



Technology Collaboration Programme
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Newsletter IEA Bioenergy Task 37: 09/2021

Deployment of Biogas – Merger&Acquisition

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Investment update on AD/Biogas by AcuComm

In Spring 2021, AcuComm reported on 22 new biogas projects with a cumulative estimated value of US\$253 million. These projects will generate an estimated total of 58 MW (or 3 MW on average at each plant) and consume almost 1.4 million tonnes of feedstock, of which 40% will be animal-derived (manure/slurry). This new activity was reported in Australia, Belgium, China, France, Germany, Greece, India, Indonesia, the Philippines, Serbia, the UK and the United States. Over the 12-month period (April 2020 to March 2021), AcuComm reported a total of 199 new biogas projects thereof 733 in the USA, 466 in France and 331 in the UK.

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Polish energy giants join to create domestic biomethane market

In Poland, Twarzowa Giełda Energii (TGE) and Polish Oil and Gas Company (PGNiG) signed a cooperation agreement aimed at leveraging their mutual expertise and capabilities in creating a biomethane market in Poland. TGE and PGNiG intend to jointly prepare modern solutions supporting the creation and development of a biomethane market in Poland. The expertise of both PGNiG, as a key player on the gas market, and of TGE as a trading platform where the trading in gas and certificates promoting the use of RES are concentrated, should contribute to the transformation of the energy market leading not only to increased significance of green technologies but also the emerging market for alternative fuels, such as biomethane or hydrogen.

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Total acquires Fonroche Biogaz to develop renewable gas in Europe

Total has acquired Fonroche Biogaz, a company that designs, builds, and operates anaerobic digestion (AD) units in France. With almost 500 GWh of installed capacity, which doubled between 2019 and 2020, Fonroche Biogaz is today the French market leader in the production of renewable gas with more than 10% market share, thanks to a portfolio of seven units in operation and a pipeline of four ‘imminent’ projects. The acquisition marks a significant step in Total’s development in the renewable gas market, with prospects for rapid growth in France and international deployment. With this acquisition, Total becomes a major player in renewable gas in France and Europe and strengthens its presence in the sector, already effective through its affiliates Methanergy (combined

heat and power production from biogas), PitPoint and Clean Energy (biomethane production and distribution via a network of bio-CNG and bio-LNG stations) in Benelux and the US, respectively.

In December, Total signed a memorandum of understanding with Clean Energy to establish a \$100 million (€82 million) 50/50 joint venture to develop renewable gas production projects in the US. By 2030, Total plans to produce 4-6 TWh of biomethane annually.

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Clean Energy Fuels, Total sign JV to develop RNG production

Clean Energy Fuels and Total have signed a 50/50 joint venture (JV) to develop renewable natural gas (RNG) production facilities in the US. The initial firm commitment is \$100 million (€83 million) and can increase to \$400 million (€332 million) as development opportunities progress.

Total will be providing credit support for Clean Energy's development in the RNG value chain, including \$45 million (€37.3 million) for contracted RNG fuelling infrastructure. Clean Energy is the largest provider of RNG as a transport fuel in the US, and the largest RNG fuel provider under the California Low Carbon Fuel Standard (LCFS) programme. RNG can be used directly as a vehicle fuel or as a feedstock to produce green hydrogen or green electricity, and still generate LCFS environmental credits.

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St1 acquires E.ON Biofor Sverige in Sweden

Biofuel producer St1 has acquired E.ON Biofor Sverige from E.ON Energilösningar. The acquired company now operates under the name St1 BioGas and its 35 biogas professionals joined St1.

St1 is now a major biogas player in Sweden with around a 30% market share in the traffic segment. The company produces, imports and exports biogas and delivers it to customers through several sales channels. St1 has six biogas production and upgrading units, two of which are partly owned subsidiaries. In Norway, St1 has purchased one-third of the shares in Biogas Energi Aksdal from Knaphus og Biogrønn. St1, Knaphus Energi and Norlog have also agreed to build biogas infrastructure in Norway. Earlier in June, St1 and food company Valio announced they will establish a joint venture (JV) in Finland to produce renewable biogas from dairy farm manure and other agricultural by-products, mainly as fuel for heavy-duty transport. The JV will target up to 1,000 GWh (1 terawatt-hour) of biogas production by 2030.

