



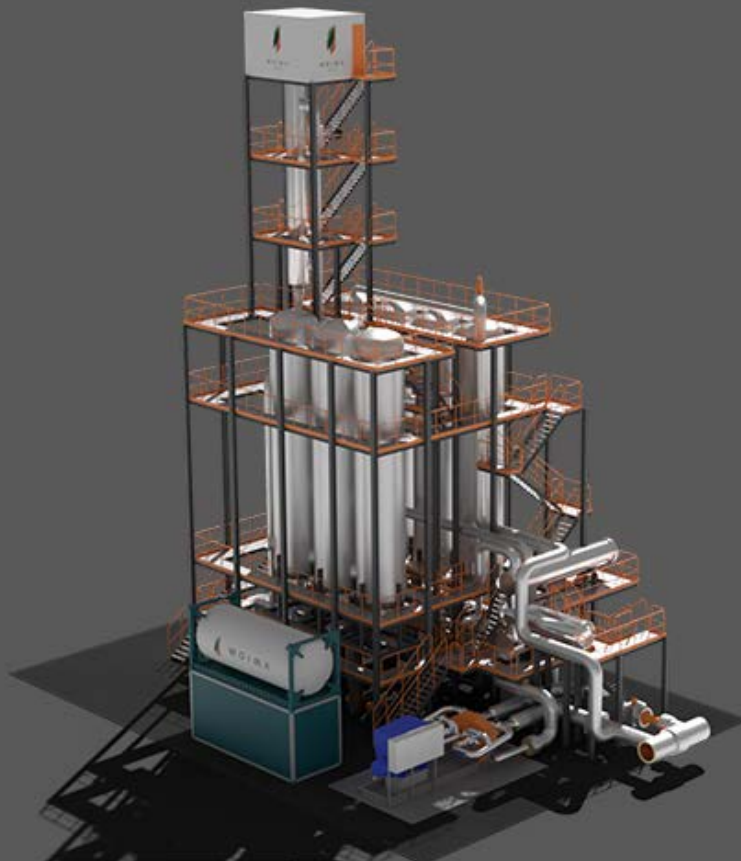
W O I M A

CORPORATION

BROCHURE



ccWOIMA
CARBON CAPTURE
PLANT



ccWOIMA THE MODULAR CARBON CAPTURE PLANT

The EU has agreed to raise the carbon emission reduction target in the European Green Deal to 62% from the original 55% by 2030 compared to year 1990. Actions are required across all sectors, including increased energy efficiency, renewable energy generation, as well as carbon capture through storage and utilization. WOIMA has developed the ccWOIMA carbon capture plant to help meet this challenge. The plant will deliver clean carbon dioxide for storage or further utilization in chemical, construction or food industries at over 90% capture rate.

The ccWOIMA carbon capture plant is a modular and energy-efficient stand-alone solution easily installed to any carbon dioxide source without interfering with the operation of the existing facility. It utilizes a patented heat recovery process using Hot Potassium Carbonate (HPC) as the absorbent. The plant can operate on electricity alone, or with a combination of electricity and steam, where cost-efficient steam is available.

HPC is a proven and thoroughly documented absorbent for carbon capture with clear HSE and cost benefits. It is used in thousands of plants in multiple industries globally. HPC is widely available since potassium carbonate is a commonly used additive in food industry and raw material in fertilizer production. It is also a low-cost solvent - significantly less expensive than amines. The captured CO₂ is totally free of degraded (and potentially carcinogenic) compounds.

The ccWOIMA offers all the same benefits of robustness, movability and scalability as does the *wasteWOIMA*[®] plant. It is designed for a 30-year lifespan in the harshest of conditions. The design is based on 20' and 40' sea-container-sized modules that are easy, fast and secure to transport to virtually any destination. The simple erection process of work-shop-quality modules and short time spent on site further de-risk the project.

