



DEMOSOFC

Project n° 671470

“DEMONstration of large SOFC system fed with biogas from WWTP”

Deliverable number 7.1

Dissemination and Communication Plan

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Author(s):	Claudia Sibilla, Silvio Delicio, Marta Gandiglio, Massimo Santarelli
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Abstract:

The deliverable aims to describe the dissemination strategy which has been planned by the DEMOSOFC partners, and managed by the coordinator.

The dissemination strategy objective is to reach different target groups, from citizens to scientific and industrial community, and spread the required knowledge to understand the advantages and the potential beneficial effects of the DEMOSOFC concept.

The objective will be reached through different media channels, events and communications strategies, described in the document.

Keyword list:

Communication strategy, targets, methods, social media, objectives, social media management, social, media strategy, web, digital communication, press office.

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Preface

The objective of this plan is to detail and describe the DEMOSOFC Dissemination and Communication Activities, methods, tools and strategies included.

Dissemination and communication activities are a key issue for the project coordinator, partners and funding group, since they

Looking at the Horizon 2020 document on Communication and Dissemination [1] *“What we call here ‘communication’ is more than just an additional reporting burden. Europe’s future economic growth and jobs will increasingly have to come from innovation in products, services and business models. With this in mind, communication about European research projects should aim to demonstrate the ways in which research and innovation is contributing to a European ‘Innovation Union’ and account for public spending by providing tangible proof that collaborative research adds value”*

The communication should thus aim to:

- show how European collaboration has achieved more than would have otherwise been possible, notably in achieving scientific excellence, contributing to competitiveness and solving societal challenges;
- show how the outcomes are relevant to our everyday lives, by creating jobs, introducing novel technologies, or making our lives more comfortable in other ways;
- make better use of the results, by making sure they are taken up by decision-makers to influence policy-making and by industry and the scientific community to ensure follow-up.

Dissemination is the process of making available projects' results and deliverables to stakeholders and to a widest audience. It is fundamental for the success of the project and its sustainability in the long term. Main purpose of the dissemination process is to inform and educate the communities on knowledge goals of the project, raise awareness and engage stakeholders and influencers in the various communities, promote project’s results and finally drive long term sustainability.

Dissemination goes hand-to-hand with **Communication** and relevant actions should derive from a comprehensive communication plan aimed at ensuring high visibility of the funded project and helping to maximize the impact of results.

The first section of this deliverable shows the main pillars of the Communication and Disseminations activities in order to better define which is the adopted approach, general aims, methods and tools.

The second section has the aim to better describe the activities addressed to the 5 targets to which this project is devoted to.

Conclusions, References and a set of Abbreviations and Definitions to facilitate the document interpretation close the document.

Introduction

The main goal of the Dissemination and Communication Plan - **DCP** - is to clearly point out specific actions, communication strategies, timing, tools, aims and data base for each defined target group (Industrial Community, Scientific Community, Policy Makers, Society and Universities) according to the project description included in WP7.

DEMOSOFC took its scientific origin from SOFCOM project [2], a three year FP7 project ended on April 2015, able to achieve very high technological and scientific results. The SOFCOM project was devoted to demonstrate the technical feasibility, the efficiency and environmental advantages of CHP plants based on SOFC fed by different typologies of biogenous primary fuels (locally produced), also integrated by a process for the CO₂ separation from the anode exhaust gases.

The research activity was directed to the scientific, technical and economic management of the two proof-of-concepts (one in Turin, IT and one in Helsinki, FI) of the complete energy systems based on SOFCs. Several issues has been addressed like high efficiency integration designs, impact of the fuel pollutants on the SOFC and fuel processing units operation, gas cleaning, carbon sequestration module, operation in CHP configuration, maintenance and repair strategies, lessons learned for pre-normative issues and scale-up analysis. The SOFCOM communication and dissemination has been a fundamental part of the project, with an updated website, events, media posts and press releases.

With DEMOSOFC the challenge grows: the SOFCOM results, integrated and implemented become the starting point of the SOFC Industrial Plant which is the real core content of DEMOSOFC project. DEMOSOFC will be devoted to the installation of the first industrial size biogas fed SOFC in the world, and the first large size SOFC installation in Europe. The objective is challenging: demonstrate the advantages of fuel cell systems not in the laboratories but with a real scale industrial plant.

The level of scientific and technological content is thus very high and needs an in deep communication activities in order to let the different target groups grow and better understand the direct and indirect repercussions on their own approach about cogeneration potentials and SOFC applications, especially in case of targets of distributed CHP (hundreds of kW) and adoption of not conventional fuels (such as biogas and syngas).

To better monitor the Communications activities, results, follow-up, a performance index system will be provided for each target groups.

Thanks to the Partnership composition, the Communication and Dissemination activities will be disseminate at European level in close coordination with communication offices of all partners that can display a specialized communication strategy according to each partner's competences. Scientific communication will be integrated by technical communication, economic impact analysis and related communication Coordination will meet communication requirements helping to reach dissemination goals in a more efficient way.

The general strategy related to communication should be defined according to the five W: who, what, when, where, why and also how. In particular:

- Who: the chosen target groups
- What: the message we want to communicate
- Where: in which place/event?
- When: define a timeline

- Why: why we want to communicate the message and why they should be interested in it?
- How: which is the channel/method in which we will communicate the message?

This document aims to give an answer to these six bullet points for each chosen target group, giving details on the objectives, the targets and the methodologies to reach them.



Figure 1. The 5 W + 1 H concept.

1. General Strategy

Chapter 1 contains the General Strategy. In more details, Chapter 1.1 resume DEMOSOFC objectives and Exploitable results. Chapter 1.2 describe the dissemination and communications goals. Chapter 1.3 explain the dissemination strategy and the 1.4 the exploitation strategy. The 1.5 section give information about branding (identify elements and eventual co-branding).

1.1 DEMOSOFC Objectives and Exploitable Results

DEMOSOFC main objectives are:

1. Demonstration and in-deep analysis of an innovative solution for distributed CHP generation based on SOFC, with high interest in industrial/commercial environments as it would represent the best-in-class solution in terms of efficiency and emissions in the domain of sub-MW distributed CHP.
2. Demonstration of a distributed CHP system fed by a biogenous CO₂-neutral fuel. The considered fuel is digester gas from anaerobic digestion of municipal wastewater.
3. Demonstration in a real industrial site, i.e., the wastewater treatment plant providing biogas to the SOFC.
4. Achievement of the high performance of the integrated biogas SOFC system in terms of electrical efficiency, thermal recovery, low emissions, plant integration, economic interest for a better use of renewable fuels in a context of decreasing incentives to green technologies.
5. Exploitation and business analysis scenarios for the implementation of several integrated biogas SOFC plants across Europe.
6. Dissemination of the higher energy and environmental performance of such systems and analysis of available market opportunities.

