Anonymized EVSE Session Data Example Entries

EVSE ID	User ID	Start Date/Time	Time Zone	Charging Time (hrs)	Total Duration (hrs)	Energy (kWh)	Driver Postal Code	Venue Type	SUR Split	Port Type	Port #	Plug Type	State	Station Postal Code	Fee Category
384222	286465	12/20/19 7:40 AM	EST	7.02	7.72	35.983	220XX	Business Office	Urban	Level 2	1	J1772	STATE	220XX	.20 kwh: Reservations Disabled
384222	286465	10/18/19 7:12 AM	EDT	9.53	11.04	57.258	220XX	Business Office	Urban	Level 2	2	J1772	STATE	220XX	.20 kwh: Reservations Disabled
384222	1054001	11/15/19 7:46 AM	EST	5.80	8.40	27.734	220XX	Business Office	Urban	Level 2	2	J1772	STATE	220XX	.20 kwh: Reservations Disabled
384222	2054002	10/7/19 7:20 AM	EDT	9.24	10.44	52.360	220XX	Business Office	Urban	Level 2	1	J1772	STATE	220XX	.20 kwh: Reservations Disabled
537082	10171701	10/15/19 8:38 AM	EDT	6.51	7.89	34.128	010XX	Multi-use Parking Garage/Lot	Urban	Level 2	1	J1772	STATE	113XX	$1.00 per hour: Reservations Disabled
537082	10171701	12/6/19 8:28 AM	EST	4.57	4.59	28.018	013XX	Multi-use Parking Garage/Lot	Urban	Level 2	1	J1772	STATE	113XX	$1.00 per hour: Reservations Disabled
749552	153113	12/22/19 9:14 PM	EST	10.09	10.67	73.571	320XX	Municipal Building	Rural	Level 2	2	J1772	STATE	320XX	Free
749552	2502642	11/13/19 5:59 PM	EST	9.00	14.78	54.244	320XX	Municipal Building	Rural	Level 2	1	J1772	STATE	320XX	Free
800022	1403901	10/14/19 2:05 PM	EDT	5.40	5.41	37.635	417XX	Medical or Educational Campus	Urban	Level 2	2	J1772	STATE	417XX	.30 per kWh: Reservations Disabled
800022	1403901	11/8/19 3:07 PM	EST	6.74	6.74	47.040	417XX	Medical or Educational Campus	Urban	Level 2	1	J1772	STATE	417XX	.30 per kWh: Reservations Disabled

Program Station Installations

Level 2 ports provide drivers approximately 20 miles of electric driving range for each hour of charging.

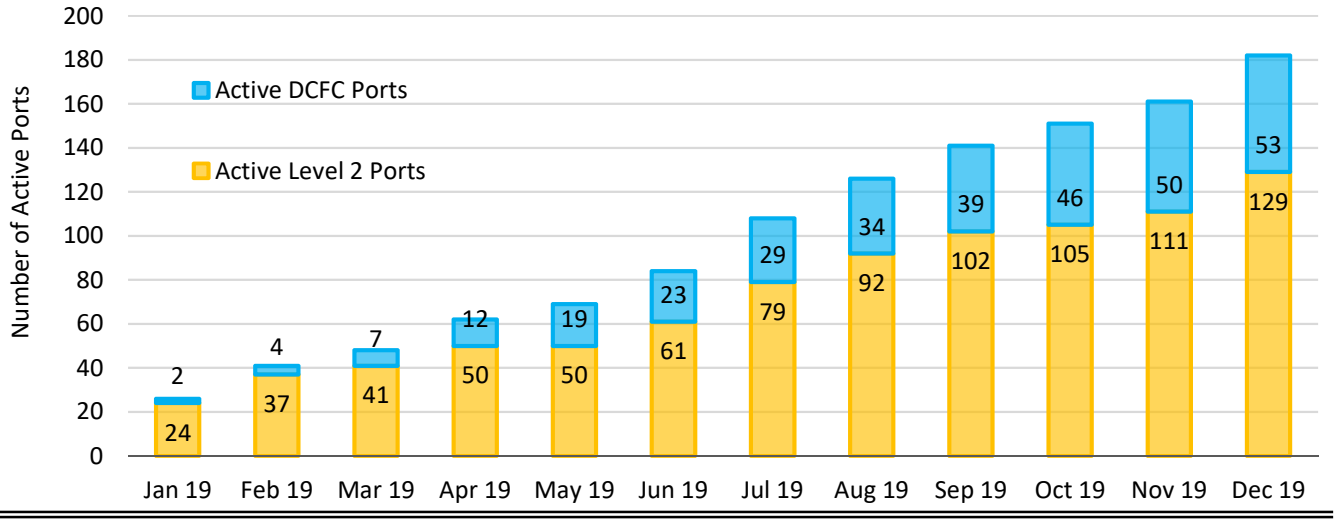
129 **Level 2 Ports Installed by the Program to Date**

DCFC ports provide drivers 50-150 miles of electric range in 20 minutes of charging.

