

BIOGAS & RENEWABLE NATURAL GAS INVENTORY – 2018

EXECUTIVE SUMMARY

In 2017 the Oregon Legislature passed SB 334, directing the Oregon Department of Energy, in coordination with an ODOE-appointed advisory committee, to conduct a detailed inventory of all potential sources of biogas and renewable natural gas (RNG) available in Oregon. The bill also required that ODOE maintain and periodically update the inventory.

ODOE was authorized to estimate the potential production quantities of biogas and RNG within the state; as well as the energy content of biogas available at each site; document the location of existing biogas production facilities; and assess the supply chain infrastructure associated with each type of biogas. The bill required analysis of current technology for converting biomass to biogas and for processing biogas to RNG.

The report identifies financial, technical, market, policy and regulatory barriers to developing and using biogas and RNG as an energy source that can help Oregon reduce greenhouse gas emissions and improve air quality.

Advisory Committee Membership and Key Report Components

The ODOE-appointed RNG Advisory Committee included more than 40 individuals representing a broad range of stakeholder interests. Active members included representatives from three natural gas companies, interstate natural gas pipeline companies, private developers, agriculture and forestry interests, academia, state, regional and local government, wastewater treatment plants, landfills, waste food management, and transportation. Beyond fulfilling their statutory requirements to assist in the development of the inventory and identification of barriers and recommendations, members attended monthly meetings, hosted facility tours, and lent their technical expertise in determining the potential production quantities of biogas and RNG.

To prepare a detailed inventory of all potential sources of biogas and RNG available in Oregon, ODOE investigated anaerobic digestion and thermal gasification technologies, compiled a list of existing sites and producers, assessed the complex supply chain infrastructure, estimated the current and potential RNG production quantities, and determined their greenhouse gas emissions and air quality effects from using RNG as a fuel.

The inventory quantifies opportunities to convert persistent, long-term waste streams into useful energy. As they break down in the environment, municipal waste streams like garbage, wastewater, and waste food, as well as agricultural waste streams like manure, all generate methane, a powerful greenhouse gas. Redirecting these waste streams into controlled processes for optimization, capture, and utilization of the methane (CH₄) can be economically, socially, and environmentally beneficial to Oregon. Greenhouse gas emissions and air pollutants can be significantly reduced when RNG is substituted for fossil fuels in our transportation and stationary fuels sectors. If Oregon's potential volume of RNG could be captured and used to displace fossil-based natural gas for stationary combustion, we would prevent the release of

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approximately two million metric tons of greenhouse gases into the atmosphere. Redirecting this fuel source into these sectors can also potentially result in increased economic opportunity, and provide energy security and resilience for Oregon communities.

The Inventory

The inventory indicates that there is potential for a substantial amount of RNG to be produced in Oregon from a variety of biogas production pathways.

The gross potential for RNG production when using anaerobic digestion technology is around 10 billion cubic feet of methane per year, which is about 4.6 percent of Oregon’s total yearly use of natural gas. The gross potential for RNG production when using thermal gasification technology is nearly 40 billion cubic feet of methane per year, which is about 17.5 percent of Oregon’s total yearly use of natural gas.

Potential Barriers to RNG Development, Production, and Use

The report identifies barriers to developing, producing, and using biogas and RNG as a means to reduce greenhouse gas emissions and improve air quality. Barriers were identified by conducting a literature review of known RNG development barriers, and through discussions with the Advisory Committee. The identified barriers fell into the following categories: financial, informational, markets, policy and regulatory, and a general category of “other.”

Recommendations

The Department of Energy worked with the Advisory Committee to propose policy solutions for future consideration by policymakers. ODOE synthesized their input and makes the following six recommendations, which if implemented, could enable the development of more RNG in Oregon:

1. Allow the natural gas companies to buy and sell RNG to and for their customers.
2. Allow local gas distribution companies to recover pipeline interconnection costs through their rates.
3. Study how best to expand natural gas transportation fueling infrastructure.
4. Explore development of voluntary gas quality standards for injection of RNG into the natural gas pipeline.
5. Explore financial incentives to help drive the nascent industry forward.
6. Coordinate with RNG stakeholders and state agencies to develop a tracking and accounting protocol for production and use of RNG.

The Department of Energy’s full Biogas/RNG Inventory report, including detailed data, is available at <https://www.oregon.gov/energy/Data-and-Reports/Pages/Reports-to-the-Legislature.aspx>.