Giannicola Loriga – RINA
gianni.loriga@rina.org

EVERYWH2ERE

Making Hydrogen affordable to sustainably operate Everywhere in European Cities

Rome (Italy), 08-02-2023

“Hydrogen EVERYWH2ERE: first results from transportable genset demonstrations”

Clean Hydrogen Partnership

This project has received funding from the Fuel Cells and Hydrogen 2 Joint Undertaking (now Clean Hydrogen Partnership) under Grant Agreement No 779606.
This Joint Undertaking receives support from the European Union’s Horizon 2020 Research and Innovation program, Hydrogen Europe and Hydrogen Europe Research

Co-funded by the European Union

Project Overview

- Call year: 2017
- Call topic: FCH-02-10-2017 Transportable FC gensets for temporary power supply in urban applications
- Title: EVERYWH2ERE - Making Hydrogen affordable to sustainably operate Everywhere in European Cities
- Project starting date: 01/02/2018
- Project end date: 31-10-2023
- Total project budget: 6.770.248,74 €
- Clean Hydrogen Partnership max. contribution: 4.999.945,76 €
- Partners: RINA CONSULTING (coordinator), VTT, POWERCELL, GENPORT, MAHYTEC, FHA, DELTA1, ENVIPARK, ACCIONA, ICLEI, LINDE, THT CONTROL, FRIEM

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Project Summary

EVERYWHERE VISION

EVERYWH2ERE aims to demonstrate the reliability of using FC technologies in temporary power gensets replacing current state-of-the-art solutions mostly based on diesel engines, thus opening a niche but relevant market for FC technologies.

- 4x25 kW and 3x100 kW Gensets
- Easy to install
- Easy to transport
- Demonstration to market project!

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EVERYWH2ERE Consortium

EVERYWH2ERE

An Industry Driven Consortium

This guarantees:

- Industrial and Market interest to project outcomes and marketability
- Facility to involve stakeholders
- Strong commitment to genset realization
- A common «project business» to be pursued made by «different actors' business»
- Ability to overcome contingencies

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EVERYWH2ERE Challenges

- High TRL to be achieved: TRL 8
- An “orchestra of partners” to realize a single product: **FIRST OF ITS KIND!**
- **A pre-industrial project** (demonstration on the real field is required)
- Logistic, permitting, environmental (at LCA/LCC level) aspects to be studied
- Proper contractual arrangements to be developed
- **Dissemination and Stakeholders’ engagement is crucial**: a project that must be known by EU stakeholders and cities!
- A long but focused project

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Project Objectives

1) Capitalize EU FC industry expertise and close to market products in automotive/backup power communication sectors, towards the design of reliable, easy to use transportable FC gensets

2) Realization and demonstration of 7 PEMFC transportable gensets (4x25 kW and 3x100 kW) integrated with pressurized H2 storage

3) Leverage demonstration campaign for the future techno-economical replicability of the FC gensets. Realization of a Logistic Decision Support tool

4) Demonstration of economic viability, safety and environmental sustainability of the novel solutions. Realization of replication feasibility studies and an E-Handbook for replication

5) Communication, dissemination and preparation of the future deployment of the new EVERYWH2ERE gensets through public and private stakeholders engagement. Stakeholders and City Groups

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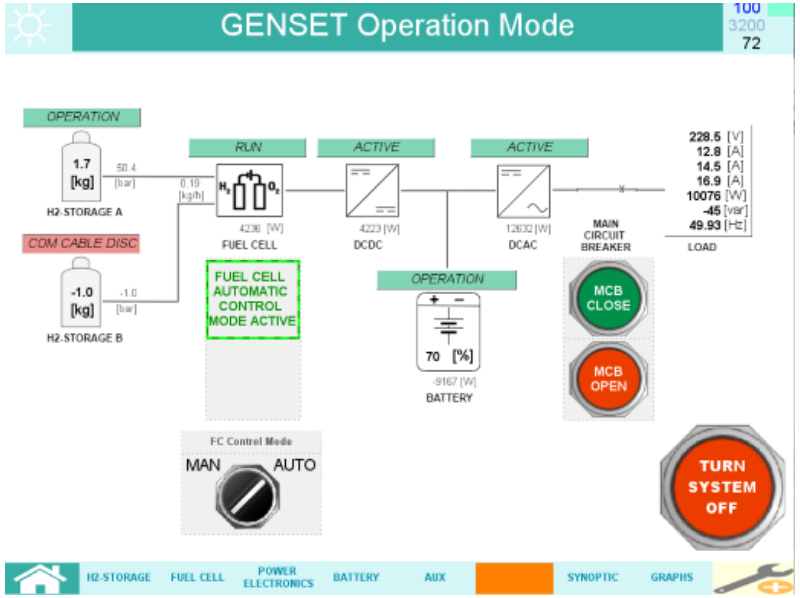
Realization of EVERYWH2ERE Gensets to be demonstrated around Europe

