

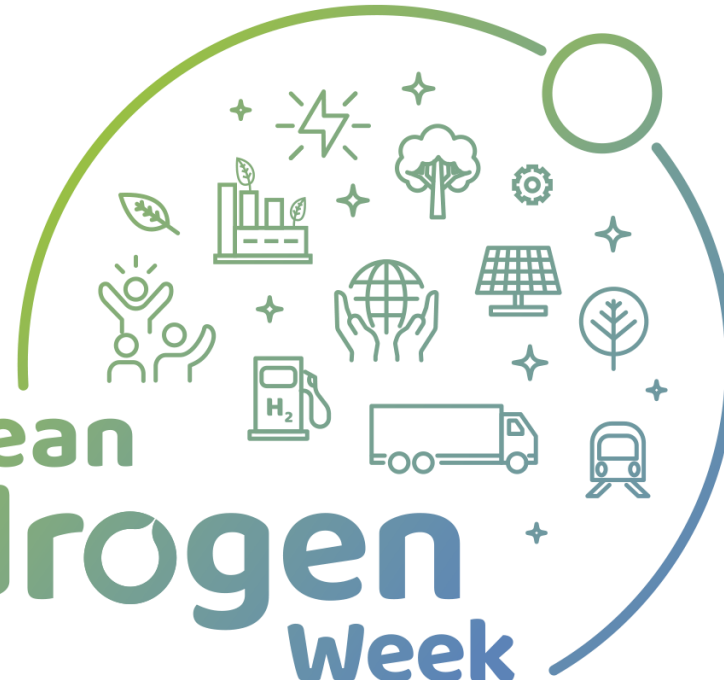
RoRePower

Robust remote power supply



RoRe Power
ROBUST & REMOTE

European
Hydrogen
Week



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#PRD2021
#CleanHydrogen





Project Overview

Call year: 2018

Call topic:

