

Analysis: Greenhouse Gas Emissions Reductions Resulting from the Clean Electricity and Coal Transition Plan

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Summary:

The Clean Electricity and Coal Transition Plan will make significant net carbon reductions in Oregon and potentially beyond. It will:

- Reduce, by half, Oregon's carbon footprint from electricity
- Leverage neighboring states to clean up their electricity
- Avoid Oregon making new, long term investments in fossil fuels – the mistake made with coal
- Enable a low-carbon transportation future for Oregon

Current state of emissions for Oregon

Oregon's science-based, legislatively adopted goals for reducing greenhouse gas emissions to at least 75 percent below 1990 levels by the year 2050. Currently, the state is not on pace to meet that goal.

Electricity generation currently accounts for approximately 30 percent of Oregon's greenhouse gas (GHG) emissions. Coal plant emissions are about 25 percent. Any plan that backs out coal and replaces it largely with zero carbon resources like wind and solar energy will take a big bite out of Oregon's climate pollution. That's what the Clean Electricity and Coal Transition Plan proposes to do.

Oregon's greenhouse gas (GHG) emissions peaked in 1999 (71.2 mmTm), and have generally declined since. 2014 emissions levels were about 60 million metric Tonnes (mmTm), nearly back to 1990 levels (56.9 mmTm). The electricity sector has contributed to these reductions. Portland General Electric (PGE) and PacifiCorp (PAC), which together represent about 90 percent of the electricity sector GHG emissions, released some 23.5 mmTm annually in the 2003-2007 time period. In 2007, Oregon passed its landmark 25 percent Renewable Portfolio Standard, Thanks in significant part to that policy, in 2014 the utilities released 16.7mmTm, a falloff of nearly 30 percent. The utilities have met the requirements under the 25% RPS so far. There is still work to be done to put the large utilities on track to meet state goals. Without further utility measures, their emissions plateau and rise in future years.

Reducing coal-fired power served to customers in Oregon

In 2020, PGE's Boardman coal plant – the only remaining coal plant in Oregon - ends coal combustion. That's already agreed upon, and you can see a dip in the utilities' Business As Usual (BAU) line about then. [Graph 1 attached] But that BAU line does not go down thereafter. Why? Because PGE is still importing a modest amount of Montana coal generation and PacifiCorp continues importing about 65 percent of its power delivered in Oregon from coal plants outside the state. Both utilities currently assume in their planning models that when a coal plant like Boardman retires, it is replaced with a new natural gas-fired generating plant.

New gas plants are more carbon-efficient than coal plants, by a factor of about 50 percent. As electric loads continue to grow -- more people and more technology using electricity -- replacing coal with gas means locking into a fossil-fueled future for the next 30 to 40 years.

Without this bill, electric utility emissions go sideways, and eventually back up again (see Graph 1: the PAC+PGE business as usual/BAU estimated reductions line – light blue). They are not declining as they need to for meeting Oregon’s goals (shown as in grey “2050 goal trajectory;” from Oregon’s GHG reduction goals, proportional to electricity’s GHG share).

The Clean Electricity and Coal Transition Plan (dark blue line) changes everything. It sets a schedule for ending coal generation serving Oregon. Some of this transition begins in the mid-2020s as PAC closes certain out-of-state plants (or converts them to natural gas). The big drop occurs in 2030, when the balance of PAC coal plants stop serving Oregon loads. PGE will end its take of Montana coal by 2035 at the latest, and possibly as early as 2030. And while those out-of-state coal plants might seek to keep operating by finding other customers in other states, California’s experience suggests that some, perhaps most, of the plants will not find those new buyers and will close instead.

Renewable energy expansion replaces existing coal, displaces new gas

Equally important, the utilities, consumer and environmental negotiators agreed to extend and strengthen Oregon’s Renewable Portfolio Standard, which now directs the utilities to meet at least 25 percent of their load from *new* renewables by 2025 (in addition to the renewable hydro power already in the mix). The new RPS stipulates meeting 27 percent of load from new renewables by 2025, and stair-steps to 50 percent by 2040.

We expect these new renewables to displace the new gas generation now planned by both utilities, since it will make no economic sense to build both. We expect gas to play a meaningful role in this renewable future, but it will be an *integrating* role, complementing the new wind and solar, operating when the renewables aren’t generating. There will be other new technologies too: customer options to manage their own usage and sell flexibility back to the grid; energy storage to capture over-generation from renewables, then send it back into the grid when there is demand at night or when the wind dies.

