

Get Strategic: Voluntary Renewable Natural Gas Programs for Utilities

By David Slavin

Renewable natural gas is gaining attention as a promising and reliable energy solution to reduce emissions and help natural gas utilities meet net zero goals by 2050. Using renewable natural gas, utilities across North America are developing various strategies to decarbonize their assets.



Climate change and energy security are driving innovation as governments aim to reduce greenhouse gas emissions, utilities pursue sustainable energy solutions and private companies prioritize an environmental, social and governance (ESG) approach. In this dynamic environment, renewable natural gas (RNG) is gaining significant attention as an energy solution to allay environmental concerns.

As gas utilities and energy providers implement decarbonization strategies, voluntary programs to incorporate RNG could be a game changer, but successful implementation requires thoughtful planning to account for rate adjustments and potential sources for RNG production.

Utilities interested in pursuing RNG programs can expect multiple benefits, including enhanced environmental sustainability, reduced greenhouse gas emissions and improved financial outcomes. The construction of new RNG production facilities can create jobs supporting the local economy. Similarly, as adoption of RNG grows, residents and business owners may purchase renewable natural gas to offset their carbon footprint. Finally, consumers are willing

to pay more for sustainable products and services, and gas utilities have a unique opportunity to support customer demand with innovative solutions.

Production Methods for a Burgeoning Energy Resource

RNG can supplement conventional natural gas, but the production methods are quite different. Natural gas is typically extracted from underground rock formations through drilling. Conversely, RNG is typically produced through anaerobic digestion. Organic waste materials, including food waste, agricultural waste, sewage sludge and landfill gas, can be used as feedstock in RNG production. The organic waste is deposited into a sealed container that accelerates the decomposition of organic materials when deprived of oxygen. Anaerobic bacteria facilitate the decomposition of organic material, transforming it into biogas. The biogas will go through a process to withdraw impurities and escalate methane content for a purified form of methane. Purified methane is compressed, thereby increasing energy density. This final product is infused into existing natural gas pipelines, where it can blend with conventional natural gas.

Carrots and Sticks: Driving Demand for an Unconventional Fuel

In 2007, Congress devised the Renewable Fuel Standard (RFS) program to encourage renewable fuel adoption while reducing the need for imported oil. The RFS establishes a financial value, based on market principles, for renewable fuels, including RNG. The RFS program, administered by the Environmental Protection Agency, states that obligated parties must sell a minimum volume of renewable fuel in the United States or purchase credits with renewable identification numbers (RINs). Obligated parties include any entity involved in the production of gasoline, including refiners, importers and blenders.

The intent of this program is to support energy security through the domestic production of natural gas while reducing greenhouse gas emissions that negatively impact public health and the natural environment. This initiative jump-started RNG production and utilization, but climate change, consumer demand and corporate ESG goals are also pushing demand to new heights. According to BloombergNEF, the size of voluntary carbon markets could reach \$15 billion by 2030. This projected increase reinforces RNGs role in the energy transition and energy security efforts. The projected growth of RNG builds off a decade of robust RNG production. In 2011, there were 36 landfill and agricultural RNG projects in the United States — five of which focused on agricultural feedstock and 31 focused on RNG from landfills. In 2022, there were 193 landfill and agricultural RNG projects across the United States.

Paying it Forward: Identifying Solutions to Pay for Renewable Natural Gas Projects

RNG production is growing, but petroleum and standard natural gas still have a stronghold on energy production, consumption and markets. A utility may choose to develop facilities that can produce RNG or purchase RNG through a request for proposals process on behalf of customers. All of these options have positive and negative financial and operational issues that need to be considered. Regardless of how a utility procures RNG, financial systems are needed to maintain utility operations. Here are three potential models for paying for RNG projects:

- **Voluntary purchase program.** This type of scheme allows customers, including residents and businesses, to offset carbon emissions by purchasing blocks of RNG on a voluntary basis. For example, Puget Sound Energy based in Washington allows customers to purchase a block of RNG for \$5 each month while receiving a \$1.25 conventional natural gas credit, bringing the price to approximately \$3.75 per block. Each block of RNG is comparable to 2.7 therms of conventional

natural gas, which represents approximately 4% of the typical customer's monthly natural gas consumption. In this type of scheme, residents can pay for more or less RNG on a voluntary basis.

