



**Grant Agreement No.:** 779606

**Project acronym:** EVERYWH2ERE

**Project title:** Making Hydrogen affordable to sustainably operate Everywhere in European cities

**Call (part) identifier:** H2020-JTI-FCH-2017-1

**Thematic Priority:** FHC-02-10-2017, Transportable FC gensets for temporary power supply in urban applications

**Starting date of project:** 1<sup>st</sup> February, 2018

**Duration:** 60 months

**Project URL:** [www.everywh2ere.eu](http://www.everywh2ere.eu)



## WP6 – “Business Models, Regulatory Framework and Route for Replication”

### D6.2 – “Market and Stakeholders questionnaire and interview plan”

**Due date of deliverable**

31 July 2019

**Actual submission date**

31 July 2019

**Deliverable version**

1

**Organisation name of lead contractor for this deliverable: D1**

Dissemination Level		
CO	Confidential	
PU	Public	<b>X</b>



*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.*



## Executive Summary

EVERYWH2ERE “D6.2 Market and Stakeholders Analysis questionnaire and interview plan” has the aim to present EVERYWH2ERE Stakeholders’ engagement campaign in its three souls: interested demosites coming from music sector and temporary events sector (under D1 leadership), industrial stakeholders (under RINA-C animation) and cities and regions (thanks to ICLEI support). The report describe how EVERYWH2ERE consortium is interacting with stakeholders to collect their relevant support: lessons learnt so far and future plans for such activities.



*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.*



## Table of Contents

Executive Summary .....	2
1. Introduction .....	4
2. EVERYWH2ERE Stakeholders Group .....	5
2.1 Demonstration interested Stakeholders .....	10
2.2 EVERYWH2ERE – Regions & City Interest Group .....	19
2.3 Industrial EVERYWH2ERE Stakeholders Group .....	22
2.4 Outcomes from other institutional FCH JU event where relevant stakeholders’ inputs have been collected .....	26
3. Next Steps and Interviews plan towards Demonstration (M36) and business analysis Campaign (M54) .....	28
3.1 Demonstration interested Stakeholders .....	28
3.2 EVERYWH2ERE Regions & Cities Interest Group .....	28
3.3 Industrial EVERYWH2ERE Stakeholders Group .....	29
4. Conclusions .....	30
A. Annexes .....	31





# 1. Introduction

This public report is part of H2020-FCH-JU project “EVERYWH2ERE - Making Hydrogen affordable to sustainably operate Everywhere in European cities” and it was prepared within the framework of Work Package 6.

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. During the whole project 8 PEMFC (4x25 kw and 4x100 kW) equipped containered “plug and play” gensets will be realized and tested through a pan-European demonstration campaign in a demonstration to market approach. The prototypes will be tested in construction sites, music festivals and urban public events all around Europe, demonstrating their flexibility and their enlarged lifetime. Demonstration results will be widely promoted and they will be helpful for the promotion of replicability studies (for the use of gensets in further end-user contexts) and for the definition of a commercial roadmap and suitable business model for the complete marketability of the gensets within 2025

This deliverable was prepared within the framework of WP 6 – Business Models, Regulatory Framework and Route for Replication.

The goal of this deliverable is to present the role of Stakeholders in EVERYWH2ERE project in a mutual benefit collaboration.

As a demonstration to market project, stakeholders’ role in the project is crucial to:

- Drive R&D activities
- Collect insights about permitting and regulation aspects
- Facilitate demonstration campaign
- Analyse contractual arrangements and business models to facilitate marketability

The report is divided in two macro-chapters: chapter 2 dedicated to the description of EVERYWH2ERE Stakeholders group and activities performed so far and chapter 3 dedicated to lessons learnt from M1-18 activities, next steps and stakeholders activities planning.





## 2. EVERYWH2ERE Stakeholders Group

The D7.3 – “Dissemination & Communication Plan” reports a list of stakeholders or interest groups that are, from a broad perspective, any group or individual that may affect or be affected by the achievement of the project's objectives.

In the first months of the project the consortium has been in contact with several institutions, starting from institutions who signed during the proposal phase. Interaction with potential supporting partners were performed both at local level (FHA and ENVI in Aragon and Piedmont region; GENPORT with CGT as the main diesel gensets rental company in Italy and FHA with Aggreko and Atlas Copco) and at EU level (D1 and RINA-C launched the project in Music Festival oriented event in Cologne on 30/31 August in Cologne C/O POP Convention).

ICLEI Europe, in cooperation with the EVERYWH2ERE project, organised the 15<sup>th</sup> January 2019 a city-oriented workshop on “Upscaling Hydrogen Genets in European Cities”. The event highlighted modern Fuel Cell and Hydrogen (FCH) technologies as clean alternatives to fossil fuel generators in providing energy for construction sites, festivals and other temporary urban events.

The H2Corner, which will be setup in the exhibition area during the genset “hosting events”, will present in a didactic and simple way the project objectives and the potential of FCH technologies. The H2Corner will be set up by the local project partner, based on a tool kit developed by D1 and already tested in M1-18 events. Furthermore the installation of the gensets in construction sites will be promoted at local level and the sites will be open for visits.

Starting from the list specific categories of them can be engaged in order to implement knowledge of the project, advantages and involve them during the demonstration campaign.

Below the main stakeholders groups that can be engaged along the project during all the dissemination/demonstration activities with specific agreements/commitments, each of them with specific activities and involvement.





Target audience	objectives	HOW ENGAGEMENT
Event organizers	inform&involve in demo phase with specific agreement/commitments	Demonstration events Sending materials for your exhibition Actions with media and interest groups H2CORNER Launching event in Cologne for the Music Festivals
Gensets Companies	inform&involve in demo phase with specific agreement/commitments new business opportunities	Demonstration events Sending materials for your exhibition Actions with media and interest groups H2CORNER Launching event in Cologne for the Music Festivals
DSO Companies/Energy Utilities	inform&involve in demo phase with specific agreement/commitments new business opportunity	Demonstration events Sending materials for your exhibition Actions with media and interest groups H2CORNER Launching event in Cologne for the Music Festivals
Cities	inform&involve in demo phase	General information Demonstration events H2CORNER Launching event in in Brussels for Cities
FCH players	inform&propose new business activities	Demonstration events Sending materials for your exhibition Actions with media and interest groups H2CORNER Hannover Messe
Clusters and sectoral organizations related to hydrogen	inform	General information Meetings with associations and other representative projects

Table 1. Stakeholders groups to involve along the project

### 1. Event Organizers stakeholders' group

The involvement/engagement of Event Organizers is crucial in order to formalize the demo-phase and collect relevant insights about permitting and how to install/manage the gensets.

The group was just involved during the submission project phase with signed LoS and now it is continuously involved and the list of Events continuously implemented.

The direct involvement of Event Organizers goes through a decision tree (D1.5 Temporary Events and Music Festivals demonstration calendar) which ends positively with the event selected and the Organizer's engagement. The selection passes through the compilation of a "basic data collecting" survey, aiming at gathering information about the event (step 3), if event





fulfills criteria to be selected as demosite, the Partner presents it to the rest of the Consortium (step 6) and in final the event promoter signs a Letter of Commitment (LoC) (step 8).

Thanks to the support of Green Film Shooting association (who signed our LoS) and the presentation of EVERYWH2ERE project during International Cannes Film Festival 2018, also Film Commission (i.e. Sardegna, Liguria and Trentino Alto Adige Italian Regional ones) are now informed and interested about the use of FC based gensets.

This stakeholders' group is monitored and animated by D1/GreenMusicInitiative.

## *2. Genset Manufacturing and Rental Companies stakeholders' group*

The involvement of rental gensets companies is crucial in order to implement events during all the demonstration phase but the goal of the stakeholders' group could also be to introduce them in a new sector as fuel cell market is. This involvement could help the partners to develop a suitable contractual arrangement and business model for future gensets exploitation.

