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FUEL CELLS AND HYDROGEN JOINT UNDERTAKING (FCH 2 JU)
TOPIC H2020-JTI-FCH-2015-1
Improved electrolysis for distributed hydrogen production

GA No. 700008

High Performance PEM Electrolyser for Cost-effective Grid Balancing Applications

HPEM2GAS - Deliverable report

D7.2 – Dissemination Plan

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Publishable summary

This document describes the communication and outreach activities of the HPEM2GAS project, during the first phase of the project, for the remaining project period and the plan after the project runtime. In this document the dissemination strategy, target groups and stakeholders, dissemination measures and the link to the intellectual property protection are described.

The aim of the dissemination plan is to promote the project and the project results to the widest possible audience and achieve the largest possible impact on:

- Zero carbon hydrogen production
- Decentralized hydrogen production
- Grid services
- Reduction of costs for power-to-gas technologies

Contents

1 Dissemination approach

The HPEM2GAS Dissemination strategy document is prepared to give a holistic account of the communication and Dissemination actions of the project, as well as to identify the project Dissemination objectives, targets, strategies and tools.

It will give orientation to the activities through the entire duration of the project. The communication and Dissemination activities are crucial for the execution and the success of the project and need to be carefully described and planned in advance.

This document may be re-evaluated and updated according to the Dissemination needs arising throughout the project. Feedback from the Steering Committee and the Stakeholder Group will be taken into account.

This plan also describes the role of the partners within the project activities and in general. It will serve as a guideline for the partners in relation to the Dissemination actions toward the stakeholders within and outside the project. It provides indications on the modalities and timing for the implementation of Dissemination and communication activities.

1.1 Aim

The main purpose of the Dissemination plan is the creation of a reliable document and solid plan for efficient knowledge Dissemination among the target groups. This plan defines the Dissemination plan with clear guidelines for the Dissemination activities including all operational elements of Dissemination. The main aim of this plan is defined throughout the objectives of the HPEM2GAS Dissemination activities. Crucial target groups that are interested in the project and appropriate key messages are identified in this plan. It also envisages all Dissemination methods, tools and channels. Monitoring of the Dissemination activities provides evaluation of the progress and ensures that the set out objectives will be realised.

The aim of the Dissemination strategy is to promote the project and the project results to the widest possible audience and achieve the largest possible impact.

1.2 Dissemination strategy

- To disseminate the results – after protection of intellectual property – to:
    - the international (hydrogen) community,
    - the scientific communities in the field of electrochemistry, polymers, membranes, catalysts and hydrogen
    - the international energy agency (IEA),
    - stakeholders in the field of electrolysis, fuel cells and grid-management;
- To interact with international partnerships and other possible related sectors (like hydrogen storage technology for the transport sector);
- To create adoption and positive public opinion through the public website, (social) media, etc. This becomes relevant in the Follow-Up and Market Entry phases.

1.3 Target groups and stakeholders

Dissemination is aimed at the following target groups:

- Transmission System Operators (TSOs),
- National and European Agencies,
- Legislative authorities, organisations and special interest groups linked to the project's goals and subject as well as to representatives of the European - and national parliaments;
- Standardization committee (e.g. ISO, SAE international),
- Any other interested parties: the general public, (inter)national newspapers, the wider press (TV, radio, schools/colleges/universities, etc.).

1.4 Communication, Dissemination and Exploitation Objectives

The Communication and Dissemination actions in HPEM2GAS is envisaged to communicate and disseminate the activities carried out during the entire duration of the project, the project's main scientific achievements and the initiatives organised by the partners of the project within the framework of HPEM2GAS as well as their participation in major European and worldwide events and scientific conferences.

The Exploitation plan aims to strengthen and speed up the market uptake of successful results of the project by development of an Exploitation strategy for all eligible results and supporting the partners involved for further exploitation during the different stages of the project. This plan will be provided at the end of the project in a separate deliverable (D7.3).

The following subsections include the objectives solely tied to either the communication or the Dissemination objectives and the activities which will be executed during the duration of this project. The Dissemination objectives and resulting expected actions are aimed at the spreading of information without the reception of any feedback or responses (such as the distribution of flyers at an event). Some objectives and activities may relate to either category of Dissemination or communication but the objectives and activities will not be repeated for the sake of brevity. Instead, the objectives and corresponding activities will be listed under the category to which they relate the most.

This project aims to achieve, within its project duration, the following communication objectives:

- To manage the communication network of HPEM2GAS.
- To take actions to communicate the activities and results of the project
- To participate in symposia, workshops, meetings as well as organise the Final Event at the end of the project
- To create a dedicated website for the HPEM2GAS project, with public and Members' Only sections
- To create all needed communication tools to give a visual identity to the project
- To ensure the proper communication and Dissemination of the information generated by the project to relevant stakeholders and the general public
- To facilitate the communication systems with the project HPEM2GAS as well as other relevant projects and organizations in order to promote the sharing of data and knowledge

1.5 Dissemination Objectives summary

Communication is aimed at target audiences and groups, such as the Joint Undertaking Fuel Cells and Hydrogen, legislative/regulatory authorities, standardization committees (*e.g.* ISO), and special interest groups linked to the project.