Main reachable results will be:

1. Demonstration and collection of results of impressive electrical efficiency (especially in sub-MW scale)
2. Demonstration and collection of results of effective heat recovery and, in general, of energy integration in a real industrial context
3. Demonstration and collection of results of low pollutant emissions
4. Experience of design, installation, management, regulation, degradation
5. Clear evidence of energy, environmental and economic results, for future installation
6. Clear evidence of market potential of such systems, fed both with renewable (biogas, syngas, biofuels, hydrogen) and traditional (natural gas) fuels
7. Dissemination for replication

1.2 Dissemination and Communication Goals

The goals of DEMOSOFC are to provide the best efficiency system of energy recovery (mainly electrical, but also thermal) from a biogas stream produced in a waste water treatment plant, so with a process that uses renewable supplies.

The challenge is to translate the research effort on a marketable technology with the main purpose of vesting this plant with a suite of economically efficient energy system and green energy tech. These goals are important because the identification of this two issues are main topics in the agendas of many industries that even more are searching ways to be compliant with environment and sustainability issues and in the meantime reduce energy production costs.

Moreover, policy makers pay more attention on new tech to update command and control instruments and economical tools (subsidies and environmental taxes). Public authorities are usual to adopt technological standards into define policies.

Our objective is to evidence that DEMOSOFC could be an innovative system and be considered a step forward in the energy industry. In order to provide good quality information about the project we are obliged to consider every stakeholder. In particular, we have considered the Wastewater Treatment Plant managers (WWTP), the energy utilities, policy makers at national and local level (municipalities , local communities), the scientific community (Academia and students). Following a bottom-up approach, partners have to consider the community of people of a specific territory to acquire feedbacks on the implementation of this tech. DEMOSOFC project could be allocated to the global European vision of enhance energy efficiency of a 20% up to 2020 (H2020 targets on renewables, GHG emissions reduction and energy efficiency).

A qualitative and quantitative representation of the achieved results will be included in the Communication plan .

The DEMOSOFC impact is not limited to the waste water treatment plants only but can be widespread to all the small-medium biogas plants, where biogas is usually produced from agro-industrial residues, livestock effluents and municipal wastes. The biogas potential is usually local and distributed, related to hundreds of kW plant, where fuel cells found the most attractive market.

Performance indicators will be used to define the effectiveness of the dissemination strategy. Main indicators will be:

- Newsletter: number of mail addressed which spontaneously inscribe to the newsletter, number of email addresses which read the newsletter (data available from the chosen software for newsletter), number of email addresses which reply and are active on the project
- Events: number of people who take part in the event, for examples: number of industrial managers, politicians and authorities, scientific community, citizens according to the different involved target.
- Social media: number of followers, likes, tweets, shares and views. All the statistics linket to in the social media tools.
- Website: number of visits available from Google Analytics.

Another added value that is necessary to communicate is the importance that this project gives on adding new knowledge. In particular, it is important to embroil with training modules the scientific community (students, technicians and others).

1.3 Dissemination Strategy

To set up an effective dissemination strategy, is important to define the main objective. In this project the objective is to create a set of activities specifically tuned on each target group in order to communicate the expected information in the best possible way. The pointed out strategy takes into account the following bullet points:

- Acquire content information
 - o State of the art, form a scientific point of view;
 - o Which target groups knows about the DEMOSOFC applied technologies?
 - o Which target groups should know about DEMOSOFC applied technologies?
- Organize content information
 - o Definition of the gap information for each target groups (present and future);
 - o Elaborate communication contents for each target groups;

- o Deliver and present adequate contents for each target group;
- Set up the activities for each target group
 - o Identify methods to deliver information;
 - o Identify instruments to deliver information (how send information);
 - o Produce a delivering time table (when send information);
 - o Identify methods on how manage the content ;
 - o Identify a strategy to reply on questions and doubts;
 - o Identify systems to create a critical debate about the project in order to involve different parties;
- Set up processes
 - o Organize activities into processes

1.4 Exploitation Strategy

An entire Work Package (WP6) has been devoted to the exploitation plan development.

WP6 will consider the commercial exploitation opportunities for the range of stakeholders relevant to the DEMOSOFC project. It will deliver an independent analysis of the potential market share of distributed SOFCs, and an analysis of bottlenecks in the supply chain that supports commissioning and operation of fuel cell CHP systems in the WWTP industry sector. These analyses will draw upon experience in the project, leading to a strategic view of the next steps required for similar integrated systems to increase market share. All partners in the consortium will participate in this activity, with specific outcomes for the end user, fuel cell developer and research institutes drawn out.

1.5 Branding

A brand image has been developed to help target groups to identify the project's image and related activities. Web, social media, press office and special events will be focused to two main goals. In one hand to support knowledge around what to concern the scientific topic, which is the base of DEMOSOFC; on the other hand communication will help target groups to follow and understand every step and its impact on daily life.

2. Target Groups and Communication Methods

To define the target groups is the first step to organize the Communication Activity.

General documentation will be provided on each target group. The minimum base documentation will be:

- Periodic newsletter to update end-user of DEMOSOFC contents/achievements. The newsletter will be sent on a three month basis to different groups identified after a special scouting of possible targets like: general press, specialized press, scientific press, academic press, press agencies with scientific specialization, schools, technical colleges, associations with technical and scientific interests.
- Press Releases: sent to the press on a quarterly basis, the press release may have extra activities in case of special events and new project's step. They will be sent to each partner in order to be personalized and adapted to partners and other country's special communication needs.
- Website News: 4 news per month as a basis to maintain presidium on project's developments and scientific and technological state of the art for what it concern topics related to DEMOSOFC main subject.
- Social media management: at least two post per week around the project and topics of scientific and technical interest concerning energy, environment, co-generation, engineering and similar, in order to maintain user's attention even when project news are not so frequent or too technical to be explained for dissemination purposes.
- Scientific results elaborated into papers and publications that will be submitted to scientific conferences.
- Open workshops or events for all target groups.

2.1 Manufacturers and Technology Providers

The project is considered of great significance by the whole consortium, and especially for industry, as it will help them to improve their position in the markets of reference, enhance their product and service portfolio with new features and knowledge, and expand their already recognized expertise.

Manufacturers and providers are related to different sectors, in particular:

- FC technologies, both at the level of stack and BoP components
- Biogas clean-up systems with high level of flexibility towards trace contaminants and macro-components
- System integrators of FC-based energy modules
- Auxiliary components for the effective thermal recovery from the SOFC modules and reuse inside the industrial/commercial application
- Control system (hardware and software) of FC-based energy systems

Especially for SOFC producers and manufacturers, an improvement in their market position is strongly recommended in order to increase production volumes thus reducing specific costs.

