Kanadevia INOVA

Biomethane and CO_2 utilisation

Energy, biofuels and decarbonisation

Taking resource management a step further

Kanadevia Inova supplies highly efficient plants for upgrading and utilising biogenic gases. They run on technologies that separate the carbon dioxide (CO_2) contained in raw gases to produce biomethane of natural gas quality and CO_2 product gas to ISBT/EIGA standards.

Adding value
The Kanadevia Inova Group is a global provider of innovative green-tech solutions. We're committed to the global mission of enabling the best possible resource management, a secure, sustainable energy infrastructure and greater decarbonisation in the interests of protecting the climate.

Committed to society
Our mission is a future free of wasted waste where waste and residual materials are understood as valuable resources and utilised to the maximum. We're mastering the challenges of our time while also paving the way for future generations – as illustrated by more than 1,600 reference projects worldwide.

Expertise for a wide range of client groups
Biogenic gases provide the best opportunities for supplying renewable energy and reducing CO_2 emissions. With a comprehensive portfolio spanning anaerobic digestion, gas upgrading and liquefaction, CO_2 utilisation and power to gas, plus the expertise to provide and coordinate the individual processes involved, Kanadevia Inova can serve as an experienced partner to cities and municipalities, agricultural businesses and investors.

Taking bioenergy a step further
Biomethane is the all-rounder in the energy transition. Carbon dioxide, a by-product of gas upgrading, is a valuable raw material for many applications. Gases of fossil and thus finite origin are becoming replaceable, which among other things reduces dependence on energy imports.

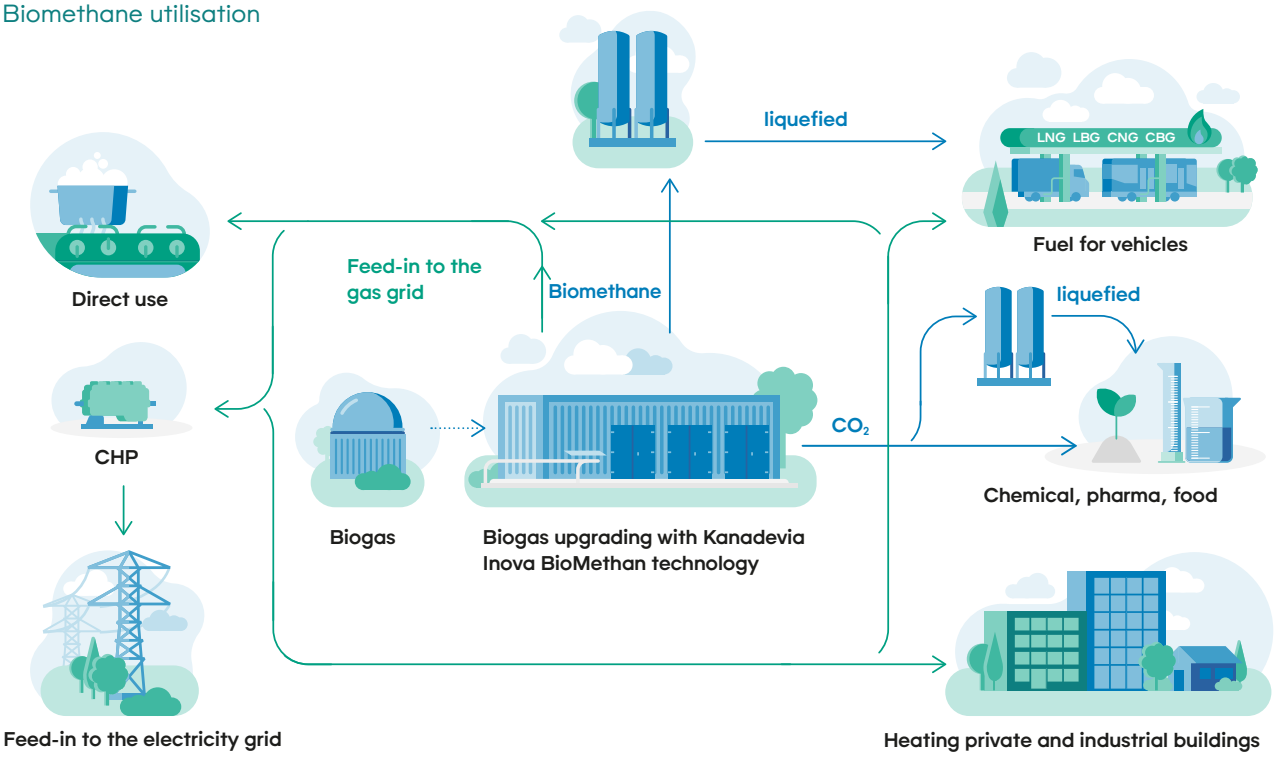
Solutions for every need

Multi-talented biomethane
Biomethane enables a reliable supply of energy, reduced-emission mobility and effective climate protection. The gas can be used to generate heat in combined heat and power plants and decentralised cogeneration units. Given that it has the same chemical properties as natural gas, the existing gas grid infrastructure can be used as a transport and storage medium and the place of production can be decoupled from the place the gas is used. Biomethane is also a biogenic alternative to CNG or LNG (compressed/liquefied natural gas) fuel for cars, public transport and road freight vehicles. Unlike volatile energy sources, biomethane can be produced on a predictable basis, and unlike fossil fuels, it's permanently available.