The Dissemination of the project results and outputs are indispensable for optimizing the value of the project, firming the impact of HPEM2GAS. This dissemination plan establishes the rules and guidelines on how the project will share its outcomes with the target groups and networks.

HPEM2GAS dissemination plan includes a clear definition of the purpose, the audience, the message (tailored to every stakeholders group), the method and the timing of the dissemination. More specifically, the objectives are:

- To communicate to the general public through the web-site, newsletters, press releases, open final event etc.
- To communicate/disseminate the knowledge – after protection of intellectual property – to the international hydrogen community and clean fuels community.
- To interact with (inter-)national partnerships and counterparts;
- To create adoption and positive public awareness through the website and optionally through campaigns directed at social media. This becomes relevant in the market introduction phase.
- To involve key stakeholders such as TSO's in the outcomes of the Emden field test.

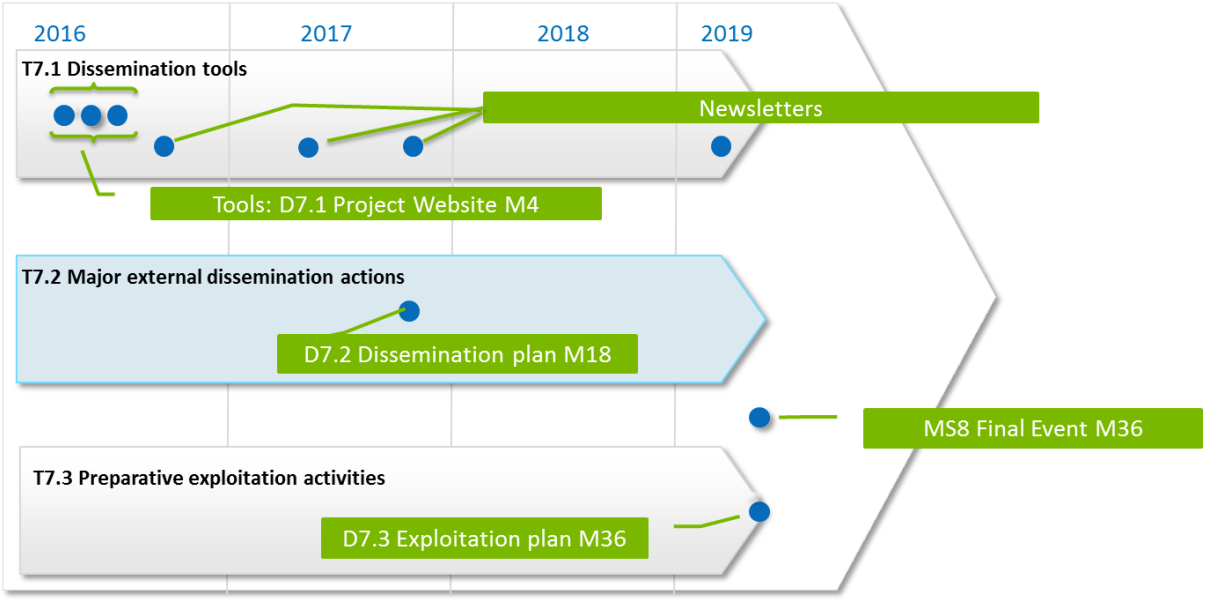
Research organisations will ensure that technical advances are shared (as far as possible) with other leading researchers in the sector. Industrial organisations will target potential end users (energy utilities, grid operators, FCEV) to prepare them for potential benefits of PEM technologies and keep policy makers up to date on potential costs and use of PEM while identifying the need for international support for green hydrogen.

HPEM2GAS will:

- Create and maintain a public website providing downloadable short explanatory information, press releases, photos, videos, project flyer(s) and e-newsletters with easily digestible information.
- Involve a stakeholder group in the dissemination of the results and the events planned during the project;
- Create and maintain a database of relevant stakeholders for further dissemination actions;
- Undertake Publications in internationally renowned business and scientific journals;
- Present at (inter)national conferences *e.g.* Electrochemical Society meetings (ECS), FCH 2 JU Programme Review Days, EHEC - European Hydrogen Energy Conference, Energy Storage - International Summit for the Storage of RES.
- Participate to professional exhibitions with project related stands in order to disseminate the project results directly to industry and ensure a mass deployment of the product at the end of the project.
- Organise one final conference/workshops in Emden, at the field test site location.

1.6 Timing of the Dissemination achievements

The timing of the Dissemination actions is crucial for an effective Dissemination of the project results. Below is reported a scheme of the dissemination tasks and planned achievements/deliverables during the project duration.



Within HPEM2GAS the following table provides a quantification of the project's Dissemination activities, and sets a basis for verifying whether the project Dissemination objectives have been met:

Table 1. Dissemination activities and related KPIs

Dissemination measure	Purpose	Key performance indicators
Project updates on HPEM2GAS website	General information	≥ 6 updates/year
Organization of workshops	Knowledge exchange	1 workshop
Participation in Conferences, meetings	Knowledge exchange	>10 conferences
Open Access publications	Research	> 10 publications
Online publishing (magazines, newspapers, newsletters)	General information	≥ 6 newsletters (half-yearly)
Meetings with stakeholder group	Knowledge exchange	≥3 meetings (annually)

2 Dissemination rules and organisation

2.1 Roles of Dissemination

2.1.1 Dissemination WP leader

The project results are envisioned to be of a pre-competitive nature, the Exploitation activities will have to focus on medium and long-term Exploitation prospective. However, partners believe Exploitation is a main issue for their research, therefore a series of external Dissemination actions will be organised and led by the responsible partner. These major Dissemination activities will be monitored by UNR as WP leader and ITM as exploitation manager during half annual progress meetings with the entire consortium.