The Companies will be involved in all the demonstration phases and mainly during the results phase, it could help them in evaluating the fuel cell market and to include Fuel cell gensets in their market. The final objective of the involvement of gensets companies is to propose new business opportunities, giving them the tools for a business transformation as well as to collect from their side the information related to optimized design of the gensets (inputs to WP1).

CGT from Italy and ATLAS Copco from Spain has been interviewed so far thanks to GENP/FRIEM/RINA-C and FHA support respectively.

In case of presence of gensets rental services in such companies, their support is also relevant to understand what could be the most suitable contractual arrangements and business models.

## *3. DSOs Companies/Energy Utilities stakeholders' group*

The direct involvement in the project of IREN ENERGIA and IREN SpA (ENVI linked third party), which are DSOs and important energy utilities in Italy providing tailored solutions in different events confirm the importance of having on board final end users. During all the project these stakeholders will be contacted.

Among the energy services provided, Energy Utilities give also support in exhibitions and events where it is needed a temporary rental power, cooling and heating solution, with:

- The selection of the appropriate solution (diesel generator, medium voltage generator, ecc...) in terms of power output capacity, fuel consumption, soundproofing level, ease of maintenance and environmental concerns;
- The design of the temporary plant considering the integration with the already installed power systems / in parallel to the grid connection, or the design of a stand alone power generator;
- The installation of the generators and the operation service (ordinary and emergency maintenance)
- The evaluation of level of noise, emergency plan and fuel management.





The final objective of the involvement of DSOs is to propose new business opportunities, giving them the tools for a business transformation.

The role of such stakeholders is to provide relevant insights about how to promote FC gensets among them as they are who provide power and who handle clients: it is normal indeed that end user contact energy utilities more than gensets rental companies to have a temporary power supply. Aspects related to electricity production in combination with grid plugging will be also studied thanks to these stakeholders.

The interaction of ENGIE has been the most relevant activity of such stakeholders group which is under RINA-C coordination and animation.

#### 4. *City stakeholders' group (Regions & Cities Interest Group)*

Considering the city as a living laboratory where to test FC gensets and technology, allows also to disseminate project results and hydrogen technology to a very big audience, in order to increase public awareness about hydrogen and fuel cell technologies reliability and affordability.

The presence of ICLEI ES, a global network of local governments working for sustainability, will guarantee a strong interaction with EU local and regional authorities which play an important role for the promotion of these technologies through specific policy and regulatory schemes. The project results will be also promoted through webinars that will be addressed to both industrial and public stakeholders.

The “Upscaling Hydrogen Gensets in EU Cities” workshop took place back-to-back with the 9th General Assembly of the Regions & Cities initiative of the European Union’s Fuel Cells and Hydrogen Joint Undertaking (FCH JU).

With European cities driving the decarbonisation of transport, urban heating and cooling, industries and services forward, the workshop focused on how FCH technologies as a 100% clean alternative to diesel-based generator equipment can support cities in reaching their climate and energy targets, reduce emissions and noise and increase air quality.

This workshop offered:

- an understanding of how hydrogen gensets can be a viable alternative to diesel generators
- a platform to exchange on the necessary regulatory frameworks for deploying temporary hydrogen gensets in city areas
- the opportunity to speak about and promote own innovative decarbonisation measures

The workshop served as an entry point for becoming part of the EVERYWH2ERE Regions & Cities Interest Group to explore options for hosting hydrogen generator sets and to profit from tools and long-term recommendations generated throughout the project.







## 5. FCH players (technology manufacturers) stakeholders' group

FCH players thanks to the top-level EVERYWH2ERE partnership at EU level (LINDE, PCS, MAHY are FCH technologies provider for a lot of industrial players at EU level).

The main objective is to create a contact network presenting project results through dedicated events.

RENTAL COMPANY	market (EU, worldwide=ww)	URL	FC market
Intelligent Energy	UK	<a href="https://www.intelligent-energy.com/">https://www.intelligent-energy.com/</a>	Small scales PEMFC based equipment for events (lights, gensets, plugs etc.) max 5 kW
Areva	FR	<a href="http://www.arevah2gen.com/en/">http://www.arevah2gen.com/en/</a>	Containerized PEMFC based gensets for back up power

Table 2. FC gensets/FC temporary equipment companies involved in H2 technologies

Both AREVA and INTELLIGENT Energy showed interest to EVERYWH2ERE, other two companies which showed interest to EVERYWH2ERE are H2SYS (FR - [www.h2sys.fr/en/](http://www.h2sys.fr/en/) - which manufactures small scale gensets and which is collaborating with ENGIE on this topic) and POWIDIAN (FR – [www.powidian.com](http://www.powidian.com) – which has designed a 30 kW genset named MobyHyl).

The interactions with POWIDIAN are also encouraged by FHC JU/EC representatives considering their current market positioning via their M30 MobyHyl prototype (figure below).



Fig.1 POWIDIAN M30 MobyHyl Power Prototype

(courtesy of POWIDIAN - <http://powidian.com/wp-content/uploads/2018/06/fiche-tech.-MobHyl-Power-M30-RV-v2-US-merged.pdf> )

The interaction with such players is under RINA-C coordination and animation.

## 6. Clusters and sectoral organizations related to hydrogen

Since EVERYWH2ERE is a project of the FCH-JU and also is aligned with the different existing national initiatives in Europe in relation to hydrogen mobility, working meetings will be organized with these entities and with relevant projects that are already underway in the EU as HyLaw and HySea.



The main objectives are to meet associations and so other representative projects, searching for collaborations.

The interaction with such players is under ENVI/RINA-C coordination and animation as the main topics of interaction are mostly related to regulation aspects. EVERYWH2ERE collaborated so far with HyLaw and H2IT (Italian Hydrogen association) on such topics.

Inter-sectorial events, where different type of stakeholders, also coming from EU FCH R&D panorama, have been also targeted by EVERYWH2ERE, like for example EUSEW 2019, where EVERYWH2ERE presented a stand in the energy fair to present the project and interact with stakeholders and potential demosite. Such inter-sectorial events could be strategic also to put in contact stakeholders coming from different groups and creating synergies and collaboration among them and with EVERYWH2ERE.



Fig.2 EVERYWH2ERE Stand at EUSEW 2019

## 2.1 Demonstration interested Stakeholders

One of the main goal of Stakeholders interaction in EVERYWH2ERE project is to attract potential demosite to WP4 campaign. Such stakeholders' engagement campaign has started since M1 to collect insights for WP1 as well. The scope of the demonstration Interested Stakeholders Group from the festival and live entertainment sector in the framework of the EVERYWH2ERE project and the work implemented so far can be outlined by the following exempling elements.

### 1. ENGAGEMENT VIA PROMOTIONAL EVENT

With the aim to maximise outreach to potential stakeholders and demosite partners, EVERYWH2ERE and its consortium partners engaged in sector relevant promotional events as part of panels, workshops and/or through the setup and operation of the H2 Corner tool

#### *Music Festival Launching Event in Cologne – August 2018*

At music-oriented conference C/O Pop in Cologne / Germany in August 2018 EVERYWH2ERE organized a **workshop** on the “Future of Event Energy” with partners Green Music Initiative, Green Operations Europe, Yourope Festival Association and Energieagentur.NRW. The 3hour workshop attracted 25 participants and led to the signing of



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.



Demosite letters / Letters of interest of Wacken Festival (DE / 75.000 visitors), C/O Pop (DE/ 25.000 visitors) and Garbicz Festival (PL / 8.000 visitors).

### **SPEAKERSLOTS AT C/O POP CONVENTION 2018:**

**FRIDAY 31.08**

**14:00 - 15:00**

9 IHK Köln | Junioren-Zimmer (4.0G)

### **IS HYDROGEN THE KEY TO OUR CLEAN ENERGY FUTURE? - HOW TO POWER YOUR EVENT WITHOUT ANY EMISSION (ENG)**

Jacob Bilabel, Dr. Stefano Barberis, Arthur Baux, Holger Jan Schmidt

Mehr Infos

A music festival has the same energy need as a small city over the weekend. Because missing grid connection, no technical infrastructure and very little uptake of digital smart metering systems, this energy is mostly produced very inefficiently by gasoline generators on site. With more than 500 big festivals and more than 5000 bigger events alone in Germany, this causes a lot of unnecessary stress on the environment. But there are alternatives. European cities can become living labs for the demonstration of Fuel Cell and Hydrogen (FCH) technologies, which produce clean renewable energy with no CO2 or noise emissions at all.