The minimum communication and dissemination strategy here is based on informative material such as leaflet, newsletter, technical report and tutorial video which will be provided. Particular attention will be given on explain steps to build up the structure and put on operations.

2.2 Wastewater Treatment Plant Managers

Consequence of DEMOSOFC mode of operation referring on energy production from biogas gained from wastewater treatment, it is relevant place in act a strategy to dialogue with WWTP managers. The matter here is to demonstrate that the implementation of SOFC tech will reduce by a 30% the energy consumption needs. Furthermore, the cogeneration factor covers around 100% of the thermal supply requested by the plant. These important elements are at the base of the message content to the mentioned target. Additionally, we have to provide guidelines to help managers on approaching SOFC tech management. If it is obvious send this kind of information on technical experts, it is less obvious the importance of give a first message to managers on what they will facing on daily activities with this new system. Particular focus will be given on suggesting strengths, opportunities, risks, weakness. Moreover, it is fundamental give data about methods and best practice to approach on this new type of plant. In particular, we have to give notice about physical magnitudes in order to establish cost center and pertaining variables. So these insights are useful to create a communicative content to better deliver the correct information.

The planned communication and dissemination strategy is based on a workshop with WWTP managers. Informative material such as leaflet, newsletter, technical report and tutorial video will be provided. Particular attention will be given on explain steps to build up the structure and put on operations. The aim is to give information about the expected achievements and which elements have to be considered to elaborate an effective Business Planning.

2.3 Biogas Plants

SOFC fuel cells have found a high interest in the biogas world because of their high performance also in the small-medium size plants, which are the most diffused type of local biogas production site.

Biogas can be derived from many human activities:

- Urban areas: biogas is produced from the anaerobic digestion of waste water (as in DEMOSOFC) or the organic fraction of municipal solid waste (OFMSW) or from landfill
- Agricultural activities: biogas is produced from the anaerobic digestion of livestock effluents, agricultural residues and crops.
- Industrial activities: biogas is also derived from the anaerobic digestion of food industry residues such as milk serum, vegetables and fruits peels, beer and wine residues, sugar production, oil and slaughterhouse residues.

From the above list is clear the wide possible interest in fuel cells in the biogas world. Usually biogas is available in a large number of local small sites, thus leading to many small-medium size plants, if transport costs wants to be avoided.

In this directions, the EASME - Executive Agency for SMEs will be considered as a potential channel to contact SMEs and involve biogas managers in the events and newsletters communication.

Dissemination will be also devoted to reach other biogas production sectors as the one presented, through informative materials, social media and public events in different countries according to the Partners location.

The planned communication and dissemination strategy is based on the organization of a workshop with energy utilities. Informative material such as leaflet, newsletter, technical report and tutorial video will be provided. Particular attention will be given on the explanation of the plant performances in order to encourage SOFC technologies use and applications.

The objective is to get in contact with local plant owners and show them the advantages of the DEMOSOFC concept in terms of higher economical revenues (due to higher electrical production), zero emissions (and thus zero problems with environmental authorities) and strong impact on the company image.

2.4 Energy Utilities

Energy utilities will be the most interested technical stakeholders in the adoption of the type of energy devices and concepts demonstrated in DEMOSOFC.

One of the output of SOFC plant is the energy production. The particular interest of energy utilities here is on the energy that is produced. We remind that this system use biogas fuel and so renewable source. Also we say that the market of energy is conditioned by the amount of energy introduced in the energy grid and that energy suppliers have to communicate the amount of energy that they will produce beforehand. The main issue here is that DEMOSOFC uses energy from renewable resource and with a principle of LCA (Life Cycle Assessment) because biogas comes from the wastewater treatment so potentially this resource can be used quite indefinitely but overall this system gives a stable production, a focal point for an energy utility.

The main communication strategy is transmitting the stability and the reliability of SOFC plant. The characteristic and performances are detailed with technical description in the WP7 deliverables.

The planned communication and dissemination strategy is based on the organization of a workshop with energy utilities. Informative material such as leaflet, newsletter, technical report and tutorial video will be provided. Particular attention will be given on the explanation of the plant performances in order to encourage SOFC technologies use and applications.

2.5 Policy Makers, Municipalities and Local Communities

Innovative technology application needs adapted policy and governance. The scope is persuading policy makers in the effectiveness of DEMOSOFC project. The aim of the SOFC plant is to evidence the results on energy efficiency and sustainability energy production both. These are two key elements to communicate the value of this project in compliance with the EU2020 path also. The 30% energy cost reduction in a water treatment plant of a public-services Utility means a lower expenditure for public accounts, moreover, the same amount of energy has been produced with non-renewable resources (cost growing over time). This issue could be a very impressive element to be developed for the Utility vision in order to put its glance forward. Engaging policy makers, at national and local level, let both apply the research on-going results on the different locations according to their real specifications and coordinate a common communication action properly. The main concept to communicate is based on the added value that SOFC technologies and industrial applications could mean for the social community in term of clean water, water and energy saving for a green use of the resources.

To transmit this notices occurs put the communication on different levels tuned on the audience (PMs, local community). Now if it is possible has a direct dialogue with policy makers and set up a direct channel where update the project results, otherwise it is more expensive give a direct communication of the project on each individual of a local community. This not means that they not will be informed. In fact, the consortium will dispose more workshops (almost 3) to deliver information about the project. In this case a website has been built where the local community (of the project demo site) can find both information about DEMOSOFC territory impact and performance notice that could be useful to create interest on the project results and it replicability in other communities/territories. On

enhancing the relationship with people, social media will be used to publish achievements and to enforce public interests and discussions .

The planned communication and dissemination strategy is based on the organisation of three workshops with municipalities and local community both. Particular attention will be given to include in these open discussion the policy makers at national level too. Informative material such as leaflet, newsletter, technical report, video, social media channels will be provided.

2.6 Scientific Community

The involvement of the scientific community is a duty. First of all, there is the principle to disseminate the products of the research itself among the Research Community; for this purpose, the chosen dissemination level for the project deliverables is “public”.) Thanks to this choice the collaboration and implementation of the project results from external experts is to be encouraged with the aim to let the research track evolution shorter. . Another relevant step is to spread the research products to scholars and academics in general to enforce the interest among students and research teams.

The planned communication and dissemination strategy is based , at least, on the organization of two workshops with the scientific community. Informative material such as leaflet, newsletter, technical report, video, social media channels will be provided. Training Modules and Seminars will be organized according to the relevant feed-back acquired during the initial dissemination activities focused on this target group. DEMOSOFC achievements and processes will be presented during national and international conferences and fairs to inform the scientific community. Furthermore, scientific publications will be developed by the consortium and the access will be open.