2.1.2 Exploitation manager

Exploitation activities are primarily managed by the industrial partners. An *Exploitation Manager* has been appointed, to assist in matters concerning exploitation of results. The Exploitation Manager is assigned to ITM (Dr. Nick van Dijk). The Exploitation Manager is responsible for co-ordination of key-issues such as patents, licenses, royalties and dissemination of the intellectual property arising from the project, and for co-ordination of negotiations between the Consortium and external parties concerning exploitation issues. The Exploitation Manager collaborates closely with all other partners and reports on a regular basis to the SC and GA. The exploitation manager is also responsible for drafting the exploitation plan at mid-term and project end.

2.1.3 IPR management

The key elements for knowledge management and protection of intellectual property including measures to provide open access to peer-reviewed scientific publications are outlined here. The generated data and standards involve technical requirements, harmonisation of protocols, regulations for electrolysers and grid-services and for safe operation of the electrolysers.

Protocols and procedures implemented in HPEM2GAS have been made publically available on the HPEM2GAS website. The same documents have been provided to JRC and IEA as a contribution to the harmonisation activities. Other relevant information has been published at the partner websites and in (technical) brochures. Scientific data and results will become publicly available through archiving in public data-bases, publications in peer-reviewed open access journals and conference/workshop proceedings, as outlined in the table below, according to a Dissemination Protocol and the Consortium Agreement.

Table 2 Types of data generated, standards that will be used, way of exploitation of data and/or sharing/making accessible of data for verification and re-use and way of data curation and/or preservation

Generated data and standards used	Way of exploitation of data and/or sharing/making accessible of data for verification and re-use	Way of curation and/or preservation of data
Technical requirements, standards and interfaces related to PEM technology	The application-specific technical capabilities and standards will become publicly available	Publicly available on the HPEM2GAS /partner websites, in brochures

Technical requirements related to the harmonising of protocols, contributions to codes, standards and regulations for electrolysers and grid-services.	The technical requirements related to the harmonising of protocols, contributions to codes, standards and regulations for electrolysers and grid-services will become publicly available	Publicly available on the HPEM2GAS website, partner websites and in (scientific) brochures of the partners
Technical requirements and standards for safe operation of the electrolyser systems for grid services	The application specific technical requirements and standards for safe operation of electrolyser systems will become publicly available	Publicly available on the HPEM2GAS website, partner websites and in (technical) brochures of the partners
Scientific data regarding research findings, published in peer-reviewed open access journals, data archived in public data bases	Scientific data and results will become publicly available through archiving in public data bases, publication in peer-reviewed open access journals and conference proceedings	Publicly available in open data bases, technical project reports and scientific publications.

The activities are arranged in work packages and tasks in such a way as to facilitate:

- the sharing of data,
- the acquisition of knowledge and
- the achievement of the expected impact of the project.

Moreover, the consortium is structured along the value chain with CNR-ITAE, EWII and SLV as technology and component suppliers, ITM as system integrator and SWE as a potential customer of the technology. Before the commencement of the project, the partners concluded a Consortium Agreement based on the DESCA model for Horizon2020 Research and Innovation Actions (RIA) including a Dissemination Protocol.

2.1.4 Research and academic partners

The scientific (research and academic) partners are expected to contribute to the communication and Dissemination of the HPEM2GAS project and its developments through their own actions. Cooperation and assistance on behalf of the partners will be vital in obtaining the various objectives to be attained. The communication and Dissemination activities of the scientific partners include but are not limited to the following:

- Publication on scientific and peer-reviewed journal papers related to the information gathered by HPEM2GAS
- Announcements of HPEM2GAS developments on their organizations' websites
- Interviews with journalists (at a time of the researchers' best convenience)
- Keeping the Coordination Team updated over the developments, changes, and notable findings of HPEM2GAS in a timely manner
- Informing stakeholders of the progress of HPEM2GAS if they encounter them at any technical workshop or event

- Contribute in gathering relevant scientific, industry and policy contacts from their own country and from different available sources and in updating the list by sending information to the Dissemination WP leader (Uniresearch), the Exploitation manager (ITM) and the coordinator (CNR-ITAE).
- Contribute (also through their organizations press offices) in gathering media contacts from their own country and from different available sources and in regularly updating the list by sending information to the Dissemination WP leader (Uniresearch), the Exploitation manager (ITM) and the coordinator (CNR-ITAE).
- Supporting in customizing the communication material prepared by the WP leader (in English) in the country language and for a local audience, if necessary.

2.1.5 Industrial partners

- To active contribute to working/operational groups of the FCH JU (e.g. Hydrogen Europe), Regulatory framework, and international framework
- To present results at international conferences.
- To be present (booth) and present at relevant exhibitions and trade fairs.

