



Gas Electrolysis

Decarbonization of fossil fuels and production of emission free hydrogen and carbon black

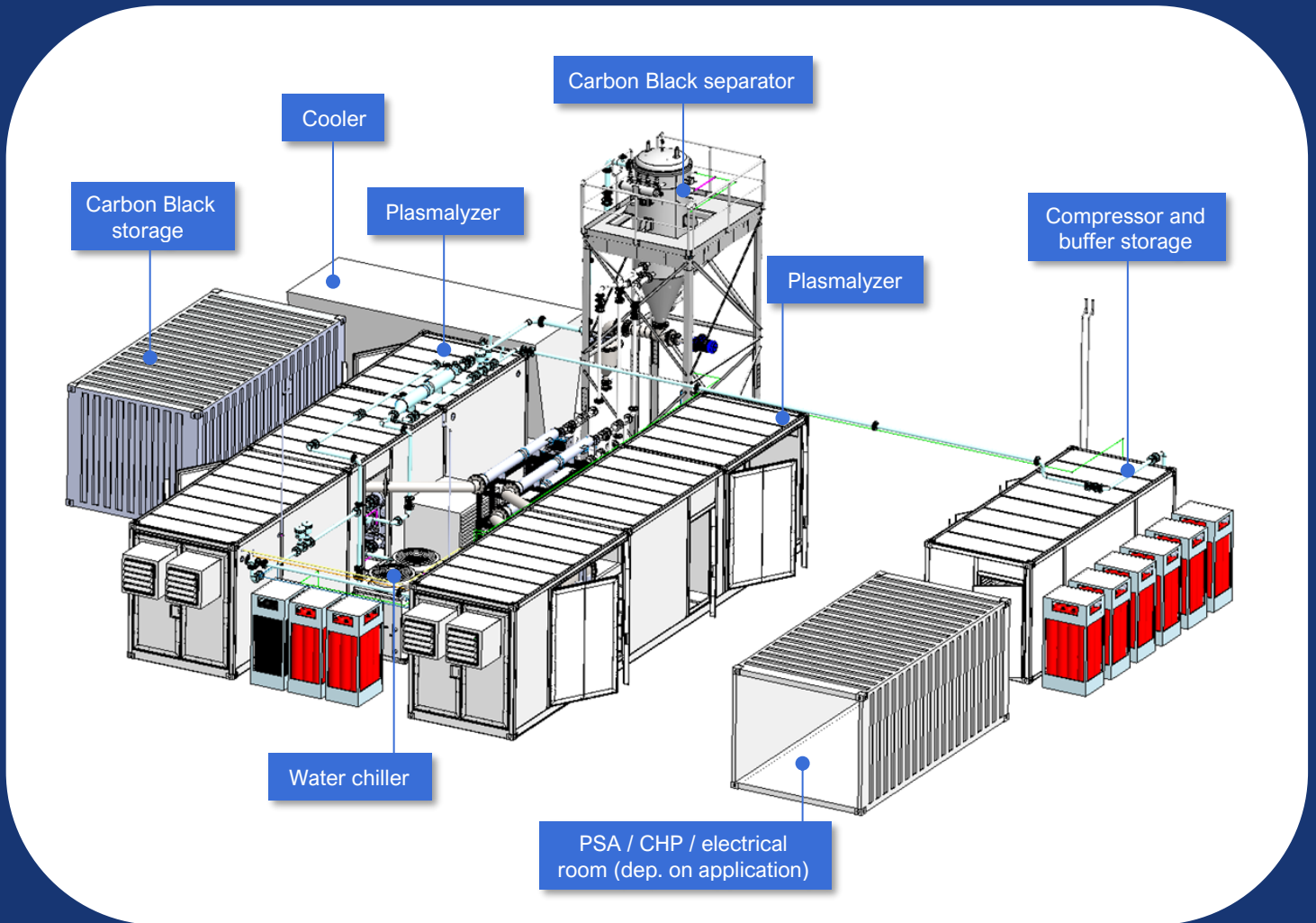
Graforce offers a methane electrolysis technology (also called *Plasmalysis*) that uses natural gas, LNG or even flare gas to produce hydrogen for zero emission heat and power generation.

In Graforce's modular plasmalyzer plants a high-frequency plasma field, generated by renewable electricity, efficiently splits hydrocarbons into their molecular components: hydrogen and solid carbon. Compared to water electrolysis, Plasmalysis takes only one fifth of energy to produce the same amount of hydrogen.

Hydrogen can be used in cogeneration units (e.g. turbines, combined cycle plants or solid oxide fuel cells) to generate zero emission heat and power or in the chemical industry. High-purity carbon is a valuable raw material for various industrial applications (e.g. steel, concrete, asphalt) or for soil. As this enables long-term removal of CO₂ from the cycle, this innovative decarbonization technology is the first marketable alternative to the controversial Carbon Capture and Storage.

Thus, Graforce is paving the way for a hydrogen future – based on methane and renewables.





Technical Specifications

- **Feed**
Natural gas, LNG, LPG, flare gas, biomethane
- **Scale**
0.5 – 100 MW with a H₂ production capacity of 50 kg to 10 tonnes per hour (modular approach enables even higher production rates)
- **Products**
Hydrogen, carbon black, industrial grade heat
- **H₂ purity & pressure**
98 % vol. (optionally 99.999 % vol.)
delivery pressure typically 1.4 – 25 bara
- **Carbon Black**
Purity: 98 % wt. (with natural gas as feed)
Density: 250 – 650 kg/m³
Applications:
 - Steel
 - Concrete
 - Soil