At the Green Music BBQ, a event sector networking meeting taking place in August 2018, the **H2 Corner** was piloted. Furthermore Stefano Barberis (RINA-C) and Jacob Bilabel (D1 / Green Music Initiative) gave the approx. 100 attendees an **introduction speech** into the EVERYWH2ERE project, its objectives and possible ways of joining the project as part of the Demonstration Interested Stakeholders Group.



*Fig.3 H2 Corner with interactive H2 kit at Green Music Awards*



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.



Fig.4 EVERYWH2ERE presentation at Green Music BBQ

### *Description of EUROSONIC Event – January 2019*

At Eurosonic, Europe’s most important network meeting for the live entertainment industry taking place in Groningen / NL in January 2019, EVERYWH2ERE set up the **H2 Corner** as part of the conference fair. Through a cooperation with Yourope Festival Association, the H2 corner tool was reaching out to Yourope’s 90 member festivals and the 5.500 conference attendees.



Fig.5 Everywh2ere H2 Corner stand at Eurosonic Festival Conference

Through a cooperation with the Green Operations Europe Group EVERYWH2ERE’s Jacob Bilabel took part in a **panel** on the “Future of Festivals” with speakers like DGTL Festival



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.





Amsterdam, Greener Festival Association UK, Pohoda Festival SL. The panel was attended by 60+ listeners and podcasted to EUROSONIC's 45.000 emails newsletter recipients.



*Fig.6 EVERYWH2ERE at "Future of Festivals" panel at EUROSONIC 2019*

### ***Description of Prague Event – April 2019***

In April 2019 EVERYWH2ERE's Stefano Barberis (RINA-C), Holger Jan Schmidt (D! / Green Music Initiative) and Jacob Bilabel (D1 / Green Music Initiative) took part in the annual meeting of Green Operations Europe in Prague. Stefano Barberis gave a **presentation** of the EVERYWH2ERE project and took part in a **panel** on energy for events hosted by Jacob Bilabel. The meeting was attended by 25 participants coming from music festivals like EXIT (Serbia), Pohoda (SL), Nouvelle Prague (CZ) Shambala (UK), St. Gallen Festival (CH), Lollapalooza (DE) and orthers.

A smaller version of the **H2 Corner** was setup as part of the meeting.



*Fig.7 Stefano Barberis giving EVERYWH2ERE presentation*



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.



## *Presentation of EVERYWH2ERE project at International Film Festival in Cannes – May 2019*

In May 2019 EVERYWH2ERE coordinators Stefano Barberis and Stefania Marongiu (RINA-C), presented EVERYWH2ERE project. Stefano Barberis participated at the panel discussion on Green Film production in order to promote sustainable movie production and shooting.

In the panel discussion, film producers and film fund managers discussed the green ways they want to take to decarbonize film shooting where also Fuel Cell and hydrogen can play a relevant role.



*Fig.8 Stefano Barberis at the “Green Film Shooting – Sustainability in Action” Panel Discussion*

During this event, various European experts coming from movie production agencies and film commissions exchanged their experience with sustainable Film/TV production and green cinema.

Sustainable initiatives, projects and actions have taken root throughout the world since the first green seeds were sown in the film industry and filmmakers now understand that environmentally-friendly production is not rocket science. And European productions followed “Green Film shooting” best practices similar to those one promoted in Steven Spielberg’s Hollywood movie “The Post” did.

The panel took place at the Italian Pavilion, Hotel Le Majestic – Salon Marta, Boulevard de la Croisette, Cannes, on May 17 2019.

Such event has been a relevant opportunity for EVERYWH2ERE not only to disseminate the project in a very important international symposium, but also to understand what could be the effective interest of film shooting industry on the use of FC gensets, having the opportunity to interact with National and Regional Film Commission thereby present, film producers and other type of sustainability consultants (Maybe more oriented on waste reduction aspects etc.)

## **2. CREATION OF A FAQ DOCUMENT**

The FAQ section was implemented mainly to:

1. Facilitate the engagement of demosites from non-technical group as music festival organizers
2. Facilitate Regions&Cities engagement to EVERYWH2ERE group



*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.*



3. Provide more information and facilitate the understanding during dissemination event

Here below the structure of such document is presented.

The document is also available on project website to facilitate the engagement and promotion (<http://www.everywh2ere.eu/regions-and-cities-interest-group> )

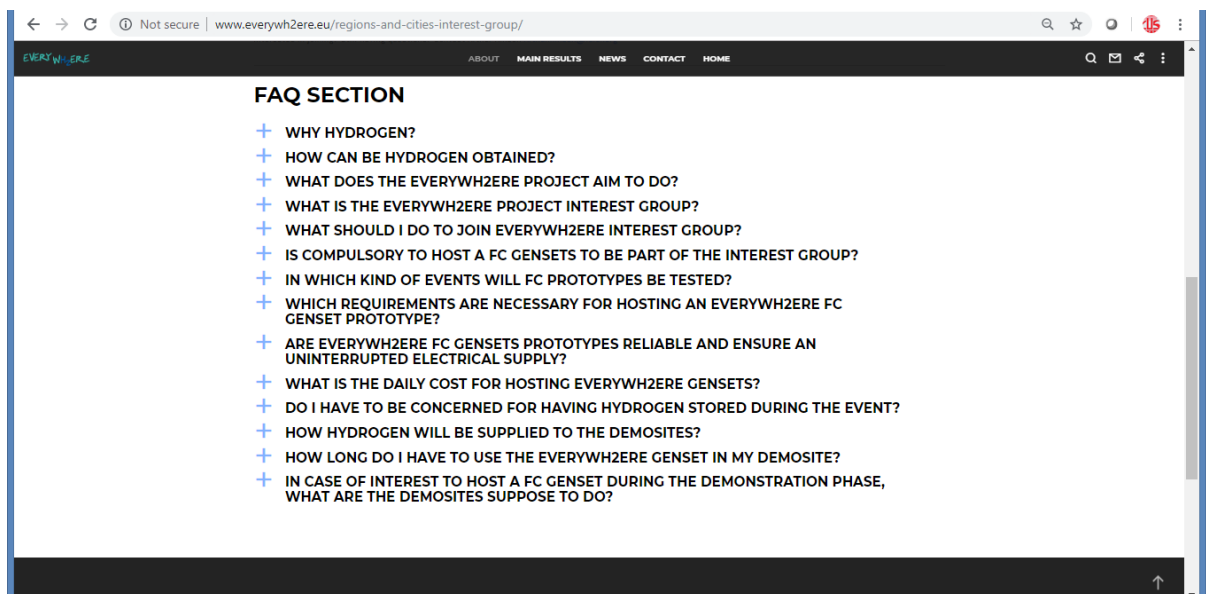


Fig.9 FAQ Section on EVERYWH2ERE project website

**a) 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 (H<sub>2</sub>O). 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.

**b) 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 CO<sub>2</sub> 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.

**c) 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.

**d) 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.

**e) 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 signing out the letter of engagement.

**f) 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.

**g) 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.

**h) 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 demsites.

**i) 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.







***j) 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.

***k) 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.

***l) How hydrogen will be supplied to the demosites?***

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.

***m) 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.

***n) In case of interest to host a FC Genset during the demonstration phase, what are the demosites 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.

### **3. CREATION OF AN OFFERING BROCHURE**

Similarly to the EVERYWH2ERE FAQ SECTION, the project public presentation was used as starting point to create a Brochure to facilitate the demonstration sites engagement and attract stakeholders. The brochure was designed to attract demosites (presenting the “EVERYWH2ERE offering” presented in D6.1) and participants to the Region and Cities Group, but it would be adapted also for other stakeholders group.

