



## GRASSHOPPER

Grid Assisting Modular Hydrogen PEM Power Plant

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### D8.18: Marketing material

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Fuel Cells and Hydrogen Joint Undertaking (FCH JU),  
now Clean Hydrogen Partnership  
Project 779430



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## Executive Summary

Under Horizon 2020 funding, dissemination activities should be promoted and should be envisaged to reach the scientific community, industry, civil society, policy makers, investors, customers. Dissemination activities, in this case, of GRASSHOPPER project are focused in spreading the project philosophy, objectives, challenges, progress and results outside the consortium of this project.

This public deliverable, D8.18, called “Marketing material” is included for describing the marketing materials produced for GRASSHOPPER project. Due to the restriction caused by the COVID-19 pandemic, it wasn’t possible to organize the workshops foreseen for GRASSHOPPER project and finally an online webinar was organized. Part of the budget allocated to these workshops were finally dedicated for producing different marketing materials to increase the visibility of GRASSHOPPER project.



## Document History

Version	Date	Status	Author	Comment
1.0	06/04/2022	Draft	ABENGOA	
1.1	18/05/2022	Review and Submission	INEA	



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## List of Acronyms and Abbreviations

Abbreviation	Definition
DP	Dissemination Plan
DSM	Demand Side Management
DSO	Distribution System Operators
FCPP	Fuel Cell Power Plant
INEA	Informatizacija Energetika Avtomatizacija
IPR	Intellectual property
JMFC	Johnson Matthey Fuel Cells Limited
MEA	Membrane Electrode Assembly
NFCT	Nedstack Fuel Cell Technology B.V.
P2P	Power to power
Polimi	Politecnico di Milano
RTD	Research and Technological Development
TSO	Transmission System Operator
ZBT	Zentrum für Brennstoffzellen Technik GmbH



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## 1. Introduction

The objective of GRASSHOPPER project is to create a cost-effective, flexible, MW-size FCPP unit based on the learnings from a 100 kW pilot plant design, implementing newly developed stacks and MEA's. This pilot plant is large enough to implement cost savings as well as to validate operation flexibility and grid stabilization capability via fast response. This unit will be validated under a real industrial environment using by-product hydrogen from chlorine production and will be operated continuously for several months for engaging grid support modulation as part of an established on-site Demand Side Management (DSM) programme.

This deliverable (D8.18) is the report which includes the main information concerning the marketing material generated during the project for increasing the GRASSHOPPER's dissemination and visibility. Due to the Covid limitations, the preliminary workshops were replaced by an online webinar. Different materials such as vinyl stickers, leaflets, rollups and videos were generated for encouraging the dissemination of GRASSHOPPER overview and results and GRASSHOPPER 100 kW pilot plant. In addition, the website is improved during the second part of the project for marketing purposes.



## 2. GRASSHOPPER marketing material

### 2.1 GRASSHOPPER 100 kW pilot plant vinyl stickers

The visual identity of the GRASSHOPPER 100 kW pilot plant is also a key point for promoting the project, not only for the numerous visits to the pilot plant in Seville's or Delfzijl testing area but also because of its final location which is close to a Hydrogen Refuelling Station (HRS). It can become key marketing and advertising asset if utilised well. Due to this reason, a vinyl sticker is installed in the container of the pilot plant. The container was decorated with a friendly- visual vinyl which outlines the main ideas of the project. The logos of the partners are showed on one door while on the other, the logos of the financing source (European Union and Fuel Cells and Hydrogen 2 Joint Undertaking, now Clean Hydrogen Partnership) and logos of the advisory board members are also collected.



Figure 1. GRASSHOPPER vinyl stickers

*This project has received funding from the Fuel Cells and Hydrogen 2 Joint Undertaking (now Clean Hydrogen Partnership) under Grant Agreement No 779430. This Joint Undertaking receives support from the European Union's Horizon 2020 Research and Innovation program, Hydrogen Europe and Hydrogen Europe Research.*



## 2.2 GRASSHOPPER leaflet

A total of two types of leaflet were generated as marketing material. The leaflet is a useful format to get across the highlights of the project to the general public and to any specific audience. Over 500 copies were made and were delivered from Abengoa to the all the partners in order to distribute them in events or meetings for encouraging the dissemination of GRASSHOPPER.