2.1.6 Other partners

Next to the industry and research partners, there is a service provider (Uniresearch) fulfilling the role of assisting in project management and dissemination WP leader. The role is collecting records and coordinating also the dissemination activities.
Even if no longer partner (Amendment to the GA in May 2016), originally involved in the project was also JRC. Communication and collaboration with the Research Centre are still ongoing.

2.1.7 Stakeholder group

At the time of the preparation of this report a 'Stakeholder Group' is being established. The purpose of the Stakeholder Group is to increase the probability of wide market acceptance of the developed technologies, processes and services and with that a better market penetration. Anticipated stakeholders are the director's business development of partners ITM, EWII, SLV and SWE. A main stakeholder is of course city of Emden, represented in the stakeholder group via its subsidiary Zukunft Emden. Also, a selected number of external stakeholders will be invited to join the project Final Event. External stakeholders are: renowned authorities and experts in the areas of electrolysis, renewable power sources, grid balancing, representatives from energy companies and relevant organisations, suppliers, local regulatory authorities, TSO, etc. involved in the field test in Emden. The Stakeholder Group will be invited to the final event to provide feedback on intermediate results, project direction and to provide input about relevant international technical, political and strategic developments.

2.2 Rules of Dissemination and publication

The rules of Dissemination and publication are described in the Consortium Agreement, Art.8.3
Here below a copy of that article is provided.

8.3 Dissemination

8.3.1 Dissemination of own Results

8.3.1.1 During the Project and for a period of 1 year after the end of the Project, the dissemination of own Results by one or several Parties including but not restricted to publications and presentations, shall be governed by the procedure of Article 29.1 of the Grant Agreement subject to the following provisions.
Prior notice of any planned publication shall be given to the other Parties at least 30 calendar days before the submission. Any objection to the planned publication shall be made in accordance with the Grant Agreement in writing to the Coordinator and to the Party or Parties proposing the dissemination within 20 calendar days after receipt of the notice. If no objection is made within the time limit stated above, the publication is permitted.

8.3.1.2 An objection is justified if
(a) the protection of the objecting Party's Results or Background would be adversely affected
(b) the objecting Party's legitimate academic or commercial interests in relation to the Results or Background would be significantly harmed.
The objection has to include a precise request for necessary modifications.

8.3.1.3 If an objection has been raised the involved Parties shall discuss how to overcome the justified grounds for the objection on a timely basis (for example by amendment to the planned publication and/or by protecting information before publication) and the objecting Party shall not unreasonably continue the opposition if appropriate measures are taken following the discussion. The objecting Party can request a publication delay of not more than 90 calendar days from the time it raises such an objection. After 90 calendar days the publication is permitted, provided that Confidential Information of the objecting Party has been removed from the Publication as indicated by the objecting Party.

8.3.2 Dissemination of another Party’s unpublished Results or Background
A Party shall not include in any dissemination activity another Party's Results or Background without obtaining the owning Party's prior written approval, unless they are already published.

8.3.3 Cooperation obligations
The Parties undertake to cooperate to allow the timely submission, examination, publication and defence of any dissertation or thesis for a degree, which includes their Results or Background subject to the confidentiality and publication provisions agreed in this Consortium Agreement.

8.3.4 Use of names, logos or trademarks
Nothing in this Consortium Agreement shall be construed as conferring rights to use in advertising, publicity or otherwise the name of the Parties or any of their logos or trademarks without their prior written approval.

8.4 Exclusive licenses
Where a Party wishes to grant an exclusive licence to its Results and seeks the written waiver of the other Parties pursuant to Grant Agreement Article 30.2, the other Parties shall respond to the requesting Party within 60 calendar days of the request. Any Party’s failure to respond (whether in the negative or the positive) to the request within such 60 calendar days shall be deemed to constitute written approval of the waiver by the non-responding Party.

The approval procedure for presenting project material is:

- Notify project partners on planned publication before submitting the abstract, by sending the abstract and conference by e-mail;
- Request approval by sending paper three weeks before submission by e-mail;
- No reaction is approved!