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Small scale – Big ambition

Having received the AD & Biogas Industry Award in 2020, Gegan Solutions has big ideas on how to develop its small-scale biogas plants to tackle food waste. The AD plant is the size of a shipping container by design, meaning more businesses can fit a plant at their location, thereby reducing the costs, road miles, and carbon footprint associated with transporting waste to large AD facilities. Despite its small size, the compact AD plant can produce from food waste an impressive 70 kW/h of electricity and 80 kW/h of heat for site consumption, peaking at up to 100 kW/h for energetic wastes. One such business that has taken this approach is Beckworth Emporium Garden Centre and Restaurant where Gegan Solutions provides a complete waste and energy management solution including compact AD plant located on-site; management of all energy (operations and administration); management of all wastes (operations, reporting, and cost control).

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Where there's a will, there's a whey

Food and beverage companies tend to consume a great amount of water and energy, while also producing a lot of waste. As consumers become more environmentally aware, corporations have started introducing sustainability initiatives aimed at reducing their carbon and water footprints. To reduce their water footprint, some companies are focused on reducing the overall water used, while others treat wastewater so it can be safely returned to the environment, or even better, reused. What about going a step further and transforming wastewater into energy. Whey leftovers from cheese making, wastewater from slaughterhouses, and wastewater from fish or vegetable processing is rich in potential energy. Instead of treating wastewater aerobically with high energy consumption, they can be processed into energy. If the energy is fed back into the production cycle, the company benefits from a closed loop system of manufacturing. An example is the Amadori project, a chicken processing plant in Teramo, Italy with waste-to-energy technology. The plant processes 3,180 m³/d of poultry slaughterhouse wastewater and by-products. The influent, with high-COD levels, is separated into primary sludge and effluent. The sludge separated during flotation is dehydrated after the anaerobic digestion, and the effluent is processed through a

nitrification-denitrification system and a final clarifier. The resulting effluent meets strict EU standards and can be safely discharged into a nearby river. The biogas is converted into electrical and thermal energy via a co-generator, generating more than 9000 m³/day of biogas.

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German lobby organization «Zukunft Gas» will help achieving the climate change

By changing its name from "Future of natural gas" to "Future of Gas", the lobby organization of the German gas industry wants to take into account the increasing focus on "green gases". In addition to biomethane, these also include power-to-gas from green electricity or hydrogen generated from renewable sources. The German gas industry is working for some time already on efficient heating technologies, the fuel cell in the boiler room, use and storage of biogas in the gas network. Innovations for the climate-neutral production of hydrogen are seen as topic making clear that gas will continue to play a role in the future.

The association will find ways to the "green gas" and replace also coal and oil in the areas of heating, power plants and mobility. Last year, the share of natural gas in primary energy consumption was almost 27 percent. In the course of the phase-out of coal and nuclear energy, this share will continue to grow in the coming years, according to the forecast. The Leipzig-based gas trading company VNG AG claimed that 99 percent of gases are to be "green" by 2050. To this end, the company is already actively involved in various projects for decarbonization using biomethane and green hydrogen. In the area of mobility, Future Gas predicts a "triumphant march" of bio-CNG at filling stations, flanked by the increasing spread of LBG in trucks and heavy commercial vehicles. They are expecting a boost from the reorganization of the fleet emissions directive at EU level, giving vehicle manufacturers an incentive to push CNG models. They could then be counted toward the limit values in a similar way to electric vehicles today.