- **Rate increases.** Utility boards can lead efforts to diversify energy sources, especially if board members are elected and public sentiment is on their side. Under this type of scheme, the utility may purchase RNG or develop facilities to produce RNG, but charges will be added to customers' monthly bills to pay for these assets and resources. This scheme works well for publicly elected utility boards that represent customers and residents with an expressed interest in reducing carbon emissions.
- **Rate neutral or rate decrease.** Utilities can also choose to sell environmental attributes from RNG production and consumption on credit markets. Individual natural gas consumers may or may not have options to voluntarily pay for RNG blocks, but companies or obligated parties that have specific climate and energy goals or mandates can purchase the environmental attributes derived from RNG to achieve carbon reduction goals. This scheme allows outside companies to retire environmental attributes while claiming carbon reduction, but the utility and its consumers no longer own the environmental attributes; thus, they cannot claim emissions reductions. Utilities who pursue this path benefit from new revenue streams that can offset the costs for RNG production and can even decrease customers rates.

Securing Renewable Natural Gas

How a utility obtains RNG depends on a variety of factors, including access to a reliable party who can deliver RNG to the utility or develop the facilities to produce RNG. Natural gas providers that own and operate utilities are now creating separate, unregulated companies — under the parent company — to self-develop RNG production facilities. Using private capital from the parent company to support RNG production, the unregulated entity can sell the RNG back to the regulated utility or the environmental assets can be sold as credits in the RFS program or other various voluntary markets.

Furthermore, the regulated entity of a utility can self-develop RNG projects in its operating territory and seek rate recovery from its board of public utilities. Several regulated utilities are also actively pursuing purchasing RNG environmental attributes from existing producers — not always collocated with the utility — looking to expand their voluntary purchase programs for their consumers.

A utility's decision to purchase RNG from an outside party, self-develop RNG production or use RNG produced by an associated unregulated entity is the first step in moving toward RNG production and utilization. If a utility decides to produce RNG, it will need to identify an adequate feedstock. The feedstock can affect the carbon intensity (CI) score, as well as the credit value (i.e., RIN or LCFS).

Biogas extracted from landfills and municipal wastewater treatment facility digesters will have a higher CI score than biogas extracted from food and green waste. The process of converting animal manure into RNG achieves the highest CI score, because manure is diverted from open lagoons to covered lagoons, thus avoiding methane emissions into the environment.

Case Studies

Black Hills Energy | Kansas | Voluntary Purchase Program

Black Hills Energy administered a survey to determine customer interest in programs or initiatives that reduce greenhouse gas emissions. Survey results showed that customers were generally interested in emissions reduction initiatives, prompting Black Hills to introduce a RNG program in which residential or small commercial retail customers can choose to buy "blocks" of RNG to counterbalance the carbon dioxide emissions of an average customer's natural gas consumption. Under this scheme, Black Hills acquires the environmental attributes associated with the RNG, as well as the carbon offset credits. This program is voluntary and customers must opt in. Customers also have the flexibility to determine how many blocks they wish to buy each month and can stop participating before the next billing cycle. In this instance, Black Hills has not self-developed an RNG production facility. Instead, it is giving customers the opportunity to buy environmental attributes from the market, to mitigate the impact of their own emissions.

NW Natural | Oregon | Rate Increase

In 2019, Oregon enacted a law that sets voluntary targets for RNG adoption at natural gas utilities. In this law, approximately 30% of the gas flowing through the state's pipeline network should be RNG by 2050. NW Natural soon purchased environmental attributes from an anaerobic digester facility located in Wisconsin and an RNG facility situated at a wastewater treatment plant in New York. In 2021, NW Natural created a unregulated subsidiary, NW Natural Renewables, to produce RNG with environmental attributes that can be purchased on national markets outside of its operating territory. Additionally, NW Natural provided funding for RNG production facilities to be located at two landfills and construction began in 2022. To pay for the RNG production facilities, as well as the environmental attributes purchased from out-of-state RNG producers, NW Natural increased customers rates.