Figure 2– GRASSHOPPER leaflets

The first leaflet (Figures 3 and 4) is a general and informative leaflet about the project summarising the objectives, activities, the facts & figures and introducing the Consortium partners, Advisory board members and funding sources. For further collaborations, the contact emails are also included. This first leaflet was updated in order to include also the links to the GRASSHOPPER website and YouTube channel.



### THE FACTS & FIGURES

**Full name:** GRid ASsiSting Modular HydroGen PEM Power Plant

**Acronym:** GRASSHOPPER

**Start date:** 1 January 2018

**Duration:** 36 months

**Total budget:** 4.4 M€

**EC funding:** 4.4 M€

**EC contract:** 779430

**Work packages:**

- WP1:** Coordination (INEA)
- WP2:** Flow field modeling and validation (ZBT)
- WP3:** Realization of improved MEAs with long lifetime and lower costs (Johnson Matthey)
- WP4:** Improved stack design and pilot production (Nedstack)
- WP5:** System modeling and performance optimization (Politecnico di Milano)
- WP6:** Development and validation of modular, low-cost power plant (Abengoa Innovación)
- WP7:** Platform for FCPP to Grid integration (INEA)
- WP8:** Dissemination and exploitation (Abengoa Innovación)

### THE CONSORTIUM

PARTNERS

**ABENGOA**

**INEA**  
Informatics  
Energy  
Automation

**Johnson Matthey**  
Inspiring science. enhancing life.

**Nedstack**  
NEW FUEL CELLS

**POLITECNICO MILANO 1863**

**ZBT**

ADVISORY BOARD

**Nouryon**

**GOFLEX**

**SWW wunsiedel**  
wir bewegen

**Tennet**  
Taking power further

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youtube.com/c/GrasshopperProject

www.grasshopperproject.eu  
info@grasshopperproject.eu

## GRASSHOPPER

Grid Assisting Modular Hydrogen PEM Power Plant

**Next generation of Modular,  
Flexible and Cost Effective  
Fuel Cell Power Plant**

This Project has received funding from the Fuel Cells and Hydrogen 2 Joint Undertaking under the European Union's Horizon 2020 Research and Innovation programme under grant agreement No 779430.

Figure 3– GRASSHOPPER first leaflet page 1

This project has received funding from the Fuel Cells and Hydrogen 2 Joint Undertaking (now Clean Hydrogen Partnership) under Grant Agreement No 779430. This Joint Undertaking receives support from the European Union's Horizon 2020 Research and Innovation program, Hydrogen Europe and Hydrogen Europe Research.

