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## EVERYWH2ERE

Making Hydrogen affordable to sustainably operate Everywhere  
in European Cities



# EVERYWH2ERE Vision



**TRL 8 – Plug and Play – Reliable**

**0 emission – 0 Noise**

**Interesting for Cities and Events' Organizers**

**A DEMONSTRATION TO MARKET PROJECT!**

**Start Date:** 1 February 2018

**End Date:** 31 January 2023



**FUEL CELLS AND HYDROGEN  
JOINT UNDERTAKING**

This project has received funding from the Fuel Cells and Hydrogen 2 Joint Undertaking under grant agreement No 779606. This Joint Undertaking receives support from the European Union's Horizon 2020 research and innovation programme, Hydrogen Europe and Hydrogen Europe research





# EVERYWH2ERE Objectives



**MO1:** 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 (WPI)

**MO2:** Realization and demonstration of eight PEMFC transportable gensets (4x25 kW and 4x100 kW) integrated with pressurized H<sub>2</sub> storage (WP2-3-4)

**MO3:** Leverage demonstration campaign for the future techno-economical replicability of the FC gensets (WP5-6) – Realization of a Logistic Decision Support tool

**MO4:** Demonstration of economic viability, safety and environmental sustainability of the novel solutions (WP5-6) – Realization of replication feasibility studies and an E-Handbook for replication

**MO5:** Communication, dissemination and preparation of the future deployment of the new EVERYWH2ERE gensets through public and private stakeholders engagement (WP7) – Stakeholders and City Groups





## 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, but with some bureaucratic limitations like insurance/certification etc.)
- Logistic, permitting, environmental (at LCA/LCC level) aspects to be studied
- Proper contractual arrangements to be developed: **the importance of hydrogen origin!**
- **Dissemination and Stakeholders’ engagement is crucial:** a project that must be known by EU stakeholders and cities!
- A long but focused project



# 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



# Why EVERYWH2ERE H2 GENSETS?



The market is currently served by internal combustion engines (fed by diesel, compressed natural gas, propane etc.) and batteries. Compared with IC generators and batteries, PEMFC systems are:

	Fuel cell	diesel	battery
Reliability	+	-	+
Extended run time	++	++	--
Emissions	++	-	++
Noise	+	-	++
Efficiency	+	-	++
Ambient condition	+	+	-

## Key performance indicators

- #zeroemission
- #zeronoise
- #fast start up
- #easy to connect and operate
- #low maintenance
- #efficiency above 50%
- #subzero start (-20°C)
- #reduced installation time
- #ATEX and normative compliancy

