



Biogas in North America & Australia

Topics:

[LA Metro signs multi-year contract with for more than 47 million gallons of RNG](#)

[RNG surpasses half a billion gallon fuel mark in 2020](#)

[CBA receives funding to help farmers discover on-farm biogas potential](#)

[The eight fastest growing biogas businesses in the USA](#)

[SoCalGas sets bold course to net zero emissions](#)

[Aemetis receives final permit to build next 21 miles of biogas pipeline](#)

[RNG from dairies is booming in California](#)

[JAX LNG capacity expansion works progress](#)

[Chevron and Clean Energy Fuels extend Adopt-a-Port initiative](#)

[RNG accounted for 53% of NGV fuel use in the USA](#)

[Canadian biogas experiences decade of rapid growth](#)

[Bright Biomethane to build biogas upgrading plant in Australia](#)

[Green Hydrogen for California](#)

[FortisBC reopened its RNG program](#)

LA Metro signs multi-year contract with for more than 47 million gallons of RNG

The Los Angeles County Metropolitan Transportation Authority (Metro) has signed a new agreement for an estimated 47.5 million gallons of its renewable natural gas (RNG) to fuel the nation's largest transit bus fleet. This agreement will mark the completion of Metro's 5-year goal to transition its diesel fleet to cleaner, low-carbon fuel, with 2,400 buses now running on RNG—the first renewable and commercially available vehicle fuel made entirely from organic waste. Over the 5-year period, the transition to RNG will further reduce Metro's greenhouse gas (GHG) emissions significantly compared to the use of conventional natural gas, driving down Metro's Scope 1 emissions. Additionally, Metro has been retrofitting and replacing its buses with the Cummins-Westport Low NOx CNG engines that reduce smog-forming NOx to 90% lower than the EPA NOx limit.

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RNG surpasses half a billion gallon fuel mark in 2020

The U.S. EPA released data showing over 503 million gallons (1.9M cubic meter) of renewable natural gas (RNG) were produced in 2020 for transportation purposes, demonstrating a marked increase from the 404 million gallons in 2019. This increase in RNG production can be tied to state and federal policies, such as the Renewable Fuel Standard and the California Low Carbon Fuel Standard, that encourage the use of alternative sources of clean energy in transportation. As companies and consumers alike work to reduce their carbon footprint, RNG is a compelling fuel option that can yield a carbon-negative life cycle emissions result. The fact that RNG production continued to increase and thrive in a tumultuous year like 2020 demonstrates the increasing importance of RNG as a valuable tool to decarbonize the transportation sector in the United States

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CBA receives funding to help farmers discover on-farm biogas potential

Funding of up to \$116,800 (€77,500) has been allocated to the Canadian Biogas Association (CBA) to boost sustainable agricultural development, including biogas. Agricultural Minister Marie-Claude Bibeau met with Jennifer Green, executive director of the CBA. With funding of up to \$28,800 (€19,100) from the Agricultural Clean Technology Programme, the CBA launch a campaign to help farmers learn more about biogas. As part of the campaign, the CBA launched a new website with resources to help farmers evaluate the opportunities of biogas, including a self-assessment tool, answers to key questions, and profiles of on-farm biogas plants in Canada. The site also includes a checklist and links to biogas equipment suppliers and technical advisors, acting as a one-stop-shop to help farmers get started. Currently there are 61 farms and agri-food businesses across Canada successfully capturing biogas. The CBA also received \$88,000 (€58,400) under the Canadian Agricultural Strategic Priorities Programme to identify clusters of agricultural resources across Canada and assess the potential for RNG development by region. The association will use this information to create a guide to inform agricultural stakeholders about new and emerging renewable natural gas (RNG) opportunities, encouraging collaborations to develop more sustainable energy systems in Canada.

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The eight fastest growing biogas businesses in the USA

The American Biogas Council announced the eight fastest growing biogas businesses in the US: DMT, DVO, Inc., Envitec Biogas, Evonik, Greenlane Biogas, Nacelle, Paques Environmental Technologies, and PlanET Biogas. Five out of it are from Europe, mainly Germany. Collectively, revenue from the fastest eight grew by more than 300%. At present, the US biogas industry has 2,200 operating projects in all 50 states. The potential to build new biogas systems to manage the large volumes of organic waste is enormous. At least 15,000 new systems could be built, catalyzing an estimated \$45 billion in new capital deployment along with 374,000 short-term construction jobs to build the new systems and 25,000 permanent jobs to operate them. This number of systems could produce enough energy to power 7.5 million American homes and reduce emissions equivalent to removing up to 15.4 million passenger vehicles from the road, in addition to many other benefits.