The brochure is available at <http://www.everywh2ere.eu/wp-content/uploads/2019/06/EVERYWH2ERE.pdf>.





#### 4. PRESENTATION OF DEMO QUESTIONNAIRE AND LoC

In order to collect relevant insights from demosites and plan demonstration campaign (details presented also in D6.1 and WP4), a questionnaire and a letter of Commitment (ANNEX 1 and 2) has been realized to gather information from their side. Both documents have been circulated and presented during demonstration engagement events (i.e. Prague, Cologne).

#### 5. VISIT ON THE FIELD

Another relevant way to collect relevant outcomes from EVERYWH2ERE stakeholders is to visit “on the field” temporary events/music festivals organizers who already showed interest to the project.

In June 2019 ENVI visited KappaFuturFestival premises and location, not only to gather relevant inputs about the management of temporary power generation in music festival but also to formalize the engagement of such event as first demonstration opportunity in EVERYWH2ERE demonstration campaign. ENVI, RINA-C and GENP was also invited to visit Wacken Festival (Germany) premises in August to setup demonstration in their premises as well.

The visit of KappaFuturFestival premises has been a relevant opportunity to see that generators with different powers are normally used, starting from small for a few tens of kW up to 500 kW, according to the various electric utilities to be served. It has been the opportunity to better understand which kind of services could be provided by EVERYWH2ERE gensets on the field.

Below an example of generators in KappaFuturFestival (total power installed 3 MW):

- main stage generators (500kW)
- generators for gates and registers (32 kW)
- bar, ordinary lights and emergency, bar supply, container power supplies (115 kW)
- ordinary lights, emergency gazebo food, emergency gazebo bar, fridge and ice tray area, staplers (115 kW)

In this kind of event power capacity redundancy is promoted to guarantee safe and reliable power on the stages, but not in the block of services.

Furthermore several light towers are installed all around festival area (2 kW each).



*Figure 9. Gensets installation during the KappaFuturFestival (Turin\_Parco Dora 6-7th July 2018).*





Also permitting aspects have been discussed and analysed with KappaFuturFestival organizers. For the treatment of fuel systems for powering the generators it is necessary to refer to the Circular M.I.S.A. n. 31 of 31 August 1978, which defines the specific installation equipment and rules according to the type of fuel used by the generating set, dividing the installations into two categories:

- generators powered by liquid fuel (diesel or fuel oil);
- gensets powered by gas (methane or LPG).

The diesel engine is very reliable and can work without problems for several hours, so this kind of generators is used during events, moreover even if it is flammable, it does not explode: this allows you to store it without fear in tanks to have the stock when the generator's tank empties.

Here below some example of diesel gensets and their technical characteristics:

- 500 KVA - CAT XQP500 (Figure 2), weight 6879 kg, diesel tank 965 l, frequency 50/60 Hz;
- 33 KVA – CAT, power 26.4 kW, weight 900 kg, width 0.9 mt, Length 1.9 mt, height 1.5 mt, diesel tank 110 l, consumption 5.4 l/h
- 150 KVA - CAT XQP150, power 120 kW, weight 95615 kg, width 3.52 mt, Length 2.226 mt, height 1.120 mt, diesel tank 590 l, frequency 50/60 Hz;



Figure 10 - Genset 500 KVA - CAT XQP500 from CGT (another EVERYWH2ERE stakeholder)

## 2.2 EVERYWH2ERE – Regions & City Interest Group

The scope of the Regions & City Interest Group in the framework of the EVERYWH2ERE project and the work implemented so far can be outlined by the following exemplifying elements:

### **LAUNCHING EVENT**

The EVERYWH2ERE Regions & City Interest Group was launched during the workshop “Upscaling Hydrogen Gensets in European Cities”. At the same time information was gathered about the relevance to the policy replication guide as well as to get a better understanding of the context for potential demosites. Attendees were invited to discuss, in an open World Café the following questions:

- Can hydrogen gensets be a viable alternative to diesel generators in urban temporary events?



- Can public tendering be an effective option for encouraging hydrogen gensets?
- Is data related to emissions from temporary gensets readily accessible and what is to gain from measuring such data?
- Would it be possible, according to municipal and regional regulations, to employ hydrogen gensets in EU cities?

Answers to these questions will be fed into the Workshop Report (M48) and the Policy Replication Guide (“City policies and regulatory framework for the support of the spreading of EVERYWH2ERE FC gensets” - M60) respectively.

The workshop, moderated by city network and EVERYWH2ERE partner ICLEI Europe explored the necessary regulatory framework for enabling an uptake of hydrogen-based generator sets (gensets) in cities for use in temporary events such as construction sites, music festivals and other public events. Not only have participants been able to reflect on their local circumstances in relation to other regions and cities, a keynote by the European Commission’s Vicente Franco of DG Environment has put hydrogen gensets in context with EU Clean Air Policy and highlighted the importance of strong cooperation across all levels of government and the scientific and industrial community.

Panellists from the city of Oslo (NO), DG ENVE, Hydrogen Europe and the Region of Aragon (ES) concluded on the EVERYWH2ERE hydrogen gensets as a highly interesting option for cities, regions and companies alike to reduce their emissions despite the higher initial investment costs. Next to operating zero-emission and zero-noise, the gensets are a quick to implement technology with high public visibility specifically useful for showcasing local and regional sustainability ambitions.

Local and regional regulation, such as public tendering and procurement, are a powerful tool to accelerate the transition to non-diesel generator sets. This can be seen in Oslo where the city motivates the construction sector to apply zero-emission solutions, but also encourages other cities through international city networks such as ICLEI. By implementing beneficial policies and by establishing clear targets regarding air quality and emission reduction, cities are providing signals to the private sector that clean solutions are encouraged and that the necessary regulation will be in place. This is especially important considering the initial higher investment cost of hydrogen gensets compared to diesel-based generators. Political vision therefore prepares and incentivises investment.

However, it might not always be a matter of incentivising the private sector as existing red tape and complicated permitting procedures are often hindering efficient installations of hydrogen-based technologies in the city area. A lack of finance and capacity often stands in the way of local and regional authorities acting as a facilitator and for bringing different stakeholders together. The importance of facilitation was demonstrated by the example of the Aragon Hydrogen Foundation which has been set up by the regional government and brings together more than 70 members key to the regional economy ranging from industry, consulting, public administrations and associations to promote the use of hydrogen on a regional level and to provide policy and technological solutions alike.



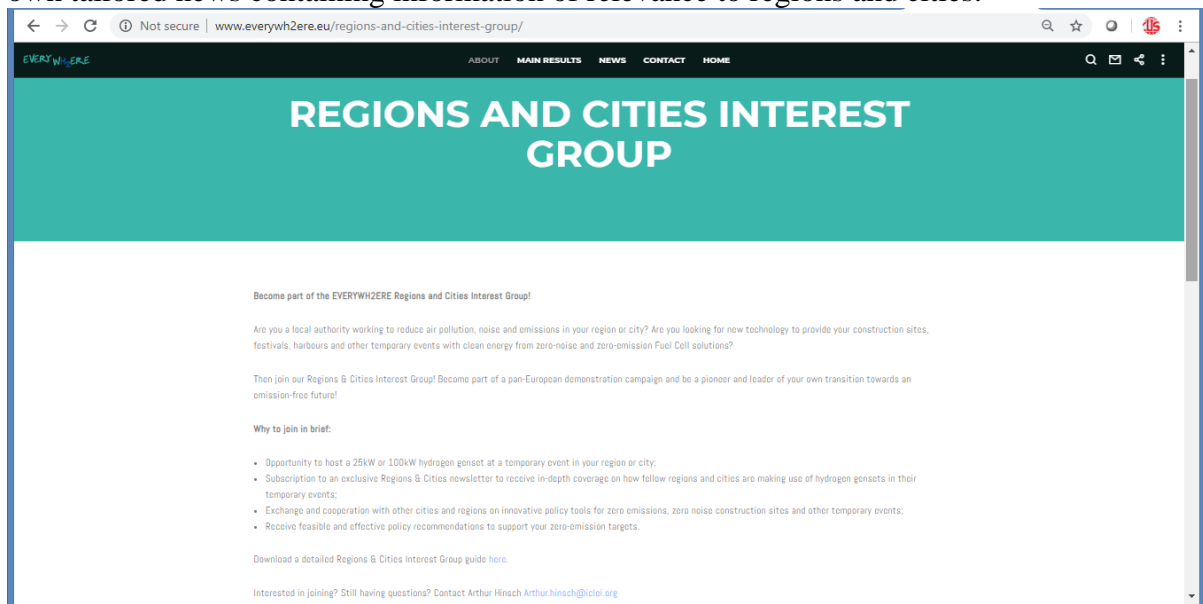


### ***BILATERAL INTERACTION***

Bilateral interaction happens primary within the framework of the Regions & Cities Interest Group. At this stage, ICLEI ES is promoting the project among cities to understand which regions and cities would be willing to host a genset (in municipal construction sites and temporary event in particular).

