

Integrated Renewable Solutions

johncockerill.com/energy



John Cockerill, leader in the energy transition

For over 200 years, we have been developing large-scale energy production solutions, including heat recovery steam generators. Aware of the challenges posed by global warming, we have been putting our expertise at the service of renewable energies for over 15 years. We designed the solar thermal receivers for the largest concentrated solar power plants, and pioneered battery energy storage solutions with the largest industrial pilot in Europe (MiRIS). We are also the leader in the hydrogen market. Our electrolyzers, with the largest capacities in the world (from 5 to 1000 Nm³/h), meet the growing needs of the mobility, industrial and, of course, energy markets.

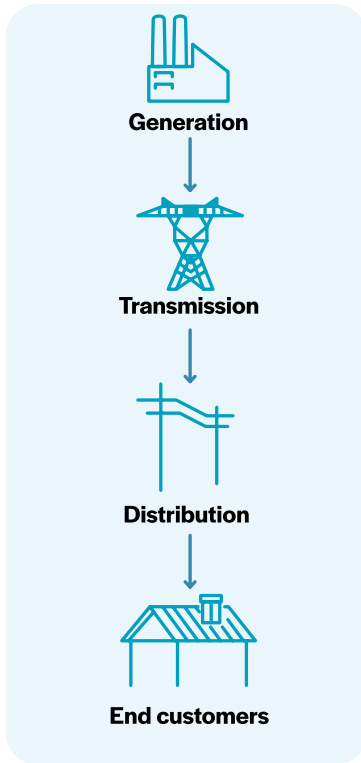


Our challenge: The decarbonization

The world is in the midst of an energy transition

Today's power market

Centralised Predictable Vertically integrated One way



Our mission:

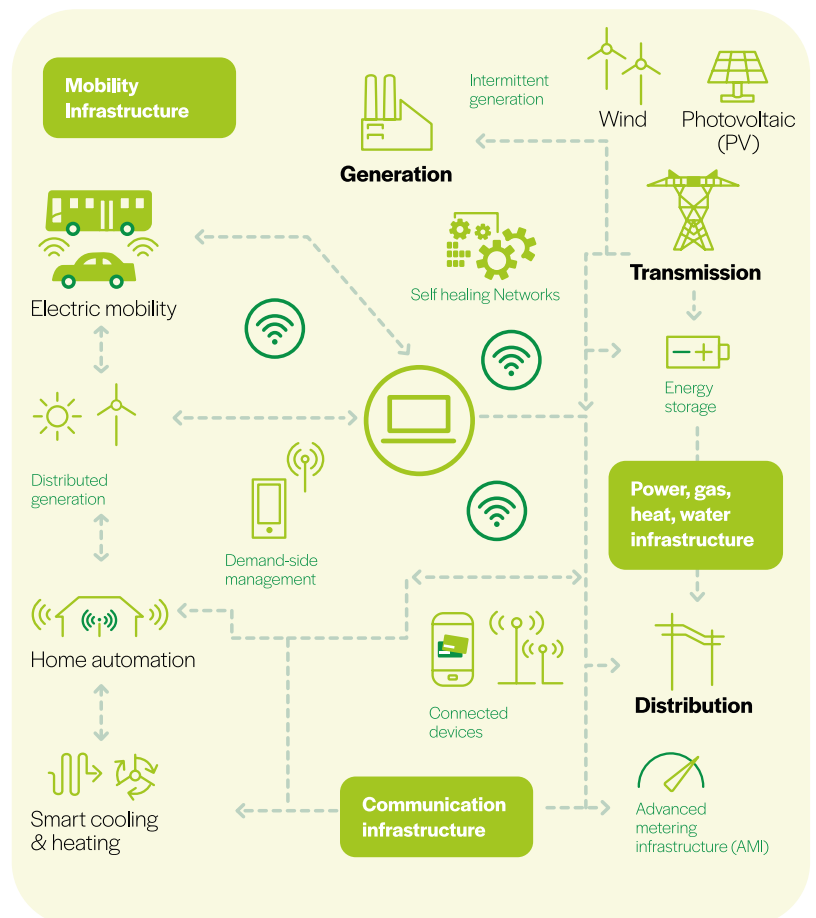
- To help our clients reduce their carbon footprint and their energy bills
- Provide clean, affordable energy to communities

How do we do that?

