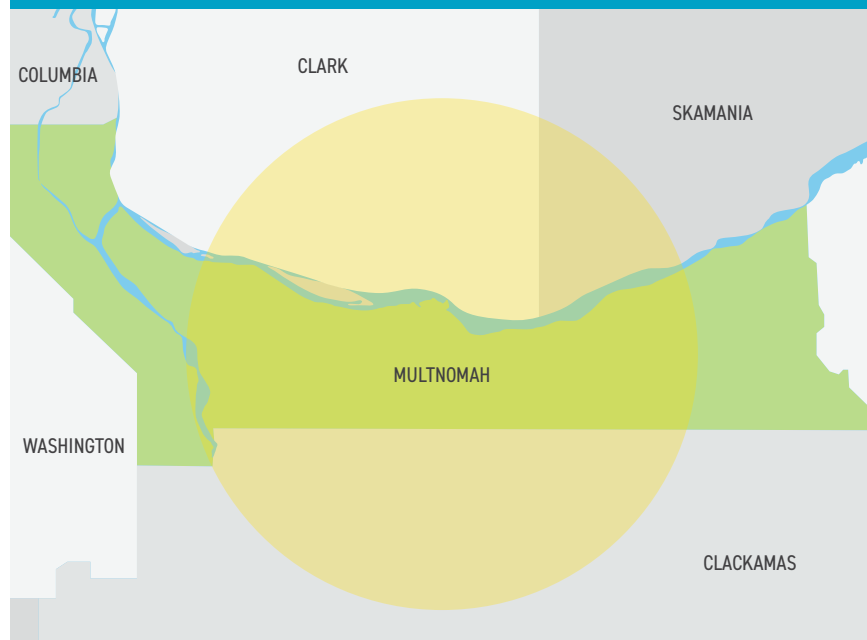


WHAT WOULD IT TAKE TO ELECTRIFY OUR RESIDENTIAL GAS USE?

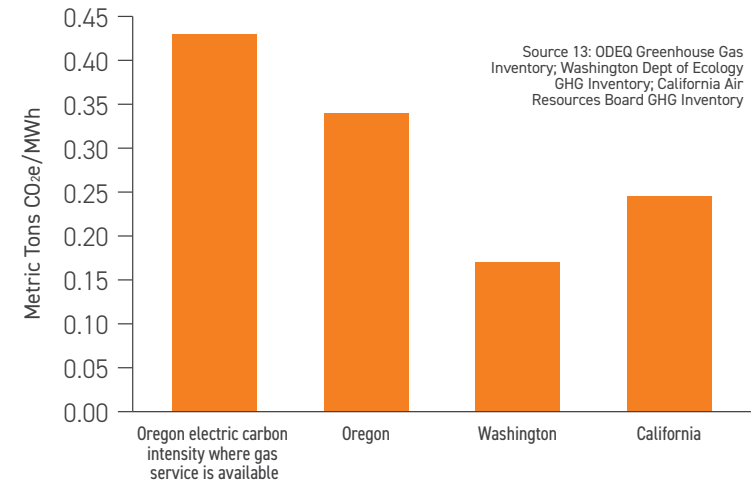
NW Natural estimated what it would take for the local electric system to **serve our residential customer load for only one hour on one winter day**.¹²

- On Dec. 22, 2022, from 8-9am NW Natural delivered approximately 23 million cubic feet of gas to our residential customers.
- If all those customers' gas appliances were replaced with electric appliances, it would require more than **3.4 GW of electric capacity** to provide the same amount of energy.
- Using renewable electricity to serve that gas use with 75% wind, 20% solar, and 5% battery storage would cost the local electric system approximately **\$20 billion**, according to the National Renewable Energy Lab and Berkeley National Labs capital cost estimates.

Electrifying NW Natural's residential gas use would require about **700 square miles of land** to build all that new infrastructure on.



Carbon Intensity of Electric Sector by State



Oregon's electric sector is more emissions intensive where the electric and gas systems overlap.

WHAT ARE THE IMPLICATIONS OF ELECTRIFICATION?

Before electrification policies are considered, there are many critical questions that should be addressed by gas and electric utility energy system planners using actual—**not estimated or assumed**—customer usage data. This has not been done in Oregon.

For example:

- What are the emissions impacts using *actual* electric heat pump performance data in cold and peak conditions, including all supplemental heat emissions?
- What mix of renewable resources will serve all this new electric load?
- What amount of new high voltage electric transmission will be needed?
- Where will it go, who will be impacted, and how long will it take to be sited?
- What upgrades to substations and distribution lines will be required?
- What investments in new capacity at the home or neighborhood level would be needed to serve this additional heating load and transportation?
- What would be the timing of those upgrades to ensure reliability?
- How would all this new electric energy be stored?

How much will this all cost and is there a more affordable way to achieve the same climate goals?