The Clean Electricity and Coal Transition Plan emissions line [Graph 1] reflects this new arrangement, assuming as coal drops off Oregon’s grid, it is replaced by a mix of new renewables and complementary gas. **These actions will cut electric sector emissions *in half* by 2030 from the BAU line. It should reduce overall Oregon emissions by ± 15 percent.**

Other greenhouse gas reductions in the Clean Electricity and Coal Transition Plan

Another 25 percent of Oregon’s GHG emissions come from our cars and light trucks (like delivery vans). Reducing these emissions means shifting from gas and diesel engines to electric vehicles, a transition that is underway. It also means plugging these new vehicles into the kind of clean, low-carbon energy grid that the Clean Electricity and Coal Transition Plan delivers, and not into an old coal plant.

We clean up the power grid and the transportation sector both this way. We make real, structural change that delivers present and future emissions reductions. It's an important step for Oregon, and it shows the way for other states to do the same.

Graph 1

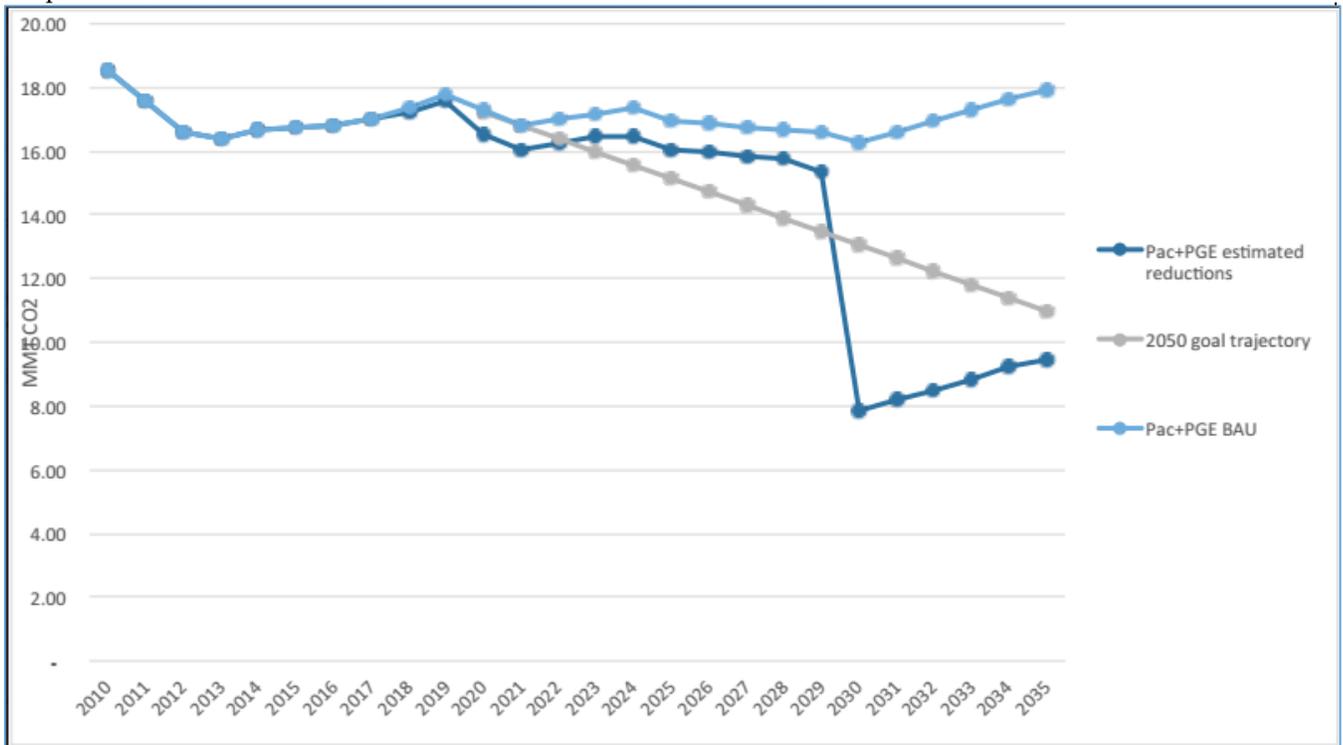


Figure 1

