

Considers the connection status of all charging units every minute

Based on 15 minute rolling average power output from all charging units

Note: throughout this report, weekdays are defined as the period from Monday 6:00 AM until Saturday 6:00 AM. The weekend is defined as the period from Saturday 6:00 AM until Monday 6:00 AM.





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Region: Nashville, TN Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall
Number of charging events	33,435	11,679	45,114
Electricity consumed (AC MWh)	278.66	83.88	362.55
Percent of time with a vehicle connected to EVSE	40%	45%	41%
Percent of time with a vehicle drawing power from EVSE	9%	7%	8%
Average number of charging events started per EVSE per day	0.93	0.81	0.90

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³









Region: Nashville, TN Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	89%	11%	0%
Percent of electricity consumed	91%	9%	0%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	11.2	11.2	11.2
Average length of time with vehicle drawing power per charging event (hr)	2.3	2.0	2.2
Average electricity consumed per charging event (AC kWh)	8.3	7.2	8.0





Distribution of Electricity Consumed per Charging Event









Region: Nashville, TN Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall
Number of charging events	3,009	665	3,674
Electricity consumed (AC MWh)	25.60	5.36	30.96
Percent of time with a vehicle connected to EVSE	5%	4%	5%
Percent of time with a vehicle drawing power from EVSE	2%	1%	2%
Average number of charging events started per EVSE per day	0.25	0.14	0.22

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³





•	Max percentage of charging units connected across all days
	Inner-quartile range of charging units connected across all days
•	Median percentage of charging units connected across all days
	Min percentage of charging units connected across all days







- Inner-quartile range of electricity demand across all days
- Median electricity demand across all days
- Min electricity demand across all days





Region: Nashville, TN Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	40%	1%	58%
Percent of electricity consumed	39%	1%	61%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	5.6	3.7	5.2
Average length of time with vehicle drawing power per charging event (hr)	2.3	2.0	2.2
Average electricity consumed per charging event (AC kWh)	8.5	7.9	8.4

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event



Distribution of Electricity Consumed per Charging Event







EV Project Electric Vehicle Charging Infrastructure Summary Report

Energy Efficiency & Renewable Energy

Region: Dallas/Ft. Worth, TX Metropolitan Area Report period: April 2013 through June 2013 Number of EV Project vehicles in region: 196

U.S. DEPARTMENT OF



Residential Level 2 Private Nonresidential Level 2 Publicly Accessible Level 2 Publicly Accessible DC Fast





Vehicle Connected to Charging Unit Vehicle Drawing Power From Charging Unit

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³





0%



Project

Charging Demand: Range of Aggregate Electricity Demand versus Time of Day⁴



¹ Includes charging units that reported at least one use during the reporting period. Some residential charging units are excluded due to incomplete data.

² A charging event is defined as the period when a vehicle is connected to a charging unit, during which period some power is transferred

³ Considers the connection status of all charging units every minute

Based on 15 minute rolling average power output from all charging units

Note: throughout this report, weekdays are defined as the period from Monday 6:00 AM until Saturday 6:00 AM. The weekend is defined as the period from Saturday 6:00 AM until Monday 6:00 AM.



7.

Region: Dallas/Ft. Worth, TX Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall
Number of charging events	14,896	5,511	20,407
Electricity consumed (AC MWh)	98.61	31.81	130.42
Percent of time with a vehicle connected to EVSE	46%	56%	49%
Percent of time with a vehicle drawing power from EVSE	11%	9%	10%
Average number of charging events started per EVSE per day	1.21	1.11	1.18

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³









Region: Dallas/Ft. Worth, TX Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	8%	92%	0%
Percent of electricity consumed	10%	90%	0%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	10.1	10.4	10.1
Average length of time with vehicle drawing power per charging event (hr)	2.1	1.8	2.0
Average electricity consumed per charging event (AC kWh)	6.6	5.7	6.4





Distribution of Electricity Consumed per Charging Event









Region: Dallas/Ft. Worth, TX Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall	
Number of charging events	456	4	460	
Electricity consumed (AC MWh)	3.35	0.02	3.37	
Percent of time with a vehicle connected to EVSE	9%	1%	7%	
Percent of time with a vehicle drawing power from EVSE	4%	0%	3%	
Average number of charging events started per EVSE per day	0.42	0.01	0.30	

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³









Region: Dallas/Ft. Worth, TX Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	0%	64%	36%
Percent of electricity consumed	0%	63%	37%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	5.6	2.8	5.6
Average length of time with vehicle drawing power per charging event (hr)	2.3	1.7	2.3
Average electricity consumed per charging event (AC kWh)	7.3	5.3	7.3

Distribution of Length of Time with a Vehicle Connected per Charging Event





Distribution of Electricity Consumed per Charging Event







Region: Dallas/Ft. Worth, TX Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall	
Number of charging events	1,247	329	1,576	
Electricity consumed (AC MWh)	9.79	3.03	12.82	
Percent of time with a vehicle connected to EVSE	2%	2%	2%	
Percent of time with a vehicle drawing power from EVSE	1%	1%	1%	
Average number of charging events started per EVSE per day	0.11	0.07	0.10	

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³





 Max percentage of charging units connected across all days
Inner-quartile range of charging units connected across all days
Median percentage of charging units connected across all days
Min percentage of charging units connected across all days

Charging Demand: Range of Aggregate Electricity Demand versus Time of Day⁴





Max electricity demand across all days

Inner-quartile range of electricity demand across all days

Median electricity demand across all days

Min electricity demand across all days





Region: Dallas/Ft. Worth, TX Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	5%	9%	86%
Percent of electricity consumed	4%	7%	89%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	5.6	6.2	5.7
Average length of time with vehicle drawing power per charging event (hr)	2.1	2.1	2.1
Average electricity consumed per charging event (AC kWh)	7.9	9.0	8.1

Distribution of Length of Time with a Vehicle Connected per Charging Event





Distribution of Electricity Consumed per Charging Event







EV Project Electric Vehicle Charging Infrastructure Summary Report

Energy Efficiency & Renewable Energy

Region: Houston, TX Metropolitan Area Report period: April 2013 through June 2013

U.S. DEPARTMENT OF

Number of EV Project vehicles in region: 77

Charging Unit Usage	511. 77	Residential Level 2	Private Nonresidential Level 2	Publicly Accessible Level 2	Publicly Accessible DC Fast	Total
Number of charging units ¹		76	5	87	0	168
Number of charging events ²		7,122	48	380	0	7,550
Electricity consumed (AC MWh)		46.45	0.58	2.86	0.00	49.90
Percent of time with a vehicle connected to cha	rging unit	51%	6%	0%	0%	23%
Percent of time with a vehicle drawing power from	om charging unit	10%	1%	0%	0%	5%
Number of Charge Events	Electricity	Consumed	60% -	Charging Unit Utilization		
94%	93%	1%	40% - Line 40% - 20% -			

Private Nonresidential Level 2 Private Nonresidential Level 2 Publicly Accessible Level 2 Publicly Accessible DC Fast





Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³





Max percentage of charging units connected across all days Inner-quartile range of charging units connected across all days Median percentage of charging units connected across all days Min percentage of charging units connected across all days

Project

Charging Demand: Range of Aggregate Electricity Demand versus Time of Day⁴



¹ Includes charging units that reported at least one use during the reporting period. Some residential charging units are excluded due to incomplete data.

² A charging event is defined as the period when a vehicle is connected to a charging unit, during which period some power is transferred

³ Considers the connection status of all charging units every minute

Based on 15 minute rolling average power output from all charging units

National Laboratory

Note: throughout this report, weekdays are defined as the period from Monday 6:00 AM until Saturday 6:00 AM. The weekend is defined as the period from Saturday 6:00 AM until Monday 6:00 AM.