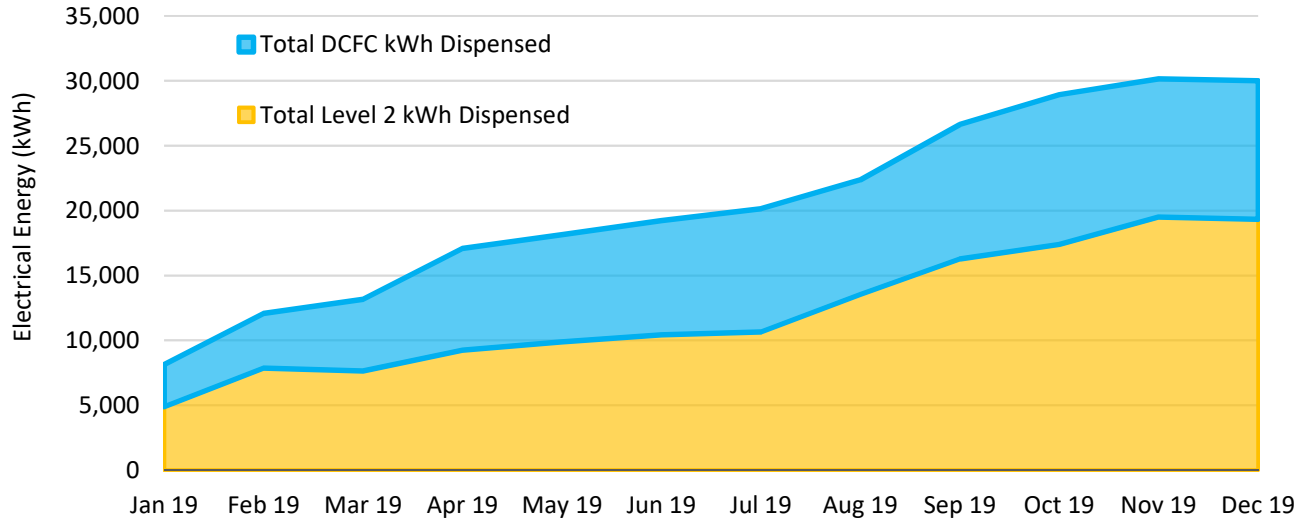
53 **DCFC Ports Installed by the Program to Date**

Program Station Installations

Ports are "Active" based on activation date provided by service provider, excluding known periods when repairs were needed.



Energy Dispensed and Environmental Impacts



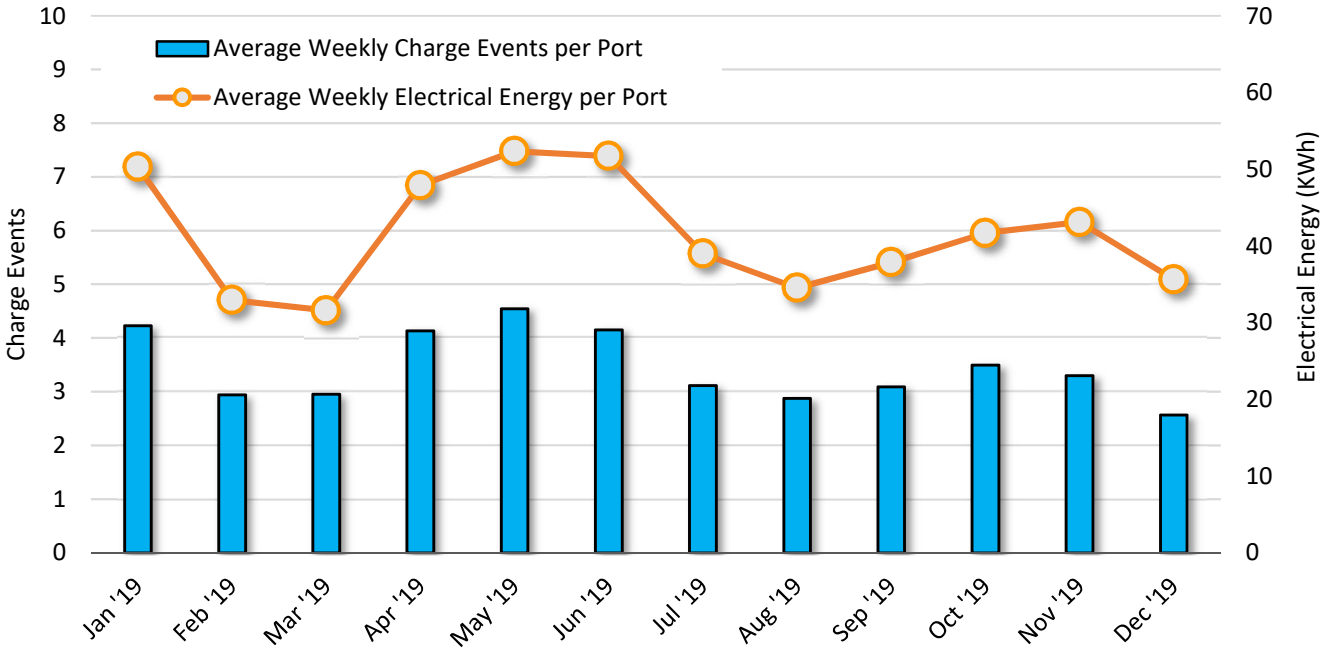
		4th Quarter 2019	Year to Date	Program to Date
Total Charging Events[1]	Level 2	4,658	12,323	22,440
	DCFC	2,508	9,205	16,502
	Total	**7,166**	**21,528**	**38,942**
Total Energy Dispensed (kWh)	Level 2	60,218	146,578	193,346
	DCFC	35,450	99,561	135,742
	Total	**95,668**	**246,139**	**329,088**
Gallons of Gasoline Displaced[2]		**14,300**	**36,792**	**49,191**
Tons of Carbon Dioxide Saved[3]		**92**	**238**	**318**

[1] *A recorded event is classified as a charging event if at least 0.2 kilowatt-hours (kWh) is dispensed.*

