

Everywh2ere. Cities & Regions Interest Group

FAQ Section (30/04/2019)

Why hydrogen?

Hydrogen is the most common element, making up the 75% of the entire mass of the universe. However, on Earth is rarely in a natural free state, being usually bonded to other elements. For example, when combined with oxygen, it forms water (H₂O). On its own, hydrogen is not a fuel or a source of energy, but an **energy vector**. It stores energy obtained elsewhere. To obtain electricity from hydrogen, Fuel Cells (FC) are used by mixing this hydrogen with oxygen. It is thus a **clean reaction** in which only by-products are water, heat and electricity.

How can be hydrogen obtained?

There are several processes to obtain hydrogen. Most important are two, Natural Gas Reforming and Electrolysis. In Natural Gas Reforming, hydrogen is produced by reacting natural gas with high-temperature steam. This method is the cheapest, most efficient and most common process for obtaining hydrogen. However, this process is not “clean”, because CO₂ is produced in the process and usually vented to the atmosphere. In the other method, **Electrolysis**, an electric current splits water into hydrogen and oxygen. If the electricity comes from renewable sources, such as solar or wind, then the resulting hydrogen is considered renewable.

What does the EVERYWH2ERE project aim to do?

EVERYWH2ERE is a H2020 project funded by EC and by FCH JU whose main goal is developing easy to transport, easy to install **FC based transportable gensets**. 8 prototypes (4x25kW, 4x100kW) will be realized and tested through a pan-European demonstration campaign in different contexts, aiming at demonstrating their flexibility and enlarged lifetime and trying to increase the social awareness to hydrogen technologies.

What is the EVERYWH2ERE project interest group?

The European Union (EU) is strongly committed to reduce noise and emissions at urban level, and hydrogen based solutions can play a significant role in the achievement of those objectives starting from a niche but very common application like temporary gensets...

Thus, two interest groups will be created (Industrial and City&Regions), aiming at involving to the project both industrial stakeholders and cities and local authorities for the promotion of FC Gensets.

What should I do to join Everywh2ere interest group?

It's easy! You can just get in touch to us on our website (<http://www.everywh2ere.eu/>) or via social media (Twitter, Facebook, YouTube or LinkedIn).

You will have the opportunity to become a member of the Everywh2ere Regions & Cities Interest Group by filling in our Expression of Interest, or even to host a demonstration by singing out the letter of engagement.

Is compulsory to host a FC Gensets to be part of the interest group?

No, anyone who is interest to follow project outcomes and provide relevant insights to EVERYWH2ERE research can be part of the Interest Group without any requirement.

In which kind of events will FC prototypes be tested?

During the demonstration phase (second half of 2020 until 2023), the main objective is to identify the ultimate technical and non-technical barriers to be overcome before the commercialization of the FC Gensets in 2025. Thus, a robust demonstration campaign will be performed, testing EVERYWH2ERE prototypes in three crucial economic EU sectors: **construction sites, music festivals and temporary events.**

Which requirements are necessary for hosting an EVERYWH2ERE FC Genset prototype?

If you are interested in testing one of the FC Gensets at your event, you should just contact us through our website (<http://www.everywh2ere.eu/>), and we will send you a “**Basic Data Questionnaire**”, aiming at collecting enough information of the event. The Consortium will check the information received and will assess the suitability of being part of the demonstration sites. Demonstration campaign will start from early 2020. Summer periods would be more dedicated to demonstration in music festivals; the rest of the year could be dedicated to all kind of potential demosites.

Are Everywh2ere FC Gensets prototypes reliable and ensure an uninterrupted electrical supply?

Leveraging the great experience of the Consortium in the exploitation of hydrogen in FC systems for different purposes (transport, backup solutions, power generation...), all the partners are committed to develop reliable and easy to use FC gensets to be used in temporary events. Prototypes will be firstly tested on partners' facilities in real conditions. Depending on

the characteristics of the demo-sites FC Gensets can work in parallel with diesel gensets or act as a back-up power in case grid is not always available.

What is the daily cost for hosting EVERYWH2ERE gensets?

As soon as your demosite will be considered suitable for EVERYWH2ERE demonstration campaign, the consortium will get in contact with you to study all the contractual arrangements and procedure in order to make your demonstration campaign a reality.

Do I have to be concerned for having hydrogen stored during the event?

Hydrogen, as any kind of fuel has to be handled with caution and following established health and safety regulations. Hydrogen technologies have been developed for more than fifty years, and they are used in the chemical industry or in the space exploration. Hydrogen production, storage and use do not pose any engineering challenge, and commercial solutions are available for all the steps mentioned.

The Consortium is deeply committed with safety in Everywh2ere prototypes, and FC Gensets will be designed, transported and manufactured following all the standards regarding safety. In addition, Guidelines will be provided about installation and operation of the EVERYWH2ERE Gensets during the event.

How hydrogen will be supplied to the demsites?

LINDE, one of EU leaders in producing and delivering special gases, is part of EVERYWH2ERE consortium and it will study together with you the most convenient way to provide you hydrogen directly on field via gas trucks, in order to refill EVERYWH2ERE Gensets hydrogen storage.

How long do I have to use the EVERYWH2ERE Genset in my demosite?

As much as you can! In order to maximise our effort and facilitate logistics of hydrogen supply and gensets transport we would prefer to target demonstration opportunities of at least one week of duration.

In case of interest to host a FC Genset during the demonstration phase, what are the demsites suppose to do?

The main goal of the project consortium is to demonstrate our FC gensets feasibility for temporary events (music and film festivals, construction sites...). Thus, during the demonstration phase the 8 prototypes will be tested in different scenarios under several

conditions, aiming at collecting information about the performance and the reliability of the gensets. Demosites in this phase will be asked for providing a ground testing where checking prototypes. The units will be connected remotely to gather information about their performance.