

May 2025



Towards energy transition

WELCOME TO ENERGY TRANSITION

Committed to a strategic vision for a sustainable future, with the purpose of supporting the Low-carbon energy transition

We partner with Clients to reduce the carbon footprint of their existing and new assets, offering solutions based on:

RENEWABLES

GREEN TECHNOLOGIES

WATER & WASTE MANAGEMENT

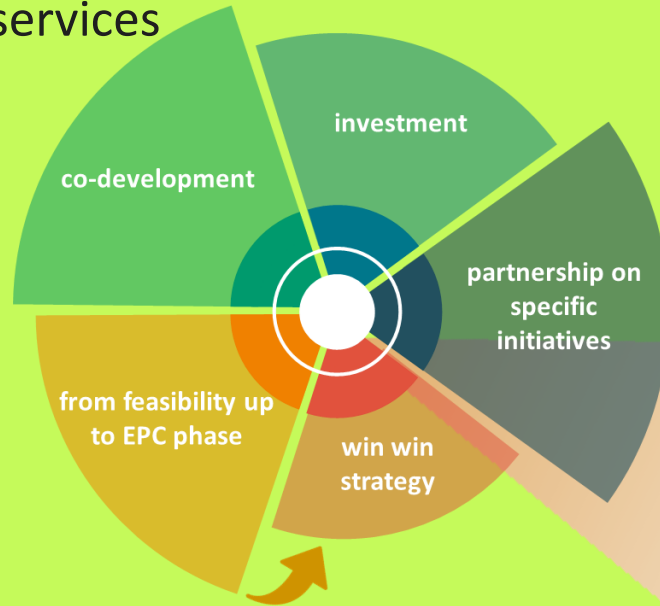


Confidential - Property R3power - All Rights Reserved



MISSION AND STRATEGY

A leading company in technical-commercial and strategic consultancy services



- Expand green solutions portfolio to public and private Clients
- Leverage our capabilities to anticipate client decarbonization needs
- Deliver tailormade solutions
- Remain a frontrunner in the field of innovation through R&D partnership
- Offer solutions based on cooperation or strategic partnerships with technology providers
- Promote a new business model for renewables based on co-development and investment
- Support Clients with project fund raising



Innovative sustainable solutions for Clients



Towards carbon-neutral operations along the entire project value chain



Hybrid solutions to reduce carbon footprint of traditional plants

A STRONG NETWORK OF PARTNER

Investor



CCE



Engineering & Services



Project development



Financial advisor



Technology & Certification



Technology provider



Suppliers



SIEMENS

SUNGROW
Clean power for all

Towards energy transition

01

RENEWABLES

CO-DEVELOPMENT MODEL FOR NEW ENERGIES BUSINESS

STRATEGY

- Early-entry strategy to secure EPC projects for selected contractors
- Tailor-made agreements to meet Clients' needs
- Competitive tendering replaced by a team approach based on long term relationships

MAIN ACTIVITIES

- Conceptual and Feasibility studies, FEED, and EPC development
- Technical and economical due diligences of innovative proposed solutions
- Clarifying feedstock and offtake arrangements
- Site selection and Permitting management
- Support for Financial Modelling
- Preparation & negotiation of main contracts and agreements
- Attract equity partners and banks
- O&M services

KEY ENABLES/GOALS

- Provide to the Client a decarbonization perspective at the Early Stage of a project, through
 - preliminary design, costing and comparison,
 - assessment of the proposed technology, regulatory requirements, market conditions, community impacts and execution strategies.
- De-risk turn-key projects for all stakeholders by appropriate contracting structure that reflects the risks and aligns interests of the parties
- Engaging with all interested stakeholders