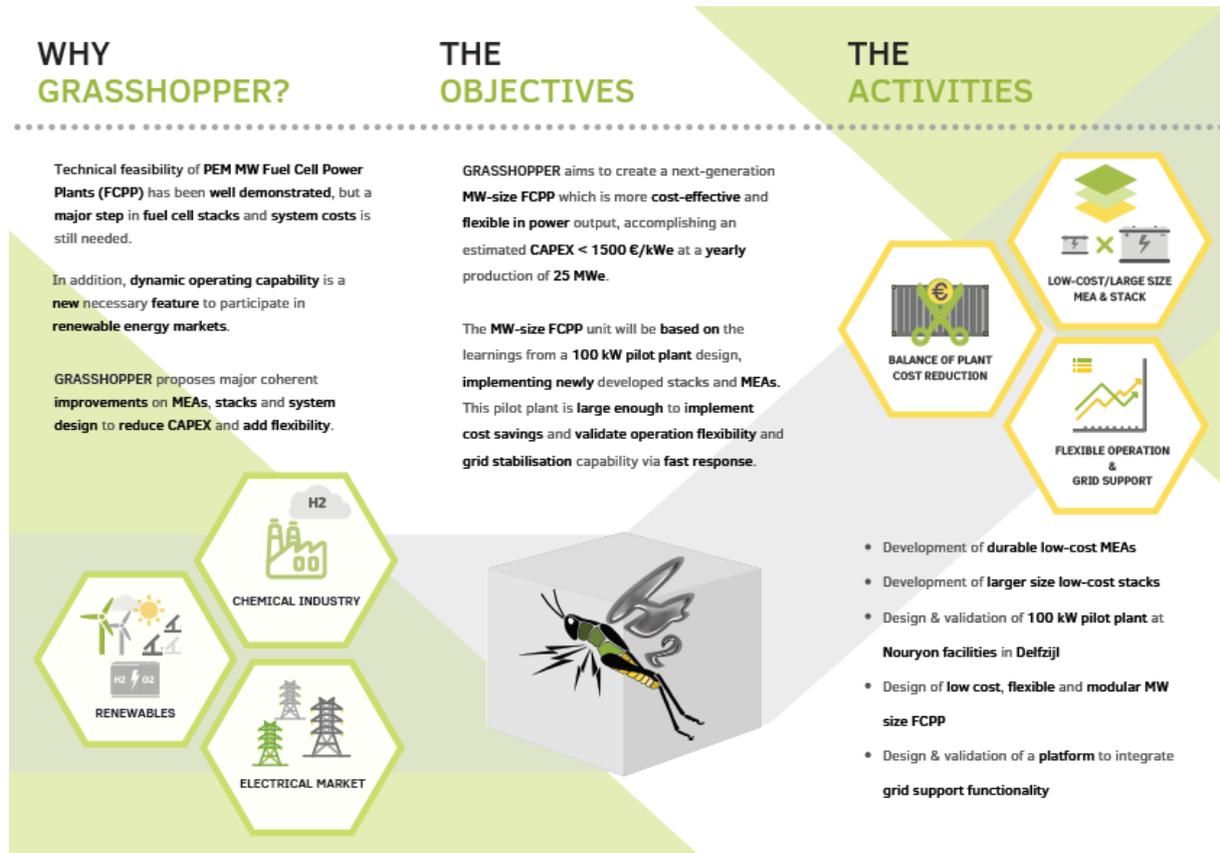


Figure 4– GRASSHOPPER first leaflet page 2

A second leaflet (Figures 5 and 6) was generated once the 100 kW pilot plant was constructed. This last leaflet not only outlines the main systems, key parameters and applications for pilot plant and MW scale sizes but also, it includes a photo of the pilot plant and 3D images.



### APPLICATIONS

Parameter	Pilot Plant / MW scale
Power Range	20-100% of Nominal load
Nominal Power	100 kW / 1-2 MW
Load Change	50% in 20 s Min to Max in 60 s
Start-up time	<15 minutes
Dimensions	20' HC / 40' HC Container
Grid Connection	3x400 V 50 Hz+PNE (Configurable)
Auxiliary consumption	Nitrogen: For inertisation Water: None (only at start) Electricity: <5 kW in standby Cooling for non CHP applications
Heat Power ratio	<1
Heat temperature	65-70°C
Local emissions	None

### THE CONSORTIUM

PARTNERS

**ABENGOA** **INEA** Informatics Energy Automation

**JM Johnson Matthey** Preparing science, enhancing life **Nedstack** www.nedstack.com

**POLITECNICO MILANO 1863** **ZBT**

ADVISORY BOARD

**Nouryon** **GOFLEX**

**SWW wunsiedel wir bewegen** **Tennet** Taking power further

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[youtube.com/c/GrasshopperProject](https://www.youtube.com/c/GrasshopperProject) [www.grasshopperproject.eu](http://www.grasshopperproject.eu)  
info@grasshopperproject.eu

### GRASSHOPPER

Grid Assisting Modular Hydrogen PEM Power Plant

Next Generation of Modular, Flexible and Cost Effective Fuel Cell Power Plant

This Project has received funding from the Fuel Cells and Hydrogen 2 Joint Undertaking under the European Union's Horizon 2020 Research and Innovation programme under grant agreement No 779430

Figure 5– GRASSHOPPER second leaflet page 1

This project has received funding from the Fuel Cells and Hydrogen 2 Joint Undertaking (now Clean Hydrogen Partnership) under Grant Agreement No 779430. This Joint Undertaking receives support from the European Union's Horizon 2020 Research and Innovation program, Hydrogen Europe and Hydrogen Europe Research.