The ccWOIMA solution combines seamlessly with our *wasteWOIMA*[®] power plant offering up to 95% capture rate. Modularity and scalability allow the customer to optimize the carbon capture level based on the desired capture quantity, potential off-taker demand, regulatory requirements and/or economic feasibility. Together they deliver carbon neutral, or even carbon negative base load energy to local users, as well as clean CO₂ for local industries.

The ccWOIMA carbon capture plant is a modular pre-engineered and prefabricated solution for capturing 20,000 to 200,000 tons of CO₂ p.a. It is well-suited for small-to-medium-scale CO₂ sources, such as

- waste-to-energy power plants
- gas turbines
- biomass and fossil fuel power plants
- industrial processes

The plant scales up through interconnecting multiple units or scaling up the dimensions of the single unit process equipment. It is the most energy-efficient solution in the market (energy consumption below one gigajoule (1 GJ) / ton of CO₂ captured) and also offers the lowest capture cost (even below 30€ / ton of CO₂ captured). The robust design, inexpensive solvent and high level of automation ensure low maintenance and operating costs, as well as long plant lifespan.

The ccWOIMA solution fulfills all the relevant EU Directives and EN Standards and can be complemented with CO₂ compression and liquefaction solutions.

It supports the two different approaches to carbon capture business

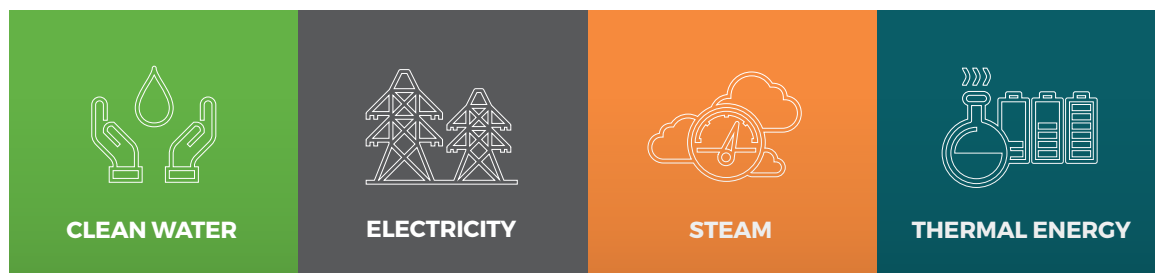
1. Carbon Capture and Storage (CCS), where CO₂ is compressed or liquefied and transported to a geological storage in the sub-surface rock formations, depleted oil and gas fields or deep saline formations.
2. Carbon Capture and Utilization (CCU), where CO₂ is recycled for further usage. Captured CO₂ can be converted to e.g. hydrocarbons, plastics and reactants, or used as an additive in concrete and cement industries.

Synthetic methane (LSNG) production through combining the captured CO₂ with green hydrogen is currently one of the most interesting prospects.



KEY FACTS

- Easy to build; established on a concrete slab of 500 - 3,000 m²
- Plant delivery, erection and commissioning in under 18 months
- Simple operation; robust and proven technology
- Safe operation under any conditions
- Easy exchange of broken or worn-out plant components
- Remote monitoring of plant performance
- Delivering clean carbon dioxide for multiple industries
- Helps exceed the European Green Deal targets





W O I M A

CORPORATION

CONTACT INFORMATION

Henri Kinnunen

Chief Executive Officer

henri.kinnunen@woimacorporation.com

+358 40 835 8974

Tapio Gylling

Chief Operations Officer

tapio.gylling@woimacorporation.com

+358 50 347 2799

Tapani Korhonen

Chief Technology Officer

tapani.korhonen@woimacorporation.com

+358 44 989 1513

Joona Piirto

Chief Project Officer

joona.piiro@woimacorporation.com

+358 50 387 9883

POSTAL / VISITING ADDRESS

Virtaviiva 8F

65320 Vaasa, FINLAND

www.woimacorporation.com

info@woimacorporation.com

YOUR LOCAL CONNECTION