2.2.1 Acknowledgement and disclaimer

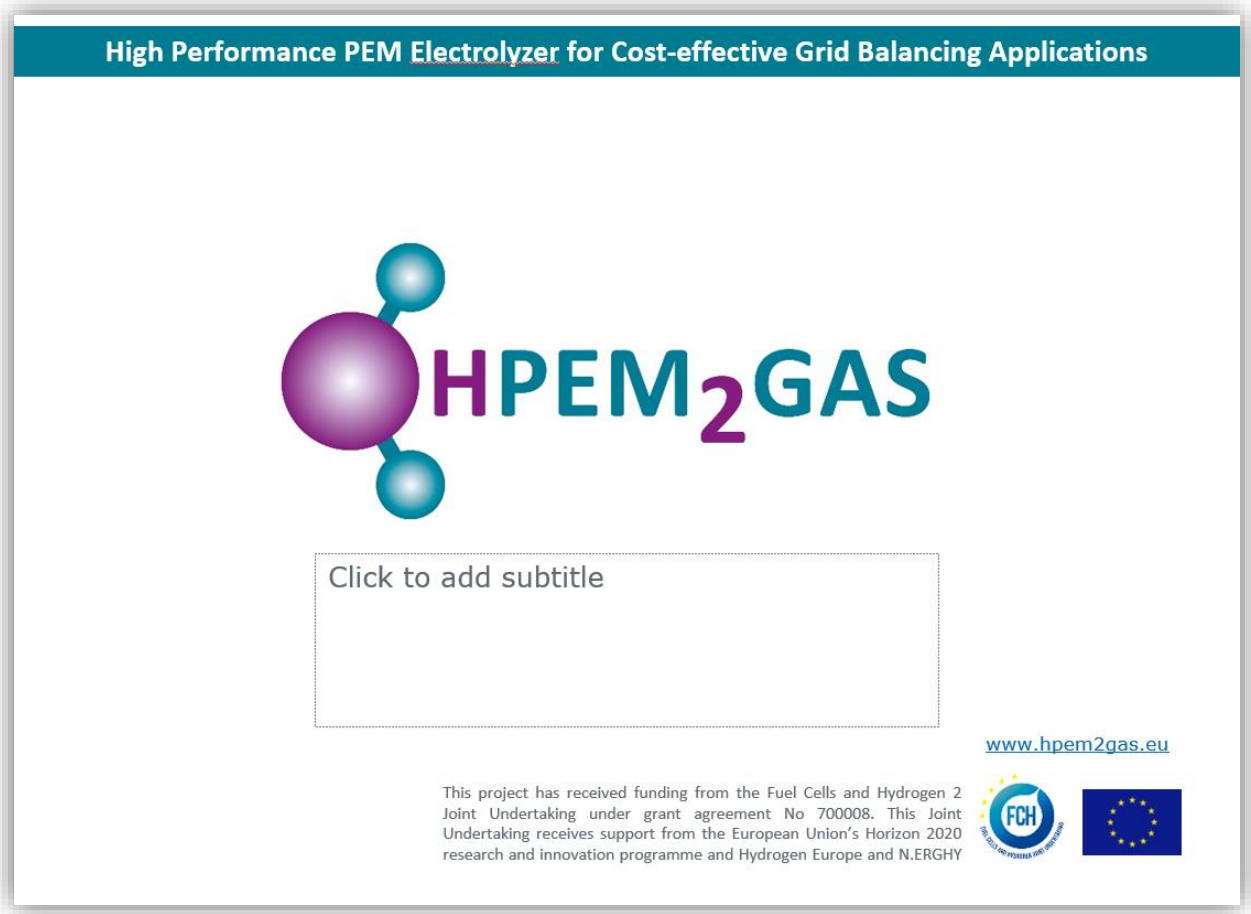
Any Dissemination activity and publications in the project, including the project website will specify:

- Display the JU logo and
- Display the European emblem and
- Include the following text:

"*This project has received funding from the Fuel Cells and Hydrogen 2 Joint Undertaking under grant agreement No. 700008. This Joint Undertaking receives support from the European Union's Horizon 2020 research and innovation programme and Hydrogen Europe and N.ERGHY"*

When displayed together with another logo, the JU logo and the EU emblem must have appropriate prominence.

Example of first slide of the HPEM2GAS presentation template:



3 Keeping records of Dissemination

3.1 Dissemination Tracker

A 'Dissemination Tracker' has been created in order to collect and keep trace of all Dissemination actions and events for the use of each Dissemination tool in each event. The list is combined with Events/Media activity/Peer-reviewed papers. This is a living document and will be used as the basis for reporting in the SyGMa system.

The different 'categories' are the following:

Organisation of a conference Organisation of a Workshop Press release Non-scientific and non-peer-reviewed publication (popularised publication) Exhibition Flyer Training Social Media Website Communication Campaign (e.g. Radio, TV) Participation in a Conference Participation in a Workshop Participation in an Event other than a Conference or a Workshop Video/Film Brokerage Event Pitch Event Trade Fair Participation in activities organized jointly with other H2020 projects Other	Event type
Scientific Community (Higher Education, Research) Industry Civil Society General Public Policy Makers Media Investors Customers Other	Target audience
Non-peer reviewed papers Articles published in the popular press Film Flyer Interview Media briefing	overall category

Other Poster Press release Thesis TV clip Video Online	
Future: planned Future: confirmed Past: attended	Planning stage Event
Planned Submitted Accepted Published	Paper Status
Future: planned Future: confirmed Past: broadcast Past: published	Planning stage media

3.2 Dissemination database

Dissemination contact list is created with all stakeholders. We can divide the main activity of the organisation included and the type of organisation to make sure we use the correct means of communication for the correct target group. This list will be frequently updated.

The contacts of the HPEM2GAS contact database receive the proejct newsletter and – in a later stage – dedicated communication (for those who may be invited to the project final event). Currently there are 122 entries in the project contact database.

The categories/information availble in the contact database are:

Focus of organisation/Main Activity	**Connection HPEM2GAS**	**Type of organisation**
Research	Participant	Research institute
Commercial company	Stakeholder	University
Policy maker	EU	NGO
NGO	Affiliated entity/company	Public entity/Local Authority
Governmental	Client	Supplier company
Lobby group		Energy Company
Municipality		EU commission
Legislation/Standardisation		EU country
		EU project
		Transmission System Operator
		Standardisation committees

4 Dissemination achievements so far

4.1 Dissemination tools

An overview, summary and update of the dissemination tools is presented below.

