

## Calculating Residential EV Credits

From the start of the Clean Fuels Program, there have been opportunities for electric utilities to generate credits from residential charging of electric vehicles. Through the first year of the program however, none of them had done so. To address this issue, DEQ engaged a wide range of stakeholders including electric utilities, the Oregon Public Utilities Commission, automakers, EV service providers, environmental organizations and others to find out if—and what—changes to the program were needed. Those discussions resulted in updates to the rules that were adopted in November 2017 that now provide a clearer path forward to encourage future participation by Oregon’s electric utilities. The purpose of this factsheet is to provide the details of how DEQ will implement the new rules.

### Methodology

OAR 340-253-0330 gives DEQ two options for estimating credit generation from residential charging of electric vehicles.

1. The first option is a bottom-up analysis based on using a regional or national value to represent the daily average amount of electricity an EV uses. The amount of electricity charged is based on the following equation:

$$EV \text{ Electricity Use} = \# \text{ of vehicles} \times \text{Daily Average Electricity Use} \times \# \text{ of Days in Compliance Period}$$

Credits are calculated using the same equation used for the rest of the program:

$$\text{Credits} = (\text{CI Standard} - \text{Fuel CI/EER}) * \text{Energy} * \text{Energy Density} * \text{EER}$$

*Where: CI Standard is the gasoline or diesel standard for a given compliance period (gCO<sub>2</sub>e/MJ)*

*Fuel CI is either the statewide CI for electricity or a utility-specific value as requested by the utility (gCO<sub>2</sub>e/MJ)*

*EER is the energy economy ratio based on the type of vehicle*

*Energy is the amount of electricity used (kWh)*

*Energy Density is the energy density of electricity (MJ/kWh)*

Credits are then allocated to individual electric utilities based on the number of EVs registered in their service territories.

2. The second option is a top-down analysis where DEQ estimates the total amount of electricity used for all EVs statewide and then subtracts out what electric vehicle charging has already been reported to DEQ directly from non-residential (public, fleets, and workplaces) charging.

### Approach for 2016 & 2017

For the credit generation calculations for 2016 and 2017, DEQ has chosen to use Option #1, using the following assumptions:

- California’s average daily residential charging rate of 8.5 kWh per electric vehicle.
- There were 366 days in 2016 and 365 days in 2017.
- The gasoline standard for 2016 was 98.37 gCO<sub>2</sub>e/MJ and for 2017 was 98.13 gCO<sub>2</sub>e/MJ.
- The statewide mix electricity carbon intensity for 2016 and 2017 was 108.29 gCO<sub>2</sub>e/MJ.
- The EER for light-duty passenger vehicles is 3.4.
- The energy density of electricity is 3.60 MJ/kWh.



State of Oregon  
Department of  
Environmental  
Quality

#### Clean Fuels Program

700 NE Multnomah St.  
Suite 600  
Portland, OR 97232  
Phone: 503-229-5696  
800-452-4011  
Fax: 503-229-6762  
Contact: Bill Peters  
[Peters.bill@deq.state.or.us](mailto:Peters.bill@deq.state.or.us)  
503-229-6901

[www.oregon.gov/deq/air/programs/Pages/Clean-Fuels.aspx](http://www.oregon.gov/deq/air/programs/Pages/Clean-Fuels.aspx)

*DEQ is a leader in restoring, maintaining and enhancing the quality of Oregon’s air, land and water.*

# Oregon Clean Fuels Program

## Population of EVs

The following table lists the number of Battery Electric Vehicles and Plug-in Hybrid Electric Vehicles from the DMV registration data for 2016 and 2017, allocated to individual utility service territories:

	2016			2017		
	BEV	PHEV	Total	BEV	PHEV	Total
Ashland Electric Services	1	1	2	2	1	3
Blachly-Lane	14	10	24	15	13	29
Canby Utility Board	3	2	6	3	2	6
Central Electric Coop	126	85	210	226	146	371
Central Lincoln PUD	26	44	71	43	51	96
City of Bandon	3	3	5	4	2	6
City of Cascade Locks	3	1	4	4	2	6
City of Drain	0	0	0	0	0	0
Clatskanie PUD	2	1	3	2	2	4
Clearwater Power Company	0	0	1	0	0	0
Columbia Basin Electric Coop	0	2	2	0	2	2
Columbia Power Coop Association	1	1	2	1	2	3
Columbia River PUD	30	46	76	39	55	94
Columbia Rural	0	0	1	0	0	0
Consumers Power Inc	177	163	340	246	206	454
Coos-Curry Electric Coop	19	48	68	30	54	84
Douglas Electric Coop	18	29	47	23	33	56
Emerald PUD	79	66	145	95	81	177
EWEB	183	138	321	222	181	403
Forest Grove	8	9	17	11	9	21
Harney Electric Coop	0	2	3	0	3	4
Hermiston Energy Services	0	1	1	0	0	1
Hood River Electric Coop	13	5	17	13	5	19
Idaho Power	8	7	16	9	5	14
Lane Elec	174	117	292	215	152	366
Midstate Electric Coop	25	30	55	35	35	70
Milton-Freewater Light & Power	0	1	1	0	0	0
Monmouth Power and Light	1	0	1	0	0	1
N Wasco Co PUD	3	5	8	4	6	10
Oregon Trail Electric Coop	8	15	24	11	14	25
PacifiCorp	1,217	1,021	2,239	1,556	1,185	2,743
PGE	5,606	3,314	8,920	6,664	4,092	10,756
Salem Electric	20	19	40	23	24	47
Springfield Utility Board	33	28	61	47	43	90
Surprise Valley Electric Coop	0	2	2	0	2	2
Tillamook People's Utility District	20	21	41	32	24	56
Umatilla Electric Coop	12	18	30	14	18	33
Wasco Electric Coop	18	27	45	24	31	55
West Oregon Electric Coop	68	54	122	77	68	145
<b>Total</b>	<b>7,923</b>	<b>5,338</b>	<b>13,261</b>	<b>9,690</b>	<b>6,549</b>	<b>16,252</b>



State of Oregon  
Department of  
Environmental  
Quality

### Clean Fuels Program

700 NE Multnomah St.  
Suite 600  
Portland, OR 97232  
Phone: 503-229-5696  
800-452-4011  
Fax: 503-229-6762  
Contact: Bill Peters  
[Peters.bill@deq.state.or.us](mailto:Peters.bill@deq.state.or.us)  
503-229-6901  
[www.oregon.gov/deq/aq/programs/Pages/Clean-Fuels.aspx](http://www.oregon.gov/deq/aq/programs/Pages/Clean-Fuels.aspx)

*DEQ is a leader in restoring, maintaining and enhancing the quality of Oregon's air, land and water.*

# Oregon Clean Fuels Program

## Timing of credit issuance

The following steps must be completed for utilities to generate these credits:

- By October 1<sup>st</sup> of the previous year, the electric utility must register with DEQ.
- The electric utility must then register an account in the CFP Online System, which is the web-based tool that DEQ uses to manage the accounts of parties registered in the program.
- Staff will complete the credit calculations for 2016 and 2017 and place the credits into the accounts of the registered utilities by March 30, 2018.

The aggregate number of credits issued to the utilities will be included in the Q4 2017 CFP data summary.

## Want more information?

For information about the Clean Fuels Program, go to the program webpage at: <http://www.oregon.gov/deq/air/programs/Pages/Clean-Fuels.aspx>.

## Accessibility

Documents can be provided upon request in an alternate format for individuals with disabilities or in a language other than English for people with limited English skills. To request a document in another format or language, call DEQ in Portland at 503-229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696; or email [deqinfo@deq.state.or.us](mailto:deqinfo@deq.state.or.us).



State of Oregon  
Department of  
Environmental  
Quality

## Clean Fuels Program

700 NE Multnomah St.  
Suite 600  
Portland, OR 97232  
Phone: 503-229-5696  
800-452-4011  
Fax: 503-229-6762  
Contact: Bill Peters  
[Peters.bill@deq.state.or.us](mailto:Peters.bill@deq.state.or.us)  
503-229-6901

[www.oregon.gov/deq/air/programs/Pages/Clean-Fuels.aspx](http://www.oregon.gov/deq/air/programs/Pages/Clean-Fuels.aspx)

*DEQ is a leader in restoring, maintaining and enhancing the quality of Oregon's air, land and water.*