Region: Houston, TX Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall	
Number of charging events	5,185	1,937	7,122	
Electricity consumed (AC MWh)	35.58	10.88	46.45	
Percent of time with a vehicle connected to EVSE	48%	58%	51%	
Percent of time with a vehicle drawing power from EVSE	10%	8%	10%	
Average number of charging events started per EVSE per day	1.14	1.07	1.12	

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³









Region: Houston, TX Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	5%	95%	0%
Percent of electricity consumed	5%	95%	0%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	10.9	11.5	11.1
Average length of time with vehicle drawing power per charging event (hr)	2.2	1.8	2.1
Average electricity consumed per charging event (AC kWh)	6.9	5.6	6.5

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Electricity Consumed per Charging Event









Region: Houston, TX Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall	
Number of charging events	289	91	380	
Electricity consumed (AC MWh)	2.38	0.49	2.86	
Percent of time with a vehicle connected to EVSE	1%	0%	0%	
Percent of time with a vehicle drawing power from EVSE	0%	0%	0%	
Average number of charging events started per EVSE per day	0.05	0.04	0.05	

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³







ľ	Max electricity d	demand	across
a	all days		

- Inner-quartile range of electricity demand across all days
- Median electricity demand across all days
- Min electricity demand across all days





Region: Houston, TX Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	1%	17%	82%
Percent of electricity consumed	1%	12%	87%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	2.3	1.3	2.0
Average length of time with vehicle drawing power per charging event (hr)	1.8	1.3	1.7
Average electricity consumed per charging event (AC kWh)	8.2	5.3	7.5

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event



Distribution of Electricity Consumed per Charging Event







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EV Project Electric Vehicle Charging Infrastructure Summary Report

Region: Washington State

U.S. DEPARTMENT OF

Report period: April 2013 through June 2013



1%







87%



Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³







Project

Charging Demand: Range of Aggregate Electricity Demand versus Time of Day⁴



Includes charging units that reported at least one use during the reporting period. Some residential charging units are excluded due to incomplete data.

A charging event is defined as the period when a vehicle is connected to a charging unit, during which period some power is transferred

Considers the connection status of all charging units every minute

Based on 15 minute rolling average power output from all charging units

Note: throughout this report, weekdays are defined as the period from Monday 6:00 AM until Saturday 6:00 AM. The weekend is defined as the period from Saturday 6:00 AM until Monday 6:00 AM.



Region: Washington State

Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall
Number of charging events	51,114	17,814	68,928
Electricity consumed (AC MWh)	394.91	125.85	520.76
Percent of time with a vehicle connected to EVSE	43%	49%	45%
Percent of time with a vehicle drawing power from EVSE	9%	7%	8%
Average number of charging events started per EVSE per day	0.99	0.86	0.96

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³





Inner-quartile range of charging units connected across all days

Median percentage of charging

units connected across all days

Min percentage of charging units connected across all days







Region: Washington State

Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	76%	24%	0%
Percent of electricity consumed	80%	20%	0%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	11.2	11.6	11.3
Average length of time with vehicle drawing power per charging event (hr)	2.2	2.0	2.1
Average electricity consumed per charging event (AC kWh)	7.7	7.1	7.6





Distribution of Electricity Consumed per Charging Event









Region: Washington State

Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall
Number of charging events	605	59	664
Electricity consumed (AC MWh)	5.57	0.65	6.22
Percent of time with a vehicle connected to EVSE	23%	18%	22%
Percent of time with a vehicle drawing power from EVSE	5%	1%	4%
Average number of charging events started per EVSE per day	0.46	0.11	0.36

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³







Max electricity demand across
all days

- Inner-quartile range of electricity demand across all days
- Median electricity demand across all days
- Min electricity demand across all days





Region: Washington State

Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	12%	0%	88%
Percent of electricity consumed	8%	0%	92%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	15.4	9.8	14.9
Average length of time with vehicle drawing power per charging event (hr)	2.6	2.8	2.6
Average electricity consumed per charging event (AC kWh)	9.2	11.1	9.4







Distribution of Electricity Consumed per Charging Event







Region: Washington State

Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall
Number of charging events	4,071	1,060	5,131
Electricity consumed (AC MWh)	33.55	7.69	41.23
Percent of time with a vehicle connected to EVSE	4%	2%	3%
Percent of time with a vehicle drawing power from EVSE	2%	1%	2%
Average number of charging events started per EVSE per day	0.23	0.15	0.20

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³











Region: Washington State

Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	14%	4%	83%
Percent of electricity consumed	11%	3%	86%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	4.5	2.2	4.0
Average length of time with vehicle drawing power per charging event (hr)	2.0	1.7	2.0
Average electricity consumed per charging event (AC kWh)	8.2	7.3	8.0

Distribution of Length of Time with a Vehicle Connected per Charging Event





Distribution of Electricity Consumed per Charging Event







EV Project Electric Vehicle Charging Infrastructure Summary Report

Energy Efficiency & Renewable Energy

Region: Chicago, IL Metropolitan Area

U.S. DEPARTMENT OF

Report period: April 2013 through June 2013

Number of EV Project vehicles in region: 151



Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³

Publicly Accessible DC Fast







Project

Charging Demand: Range of Aggregate Electricity Demand versus Time of Day⁴



Includes charging units that reported at least one use during the reporting period. Some residential charging units are excluded due to incomplete data.

A charging event is defined as the period when a vehicle is connected to a charging unit, during which period some power is transferred

Considers the connection status of all charging units every minute

Based on 15 minute rolling average power output from all charging units

Note: throughout this report, weekdays are defined as the period from Monday 6:00 AM until Saturday 6:00 AM. The weekend is defined as the period from Saturday 6:00 AM until Monday 6:00 AM.





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Region: Chicago, IL Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall
Number of charging events	11,173	4,260	15,433
Electricity consumed (AC MWh)	73.68	23.99	97.67
Percent of time with a vehicle connected to EVSE	47%	55%	49%
Percent of time with a vehicle drawing power from EVSE	10%	8%	9%
Average number of charging events started per EVSE per day	1.15	1.09	1.13

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³









Region: Chicago, IL Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	12%	88%	0%
Percent of electricity consumed	15%	85%	0%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	10.6	10.6	10.6
Average length of time with vehicle drawing power per charging event (hr)	2.0	1.7	1.9
Average electricity consumed per charging event (AC kWh)	6.6	5.6	6.3





Distribution of Electricity Consumed per Charging Event









Region: Chicago, IL Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall	
Number of charging events	208	14	222	
Electricity consumed (AC MWh)	1.73	0.04	1.77	
Percent of time with a vehicle connected to EVSE	5%	0%	4%	
Percent of time with a vehicle drawing power from EVSE	3%	0%	2%	
Average number of charging events started per EVSE per day	0.26	0.04	0.20	

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³











Region: Chicago, IL Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	4%	25%	71%
Percent of electricity consumed	2%	20%	78%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	4.5	0.9	4.3
Average length of time with vehicle drawing power per charging event (hr)	2.7	0.9	2.5
Average electricity consumed per charging event (AC kWh)	8.3	2.8	8.0

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event



Distribution of Electricity Consumed per Charging Event






EV Project Electric Vehicle Charging Infrastructure Summary Report

Energy Efficiency & Renewable Energy

Region: Atlanta, GA Metropolitan Area

U.S. DEPARTMENT OF

Report period: April 2013 through June 2013

Number of EV Project vehicles in region: 213

Charging Unit Usage		Residential Level 2	Private Nonresidential Level 2	Publicly Accessible Level 2	Publicly Accessible DC Fast	Total
Number of charging units ¹		212	1	63	0	276
Number of charging events ²		16,711	11	1,610	0	18,332
Electricity consumed (AC MWh)		130.78	0.08	15.51	0.00	146.38
Percent of time with a vehicle connected to ch	arging unit	41%	5%	5%	0%	34%
Percent of time with a vehicle drawing power	from charging unit	8%	3%	4%	0%	7%
Number of Charge Events	Electricity	Consumed	50% -	Charging L	Jnit Utilization	
91%	89%	1196	40%- 30%- 20%- 10%-			

Residential Level 2 Private Nonresidential Level 2 Publicly Accessible Level 2 Publicly Accessible DC Fast





Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³





Max percentage of charging units connected across all days Inner-quartile range of charging units connected across all days Median percentage of charging units connected across all days Min percentage of charging units connected across all days

Project

Charging Demand: Range of Aggregate Electricity Demand versus Time of Day⁴



¹ Includes charging units that reported at least one use during the reporting period. Some residential charging units are excluded due to incomplete data.

² A charging event is defined as the period when a vehicle is connected to a charging unit, during which period some power is transferred

³ Considers the connection status of all charging units every minute

Based on 15 minute rolling average power output from all charging units

Note: throughout this report, weekdays are defined as the period from Monday 6:00 AM until Saturday 6:00 AM. The weekend is defined as the period from Saturday 6:00 AM until Monday 6:00 AM.