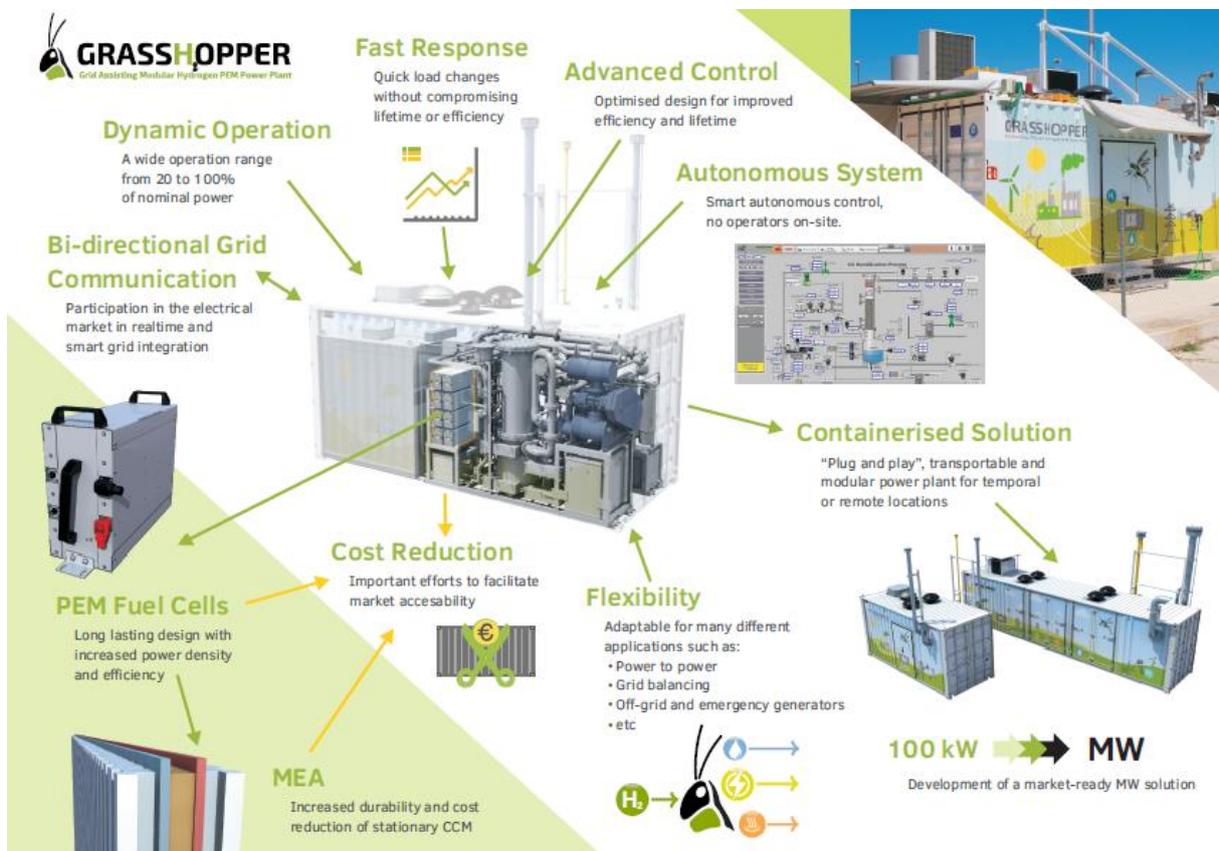


Figure 6– GRASSHOPPER second leaflet page 2

### 2.3 GRASSHOPPER rollup

For the purpose of providing other marketing material in a bigger size, a GRASSHOPPER rollup was produced. This rollup is composed of a canvas, on which the design is printed. There is a self-sustaining object which was used for promoting GRASSHOPPER project at events, specifically, in the visits to GRASSHOPPER 100 kW pilot plant.

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Figure 7–GRASSHOPPER rollup

## 2.4 GRASSHOPPER wall sign

GRASSHOPPER wall sign made from foam board was designed and used for marketing reasons during the visits to the GRASSHOPPER pilot plant.

