

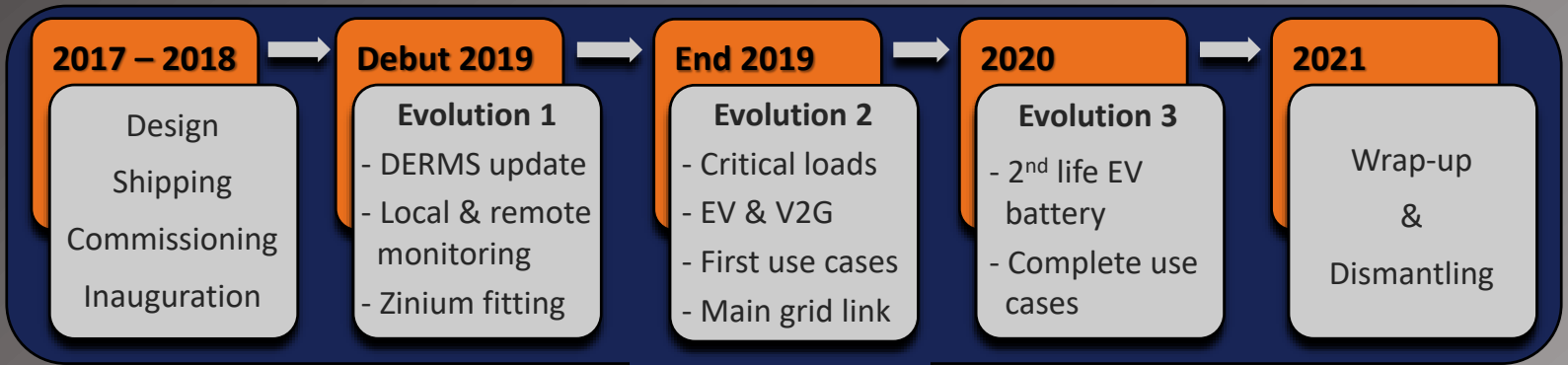


Microgrid for Affordable & Sustainable Electricity in Remote Areas

Kévin Choletais - EDF R&D
kevin.choletais@edf.fr

Maria Brucoli - EDF Energy R&D
maria.brucoli@edfenergy.com

Bruno Prestat - EDF R&D
bruno.prestat@edf.fr



Project

The 4 years collaboration project takes place on Semakau Island in Singapore.

Market targeted

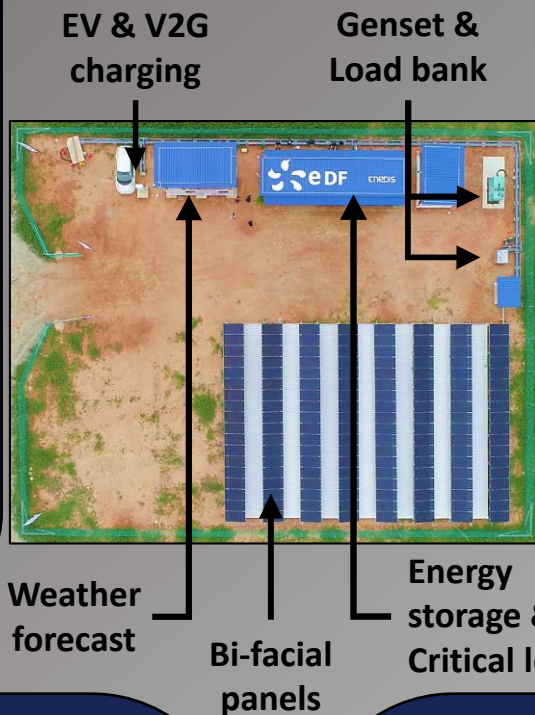
Isolated regions with lack of grid infrastructures and energy supply. Significant potential in South-East Asia.

Objectives

Demonstrate EDF ability to design, develop & operate microgrids following four criteria:

Affordable, Sustainable, Reliable & Resilient

Timeline



Optimization

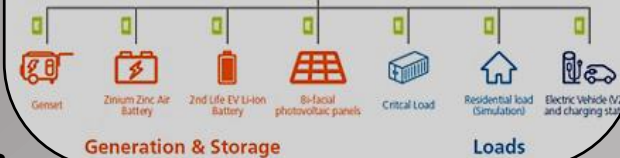
- Accurate weather forecasting
- Production/consumption optimized scheduling
- Maximization of renewable energies

Power Management

- Real time power management and smart metering
- Load flexibility, stability and resiliency

Communication

- Modularity & evolutivity
- Cybersecured & standardized (IEC 61850).
- Remote monitoring, control & software updates



Insights

Detailed design

Require local partners to comply with local regulations and find local contractors. They must exchange with support teams to develop an on-site expertise.

Shipping

An 'end-to-end' transport company is required to ensure coordination and storage between the stages.

Deployment optimization

Working with local contractors and pre-configuring the equipment before the shipping. The integration of the Distributed Energy Resources Management System's (DERMS) components could also be optimized.

Network operation

The required 4G connection isn't available in some regions, especially in isolated area.

Deployment

MASERA is a fully containerised solution transported by boat and truck to Semakau.



The project proves the feasibility of meeting a very tight schedule. In fact, only one year has passed from the signature of the contract and the inauguration of the microgrid on the 31st October 2018.

Today, the microgrid is fully operational and the first of three research stages has started. These researches are expected to last until late 2020 and will bring useful insights to other EDF projects.