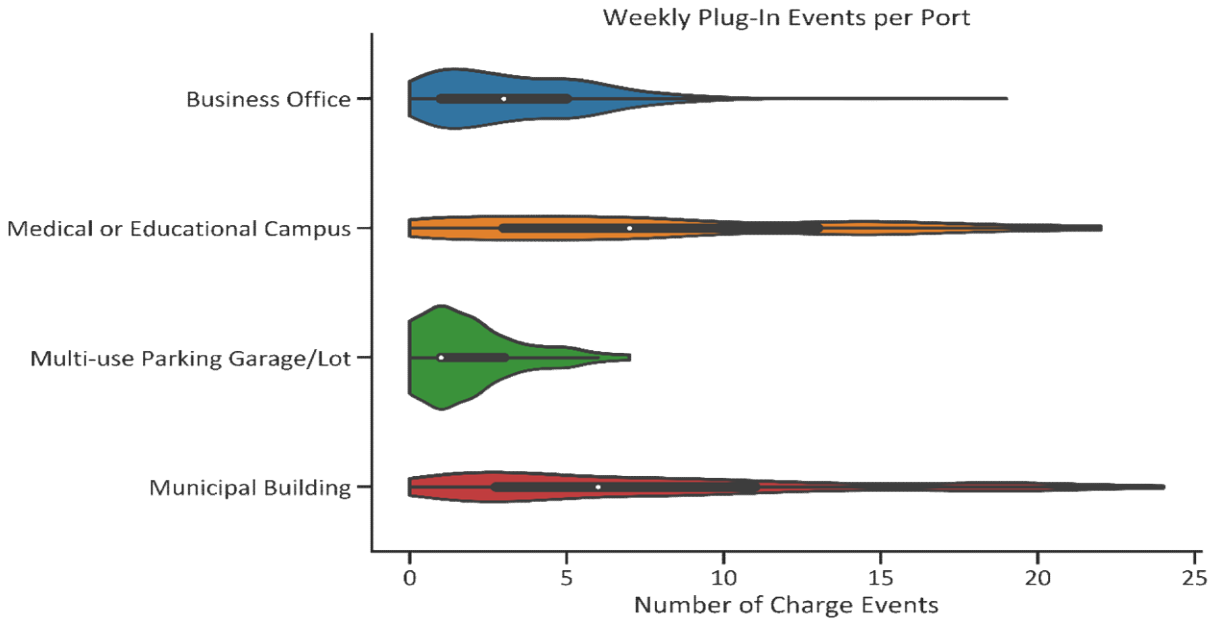
[2] *Average EV efficiency = 0.3 kWh/mile (Plug In America). Average U.S. light duty vehicle fuel efficiency (2017) = 22.3 mpg (USDOT)*

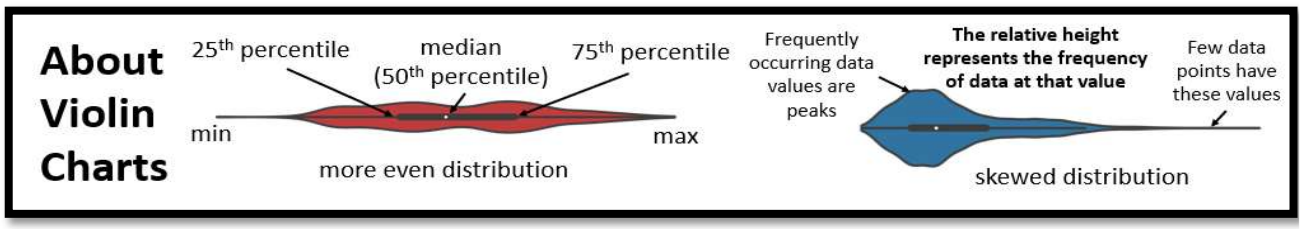
[3] *CO_2 emmissions/gallon = 19.6 pounds. Nationwide output emmission rate = 998.4 lb/MWh (USEPA 2018)*