### ***DIGITAL INFORMATION***

More potential members of the Regions & Cities Interest Group will be also invited via a dedicated section on the website that has been developed. The Interest Group will receive its own tailored news containing information of relevance to regions and cities.



*Fig.10 Regions and Cities Interest Group on EVERYWH2ERE project website*

### ***EXPRESSION OF INTEREST***

Both on the project website as well as through bilateral conversations, regions and cities are being made aware of the EVERYWH2ERE Regions & City Interest Group. An Expression of Interest (EoI) has been created to formalise the engagement and facilitate the potentially hosting of a genset. The EoI gives an overview of what the Interest Group entails:

- The opportunity to explore hosting an either 25kW, or 100kW hydrogen genset at a temporary event in your region or city;
- 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 policy tools for zero emissions, zero noise construction sites and other temporary events;
- Receive feasible and effective policy recommendations to support your zero-emission targets.







Currently, the current cities expressed their interested via the official EVERYWH2ERE EoIs

- Steinfurt County, Germany
- Kozani Municipality, Greece
- Turin Municipality, Italy

## 2.3 Industrial EVERYWH2ERE Stakeholders Group

The scope of the Industrial stakeholders group is to collect from relevant business actors inputs to drive design (WP1), demonstration and testing (WP4) and marketability (WP6) analysis. Logistics analysis would also benefit from gensets rental companies knowledge in terms of cost and transport permitting evaluation.

Industrial stakeholders have been engaged via a dedicated Letter of Support (ANNEX 3).

Here below industrial stakeholders who interacted so far with EVERYWH2ERE team are presented. Nevertheless it is worthy to highlight that in such analysis there is no mentioning of Construction companies, even if they could be a relevant stakeholders to interact with.

In this moment RINA-C had a preliminary interaction with Green Building Council of Romania which could be a relevant partner to engage some construction sites as further demonstration sites as well as to enlarge EVERYWH2ERE market interest to Eastern Europe.

In order to promote more EVERYWH2ERE in Construction sector symposia, RINA-C will capitalize its role in ECTP to present the project and engage some interested stakeholders.

### 2.3.1 Interaction with stakeholders coming from Gensets rental companies sector

CGT ENERGIA (Italian branch of worldwide diesel genset manufacturing leader CATERPILLAR) has been one of the most interactive EVERYWH2ERE stakeholders since M6 thanks to the strategic relationship that GENP established with them.

GENP, FRIEM and RINA-C participated to such meetings with CGT for different purposes related to WP1, WP2, WP3, WP4, WP6.

The goals of such interaction are indeed multiple:

- Understand how diesel gensets are designed, operated, managed in terms of permitting (also considering their rental services and operational expertise)
- Understand current rental contractual arrangements, typical value proposition and start from this information to create a proper one for EVERYWH2ERE genset to promote them via an innovative, but consolidated business model
- Promote zero emission genset in CGT fleet also to cooperate with them for demonstration campaign purposes.

CGT always demonstrated a strong collaboration, putting EVERYWH2ERE in contact with local technicians and commissioning/management of rental services experts. It is also worthy to underline that interaction with CGT has the goal of a mutual benefit collaboration whose





details are expressed in bullet points here below (outcomes of several meetings in November 2018, December 2018 and July 2019).

### **CGT interest in EVERYWH2ERE product/technologies:**

1. Deployment and demonstration of Fuel Cell Genset
  - a. Advantages of green solution (diesel free) to provide energy
  - b. Combination with Diesel Gensets (DG) to manage 24h load with fluctuating power profile
  - c. Promotion of FC Gensets among CGT customers for EVERYWH2ERE demonstration campaign

### **EVERYWH2ERE interest in CGT product/technologies:**

1. Visual inspection of DG in the range 150kVA – 1000kVA to collect relevant insights for EVERYWH2ERE Gensets design/manufacturing phase
  - a. Socket configuration
  - b. Electric protection and safety
  - c. User interface
  - d. Grounding
2. Operation aspects to collect relevant insights for EVERYWH2ERE demo campaign
  - a. Commissioning, startup, run, shutdown (How the end user interact with the DG)
  - b. Emergency stop
3. Performance analysis and how to test gensets
  - a. Load ramp capability
  - b. DC sizing according to the load
  - c. Testing/validation procedures





Fig.11 CGT headquarters and testing facilities in Vimodrone



Fig. 12 Visit on 25<sup>th</sup> July by FRIEM and GENP

### 2.3.2 Interaction with stakeholders coming from Energy utility and temporary power services provider sector

On the 17<sup>th</sup> July 2019 RINA-C organized a meeting at its premises with ENGIE Hydrogen Unit to share knowledge and outcomes from EVERYWH2ERE project and ENGIE internal R&D project named HYGEN.

The meeting took place in RINA headquarters in Genova with ENGIE Delegates coming from Hydrogen Unit from France (Arthur Baux, Guillaume Rombaur ) and ENGIE EPS division from Italy (Stefania Remonda). On behalf of EVERYWH2ERE consortium, further than the coordinator, MAHY colleagues participated physically to the event, while ENVI, FHA, GENP delegates participated via web meeting.

The meeting can be considered as a follow up of interactions (Telcos, mail exchange) between ENGIE and EVERYWH2ERE consortium which took place in the previous months following first point of contact happened during EVERYWH2ERE Music Festival Launching event in Cologne in August 2018, where ENGIE was invited as stakeholder to make a speech at C/O POP convention.

Here below some minutes of such meeting and further potential interactions are briefly introduced:

#### ***EVERYWH2ERE PRESENTATION AND POINT OF CONTACT WITH ENGIE ACTIVITES***

RINA-C presented EVERYWH2ERE Project, its goals and objectives and goal with a focus on demonstration campaign and outcomes of the project further than gensets. ENGIE was interested by environmental analysis and logistic analysis outcomes, as well as permitting/regulatory





analysis outcomes. ENGIE could come back with technical punctual questions to the different partner according to their role.

### ***ENGIE HYGEN and HYDROGEN TRANSITION AGENDA PRESENTATION AND POINT OF CONTACT WITHEVERYWH2ERE***

ENGIE presented its hydrogen transition agenda, its business related to hydrogen and the specifics of HYGEN project. So far ENGIE has tested gensets with lower capacity than EVERYWH2ERE (max 5 KW). The goal of ENGIE is not to realize its own gensets but to promote external partners technologies to its customers which ask for CLEAN TEMPORARY POWER. ENGIE has several customers interested to hydrogen temporary generation and ENGIE has already some agreements with some organizations/cities/association to use and promote them. In this moment ENGIE is scouting for technologies. In this sense it could be interesting to evaluate how to make project partners potential future suppliers for ENGIE for the different role/services/technologies that the partners promote in the project.