A dedicated, more detailed deliverable focused on the project website and project templates (D7.1) has been submitted at the beginning of the project (M4).

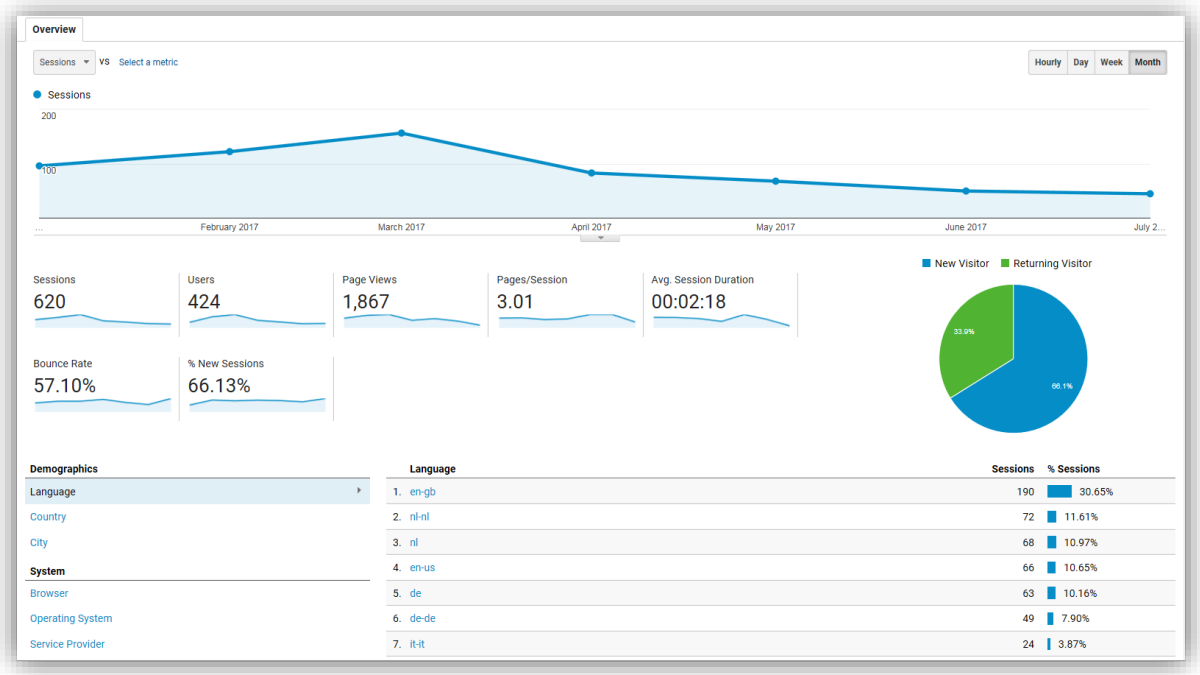
4.1.1 Project website

The website is designed and it is maintained and constantly updated.

The project website:

- act as contact point for third interested parties;
- provide a brief project summary and project information;
- provide company profiles of each of project Partners and a link to its web sites;
- inform the public on the on-going and ended research activities;
- inform the public on the most relevant project-results;
- host the publications of the project for the general public (flyers and technical publications);
- provide links to other research activities and connected projects

A basic website was launched at the starting of the project and in the months 1-2 this website was improved. The result can be viewed at www.hpem2gas.eu and the details are described in D7.1. Concerning the website, we can trace the activities via google analytics. An example is shown below



4.1.2 Project identity

A graphical project identity has been composed of visual elements that aim to represent the project. The graphical identity includes logo, fonts, and colours. These are already all incorporated in the designed templates for presentations and text documents. The graphical identity is in line with the website, the project flyer and with the newsletters. The graphical identity is important for a consistent and recognisable communication and Dissemination and it is incorporated in the templates.

To be able to present the HPEM2GAS project in a consistent way, a general presentation was created which can be used by all partners to present the project (and its preliminary results) as well internally as externally. This general presentation consists out of all most relevant information available at that present time, objectives, concept, structure, expected results and key figures of the project. This presentation will be updated throughout the project runtime.

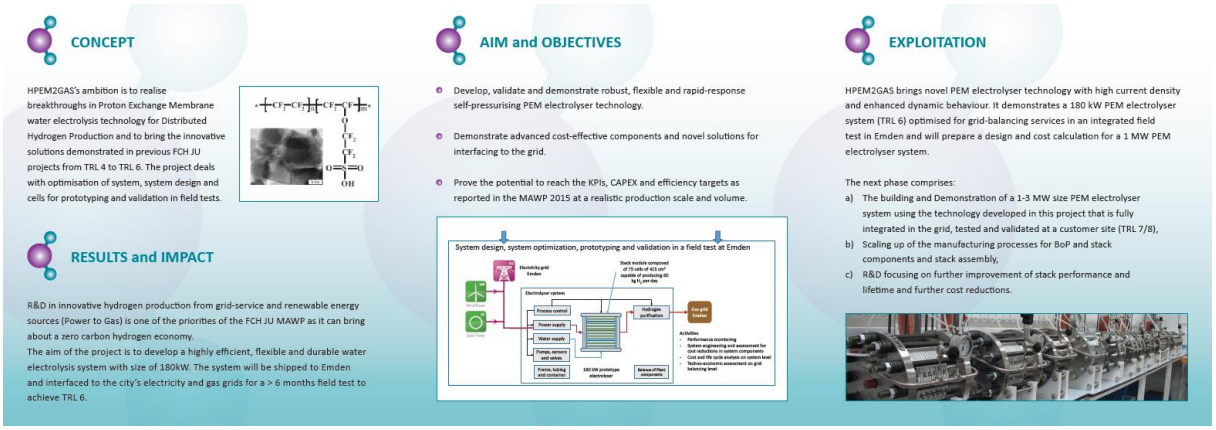
This general presentation was already provided at:

- JRC Electrolysis harmonisation meeting in Brussels (June 2016)
- ICE conference in Copenhagen (June 2017)
- HYPOTHESIS XII in Siracusa- IT (June 2017)
- EFCF conference in Lucerne (July 2017)

This presentation will be provided at the next IEA conference on electrolysis in 7th IEA ANNEX 30 Electrolysis Workshop at 3M, St. Paul USA.

4.1.3 Flyer

A project flyer has been created. All HPEM2GAS partners' members have received a set of flyers and the printable version of the flyer is available on the partner restricted area and can be downloaded and printed.



4.1.4 Newsletters

Yearly (or bi-annual) Newsletters is published for the general public. The distribution of the newsletter is the same as for the general Flyer. The first project newsletter has been distributed in March 2017 and a second one in September 2017.

4.2 Scientific and technical publications

4.2.1 Presentation at conferences

To increase the impact of the project results and to promote debate to accelerate the implementation of these results, presentations are given at international conferences and exhibitions. It is scheduled to have at least once a year a presentation at one or more conferenced on the project results.

The HPEM2GAS project partners presented and will present project results at international conferences and exhibitions. For example at ICE, EFCF, HYPOTHESIS.

So far the following presentation at conferences have been performed:

No.	Event name	Date(s)	Venue	Partner	Presentation Title (if applicable)
1	InGEC & EMHyTeC 2016 Conference	May 09-12, 2016	Gammarth (Tunisia)	CNR-itae	Performance of a PEM water electrolyser based on metallic iridium electrocatalyst and an Aquivion membrane
2	21st World Hydrogen Energy Conference 2016	13-16th June, 2016	Zaragoza, Spain	CNR-itae	Performance and stability of a PEM water electrolyser based on different catalyst loadings and an Aquivion membrane
3	Materials.it 2016 Conferenc	December 12-16th, 2016.	Catania, Italy,	CNR-itae	Performance and durability of advanced materials for water splitting in a PEM electrolyser in the HPEM2GAS project
4	International Conference on Electrolysis (ICE 2017)	13-16th June, 2017	Copenhagen, Danmark	CNR-itae	Effect of catalyst loading on performance and durability of a PEM water electrolysis cell based on an Aquivion® perfluorosulfonic acid (PFSA) membrane
5	International Conference on Electrolysis (ICE 2017)	13-16th June, 2017	Copenhagen, Danmark	EWII	Durability of PEMEC MEAs
6	International Conference on Electrolysis (ICE 2017)	13-16th June, 2017	Copenhagen, Danmark	CNR-itae	A PEM water electrolyser based on metallic iridium electrocatalyst, Pt/C and an Aquivion membrane
7	HYPOTHESIS XII	28-30th June, 2017	Siracusa, Italy	CNR-itae	High performance PEM water electrolysis using advanced electro-catalysts and membranes
8	6th EUROPEAN PEFC & ELECTROLYSER FORUM	4 – 7 July 2017	Lucerne, Switzerland	CNR-itae	Enhanced performance and durability of low catalyst loading PEM water electrolyser based on a short-side chain perfluorosulfonic ionomer
9	THE 7th WORLD HYDROGEN TECHNOLOGY CONVENTION	9 – 12 July 2017	Prague, The Czech Republic	CNR-itae	Study of PEM electrolysis MEAs based on an Aquivion membrane and metallic iridium electrocatalyst
10	THE 7th WORLD HYDROGEN TECHNOLOGY CONVENTION	9 – 12 July 2017	Prague, The Czech Republic	CNR-itae	(ABSTRACT SUBMITTED ONLY)Degradation mechanisms on a PEM electrolysis MEA by using solid state surface analyses

NEXT CONFERENCES					
11	EUROMAT 2017	17-22 September 2017	Thessaloniki, Greece	CNR-itae	Advanced materials for water splitting in a PEM electrolyser
12	11th International Symposium on Electrochemical Impedance Analysis 2017	6-10 November 2017	Camogli, Genova (IT)	CNR-itae	Electrochemical Impedance Spectroscopy as Diagnostic Tool in PEM Electrolysis
13	Annex 30, AFC/IEA	9-10 October	3M, St. Paul USA	EWII	Presentation of the HPEM2Gas project and the established PEMEC stack and BoP test protocols
PhD Courses					
		14-16 September 2016	Anacapri, Italy	CNR-itae	Fuel cell systems and electrolytic hydrogen production

4.2.2 Papers

Results will also be published in scientific journals.