# Making Hydrogen affordable to sustainably operate Everywhere in European Cities



## GENSETS CHARACTERISTICS

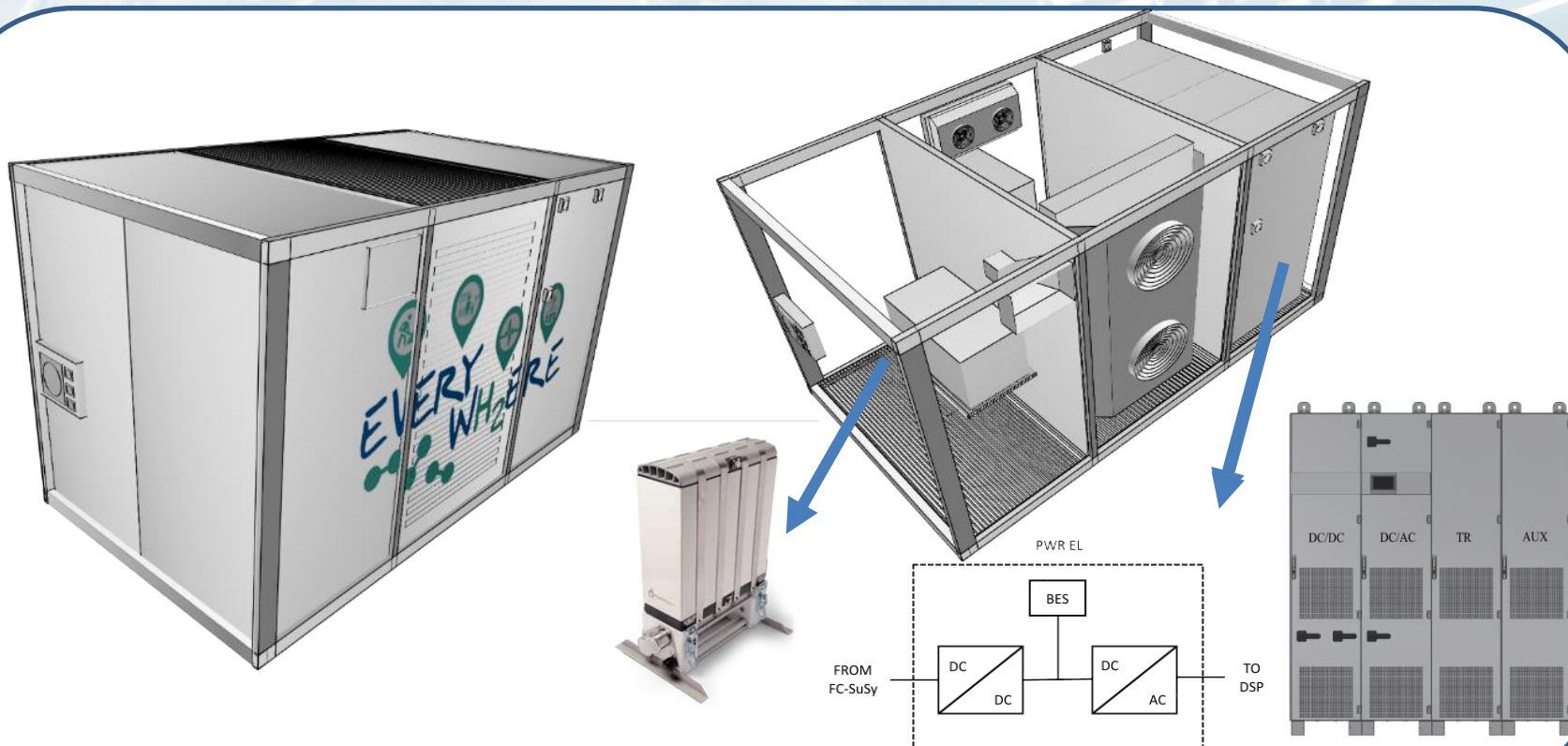
- Two gensets sizes manufactured (25 kW and 100 kW)
- “Plug and Play”
- Pre-industrial prototypes
- Transportable gensets
- Based on H<sub>2</sub> Fuel cell
- H<sub>2</sub> storage control
- Safety devices

### Two boxes solution:

- H<sub>2</sub> tanks @350 bar
- FCPS 10 ft ISO-container



# In these three years we made our renders....





# Reality!



Visit [www.everywh2ere.eu](http://www.everywh2ere.eu) and join a video tour of our gensets



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# EVERYWH2ERE: A demonstration to Market Project



## DEMONSTRATION IS CRUCIAL IN EVERYWH2ERE – In Construction sites and Events

**Construction Demosites Managed by ACCIONA**

**Music Festivals:** more than 25 LoS collected **by D1** (*and already engaged for 2020 events campaign unfortunately canceled due to pandemic situation*)

**Public Temporary Events:** **FHA** (1x25 kW + 1x100 kW + logistic budget) and **ENVI** (1x25 kW) received support from local authorities to test the genset at local events (Huesca Film Festival, Slow Food Festival etc.)



greenmusicinitiative



# DEMONSTRATION

Construction Demosites managed by ACCIONA

Music Festivals: more than 25 LoS collected by DI

Public Temporary Events: in Italy and Spain from 2021

Port Environment: Port of Tenerife tests in early 2021



## DEMONSTRATION WILL START in 2021

The prototypes (4x25 kW and 4x100 kW) will be tested in construction sites, music festivals and urban public events all around EU. These events will be important showcases to promote FC potential to a large audience in order to increase their social acceptance and public awareness. An active involvement of public authorities and industrial stakeholders will foster the spreading of FC gensets opening a potential market doorway towards viable EU cities and Hydrogen economy.