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SoCalGas sets bold course to net zero emissions

The Californian gas distributor SoCalGas announced its bold commitment to achieve net zero greenhouse gas (GHG) emissions in its operations and delivery of energy by 2045. Its net zero target means SoCalGas would eliminate not only the company's own direct emissions, but also those generated by its customers. By 2045, fleet vehicles, the buildings it owns, the pipelines it operates and the fuel it delivers to their 22 million customers across Southern California will be net zero emissions. The future of energy will bring increased integration of the electric and gas systems. As the company makes this transition, SoCalGas will continue investing in infrastructure and technologies to maintain a system that delivers affordable, reliable, and clean energy. The following milestones have been defined among others: By 2025 achieve net zero energy for 100% of SoCalGas' newly constructed buildings and major renovations of buildings over 10,000 square feet. Replace 50% of SoCalGas' over-the-road fleet with electric, hybrid, natural gas, and/or fuel cell electric vehicles. By 2030 eliminate 100% of vented gas during planned transmission pipeline work. Achieve net zero energy for 50% of all SoCalGas existing buildings. Deliver 20% renewable natural gas. By 2035 operate a 100% zero emissions over-the-road fleet. Achieve net zero energy for 100% of SoCalGas buildings.

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Aemetis receives final permit to build next 21 miles of biogas pipeline

In California, Aemetis Inc.'s final permit has been approved to begin construction of the next 21 miles of the Aemetis Biogas Phase 2 pipeline in Stanislaus County, Calif. This significant project milestone allows the installation of biogas pipeline in Stanislaus County roads for construction of a pipeline that extends the existing 4 mile pipeline by an additional 21 miles. The pipeline will convey conditioned biogas from

dairies to the Company's centralized gas cleanup facility which is currently under construction at the Aemetis Advanced Fuels Keyes ethanol plant. At the Keyes plant, the biogas will be upgraded to negative carbon intensity (CI) Renewable Natural Gas (RNG) for use as transportation fuel in trucks and buses. The RNG will be either delivered into the PG&E utility pipeline located onsite at the Aemetis ethanol plant, dispensed to trucks at the RNG fueling station being built at the Aemetis plant, or used as process energy in the Aemetis facility to replace petroleum-based natural gas. The Company is completing the permitting process for 13 miles of additional biogas pipeline in Merced County to connect additional dairies to the Aemetis biogas cleanup facility at the ethanol facility. The next phase of five dairy biogas digesters are part of a network of lagoon digesters utilizing negative 426 (-426) carbon intensity of biogas to displace petroleum based natural gas used at the Keyes ethanol production facility. Completion is planned in Q1 2022, with an additional ten dairy digesters planned for completion by Q4 2022. The seventeen dairy digesters are expected to produce approximately 440,000 MMBtu (129 GWh) per year of RNG.

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RNG from dairies is booming in California

Peoples Gas, Florida's largest natural gas distribution utility, has reached an agreement with Alliance Dairies to build, own and operate a renewable natural gas (RNG) facility on the dairy's property in Trenton near Gainesville. The facility is expected to produce 105,000 MMBtu of RNG (30.8 GWh), enough to serve about 4,400 homes annually. The Alliance RNG facility will capture waste from approximately 6,500 cows and clean it to pipeline-quality natural gas that can be safely used by any natural gas appliance or other natural gas application. Alliance Dairies is committed to using its byproducts in beneficial ways, from recycling water and sand to generating power from methane.

California Bioenergy LLC (CalBio) has brought online two new dairy biomethane clusters, both located in Tulare County, California. CalBio is a leading dairy digester developer in the U.S. with over 90 projects operating or in development. The projects are the third and fourth dairy biomethane clusters brought online by CalBio in California. The South Tulare cluster will collect, condition, and inject gas into the SoCalGas pipeline from digesters built at nearby dairies. By year end 15 dairy digesters will be in operation, connected by 41 miles of gathering pipeline. When fully built out, the cluster is anticipated to connect 30 or more dairies to the pipeline. The North Visalia cluster will collect gas currently emitted from 12 dairies by year end, adding more dairies in 2022. The dairy biomethane will similarly be injected into the SoCalGas system for delivery to natural gas vehicle fleets. CalBio has developed a unique ownership structure for dairy farmers to benefit both as investors in multiple clusters and from manure feedstock supply payments. Together the two clusters will soon be producing approximately 8 million diesel gallon equivalents (30 million liters) of compressed renewable natural gas (RNG).

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JAX LNG capacity expansion works progress

The JAX LNG facility was the first small-scale waterside LNG production facility in the U.S. with both marine and truck loading capabilities. Since its 2018 commissioning, the facility has safely made over 150 deliveries to the LNG barge Clean Jacksonville through its integrated marine loading dock. Pivotal LNG said that the facility will triple liquefaction to 360,000 gallons (1.3 Mio liter) a day and double liquefied natural gas (LNG) storage to 4 million gallons (15 Mio liters). The expansion is expected to be placed in service by early 2022 and will support a new long-term LNG supply agreement with a major maritime company for its dual-fueled ships. Global trends toward cleaner energy and new international maritime emissions regulations are driving demand for LNG. Following completion of the JAX LNG expansion, Pivotal's network of LNG assets will reach a production capacity of over 470,000 gallons per day and a storage capacity of approximately 9 million gallons at its three facilities in Alabama, Florida, and Pennsylvania.