Feasibility



Preliminary Design



Design/ Define



Build/ Execute



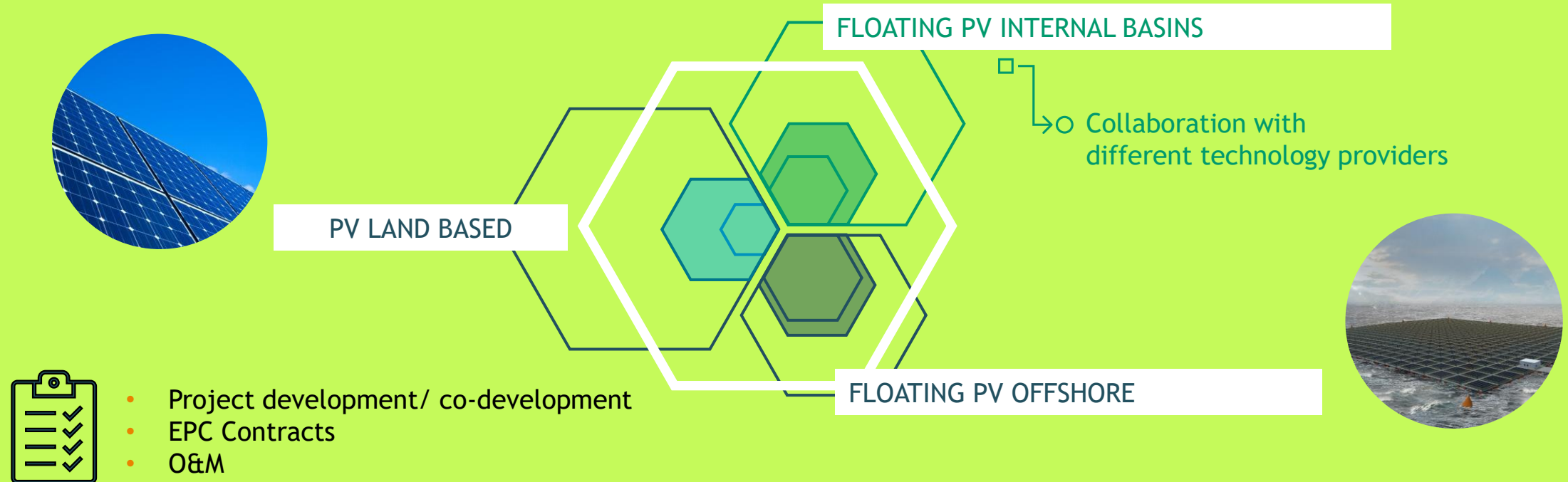
Start up



PHOTOVOLTAIC

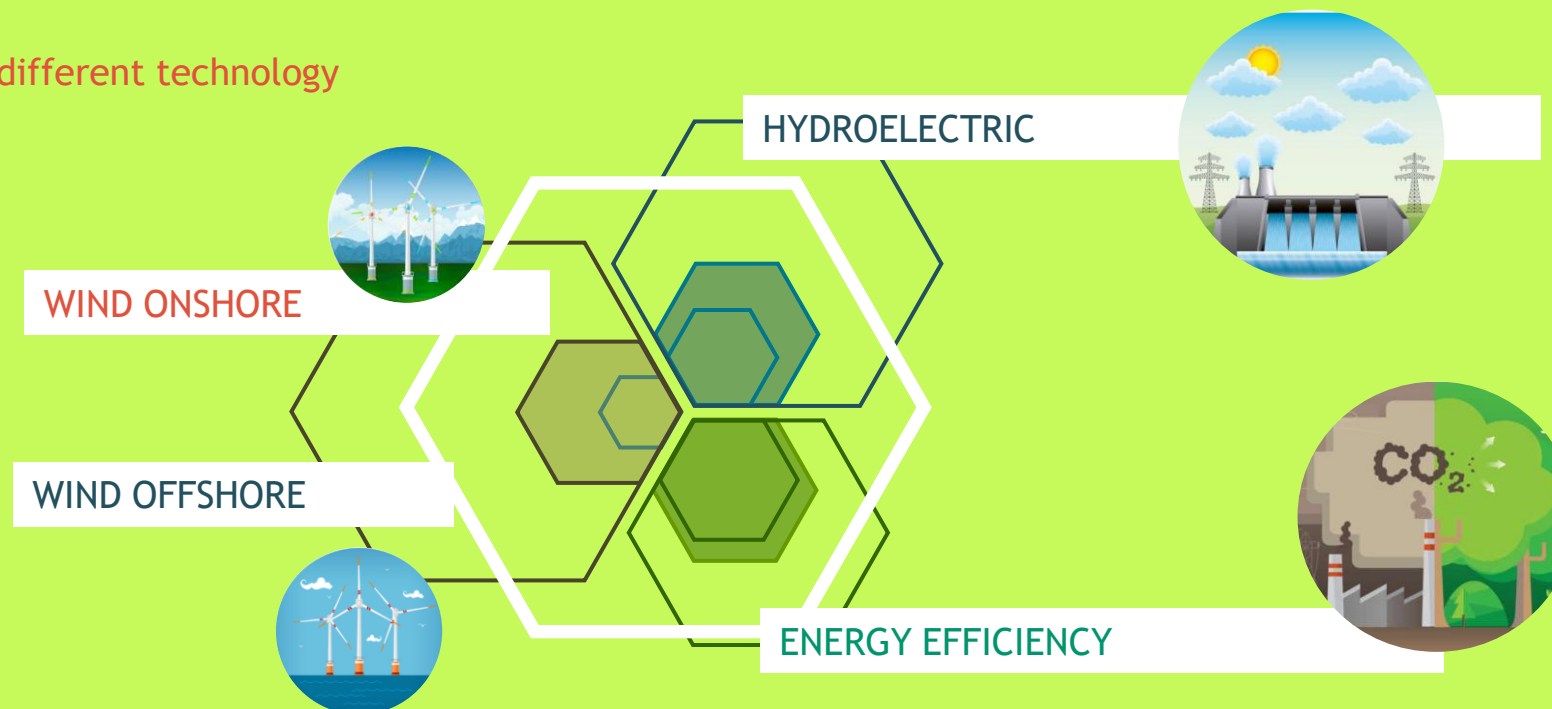


In partnership with major technology providers and EPC contractors, we have the goal to be the energy architect integrating different solutions tailored on clients needs.