Biomethane from a range of raw gases
Any type of biomass is suitable for the production of biogenic raw gases. This can include manure, slurry and plant residues from farms, organic waste from households, wholesalers and retailers, municipal green waste or residues from food production. Biomethane can also be produced from sewage or landfill gases, which extends the value chain of the corresponding plants and promotes circularity.

The membrane system in Gråsten, Denmark, produces biomethane that is fed into the natural gas grid

Biomethane utilisation



Production tailored to requirements
Depending on its composition, the raw gas is first pre-treated. The methane and carbon dioxide it contains are then separated from each other – the main step in the gas upgrading process. Depending on the intended use, e.g. gas grid feed-in or liquefaction, the biomethane produced is conditioned to the required quality parameters.

Kanadevia Inova offers two processes for separating the raw gas components to meet different performance, operator or market requirements: amine scrubbing and membrane technology. Both processes achieve maximum methane purity with minimal methane slip and enable coupling with CO_2 utilisation systems.

By-product generating additional revenue
The separated carbon dioxide produces another high-purity gas that is required in gaseous, liquid or solid form in a wide range of industrial applications, for example in the chemical, pharmaceutical or food industries, as an extinguishing agent or refrigerant, as a plant fertiliser or as an agent used in special effects for events and films.

Kanadevia Inova's liquefaction technology allows CO_2 to be captured from the gas upgrading process and marketed as a product gas in accordance with the standards of the European Industrial Gases Association (EIGA) and the International Society of Beverage Technologists (ISBT). This enables businesses to optimise their carbon footprint and increase their added value.

Value-adding technologies

Flue gas scrubbing on the rise

CO_2 capture technologies can also be used to clean flue gas from industrial and manufacturing facilities by separating out the carbon dioxide it contains. A wood processing plant, for example, can use this technology to generate additional income by supplying CO_2 to a nearby greenhouse. When CO_2 is liquefied, production and use can be decoupled. Carbon capture is becoming increasingly important, especially for large industrial plants, as a means of reducing emissions and contributing to the achievement of national climate targets.

Intelligent process coupling

Power to Gas (PtG) concepts are a particularly effective way of combining technologies. Combined with a PtG plant, for example, an amine scrubbing gas upgrading system supplies high-purity CO_2 that can be used for methanation to produce synthetic natural gas (SNG). The waste heat from the methanation and electrolysis process, for its part, can be used to regenerate the amine scrubbing solution.

Sustainable transport

Biomethane has great potential when it comes to decarbonising the transport sector, especially as a liquefied fuel (bio-LNG) for long-distance heavy goods vehicles, allowing long ranges with small tank volumes. Bio-CNG and bio-LNG increase the share of renewables in the fuel supply and reduce greenhouse gas and NO_x emissions as well as air and noise pollution. Filling stations and proven vehicle technology are already in place.

The KompoMethan project in Jönköping, Sweden, produces biofuel for regional transport.

One-stop expertise

Kanadevia Inova BioMethan GmbH
From its site near Hamburg in northern Germany, the Kanadevia Inova Group provides plant technology for biomethane production and carbon capture. The company is building its portfolio in the Renewable Gas segment. The technologies can also be used as an upgrade in combination with the company's own Kompogas™ anaerobic dry digestion plants and as wet digestion and Power to Gas solutions.

The Kanadevia Inova BioMethan team combines specialist knowledge and many years of practical experience with expertise in providing and coordinating the relevant processes. To date, over 100 plants involving gas upgrading technology and/or CO_2 liquefaction have gone into operation worldwide.

The equipment is manufactured in compact container format at the company's headquarters in Zeven. Thanks to the standardisation of the amine scrubbing and membrane systems in sizes S, M and L, delivery times are short.

Various service hubs in Europe ensure professional, timely plant maintenance and repair. In addition, Kanadevia Inova BioMethan is represented by Kanadevia Inova branches worldwide and partner companies in the respective countries, for example in North America.

Kanadevia Inova BioMethan is certified according to DIN EN ISO 9001:2015, DIN EN ISO 3834-3, BS OHSAS 18001:2007, Pressure Equipment Directive 2014/23/EC Module H, TSSA and ASME.

Service to the highest standards
Comprehensive services and service offerings for optimum plant performance and safe long-term operation round off Kanadevia Inova BioMethan's portfolio: from spare parts delivery to maintenance and repair work and comprehensive service contracts. In each case, the service is tailored to meet the specific requirements of the plant.

Kanadevia INOVA

Kanadevia Inova BioMethan GmbH

Ludwig-Elsbett-Strasse 1
27404 Zeven
Germany
P +49 4281 98 76 0
info-biomethan@kanadevia-inova.com
www.kanadevia-inova.com

Kanadevia Inova AG

Hardturmstrasse 127
8005 Zurich
Switzerland
P +41 44 277 11 11
info@kanadevia-inova.com
www.kanadevia-inova.com

202512