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Chevron and Clean Energy Fuels extend Adopt-a-Port initiative

Chevron U.S.A. Inc. is investing an additional \$20 million in the Adopt-a-Port initiative with California renewable natural gas (RNG) provider Clean Energy Fuels Corp. Chevron has now invested a total of \$28 million in the initiative, which provides truck operators – large fleets and owner-operators – serving the ports of Los Angeles and Long Beach with cleaner, carbon-negative RNG to reduce emissions. In addition to providing funding for Adopt-a-Port, Chevron supplies RNG to Clean Energy stations near the ports. Chevron's funding will allow truck operators to subsidize the cost of buying new or converting to RNG-powered trucks. Clean Energy, meanwhile, will manage the program, including offering fueling services for qualified truck operators. Truck operators participating in the program, agree to fuel up at the Clean Energy stations supplied with Chevron RNG. Truck operators and their import and export customers are expected to reduce greenhouse gas emissions under California's Low Carbon Fuel Standard program while also reducing smog-forming NOx emissions by up to 98 percent compared to diesel trucks, helping local communities.

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RNG accounted for 53% of NGV fuel use in the USA

(NGV America) and Coalition for Renewable Natural Gas (RNG Coalition) announced that 53 percent of all on-road fuel used in natural gas vehicles in calendar year 2020 was renewable natural gas (RNG). RNG use as a transportation fuel grew 25 percent over 2019 volumes, increasing 267 percent over the last five years. In 2020 a total of 646 million gallons equivalent of natural gas were used as motor fuel. Of that, 345 million gallons were from renewable sources. RNG use as a motor fuel in 2020 displaced 3.5 million tons of carbon dioxide equivalent (CO₂e). Put into perspective, RNG motor fuel use last year sequestered carbon, equal to growing close to 58 million tree seedlings for ten years, or 4.3 million acres of U.S. forests for one year.

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Canadian biogas experiences decade of rapid growth

Canadian biogas experienced a decade of rapid growth from 2011 to 2020, with an almost 50% jump in operating biogas projects across the country. That's the key takeaway from the Canadian 2020 Biogas Market Report just released by the Canadian Biogas Association that provides a comprehensive analysis of trends in the production and use of biogas energy in Canada. Canada now has 279 biogas projects from coast to coast. These projects are capturing waste methane from agricultural waste, landfills, green bin programs and municipal wastewater treatment facilities and turning it into a total of 196 Megawatts of clean electricity and 6 million Gigajoules of renewable natural gas (RNG). That's the equivalent of roughly 300,000,000 m² of solar panels or more than nine large hydro dams. Canada's biogas sector is poised for another decade of growth. The Canadian 2020 Biogas Market Report calculates that Canada is tapping only 13% of its easily accessible biogas potential. The 2020s will drive new biogas growth, with demand for RNG increasing rapidly thanks in part to climate and clean energy policies at the national and provincial levels, such as RNG mandates in British Columbia and Québec. Studies have shown that biogas and RNG could reduce greenhouse gas emissions by 14 million tonnes in 2030 and 62 million tonnes in 2050. The resource is there, commercially proven, and ready to be seized.

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Bright Biomethane to build biogas upgrading plant in Australia

Bright Biomethane has partnered with Australian company Eneraque to build a biogas upgrading facility. The project will represent Bright's first biogas upgrader build in Australia and will be constructed for energy company Jemena at the Sydney Malabar wastewater treatment (WWT) site. Biogas from Sydney Water will be purified into biomethane for distribution through the grid. The Malabar Biomethane Project is expected to be completed in 2022 and is claimed to be Australia's first biomethane gas grid injection project. With a capacity of 1,100 Nm³ per hour of ingoing biogas, the new facility will upgrade the raw biogas from the AD process of sludges at the WWTP in Sydney, considered

to be Australia's largest. Biomethane is the end-product – a renewable gas compliant with Natural Gas specification, which will be distributed through Jemena's gas network to thousands of Sydney homes and businesses for cooking, heating, and hot water.

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Green Hydrogen for California

Hitachi Zosen Inova USA (HZIU) announced that it entered into an agreement with the Canadian technology company CHAR Technologies Ltd. to develop a test project to produce green hydrogen and biochar at HZIU's San Luis Obispo, California, biogas plant from the solid digestate. In San Luis Obispo, about 36,500 US tons of biogenic waste are now processed annually into biogas producing over 6 million kWh/a of electricity and about 1,700 US tons of liquid fertilizer. In addition, 18,000 US tons of solid fermentation residue is produced annually, which will in future be processed in the CHAR system to produce 1,320 US tons of green hydrogen and 2,800 US tons of biochar. This will completely close the plant's material cycle. The goal is to further improve the negative carbon footprint and get even more value out of the waste.

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FortisBC reopened its RNG program

FortisBC Energy Inc. is reopening its renewable natural gas (RNG) program to its customers on Oct. 15. The company has secured a new RNG supply the past couple years as a means of providing its natural gas customers with a carbon-neutral energy option. FortisBC launched its RNG program in 2011 and was the first utility in North America to offer RNG to customers as a simple way to lower their greenhouse gas emissions. Demand for RNG outpaced supply in late 2019, and the program was temporarily paused with about 10,000 customers subscribing to the program. Since then, FortisBC has increase its RNG supply and is forecasting a tripling of its 2020 annual supply by the year's end.

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