WIND, HYDRO, ENERGY EFFICIENCY

Collaboration with different technology providers



TAILORED SOLUTIONS BASED ON
PLANT CONFIGURATION & CLIENT
NEEDS



02

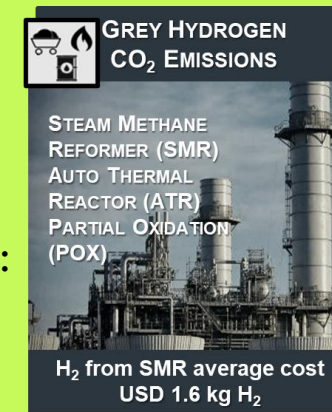
GREEN TECHNOLOGIES

BLUE HYDROGEN

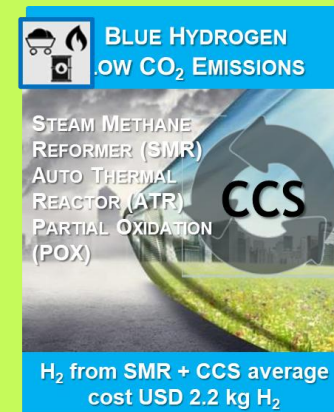
DECARBONIZATION OF HYDROGEN PRODUCTION BY CCS

Blue Hydrogen -> Decarbonization enabler across the energy and industrial sectors as:

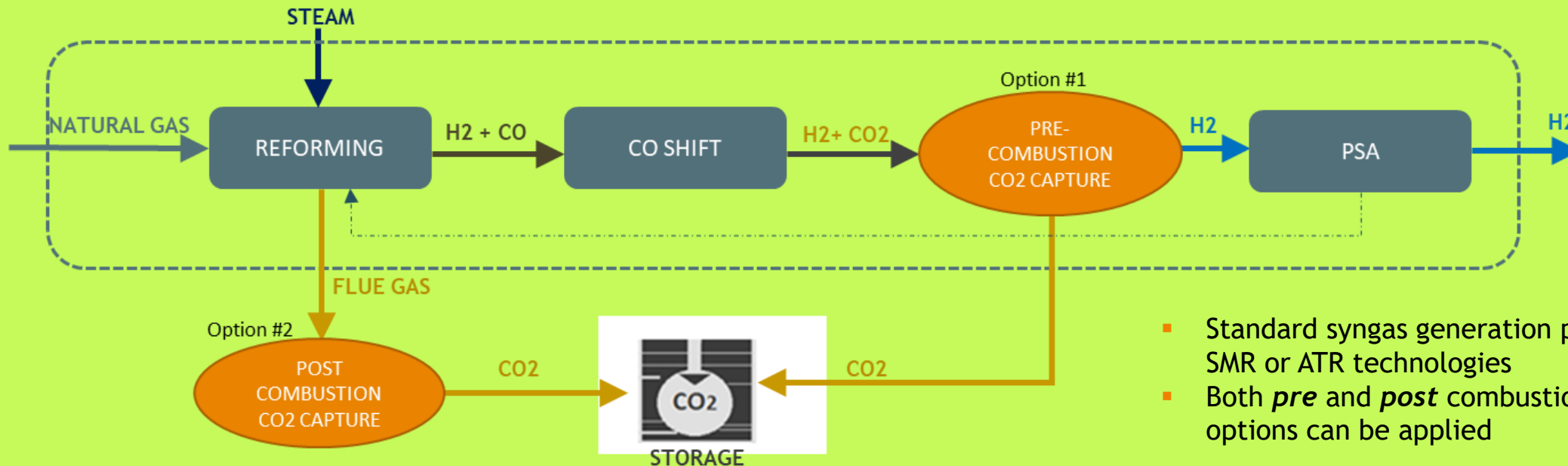
- Feedstock in the Refining and Chemical Sectors
- Energy source in the power industry and transportation



SOURCE: 2019 IHS Markit



SOURCE: 2019 IHS Markit



- Standard syngas generation process based on SMR or ATR technologies
- Both *pre* and *post* combustion CO₂ capture options can be applied

GREEN HYDROGEN

HYDROGEN DECARBONIZATION PATH

GREY HYDROGEN
CO₂ EMISSIONS



STEAM METHANE REFORMER (SMR)
AUTO THERMAL REACTOR (ATR)
PARTIAL OXIDATION (POX)



H₂ from SMR average cost
USD 1.6 kg H₂

SOURCE: 2019 IHS Markit



GREEN HYDROGEN
No CO₂ EMISSIONS



when done
with
RENEWABLE ENERGY
AND
WATER ELECTROLYSIS
CO₂ free H₂ production
is possible with



H₂ from elettrolysis average cost
USD 4.3 kg H₂

SOURCE: 2019 IHS Markit

KEY ENABLERS to lower green hydrogen costs

Technology development

Maximize electrolyzer utilization by an optimized mix
of complementary renewable sources
Electricity and Hydrogen storage capacity
Hydrogen transportation via existing pipelines
(blending)

Ecosystem development

Hydrogen valleys as integrated ecosystems for
production, storage, distribution, and final use
International partnership and R&D program