**WE ARE SEARCHING NEW EVENTS and OPPORTUNITIES TO TEST OUR GENSETS!**



**Contact us for more details if you want to host the gensets!**



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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 <sub>2</sub> Storage Control / Safety Devices	6
ATEX Containerized Solution	5
H <sub>2</sub> Tanks	7
Power Management (Electronics / Control)	6
EVERYWH2ERE GENSET	6

Key Exploitable Results	TRL
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EVERYWH2ERE GENSET	9



Project Demosites

## MAIN APPLICATIONS:



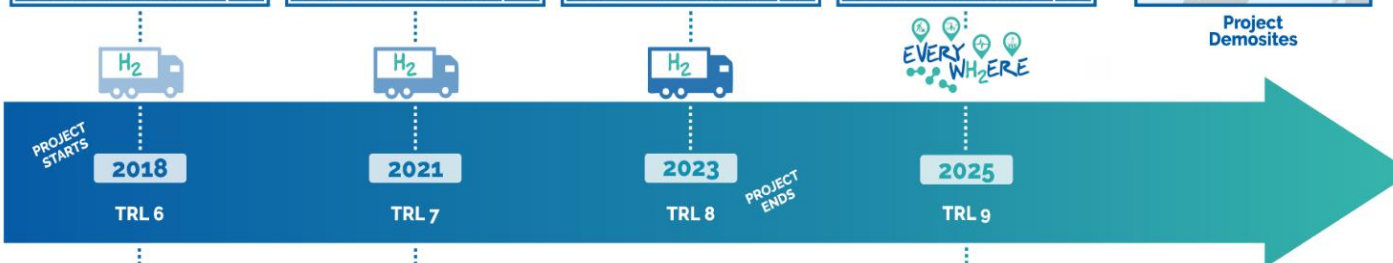
## MARKET DRIVERS:

- 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<sub>2</sub> costs thanks to RES driven electrolysis and the spreading of HRS all around EU cities

## ADDITIONAL MARKETS:



## Replication Feasibility Studies



### 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<sub>2</sub> 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<sub>2</sub> 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



## EVERYWH2ERE Stakeholders group



IN EVERYWH2ERE Two Stakeholders group are collaborating with the consortium  
**EVERYWHERE CITIES (ICLEI) and EVERYWHERE Industrial/Demo Support Group (FHA)**



### Main targets:

- **EVERYWH2ERE CITIES** – After Y1 workshop, we're currently organizing webinars also to analyze current bottlenecks/challenges towards decarbonization of local temporary power supply (link with FCH JU City and Regions Initiative). Join us to know more and provide your vision and maybe host our gensets!
- **EVERYWH2ERE INDUSTRIAL/DEMO SUPPORT GROUP** – Workshop within M48 after demonstration campaign starting and constant interaction to develop business models and best practices. Stakeholders from FC sector, event organizers, construction companies will be involved via questionnaire (D1 – M18) for market and stakeholders' interest assessment. Their support is crucial to foster replication and marketability.

## PLEASE JUST CONTACT US TO JOIN EVERYWH2ERE!



# Regions & Cities Interest Group



- ✓ **Subscription to a Regions & Cities newsletter** to receive in-depth coverage on how fellow regions and cities make use of hydrogen gensets in their temporary events
- ✓ **Opportunities to directly exchange and cooperate with other cities** and region on innovative policies for zero emissions, zero noise construction sites and other temporary events
- ✓ **Receive feasible and effective policy recommendations** to support your zero-emission targets
- ✓ **Potentially host the gensets** in one of your city event



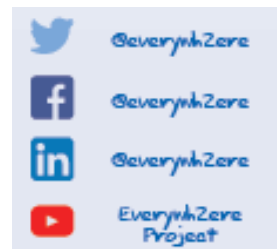
# How to join EVERYWH2ERE



## STEP 1: GET IN TOUCH WITH US!

[www.everywh2ere.eu](http://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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## MISSION

Temporary diesel gensets are used everywhere in our cities (fairs, markets, construction sites, temporary events and concerts...) and Non-road diesel engines account for 5-10% of fine-particle pollution in urban environment. **Fuel cell (FC) can easily replace these technologies promoting 0 noise, 0 emission temporary generation.** The main objective of EVERYWH2ERE project is to demonstrate at TRL8 easy to transport “plug and play” FC gensets. Demonstration results will be capitalized for replication, business model, environmental and logistic analysis.



## PROJECT PARTNERS



# THANKS FOR YOUR TIME

[info@everywh2ere.eu](mailto:info@everywh2ere.eu)

[www.everywh2ere.eu](http://www.everywh2ere.eu)

[@EveryH2ere](#)



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