2.7 Society

The communication should also be able to reach the society: the citizens are the end-users of the SOFC industrial application.

Specific actions will be planned for interest-grouping such as schools and citizens who are interested to visit the DEMO Plant, or to participate to seminars. Thanks to their participation a follow-up will be held and the information acquired will be used to steer the further information actions organized for this target group in order to increase the interest on innovative and sustainable energy systems and to let the information need updated in comparison with the achieved research results..

In Turin specific activities for exchanging knowledge between the research sector and the schools are already ongoing, for example the “Scienza Attiva” portal [3]. DEMOSOFC is already listed in the available opportunities for high schools and teachers could decide to present this project to their students.

Specific attention will be also devoted to the dissemination to the society, through local newspapers and TV news, social media and public events in order to grow knowledge about the bio-waste chain and the importance of recycling and waste sorting for a more sustainable future.

Different videos will be developed on the waste chain (from waste water to its treatment to the energy recovery with DEMOSOFC) and spread on different channels (newsletter, YouTube, social media as Facebook and Twitter, DEMOSOFC website, online newspapers). The idea is to grow interest in the society for the waste to energy chain, underlining where public funding go and how they are used.

Throughout all Europe, since many years, the “*Night of the Researchers*” is also a diffused event to shorten the distance between research and citizens: DEMOSOFC will be included in the Politecnico activities for this event.

2.8 Press Community

The press community need to be identified after a deep analysis of different press sectors with particular reference to scientific journalists active as a free-lance or part of mainstream media with scientific editorial staff. Lists of journalist will be moreover shared in:

- Local press: for any partner location and any area where project’s activity take place;
- General press: to share contents of general interest;
- Scientific press: the most important group to be defined looking for journalist with special interest in energy and sustainability;
- Technical press: useful to share technical information and to generate interest in the professional community which can be seen as a leverage for marketing the DEMOSOFC technical solution.
- Professional press: always involved to connect with the market in which the project is aimed to have a major impact;

All these targets must be considered in their online and offline - paper - version and integrated with social media interactions in order to exchange experiences, produce SEO results and share opinions as an informal channel of dissemination.

3. Communication channels and tools

The communication will be performed with different channels and tools according to the target and the objectives. The main channels and tools to be used will be:

- **Website:** 4 news each months focused on DEMOSOFC or related scientific and technical topics;
- **Social Media**
 - Facebook: 8 post each month from web contents and/or related and scientific topics;
 - Twitter: scouting of connections for networking purposes and interaction with scientific and technical lists;
 - Google+: same contest as web site and Facebook, it is useful for SEo purposes;
 - Storify: as aggregator of social media contents especially during dissemination events;
 - YouTube
- **Press office:** 3-6 press releases per year about DEMOSOFC progresses;
- **Newsletter:** 4 Newsletter per year as a synthesis of contents published from website, press office and a selection from social media - e.g. Storify;
- **Events:** events and contest involving schools and universities in order to disseminate topics related to renewable energy and sustainability by means of technology;

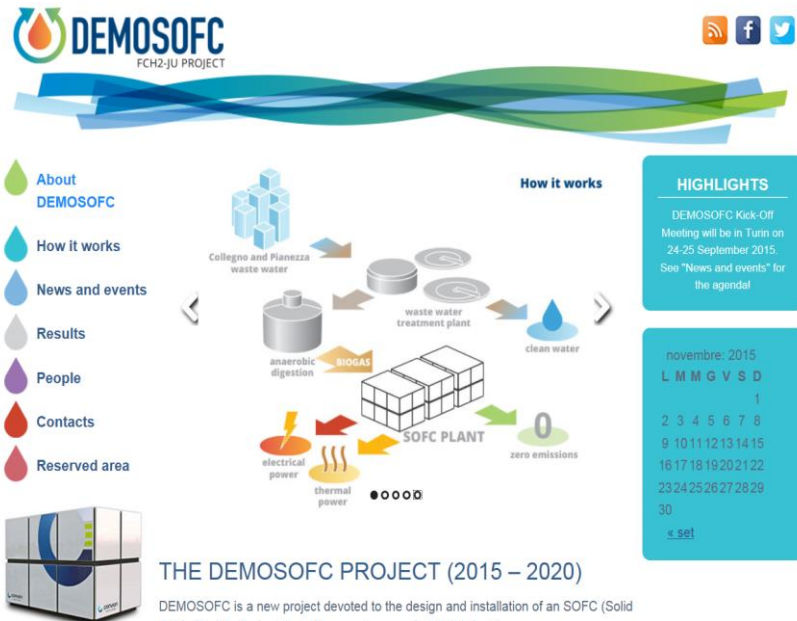
Every action will be shared with partners in order to coordinate activities producing similar effects in all the member countries involved in DEMOSOFC project.

3.1 DEMOSOFC Website

DEMOSOFC website (www.demosofc.eu) has been issued online for the kick-off meeting. Different sections are available for what it concern the concept, the news, results and contacts. Furthermore, a reserved area for the consortium is also available.

DEMOSOFC has already been presented on TV shows, journals and radio and the Local Economic Development forum in Turin. All these events have been listed with links in the “News” section.

Main screen-shoots of the WEB site are following.



DEMOSOFC
FCH2-JU PROJECT

[About DEMOSOFC](#)
[How it works](#)
[News and events](#)
[Results](#)
[People](#)
[Contacts](#)
[Reserved area](#)

How it works

Collegno and Pianezza waste water → anaerobic digestion → BIOGAS → SOFC PLANT → electrical power, thermal power, zero emissions

waste water treatment plant → clean water

HIGHLIGHTS

DEMOSOFC Kick-Off Meeting will be in Turin on 24-25 September 2015. See "News and events" for the agenda!

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THE DEMOSOFC PROJECT (2015 – 2020)

DEMOSOFC is a new project devoted to the design and installation of an SOFC (Solid

Figure 2. DEMOSOFC website homepage.



DEMOSOFC
FCH2-JU PROJECT

[About DEMOSOFC](#)
[How it works](#)
[News and events](#)
[Results](#)
[People](#)
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News and events

DEMOSOFC at 3rd WorldLEDForum!

Tomorrow DEMOSOFC will be presented at the 3rd World Forum of Local Economic Development in Turin (IT) by Ing. Andrea Lanzini and Prof. Massimo Santarelli. Find the full program of the event here: <http://www.ledforumtorino2015.org/>

EFC 2015 Conference

DEMOSOFC will be presented at the EFC2015 Conference in Naples (16th-18th December 2015). See the conference program here.