Hydrogen strategies, policies and regulations

Ammonia
& Urea



Refinery



Methanol



Steel
Factories



H₂ for
Fuel Cell



H₂ Injection into
Gas Grid (or SNG)
& Transportation



H₂ Power
Gen



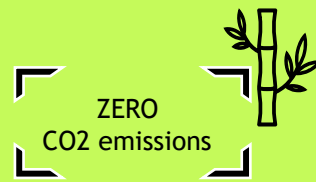
E-fuels



r3power

GREEN HYDROGEN

GREEN HYDROGEN VALLEY



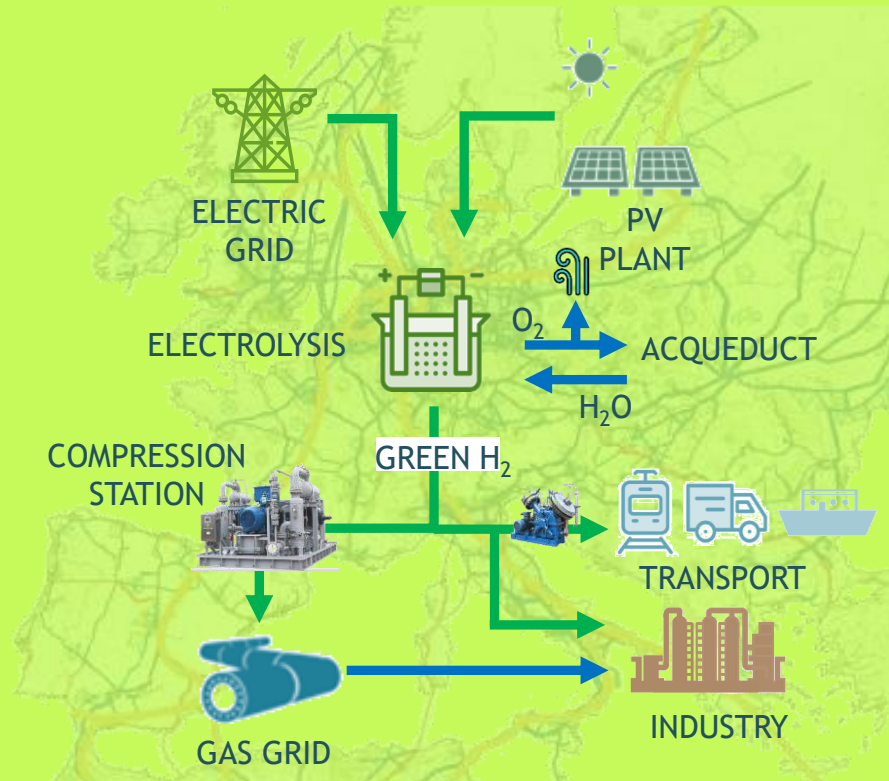
Integrated Project to build green hydrogen value chains: green electricity generation/integration, electrolysis hydrogen production at large scale, direct injection into gas grid, blended/pure hydrogen transportation to **industrial end users**, and **sustainable mobility** and transport (heavy, rail and maritime).

Clean Hydrogen Production

Hydrogen Transmission and Distribution

Hydrogen Applications in Industry

Hydrogen Applications in the Energy Sector



GREEN AMMONIA AND METHANOL



- New business model required
- Choice of technology is site-dependent
- On-stream factor is essential for industrial applications

RENEWABLE POWER



- Emerging market
- Technology referenced but not scaled-up
- Integration with power production and downstream H₂ value chain is crucial

GREEN HYDROGEN



- Mature technology
- Challenging operating conditions
- Referenced contractor to minimize risks

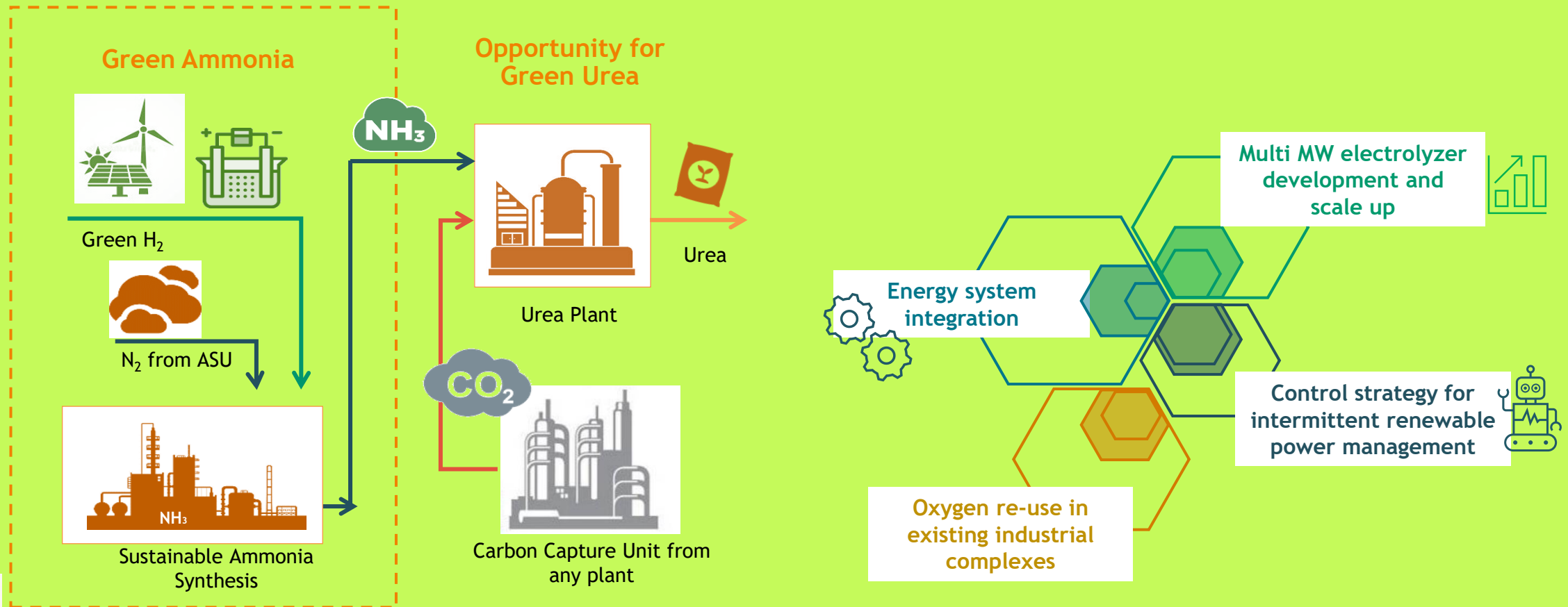
AMMONIA SYNTHESIS

CROSS-SECTIONAL INTEGRATION OF TECHNOLOGIES

GREEN AMMONIA PROJECT

INTEGRATED AND INNOVATIVE SOLUTIONS

Large scale electrolyzer plant fed by renewable plants (e.g. wind farm) to produce green hydrogen and oxygen; the produced hydrogen is converted into green ammonia, that will be transferred to the potential off-taker and final user