[More](#) (in German)

New construction of one of the largest biogas plants in Switzerland

One of the largest biogas plants in Switzerland, based on biomass, will be built in La Chaux-de-Fonds. The project amounts to 9 million CHF. In total, 60,000 tons of biowaste will be transformed each year to produce approximately 11 GWh of biogas, the equivalent of the heat consumption of 1100 households. To create this biogas plant, produced from liquid manure and manure from neighboring farms and green waste, the company Agriteos was created. The operation of the plant should begin in 2024, said Thursday Viteos and the Chamber of Agriculture and Viticulture of the Canton of Neuchâtel. The construction of the future plant at the foot of the Chemin Blanc, at the eastern exit of the city, will start in 2022. It will make it possible to produce biomethane as a local and renewable source of energy, said the authors of the project. The raw biogas is purified in order to be injected into the natural gas network.

[More](#) (in French)

For GRDF, the green gas revolution is underway

At its annual press conference, the French gas network operator confirmed the strong development of green gas. However, the implementation of new devices will be necessary to continue the momentum. In mid-March 2021, 226 sites were injecting green gas into the gas networks. Injection capacity in 2020 has almost doubled again to reach 4 TWh/year. While France should have more than 350 biomethane injection sites by the end of 2021, GRDF estimates that many departments should exceed the 10% share of green gas injected within three years. Likely to employ 53,000 jobs by the end of the decade (7,300 by the end of 2020), the biogas industry nevertheless needs support to continue to develop. While the government plans to gradually reduce its aid, GRDF is calling for new measures to be put in place.

[More](#) (in French)

Heineken turns wasted beer into biogas

The Heineken Brewery in Manchester, UK is turning wasted beer into biogas. The British Beer and Pub Association (BBPA) predicts around 87 million pints will have been thrown away as a result of pub closures during the pandemic, equivalent to almost £331 million (€384 million) worth of beer. As part of its 'Brewing A Better World' sustainability strategy, Heineken looked to alleviate the situation by producing biogas. The waste beer is being used to power the brewing kettles and canning pasteurizers instead. Since May 2020, the brewery has processed 83,210 50-litre kegs, equivalent to 6,989,640 pints. According to the company, this is enough power to heat nearly 28,000 average UK homes for a day. The thousands of full kegs, which couldn't be sent to pubs during the lockdown, are emptied and the beer is stored in empty brewing vessels before being drip-fed into the site's

wastewater treatment plant (WWTP). It is then put into the anaerobic digester at the WWTP which converts it into biogas. The WWTP has been operating at full capacity, processing the equivalent of 70,000 liters of beer per day.

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Gasum aims for carbon emission reductions of a million tons by increasing biogas

Gasum is progressing towards carbon neutrality by setting new environmental targets to mitigate climate change. The company seeks to increase the availability of biogas to reach cumulative carbon emission reductions of a million tons. By 2025, Gasum intends to make 4 TWh of biogas available on the market from the company's own production and that of certified European partners. Gasum is boosting biogas production capacity and availability by building new plants and increasing the procurement of biogas from the production plants of other operators. Gasum now has 9 biogas plants in Finland and 6 in Sweden. Last year, Gasum acquired a biogas plant (40 GWh/p.a.) in Skövde, Sweden. The Lohja biogas plant (40 GWh/p.a.) in Finland entered commercial production in January 2021 and the Nymölla biogas plant (75 GWh/p.a.) in Sweden will enter commercial production during 2021. Gasum is also currently building an industrial-scale manure-based biogas plant (120 GWh/a) in Götene, Sweden. This plant is scheduled to complete by the beginning of 2023. In addition, the company is also planning to build biogas plants in Borlänge and Kalmar in Sweden, and in Oulu in Finland.

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In Italy Europe's largest bio-LNG is under construction

HAM Italia and Caviro are building Europe's largest RNG production plant in Faenza, Italy. With an estimated annual capacity of 9 million kilograms, or about 140 GWh/year, it will start production in spring 2022. Caviro, a major player in the Italian food industry and in particular in the wine sector, has started the construction of two biomethane plants that will transform by-products from the food and wine industry into RNG. Its association with Ham, will allow to liquefy the RNG to bio-LNG. In addition to the CO2 reductions resulting from the consumption of bio-LNG instead of petroleum derivatives, the Faenza plant will produce its own electricity by cogeneration (part of the gas is used to run a turbine that produces electricity).

[More](#) (in French)

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