DEMOSOFC live on Radio 24 and Youtube

DEMOSOFC is already online! Prof. Massimo Santarelli has presented the DEMOSOFC project on a Italian National Radio (Radio 24) and on a video on Youtube. Radio 24 interview

Kick-Off Meeting

OPEN WORKSHOP DEMOSOFC BIOGAS FED FUEL CELL SYSTEMS FOR INDUSTRIAL APPLICATIONS 24th SEPTEMBER 2015 2.00 – 6.30 P.M. Salone di Onore, Castello del Valentino – Turin (IT) DEMOSOFC is a new European Union financed project which involves the design and installation of a biogas fed fuel cell system, using

HIGHLIGHTS

See the "Results" section for the DEMOSOFC Kick-Off Meeting presentations!

RECENT ARTICLES

[552](#)

[DEMOSOFC at 3rd WorldLEDForum!](#)

[EFC 2015 Conference](#)

[DEMOSOFC live on Radio 24 and Youtube](#)

[Kick-off meeting presentations available!](#)

November 2015
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Figure 3. "News and events" section.

3.2 Press Office

Politecnico di Torino has a specific Press Office that coordinates the communication during the main project events (relazioni.media@polito.it). To enforce the Institutional Communication activity, specific actions will be managed by the Coordinator. These additional activities will have the aim to grant communication and participative actions during the whole project through its dedicated Press Office which will be focused on identifying media stakeholders specialized in science, technology, innovation and environment, which are the target of project's communication.

Following a continuous analysis covering every research development and connected topics, the activity can be defined as following:

- news definition;
- press release;
- media market analysis in order to identify the best option to target in consideration of the topic, and particularly among:
 - local press: in case of local events connected to the project;
 - technical press: always involved to connect with the market in which the project is aimed to have a major impact;
 - general press: to address at a lower level of specialization the general public;
 - scientific and technical press: to share DEMOSOFC concept, broadening the dissemination to a science-sensitive public;

After sending the press release, a special recall will be set up to every single contact in order to support the idea and to generate a process that helps journalist to understand the topic.

A press review will help to understand the media coverage and identify where to address new press actions.

Every press action will be organized in coordination with all the partners in order to strengthen the dissemination potential.

3.3 Social Media

The research group of the Politecnico di Torino which is involved in the project is called **STEPS** (Synergies of Thermo-chemical and Electro-chemical Power Systems). The STEPS group has:

- a Twitter account "Steps_Polito" which communicate all the main events related to the projects. Different tweets have been established in occasion of the speech at the 3rd World Local Economic Development Forum in Turin, or when DEMOSOFC has been presented in a national TV show on "La7" channel. Answer and followers are growing with the growing communication. Furthermore, we are trying to increase followers from different research area to have a wide communication and contacts. All the communications have been done with the link to the Politecnico di Torino official Twitter page to have more visibility.
- A YouTube channel "Steps_Polito" which the created video are uploaded and shared with the media profiles.
- A Gmail account to receive and send emails.



Figure 4. STEPS twitter account.



Figure 5. Tweets on DEMOSOFC kick-off meeting.



Figure 6. Tweets on 3rd World Local Economic Development Forum.



Figure 7. Tweets on TV presentation.

A Facebook profile is also under development for the STEPS group, in which the main DEMOSOFC content will be shared. Furthermore, all the STEPS members are active on LinkedIn and share videos and news in this professional social network.

3.4 Informative material

An identifying logo has been developed for representing and defining the DEMOSOFC concept. The logo has been represented in different forms (see figures below): it arises from the development of the water and fuel cells symbolisms into the simple concept which match them with the project acronym. Furthermore, a leaflet has been prepared with a standard format which will be used for the future events (and has already been shared during the kick-off meeting) as common communication tool to be used by every partners for every kind of dissemination events .



Figure 8. DEMOSOFC logo concept



Figure 9. DEMOSOFC logo #1.

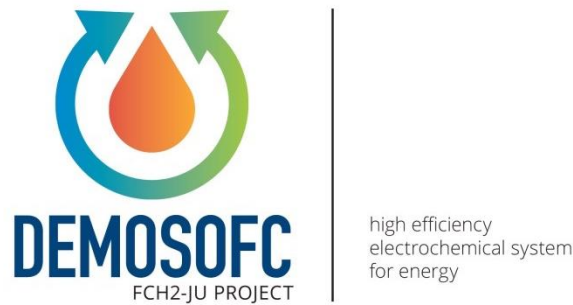


Figure 10. DEMOSOFC logo #2.



Figure 11. DEMOSOFC logo #3

Newletters will be also issued during the overall project period. See paragraph 2 for further details.

Different videos are available on the previous SOFCOM project and on the description of the new DEMOSOFC project, performed by prof. Massimo Santarelli - Politecnico di Torino through interview.

Taking into account the risen interest, Polito, as coordinator, is developing other videos with different targets:

- One video for the generic audience, where the concept of SOFC, and in particular its possible application in WWTP, is explained and the DEMOSOFC is then presented.
- One video for the scientific community, shorter and with more details on the technical features of the SOFC integrated plant. This video will be used during conferences and scientific workshops.

At present (M3), these are only two starting videos to communicate the DEMOSOFC concept. As soon as the modules will be installed (in less than one year) new videos will be developed to show the

plant, always related to the chosen target. One video, for example, will be devoted to the communication to industries, to show the market potential of such installation. The project Partners are encouraged to develop this communication activity as well.

Mini-pills video to be shared on social media and web like “science and technology for dummies” in order to explain complexity in a very easy way;

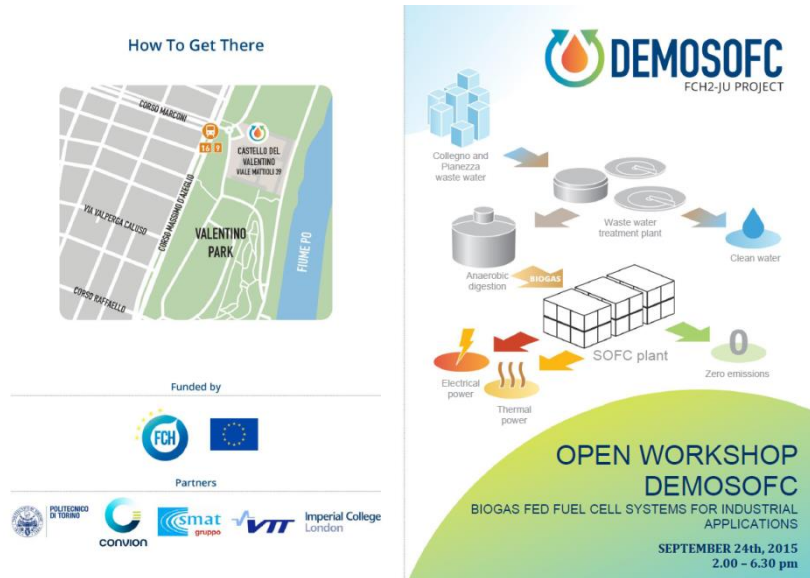


Figure 12. Leaflet front side.