- Manufacturing, commissioning, validation of the first **25kW** and **100kW Gensets** and **H2 storage systems: Achieved!**



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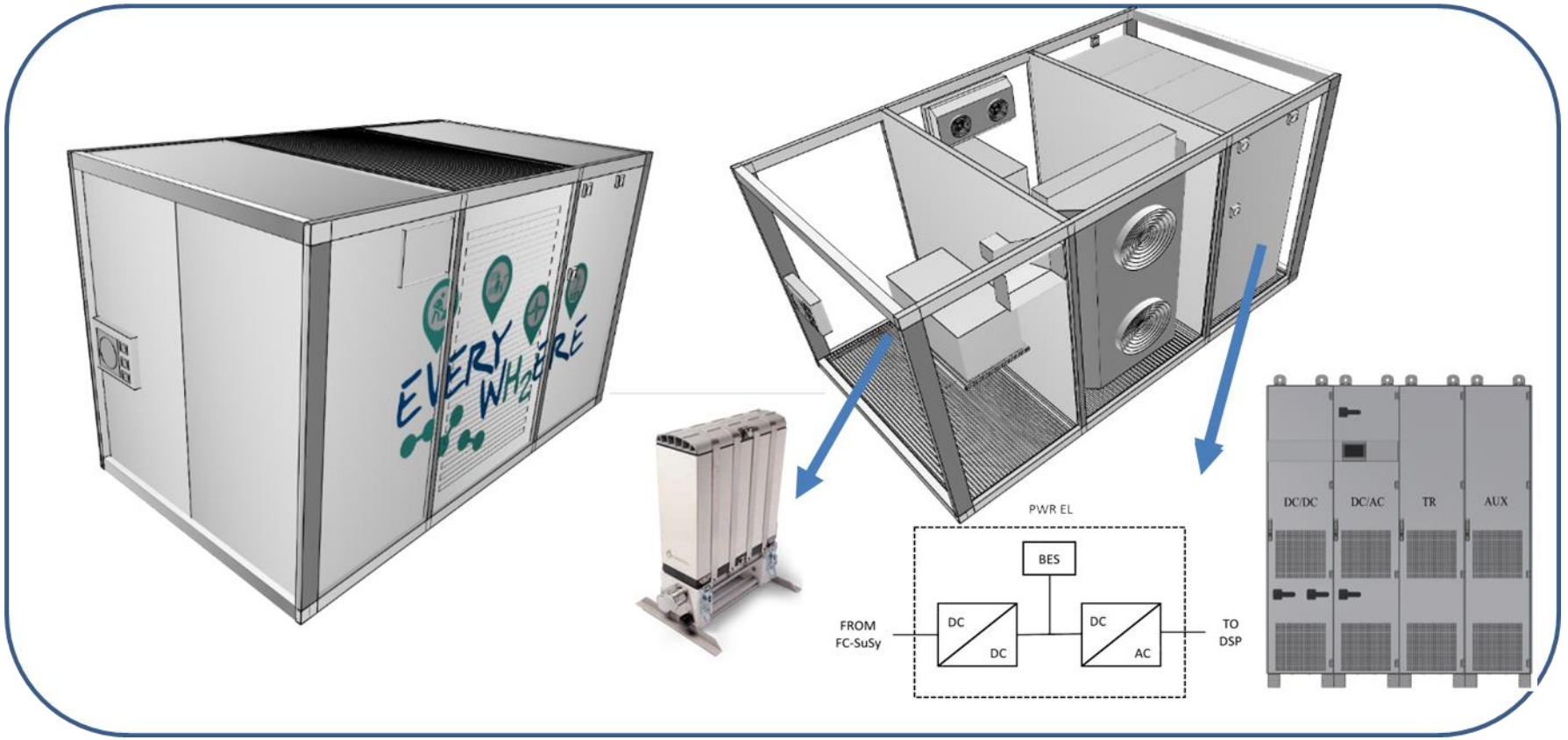