FCH-02-3-2018
Robust, efficient
long term
remote power
supply

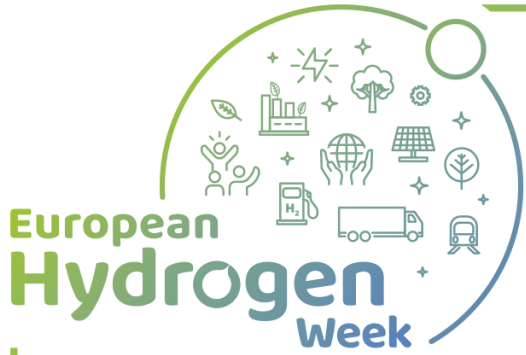
Project dates:
1.1.2019 - 31.12.2023

Total project budget:
4 039 705 €

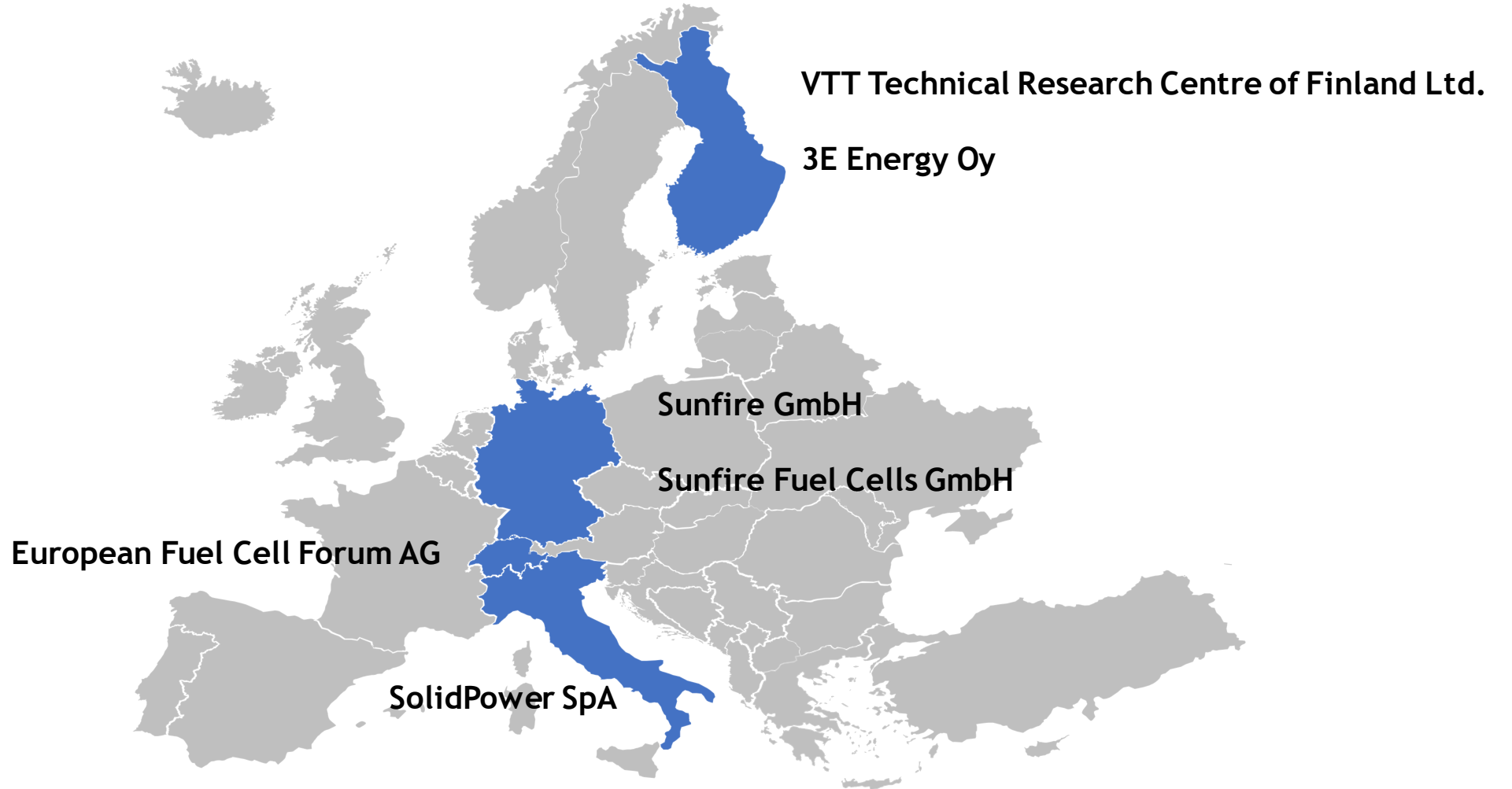
RoRePower

% stage of implementation
30/11/2021: 58 %

FCH JU max. contribution: 2 999 190 €
Other financial contribution: 0 €



Partners



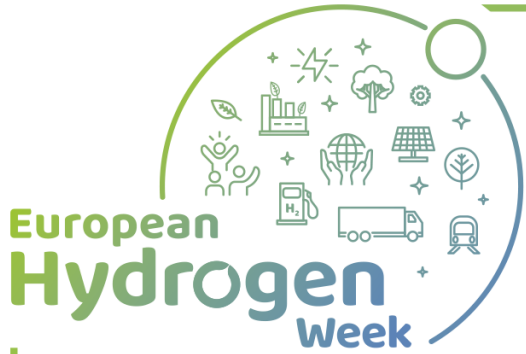
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Project Summary

The overall objective of this project is to develop and demonstrate solid oxide fuel cell (SOFC) systems for off-grid power generation with harsh climate conditions.





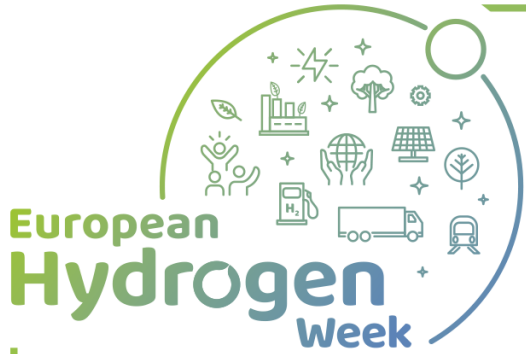
Project Summary



- Primary market areas are gas and oil infrastructure in remote regions and the telecommunication towers.
- Provide remote power generation in **harsh climate conditions** (from -40 to +50° C)
- Offer **reliable and long service life** of systems
- Increase **electrical efficiency and minimize emissions** and offer energy and carbon savings
- Achieve **cost reduction** on both stack integration and the specific BOP components
- Decrease **maintenance costs** and develop concepts for remote monitoring
- Reduce the **Total cost of ownership (TCO)**.
- Create **track record for market introduction**
- Increase of trust towards **new customer groups**

- Very competitive with conventional technology: TCO, emissions, maintenance etc





Project Progress - Units installed



Achievement to-date

PROJECT
START VALUE
= 0 units



PROJECT
TARGET VALUE
= 47 units

25%

50%

75%

- 30 units have been installed or are in installation process in customer sites
- It is around 64% from the RoRePower target
- Most of them are in telecommunication sector
- Rest of the units (17) will be installed before the end of next year (2022)



Project Progress - Harsh condition operations



Achievement to-date

PROJECT
START VALUE
= NA



PROJECT
TARGET VALUE
-40°C to +50°C

25%

50%

75%

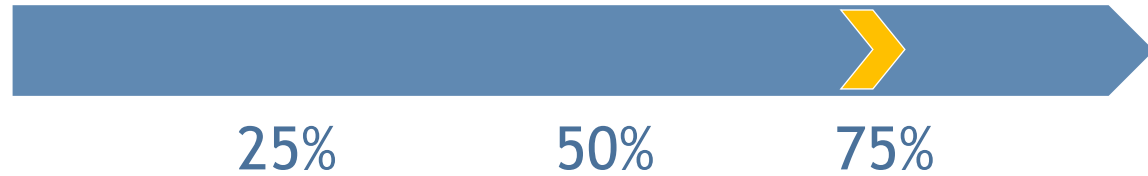
- Target: Start-up and operation at -40°C to +50°C ambient temperature for natural gas
- Target: Start-up and operation at -20°C to +50°C ambient temperature for Propane and LPG
- +50°C can be reached well with good ventilation
- **Sunfire Fuel Cells:** -20°C with NG and -35°C with Propane, **SolidPower:** -20°C with NG
- The operation between -40 and -20°C ambient temperature is uncritical, as long as a well-designed thermal insulated enclosure is used that keeps the system warm by utilizing the waste heat of the fuel cell device
- Start-up between -40 and -20°C: A low temperature capable start heater will be started and operated and heats up the cabinet until -15 ... -10°C is reached