By developing innovative, optimized and integrated renewable energy solutions.

Tomorrow's power market

Distributed Intermittent Horizontally-networked Bi-directional



D³

Decentralization
Decarbonization
Digitalization

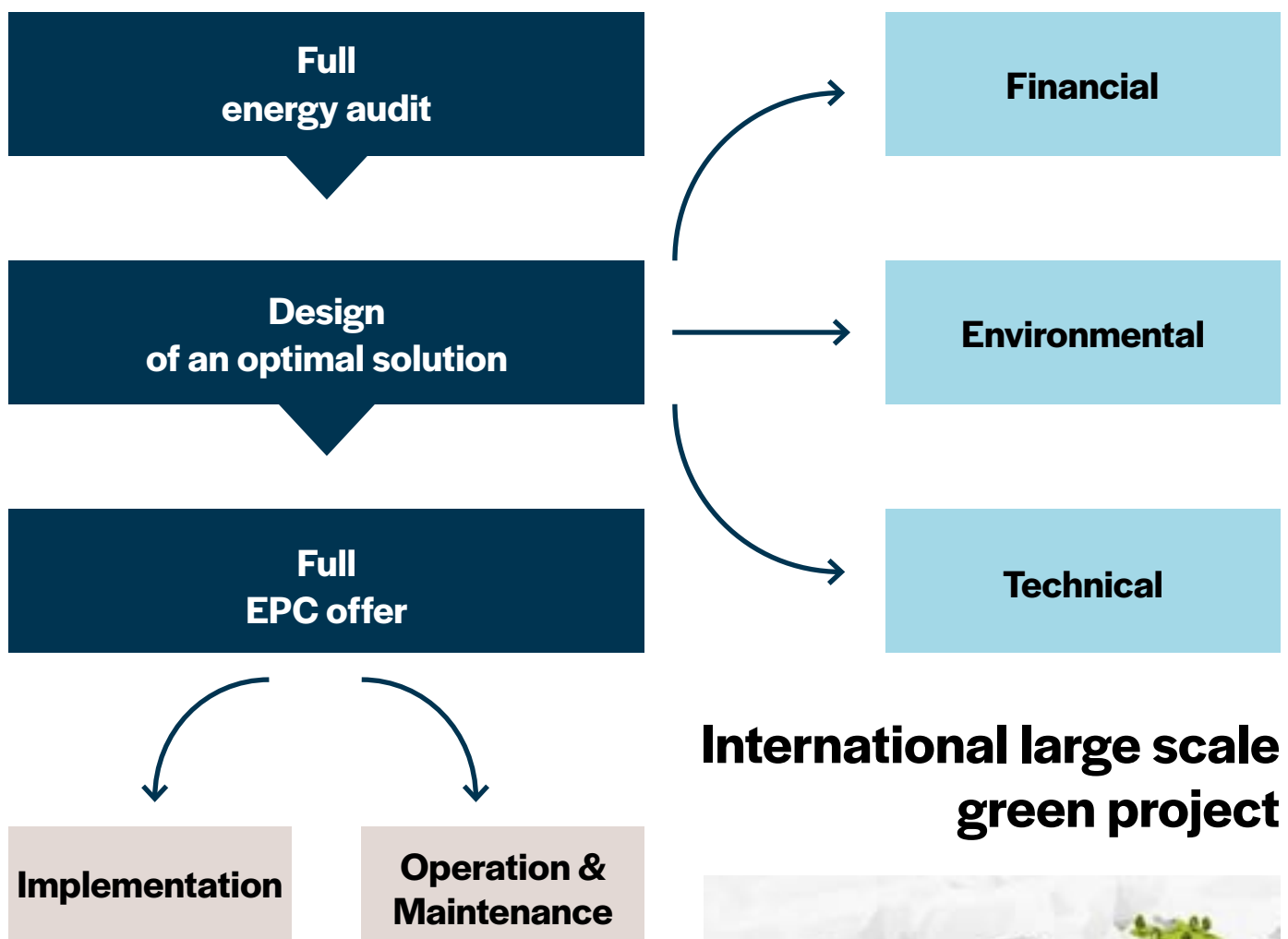
- 70% of the world's greenhouse gas emissions come from the energy sector.
- Carbon neutrality by 2050 is the objective set by the European Union.
- The renewable energy production will increase from 7 to 20%.