Level 2 Port Utilization

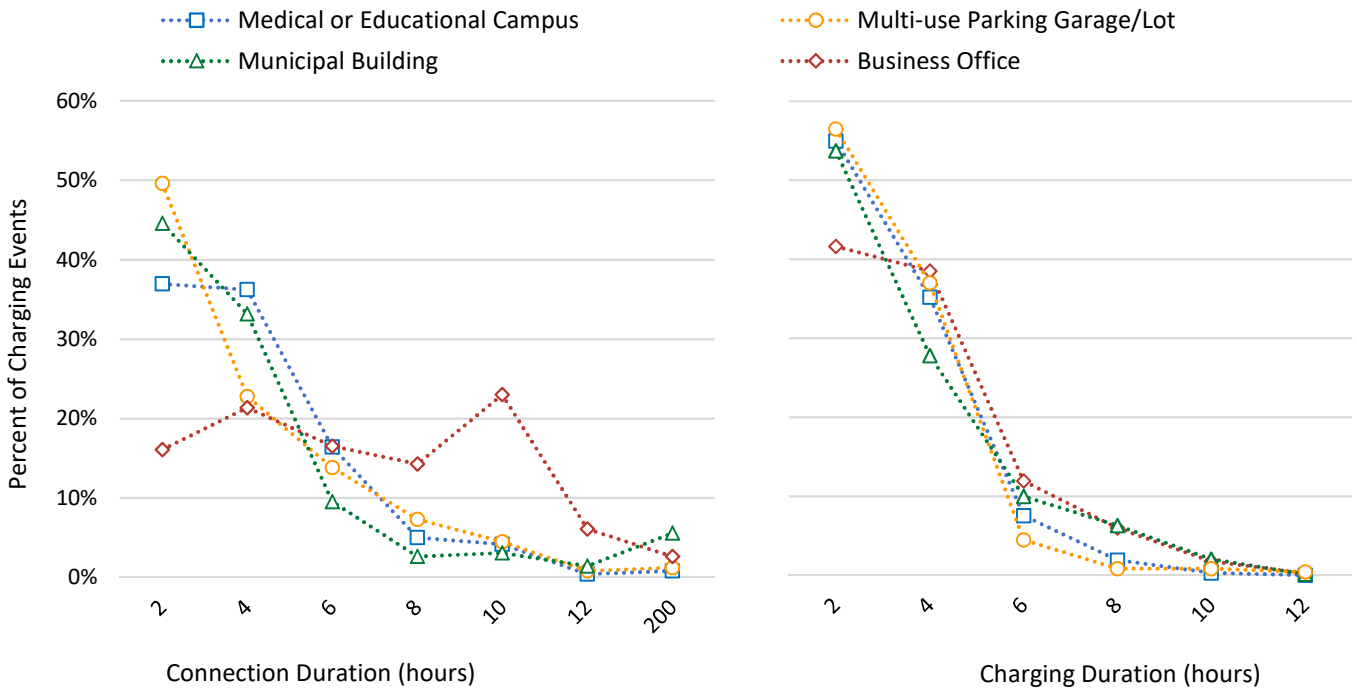


Level 2 Weekly Charging Events by Venue Type

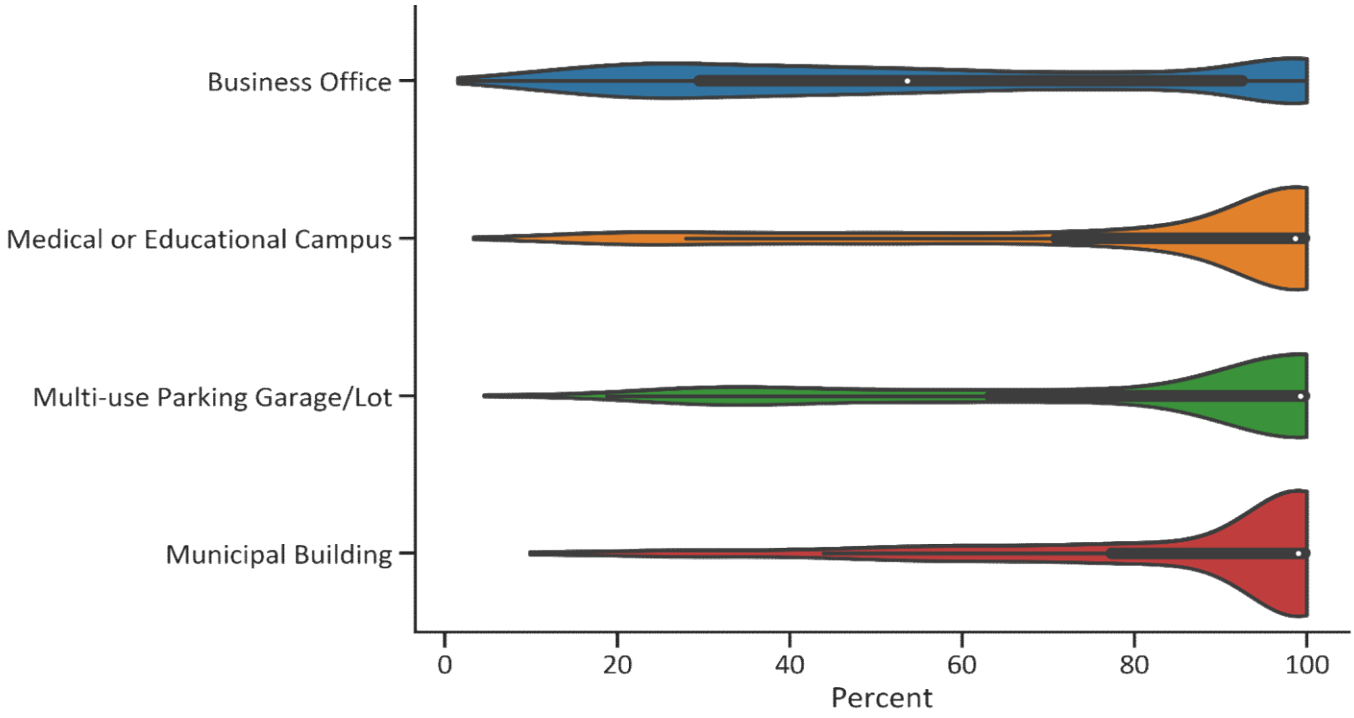