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Figure 8–GRASSHOPPER wall sign

## 2.5 GRASSHOPPER videos

There were created 6 different videos in the GRASSHOPPER project site in YouTube (<https://www.youtube.com/c/GrasshopperProject/videos>):

- Why GRASSHOPPER? - Project Introduction  
Link: <https://www.youtube.com/watch?v=QIE6vrzxX5k>
- How does the process of a Hydrogen Fuel Cell Power Plant work GRASSHOPPER Project?  
Link: <https://www.youtube.com/watch?v=Z6fh0z1jge8>
- How Hydrogen Fuel Cell Work? - GRASSHOPPER Project  
Link: <https://www.youtube.com/watch?v=SOA0SKql4LE>
- GRASSHOPPER Pilot Plant - Transport to testing facilities  
Link: [https://www.youtube.com/watch?v=J\\_1wJOPfKcs](https://www.youtube.com/watch?v=J_1wJOPfKcs)
- GRASSHOPPER Project - Next Generation of Hydrogen Fuel Cell Power Plant



Link: <https://www.youtube.com/watch?v=CvFyVZUOJJ4>

- Public Webinar - Hydrogen Fuel Cell Power Plants - GRASSHOPPER project

Link: <https://www.youtube.com/watch?v=5mKHnZIR3Ek&t=2844s>

It is remarkable that videos uploaded in YouTube are strong enough for disseminating the project around the world and reaching a wide range of audience.

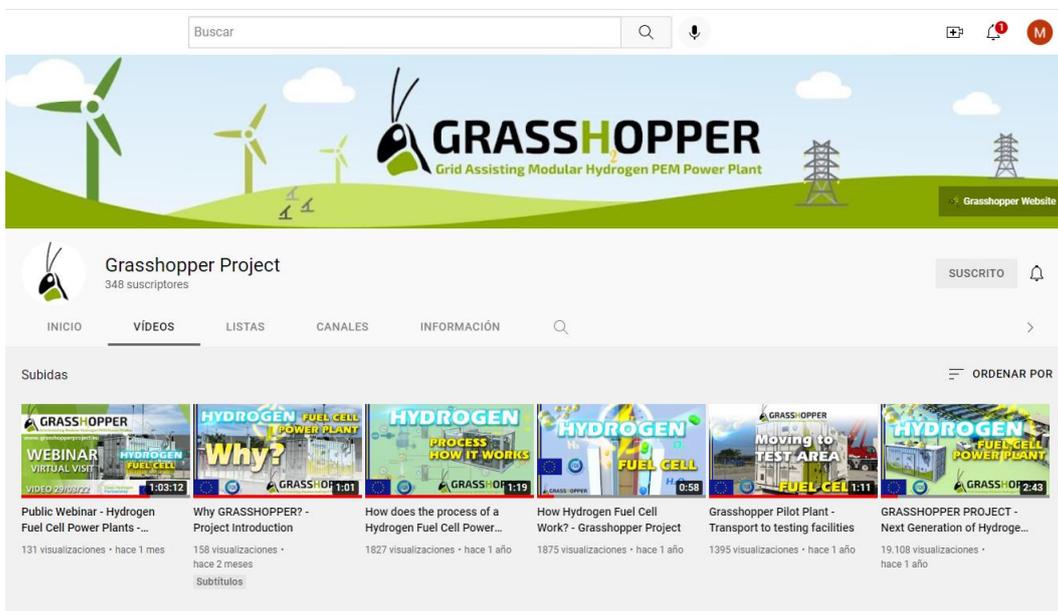


Figure 9–GRASSHOPPER project site in YouTube



Figure 10– Extracts from GRASSHOPPER videos

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## 2.6 Improvements of the GRASSHOPPER website

The GRASSHOPPER website was substantially improved in July 2020 to make it more attractive (<https://www.grasshopperproject.eu/>) including new sections.