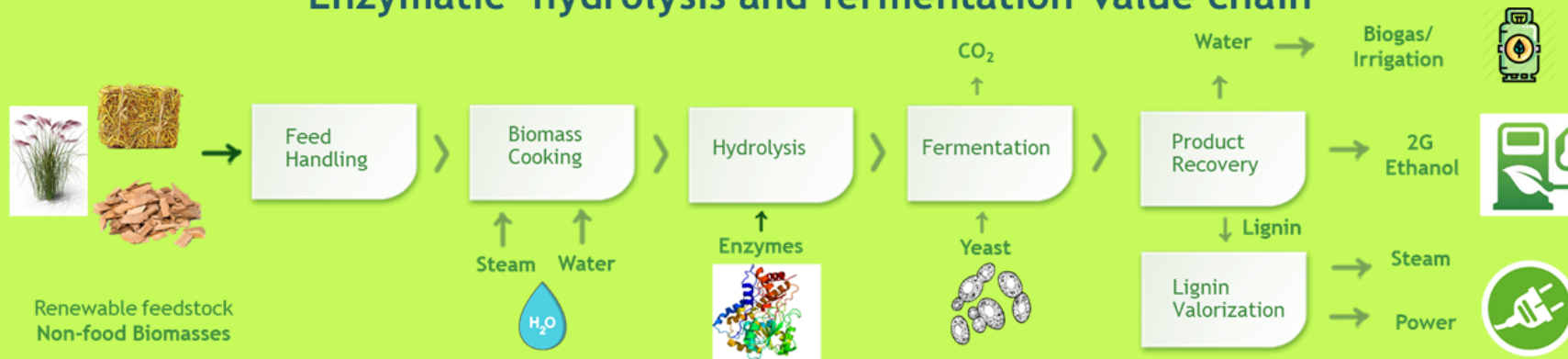
BIOETHANOL SYNTHESIS

ACCESS TO MAIN AVAILABLE TECHNOLOGIES



Provide a comprehensive package of 2G ethanol technology License and Engineering Procurement Construction services for the overall scope, enabling worldwide customers to successfully design, build and operate their own plants

