

Turning emissions and waste into synthetic fuels



Efficient technology for producing renewable synthetic fuels

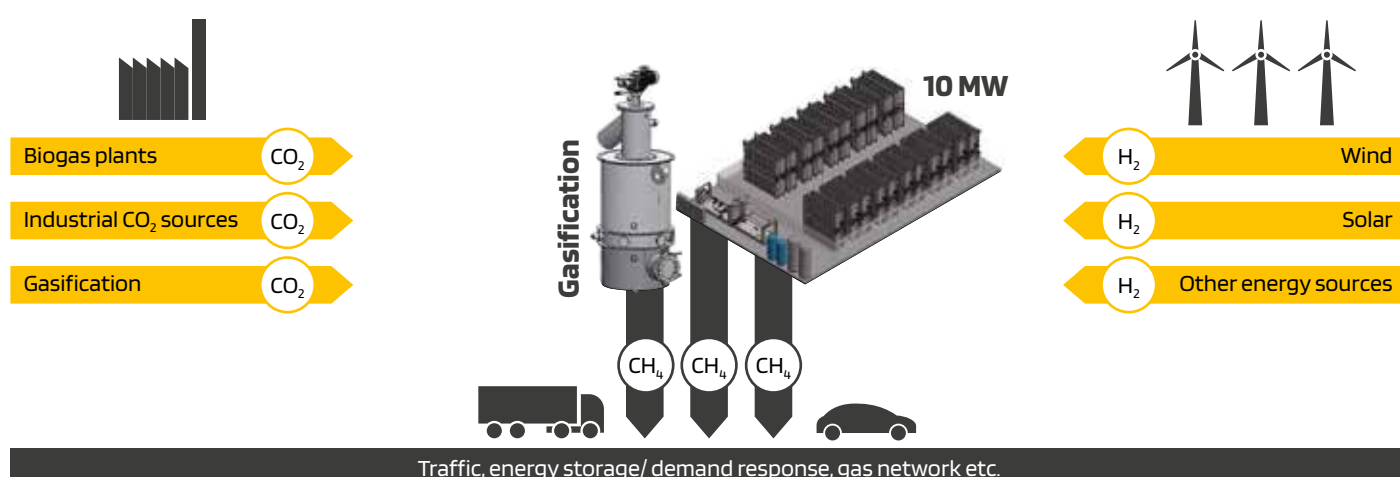
The world desperately needs cost-efficient and scalable technologies for replacing fossil fuels. Heavy traffic, marine transportation and reserve power applications are best served by sustainable produced hydrocarbons, such as synthetic methane.

Q Power has developed patented technologies for the efficient production of synthetic methane and synthetic gas.

Synthetic methane has excellent storage capabilities and it can be used as a direct replacement for fossil fuels like natural gas. Q Power microbiological reactor uses CO₂ emissions as raw material and our oxygen gasifier transforms organic side streams and waste into synthetic gas, which can further be methanated. Our methanation process boasts a best-in-class efficiency rate of 83% emissions and hard-to-utilize side streams into valuable products.

We produce synthetic fuels from emissions, organic sidestreams and wastes.

Cost-efficient renewable fuel production



The Q Power synthetic fuel production system can offer substantial benefits to a variety of businesses from waste management to manufacturing industry with productional side streams. Provided as System as a Service, the Q Power methanation plants are

operated by Q Power professionals. This allows customers to focus on their core business and on using the produced methane in the highest-value adding way possible, benefiting better cost efficiency and for example reduced CO₂ trading fees.

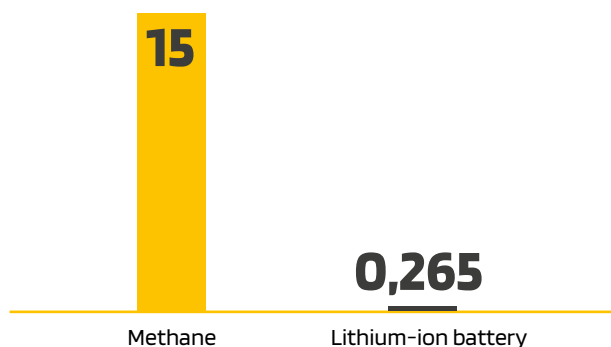


System-as-a-Service We operate and maintain the system while you can focus on your core business. Easy to implement, efficient to operate.

Key benefits of synthetic methane

- Clean, transportable and renewable fuel
- Can be distributed using existing gas infrastructure
- High energy storage capacity, tolerates long storage periods
- Synthetic methane production works perfectly together with fluctuating energy production (wind, solar)

Energy storage capacity of methane and li-ion batteries (kWh/kg)



Q Power bioreactor technology – revolutionary synthetic fuel production

We convert CO_2 and H_2 into methane using a patented biological solid state methanation technology. H_2 is produced through water electrolysis using renewably generated electricity.

The end-product, methane, can be injected into the natural gas grid or used locally by transportation or industry – depending on customer preferences.

MAIN APPLICATIONS

1 Synthetic methane from CO_2 and hydrogen

A variety of different CO_2 sources can be utilized as raw material – such as biogas, ethanol production and brewing CO_2 side streams, biogenic industrial CO_2 emissions and landfill gas. The resulting methane can be injected into a natural gas grid or used locally. Hydrogen is produced with water electrolysis using renewably generated electricity.

2 Gasification and syngas upgrading

Solid side streams containing carbon are converted into a synthetic gas mixture (syngas). The oxygen-enriched gasifier produces a highly pure tar-free, hydrogen-rich syngas, which can either be used directly as renewable energy, or further converted into methane. Gasification allows the use of underutilized raw materials such as construction wood waste, pressure impregnated wood, lignin, sludge-based materials and plastics.

3 Industrial off-gas conversion into hydrogen

Flue gases or other gaseous industrial side streams containing carbon monoxide can be used as raw material and converted into hydrogen. This is a cost-effective way for hydrogen production.

One Q Power 10 MW methane production facility can fuel:



heavy trucks annually
(80 000 km / truck)



family cars annually
(14 000 km / car)



Qvidja Manor estate is a pilot farm focusing food production through carbon sequestration, diversity and cycling of nutrients in a manner that protects the Baltic Sea. This is Q Power homepage.

Q Power is an innovative provider of renewable energy solutions

Q Power is an innovative provider of renewable energy solutions to fight climate change. Our main focus is on developing technologies for synthetic fuel production, used to replace fossil fuels. The company's roots and values rise deep from the soil of Qvidja, our research farm in Parainen, Finland, reminding us to keep our focus on the wellbeing of nature, on concrete solutions and on customer value creation.



qpower.fi | contact@qpower.fi