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Realization of EVERYWH2ERE Gensets to be demonstrated around Europe

- H2 storage systems

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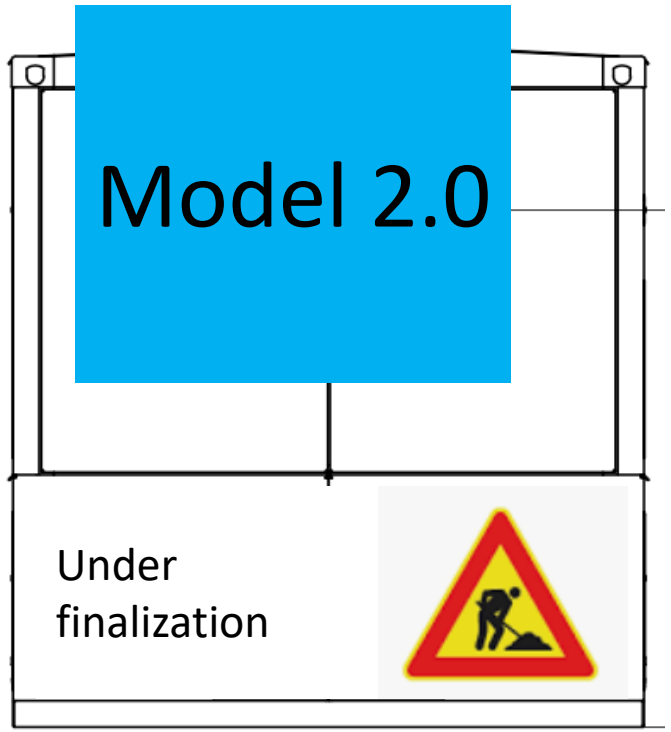
Realization of EVERYWH2ERE Gensets to be demonstrated around Europe

- **New design** for the **next generation** of Gensets
- **Genset n.3 and n.4 under construction** and expected to be completed in March/April 2023



Spring 2023!

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Challenges and Lessons Learned

Several challenges have been faced, the most relevant was the Declaration of Conformity (DoC) to enable the use in public events

Got it!

100 kW Genset – January 2022
25 kW Genset – October 2022

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Demonstration activities

Construction site - March 2022 - July 2022

Features of the demo

- Location: San Sebastian (Spain)
- Acciona construction site
- Ground extension: 82.000 m2
- Construction Project Cost: 41 M€
- 17 buildings
- Built Surface = 35.344 m2
- 8 tower cranes
- Crane nº 7 fed by the 100 kW EVERYWH2ERE FCPS
- The crane can load up to 7.600 Kgs.
- Maximum nominal power 68,6 kW

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Demonstration activities

Construction site - March 2022 - July 2022

KPIs of the demo

- Demo has extended over a period of **122 natural days**
- **86 working days in** such period
- **67 days** EVERYWH2ERE genset has been available for operation.
- **533 hours** of effective operation of the EVERYWH2ERE genset
- **935 kWh** supplied to construction site

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Demonstration activities

MotorLand MotoGP- September 2022

Features of the demo

- Motorland circuit in Aragon
- Moto GP race
- From 14th of September to 17th of September 2022
- The giant screen installed in front of the main grandstand was powered by the 100 kW EVERYWH2ERE genset

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Demonstration activities

HESE - Hydrogen Energy Summit&Expo 12th-14th October 2022

Features of the demo

- Temporary event
- First official demo of the 25 kW EVERYWH2ERE genset after the DoC
- During the 3 days the genset powered the led panel "Hydrogen EVERYWH2ERE", screens, heaters, Laptops etc.