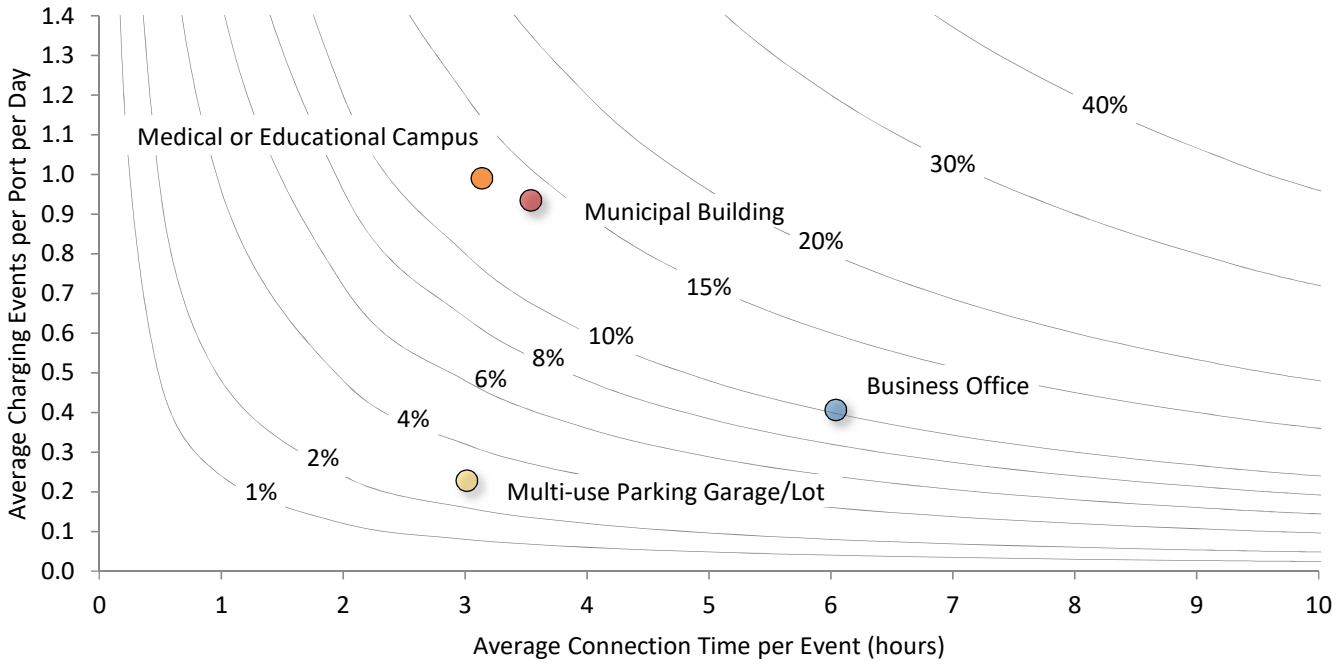
Durations for Level 2 Charging Events



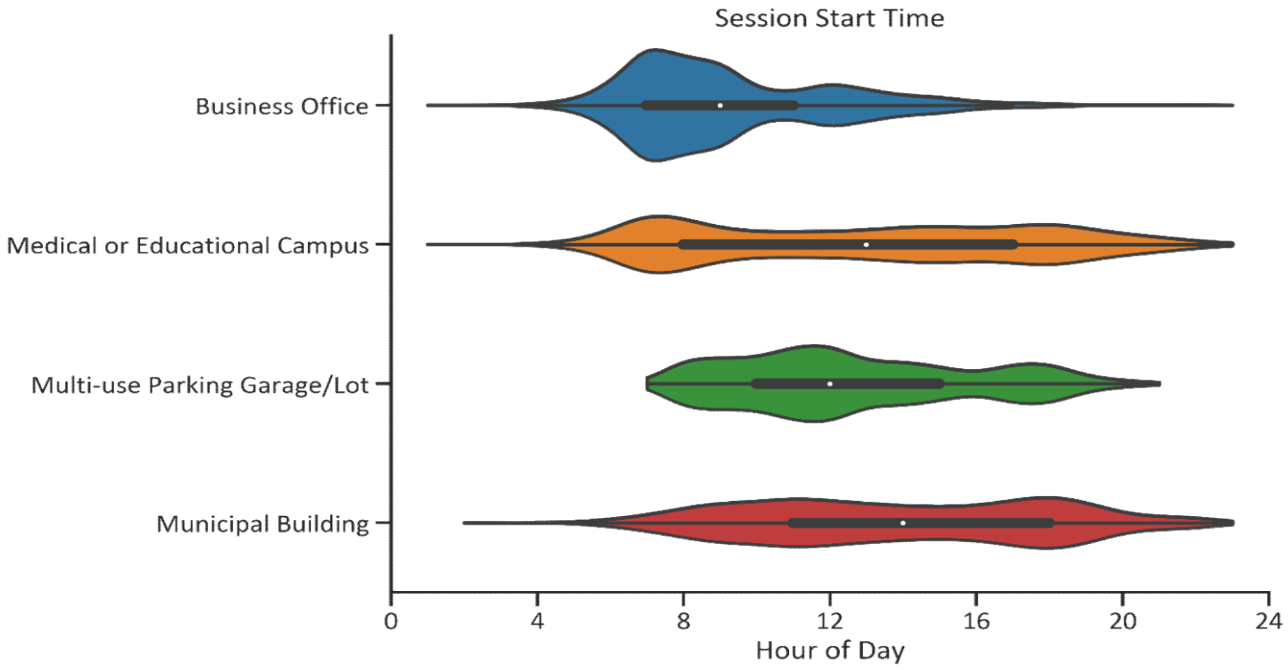
Connection Time Spent Charging for Level 2 Charging Ports