Enzymatic hydrolysis and fermentation value chain



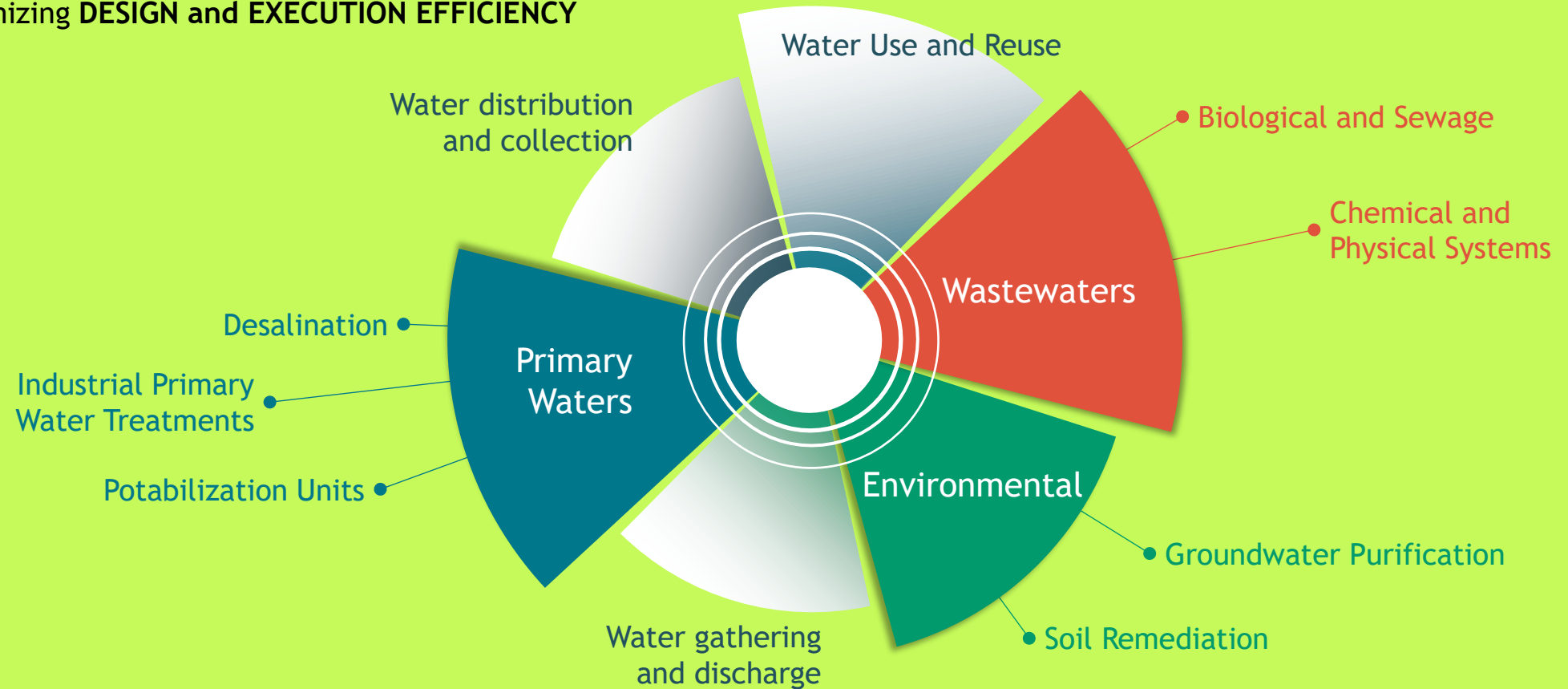
03

WATER & WASTE MANAGEMENT

WATER MANAGEMENT

ALL ALONG THE WATER CYCLE

- Covering the whole **WATER CYCLE** project fields
- Minimizing external **INTERFACES**
- Integrating internal **KNOWLEDGE**
- Maximizing **DESIGN** and **EXECUTION EFFICIENCY**



WATER MANAGEMENT

TECHNOLOGIES: INNOVATION DRIVES

Continuously committed to SCOUT, ASSESS, and EMPLOY forefront technologies to provide more efficient and sustainable solutions.

Combination of flotation and CPS

New Media Filtration

Nanostructured Membranes, Carbon Nanotubes, Graphene

Reversal Electrodialysis (EDR), Membrane Distillation, Capacitive Electrodialysis, Desalination using LNG coldness

Reversal Electrodialysis

AOP based on Electrolytic Cells or Plasma

Low Temperature Resistant Bacteria, Advanced MBR and SBR System, Phytodepuration

Forward Osmosis, Eutectic Freeze Crystallization, ABX System

Phosphorous (struvite) Recovery, Advanced Anaerobic System

ELECTROLYTIC CELLS

DEOILING

FILTRATION

MEMBRANE

DESALINATION

DRINKING WATER

AOP

BIOLOGICAL

BRINE

SLUDGE

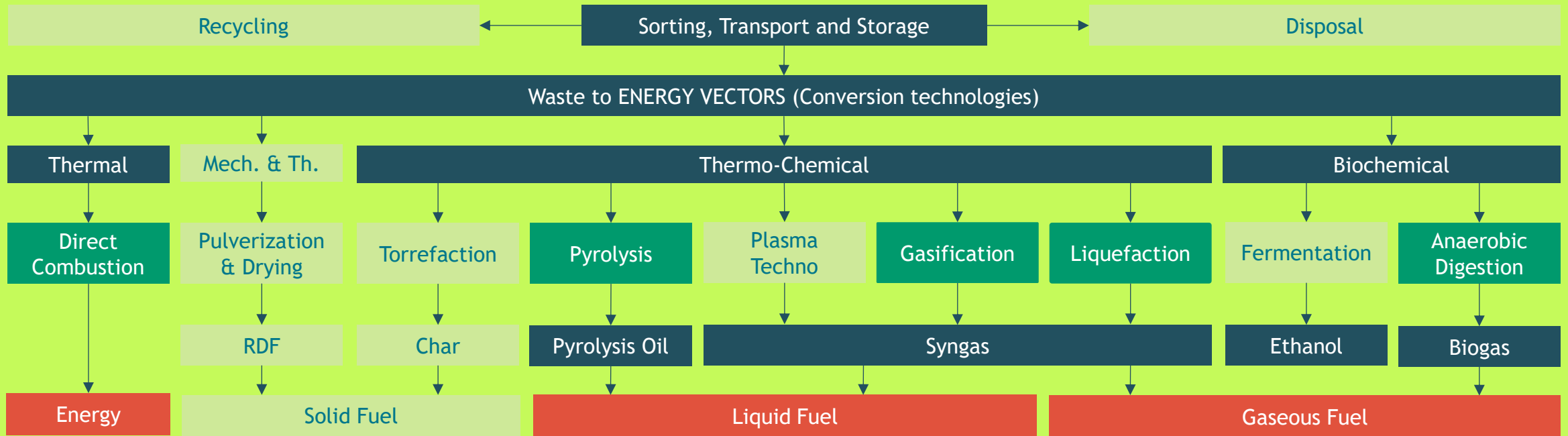
ELECTROLYSIS



r3power

WASTE MANAGEMENT (RECOVERY)

CONVERSION TECHNOLOGIES



TARGET PROJECTS

- Offshore wind farm
- Mobile monitoring station
- Green hydrogen production
- Innovative app for e-recharge

04

840MW Floating wind farm offshore Molfetta



Aerial overview of the floating wind farm

Offshore wind farm



r3power



PANMED
ENERGY

Key figures

n°60

Floating wind turbines

14 MW

Single turbine
power

840 MW

Plant power

14 miles

Distance from the shore

-83 / -116 m

Installation depth

66/400 kV

Offshore electric
station

26 Km

Submarine cable lenght

31 Km in AT

Electroduct lenght

400 kV in AC

Transmission cable
tension



Mobile station for continuous monitoring and GIS platform for the acquisition and reading of air quality data



