

Zero Energy Ready Oregon (ZERO) Coalition  
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Chair Megan Decker  
Commissioner Letha Tawney  
Commissioner Mark Thompson  
Oregon Public Utility Commission  
Attention: Filing Center  
201 High Street SE, Suite 100  
Salem, Oregon 97308

December 11, 2020

Regarding PGE Schedule 300 Line Extension Allowance  
PORTLAND GENERAL ELECTRIC: Docket No. ADV 1130/Advice No. 20-14 – Public Hearing and  
Commissioner Work Session. Updates Schedule 300 Line Extension Allowance, revising the  
Residential Line Extension Allowance.

Dear Commissioners,

We the undersigned organizations are writing in support of the proposal by Portland General Electric Company (PGE) to create two categories for Residential Line Extensions Allowances (LEAs) and to update Rate Schedule 300 accordingly. We also urge the Oregon Public Utility Commission (PUC) to further evaluate the role of Electric Line Extension Allowance (LEA) and Natural Gas Construction Allowance (CA) policies as part of the PUC Working Plan to support the carbon reduction goals within Governor Brown's Executive Order No 20-04.

In this instance, PGE's proposed change to the LEA policy would result in a larger LEA for new homes that use electricity for space heating and a smaller LEA for mixed fuel homes that use fuels such as methane, propane, biodiesel or heating oil for heating. It is prudent and consistent within the rationale for LEAs to vary the LEA as proposed, as it is based on the expected electricity usage of the new building and the anticipated contribution of that customer to paying back those costs over time.

This proposal will also have the effect of encouraging more builders to consider highly energy efficient and low carbon electric heating solutions in new construction which is an essential strategy to decarbonize buildings in Oregon. We support this proposal as a first step toward the overall carbon reduction goals mandated in Executive Order No 20-04 including specific directives under that order to achieve "at least a 60 percent reduction in new building annual site consumption of energy".

In addition, we urge the PUC to undertake an additional review of the Electric LEA and Natural Gas CA policies as part of the PUC Work Plan to support EO 20-04, with the goal of updating these policies so that they encourage actions which reduce carbon emissions from new construction. These LEA and CA policies could be a powerful tool to reduce emissions by incentivizing the use of energy efficient solutions and by encouraging beneficial electrification. These updates could also protect existing natural gas customers from future costs associated with stranded assets by reducing the proliferation of gas infrastructure which will increasingly be paid for by a shrinking customer base. As part of this review, the commission should consider all options which have the potential to reduce carbon emissions from new building construction including the following options:

- Specify that LEA and CA structures must incentivize building options which have the highest impact on building decarbonization with higher incentives going toward the lowest carbon solutions irrespective of fuel choice.
- Eliminate Natural Gas CAs for new residential and commercial buildings to discourage the proliferation of carbon intensive and costly gas infrastructure. These CAs currently provide incentives for builders to install carbon intensive, methane burning appliances in new buildings.
- Specify that Electric LEAs incentivize the use of high efficiency electric heating solutions (such as heat pumps) and discourage the use of electric resistance heating as the primary space heating source.
- Allow Electric LEAs to incentivize and pay for other infrastructure upgrades beyond connection costs which have the potential to decarbonize buildings, such as: panel upgrades and circuitry that are needed for energy efficient electric appliances and heating solutions, battery storage, EV readiness, rooftop solar readiness etc.

As a positive step towards the goals outlined above, and without waiting for the suggested review of LEA and CA policy to be undertaken, we support the current proposal by PGE to update Residential LEAs because this proposal will effectively lower statewide carbon emissions, lower costs of new construction, and increase the energy efficiency of new buildings in Oregon.

### **1. Lower carbon emissions.**

It is clear that policies that encourage the adoption of modern electric space heating options will lower state carbon emissions because these highly energy efficient devices produce far fewer carbon emissions than devices which combust fossil fuels. Older forms of electric heating such as electric resistant base board heating have been obsoleted and largely replaced in new construction by highly efficient central heat pumps and ductless heat pumps which produce dramatically lower carbon emissions, have significantly lower operating costs and which also offer air conditioning. In a response to PGE's petition to change the LEA structure, NW Natural Gas Company (NW Natural) attempts to cast doubt on the efficacy of electrification of space heating as a means of decarbonization - "Electrification is Not Necessarily Decarbonization."<sup>1</sup>

**However, multiple studies have shown that building electrification and specifically electricity for space heating with heat pump technology is effective at reducing carbon emissions from buildings, including the upstream emissions from electricity generation.**