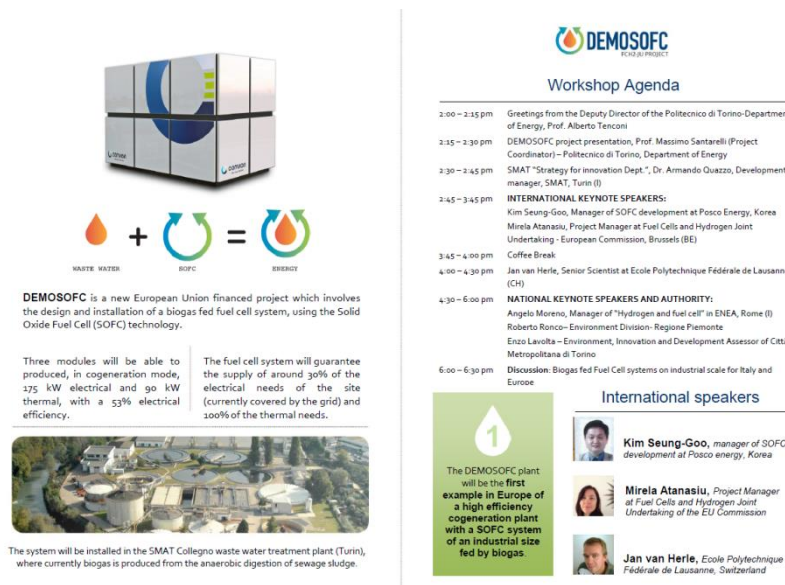


Figure 13. Leaflet back side.

3.5 Publications and reports

Consortium members will participate to high-profile events and conferences like Lucerne European Fuel Cell Forum, International Symposium on Solid Oxide Fuel Cells, Fuel Cell Seminar, ASME International Fuel Cell Science, Engineering & Technology Conference, The Fuel Cells Science & Technology conference - A Grove Fuel Cell Event, IAEE European Energy Conference (Energy Economics).

3.6 Conferences and Workshops

For each Target Group the Consortium will organise specific meetings and workshops in order to facilitate the information/expertise exchange and to collect data and feed backs useful to apply improvement actions for the further dissemination activities:

- 3 open workshops for Industrial Community
- 3 open workshops for Society
- 2 open workshops for Scientific Community
- 5 MOOCs using EMMA - <http://platform.europeanmoocs.eu/> - EU project framework;
- Dissemination in the framework of University educational activities;
- Dissemination and contest for schools focusing on renewable energy and sustainability;

3 Open Workshop for industrial community

They will be divided in:

- o one for manufacturers and technologies provider
- o one for end user managers
- o one for Energy Utilities

Topics will include identifying new areas of application and challenges on innovation potentials. In every Open Workshop addressed to the Industrial Community, member of the Scientific community and of the Society will be invited and supported to acquire relevant information (scientific and practical) and contact references.

Traditional and e-training (training modules available on the project web site) activities in the project are also seen as an important dissemination channel having solid potential multiplier effect. Practical training (at least 2 and others on demand) will be organized for decision makers of Energy Utilities and Municipality, National Administrative Staff, for taking initiatives and organization of projects development and completion. Training modules will be provided via MOOC channel.

3 Open workshops for Society

Open Workshops will be organized in each Country participating the project. The main contents of these events will be focused on the real needs of this target group. Industrial and Scientific community members will be welcome to these open workshops in order to facilitate the exchange of different professional expertise and to stimulate the society members (citizens, especially students) on practical issues linked on common technical interests.

2 Open workshops for Scientific Community

Open Workshops will be organized for scientists and engineers on identification of positive possibilities of SOFC systems in industrial applications. Topics will include identifying new areas of research and challenges.

Traditional and e-training (training modules available on the project web site) activities in the project are also seen as an important dissemination channel having solid potential multiplier effect.



For MOOCs training tool, the coordinator is valuating to collaborate with the EMMA Project whose framework is a multilingual platform funded by the European Union's Competitiveness and Innovation framework Programme under Grant Agreement no 621030, devoted to create a European Environment for MOOC - massive online courses - to be shared by the European Universities for distance learning of academic level.

4. Partners communication plan

Even if the communication will be managed in a centralized way with newsletter and events organized by the Coordinator as defined before, single partners have their press office and all the informative material will be share with them so that information could travel from the Polito and DEMOSOFC management network to each single partner network.

4.1 VTT

VTT has plans to send shortly a press-release of the start of the project with description, goals, etc. This is mostly to target Finnish media & companies & general public. They intend to use also VTT's blog & Twitter & other social media channels available to us to promote the project. These channels will be used after the press-release is out and also throughout the duration of the project. Their communications people could create suitable hashtags for Twitter, etc.

4.2 Convion

Convion people intend to attend Hannover Messe, Group Exhibit Hydrogen + Fuel Cells + Batteries and FC EXPO in Tokyo, Japan – most probably every year during the duration of the project. Apart from those, they have identified Amsterdam Water Week, IFAT in Munich and UK AD& BIOGAS event as promising European events to be present at least at some occasions and to tell about DEMOSOFC during the project. Obviously they should co-ordinate attendance to these events with other participants and present our case together.

On a national level, Tekes – the Finnish Funding Agency for Technology and Finnish Innovation Fund Sitra both have circular economy and renewable energy on their agenda and we will keep them informed of DEMOSOFC progress and achievements and through them, reach attention of public officials, politicians and other decision makers. They intend to present DEMOSOFC case in the oncoming events of these organizations.

DEMOSOFC workshops will be a venue of communicating their cause and they will produce content to them.

As far as web/ social media are concerned, Convion will utilize its web site www.convion.fi for communicating the story of DEMOSOFC and the essential takeaway for relevant audiences. Through the web page they will also cross link to content published by other consortium members.

4.3 Imperial College

Regarding the communication actions that IC takes, they have been preparing an article about the kick-off meeting published on our website.

You can reach it from this link.

<http://www.sustainablegasinstitute.org/demosofc-turning-waste-into-energy-in-turin-italy/>

They haven't promoted yet, so there's room to incorporate POLITO's feedback.

Looking ahead, they plan to do the same for the next annual meetings (with a better timing) and have the article in the news section. Their target audience would be mainly the University and the industry.

