Oregon Department of Environmental Quality

Topics for the Electricity Workshop

CFP Expansion 2022 Rulemaking

Contact information: CFP.2022@deq.oregon.gov

Background

Stakeholders proposed several topics during the listening session preceding the start of this rulemaking. All of these were briefly discussed at the first rulemaking advisory committee but several of these proposals require more detailed discussion. Three workshops are planned to discuss these proposals, organized topically with one for reporting topics, one for electricity, and the third for pathways.

For each workshop, CFP staff will provide background, concepts, and a set of key questions to discuss and may provide a straw proposal from staff. Staff will consider the feedback received and determine whether and how to move forward with action during this rulemaking or not.

Considering changes to crediting residential charging

The first two topics we will discuss are proposals to change how credits are generated when electric vehicles are charged at low-density residences in Oregon. We'll first provide background by including the relevant portion of the electricity credit generators rule, and then discuss how residential charging credits are currently issued.

Current Regulation

OAR 340-253-0010 (Definitions)

(79) "Multi-family housing" means a structure or facility established primarily to provide housing that provides four or more living units, and where the individual parking spaces that an electric vehicle charger serves, and the charging equipment itself, are not deeded to or owned by a single resident.

OAR 340-253-0330 (Credit Generators: Electricity)

(1) Applicability. This rule applies to providers of electricity used as a transportation fuel.

(2) For residential charging. For electricity used to charge an electric vehicle at a residence, subsections (a) and (b) determine the person who is eligible to generate credits.

(a) Electric Utility. In order to generate credits for the following year, an electric utility must notify DEQ by October 1 of the current year whether it will generate credits or designate an aggregator to act on its behalf. The utility or its aggregator must have an active registration approved by DEQ under OAR 340-253-0500. Once a utility has made a designation under this section that designation will remain in effect unless the utility requests a change in writing to DEQ.

(b) Backstop and Incremental Aggregators. If an electric utility does not register or designate an aggregator under subsection (a), then backstop and incremental aggregators are eligible to claim any credits that the utility could have generated for the following year, as provided in sections (10) and (11), as applicable. The backstop aggregator may claim any base credits and the incremental aggregator may claim any incremental credits.

(3) For non-residential charging. For electricity used to charge an electric vehicle at non-residential locations, such as in public, for a fleet, at a workplace, or at multi-family housing sites, subsections (a) through (c) determine the person who is eligible to generate credits.

(a) Owner or service provider of the electric-charging equipment. The owner or service provider of the electric-charging equipment may generate the credits. Only one entity may generate credits from each piece of charging equipment.

(b) Electric Utility. If the owner or service provider of the electric-charging equipment does not generate the credits, then an electric utility or an aggregator designated to act on the utility's behalf is eligible to generate the credits. The utility or its aggregator must have an active registration approved by DEQ under OAR 340-253-0500. Once a utility has made a designation under this section that designation will remain in effect unless the utility requests a change in writing to DEQ.

(c) Backstop and Incremental Aggregators. If an electric utility does not register or designate an aggregator under subsection (b), then backstop and incremental aggregators are eligible to claim any credits that the utility could have generated for the following year, as provided in sections (10) and (11), as applicable. The backstop aggregator may claim any base credits and the incremental aggregator may claim any incremental credits.

[…]

Calculating credits from residential charging

The following equation is used to estimate the amount of electricity that is used for the residential charging of electric vehicles. It uses a national value to represent the daily average amount of electricity an EV uses.

$EV\ Electricity\ Use$ = # of electric $vehicles\ x\ Daily\ Average\ Electricity\ Use\ per\ vehicle\ x$ # $of\ Days\ in\ Crediting\ Period$

Where:

# of vehicles is determined by vehicle registration data obtained from the Oregon Department of Transportation

Daily average electricity use is 8.5 kWh

Credits are then calculated using the following equation:

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

Where:

CI Standard is the gasoline or diesel standard for a given compliance period (gCO2e/MJ)
Fuel CI is either the statewide CI for electricity or a utility-specific value (gCO2e/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)

Take-home fleet vehicle charging

Some businesses and organizations are assigning fleet vehicles to employees for them to take home overnight as opposed to keeping them in a central location. As more of these vehicles transition to electric, charging at the employee's residence may become a more common way for these commercial or governmental vehicles to charge.

Currently, the regulation states that the owner of the charger at a non-residential location as a workplace is eligible to generate the credits, while the electric utility generates the credits for residential charging. Residential is further defined as being a dwelling with three or fewer units. Modifying the regulation would be necessary if we wish to encourage commercial and governmental vehicle purchases and charging at employee residences and to avoid double counting.

- Who should generate the credits for these commercial or governmental vehicles?
- If you follow the non-residential workplace charging provisions that apply to workplaces and other locations, the owner of the charger would generate the credits.
    - Is the owner or lessor of the vehicle paying for a charger at the residence?

