

RNG ON THE RISE

Across the United States, natural gas utilities are partnering with industries to produce renewable natural gas for use in transportation and, now, in our homes and businesses. Here's how utilities can overcome the challenges involved with getting into RNG—and make this fuel source work for them. **BY M. DIANE MCCORMICK**

Renewable natural gas is soaring to new heights. Of course, the ride now might feel more like a roller coaster than a rocket, but today's gas companies are building a body of lessons learned to help smooth the journey at every stage.

“RNG is this energy source sitting on the ground, waiting to be put to use,” said Bill Edmonds, director, environmental policy and sustainability, at Oregon-based NW Natural. “We just have to learn how to close the loop on waste. It's ... in wastewater treatment plants and agricultural waste and forest waste. There's a lot of exciting opportunity that parallels where we were on the electric side 20 years ago.”

Companies are fitting RNG into sustainability goals, adapting existing infrastructure, crafting partnerships and advocating for policy changes. Combined, the efforts position utilities and states to reach their climate goals by capturing and using the methane that's being naturally released all around us.

Giving RNG the Green Light

Michigan-based DTE Biomass Energy, a wholly owned subsidiary of DTE Energy, has long owned and operated landfill gas-to-energy projects. Now, in response to both state and federal incentives for RNG use as vehicle fuel, the company has expanded its portfolio by tapping into the abundance of dairy farm-based RNG, said Vice President of Business Development Kevin Dobson.

The process involves verification of pipeline systems connecting supply to market, plus “a sizeable investment” in such infrastructure as digesters, interconnections and equipment to clean the gas to meet pipeline standards. Four factors inform a favorable cost-benefit analysis, said Dobson:

- Partnering with well-run dairies, large enough to provide enough manure for viable quantities of RNG.
- Ensuring proximity to a natural gas pipeline, either through direct injection or trailering the RNG to the pipeline.
- Determining achievable gas specifications, assuring the gas meets the applicable pipeline standards.
- Considering the project's total costs, which include financial incentives for the farm owner, cost of gas cleanup and interconnections, and the price of RNG at market.

Don't forget local government and environmental permitting, Dobson added. RNG projects are "almost always viewed as a good thing by local governments" for their financial and environmental benefits.

On the residential and commercial front, scrutiny of local and statewide criteria is helping utilities decide whether to make the RNG plunge in voluntary fashion or via tariff. For Vermont Gas, a green-minded customer base precipitated the launch of a voluntary retail offering in early 2018. Targeted buyers include residents making their households more environmentally friendly, as well as commercial clients, such as a university medical center ramping up its decarbonization or a sustainability-minded eco-cleaning products company, said Tom Murray, vice president, customers and communities.

The program's certification processes "make sure the claims you're saying around renewability are accurate, so consumers and companies can count on the product when they do their marketing."

Vermont Gas developed accounting mechanisms toward "an RNG attribute that looks like an electric REC [renewable energy credits]," Murray said. That REC lookalike allows the utility to "carry inventory forward to match up with our sales."

Internally, the sales and marketing and energy efficiency teams underwent training to become "well-versed in the product" and its role within Vermont's "very aggressive" goal of 90 percent renewable energy by 2050.

"We see renewable natural gas as a perfect complement to our current product," Murray said. "Can we use RNG as the next step toward achieving climate goals, maybe leveraging some of the advantage of having a low-cost product that would get more people to invest in renewables?"

Over on the West Coast, Southern California Gas Company sees RNG for residential and commercial use as "an important building block in our decarbonization strategy," said Tanya Peacock, public policy and planning manager. A SoCalGas filing before the California Public Utilities Commission proposes a voluntary program that

would allow residential customers to displace a portion of natural gas through the purchase of RNG, while commercial customers could replace all or part of their natural gas with renewable sources.

A 2016 study from the University of California, Davis, concluded that California has the potential to produce about 90.6 billion cubic feet per year of RNG from dairy, landfill, municipal solid waste and wastewater treatment plants.

Studies like this that reveal massive potential bolster the case for RNG by showing stakeholders that “there’s enough renewable natural gas to matter,” said NW Natural’s Edmonds. NW Natural worked with the Oregon Department of Energy on successful legislation directing the department to study potential RNG and biogas inventory.

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“The punchline is that the technical potential in Oregon is somewhere near 50 billion cubic feet,” he said. “That’s equivalent to the amount of gas that all residential customers in Oregon use.”

Reworking the Policy Framework

When it comes to other renewables, wind and solar energy got off to a bumpy start, but since then, barriers and prices have fallen, said Edmonds. That experience offers “useful parallels” for RNG development, especially if the industry works to fix a regulatory framework that “doesn’t give us much room to purchase a product that is not least cost, least risk.”

To alleviate that challenge, NW Natural is advocating for the passage of state legislation allowing “some latitude to purchase RNG for all of our customers,” said Edmonds. Those gas utilities that choose to participate could spread the costs of RNG purchases—with spending caps—among all customers.

“This will help us buy RNG in an everincreasing amount,” said Edmonds. The policy supports for RNG purchases would also help NW Natural travel its own lowcarbon pathway, a voluntary initiative to drive down greenhouse gas emissions 30 percent by 2035.

Effective advocacy starts by sharing the story of RNG—what it is, why it’s lowcarbon and how it’s part of the progression to cleaner-burning fuels, Edmonds said. Most legislators and customers know little about RNG at first, but they become “very excited when they learn what it is. People don’t fully recognize that we, too, on the gas side, can deliver a lower-carbon product, and that’s what renewable natural gas is and is all about.”

A SoCalGas vision paper points to RNG as an affordable energy option to help in the drive toward California’s goal of 100 percent clean energy by 2045. The utility has set its own goals of becoming North America’s cleanest gas utility and to deliver 20 percent RNG in its system by 2030.