The exploitation plan will start with the analysis of potential market potential for SOFC-based large-scale CHP in EU. The analysis will first focus on the waste water treatment industry, considering scale-up of the demonstration technology, the distribution and characteristics of waste water treatment plants in the EU. Then, opportunities outside this sector will be considered. In order to do so, energy

needs of the industry in the EU, energy and CO₂ prices as well as financial incentives will be aspects included in the assessment alongside their regional distribution.

For the exploitation options that will be identified, a series of aspects will be assessed. The state of the art of the technology as opposed to potential competitors, business model options and the recommendations for the commercial setup of the business (i.e. market size, team characteristics, options for financing with relative risks and opportunities) will be considered.

An analysis of the supply chain opportunities and bottlenecks will be carried out, with recommendations for resolving supply chain inefficiencies.

Their communication manager, Zara will be in touch with the DEMOSOFC one, receive feedback on the plan and shape the communication strategy in the way which would seem best.

4.4 SMAT

SMAT has its own press office which already prepare informative material in the framework of the kick-off meeting. The responsible for this activity, Marisa Di Lauro, will work in cooperation with the DEMOSOFC coordinator to reach a number of industries and authorities as higher as possible.

SMAT has in fact a lot of connections, because of its public side, in the politicians and authorities and is strongly interested in involving them in the communication of the DEMOSOFC concept.

For a large company as SMAT, image and communication are pillar in the company and they will cooperate in the events organization and informative material production and share.

5. Implementation Plan

This section contains scheduling of DCP activities. The activities are scheduled as defined on the table below. Activities calendar could be changed due to shifts in the project development.

International Meetings:

- At M1 an International kick off Meeting will be organized in Torino (IT), to open the dissemination of The Project, with invited stakeholders from EU.
- At M36 (Brussels, BE) an International Open Workshop will be organised to present the advancement of the project to large EU audience, with a call for papers open to industries and researchers active in the fields covered by the project
- Finally, at M60 (end of the project) an International Open Workshop will be organised in Torino (Italy) in the site of the DEMO system, with a call for papers open to industries and researchers active in the fields covered by the project.

5.1 Social media implementation plan

- Facebook: 2 to 4 post per week concerning project's steps - from website - or related topics identified from scientific press. Post on pollution, energy, agriculture, waste and any other topic that can create attention around the project's focus.
- Twitter: the profile feeding is based on Facebook and website content selection and on the monitoring of related topic profiles in this social media.
- Google+: the profile is useful for SEO purposes and should recall a selection of project's news selection taken from website.
- Storify: a synthesis of social media content organized in order to describe in a logical perspective the discussion on project's topics.
- A set of # will be defined in order to list project's contents and priorities getting them reachable in internet research.
- A set of short-movies will be produced with a simple format helping people to produce easy to use materials as an instrument to explain and clarify to general public and journalist the aim of the projects and goals reached.
- Newsletter: a synthesis of project's actions, news and related contents taken from dissemination strategy and scientific journalism news.
- Other social media might be used for vertical needs concerning events, workshops, professional community networking, with opening profile as:
- Contently: easy to use repository for articles, papers and other published content;
- LinkedIn: a useful way to connect professional people and inform the professional community of project's aims and results.

Table 1. Implementation plan

Year	Month	M	Ordinary communication activities	Extra-ordinary communication activities
2015	September	M1	Press release Twitter account creation DEMOSOFC website creation Communication for the kick-off meeting via email, website..	International kick-off meeting (Turin, IT)
	October	M2	Newspaper interviews related to the kick-off meeting	
	November	M3		
	December	M4		DEMOSOFC presentation at Naples EFC conference
2016	January	M5	Facebook account creation Google + account creation Storify account creation Newsletter software acquisition For all 2016: Website -> 4 news each months Facebook -> 8 post each month	
	February	M6	Press release Newsletter	
	March	M7		
	April	M8		MOOC
	May	M9		
	June	M10	Press release Newsletter	
	July	M11		DEMOSOFC presentation at ASME conference DEMOSOFC presentation at Lucerne Fuel Cell conference
	August	M12		
	September	M13	Press release Newsletter	Night of researchers, Turin
	October	M14		Events and contest involving schools and universities
	November	M15		
	December	M16	Press release Newsletter	
2017	January	M17	For all 2017: Website -> 4 news each months Facebook -> 8 post each month	
	February	M18		
	March	M19	Press release Newsletter	
	April	M20		MOOC
	May	M21		
	June	M22		
	July	M23	Press release Newsletter	
	August	M24		
	September	M25		Night of researchers, Turin

	October	M26	Specific Workshop with manufacturers and technology providers	Events and contest involving schools and universities
	November	M27	Press release Newsletter	
	December	M28		
2018	January	M29	For all 2018: Website -> 4 news each months Facebook -> 8 post each month	
	February	M30		
	March	M31	Press release Newsletter	
	April	M32		MOOC
	May	M33	Specific Workshop with Municipalities and Local Communities (society)	
	June	M34		
	July	M35	Press release Newsletter	
	August	M36		International Open Workshop (Brussels, BE)
	September	M37	Specific Workshop with Scientific Community	Night of reserachers, Turin
	October	M38	Specific Workshop with Energy Utilities	Events and contest involving schools and universities
	November	M39	Press release Newsletter	
	December	M40		
2019	January	M41	For all 2019: Website -> 4 news each months Facebook -> 8 post each month	
	February	M42		
	March	M43	Press release Newsletter	
	April	M44		MOOC
	May	M45	Specific Workshop with Municipalities and Local Communities (society)	
	June	M46		
	July	M47	Press release Newsletter	
	August	M48		
	September	M49		
	October	M50	Specific Workshop with WWTP managers	Events and contest involving schools and universities
	November	M51	Press release Newsletter	
	December	M52		
2020	January	M53	For all 2020: Website -> 4 news each months Facebook -> 8 post each month	
	February	M54		
	March	M55	Press release Newsletter	
	April	M56	Specific Workshop with Scientific Community	MOOC

	May	M57	Specific Workshop with Municipalities and Local Communities (society)	
	June	M58		
	July	M59	Press release Newsletter	Events and contest involving schools and universities
	August	M60		International open workshop (Turin, IT)

6. Contributions to Standards

This section contains a first indication about the development of activities useful for RC&S outcomes.

The demonstration plant is a real industrial application; still, it is a highly innovative plant and therefore, in the first administrative authorization activities that we have performed, it is considered as a “prototype” in the legislation of the Country where we will install the plant (Italy). As a consequence, so far we have been facilitated in the RC&S needs and impositions. Nevertheless, some needs will for sure arise.