Project Progress - Maintenance frequency and duration



Achievement to-date

PROJECT
START VALUE
= NA



F = 15 months
D = 4 hours

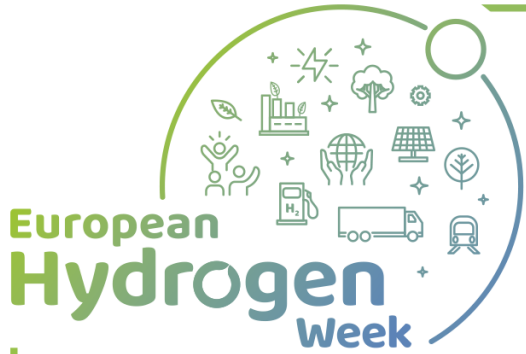
- Sunfire Fuel Cells: Maintenance frequency 13,7 months
- Sunfire Fuel Cells: Maintenance duration 1 hours
- SolidPower: Maintenance frequency 12 months
- SolidPower: Maintenance duration 4 hours



Risks, Challenges and Lessons Learned

- Realization of all demo sites
 - Finalizing of binding contracts with customers
 - Long enough demonstration times during project duration
 - Readiness of the production lines
 - System manufacturing in the project timeframe
 - Budget restrictions
 - Delays caused by Covid-19
-
- RoRePower project is very challenging but moving all the time to right directions
 - Contains some uncertainties like all other projects do





Exploitation Plan/Expected Impact

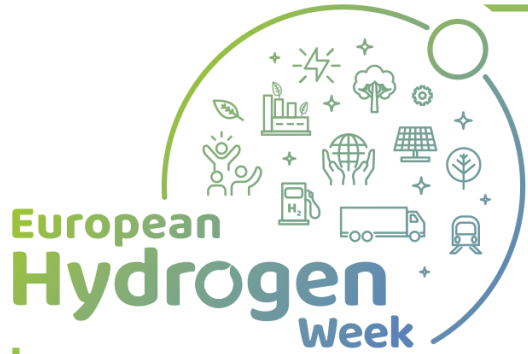
Exploitation

The main exploitation of the project results will be realised in the coming generation of the products:

- Sales volume
- Turnover
- Jobs
- Synergies with other products
- Supplier collaboration

Impact

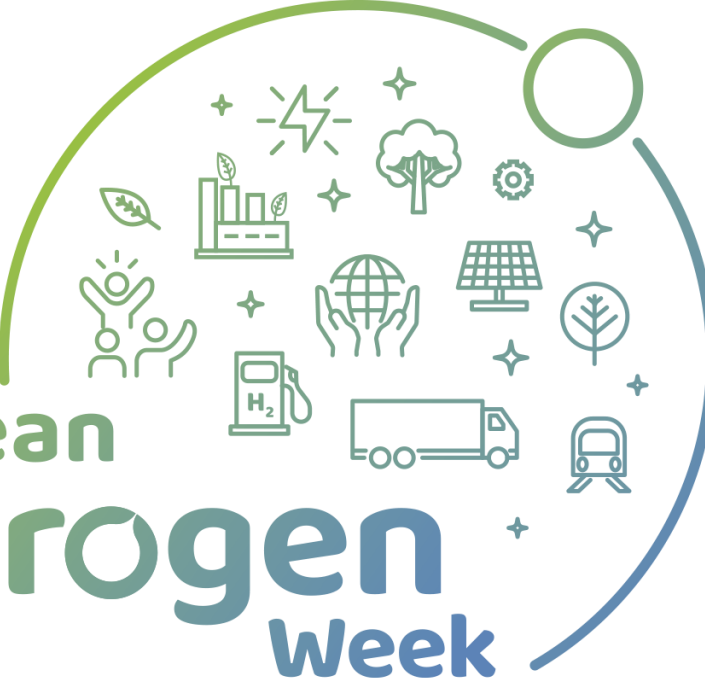
- Nearly all components for RoRePower units have been manufactured and sourced in Europe to strengthen the European value chain
- RoRePower technology has been introduced to niche markets for approval at international customers' sites under real conditions such as telecommunication and oil and gas companies
- The Sunfire-Remote units has provided a best-in-class electrical efficiency in comparison to the alternative generation technologies



Communications Activities

One example from the communication activities of the project partners:

<https://remote.sunfire.de/>



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