Summit Utilities | Maine | Voluntary Purchase Program and Sales of Environmental Attributes

In 2019, Summit Utilities, the parent company of Summit Natural Gas, started its RNG initiative with three specific steps. Summit Utilities' first step was matching 5% of residential gas demand for one year by purchasing RNG attributes without imposing additional costs on consumers. The second step Summit Utilities took was providing customers with a voluntary choice to contribute toward the acquisition of RNG attributes, giving customers the opportunity to actively reduce their carbon footprint. Summit Utilities' third step focused on creating RNG locally through partnerships with dairy farms. In 2021, Summit Utilities secured a \$4.9 million grant from the Department of Energy to support this partnership and local RNG production. The firm started construction on its first RNG dairy digester under its newly formed unregulated entity Peaks Renewables in 2022 with the intent to sell renewable energy credits to third parties seeking to fulfill their own decarbonization requirements.

Recommendations for Program Development

To successfully implement a voluntary RNG program, a utility will need to develop a strategic plan that prioritizes collaboration, research and knowledge-sharing, and establishes reliable goals. Collaborating with interested parties — regulators, producers and customers — is critical for new RNG programs. Customers have a variety of concerns, from environmental to financial, and how a utility incorporates RNG into its operations will impact the end consumer. Working hand in glove with the public, producers and regulators, utilities can identify whether a rate increase, rate neutral or voluntary purchase program would be the appropriate scheme for incorporating RNG. In addition to weighing customer and regulator demands, as well as production realities, a utility can conduct feasibility studies to assess resource availability and costs.

Utilities that decide to build RNG production facilities don't have to pursue projects blindly. Engaging in partnerships and knowledge-sharing opportunities with peer organizations that produce RNG can give utilities a framework for understanding how RNG is produced and distributed. Utilities interested in these programs can also apply for grants or loans from state or federal agencies, depending on availability. Loans and grants typically come from the Department of Energy or the Department of Agriculture. Some states, such as California and Missouri, have programs incentivizing RNG production.

Through research and conversations, utilities and energy providers can develop realistic goals that support emissions reductions, while addressing customer concerns and financial realities.

Statewide RNG Initiatives

- **California Biomethane Monetary Incentive Program:**

In 2019, the California Public Utilities Commission approved an order (D.19-12-009) to create a reservation system for the biomethane incentives program. The program offers approximately \$3 million available per project or \$5 million available for projects with three or more dairies located nearby. Eligible projects can take advantage of this incentive program until December 2026, or until the program depletes its \$40 million funding limit. Using the incentive reservation system, developers can reserve funds during project development and can secure funds after the system is operational.

- **Missouri RNG legislation (HB 734):** Enacted in 2021, this law required the state public service commission to create rules allowing gas corporations to establish a voluntary RNG program. Gas companies can recover costs for the RNG program, once it is operational. Affiliate companies are prohibited from investing in biogas projects unless they are a public utility. Unless the General Assembly reauthorizes this program, it will end after nine years.

Conclusion

RNG can help utilities and energy providers realize emissions reductions while providing reliable service to customers. This emerging technology has grown dramatically during the past decade and if current estimates are accurate, RNG production and integration will provide new opportunities to reduce emissions and potentially gain revenue through the sale of RINs and environmental attributes. Utilities and energy providers may choose different paths to utilize RNG, including developing facilities for RNG production, purchasing RNG to incorporate into natural gas pipelines or purchasing environmental attributes on behalf of customers. Each option will provide unique opportunities and drawbacks. By collaborating with interested parties, sharing knowledge, conducting industry research and establishing reliable goals, utilities can develop effective RNG programs that align with regulatory requirements, address customer concerns and help to reduce emissions.

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