

WHAT ABOUT IMPACTS OF BATTERY STORAGE?

Batteries are an important option but developing them to scale poses significant challenges.

- A special report from the **International Energy Administration's World Energy Outlook**, "The Role of Critical Minerals in Clean Energy Transitions"²² provides an overview of the environmental, geopolitical and human rights challenges related to the development of batteries:

*"Significant greenhouse gas (GHG) emissions arising from energy-intensive mining and processing activities; Environmental impacts, including biodiversity loss and social disruption due to land use change, water depletion and pollution, waste related contamination, and air pollution; Social impacts stemming from corruption and misuse of government resources, fatalities and injuries to workers and members of the public, human rights abuses including child labour and unequal impacts on women and girls."*²³

- How the emissions related to batteries will be tracked and accounted for in the context of 100% clean electric bills is unknown, but given the vast amount of battery capacity needed to support any kind of electrification drive, these emissions could be significant.
- For a socially just and effective climate strategy to be implemented, we believe these issues need to be evaluated and addressed.

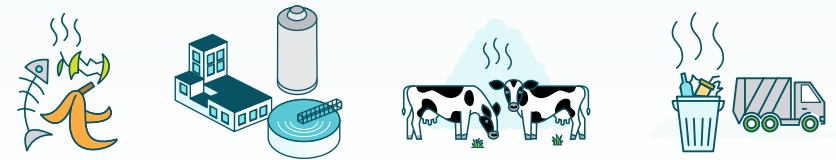
A CLOSER LOOK AT INDOOR AIR QUALITY AND GAS COOKING.

- Indoor air quality is an important issue, which is why there are government agencies responsible for its oversight. We fully support an unbiased examination of indoor air quality and cooking with gas and electric stoves by qualified experts in the relevant fields.
- Multiple studies²⁴ demonstrate that ventilation plays an important role in mitigating cooking-related pollutants that come from both gas and electric stoves. **That's why kitchen exhausts are required for all new homes in Oregon.**
- If you remove your gas stove for an electric one but don't use proper ventilation—there are still potential indoor air quality issues from cooking. Proper ventilation is needed when cooking, regardless of fuel type.

WE MUST INNOVATE AND EVOLVE TO ADDRESS CLIMATE CHANGE, LEAVING NO ONE BEHIND.

- Renewable natural gas can provide similar climate benefits to wind and solar using the existing pipeline system.²⁵
- NW Natural is pursuing renewable resources and new technologies with a goal of delivering carbon neutral energy by 2050. ([Review our report at nwnatural.com/destinationzero](https://nwnatural.com/destinationzero))
- **Do we have a lot of work ahead? Yes.** We are at the beginning stages of developing renewables for the gas system. As our nation's electric system works to increase wind and solar generation from 12% annually,²⁶ we also need to aggressively accelerate development of renewables for our pipeline networks.
- A diverse energy system—with renewable electrons delivered over wires and renewable molecules delivered underground provides a hedge against potential risks while supporting shared climate goals.

Renewable natural gas (RNG) is derived from biogas, which is produced from decomposing organic waste from landfills, agricultural waste and wastewater.²⁷ It is not a fossil fuel.



RENEWABLE NATURAL GAS

- We can capture and clean the gasses from those waste streams to deliver in our system, lowering emissions and turning the problem of waste into a powerful energy solution.
- National estimates for RNG supply show enough current potential in the U.S. to serve 95% of residential energy needs now met with natural gas.²⁸
- While RNG costs more than natural gas today, it could help lower the alternative costs and environmental impacts of new electric infrastructure.