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AFFORDABLE AND
CLEAN ENERGY

Ammongas 4 pillars

Ammongas has four pillars underpinning the contribution to the overall mission of helping the community towards a green development.

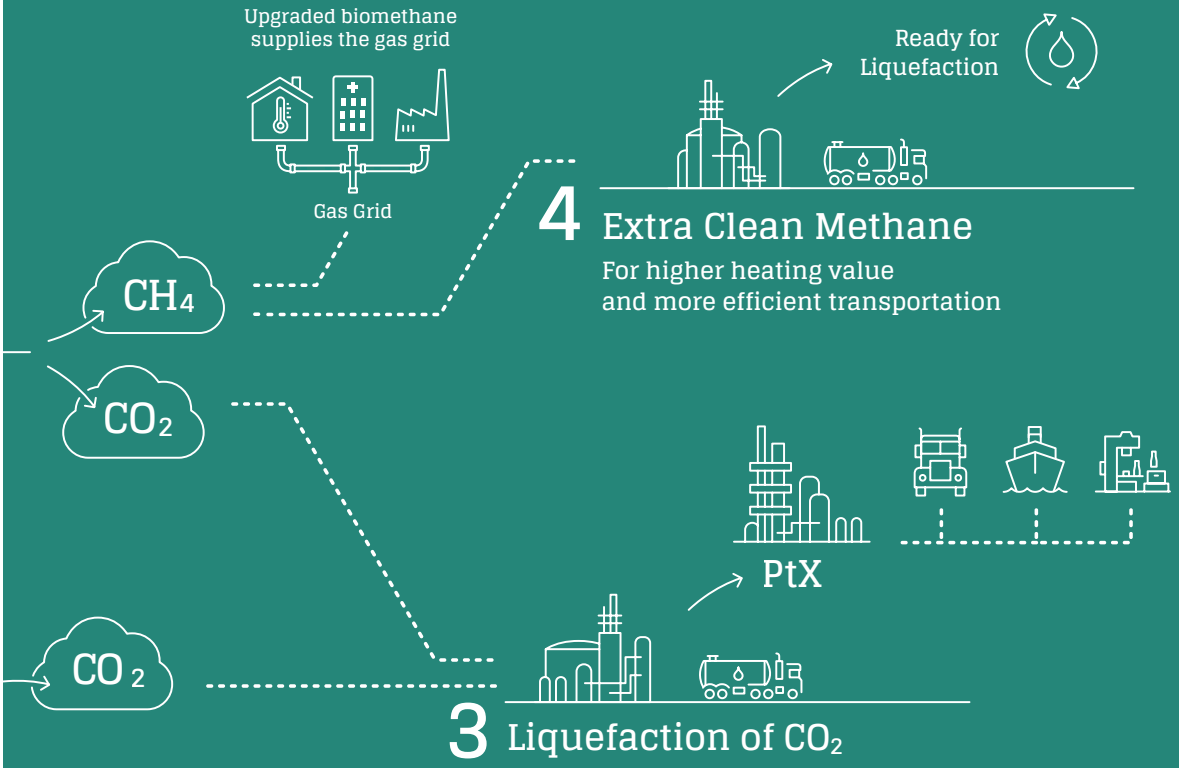
Pillar 1. Biogas Upgrading
Transforming raw biogas into biomethane, a renewable source of energy.

Pillar 2. Carbon Capture
Utilizing technology to capture and store carbon dioxide emissions, helping to combat climate change.

Pillar 3. CO_2 Liquefaction
Converting gaseous CO_2 into a liquid for easy transportation and storage.

Pillar 4. Extra Clean Methane
Producing high-purity methane that can be used for Bio-LNG.

Scan the QR code and take a look at the detail in **the video about our 4 pillars.**



Principle of CO_2 separation

Ammongas uses the well-known absorber-stripper system with amines for upgrading of biogas and for Carbon Capture. The process has been used for many years in the oil and gas industry for removal of CO_2, H_2S among other acidic gases, and is known for being a robust and reliable system.

The central principle of an Ammongas plant is a CO_2-separation that uses an alkaline amine solution to absorb sour gases. Heat is added to the system to regenerate the amine which circulates in a loop to reduce the consumption of solvent. Recuperating the heat is an integral part of the Ammongas value proposition and it is possible to achieve up to 90% heat recuperation from the process.

Upgrading of biogas in a class of its own with Ammongas.

