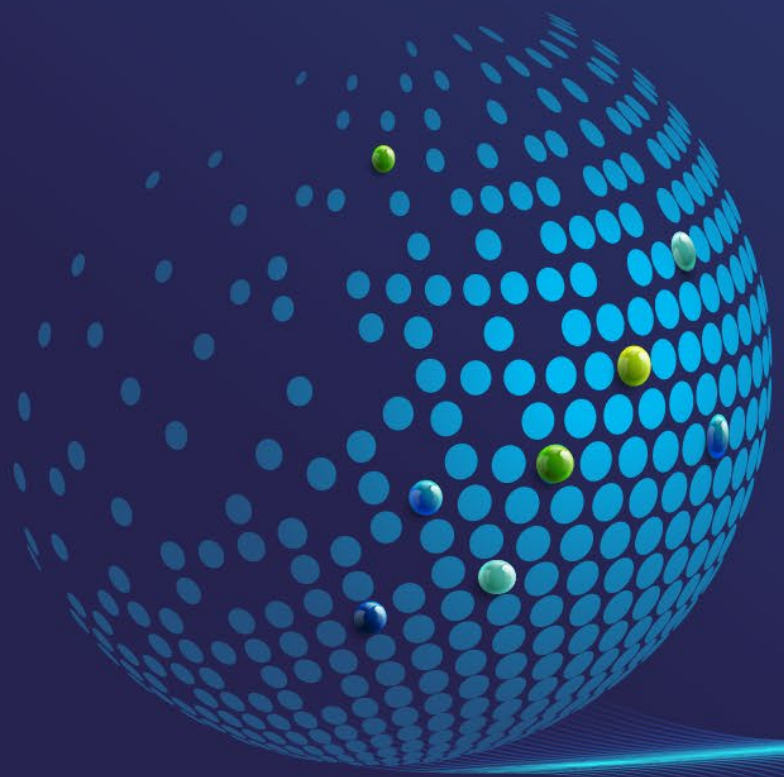

How to decarbonize our back-up energy?

Hydrogen and solar energy for ATM ground equipments

SESAR 2020 SHOWCASE

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SEPHER Objectives

To demonstrate possibility of supply ATM ground equipment with **photovoltaic energy** combined with **hydrogen system** (fuel cell) in order to **reduce the carbon footprint** of the back-up energy infrastructure.

G2H$_2$

EODev

Eneria

100/110 KVA Electro-hydrogen Generator systems

MobhylPower **M110** from

PowiDian

BOUYGUES ENERGIES & SERVICES

This project has received funding from the SESAR Joint Undertaking under the European Union's Horizon 2020 research and innovation programme under grant agreement N°101017678

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PARIS-CDG: operational tests in June 2022

RESULTS

- Location: **P+S radar**
- 1st test with EODev + ENERIA: 20th to 24th June 2022 (**G2H$_2$** system)
- 2nd test with Powidian + Bouygues: 31st May to 3rd June 2022 (**M110** system)

About 1,5 ton CO_2 savings for each test = 85% less than a diesel system

G2H$_2$ test

- 17 kW average power
- 90,5 hours in operation
- 91,1 kg H2 consumed

M110 test

- 15,6 kW average power
- 76,6 hours in operation
- 78 kg H2 consumed
- Supervision and H_2 rack change facilities

PARIS-CDG: recommendations for deployment

DEPLOYMENT

- Improvement of ***Green hydrogen*** delivery logistic
- Automatic control/supervision system to switch between H_2 racks