Figure 11– Screenshot of Grasshopper website



The website was also linked to the google analytics for recording high value data for marketing analysis. As it is indicated in

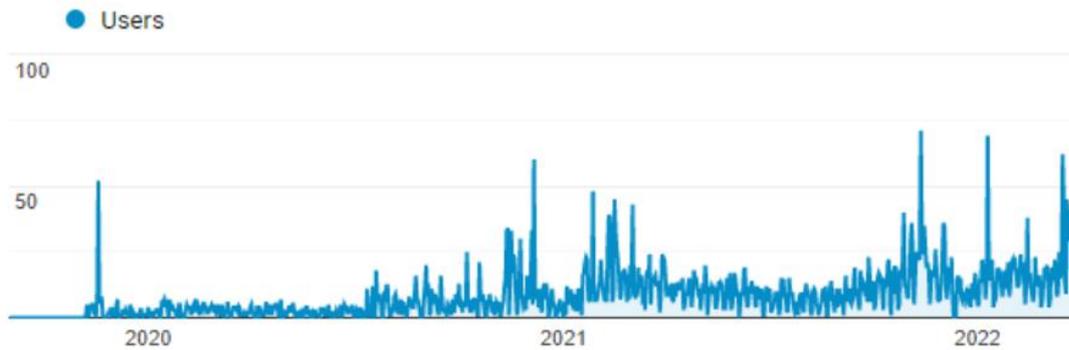


Figure 12, the visits to the website have remarkably increased once the website was improved. Most of visitors arrived at the website using a direct link to the GRASSHOPPER website, a huge number of visitors used searching tools and other visitors used social networks to find the website. The gender and age distribution of the GRASSHOPPER website’s visitors is shown in Figure 14. Additionally, the location of the users can be identified through Google Analytics, please see in Figure 15. Regarding the location, there are many users from Spain, EEUU, The Netherlands, Germany, Italy, UK, France, India, Finland, Canada.

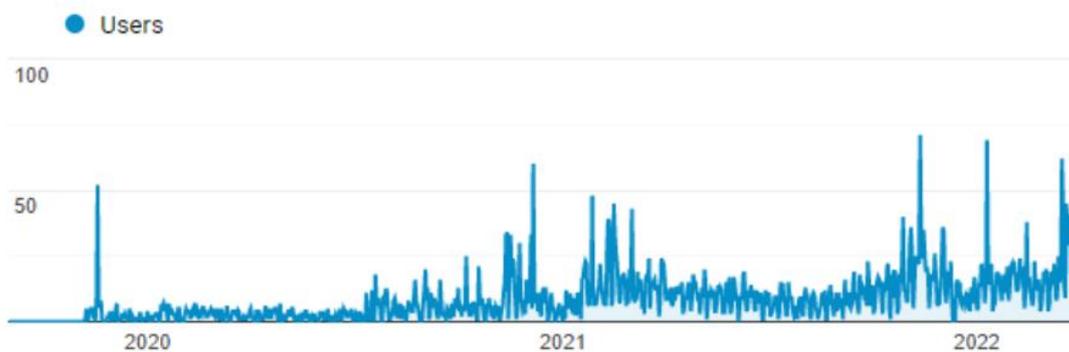
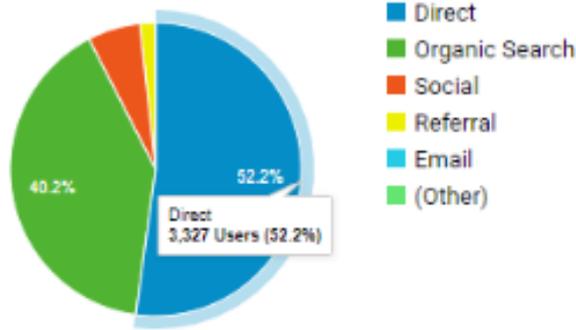


Figure 12–Grasshopper website’s visits, Google analytics



### Top Channels



	Acquisition Users
	6,207
1 Direct	3,327
2 Organic Search	2,566
3 Social	372
4 Referral	108
5 Email	2
6 (Other)	1