Level 2 Charging Characteristics by Venue Type

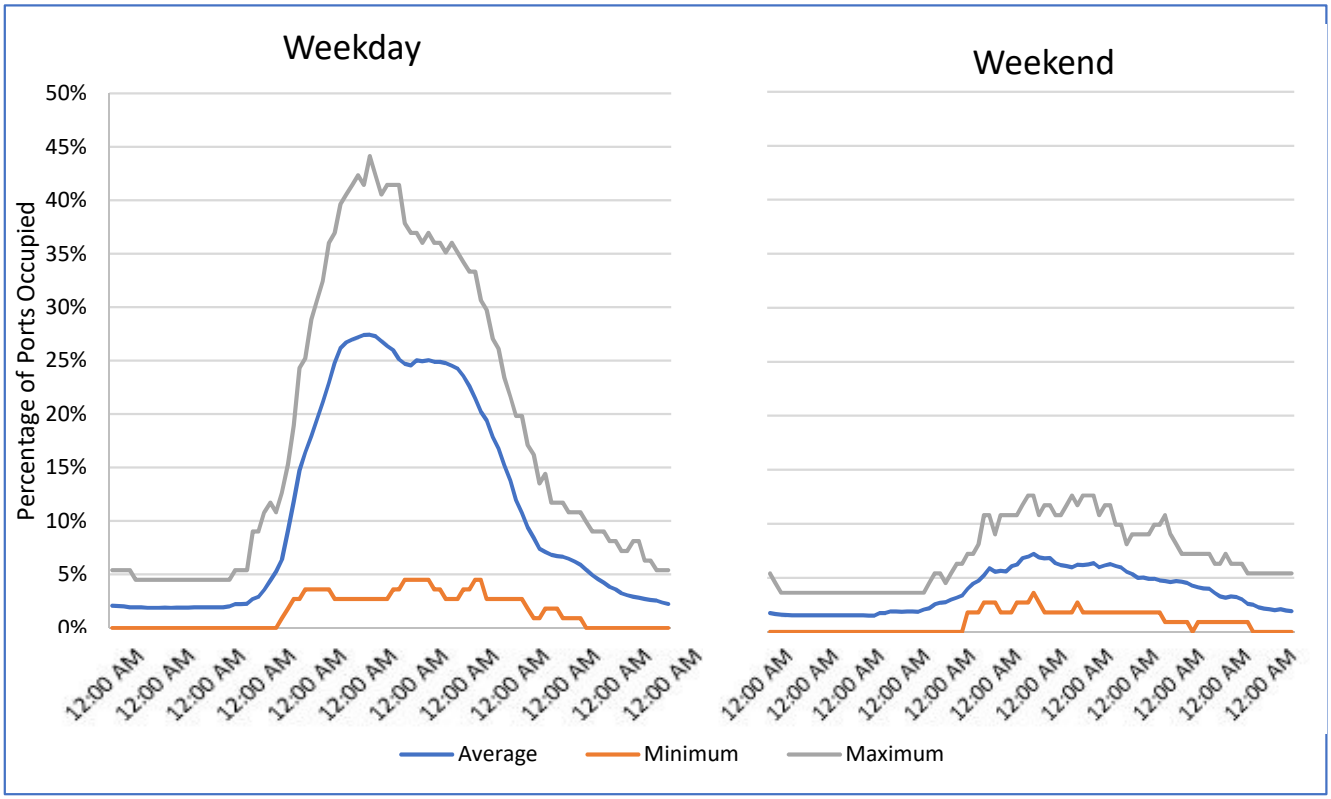


Level 2 Charging Event Start Times

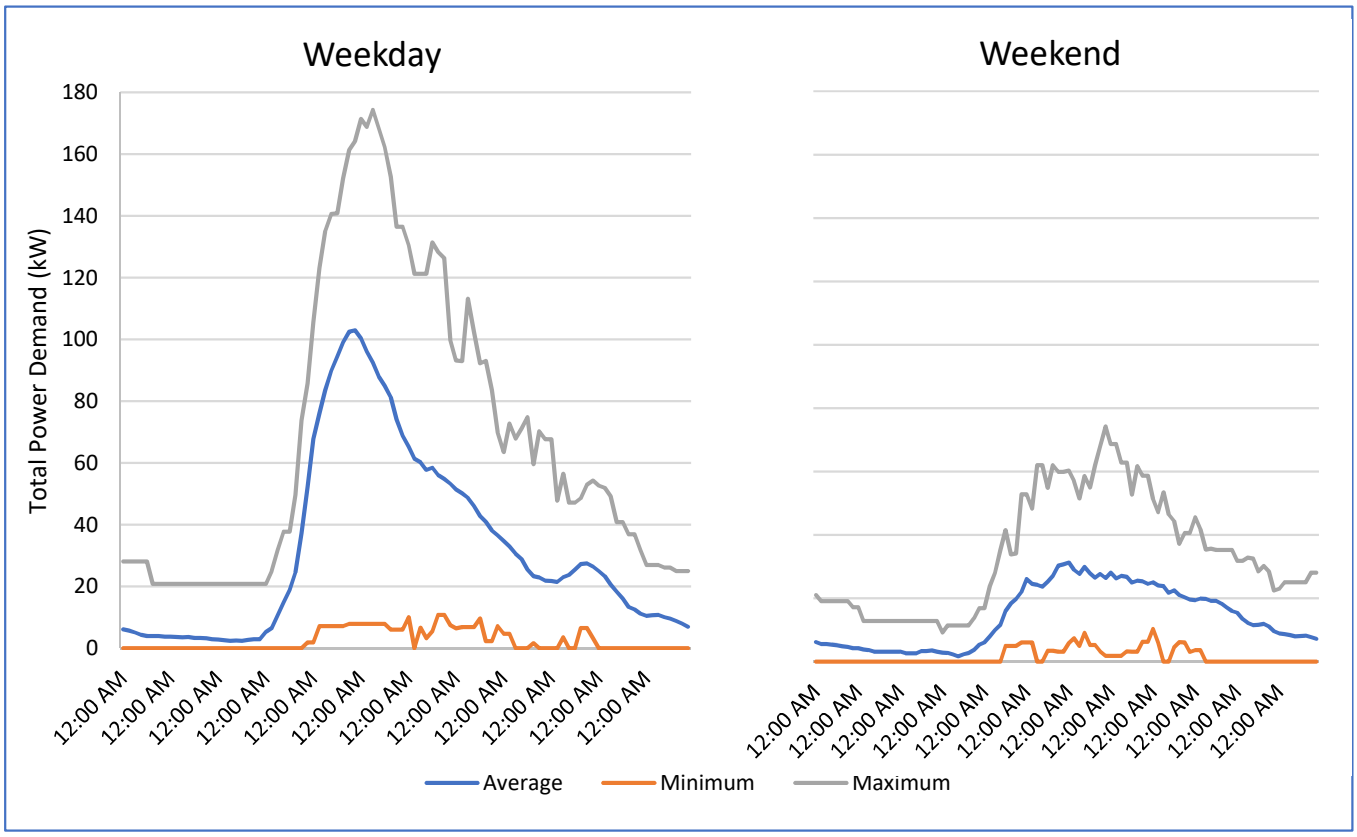


Level 2 Charging Impact on Power Grid

Port Availability



Estimated Total Charging Demand



Detailed Level 2 Charging Station Usage Statistics

Venue Type	Ports	Total Days of Port Availability	Charging Events (CE)	Charging Events per day	Plug-in Time		Charging Time		% of Plug-in time charging	Total Energy (kWh)	Energy per CE (kWh)
					Hours	Hours per CE	Hours	Hours per CE			
Business Office	74	6,368	2,587	0.4	15,627	6.0	7,064	2.7	45%	34,035	13.2
Municipal Building	10	900	841	0.9	2,975	3.5	2,052	2.4	69%	11,706	13.9
Multi-use Parking Garage/Lot	12	1,080	246	0.2	741	3.0	483	2.0	65%	2,119	8.6
Medical or Educational Campus	11	990	980	1.0	3,074	3.1	2,152	2.2	70%	12,299	12.6
Transit Facility	4	360	4	0.0	60	15.0	21	5.1	34%	59	14.9
Retail or Restaurant	0	0	0	0.0	0	0.0	0	0.0	0%	0	0.0
Leisure Destination	0	0	0	0.0	0	0.0	0	0.0	0%	0	0.0
Multi-unit Dwelling	0	0	0	0.0	0	0.0	0	0.0	0%	0	0.0
Hotel	0	0	0	0.0	0	0.0	0	0.0	0%	0	0.0
Fleet	0	0	0	0.0	0	0.0	0	0.0	0%	0	0.0

Region	Ports	Total Days of Port Availability	Charging Events (CE)	Charging Events per day	Plug-in Time		Charging Time		% of Plug-in time charging	Total Energy (kWh)	Energy per CE (kWh)