The energy sector is changing and John Cockerill is already playing a major role in this change. We develop integrated energy solutions, composed of different technical bricks, and combined with our in-house developed Energy Management System.

John Cockerill is the partner of choice for your energy optimizations.

The John Cockerill's approach to integrated renewable solutions

A global approach, for a project management from A to Z, with a single point of contact at John Cockerill.














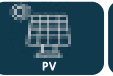


















International large scale green project



- Possibility of financing by John Cockerill Capital
- Support in the search for subsidies
- Privileged partnerships allowing the operation and maintenance of the entire system during the life cycle of the asset.



A range of solutions to meet your needs and your projects

Sector	Size of the project	Technologies
Industry 	1 - 15 MW	 EMS  Batteries  PV  Cogen  Thermal storage  Electrolysis  Power-to-gas
Commercial 	1 - 10 MW	 EMS  Batteries  PV  Cogen  Thermal storage  District heating  Charging stations
Mobility 	1 - 10 MW	 EMS  Batteries  PV  Electrolysis  HRS  Charging stations
Africa 	2 - 10 MW	 EMS  Batteries  PV  Electrolysis  Biomass  Genset

Microgrid MiRIS

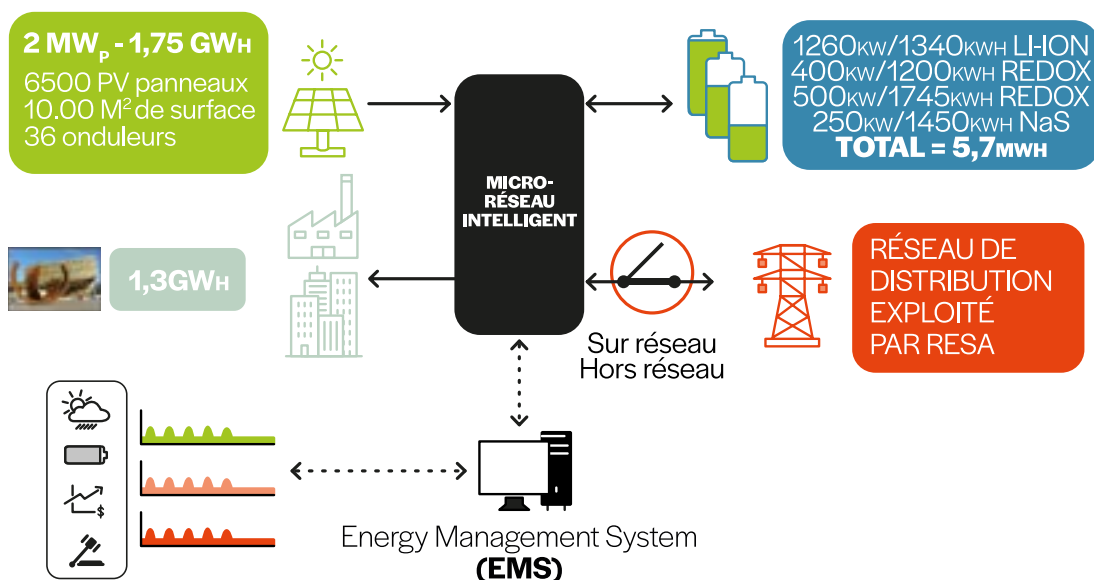
The largest industrial green energy and microgrid test center in Europe.