Residential Level 2 Electric Vehicle Supply Equipment (EVSE)

Region: Atlanta, GA Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall
Number of charging events	12,209	4,502	16,711
Electricity consumed (AC MWh)	98.92	31.86	130.78
Percent of time with a vehicle connected to EVSE	39%	44%	41%
Percent of time with a vehicle drawing power from EVSE	9%	7%	8%
Average number of charging events started per EVSE per day	0.90	0.83	0.88

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³



Charging Demand: Range of Aggregate Electricity Demand versus Time of Day⁴







Residential Level 2 Electric Vehicle Supply Equipment (EVSE)

Region: Atlanta, GA Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	63%	37%	0%
Percent of electricity consumed	69%	31%	0%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	11.3	11.1	11.2
Average length of time with vehicle drawing power per charging event (hr)	2.4	2.1	2.3
Average electricity consumed per charging event (AC kWh)	8.1	7.1	7.8





Distribution of Electricity Consumed per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event







Publicly Accessible Level 2 Electric Vehicle Supply Equipment (EVSE)

Region: Atlanta, GA Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall	
Number of charging events	1,425	185	1,610	
Electricity consumed (AC MWh)	14.30	1.22	15.51	
Percent of time with a vehicle connected to EVSE	7%	1%	5%	
Percent of time with a vehicle drawing power from EVSE	5%	1%	4%	
Average number of charging events started per EVSE per day	0.46	0.15	0.37	

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³



Charging Demand: Range of Aggregate Electricity Demand versus Time of Day⁴









Publicly Accessible Level 2 Electric Vehicle Supply Equipment (EVSE)

Region: Atlanta, GA Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	5%	3%	92%
Percent of electricity consumed	5%	2%	93%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	3.6	1.8	3.4
Average length of time with vehicle drawing power per charging event (hr)	2.5	1.6	2.4
Average electricity consumed per charging event (AC kWh)	10.0	7.1	9.6

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event



Distribution of Electricity Consumed per Charging Event







EV Project Electric Vehicle Charging Infrastructure Summary Report

Energy Efficiency & Renewable Energy

Region: Philadelphia, PA Metropolitan Area Report period: April 2013 through June 2013 Number of EV Project vehicles in region: 75

U.S. DEPARTMENT OF



Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³

Publicly Accessible DC Fast





Max percentage of charging units connected across all days Inner-quartile range of charging units connected across all days Median percentage of charging units connected across all days Min percentage of charging units connected across all days

Project

Charging Demand: Range of Aggregate Electricity Demand versus Time of Day⁴



Includes charging units that reported at least one use during the reporting period. Some residential charging units are excluded due to incomplete data.

A charging event is defined as the period when a vehicle is connected to a charging unit, during which period some power is transferred

Considers the connection status of all charging units every minute

Based on 15 minute rolling average power output from all charging units

Note: throughout this report, weekdays are defined as the period from Monday 6:00 AM until Saturday 6:00 AM. The weekend is defined as the period from Saturday 6:00 AM until Monday 6:00 AM.





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Residential Level 2 Electric Vehicle Supply Equipment (EVSE)

Region: Philadelphia, PA Metropolitan Area

Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall	
Number of charging events	5,085	1,746	6,831	
Electricity consumed (AC MWh)	34.65	11.01	45.66	
Percent of time with a vehicle connected to EVSE	43%	48%	45%	
Percent of time with a vehicle drawing power from EVSE	9%	7%	8%	
Average number of charging events started per EVSE per day	1.05	0.90	1.01	

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³



Charging Demand: Range of Aggregate Electricity Demand versus Time of Day₄







Residential Level 2 Electric Vehicle Supply Equipment (EVSE)

Region: Philadelphia, PA Metropolitan Area Report period: April 2013 through June 2013

Vehicles Charged	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	28%	72%	0%
Percent of electricity consumed	34%	66%	0%
Individual Charging Event Statistics	Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)	10.6	11.2	10.7
Average length of time with vehicle drawing power per charging event (hr)	2.0	1.9	2.0
Average electricity consumed per charging event (AC kWh)	6.8	6.3	6.7

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Electricity Consumed per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event







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Publicly Accessible Level 2 Electric Vehicle Supply Equipment (EVSE)

Region: Philadelphia, PA Metropolitan Area Report period: April 2013 through June 2013

EVSE Usage	Weekday	Weekend	Overall	
Number of charging events	223	84	307	
Electricity consumed (AC MWh)	1.89	0.86	2.76	
Percent of time with a vehicle connected to EVSE	4%	4%	4%	
Percent of time with a vehicle drawing power from EVSE	1%	1%	1%	
Average number of charging events started per EVSE per day	0.13	0.12	0.13	

Charging Availability: Range of Percent of Charging Units with a Vehicle Connected versus Time of Day³





Max percentage of charging units connected across all days Inner-quartile range of charging units connected across all days Median percentage of charging units connected across all days

Min percentage of charging units connected across all days

Charging Demand: Range of Aggregate Electricity Demand versus Time of Day⁴





Max electricity demand across all days

Inner-quartile range of electricity demand across all days

Median electricity demand across all days

Min electricity demand across all days





Publicly Accessible Level 2 Electric Vehicle Supply Equipment (EVSE)

Region: Philadelphia, PA Metropolitan Area Report period: April 2013 through June 2013

	PhillyCarShare fleet			
Vehicles Charged	1	Nissan Leaf	Chevrolet Volt	Unknown
Percent of charging events	29%	0%	18%	52%
Percent of electricity consumed	29%	0%	7%	64%
Individual Charging Event Statistics		Weekday (WD)	Weekend (WE)	Overall
Average length of time with vehicle connected per charging event (hr)		8.2	7.0	7.9
Average length of time with vehicle drawing power per charging event ((hr)	2.2	2.6	2.3
Average electricity consumed per charging event (AC kWh)		8.3	10.7	9.0

Distribution of Length of Time with a Vehicle Connected per Charging Event



Distribution of Length of Time with a Vehicle Drawing Power per Charging Event



Distribution of Electricity Consumed per Charging Event



¹ PhillyCarShare operates a car sharing fleet of Chevrolet Volts in this region. Usage of publicly accessible EV Project charging units to charge these vehicles is included in this report.





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Appendix C - EV Project Nissan Leaf Vehicle Report

Region: ALL

Number of vehicles: 4261

Reporting period: April 2013 through June 2013

Vehicle Usage

Number of trips '	1,135,053
Total distance traveled (mi)	8,040,300
Avg trip distance (mi)	7.1
Avg distance traveled per day when the vehicle was driven (mi)	29.5
Avg number of trips between charging events	3.8
Avg distance traveled between charging events (mi)	26.7
Ave number of charging events per day when the vehicle was driven	1.1

Charging Location and Type	Home charging location ²	Away-from- home charging locations ³	Unknown charging locations ⁴
Number of charging events	222,008	61,638	17,614
Percent of all charging events	74%	20%	6%



Project

Battery State of Charge (SOC) at the Start of Charging Events



Battery State of Charge (SOC) at the End of Charging Events



1 A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2 Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.





Region: Phoenix, AZ Metropolitan Area Number of vehicles: 184 Reporting period: April 2013 through June 2013

Vehicle Usage

Number of trips ¹	47,378
Total distance traveled (mi)	359,599
Avg trip distance (mi)	7.6
Avg distance traveled per day when the vehicle was driven (mi)	31.0
Avg number of trips between charging events	3.6
Avg distance traveled between charging events (mi)	27.0
Avg number of charging events per day when the vehicle was driven	1.1

Charging Location and Type	Home charging location ²	Away-from- home charging locations ³	Unknown charging locations ⁴
Number of charging events	9,535	2,918	877
Percent of all charging events	72%	22%	7%



Project

Battery State of Charge (SOC) at the Start of Charging Events



Battery State of Charge (SOC) at the End of Charging Events



1 A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2 Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.





Region: Tucson, AZ Metropolitan Area Number of vehicles: 51 Reporting period: April 2013 through June 2013

Vehicle Usage

	e
Number of trips ¹	15,071
Total distance traveled (mi)	89,028
Avg trip distance (mi)	5.9
Avg distance traveled per day when the vehicle was driven (mi)	26.5
Avg number of trips between charging events	4.2
Avg distance traveled between charging events (mi)	24.5
Avg number of charging events per day when the vehicle was driven	1.1

Charging Location and Type	Home charging location ²	Away-from- home charging locations ³	Unknown charging locations ⁴
Number of charging events	2,755	552	324
Percent of all charging events	76%	15%	9%



Battery State of Charge (SOC)



Battery State of Charge (SOC) at the End of Charging Events



1 A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2 Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.

3 Charging events at "away-from-home charging locations" refer to charging events performed at any location other than the vehicle's "home charging location." 4 Charging events at "unknown charging locations" were performed when the vehicle's location relative to its "home charging location" is not known, due to GPS data anomalies.