Figure 13– Grasshopper website’s channels, Google analytics

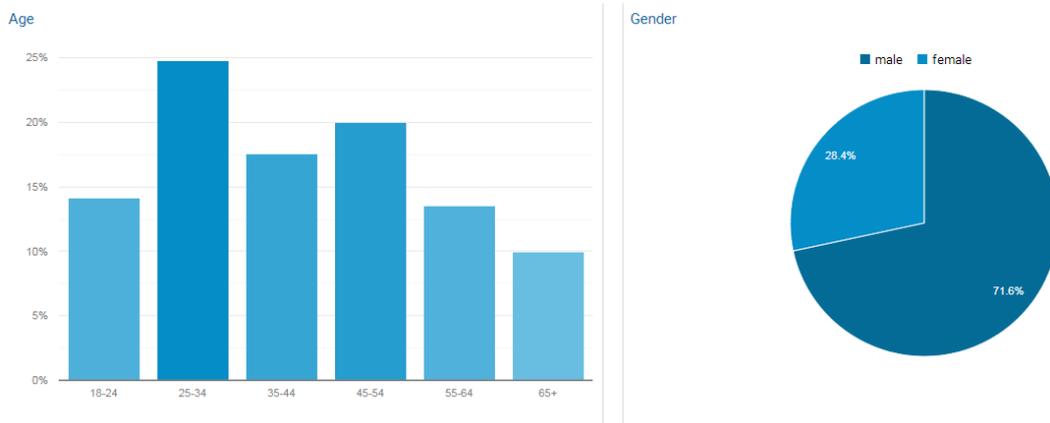


Figure 14– Grasshopper website’s user age & gender distribution, Google analytics

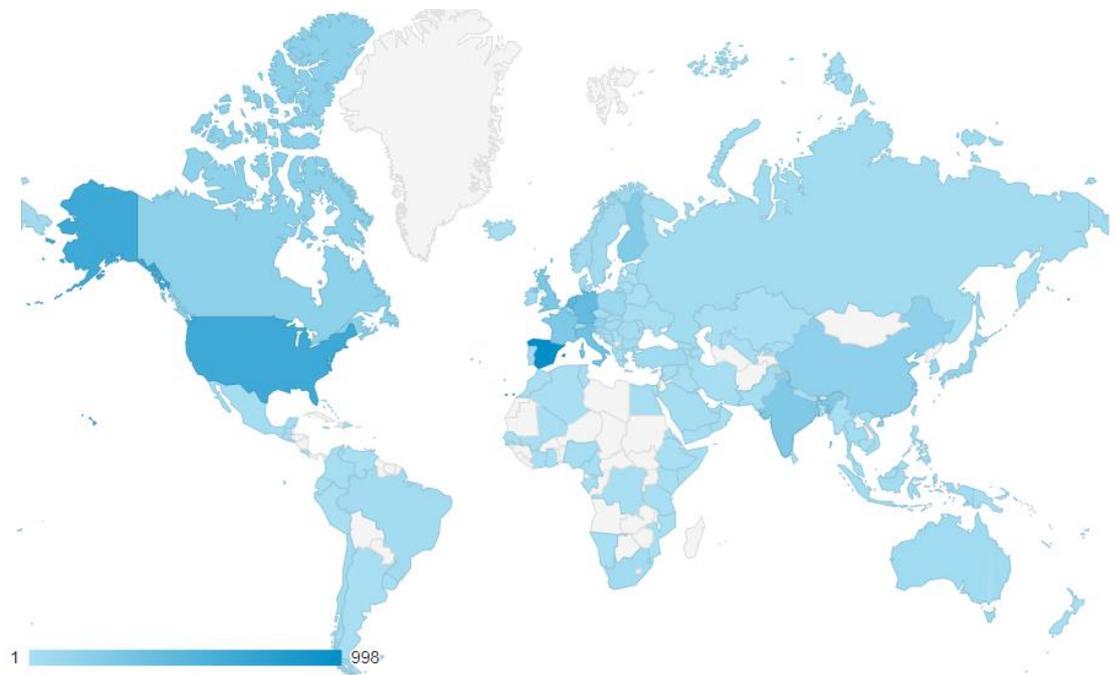


Figure 15– Grasshopper website’s user location, Google analytics

## 2.7 Webinar material

The GRASSHOPPER workshop was replaced by an online webinar due to pandemic concerns. Two formal notes (following figures) were prepared and sent to inform the audience about the webinar. The recorded session of the webinar was published in GRASSHOPPER website and YouTube (<https://youtu.be/5mKHnZIR3Ek>).



Figure 16. Note 1 for Webinar diffusion



**The Grasshopper Webinar**

GRASSHOPPER Project tries to contribute solved societal challenges relating to the sustainability, affordability and security of supply hydrogen production technologies.