					Hours	Hours per CE	Hours	Hours per CE			
Metro	0	0	0	0.0	0	0.0	0	0.0	0%	0	0.0
Western	36	3,042	764	0.3	3,442	4.5	1,854	2.4	54%	8,284	10.8
Southeast	14	1,260	497	0.4	3,325	6.7	1,042	2.1	31%	5,286	10.6

Land Use Type[3]	Ports	Total Days of Port Availability	Charging Events (CE)	Charging Events per day	Plug-in Time		Charging Time		% of Plug-in time charging	Total Energy (kWh)	Energy per CE (kWh)
					Hours	Hours per CE	Hours	Hours per CE			
Urban	79	6,818	3,971	0.6	19,007	4.8	10,302	2.6	54%	53,901	13.6
Rural	32	2,880	687	0.2	3,471	5.1	1,469	2.1	42%	6,317	9.2
Highly Rural	0	0	0	0.0	0	0.0	0	0.0	0%	0	0.0

[3] Utilizes the US Census Bureau's definition for "Urban", "Rural" and "Highly Rural" (www.ruralhealth.va.gov/about/rural-veterans.asp)

- Urban Area: population density of at least 1,000 people per square mile.

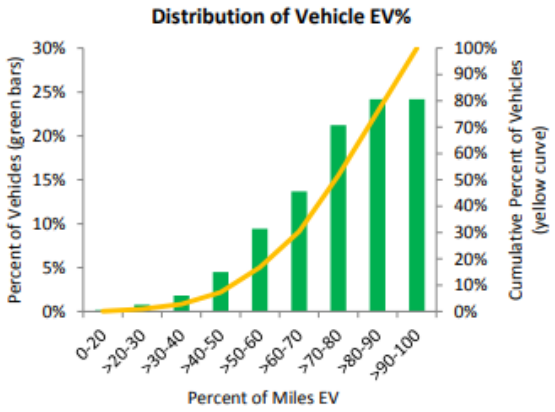
- Rural Area: Any non-urban or non-highly rural area.

- Highly Rural Area: An area having less than 7 people per square mile.

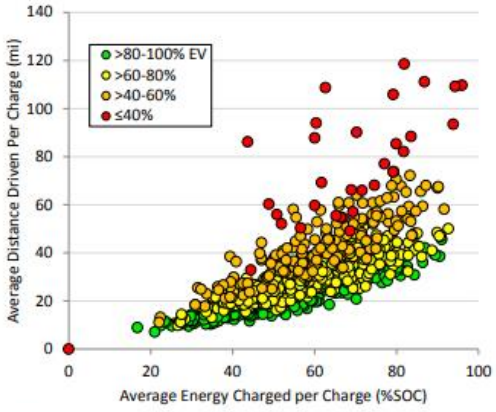
PEV Analysis Examples

The following example analyses and charts from prior reports by Idaho National Laboratory are representative of some proposed analyses under EV WATTS.