Percent of Charging Events

10%

5% 0%





Project

Region: Los Angeles, CA Metropolitan Area Number of vehicles: 274 Reporting period: April 2013 through June 2013

Vehicle Usage

Number of trips ¹	66,928
Total distance traveled (mi)	441,237
Avg trip distance (mi)	6.6
Avg distance traveled per day when the vehicle was driven (mi)	26.9
Avg number of trips between charging events	3.9
Avg distance traveled between charging events (mi)	25.8
Avg number of charging events per day when the vehicle was driven	1.0

Charging Location and Type	Home charging location ²	Away-from- home charging locations ³	Unknown charging locations ⁴
Number of charging events	11,591	4,434	1,089
Percent of all charging events	68%	26%	6%



Project

Battery State of Charge (SOC) at the Start of Charging Events



Battery State of Charge (SOC) at the End of Charging Events



1 A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2 Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.





Region: San Diego, CA Metropolitan Area Number of vehicles: 478 Reporting period: April 2013 through June 2013

Vehicle Usage

Number of trips '	129,788
Total distance traveled (mi)	906,270
Avg trip distance (mi)	7.0
Avg distance traveled per day when the vehicle was driven (mi)	29.0
Avg number of trips between charging events	3.8
Avg distance traveled between charging events (mi)	26.6
Avg number of charging events per day when the vehicle was driven	1.1

Charging Location and Type	Home charging location ²	Away-from- home charging locations ³	Unknown charging locations ⁴
Number of charging events	26,435	5,663	1,952
Percent of all charging events	78%	17%	6%





Battery State of Charge (SOC) at the End of Charging Events



1 A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2 Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.

3 Charging events at "away-from-home charging locations" refer to charging events performed at any location other than the vehicle's "home charging location." 4 Charging events at "unknown charging locations" were performed when the vehicle's location relative to its "home charging location" is not known, due to GPS data anomalies.







Project

Region: San Francisco, CA Metropolitan Area Number of vehicles: 1311 Reporting period: April 2013 through June 2013

Vehicle Usage

Number of trips ¹	314,665
Total distance traveled (mi)	2,413,693
Avg trip distance (mi)	7.7
Avg distance traveled per day when the vehicle was driven (mi)	30.0
Avg number of trips between charging events	3.7
Avg distance traveled between charging events (mi)	28.3
Avg number of charging events per day when the vehicle was driven	1.1

Charging Location and Type	Home charging location ²	Away-from- home charging locations ³	Unknown charging locations ⁴
Number of charging events	59,366	22,911	3,049
Percent of all charging events	70%	27%	4%



Project

Battery State of Charge (SOC) at the Start of Charging Events



Battery State of Charge (SOC) at the End of Charging Events



1 A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2 Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.





Region: Washington, D.C. Metropolitan Area Number of vehicles: 39 Reporting period: April 2013 through June 2013

Vehicle Usage

35%

Number of trips ¹	10,439
Total distance traveled (mi)	87,334
Avg trip distance (mi)	8.4
Avg distance traveled per day when the vehicle was driven (mi)	32.5
Avg number of trips between charging events	3.1
Avg distance traveled between charging events (mi)	26.4
Avg number of charging events per day when the vehicle was driven	1.2

Charging Location and Type	Home charging location ²	Away-from- home charging locations ³	Unknown charging locations ⁴
Number of charging events	2,520	471	323
Percent of all charging events	76%	14%	10%





Battery State of Charge (SOC) at the End of Charging Events



1 A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2 Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.









Region: Oregon

Number of vehicles: 382

Reporting period: April 2013 through June 2013

Vehicle Usage

Number of trips '	114,550
Total distance traveled (mi)	724,234
Avg trip distance (mi)	6.3
Avg distance traveled per day when the vehicle was driven (mi)	28.7
Avg number of trips between charging events	4.1
Avg distance traveled between charging events (mi)	25.8
Avg number of charging events per day when the vehicle was driven	1.1

Charging Location and Type	Home charging location ²	Away-from- home charging locations ³	Unknown charging locations ⁴
Number of charging events	21,396	4,801	1,864
Percent of all charging events	76%	17%	7%



Project

Battery State of Charge (SOC) at the Start of Charging Events



Battery State of Charge (SOC) at the End of Charging Events



1 A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2 Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.





Region: Chattanooga, TN Metropolitan Area Number of vehicles: 39 Reporting period: April 2013 through June 2013

Vehicle Usage

Number of trips ¹	10,666
Total distance traveled (mi)	79,582
Avg trip distance (mi)	7.5
Avg distance traveled per day when the vehicle was driven (mi)	32.4
Avg number of trips between charging events	3.6
Avg distance traveled between charging events (mi)	27.1
Avg number of charging events per day when the vehicle was driven	1.2

Charging Location and Type	Home charging location ²	Away-from- home charging locations ³	Unknown charging locations ⁴
Number of charging events	2,319	498	122
Percent of all charging events	79%	17%	4%



Charging Event Starting SOC (%)

Battery State of Charge (SOC) at the End of Charging Events



1 A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2 Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.

3 Charging events at "away-from-home charging locations" refer to charging events performed at any location other than the vehicle's "home charging location." 4 Charging events at "unknown charging locations" were performed when the vehicle's location relative to its "home charging location" is not known, due to GPS data anomalies.







Project

Region: Knoxville, TN Metropolitan Area Number of vehicles: 78 Reporting period: April 2013 through June 2013

Vehicle Usage

Number of trips '	19,200
Total distance traveled (mi)	151,405
Avg trip distance (mi)	7.9
Avg distance traveled per day when the vehicle was driven (mi)	32.5
Avg number of trips between charging events	3.3
Avg distance traveled between charging events (mi)	26.3
Avg number of charging events per day when the vehicle was driven	1.2

Charging Location and Type	Home charging location ²	Away-from- home charging locations ³	Unknown charging locations ⁴
Number of charging events	3,760	1,546	446
Percent of all charging events	65%	27%	8%



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06:-

4052.04 20. 50 P 30.540 00-10 50.50 10.580 Charging Event Starting SOC (%) Battery State of Charge (SOC) at the End of Charging Events



1 A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2 Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.

3 Charging events at "away-from-home charging locations" refer to charging events performed at any location other than the vehicle's "home charging location." 4 Charging events at "unknown charging locations" were performed when the vehicle's location relative to its "home charging location" is not known, due to GPS data anomalies.



0%

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Project

Region: Memphis, TN Metropolitan Area Number of vehicles: 41 Reporting period: April 2013 through June 2013

Vehicle Usage

Number of trips '	12,584
Total distance traveled (mi)	71,253
Avg trip distance (mi)	5.7
Avg distance traveled per day when the vehicle was driven (mi)	26.9
Avg number of trips between charging events	4.4
Avg distance traveled between charging events (mi)	25.0
Avg number of charging events per day when the vehicle was driven	1.1

Charging Location and Type	Home charging location ²	Away-from- home charging locations ³	Unknown charging locations ⁴
Number of charging events	2,241	178	434
Percent of all charging events	79%	6%	15%



Charging Event Starting SOC (%)

50.50 50.50 50.50 50.50

Battery State of Charge (SOC) at the End of Charging Events



1 A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2 Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.









Region: Nashville, TN Metropolitan Area Number of vehicles: 515 Reporting period: April 2013 through June 2013

Vehicle Usage

Number of trips ¹	146,872
Total distance traveled (mi)	1,094,423
Avg trip distance (mi)	7.5
Avg distance traveled per day when the vehicle was driven (mi)	31.9
Avg number of trips between charging events	3.6
Avg distance traveled between charging events (mi)	26.8
Avg number of charging events per day when the vehicle was driven	1.2

Charging Location and Type	Home charging location ²	Away-from- home charging locations ³	Unknown charging locations ⁴
Number of charging events	29,900	7,284	3,603
Percent of all charging events	73%	18%	9%



Project

Battery State of Charge (SOC) at the Start of Charging Events



Battery State of Charge (SOC) at the End of Charging Events



1 A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2 Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.





Region: Dallas/Ft. Worth, TX Metropolitan Area Number of vehicles: 19 Reporting period: April 2013 through June 2013

Vehicle Usage

Number of trips ¹	5,042
Total distance traveled (mi)	40,731
Avg trip distance (mi)	8.1
Avg distance traveled per day when the vehicle was driven (mi)	31.0
Avg number of trips between charging events	3.2
Avg distance traveled between charging events (mi)	25.9
Avg number of charging events per day when the vehicle was driven	1.2

Charging Location and Type	Home charging location ²	Away-from- home charging locations ³	Unknown charging locations ⁴
Number of charging events	1,299	272	0
Percent of all charging events	83%	17%	0%



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30.540 40 ESO 1 50.50 00-10 -20° -30 10.580 80, 590 Charging Event Starting SOC (%) Battery State of Charge (SOC) at the End of Charging Events



1 A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2 Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.

3 Charging events at "away-from-home charging locations" refer to charging events performed at any location other than the vehicle's "home charging location." 4 Charging events at "unknown charging locations" were performed when the vehicle's location relative to its "home charging location" is not known, due to GPS data anomalies.