### ***EXCHANGE AROUND TECHNICAL ASPECTS***

RINA-C presented EVERYWH2ERE genset main features while MAHYTEC presented its tanks and temporary solutions. The aspects related to: operating lifetime predicted, refuelling, choice of operating pressure of the H<sub>2</sub> tanks and plugs/interaction with technicians has been required by ENGIE.

### ***PERMITTING AND ACCEPTANCE – ENVIRONMENT PARK PRESENTATION ABOUT REGULATION ASPECTS***

ENVI presented EVERYWH2ERE analysis of the permitting and regulation campaign. From the regulatory point of view the situation is clear and easy to align/comply with only for the design of the genset. EVERYWH2ERE gensets are designed under compliancy of a precise technical normative framework. There are uncertainties on the operation and refuelling of the gensets/tanks, which are still under authorization of local fire department.

### ***DEMONSTRATION CAMPAIGN***

EVERYWH2ERE presented its demonstration campaign and its demonstration offering/availability. As discussed the demo campaign will start from summer 2020. In summer periods the gensets are mostly dedicated to festivals and events. The rest of the time of the year gensets could be used. ENGIE would be interested to use EVERYWH2ERE fleet in this sense and cover both H<sub>2</sub> and transport costs. There won't be any rental fee (€/day) for the gensets from EVERYWH2ERE to ENGIE. Generically speaking EVERYWH2ERE is interested to collect insights from ENGIE about the following:

- sport events insights and to be put in contact with such event organizer (additional stakeholders with whom EVERYWH2ERE has not interacted so far)





- how ENGIE sell energy via gensets (no clients directly from the rental companies)

ENGIE will think about how to participate in the demonstration campaign (with RES based hydrogen) and will come back to EVERYWH2ERE Consortium soon. This can facilitate ENGIE testing of hydrogen gensets and also think about them beyond project end.

Via its "City and Regions Group" and thanks to the support of ICLEI ES, EVERYWH2ERE is also collecting interest from Cities around EU: ICLEI ES would be glad to have a talk with ENGIE about cities' opportunities also capitalizing mutual contacts.

## **MARKETS AND ECONOMICS**

ENGIE presented its scouting in terms of accepted cost for hydrogen gensets from its customers. A LCOE of 1-1,20 €/kWh seems something still acceptable from customers and reachable by hydrogen gensets. ENGIE would be interested to be updated about EVERYWH2ERE WP4/WP5/WP6 analysis and receive support about how to promote hydrogen transition and have a market/regulatory assessment for the different EU markets.

### **2.4 Outcomes from other institutional FCH JU event where relevant stakeholders' inputs have been collected**

EVERYWH2ERE Partners are actively participating to FCH JU workshops related to regulation for mostly two reasons: 1) provide their relevant feedback/knowledge about the regulation and permitting aspects related to the use/transport/design/installation of FC gensets in temporary events and construction sites (D1.6-D6.1) which are driving design, manufacturing and demonstration phase, 2) share knowledge with EU stakeholders and promote the project among them, not only for a scientific/H2020 interaction purpose, but also for a commercial interest.

HyLAW project organized a RCSs Workshop on 25<sup>th</sup> of October 2018 in Milan (ENVI participated).

This workshop has been the opportunity to create a first point of contact with the HYLAW Italian partners and share the current outcomes:

- Lack on homogenous regulations on H2 technologies, installation and storage or specific involvement of fire fighters. If we look on HyLAW project there are regulatory gap in different EU countries and in any case the processes to obtain authorization and permits are so long to include create difficulty in the technology penetration on the market. Processes to have permits are not uniform throughout the country, so the time to obtain the permits.
- HyLAW did not analyze the regulation for the use of FCH technologies in temporary events use, but issues related to the transport of H2 in cylinders and tube trailers and stationary storage have been relevant for EVERYWH2ERE
- Currently EU does not currently regulate emissions from stationary diesel gensets in the power size of EVERYWH2ERE generator (NNRM directive – Stage V - 2016 can be applied only to above 560 kW gensets) thus not promoting the effective promotion of





low size gensets that are often used by private owners (like booth owners in fairs and temporary events) or by events/application that do not require big power.

The 25th of June 2019 FCH JU organised a workshop to discuss RCS barriers and challenges within the FCH technologies, supported by the JRC, as part of the activities of the Regulations, Codes and Standards Strategy Coordination Group (RCS SCG).

The objective of the workshop was to share experiences and to give an overview of any RCS gaps identified during the running of the on-going H2020 FCH JU funded projects (e.g., permitting process, certification issues, lack of standards, etc.) as there is a wealth of experience that has been gained during the implementation of demonstration projects. This is of critical importance to the setting of priorities in future research, standardisation and certification efforts, however the lessons learned are not always available as public project deliverable.

An outcome of the workshop will be a short public report, summarising the discussion, and containing recommendations for future RCS related activities of the FCH JU.

In addition, hydrogen safety aspects were discussed together to members of the European Hydrogen Safety Panel (EHSP). The EHSP provided an overview of their support at project level, and the status and objectives of the two hydrogen safety databases, HIAD and HELLEN presented by JRC. A discussion on how the interaction between projects and the safety panel can be set up in the best manner was held, and how the information in the safety databases can benefit safety culture.

In ANNEX 4 of this document the PowerPoint presentation is presented.

### ***Outcomes from FCH JU REGIONS AND CITIES INITIATIVE EVENTS***

During the FCH JU Regions & Cities Initiative Meeting, the EVERYWH2ERE Regions & Cities Interest Group was presented to members of the initiative. In addition to presenting the project and the gensets, this opportunity was also used to invite attendees to the workshop “Upscaling Hydrogen Gensets in European Cities”. Interest in the workshop as well as in the Interest Group were key outcomes of that presentation.





### 3. Next Steps and Interviews plan towards Demonstration (M36) and business analysis Campaign (M54)

EVERYWH2ERE team collected so far insights from the stakeholders to drive the design campaign (WP1), disseminate the project (WP7) and engage potential demosite (WP4).

In this moment we are currently foreseeing two round of stakeholders activities:

- One strongly related to demonstration: understanding better regulatory and permitting aspects, understanding the interest of potential end-users for a demo campaign, acceptable tariffs for renting a FC genset etc (between M18 and M36)
- One strongly related to business analysis and project beyond strategy, capitalizing and promoting first demonstration results (M36-M54)

Please describe now goals and targets per each type of stakeholders group to understand which type of info we'd like to collect for the main two next phases of the project.

In this moment EVERYWH2ERE consortium targets to collect inputs within the end of the project from at least:

- 10 Members from FESTIVAL/TEMPORARY EVENTS Stakeholders group
- 10 Members from City and regions stakeholders group
- 10 Members from Industrial stakeholders group

#### 3.1 Demonstration interested Stakeholders

The involvement of Event Organizers as described in D1.5 (Temporary Events and Music Festivals demonstration calendar) will be intensified over the next months with the aim to collect basic event data through a survey (see D1.5 Annex 1) and signed Letters of Commitment (LoCs) helping to initiate the DEMONSTRATION phase (M30).

This goal will be reached through ongoing promotional activities like the ones described in 2.1, additional mailouts to potential demosite partners which expressed interest through sending in their Letters of Interest and intensified use of established communication channels like Facebook, Twitter and newsletters.

Potential demosite partners which are agreed upon by Consortium will be contacted bilaterally by the responsible consortium member to initiate the DEMONSTRATION phase (M30).

#### 3.2 EVERYWH2ERE Regions & Cities Interest Group

With regard to stakeholder outreach and input collection, the priority in the next months will lie with inviting more members to the Regions & Cities Interest Group. It is expected that recruitment in the Interest Group will entail at least one phone conversation per prospective member as well as follow-up via email. Once a significant number of members (more than 10)





has been achieved and the demonstration phase has kicked off, the Interest Group will feature a dedicated newsletter to inform members of experiences with genset hosting as well as relevant policy information.

For those members which have voiced their concrete interest in hosting a genset, the demo site questionnaire will be shared and relevant data acquired. It is expected that communication with those members will also include consortium partners.