RNG “gives us a way to mitigate and reduce emissions from the state’s largest methane emitters,” the paper notes. As Navigant Consulting has found, replacing less than 20 percent of California’s natural gas supply with RNG by 2030 would achieve the same GHG emissions reductions as the costly, disruptive prospect of converting every home and business to electricity.

“Decarbonization goals are not electrification goals,” said Peacock. “We’re trying to do as much education and outreach as we can to help policymakers and stakeholders understand the benefits of renewable natural gas in meeting decarbonization goals.”

Policy changes supporting RNG as a tool toward climate goals include a bill, adopted in 2018, directing the California Public Utilities Commission to consider RNG procurement for utilities, similar to renewable portfolio standards for electric utilities. Those RPS requirements instilled contract certainty that accelerated development of wind and solar. Similar standards for RNG would inspire confidence among investors that changeable credit regimes can’t deliver.

“It’s tough to finance a project based on environmental credits, due to the uncertainty,” Peacock said.

Success Through Symbiosis

For gas utilities venturing into RNG, it’s important to consider markets, supply and partnerships. SoCalGas, for instance, determined that its 20 percent RNG goal is viable with a mix of in-state and out-ofstate supply.

Oregon’s legislative bill would give NW Natural the flexibility to acquire RNG “in any number of ways,” while still “trying to get the best deal for our customers,” said Edmonds.

“We have to show regulators that we’re doing it at a reasonable cost,” he said. “It’s quite likely that most will be under power purchase agreements.” Dairy projects with

the potential to earn federal Renewable Identification Numbers and state Low Carbon Fuel Standard credits can be “worth a whole lot of money.”

Vermont Gas has been getting its entire RNG supply from a landfill in Quebec. In Canada, hydropower keeps electricity inexpensive, so premiums for RNG are “fairly healthy” by comparison, said Murray. Plans to diversify supply include the addition of a farm digester and a waste treatment plant.

“We want to have more local suppliers,” Murray said. “We think it’s a critical role we can play. In Vermont, we have some aggressive clean energy goals, new recycling mandates around household waste and organics, aggressive clean water goals and issues around farm sustainability. We think RNG is the perfect glue to bind all of these policy aims together and develop into a business model.”

Leveraging RIN and LCFS credits is also on the table at DTE Biomass Energy, said Dobson. With those credits driving demand for RNG to replace fossil fuel-based gasoline and diesel, the firm typically seeks off-takers that have access to compressed natural gas fueling stations in order to generate the renewable attributes.

Successful partnerships stand on “symbiotic relationships,” especially because they are meant to endure for many years, said Dobson. Dairy farmers, for instance, run “extremely busy operations” with thousands of cows, but companies like DTE Biomass Energy can present beneficial uses for manure “that otherwise is a cost or burden for the farm rather than both an environmental and financial asset.

“Constant communication with the farm is key, and making sure that our operations don’t interfere with their operations,” he added. “The last thing we want to do is make them alter the way they do business.”

SoCalGas’ Peacock cited the importance of dedicated resources to conduct engineering studies before construction. That approach helped assure the successful launch of a dairy partnership that started putting carbon-negative RNG into California pipelines in February 2019.

“A key takeaway to facilitating and expediting these projects is having a team of people on the engineering side who can focus on the project and aren’t pulled in all sorts of directions,” she said.

Internal coordination around interconnecting is another “brass tacks lesson” of RNG operations, said Edmonds. Customers are putting gas on the system and taking it off, so NW Natural convened personnel from the rate setting, engineering, accounting and other departments to solve such complex but not insurmountable issues as monitoring, remote operations and billing.



Dairy Dreams, a farm in Casco, Wisconsin, is the site of DTE Biomass Energy's first dairy-based RNG project.

PHOTO COURTESY OF DTE BIOMASS ENERGY

“All those folks are necessary to make something new happen that will no doubt become more rote over time, but we’re in the process of interconnecting three projects all at once,” he said.

Edmonds echoed the idea of respecting the boundaries and priorities of partners. NW Natural joined the evocatively named “Poop to Power” project when the city of Portland, Oregon, sought help in making use of gas being flared from its wastewater treatment plant. NW Natural built the project’s RNG vehicle filling station and interconnections. Both sides showed patience, as NW Natural learned to navigate city procedures and Portland gave NW Natural the space to develop specifications for a project it had never done before.

“These are going to become more commonplace, and it’s not going to be hard to have cities decide to do this,” said Edmonds. “Portland was one of the first. They had high-level leadership to get it done and keep the pressure on.”

Look Forward, Not Back

RNG success comes down to fundamentals. Keep people apprised and the process collaborative, advised Peacock, with “communications early and often.”

Look forward instead of back, suggested Edmonds. While some anxiety over failed projects of the past is appropriate, it shouldn’t divert utilities from exciting new

ventures that propel their goals forward.

“Anything that’s new is scary for utilities, especially if they once had a false start,” he said. “Now that we’re looking forward, we see that this is being done a lot in Europe. About 50 projects are interconnected in the United States, and that number is set to double in the next year or so.”

Dobson sees a dual opportunity to generate solid financial returns while also “helping the earth and helping local folks. When we can make money and help the environment, that’s a good thing.”

Murray’s biggest surprise in Vermont Gas’ RNG venture has been seeing how eyes light up and people engage “when they see the opportunities for us to transition our pipeline to something that is delivering a cleaner, renewable product.

“When you think about our challenges around climate change and cleaning up our energy-supplies portfolio, our infrastructure can be incredibly valuable,” he said. “A lot of people who had written off our system’s ability to be a player in 2060 and 2070 are actually saying, ‘Wait a minute. You can actually help by being a renewable source of energy.’ We’re excited to be a part of that.”