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Region: Washington State

Number of vehicles: 658

Reporting period: April 2013 through June 2013

Vehicle Usage

35%

· · · · · · · · · · · · · · · · · · ·	
Number of trips '	188,510
Total distance traveled (mi)	1,208,418
Avg trip distance (mi)	6.4
Avg distance traveled per day when the vehicle was driven (mi)	28.0
Avg number of trips between charging events	3.9
Avg distance traveled between charging events (mi)	24.8
Ave number of charging events per day when the vehicle was driven	1.1

Charging Location and Type	Home charging location ²	Away-from- home charging locations ³	Unknown charging locations ⁴
Number of charging events	38,043	8,092	2,522
Percent of all charging events	78%	17%	5%





Battery State of Charge (SOC) at the End of Charging Events



1 A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2 Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.









Region: Chicago, IL Metropolitan Area Number of vehicles: 23 Reporting period: April 2013 through June 2013

Vehicle Usage

Number of trips ¹	6,976
Total distance traveled (mi)	45,831
Avg trip distance (mi)	6.6
Avg distance traveled per day when the vehicle was driven (mi)	29.2
Avg number of trips between charging events	4.1
Avg distance traveled between charging events (mi)	26.9
Avg number of charging events per day when the vehicle was driven	1.1

Charging Location and Type	Home charging location ²	Away-from- home charging locations ³	Unknown charging locations ⁴
Number of charging events	1,437	218	47
Percent of all charging events	84%	13%	3%



Charging Event Starting SOC (%)

Battery State of Charge (SOC) at the End of Charging Events



1 A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2 Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.









Region: Atlanta, GA Metropolitan Area Number of vehicles: 141 Reporting period: April 2013 through June 2013

Vehicle Usage

Number of trips '	38,466
Total distance traveled (mi)	275 556
	210,000
Avg trip distance (mi)	7.2
Avg distance traveled per day when the vehicle was driven (mi)	29.6
Avg number of trips between charging events	3.8
Avg distance traveled between charging events (mi)	27.0
Avg number of charging events per day when the vehicle was driven	1.1

Charging Location and Type	Home charging location ²	Away-from- home charging locations ³	Unknown charging locations ⁴
Number of charging events	7,898	1,502	814
Percent of all charging events	77%	15%	8%

Battery State of Charge (SOC) at the Start of Charging Events



Battery State of Charge (SOC) at the End of Charging Events



1 A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2 Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.

3 Charging events at "away-from-home charging locations" refer to charging events performed at any location other than the vehicle's "home charging location." 4 Charging events at "unknown charging locations" were performed when the vehicle's location relative to its "home charging location" is not known, due to GPS data anomalies.







Project

Region: Philadelphia, PA Metropolitan Area Number of vehicles: 24 Reporting period: April 2013 through June 2013

Vehicle Usage

Number of trips ¹	6,797
Total distance traveled (mi)	42,754
Avg trip distance (mi)	6.3
Avg distance traveled per day when the vehicle was driven (mi)	26.2
Avg number of trips between charging events	4.1
Avg distance traveled between charging events (mi)	25.6
Avg number of charging events per day when the vehicle was driven	1.0

Charging Location and Type	Home charging location ²	Away-from- home charging locations ³	Unknown charging locations ⁴
Number of charging events	1,283	239	148
Percent of all charging events	77%	14%	9%

Battery State of Charge (SOC) at the Start of Charging Events



Battery State of Charge (SOC) at the End of Charging Events



1 A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2 Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.











Appendix D - EV Project Chevrolet Volt Vehicle Report

Region: ALL Number of vehicles: 1895

Reporting period: April 2013 through June 2013

Vehicle Usage Overall gasoline fuel economy (mpg) 142 Overall electrical energy consumption (AC Wh/mi) 231 676.414 Number of trips¹ Total distance traveled (mi) 5,753,009 8.3 Avg trip distance (mi)² Avg distance traveled per day when the vehicle was driven (mi) 41.0 Avg number of trips between charging events 3.3 Avg distance traveled between charging events (mi) 27.6 Avg number of charging events per day when the vehicle was driven 1.5

Electric Vehicle Mode (EV) Operation

Gasoline fuel economy (mpg)	No Fuel Used
AC electrical energy consumption (AC Wh/mi)	310
Distance traveled (mi)	4,289,168
Percent of total distance traveled	74.6%

Extended Range Mode (ERM) Operation

Gasoline fuel economy (mpg)	36.1
AC electrical energy consumption (AC Wh/mi)	No Elec. Used
Distance traveled (mi)	1,463,842
Percent of total distance traveled	25.4%

Charging Location	Home charging location ³	Away-from-home charging locations ⁴	Unknown charging locations ⁵
Total number of charging events	161,750	27,872	13,584
Percent of all charging events	80%	14%	7%

Battery State of Charge (SOC) at the Start of Charging Events



Project

Frequency of Charging by Charging Location and Type





1. A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2. Averages shown in this report are based on a subset of the total miles traveled.

Charging Event Starting SOC

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3. Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.

4. Charging events at "away-from-home charging locations" refer to charging events performed at any location other than the vehicle's "home charging location."

Home

home

location

Away from

5. Charging events at "unknown charging locations" were performed when the vehicle's location relative to its "home charging location" is not known, due to GPS data anomalies.



60%

50%

40%

30%

20%

10%

0%

0120

Percent of Charging Events



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Region: Phoenix, AZ Metropolitan Area Number of vehicles: 129 Reporting period: April 2013 through June 2013

Vehicle Usage

Overall gasoline fuel economy (mpg)	149
Overall electrical energy consumption (AC Wh/mi)	251
Number of trips ¹	45,902
Total distance traveled (mi)	380,907
Avg trip distance (mi) ²	8.1
Avg distance traveled per day when the vehicle was driven (mi)	39.6
Avg number of trips between charging events	3.5
Avg distance traveled between charging events (mi)	28.1
Avg number of charging events per day when the vehicle was driven	1.4

Electric Vehicle Mode (EV) Operation

Gasoline fuel economy (mpg)	No Fuel Used
AC electrical energy consumption (AC Wh/mi)	328
Distance traveled (mi)	292,307
Percent of total distance traveled	76.7%

Extended Range Mode (ERM) Operation

34.8
No Elec. Used
88,600
23.3%

Charging Location	Home charging location ³	Away-from-home charging locations ⁴	Unknown charging locations⁵
Total number of charging events	11,000	1,713	473
Percent of all charging events	83%	13%	4%

Battery State of Charge (SOC)

at the Start of Charging Events



Trip Distance (mi)

Frequency of Charging by Charging Location and Type





1. A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2. Averages shown in this report are based on a subset of the total miles traveled.

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Charging Event Starting SOC

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3. Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.

4. Charging events at "away-from-home charging locations" refer to charging events performed at any location other than the vehicle's "home charging location."

Home

home

location

Away from

5. Charging events at "unknown charging locations" were performed when the vehicle's location relative to its "home charging location" is not known, due to GPS data anomalies.



60%

50%

40%

30%

20%

10%

0%

0120

Percent of Charging Events



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Region: Los Angeles, CA Metropolitan Area Number of vehicles: 320 Reporting period: April 2013 through June 2013

Vehicle Usage Overall gasoline fuel economy (mpg) 142 Overall electrical energy consumption (AC Wh/mi) 236 Number of trips¹ 118.758 Total distance traveled (mi) 941,685 7.7 Avg trip distance (mi)² Avg distance traveled per day when the vehicle was driven (mi) 39.0 Avg number of trips between charging events 3.7 Avg distance traveled between charging events (mi) 28.4 Avg number of charging events per day when the vehicle was driven 1.4

Electric Vehicle Mode (EV) Operation

Gasoline fuel economy (mpg)	No Fuel Used
AC electrical energy consumption (AC Wh/mi)	311
Distance traveled (mi)	714,086
Percent of total distance traveled	75.8%

Extended Range Mode (ERM) Operation

Gasoline fuel economy (mpg)	34.2
AC electrical energy consumption (AC Wh/mi)	No Elec. Used
Distance traveled (mi)	227,599
Percent of total distance traveled	24.2%

Charging Location	Home charging location ³	Away-from-home charging locations ⁴	Unknown charging locations⁵
Total number of charging events	24,595	5,692	1,917
Percent of all charging events	76%	18%	6%



Charging Event Starting SOC

1. A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2. Averages shown in this report are based on a subset of the total miles traveled.

3. Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.

- 4. Charging events at "away-from-home charging locations" refer to charging events performed at any location other than the vehicle's "home charging location."
- 5. Charging events at "unknown charging locations" were performed when the vehicle's location relative to its "home charging location" is not known, due to GPS data anomalies.



60%

50%

40%

30%

20%

10%

0%

0120

Percent of Charging Events









Trip Distance (mi)

Frequency of Charging by Charging Location and Type





Region: San Diego, CA Metropolitan Area Number of vehicles: 256 Reporting period: April 2013 through June 2013

Vehicle Usage Overall gasoline fuel economy (mpg) 124 Overall electrical energy consumption (AC Wh/mi) 228 Number of trips¹ 89.190 Total distance traveled (mi) 762,937 8.2 Avg trip distance (mi)² Avg distance traveled per day when the vehicle was driven (mi) 40.2 Avg number of trips between charging events 3.6 Avg distance traveled between charging events (mi) 29.6 Avg number of charging events per day when the vehicle was driven 1.4

Electric Vehicle Mode (EV) Operation

Gasoline fuel economy (mpg)	No Fuel Used
AC electrical energy consumption (AC Wh/mi)	318
Distance traveled (mi)	548,594
Percent of total distance traveled	71.9%

Extended Range Mode (ERM) Operation

Gasoline fuel economy (mpg)	34.8
AC electrical energy consumption (AC Wh/mi)	No Elec. Used
Distance traveled (mi)	214,343
Percent of total distance traveled	28.1%

Charging Location	Home charging location ³	Away-from-home charging locations ⁴	Unknown charging locations ⁵
Total number of charging events	19,710	3,565	1,559
Percent of all charging events	79%	14%	6%

Battery State of Charge (SOC) at the Start of Charging Events



Trip Distance (mi)

Frequency of Charging by Charging Location and Type





1. A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2. Averages shown in this report are based on a subset of the total miles traveled.

Charging Event Starting SOC

60.57

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3. Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.

4. Charging events at "away-from-home charging locations" refer to charging events performed at any location other than the vehicle's "home charging location."

Home

home

location

Away from

5. Charging events at "unknown charging locations" were performed when the vehicle's location relative to its "home charging location" is not known, due to GPS data anomalies.



60%

50%

40%

30%

20%

10%

0%

0120

Percent of Charging Events



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Region: Washington, D.C. Metropolitan Area Number of vehicles: 266 Reporting period: April 2013 through June 2013

Vehicle Usage Overall gasoline fuel economy (mpg) 159 Overall electrical energy consumption (AC Wh/mi) 224 Number of trips¹ 88.306 Total distance traveled (mi) 820,215 9.1 Avg trip distance (mi)² Avg distance traveled per day when the vehicle was driven (mi) 42.5 Avg number of trips between charging events 3.1 Avg distance traveled between charging events (mi) 27.9 Avg number of charging events per day when the vehicle was driven 1.5

Electric Vehicle Mode (EV) Operation

Gasoline fuel economy (mpg)	No Fuel Used
AC electrical energy consumption (AC Wh/mi)	295
Distance traveled (mi)	622,528
Percent of total distance traveled	75.9%

Extended Range Mode (ERM) Operation

Gasoline fuel economy (mpg)	38.3
AC electrical energy consumption (AC Wh/mi)	No Elec. Used
Distance traveled (mi)	197,687
Percent of total distance traveled	24.1%

Charging Location	Home charging location ³	Away-from-home charging locations ⁴	Unknown charging locations ⁵
Total number of charging events	23,277	3,582	1,917
Percent of all charging events	81%	12%	7%

Battery State of Charge (SOC) at the Start of Charging Events



Trip Distance (mi)

Frequency of Charging by Charging Location and Type





1. A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2. Averages shown in this report are based on a subset of the total miles traveled.

Charging Event Starting SOC

60.57

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3. Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.

- 4. Charging events at "away-from-home charging locations" refer to charging events performed at any location other than the vehicle's "home charging location."
- 5. Charging events at "unknown charging locations" were performed when the vehicle's location relative to its "home charging location" is not known, due to GPS data anomalies.



60%

50%

40%

30%

20%

10%

0%

0120

Percent of Charging Events



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Region: Oregon Number of vehicles: 130 Reporting period: April 2013 through June 2013

Vehicle Usage	
Overall gasoline fuel economy (mpg)	166
Overall electrical energy consumption (AC Wh/mi)	239
Number of trips ¹	45,795
Total distance traveled (mi)	366,636
Avg trip distance (mi) ²	7.8
Avg distance traveled per day when the vehicle was driven (mi)	39.3
Avg number of trips between charging events	3.2
Avg distance traveled between charging events (mi)	24.7
Avg number of charging events per day when the vehicle was driven	1.6

Electric Vehicle Mode (EV) Operation

Gasoline fuel economy (mpg)	No Fuel Used
AC electrical energy consumption (AC Wh/mi)	308
Distance traveled (mi)	284,575
Percent of total distance traveled	77.6%

Extended Range Mode (ERM) Operation

Gasoline fuel economy (mpg)	37.2
AC electrical energy consumption (AC Wh/mi)	No Elec. Used
Distance traveled (mi)	82,061
Percent of total distance traveled	22.4%

Charging Location	Home charging location ³	Away-from-home charging locations ⁴	Unknown charging locations ⁵
Total number of charging events	11,460	2,244	707
Percent of all charging events	80%	16%	5%

Battery State of Charge (SOC)

at the Start of Charging Events



Project

Trip Distance (mi)

Frequency of Charging by Charging Location and Type





1. A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2. Averages shown in this report are based on a subset of the total miles traveled.

Charging Event Starting SOC

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40.40

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3. Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.

4. Charging events at "away-from-home charging locations" refer to charging events performed at any location other than the vehicle's "home charging location."

Home

home

location

Away from

5. Charging events at "unknown charging locations" were performed when the vehicle's location relative to its "home charging location" is not known, due to GPS data anomalies.



60%

50%

40%

30%

20%

10%

0%

0120

Percent of Charging Events



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Region: Chattanooga, TN Metropolitan Area Number of vehicles: 13 Reporting period: April 2013 through June 2013

Vehicle Usage

Overall gasoline fuel economy (mpg)	96
Overall electrical energy consumption (AC Wh/mi)	175
Number of trips ¹	4,526
Total distance traveled (mi)	52,311
Avg trip distance (mi) ²	11.4
Avg distance traveled per day when the vehicle was driven (mi)	52.5
Avg number of trips between charging events	3.5
Avg distance traveled between charging events (mi)	39.5
Avg number of charging events per day when the vehicle was driven	1.3

Electric Vehicle Mode (EV) Operation

Gasoline fuel economy (mpg)	No Fuel Used
AC electrical energy consumption (AC Wh/mi)	290
Distance traveled (mi)	31,535
Percent of total distance traveled	60.3%

Extended Range Mode (ERM) Operation

Gasoline fuel economy (mpg)	38.1
AC electrical energy consumption (AC Wh/mi)	No Elec. Used
Distance traveled (mi)	20,777
Percent of total distance traveled	39.7%

Charging Location	Home charging location ³	Away-from-home charging locations ⁴	Unknown charging locations ⁵
Total number of charging events	859	35	409
Percent of all charging events	66%	3%	31%

Battery State of Charge (SOC)

at the Start of Charging Events



Project

Trip Distance (mi)

Frequency of Charging by Charging Location and Type





1. A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2. Averages shown in this report are based on a subset of the total miles traveled.

Charging Event Starting SOC

60. 570 70. 50 80. 60

\$0.50 50.560

30,540

3. Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.

4. Charging events at "away-from-home charging locations" refer to charging events performed at any location other than the vehicle's "home charging location."