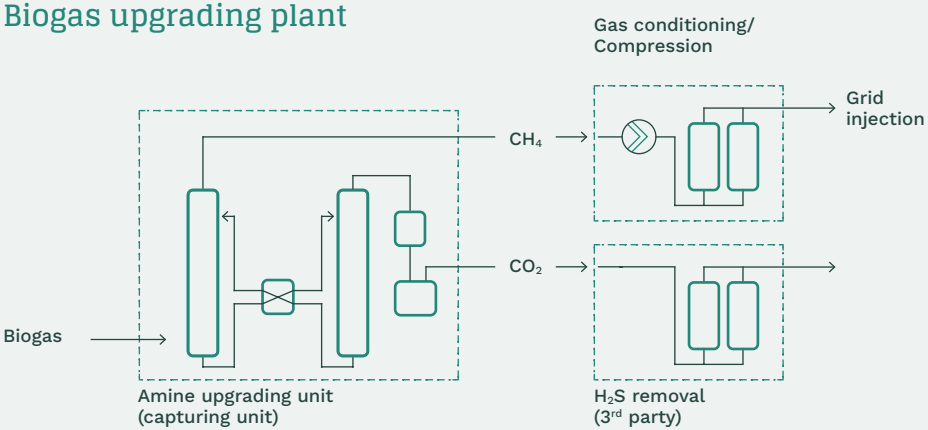
Ammongas has built **30+ biogas upgrading** plants ranging from 150 to 10,000 m^3/h.

Pillar 1: Biogas upgrading

Ammongas is an expert in CO_2-separation for biogas upgrading to biomethane. Ammongas' absorption process is so efficient that the methane slip to the atmosphere is less than 0.09%. This means that the amount of methane recovered is more than 99.9%.

Due to the efficient process, CO_2 is removed efficiently leading to a higher purity of CH_4 in the upgraded gas. Furthermore, the robust technology of the upgrading process results in low operational expense with an average up-time of 99% including service.

Biogas upgrading plant



Advantages of Ammongas CO_2 separation from biogas

Designed to meet your needs

In collaboration with our clients, we choose the best options for your specific project.

Long life

The plant is build in stainless steel using top-tier components, with expected lifetime of 15+ years.

Large savings

Due to a high degree of heat recuperation and solvent regeneration, the Ammongas CO_2 separation plant offers low operational expenditures.

Robust system

The CO_2 separation process accepts high concentration of H_2S.

Low electricity consumption

Only the CH_4 is compressed, resulting in a lower electricity consumption than other technologies.

High separation of CO_2

Below 2% CO_2 in the CH_4 but can be engineered to below 50 ppm for liquefaction purposes.

Methane slippage < 0.09%

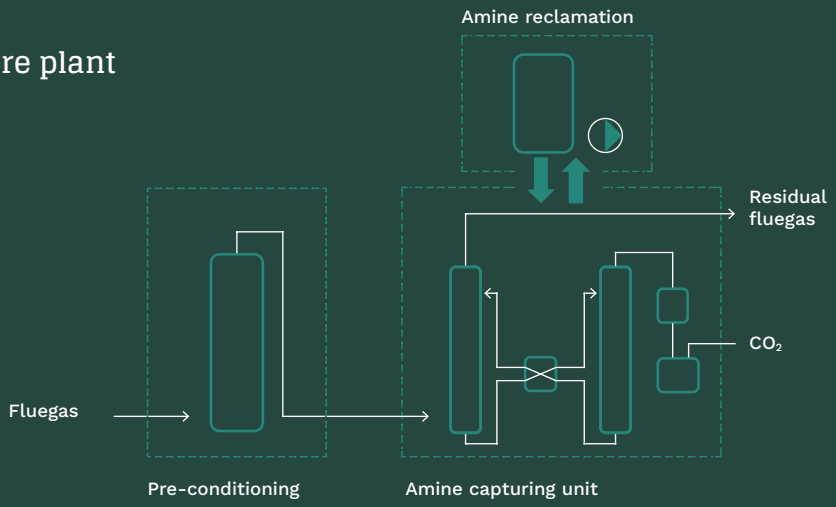
Low methane slippage and high methane recovery leads to optimal profit-generation.

Lower CO_2-taxes by reducing CO_2-emissions with Carbon Capture

Pillar 2: Carbon Capture

With the recent addition of Carbon Capture to the project portfolio, Ammongas can process and condition CO_2 from flue gas or tail gas. Carbon Capture through Ammongas-tailored CO_2-separation is a fairly similar process to Ammongas' biogas upgrading, with high capture-rates to below 1% CO_2 in the treated off-gas. This could be further enhanced by incorporating pre- and post-treatment procedures for potential sulfur (SO_x) and nitrogen oxides (NO_x) present in the gas composition.

Carbon Capture plant



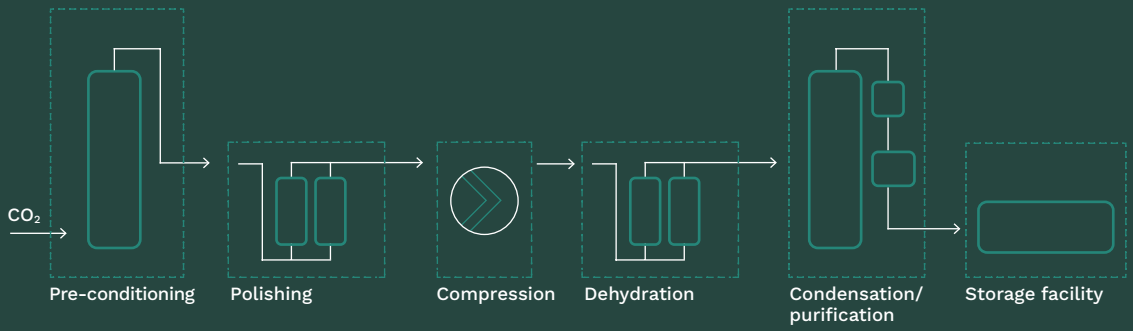
Added biogas value by LCO_2 for food industry or Power-to-X

Pillar 3: Liquefied CO_2

Ammongas offers a solution for CO_2 liquefaction. The inlet raw CO_2 entering the liquefaction plant is pre-conditioned and polished prior to compression, dehydration, and condensation before final storage.