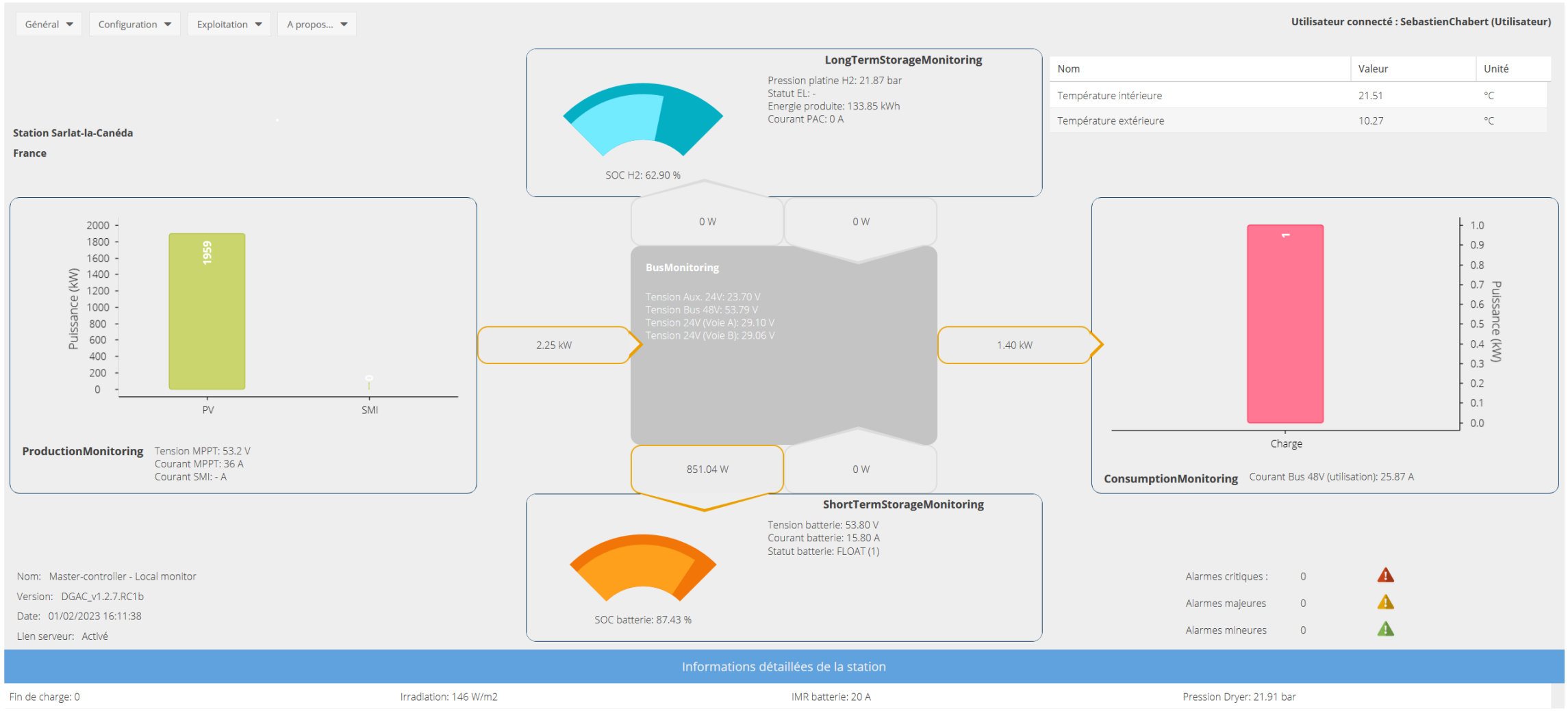
SARLAT: VHF station in operational use since 2021

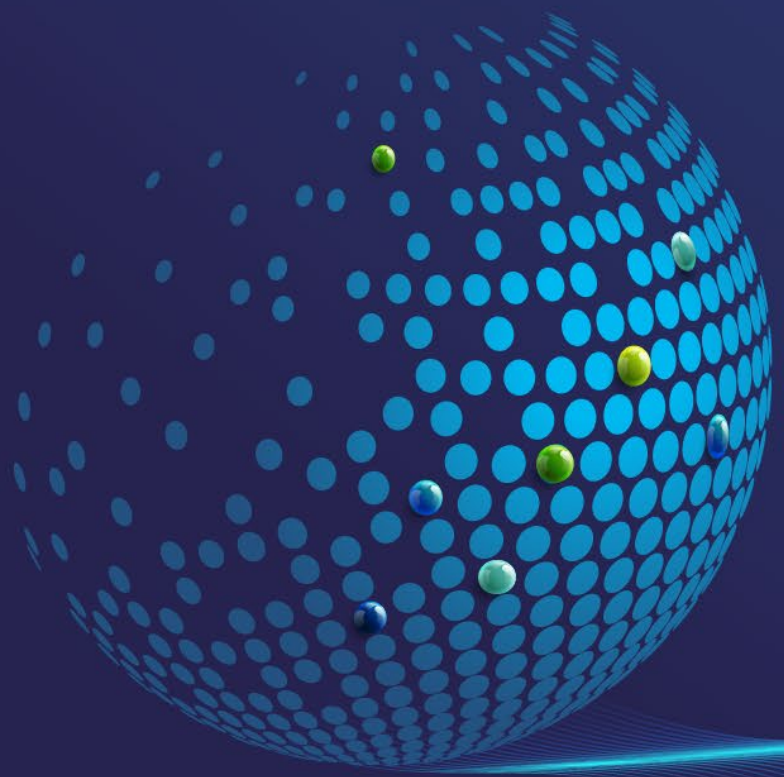
OPERATIONAL CONCEPT

- SEPHER already deployed in “MVP1” configuration : PV + H_2 onsite system
- **Primary energy** supplied from **solar panels**
- **Back-up energy** supplied from **fuel cell and Hydrogen storage**
- Additional solar electricity used to locally produced “green hydrogen”

- Radio antenna station
- 20 kWc solar power
- Hydrogen: 20 kg @35 Bars
- 5 Kw max power

SARLAT: station monitoring





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