How much are Chevrolet Volts in The EV Project driven in EV Mode?[1]

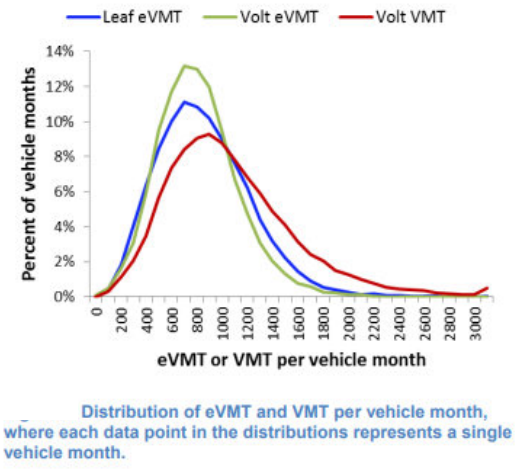


Histogram of EV% on a per-vehicle basis with cumulative distribution curve

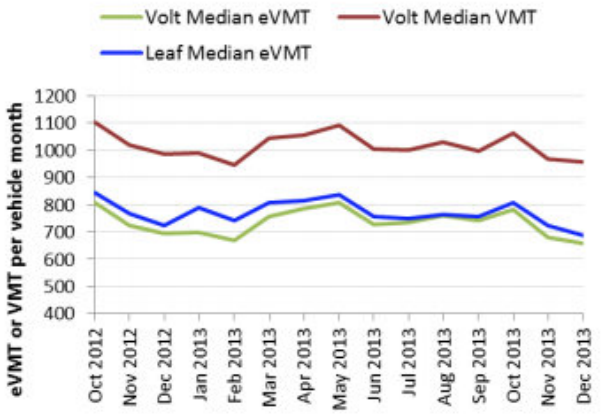


Average distance driven between charging and average charging energy per charge for each vehicle, with EV% denoted by color

How many electric miles do Nissan Leafs and Chevrolet Volts in The EV Project travel?[2]



Distribution of eVMT and VMT per vehicle month, where each data point in the distributions represents a single vehicle month.



Median eVMT and VMT per vehicle month over time.

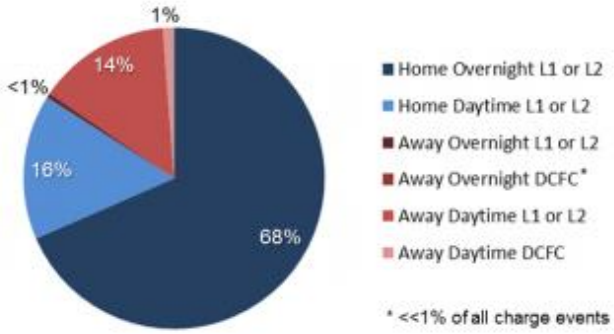
[1] Idaho National Laboratory, "How much are Chevrolet Volts in The EV Project driven in EV Mode?" August 2013. https://avt.inl.gov/sites/default/files/pdf/EVProj/VoltPercMiinEVModeAug2013.pdf

[2] Idaho National Laboratory, "How many electric miles do Nissan Leafs and Chevrolet Volts in The EV Project travel?" May 2014. https://avt.inl.gov/sites/default/files/pdf/EVProj/eVMTMay2014.pdf

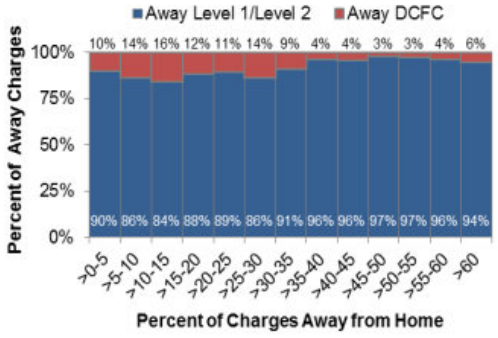
PEV Analysis Examples (con't)

The following example analyses and charts from prior reports by Idaho National Laboratory are representative of some proposed analyses under EV WATTS.

What Kind of Charging Infrastructure Did Nissan Leaf Drivers in The EV Project Use and When Did They Use It?[3]

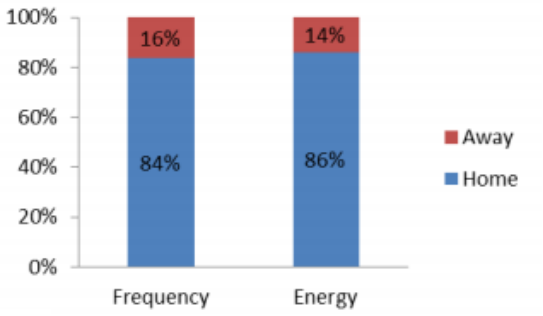


Percent of charging events performed by location, power level, and time of day.

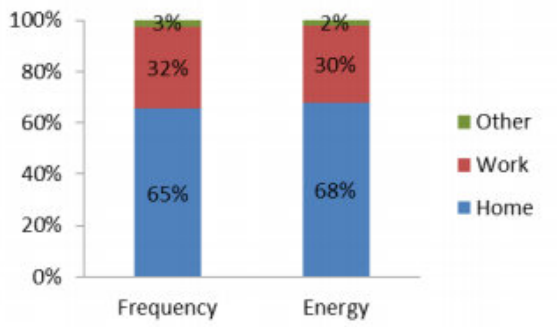


Occurrence of Level 1/Level 2 and DCFC charging for groups of vehicles with different amounts of away-from-home charging.

Where do Nissan Leaf drivers in The EV Project charge when they have the opportunity to charge at work?[4]



Charging frequency and energy consumption by location for all EV Project Nissan Leafs in 2012 and 2013.



Charging frequency and energy consumption by location for workplace vehicles in 2012 and 2013.

[3] Idaho National Laboratory, "What Kind of Charging Infrastructure Did Nissan Leaf Drivers in The EV Project Use and When Did They Use It?" September 2014. https://avt.inl.gov/sites/default/files/pdf/EVProj/LeafHomeAwayL1L2DCDayNightCharging.pdf

[4] Idaho National Laboratory, "Where do Nissan Leaf drivers in The EV Project charge when they have the opportunity to charge at work?" March 2014 https://avt.inl.gov/sites/default/files/pdf/EVProj/ChargingLocation-WorkplaceLeafsMar2014.pdf