Depending on the end-use, the CO_2 can through the Ammongas LCO_2-plant be delivered with a quality of +99% CO_2 for sequestration and up to food-grade or Power-to-X quality.

CO_2 Liquefaction plant

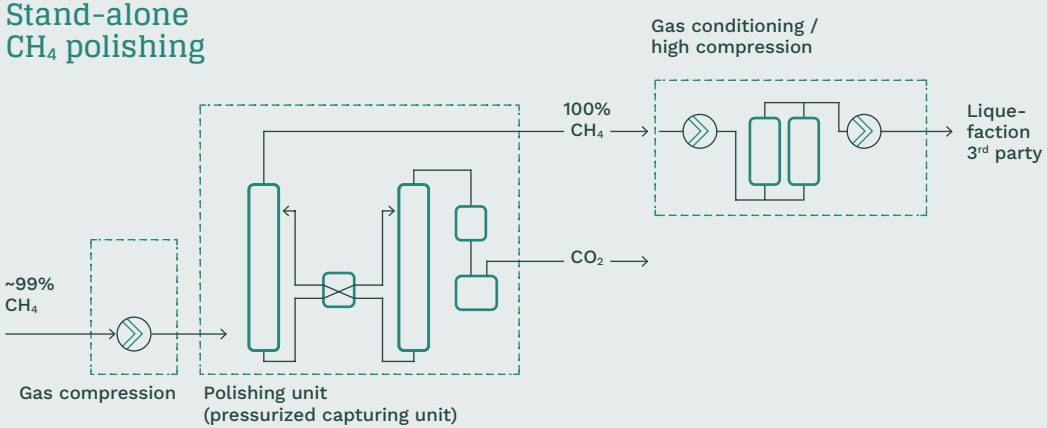


Pillar 4: Stand-alone or integrated CH_4 polishing

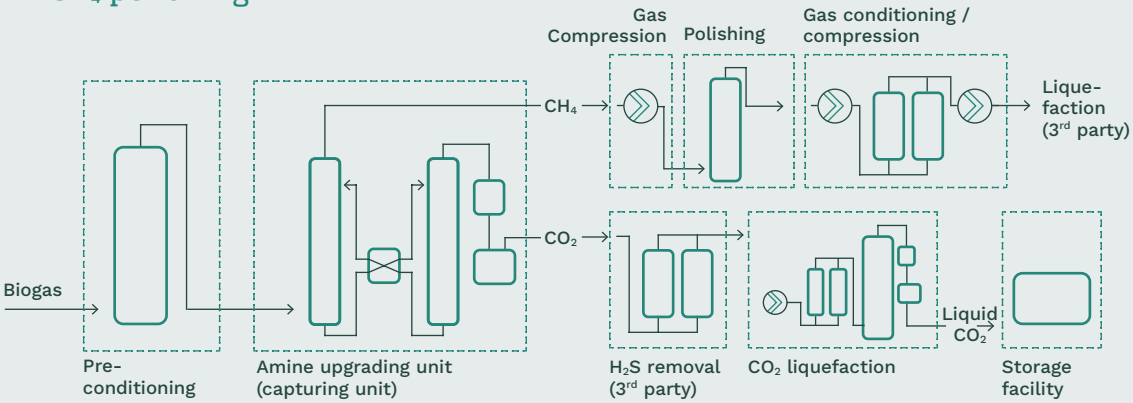
Ammongas' CO_2-separation process can remove down to less than 50 ppm of CO_2 in the biomethane, which is necessary to prepare the gas for liquefaction (bio-LNG).

CH_4 polishing can be offered as a stand-alone add-on to an existing upgrading plant or offered as an integrated amine upgrading and polishing plant.

Stand-alone CH_4 polishing



System integrated CH_4 polishing



The right partner for a greener project

Whether you are looking for biogas upgrading, polishing of CO_2, carbon capture, CO_2 liquefaction, Ammongas has made CO_2 separation its key business for over a decade.

In close collaboration with clients and through strong engineering capabilities half of the biomethane on the Danish national gas grid is being processed through an Ammongas plant.

Ammongas has existed since 2002 and consists of approx. 35 dedicated employees.

The Ammongas team is eager to help you achieve your ambitious goals and contribute together to helping the community towards a green development.

Better carbon balance for optimal revenues through Ammongas' solutions