    - How would the amount of electricity being used to charge the vehicle be recorded and documented? How would DEQ get the reporting, and how would DEQ remove that vehicle from its residential charging calculations?
    - Is the owner or lessor of the vehicle reimbursing the employee for the cost of the electricity?
- If you follow the residential charging provisions, the electric utility would generate the credits.
    - How would the amount of electricity being used to charge the vehicle being documented? Typically, for residential charging, CFP uses default daily average charging assumptions that are based on private owners and would not necessarily apply for work vehicles.
    - Could the owner of the fleet recover all/part of the credits or the value of the credits from the utility? Would additional requirements in the regulation needed to address this?
- Is there another entity that should generate the credits?
- Should this provision only apply to vehicles that are registered with DMV as part of a fleet? How would DEQ know where the vehicles are charging?

What if your residence is your workplace?

More and more businesses are being operated out of homes. Similar to the situation above, who should generate the credits for electric vehicles that are used for those businesses?

- If you follow the non-residential charging provisions that apply to workplaces, the owner of the charger would generate the credits which would be the homeowner in this case.
    - How would you determine what charging is for work purposes as opposed to personal purposes? Do the vehicles need to be used for work purposes only?
    - Since the electricity used for personal purposes is currently calculated using a default daily average amount of charging, would that need to be adjusted? And if so, how would that be done?
        - The reporting entity would need to be able to report charging at that specific residential workplace and not charging elsewhere.
        - Would individual vehicles need to register with DEQ in order to ensure that credits would not be double counted?
- If you follow the residential charging provisions, which is DEQ's current interpretation, the electric utility will continue to generate the credits.
- Is there another entity that should generate the credits?

Development of New Energy Economy Ratios

Electric ground service equipment

DEQ has been working with the Port of Portland to develop new energy economy ratios (EERs) for electric ground service equipment (eGSE) that replaces the use of gasoline and diesel in those applications. That work is supported through analysis provided to DEQ by Port of Portland through a consultant they hired and a separate report that was prepared for the California Airport Council (CAC) and submitted to the Air Resources Board for their Low Carbon Fuel Standard. The CAC report and supporting data provides a comparison with the ACRP 149 report. The PDX, CAC, and ACRP 149 reports consider two GSE categories: Mobile and Portable, based on the primary fuel and type of GSE. "Gasoline and spark-ignited natural gas and propane are the dominant fuel types for Mobile equipment while diesel is the dominant fuel type for Portable equipment."

Below is a table that summarizes proposed EERs from the various reports with a subset of the equipment level details for the CAC EERs:

Org. Body	Application	Gasoline	Diesel
PDX - specific categories			
PDX	Baggage tractor	3.56	2.59
PDX	Belt loader	3.56	2.88
PDX	Narrow pushback	3.56	2.73
CAC - specific categories			
CAC	Baggage tractor	4.10	2.60
CAC	Belt loader	4.10	2.60
CAC	Narrow pushback	4.00	2.60
CAC	Wide pushback	3.80	2.60
All GSE categories	**Application**	**Gasoline**	**Diesel**
PDX	**Mobile**	**3.56**	-
PDX	**Mobile**	-	**2.73**
CAC	**Mobile**	**4.00**	2.60
CAC refers to California Air Resources Board			
PDX refers to Portland International Airport			

In addition, electric group support equipment at airports includes Electricity/Battery Electric Vehicle or Plug-In Hybrid Electric Vehicle, Electricity/Electric Forklifts, and Electricity/Cargo Handling Equipment, all of which have established EERs within the CFP.

Application	Gasoline	Diesel
Electric/Battery Electric Vehicle or Plug-In Hybrid Electric Vehicle	3.4	
Electricity/Electric Forklift		3.8
Electricity/Cargo Handling Equipment		2.7

Based on these reports, DEQ believes there is sufficient data to add eGSE to the program during this rulemaking but there are key questions that must be resolved.

Key questions:

- Should there be a single EER added for all eGSE or multiple based on what fuel it replaces (gasoline and diesel) and/or for specific types of ground support equipment (baggage tractor, belt loader, pushbacks)
- How do we accurately track the equipment type and baseline fuel type?
- Who should generate the credits for this application (e.g., airport, airline, or a third party)?

Electric ocean-going vessel

- The current definition of electric ocean-going vessel should be more specific to vessels used to generate the energy-economy ratio based on quantifications such as length, weight, or engine size.
- **Proposal:** expand the definition to include:
    - vessel greater than or equal to 400 feet in length overall
    - vessel weighs 10,000 gross tons or greater
    - vessel propelled by a marine compression-ignition engine with a displacement of greater than or equal to 30 liters per cylinder.

Reference Materials

Airport Cooperative Research Program, Report 149

> https://crp.trb.org/acrpwebresource4/acrp-report-149-improving-ground-support-equipment-operational-data-for-airport-emissions-modeling

ORION2017 GSE Data 2020 (2017 study from Long Beach Airport)

> http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/facility-based-mobile-source-measures/technical-support-document-lgb.pdf?sfvrsn=6

Attachment D: Analysis Supporting the Addition or Revision of Energy Economy Ratio Values for the Proposed LCFS Amendments

> https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2018/lcfs18/15dayattd.pdf

Alternate formats

DEQ can provide documents in an alternate format or in a language other than English upon request. Call DEQ at 800-452-4011 or email deqinfo@deq.oregon.gov.