It is foreseen that smaller additional events will be organised, possibly in cooperation with members, around the policy framework for hydrogen gensets. This will become more concrete in the coming months.

### **3.3 Industrial EVERYWH2ERE Stakeholders Group**

In the next months, priority will be given to establish contacts with

- FCH Technology manufacturer: to collect other relevant expertise of FCH technology manufacturer which are considering to develop temporary power generator in a range of power capacity higher than 10 kW (thus comparable with EVERYWH2ERE one) . One of them will be H2SYS thanks to ENGIE support.
- Gensets rental company: to collect suggestions about the development of innovative “green contracts” to facilitate maybe the acceptance by the market of higher rental costs. These companies will be also interviewed to promote EVERYW2ERE Gensets among their clients for 2020-2021-2022 campaign
- Energy Utilities/DSO: to discuss with them about grid interaction of EVERYWH2ERE gensets and understand what could be potential clients and their wishes and needs.

EVERYWH2ERE team will interact with them via bilateral talks/meetings and maybe also putting them in contact each other.





## 4. Conclusions

This report presented how EVERYWH2ERE Team has benefitted from relevant stakeholders' knowledge and interaction with them since M1.

As a demonstration to market project, EVERYWH2ERE has the main interest to be in constant cooperation and collaboration with business actors and relevant FCH, gensets manufacturers and rental companies towards not only the successful realization of the project but mostly to study the project beyond exploitation strategy.

Stakeholders will be constantly operating in strict contact with the consortium at the purpose to collect relevant insights about demonstration, permitting and regulatory aspects, business models and FCH technologies marketability.

The main goal of EVERYWH2ERE team is in this moment to collect inputs within the end of the project from at least:

- 10 Members from FESTIVAL/TEMPORARY EVENTS Stakeholders group
- 10 Members from City and regions stakeholders group
- 10 Members from Industrial stakeholders group

And they will activate all channels and methodologies presented in previous chapters to achieve this goal.





## A. Annexes

### ANNEX I – Demosite Letter of Commitment

(head paper)

XXX, 201X

From:

\_\_\_\_\_

Please include the name and the role of the person signing the letter

To the kind attention of:  
Mr. Stefano Barberis  
RINA CONSULTING S.p.A.  
Via San Nazaro, 19  
16145 GENOVA (GE)

Dear Mr. Barberis,  
we hereby confirm that \_\_\_\_\_ is interested in being part of the stakeholders' group established within the EVERYWH2ERE European project (FCH-JU/EC Funded Grant Agreement N.779606) focused on the demonstration of FC based gensets in temporary venues and events particularly in urban areas in order to reduce the emission impact of such events.

The project is well in line with the internal priorities of \_\_\_\_\_ that would therefore be very interested in establishing cooperation with the project consortium in case of success of the proposal in reason of the possibility to benefit from the innovative results the project will generate, particularly testing at its premises one of the FC gensets realized within the project fram.

\_\_\_\_\_ is fully available to support the consortium with valuable and experienced insights, hosting demonstration activities and to contribute to empower the future replicability of the demonstrated Fuel Cell genset providing useful legislative, technical and economic data to enable the assessment of the replication potential in our context.

Best regards,

DATE  
SIGNATURE



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.





## ANNEX II – Questionnaire to understand demositest interest

# QUESTIONNAIRE – DEMONSTRATION EVENTS

Project EVERYWH2ERE (Making Hydrogen affordable to sustainably operate Everywhere in European cities) GA n. 779606

### GENERAL INFORMATIONS

TYPE OF EVENT (music, cultural..)	
NAME OF THE EVENT	
EVENT WEBSITE	
DATES	2020: 2021: 2022:
DURATION (days)	
N. of participants	
EVENT ORGANISER	Company name: Website:
CONTACT PERSON	Name, surname: Email: Phone:
PLEASE BRIEFLY DESCRIBE EVENT CURRENT INITIATIVE RELATED TO ENERGY SUSTAINABILITY	
ELECTRICITY SUPPLY TO THE VENUE	Direct Connection to the electrical grid YES - NO Via Genset YES – NO
Who is in charge of the gensets rent?	
Which kind of genset do you usually rent?	
GENSET PROVIDER	Name: Website: Contact person: Email: Phone:
GENSET PURPOSE (off-grid, backup etc.)	







## TECHNICAL INFORMATIONS

Who is in charge of design, permitting and safety issues of genset installation at event venue?	
Where do you usually install gensets? How far are they to “main stage/village etc.” and crowded areas?	
How long does it usually take the gensets installation and dis-installation phases?	
TOTAL INSTALLED POWER	
GENSET NUMBERS AND POWER	
Estimated usage profile	
Consumption measurement	
RENTAL/ENERGY SUPPLY COSTS	
FUEL CONSUMPTION/COSTS	
IS YOUR EVENT EASY TO BE REACHED BY TRUCKS PROVIDING FUEL?	
WHICH TYPE OF PROBLEMS/FAILURES DID YOU EXPERIENCE FOR WHAT IT CONCERNS POWER SUPPLY TO YOUR EVENT?	





*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.*



## ANNEX III – Letter of Engagement Industrial Stakeholder

(head paper)

XXX, 201X

From:

\_\_\_\_\_

Please include the name and the role of the person signing the letter

To the kind attention of:  
Mr. Stefano Barberis  
RINA CONSULTING S.p.A.  
Via San Nazaro, 19  
16145 GENOVA (GE)

Dear Mr. Barberis,  
we hereby confirm that \_\_\_\_\_ is interested in being part of the stakeholders' group established within the EVERYWH2ERE European project (FCH-JU/EC Funded Grant Agreement N.779606) focused on the demonstration of FC based gensets in temporary venues and events particularly in urban areas in order to reduce the emission impact of such events.

The project is well in line with the internal priorities of \_\_\_\_\_ that would therefore be very interested in establishing cooperation with the project consortium in case of success of the proposal in reason of the possibility to benefit from the innovative results the project will generate, particularly testing at its premises one of the FC gensets realized within the project fram.

\_\_\_\_\_ is fully available to support the consortium with valuable and experienced insights and to contribute to empower the future replicability of the demonstrated Fuel Cell genset providing useful legislative, technical and economic data to enable the assessment of the replication potential in our context.

Best regards,

DATE  
SIGNATURE



*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.*



## ANNEX IV – EVERYWH2ERE Presentation at FCH JU RCS Workshop

Making Hydrogen affordable to sustainably operate EVERYWH2ERE in European Cities



**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 the urban environment. Fuel cell (FC) can easily replace these technologies as a 0 noise and 0 emission solution for temporary energy generation. The main objective of EVERYWH2ERE project is to demonstrate at TRLB easy to transport plug and play FC gensets. Demonstration results will be capitalized for replication, business model, environmental and logistic analysis.

2018 2023

**PROJECT PARTNERS**

**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.

Making Hydrogen affordable to sustainably operate EVERYWH2ERE in European Cities



European cities can become living lab for the demonstration of FC and H2 technologies, starting from their use in niche, but everyday applications such as temporary gensets that are used in construction sites, music festivals and temporary events.

EVERYWH2ERE project will integrate already demonstrated robust PEMFC stacks and low weight intrinsically safe pressurized hydrogen technologies into easy to install, easy to transport FC based transportable gensets. B FC containered plug and play gensets (4x25 kW + 4x100 kW) to be tested in construction sites, music festivals and urban public events all around Europe.

**EVERYWH2ERE MAIN ACTIVITIES**

- Design, engineering, realization and industrial lab validation of FC equipped gensets
- Demonstration campaign all around EU
- Three replicability studies for the use of the gensets in new contexts (ports, emergency sites...)
- Identification of further steps (certification, marketing, performance enhancements...) towards a prompt marketability of EVERYWH2ERE gensets and promotion of them via a E-Handbook
- A detailed business, logistic and environmental analysis (Support Tool)
- Strong dissemination and stakeholders' engagement campaign (city, event industry ecc.)