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Demonstration activities

Port of Tenerife - October/November 2022

Features of the demo

- The 100 kW EVERYWH2ERE genset was shipped to Port of Tenerife
- The location prepared for the genset is only 20 meters (aprox.) from the berth (port basin)
- About 3 weeks of demonstrations

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Awards

2020
BEST OUTREACH

2021
BEST INNOVATION

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EVERYWH2ERE: A demonstration to Market Project

Key Exploitable Results	TRL
PCS Fuel Cell Stack	7
Ejector for Cold Operation	5
H_2 Storage Control / Safety Devices	6
ATEX Containered Solution	5
H_2 Tanks	7
Power Management (Electronics / Control)	6
EVERYWH2ERE GENSET	6

Key Exploitable Results	TRL
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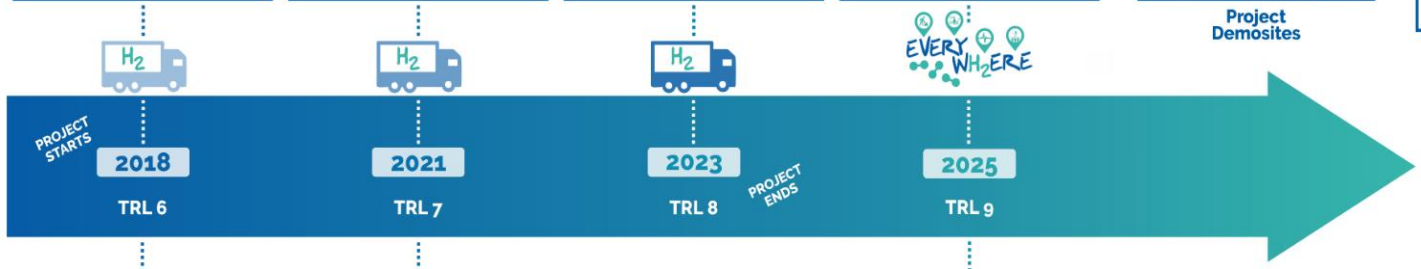
Project Demosites



Project Starts

Project Drivers

- Reduction of emission and noise in urban contexts (construction sites and events)
- Increased penetration of EVs and distribution networks instabilities at urban level that won't allow energy demanding cable grid connection
- Increasing number of festival / events / MICE sector all around EU

Intermediate Achievements

Demonstration in Construction sites, Temporary events, Music Festivals

Standards & norms definition	• Definition of best practices and measures for the installation of the EVERYWH2ERE gensets in urban contexts and construction sites • Standardization of control systems protocol, H_2 tanks and refueling procedures • Overcoming authorization barriers for what concerns installation of Hydrogen generators and pressurized tanks in urban contexts and crowded location • Health and Safety Certification for the integrated system
Manufacturing	• Upscale the production capacity of fuel cell stacks, H_2 tanks and safety devices • Develop a dedicate integration scheme and procedure for a standardized system • Development of a standard ATEX Container (ventilation/firewall) and Power Management System with suitable dedicated power electronics (not RES adapted power electronics anymore)
Further demonstrations	• Demonstration of the EVERYWH2ERE Gensets in different climates also thanks to ejector introduction • Application in other countries (Environmental, Logistics & Energy market scenario)
Marketing	• Start to promote the EVERYWH2ERE gensets among rental companies, energy utilities, event organizers, construction companies, hydrogen supplier etc. • Selection of the first entry markets: urban construction sites, environment sensible events • Assessment of the final business model for the commercial exploitation of the EVERYWH2ERE Gensets

MAIN APPLICATIONS:


Construction Sites


Music Festivals


Temporary Events


Exhibition Centres

MARKET DRIVERS:

- Reduction of noise in urban contexts guarantees night working periods for construction companies
- Increasing of environmental sensibility of festival and events organizer
- Reduction of H_2 costs thanks to RES driven electrolysis and the spreading of HRS all around EU cities

ADDITIONAL MARKETS:


Emergency & Reconstruction Sites


Cold Ironing for Ships in Ports

Replication Feasibility Studies

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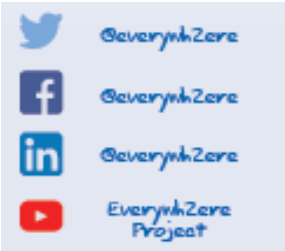
How to join EVERYWH2ERE

STEP 1: GET IN TOUCH WITH US!
www.everywh2ere.eu
Follow us on Twitter, FB, YouTube, LinkedIn



STEP II: Regions & Cities Interest/Stakeholders and Demo Group
Fill in our Expression of Interest

STEP III: HOST A DEMONSTRATION!
Sign our letter of engagement and host a demonstration!

Be among the first cities to promote a society powered by Fuel Cells! A unique opportunity to promote your Sustainable Energy Action Plan and green identity!

PLEASE CONTACT US TO JOIN EVERYWH2ERE!

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Thank you for your attention!

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RINA Consulting

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https://www.everywh2ere.eu/

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