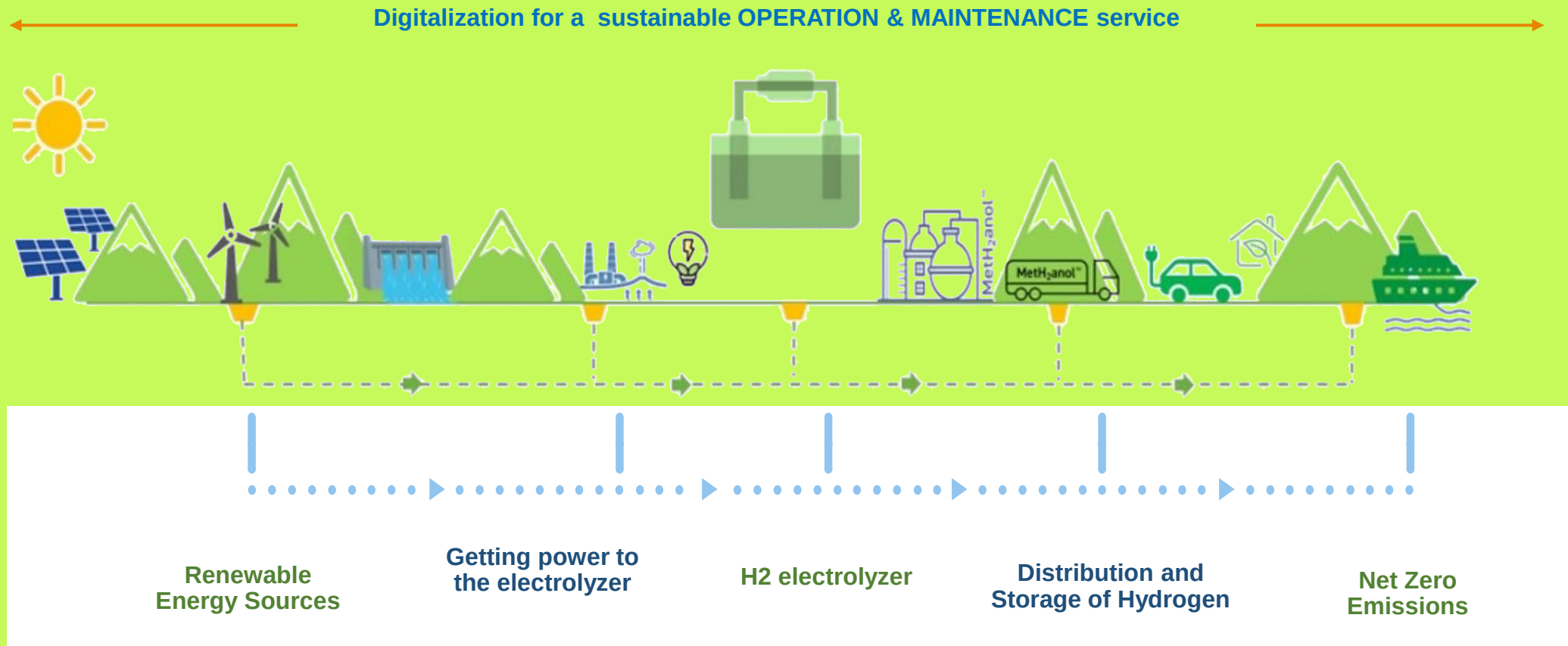


gretacar
environmental tracking system

- Modular
- Ready to install different sensors based on the needs and quality requirements of parameters to be monitored
- Parameters measurable so far (using semiconductor, electrochemical or PID sensors)
 - CO, NO_x, VOC, O₃, CO₂, CH₄, NH₃, PM2.5, PM10

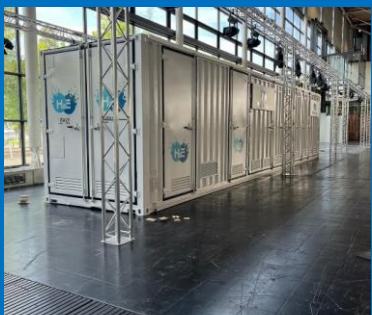


Deliver End-to-End Solutions for Green Hydrogen



With many critical value chain components, the entire project should work together holistically

CORE PRODUCTS – Modular Electrolysers



Containerised modular electrolyzers with balance of plant for ease of maintenance and installation

1MW PEM electrolyser



Leading edge components engineered and integrated for safety, efficiency and longevity

Stack & related components



H2E manufactures three types of electrolyzers To maximize client choice and solution suitability we deliver different technological solutions.

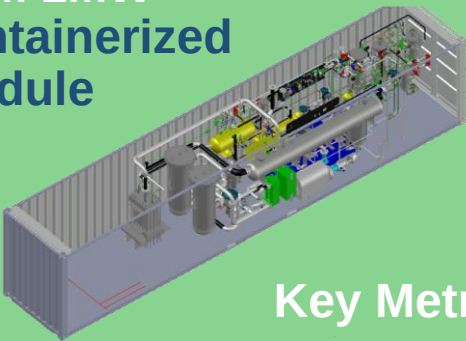
Alkaline (AWE) electrolyser, designed to optimize capital expenditure. This “mature tech” is cost-effective and provides a reliable solution for clients, with some turndown limitations.

Proton exchange membrane (PEM) is industry standard technology and one of the most widely used electrolyser in the market. It is efficient and provides a reliable and cost-effective solution for clients. Modules of 1, 3 and 5MW are available

AMSE® is a proprietary technology in early stage of development. It is conceived to provide a more efficient and cost-effective solution, specifically designed to minimize operational complexity.