Home

home

location

Away from

5. Charging events at "unknown charging locations" were performed when the vehicle's location relative to its "home charging location" is not known, due to GPS data anomalies.



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10,530

Percent of Charging Events



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Region: Knoxville, TN Metropolitan Area Number of vehicles: 31 Reporting period: April 2013 through June 2013

Vehicle Usage Overall gasoline fuel economy (mpg) 138 Overall electrical energy consumption (AC Wh/mi) 219 10.648 Number of trips¹ Total distance traveled (mi) 91,471 8.4 Avg trip distance (mi)² Avg distance traveled per day when the vehicle was driven (mi) 43.4 Avg number of trips between charging events 3.3 Avg distance traveled between charging events (mi) 27.6 Avg number of charging events per day when the vehicle was driven 1.6

Electric Vehicle Mode (EV) Operation

Gasoline fuel economy (mpg)	No Fuel Used
AC electrical energy consumption (AC Wh/mi)	303
Distance traveled (mi)	66,290
Percent of total distance traveled	72.5%

Extended Range Mode (ERM) Operation

Gasoline fuel economy (mpg)	37.9
AC electrical energy consumption (AC Wh/mi)	No Elec. Used
Distance traveled (mi)	25,182
Percent of total distance traveled	27.5%
Distance traveled (mi) Percent of total distance traveled	25,182 27.5%

Charging Location	Home charging location ³	Away-from-home charging locations ⁴	Unknown charging locations⁵
Total number of charging events	2,261	381	599
Percent of all charging events	70%	12%	18%

Battery State of Charge (SOC) at the Start of Charging Events



Project

Trip Distance (mi)





1. A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2. Averages shown in this report are based on a subset of the total miles traveled.

Charging Event Starting SOC

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40.550 50.560

30.5

3. Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.

4. Charging events at "away-from-home charging locations" refer to charging events performed at any location other than the vehicle's "home charging location."

Home

home

location

Away from

5. Charging events at "unknown charging locations" were performed when the vehicle's location relative to its "home charging location" is not known, due to GPS data anomalies.



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Percent of Charging Events



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135

220

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3.5

26.4

1.5

11.005

85,502

EV Project Chevrolet Volt Vehicle Summary Report

Region: Memphis, TN Metropolitan Area Number of vehicles: 31 Reporting period: April 2013 through June 2013

Vehicle Usage Overall gasoline fuel economy (mpg) Overall electrical energy consumption (AC Wh/mi) Number of trips¹ Total distance traveled (mi) Avg trip distance (mi)² Avg distance traveled per day when the vehicle was driven (mi) Avg number of trips between charging events

Avg number of charging events per day when the vehicle was driven

Electric	Vehicle	Mode	Operation
	VEINCIE	Mode	

Avg distance traveled between charging events (mi)

Gasoline fuel economy (mpg)	No Fuel Used
AC electrical energy consumption (AC Wh/mi)	301
Distance traveled (mi)	62,270
Percent of total distance traveled	72.8%

Extended Range Mode (ERM) Operation

Gasoline fuel economy (mpg)	36.6
AC electrical energy consumption (AC Wh/mi)	No Elec. Used
Distance traveled (mi)	23,231
Percent of total distance traveled	27.2%

Charging Location	Home charging location ³	Away-from-home charging locations ⁴	Unknown charging locations ⁵
Total number of charging events	2,494	261	387
Percent of all charging events	79%	8%	12%

Battery State of Charge (SOC)

at the Start of Charging Events



Project

Trip Distance (mi)

Frequency of Charging by Charging Location and Type





1. A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2. Averages shown in this report are based on a subset of the total miles traveled.

Charging Event Starting SOC

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40.550 50.50

30.50

3. Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.

4. Charging events at "away-from-home charging locations" refer to charging events performed at any location other than the vehicle's "home charging location."

Home

home

location

Away from

5. Charging events at "unknown charging locations" were performed when the vehicle's location relative to its "home charging location" is not known, due to GPS data anomalies.



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Percent of Charging Events



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Region: Nashville, TN Metropolitan Area Number of vehicles: 50 Reporting period: April 2013 through June 2013

Vehicle Usage	
Overall gasoline fuel economy (mpg)	139
Overall electrical energy consumption (AC Wh/mi)	223
Number of trips ¹	17,325
Total distance traveled (mi)	151,829
Avg trip distance (mi) ²	8.6
Avg distance traveled per day when the vehicle was driven (mi)	43.4
Avg number of trips between charging events	3.3
Avg distance traveled between charging events (mi)	28.6
Ava number of charging events per day when the vehicle was driven	1.5

Electric Vehicle Mode (EV) Operation

Gasoline fuel economy (mpg)	No Fuel Used
AC electrical energy consumption (AC Wh/mi)	304
Distance traveled (mi)	111,302
Percent of total distance traveled	73.3%

Extended Range Mode (ERM) Operation

Gasoline fuel economy (mpg)	37.1
AC electrical energy consumption (AC Wh/mi)	No Elec. Used
Distance traveled (mi)	40,527
Percent of total distance traveled	26.7%
Distance traveled (mi) Percent of total distance traveled	40,527 26.7%

Charging Location	Home charging location ³	Away-from-home charging locations ⁴	Unknown charging locations ⁵
Total number of charging events	4,004	667	511
Percent of all charging events	77%	13%	10%

Battery State of Charge (SOC)

at the Start of Charging Events



Trip Distance (mi)

Frequency of Charging by Charging Location and Type





1. A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2. Averages shown in this report are based on a subset of the total miles traveled.

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Charging Event Starting SOC

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3. Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.

4. Charging events at "away-from-home charging locations" refer to charging events performed at any location other than the vehicle's "home charging location."

Home

home

location

Away from

5. Charging events at "unknown charging locations" were performed when the vehicle's location relative to its "home charging location" is not known, due to GPS data anomalies.



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Percent of Charging Events



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Region: Dallas/Ft. Worth, TX Metropolitan Area Number of vehicles: 177 Reporting period: April 2013 through June 2013

Vehicle Usage Overall gasoline fuel economy (mpg) 135 Overall electrical energy consumption (AC Wh/mi) 232 Number of trips¹ 64.699 Total distance traveled (mi) 562,428 8.5 Avg trip distance (mi)² Avg distance traveled per day when the vehicle was driven (mi) 42.3 Avg number of trips between charging events 3.1 Avg distance traveled between charging events (mi) 26.5 Avg number of charging events per day when the vehicle was driven 1.6

Electric Vehicle Mode (EV) Operation

Gasoline fuel economy (mpg)	No Fuel Used
AC electrical energy consumption (AC Wh/mi)	316
Distance traveled (mi)	412,072
Percent of total distance traveled	73.3%

Extended Range Mode (ERM) Operation

Gasoline fuel economy (mpg)	36.2
AC electrical energy consumption (AC Wh/mi)	No Elec. Used
Distance traveled (mi)	150,356
Percent of total distance traveled	26.7%

Charging Location	Home charging location ³	Away-from-home charging locations ⁴	Unknown charging locations ⁵
Total number of charging events	17,027	2,375	1,409
Percent of all charging events	82%	11%	7%

Battery State of Charge (SOC) at the Start of Charging Events



Trip Distance (mi)

Frequency of Charging by Charging Location and Type





1. A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2. Averages shown in this report are based on a subset of the total miles traveled.

Charging Event Starting SOC

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30.541 40.550 50.56

3. Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.

4. Charging events at "away-from-home charging locations" refer to charging events performed at any location other than the vehicle's "home charging location."

Home

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location

Away from

5. Charging events at "unknown charging locations" were performed when the vehicle's location relative to its "home charging location" is not known, due to GPS data anomalies.



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Percent of Charging Events



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Region: Houston, TX Metropolitan Area Number of vehicles: 73 Reporting period: April 2013 through June 2013

Vehicle Usage

Overall gasoline fuel economy (mpg)	126
Overall electrical energy consumption (AC Wh/mi)	223
Number of trips ¹	25,480
Total distance traveled (mi)	228,499
Avg trip distance (mi) ²	8.8
Avg distance traveled per day when the vehicle was driven (mi)	42.7
Avg number of trips between charging events	3.3
Avg distance traveled between charging events (mi)	29.2
Avg number of charging events per day when the vehicle was driven	1.5

Electric Vehicle Mode (EV) Operation

Gasoline fuel economy (mpg)	No Fuel Used
AC electrical energy consumption (AC Wh/mi)	312
Distance traveled (mi)	163,475
Percent of total distance traveled	71.5%

Extended Range Mode (ERM) Operation

Gasoline fuel economy (mpg)	36.0
AC electrical energy consumption (AC Wh/mi)	No Elec. Used
Distance traveled (mi)	65,024
Percent of total distance traveled	28.5%

Charging Location	Home charging location ³	Away-from-home charging locations ⁴	Unknown charging locations ⁵
Total number of charging events	6,199	892	590
Percent of all charging events	81%	12%	8%

Battery State of Charge (SOC)

at the Start of Charging Events



Trip Distance (mi)

Frequency of Charging by Charging Location and Type





1. A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2. Averages shown in this report are based on a subset of the total miles traveled.