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.



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.



Making Hydrogen affordable to sustainably operate EVERYWHERE in European Cities



**TWOBOXES SOLUTION:**

- H2 tanks @350 bar (TPED directive, EN 12245); 19-57kg
- FCPS 10 ft ISO-container/ATEX

**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.

Making Hydrogen affordable to sustainably operate EVERYWHERE in European Cities



**FCPS COMPLY WITH STANDARDS AND CODES: ISO CEN**

Standard and regulations	
	Q25 system      100 system
FC-SuSy	Prototype, designed to be compliant with IEC 62282-5-100:2018
Power Converters	Prototype, designed to be compliant with IEC 62109-1-2 IEC 61000-6-2 IEC 61000-6-4 2004/108/EC 2006/95/EC
Socket	IEC 309
Fuel Cell - General	IEC 62282 Directive 2014/68/EU – Pressure Equipment Directive Directive 2014/34/EU Explosive Atmosphere Directives
Hydrogen System - General	2006/42/EC – Machinery Directive Regulation (EU) 2016/426 – Gas Appliances Directive EN 60079-14:2003 EN 60079-17:2003
Safety Distances	ISO TR 15916 – Basic Considerations for the Safety of Hydrogen Systems IGC 75/01/E/rev Determination of Safety Distances EU IGC 15/06/E, Gaseous Hydrogen Stations

**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.







Making Hydrogen affordable to sustainably operate EVERYWH2ERE in European Cities



**H2-storage COMPLY WITH STANDARDS AND CODES: ISO CEN**

Standard and regulations		
	025 system	100 system
Tank certification	NF EN 12245 / TPED regulation	
Hydrogen Fuel - General	ISO – 14687:1999 Hydrogen Fuel, Product Specification	
	ISO/TS 14687-2:2008 Hydrogen Fuel, Product specification, Part 2: Proton exchange membrane (PEM) fuel cell applications for road vehicles	
	ISO – 36110 - 1 Hydrogen Generators using fuel processing technologies. Part 1: Safety	
Hydrogen Systems Installations - General	IEC 61779-1 to 5 - Electrical Apparatus for the Detection and Measurement of Flammable Gases - Part 1. Gen. Requirements, & Test Methods	
	IEC 60079-29-1 & 2 - Electrical Apparatus for Explosive Gas Atmospheres Part 1 Electrical apparatus for the detection and measurement of flammable gases-General Requirements & Test Methods - Part 2 Electrical apparatus for the detection and measurement of flammable gases-Guide for the selection, installation, use and maintenance	
	IEC 62282-3-3: 2007 - Stationary fuel cell power systems – Installation	

FCH 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

Making Hydrogen affordable to sustainably operate EVERYWH2ERE in European Cities



**H2-storage COMPLY WITH STANDARDS AND CODES: ISO CEN**

	IEC 60079-0 Explosive atmospheres – Part 0: Equipment – General requirements
	EN 60079-10 - Electrical apparatus for explosive gas atmosphere - part 10 classification of hazardous area
	HSE - HSG243 Fuel cells – Understand the hazards, control the risks
	US DOE Regulators' Guide to Permitting Hydrogen Technologies – Overview Module 1 – Permitting Stationary Fuel Cell Installations
Hydrogen Storage	NFPA 853: 2007 - Standard for the Installation of Stationary Fuel Cell Power Plants
	EN ISO 11114-1:1997 Transportable gas cylinders – Compatibility of cylinder and cylinder valve with gas contents – Part 1: Metallic materials
	EN ISO 11114-4:2005 Transportable gas cylinders – Compatibility of cylinder and cylinder valve with gas contents – Part 4: Test methods for selecting metallic materials resistant to hydrogen.
General Hydrogen Safety	EN ISO 11114-4:2005 Transportable gas cylinders – Compatibility of cylinder and cylinder valve with gas contents – Part 4: Test methods for selecting metallic materials resistant to hydrogen
	ISO TR 15916 – Basic Considerations for the Safety of Hydrogen Systems

FCH 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



## Making Hydrogen affordable to sustainably operate EVERYWH2ERE in European Cities



**DEMO REQUIREMENTS**

- The installation of EVERYWH2ERE Gensets will be located outside in the open air.
- NFPA 55 Code directly applicable, legal requirement in US
- Details given to local Fire Authorities
- Compliance with BCGA CP33 (British Compressed Gases Association) → Figure reports the recommended horizontal distance
- Separation distances combining NFPA and BCGA, other Member states regulations under evaluation

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.

## Making Hydrogen affordable to sustainably operate EVERYWH2ERE in European Cities



**PERMITTING PROCESSES INVOLVED**

- Request authorization for temporary shows, for an audience of more than 200 people, it is mandatory to present, at the same time the request for authorization for temporary shows, the request for the technical opinion of the Provincial Supervision Commission, at the Prefecture, for the viability of the facilities and facilities used,
- Temporary occupation of public land (the application must be submitted at least 20 days before the event) in case of outdoor events that take place on public land,
- Authorization for the Environmental Technical Fulfillment Service, in the case of events that take place outdoors and where the use of amplification and musical diffusion systems is planned on public land.

currently FIRE DEPARTMENT are the Regulation/permitting actors that allow gensets installation both for events and constructions sites and they are specifically the authority that is always asked for a consulting when we talk about hydrogen appliances and safety (considering that no common hydrogen regulation exists)

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.





## Making Hydrogen affordable to sustainably operate EVERYWH2ERE in European Cities



### RCS ISSUES ENCOUNTERED

Lack on homogenous regulations on H<sub>2</sub> technologies, installation and storage or specific involvement of fire fighters. If we look on HyLAW project there are regulatory gap in different EU countries and in any case the processes to obtain authorization and permits are so long to include create difficulty in the technology penetration on the market. Processes to have permits are not uniform throughout the country, so the time to obtain the permits.

- HyLAW did not analyze the regulation for temporary events, but some analysis inside of it are useful for the project: transport of H<sub>2</sub> in cylinders and tube trailers and stationary storage.
- currently EU does not currently regulate emissions from stationary diesel gensets in the power size of EVERYWH2ERE generator (NNRM directive - Stage V - 2016 can be applied only to above 560 kW gensets) thus not promoting the effective promotion of low size gensets that are often used by private owners (like booth owners in fairs and temporary events) or by events/application that do not require big power.
- Promoting more sustainable events is becoming more and more common in EU, but even the current normative ISO 2012125 about Event Sustainability Management System doesn't take care into relevant consideration to promote low impact of temporary power supply



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



## Making Hydrogen affordable to sustainably operate EVERYWH2ERE in European Cities



### RCS ISSUES ENCOUNTERED

- Promotion of low emission gensets in construction sites is now encouraged by some EU cities and regional authority (Israel and the Netherlands above all) who are now promoting the introduction of low carbon construction power supply into public tendering as one of the decision making/ranking voices.

The same can be stated for gensets used for prime, peak shaving, load shedding or emergency standby power (so for grid services) where US are a little bit more advanced on this.

Another regulatory barrier to an homogenous and comprehensive promotion of EVERYWH2ERE Gensets in Europe is the fact that for what it concerns installation and handling of low voltage generators a comprehensive EU standard doesn't exist, but there are best practices and standards from National Electric Committees that more or less receive in similar ways the Electric Equipment Directive (EED) supervised by CENELEC.



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



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.





Making Hydrogen affordable to sustainably operate EVERYWH2ERE in European Cities



#### INTERESTED IN RCSs IN DIFFERENT PROJECT PHASES

- Design of the gensets (safety normative for design and intrinsic operational safety)
- Validation Testing
- Transport (How to transport by trucks our genset)
- Operation in Music Festivals/Temporary Events/Construction sites (and how to deal with all phases: arrival on site, installation, operation, maintenance, storage of the genset in a specific area etc.)
- Refueling of the storage (are there any restrictions related to make refueling in the same place of the operation, due to human presence etc. - better refill or full/empty bottles replacement?)



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



*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.*