Leading with PEM, but letting the market decide technology options

PEM 1MW containerized module



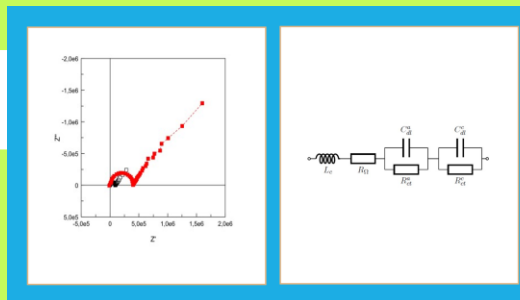
Key Metrics

Parameter	Unit	Value
Water Consumption	l/h	250
Hydrogen Flow	Nm³/h	200
Oxygen Flow	Nm³/h	100
Life Expectancy (stack)	Hours	80 000
Stack Efficiency (full output)	kWh/kg	51.7
Turndown Ratio	%	20-100

Modular, high efficiency electrolysis, producing hydrogen at high pressure and purity.



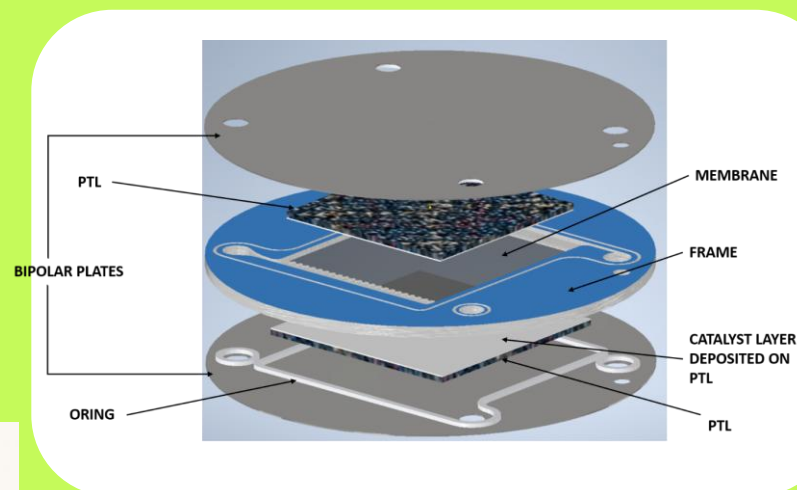
R&D: Innovation is our goal !



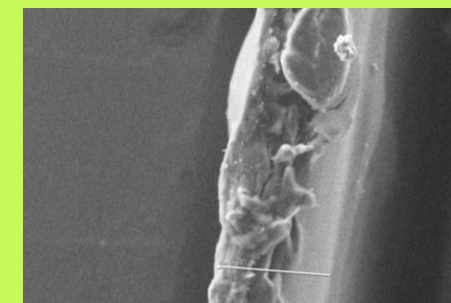
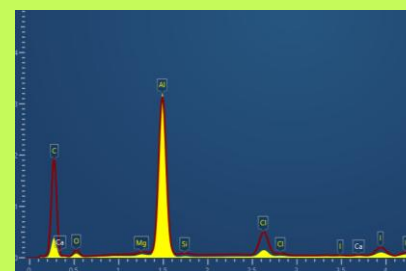
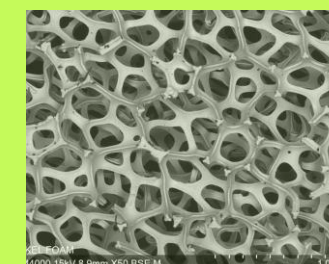
R&D partner

- UNIBS
- POLIMI
- BICOCCA
- UNIMI
- UNIGE
- PETROCERAMICS
- ITALFIMET
- PROTECTIM

New AMSE^R Proprietary Technology



R&D is fundamental for the tomorrow's technology. For this reasons H2 Energy set up a "Hydrogen lab" for the development and testing of brand-new materials for the existing technologies and scouting for innovative disruptive technologies based on new concepts.



r3power



UMCS (Universal Mobile Charging System)

Decentralized and Sustainable Energy for Mobile Power



Reimagining Charging Infrastructure for a Greener Future

The UMCS envisions a future where mobile charging is independent of traditional grid infrastructure, relying primarily on locally sourced, renewable DC energy. This system offers a scalable and sustainable solution for powering a wide range of applications.

Decentralized and Sustainable Energy for Mobile Power

Core Principles

- Decentralized DC Power
- Modular and Distributed Storage
- On-Demand and Scalable Power
- Sustainable Energy Integration
- Closed-Loop Battery Lifecycle
- Infinite Scalability



UMCS (Universal Mobile Charging System)

Decentralized and Sustainable Energy for Mobile Power

- Key Advantages:

- Grid Independence: Reduces reliance on and potential vulnerability of traditional AC grids.
- Sustainability: Maximizes the use of renewable energy sources and promotes battery recycling.
- Flexibility and Scalability: Adapts to varying power needs and allows for easy expansion of charging infrastructure.
- Reduced Infrastructure Costs: Minimizes the need for extensive AC grid upgrades for charging purposes.
- Enhanced Resilience: Distributed energy sources and storage enhance the reliability of the charging system.



paolo.carrera@r3power.it

www.r3power.it

Mob. +393482466003

Thank you for the attention