The carbon emission advantages of electric space heating versus gas-fired heating will also increase over time as the grid continues to get cleaner as is mandated under the Oregon Renewable Portfolio Standard - Senate Bill 1547.

a. A report from Rocky Mountain Institute (RMI) modeled energy consumption for residential single family new construction in multiple cities across the US including Seattle. Seattle is in the same electric grid sub-region as Oregon which means the electricity there is similar in carbon intensity to electricity in Oregon, and Seattle enjoys a similar climate to ours. Using the Department of Energy Residential Prototype Building Model, this study shows that **"Carbon emissions from heating, water heating and cooking are 93% lower over the appliance lifetime in the all-electric home [compared to mixed fuel homes], due to more efficient appliances and increasingly low-carbon electricity."**<sup>2</sup>

b. A report by Energy and Environmental Economics Inc. (E3) studying alternative scenarios to achieve an 80% reduction in economy-wide greenhouse gases in the Pacific Northwest found that **"Building electrification, when paired with very low-carbon electricity, can displace nearly all emissions in the buildings sector using existing technologies."**<sup>3</sup>

c. A report from E3 comparing greenhouse gas emissions from residential buildings with mixed fuel versus electric appliances in multiple climate regions within California found that the **all-electric homes produced 33% to 55% fewer emissions and that was projected to increase to 76% - 88% by 2050** as the electric grid continues to get cleaner.<sup>4</sup>

## **2. Lower Costs**

The same report by RMI that analyzed carbon emissions in residential new construction in Seattle also showed that it cost less to build with all electric appliances than to build with a combination of gas and electric fuel - mixed fuel. **"The new all electric home has a lower net present cost than the new mixed-fuel home, presenting savings on up-front costs and nearly equivalent annual energy bills."** For the Seattle scenario, the up-front costs were \$4,500 less for the all-electric home.<sup>5</sup>

## **3. Dramatically Higher Energy Efficiency**

Electric heating technology has dramatically increased in efficiency over the last 30 years and continues to increase while the efficiency of gas-fired furnaces has hardly changed in that time. According to a report by the US Energy Information Administration on historical energy efficiency data, since 1992, the US Department of Energy minimum efficiency standard for gas-fired furnaces has increased from 78% AFUE to 80%<sup>6</sup>. That is an efficiency improvement of only 2 percent in nearly 30 years. In comparison, over the same time frame, the minimum efficiency standard for air source heat pumps has increased from 6.8 HSPF to 8.2 HSPF. This corresponds to an increase in average efficiency for air sourced heat pumps of 40%. **Electric air sourced heat pump heating efficiency has increased 20 times more than the efficiency for gas-fired furnaces over the last 30 years.** Due to these dramatic energy efficiency improvements, an air source heat pump will use 1.5 to 3 times less on-site energy than a state-of-the-art gas-fired furnace to deliver the same useful heat. Air source heat pumps are the most energy efficient

heating devices that currently exist for residential applications and the technology is readily available.

The fuel source decisions that builders make today have implications for decades as those buildings will be locked into energy infrastructure that is expensive to change. The energy efficiency of modern electric heating solutions far surpasses that of even the best gas burning products. This means that the cost advantage that natural gas once had over electric heating is now a thing of the past. Because these modern electric devices consume much less electricity, these devices emit a fraction of the carbon that comes from gas burning products and this difference will become even more dramatic as the electric grid continues to get cleaner. It is far more prudent to build a new building with low carbon electric heating now than to build with gas and then retrofit that building to low carbon electric heating later. We strongly urge the Public Utility Commission to consider what is in the best interests of the residents and ratepayers of Oregon and adopt PGE's proposal to update Rate Schedule 300 Residential Line Extension Allowance and to include a further review of LEA and CA policies in the PUC Work Plan to support EO 20-04.

Sincerely,



**Zero Energy Ready Oregon Coalition  
Members:**

Earth Advantage  
New Buildings Institute  
Climate Solutions  
Zero Energy Project  
NW Energy Coalition  
Passive House Northwest  
Birdsmouth  
Walsh Construction  
Green Hammer  
Waterleaf Architecture, LLC  
City of Milwaukie  
Community Energy Project  
Ankrom Moisan Architects  
R-Stud  
SERA Architects  
BlueGreen Alliance  
The Environmental Center  
Dream Home Building and Design  
NorthWest AeroBarrier  
Elemental Energy  
Opsis Architecture  
Innotech Windows + Doors  
Oregon Solar Energy Industries Association  
Electrify Now  
Solar Oregon

**Additional Organizations in Support:**

PAE  
Redwood Energy

## References:

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