Charging Event Starting SOC

30. 40 50. 50 60. 75

3. Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.

- 4. Charging events at "away-from-home charging locations" refer to charging events performed at any location other than the vehicle's "home charging location."
- 5. Charging events at "unknown charging locations" were performed when the vehicle's location relative to its "home charging location" is not known, due to GPS data anomalies.



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Percent of Charging Events



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Region: Washington State Number of vehicles: 160 Reporting period: April 2013 through June 2013

Vehicle Usage	
Overall gasoline fuel economy (mpg)	165
Overall electrical energy consumption (AC Wh/mi)	248
Number of trips ¹	58,313
Total distance traveled (mi)	457,052
Avg trip distance (mi) ²	7.7
Avg distance traveled per day when the vehicle was driven (mi)	38.0
Avg number of trips between charging events	3.2
Avg distance traveled between charging events (mi)	24.4
Avg number of charging events per day when the vehicle was driven	1.6

Electric Vehicle Mode (EV) Operation

Gasoline fuel economy (mpg)	No Fuel Used
AC electrical energy consumption (AC Wh/mi)	319
Distance traveled (mi)	355,203
Percent of total distance traveled	77.7%

Extended Range Mode (ERM) Operation

Gasoline fuel economy (mpg)	36.7
AC electrical energy consumption (AC Wh/mi)	No Elec. Used
Distance traveled (mi)	101,849
Percent of total distance traveled	22.3%

Charging Location	Home charging location ³	Away-from-home charging locations ⁴	Unknown charging locations ⁵
Total number of charging events	15,094	2,416	868
Percent of all charging events	82%	13%	5%

Battery State of Charge (SOC)

at the Start of Charging Events



Project

Trip Distance (mi)

Frequency of Charging by Charging Location and Type





1. A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2. Averages shown in this report are based on a subset of the total miles traveled.

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Charging Event Starting SOC

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3. Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.

4. Charging events at "away-from-home charging locations" refer to charging events performed at any location other than the vehicle's "home charging location."

Home

home

location

Away from

5. Charging events at "unknown charging locations" were performed when the vehicle's location relative to its "home charging location" is not known, due to GPS data anomalies.



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Percent of Charging Events



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Region: Chicago, IL Metropolitan Area Number of vehicles: 128 Reporting period: April 2013 through June 2013

Vehicle Usage

Overall gasoline fuel economy (mpg)	158
Overall electrical energy consumption (AC Wh/mi)	232
Number of trips ¹	49,905
Total distance traveled (mi)	426,959
Avg trip distance (mi) ²	8.4
Avg distance traveled per day when the vehicle was driven (mi)	43.6
Avg number of trips between charging events	3.1
Avg distance traveled between charging events (mi)	25.9
Avg number of charging events per day when the vehicle was driven	1.7

Electric Vehicle Mode (EV) Operation

Gasoline fuel economy (mpg)	No Fuel Used
AC electrical energy consumption (AC Wh/mi)	303
Distance traveled (mi)	327,104
Percent of total distance traveled	76.6%

Extended Range Mode (ERM) Operation

Gasoline fuel economy (mpg)	37.0
AC electrical energy consumption (AC Wh/mi)	No Elec. Used
Distance traveled (mi)	99,855
Percent of total distance traveled	23.4%

Charging Location	Home charging location ³	Away-from-home charging locations ⁴	Unknown charging locations ⁵
Total number of charging events	12,857	2,298	1,097
Percent of all charging events	79%	14%	7%

Battery State of Charge (SOC)

at the Start of Charging Events



Trip Distance (mi)

Frequency of Charging by Charging Location and Type





1. A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2. Averages shown in this report are based on a subset of the total miles traveled.

Charging Event Starting SOC

40.750 50.760 60.72

30,53

3. Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.

4. Charging events at "away-from-home charging locations" refer to charging events performed at any location other than the vehicle's "home charging location."

Home

home

location

Away from

5. Charging events at "unknown charging locations" were performed when the vehicle's location relative to its "home charging location" is not known, due to GPS data anomalies.



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Percent of Charging Events



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Region: Atlanta, GA Metropolitan Area Number of vehicles: 72 Reporting period: April 2013 through June 2013

Vehicle Usage

Overall gasoline fuel economy (mpg)	124
Overall electrical energy consumption (AC Wh/mi)	217
Number of trips ¹	23,900
Total distance traveled (mi)	233,409
Avg trip distance (mi) ²	9.4
Avg distance traveled per day when the vehicle was driven (mi)	44.6
Avg number of trips between charging events	3.2
Avg distance traveled between charging events (mi)	30.3
Avg number of charging events per day when the vehicle was driven	1.5

Electric Vehicle Mode (EV) Operation

Gasoline fuel economy (mpg)	No Fuel Used
AC electrical energy consumption (AC Wh/mi)	308
Distance traveled (mi)	164,396
Percent of total distance traveled	70.4%

Extended Range Mode (ERM) Operation

Gasoline fuel economy (mpg)	36.7
AC electrical energy consumption (AC Wh/mi)	No Elec. Used
Distance traveled (mi)	69,013
Percent of total distance traveled	29.6%

Charging Location	Home charging location ³	Away-from-home charging locations ⁴	Unknown charging locations⁵
Total number of charging events	5,605	997	820
Percent of all charging events	76%	13%	11%

Battery State of Charge (SOC)

at the Start of Charging Events



Trip Distance (mi)

Frequency of Charging by Charging Location and Type





1. A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2. Averages shown in this report are based on a subset of the total miles traveled.

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Charging Event Starting SOC

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3. Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.

4. Charging events at "away-from-home charging locations" refer to charging events performed at any location other than the vehicle's "home charging location."

Home

home

location

Away from

5. Charging events at "unknown charging locations" were performed when the vehicle's location relative to its "home charging location" is not known, due to GPS data anomalies.



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Percent of Charging Events



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Region: Philadelphia, PA Metropolitan Area Number of vehicles: 51 Reporting period: April 2013 through June 2013

Vehicle Usage Overall gasoline fuel economy (mpg) 118 Overall electrical energy consumption (AC Wh/mi) 201 19.889 Number of trips¹ Total distance traveled (mi) 166,817 8.2 Avg trip distance (mi)² Avg distance traveled per day when the vehicle was driven (mi) 44.0 Avg number of trips between charging events 3.6 Avg distance traveled between charging events (mi) 29.7 Avg number of charging events per day when the vehicle was driven 1.5

Electric Vehicle Mode (EV) Operation

Gasoline fuel economy (mpg)	No Fuel Used
AC electrical energy consumption (AC Wh/mi)	296
Distance traveled (mi)	113,379
Percent of total distance traveled	68.0%

Extended Range Mode (ERM) Operation

Gasoline fuel economy (mpg)	37.7
AC electrical energy consumption (AC Wh/mi)	No Elec. Used
Distance traveled (mi)	53,437
Percent of total distance traveled	32.0%

Charging Location	Home charging location ³	Away-from-home charging locations ⁴	Unknown charging locations ⁵
Total number of charging events	4,509	681	308
Percent of all charging events	82%	12%	6%

Battery State of Charge (SOC) at the Start of Charging Events



Trip Distance (mi)

Frequency of Charging by Charging Location and Type





1. A trip is defined as all the driving done between consecutive "key-on" and "key-off" events when some distance was traveled.

2. Averages shown in this report are based on a subset of the total miles traveled.

Charging Event Starting SOC

40. 50 40. 50 50. 50 60. 50

3. Charging events at the "home charging location" refer to charging events performed at the location where the vehicle owner's home charging unit is installed.

4. Charging events at "away-from-home charging locations" refer to charging events performed at any location other than the vehicle's "home charging location."

Home

home

location

Away from

5. Charging events at "unknown charging locations" were performed when the vehicle's location relative to its "home charging location" is not known, due to GPS data anomalies.



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Percent of Charging Events



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