GRASSHOPPER project aims to realise a next-generation of fuel cell power plant targeting stationary application in the MW-scale grid stabilisation with more cost-effective and flexible power output, accomplishing an important reduction of the CAPEX.

This kind of power plant has a novelty compared to conventional fuel cell plants, which allows a dynamic and flexible operation that could run from 20 to 100% power for a demand-driven operation. This, together with its rapid response capacity, allows it to participate in electricity reserve markets, where the €/MW is higher.

The MW-size unit is based on learnings from a 100 kW pilot plant, which is now running in Seville in a start-up stage. When the FAT test period finishes, the plant will be transported to The Netherlands, where it will use the Hydrogen produced as a byproduct of the Chlor-alkali industry.

Would you like to know how it became a reality to have this next-generation fuel cell power plant targeting stationary applications in grid stabilisation?

Join us at this webinar and learn about this exciting and ambitious project. The registration is free, but the space is limited, so book your now here:

[Register now here!](#)

[Project webinar - It is time to meet the team - Grasshopper Project](#)

If you can't join us, [sign up](#) to receive the recording and presentations a few days later.

Thank you, and for any questions or comments, don't hesitate to get in touch with us by replying to this email.

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

Share this event on your social networks!




**Clean Hydrogen Partnership**

This project has received funding from the Fuel Cells and Hydrogen 2 Joint Undertaking (now Clean Hydrogen Partnership) under Grant Agreement No 779430. This Joint Undertaking receives support from the European Union's Horizon 2020 Research and Innovation program, Hydrogen Europe and Hydrogen Europe Research.



Co-funded by the European Union

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GRASSHOPPER

Grid Assisting Modular Hydrogen PEM Power Plant

D8.18: Marketing material  
Public

**GRASSHOPPER**  
Grid Assisting Modular Hydrogen PEM Power Plant

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

**WEBINAR**  
**29/03/22**  
**10:30h CET**

**Clean Hydrogen Partnership**

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**Co-funded by the European Union**

Figure 17. Note 2 for Webinar diffusion

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### 3. Conclusions

Due to the pandemic, the dissemination activities were adapted to this current global situation. The GRASSHOPPER workshop was replaced by an online webinar with its corresponding marketing material. The non-used budget was dedicated for producing different marketing materials to increase the visibility of GRASSHOPPER project.

There were generated promotion and marketing materials in printed form, such as leaflets, wall signs and rollups, for distribution in the 100 kW pilot plant's visits and in other meetings or events. To increase the visibility of the project, a decor was installed in the GRASSHOPPER pilot plant. Specific videos were generated to raise awareness about the GRASSHOPPER project. Additionally, the website was improved for marketing purposes.

The result has been quite good, and this generated material has helped create an image of the product and has greatly helped spread the project.



## 4. Annexes

### 4.1 Annex A: Consortium

Table 1 – Consortium.

Participant organization name	Short name	Country
INEA INFORMATIZACIJA ENERGETIKA AVTOMATIZACIJA DOO	INEA	Slovenia
NEDSTACK FUEL CELL TECHNOLOGY BV	NedStack	Netherlands
JOHNSON MATTHEY FUEL CELLS LIMITED	JMFC	United Kingdom
ABENGOA INNOVACIÓN SOCIEDAD ANÓNIMA	Abengoa, AI	Spain
ZENTRUM FÜR BRENNSTOFFZELLEN-TECHNIK GMBH	ZBT	Germany
POLITECNICO DI MILANO	Polimi	Italy



## 4.2 Annex B: Dissemination contact points

Table 2 – Dissemination contact points.

Partner identification and basic Information		
Project Partner	Responsible for Dissemination Activities	E-mail
INEA	Pia Polovšek	pia.kuralt@inea.si
NedStack	Jos Lenssen	Jos.Lenssen@nedstack.com
JMFC	Paddy Hayes	paddy.hayes@matthey.com
Abengoa, AI	María Tejada Valderrama	maria.tejada.v@abengoa.com
ZBT	Peter Beckhaus	p.beckhaus@zbt-duisburg.de
Polimi	Giulio Guandalini	giulio.guandalini@polimi.it