First, we will make reference on the existing legislation in the topics related to the DEMO:

- Biogas
 - DIRECTIVE 2014/25/EU → On procurement by entities operating in the water, energy, transport and postal services sectors and repealing Directive 2004/17/EC’
 - DIRECTIVE 2009/28/EC → On the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC
 - DIRECTIVE 2001/C 14/26 → Opinion of the Economic and Social Committee on ‘The revision of Council Directive 86/278/EEC on the use of sewage sludge in agriculture’
 - COM(2005) 627 final → The support of electricity from renewable energy sources
 - COM(2005) 628 final → Biomass action plan
- Regulations on Urban WWTP:
 - 91/271/EEC: → Council directive concerning urban waste water treatment
 - 86/278/EEC → Directive on Sewage Sludge
 - DIRECTIVE 91/271/EEC → concerning urban waste water treatment (WWD)
 - DIRECTIVE 86/278/EEC → on Sewage Sludge (SSD)
 - DIRECTIVE 2009/28/EC → Renewable Energy Directive (RED)
 - DIRECTIVE 2010/75/EU → Industrial Emissions Directive (IED)
 - DIRECTIVE 2008/98/EC → Waste Framework Directive (WFD)
- Industrial CHP
 - DIRECTIVE 2004/8/EC → on the promotion of cogeneration based on a useful heat demand in the internal energy market and amending Directive 92/42/EEC
 - Member State-specific tax and White Certificate legislation
 - In the Italian case, CHP systems, both residential and industrial, are evaluated with respect to the High Efficiency Cogeneration (CAR) legislation (D.M. 05 September 2011), which labels as “CAR” the plants with overall efficiency higher than 75-80% (depending on the technology) and a Primary Energy Saving higher than 0-10 % (depending on the size). CAR plants obtain a partial exemption on taxes on the NG price and a certain number of White Certificates, which can be sold on the market at the prevailing value (D.M. 28 December 2012).
- Fuel cells
 - STANDARD from CEN/CENELEC - pr EN 50465 → Fuel Cell Gas Heating Appliances

- STANDARD from International Electrotechnical Commission - IEC 62282-3-100 (2012-02) → Stationary Fuel Cell Power Systems - Safety
- STANDARD from Deutscher Verein des Gas und Wassertaches - DVGW VP119 → Preliminary Basic Rules for Testing Fuel Cell Gas Appliances 70 kW
- STANDARD from Technical Committee No. 105 -Fuel Cell Technologies → Test Method for the Performance of Stationary Fuel Cell Power Plants
- STANDARD from International Electrotechnical Commission - IEC 62282-2 (2012-03) Ed. 2 → Fuel Cell Modules
- STANDARD from International Electrotechnical Commission - IEC TS 62282-7-1 (2010-04) → Single Cell Test method for Polymer Electrolyte Fuel Cells
- STANDARD from International Electrotechnical Commission - IEC 62282-3-300 (2012-06) → Stationary Fuel Cell Power Systems – Installation
- DIRECTIVE 2010/30/EU → On the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products
- DIRECTIVE 2003/87/EC → Establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC
- Electricity market (Country dependent: Italian case)
 - DIRECTIVE 2009/72/EC → Concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC
 - COM(2006) 841 final → Prospects for the internal gas and electricity market
 - DIRECTIVE 2008/92/EC → Concerning a Community procedure to improve the transparency of gas and electricity prices charged to industrial end-users (recast)
 - In the Italian situation, the electricity price for industrial consumers is dependent on annual electrical consumption (kWh/year from the grid) and can vary from 10 to 30 c€/kWh (Eurostat, 2013). The reference legislation on the electricity market is the D.L. 93/2011. The electricity produced in a CHP plant can be either sold to the grid or self-consumed by the producer. In case of electrical energy from renewable sources (as biogas) sold to the grid, from 2015, a price is fixed depending on the case (D.M. 06 July 2012). Where electrical energy self-consumed within the plant, no subsidy is available anymore (the previous law on Green Certificate has been removed) and thus the only remuneration is given by the savings with respect to the electricity not purchased from the grid.
- Natural gas market (Country dependent: Italian case)
 - DIRECTIVE 2009/73/EC → Concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC
 - COM(2006) 841 final → Prospects for the internal gas and electricity market
 - DIRECTIVE 2008/92/EC → Concerning a Community procedure to improve the transparency of gas and electricity prices charged to industrial end-users (recast)
 - In the Italian scenario, the natural gas price for industrial consumers is dependent on the annual consumption (GJ/year) and can vary from 3 to 8 c€/kWh (Eurostat, 2013).

As a second step, during the experience of the DEMO, we will make a direct evaluation of the **RC&S needs still pending**.

Some examples:

- 1) Quality of the biogas for SOFC applications (macro-composition, humidity content, contaminants)

- 2) Standards about the biogas clean-up section, depending on the quality of the biogas
- 3) Analytical requirements of the biogas before the SOFC system (points of sampling, type of signal, type of contaminants, type of measurements, precision of the measurements, etc)
- 4) Compression of the biogas for SOFC applications, and considerations related to ATEX and PED
- 5) Grid connections of the SOFC plant
- 6) SOFC plant electrical connections in the “isolated micro-grid” composed by the WWTP (or in general the plant producing biogas in which the SOFC system is installed)
- 7) Thermal recovery from the SOFC system: methods for measurement and quantification of the heat recovered
- 8) Measurement of the electrical, thermal and global efficiency of the SOFC installation: energy labeling
- 9) Measurement of the pollutant emissions from the biogas-fed SOFC system: quantities and frequencies of sampling, type of pollutant to be detected
- 10) Others

All these arguments, and other arguments that we will determine as important during the plant experience, will be subjected to RC&S analysis.

7. Conclusions

The DEMOSOFC dissemination plan has been defined at the beginning in order to have a clear route on how to manage the dissemination. This task is in fact seen, both from EU commission and the consortium, as a key issue in a large size industrial demonstration plant as DEMOSOFC. The main targets have been defined, together with the instruments able to reach them and the people/ society which will do this work. Furthermore, partners have been involved in the dissemination activities definition so that the consortium can guarantee a common and unique effective dissemination.

8. References

- [1] Communicating EU research and innovation guidance for project participants, 25 September 2014, available at:
- [2] http://ec.europa.eu/research/participants/data/ref/h2020/other/gm/h2020-guide-comm_en.pdf
- [3] SOFCOM website www.sofcom.eu
- [4] Scienza attiva portal <http://www.scienzattiva.eu/>
- [5] EASME - Executive Agency for SMEs <https://ec.europa.eu/easme/>

9. Abbreviations and Definitions

CHP	Combined Heat and Power
DCP	Dissemination and Communication Plan
SOFC	Solid Oxide Fuel Cell
WP	Work Package