MiRIS, for Micro Integrated Network of Seraing, is able to operate «on-grid» and «off-grid». The whole site is optimized thanks to our Energy Management System - EMS, developed in-house. MiRIS allows to test different types of stationary batteries, installations related to electric mobility but also to make simulations of projects to validate the parameters such as the dimensioning, the technological solution recommended for the on-grid as well as the off-grid case, the management of the EMS, etc. The pilot site is operational since 2018.

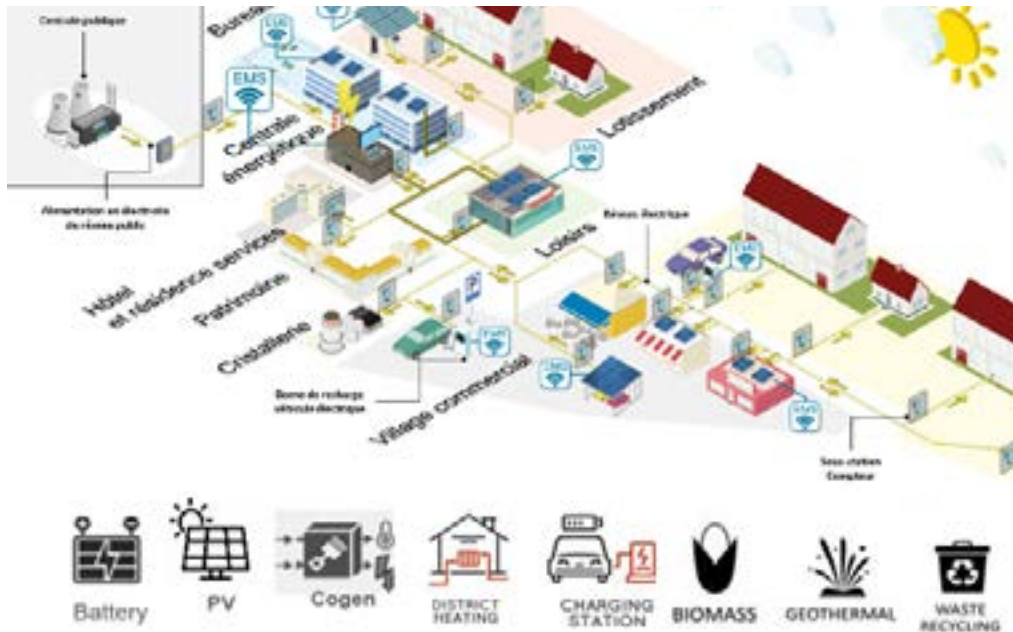
- **2 MWp of PV - 6500 panels**
 - > On the roofs of workshops and carports
- **4 types of batteries - 5,4Mwh**
 - > 1 Li-ion
 - > 2 Flow
 - > 1 NGK NaS
- **2 diesel generators**
- **Charging benches**
- **Fleet of electric vehicles**
- ...

The largest microgrid and storage test center in Belgium.

Pilot site operational since 2018.



John Cockerill begins initial approach to renewable energy communities (RECs)



Combining the best technologies to satisfy a mix of residential and industrial users

John Cockerill offers green mobility solutions combining electric and hydrogen solutions



Global approach to electric mobility

Green mobility solutions are constantly evolving, whether electric or hydrogen. Electric mobility will require the deployment of a large number of charging stations, including in shared locations such as parking lots, office buildings, etc. Hydrogen mobility seems better suited to long-distance heavy transport, such as trucks, buses or even trains on non-electrified routes. These two types of mobility will coexist over the next decade. Thanks to its expertise in electric and hydrogen mobility solutions, John Cockerill will be able to support its customers towards optimized clean mobility solutions.

Our offer

John Cockerill **I**ntegrated **R**enewable **S**olutions



- A fully optimized solution according to your needs
- A global optimization of your energy costs and your CO2 footprint
- A better use of renewable energies
- Integration of different technological bricks



YOU focus on your core business
WE take care of your energy optimization