So far the following article have been published reporting project-related results:

#	Partner	Place (if applicable)	Title of publication	Authors
1	CNR-itae	Applied Energy Volume 192, 15 April 2017, Pages 477-489 (DOI)	Enhanced performance and durability of low catalyst loading PEM water electrolyser based on a short-side chain perfluorusulfonic ionomer	S. Siracusano, V. Baglio, N. Van Dijk, L. Merlo, A. S. Arico.
2	CNR-itae	International Journal of Hydrogen Energy 2017 (DOI)	Sulfated titania as additive in Nafion membranes for water electrolysis applications	S. Siracusano, V. Baglio, I. Nicotera, L. Mazzapioda, A.S. Aricò, S. Panero, M.A. Navarra
3	CNR-itae	Nano Energy 2017 (DOI)	New insights into the stability of a high performance nanostructured catalyst for sustainable water electrolysis	Stefania Siracusano; Nejc Hodnik; Primoz Jovanovic; Francisco Ruiz- Zepeda; Martin Šala ; Vincenzo Baglio; Antonino Salvatore Arico
4	CNR-itae	Journal of Power Sources Volume 366, 31 October 2017, Pages 105–114 (DOI)	The Influence of Iridium Chemical Oxidation State on the Performance and Durability of Oxygen Evolution Catalysts in PEM Electrolysis	Stefania Siracusano; Vincenzo Baglio; Sergey A. Grigoriev; Luca Merlo; Vladimir N. Fateev; Antonino Salvatore Arico

4.3 Final Event

To wrap up the work and present the findings to a wider audience a final event will be organised at the field testing site. The Final Event will take place in Emden in February/march 2019. Stakeholders in the field of electrolysis, fuel cells, and grid-managements will be invited; at the time of the preparation of this document a 'preliminary selection' of possible participants is ongoing.

4.4 Project interactions

The HPEM2GAS project is interacting with other initiatives, current and past research projects.

	ELY4OFF The strategic goal of the ELY4OFF is the **design and engineering** of a robust, flexible, highly efficient and cost-competitive PEMWE, **directly coupled to RES generation**. Read more..
	SOL2HY2 SOL2HY2 is about hydrogen production by water decomposition powered by solar energy. The project focuses on applied bottle-necks solving materials research, development and demonstration of the relevant key components of the solar-powered, CO2-free hybrid water splitting cycles. Read more..
	HydroGEN ITM developed their first alkaline hydrogen carbon membranes in the UK consortium, Technology Strategy Board funded project. These formed the basis for subsequent ITM internally funded research and alkaline membranes Read more…
	IMMEDIATE IRD is developing high-performance MEAs containing novel catalysts, GDL and short-side-chain PFSA membrane and ionomer. Significantly, improved utilisations of the catalyst, durability and ability to operate at challenging temperature and humidity conditions have been demonstrated. Read more…
	Electrohypem Experience acquired with development of proton exchange membranes based electrolyser will be in part translated to HPEM2GAS especially in terms of innovative membrane and catalyst components, bipolar plates, stack design, procedures and protocols for water electrolysis Read more..
	ADEL The collaborative research project ADEL (ADvanced ELectrolyser for Hydrogen Production with Renewable Energy Sources) focused on the development of cost-competitive, energy efficient and sustainable hydrogen production based on renewable energy sources. Read more..

5 Outlook and conclusions

This document is a living (running) document. The document and the corresponding Dissemination activity tables and contact tables as stated in the document will be updated on a regular basis. Next to this, in its role as Dissemination manager, Uniresearch will track and trace the Dissemination activities closely.

This document D7.2 will be the basis for the follow up deliverable on Exploitation (D7.3 - Exploitation plan at month 36) where the complete list of dissemination activitivities carried out during the execution of the project or planned after the conclusion of the project will be presented in an ANNEX.

6 Quality Assurance Procedure

The following questions should be answered by all reviewers (WP Leader, peer reviewer 1, peer reviewer 2 and the technical coordinator) as part of the Quality Assurance Procedure. Questions answered with NO should be motivated. The author will then make an updated version of the Deliverable. When all reviewers have answered all questions with YES, only then the Deliverable can be submitted to the FCH JU.

NOTE: this Quality Assurance part will be removed before submission/publication.

Question	Author & Task Leader	WP Leader	Technical Coordinator
1. Do you accept this Deliverable as it is?	Yes	Yes	Yes
2. Are all required actions from the DoA performed and reported in the Deliverable?	Yes	Yes	Yes
3. Are all Interactive outputs clearly defined for the related Tasks?	Yes	Yes	Yes
4. Is the Deliverable complete - omissions / all required chapters /- argumentation	Yes	Yes	Yes
5. Is the technical quality sufficient? - inputs and assumptions correct - data, calculations and motivations correct - outputs and conclusions correct	Yes	Yes	Yes
6. Are the taks/WP/project objectives clearly addressed in the Deliverable?	Yes	Yes	Yes
7. Is created and potential IP identified and are protection measures in place?	Yes	Yes	Yes
8. Is the Risk Procedure followed and reported?	Yes	Yes	Yes
9. Is the Reporting quality sufficient? - clear language - argumentation - consistency - structure - use of templates, etc	Yes	Yes	Yes
10. Is the Deliverable ready?	Yes	Yes	Yes