

Summary of the workshop

A European Common Research Agenda for Alternative renewable fuels, Energy storage and Sector coupling

June 28th 2019

Timmo Ritonummi

Opening words, presenting work group 6 (Energy efficiency in industry) and 8 (renewable fuel) of the SET PLAN implementation.

Value chain in renewable fuel is becoming a value web rather than chain. There is strong uncertainty on which technologies will develop faster and play a key role. Difficult to forecast progress as some technology develop faster than anticipated.

Thomas Schleker

Thomas Schleker presented the policy framework regarding energy (target for 2020 and 2030), job, growth, tools to spur innovations and the SET-plan. In addition, he presented the call for the ECRIA project (scope and expected impact (identifying gap, addressing the complexity of the energy system)). European research and innovation days in September in Brussels.

Olivier Thomann

Olivier Thomann presented the BALANCE project and the technology behind (reversible Solid Oxide Cell). His take away messages are:

Hydrogen supports the deployment of variable renewable power

Hydrogen enables decarbonisation of hard-to-decarbonise application

Rapid development of electrolyser technologies

Solid Oxide Cells have very high potential due to high efficiency for hydrogen and power production

Isabelle Südenmeyer

Isabelle Südenmeyer presented the SmiLES project. Bring together the best practice of smart storage integration gained in national projects for simulation and optimisation of energy system and energy storage.

Multi-energy system is a rather new field, with a high variety in the different scale (geo scale, time resolution, simulation period, simulation type). Strong mobility support from the project. A solid SmiLES methodology was developed, which enables cooperation and comparison between the different works. In addition, SmiLES is bringing online a data platform.

Bernd Wittgens

Bernd Wittgens presented the AMBITION project. The policy background of the project is the RED II directive.

The necessity of energy system integration is emphasised (biofuel production, renewable electricity through hydrogen). The hydrogen addition support the carbon efficiency of the biofuel process. Using the RED II directive, we need to build 200 biofuel plants for 2030, which is extremely challenging as a timeline. Strong development of the biofuel plant and process is needed. Today it is not clear which will be the dominant fuel, the best process, and the best feedstock.

The "Biofuel ECRIA" documents are presented (recommendation for research and white papers on pre-treatment, gasification, synthesis gas fermentation, potential for sector and process integration. The AMBITION recommendations: basis research are the capital of the future, enable building of large enough pilot systems (TRL>4). Enable the building of demonstration plants (TRL>6), pass through the valley of death

of financing. EERA bioenergy, ETIP bioenergy and set plan action 8 are focussing on different stage of the technology. Research priorities (technology neutral through carbon efficiency and overall performance), compatible with existing infrastructure, engine and fuel producer have to work together.

Stephen McPhail

Stephen McPhail presented the policy framework for the energy in Europe. Also presented what are the funding programme on energy in Europe (1.5 G€ur/year). Probably some funding missing, issue due to the language barrier to survey all these. The Regional Funding Programme on Energy was also surveyed, which shows about 50 G€ur/y available in these programmes. The policy support for Hydrogen is increasing (data from the IEA report) in different country. The effectiveness of these policies is evaluated with the policy landscape (how much is the country doing for FCH and the market value of deployed applications). Different type of policy were presented (R&D grant, opex relief like tax break, support of PPP structure,...). The IEA 7 key recommendations to scale up hydrogen were discussed. Four key opportunities (industrial hubs: gas grid, mobility, industrial hubs, international trade). The reversible Solid Oxide Cell technology potential was presented considering the available renewable power and the overproduction of power and the different technology contributing to the storage of this technology. This is compared with the fund allocated for the development of such technology. 240 M€ur would be needed to develop the rSOC technology further all the way to concept system and it was drafted how they should be spent.

Clemens Düpenmeier

The SmiLes shared data and information platform (SDIP) was presented. The aim is to support the future work of multi-energy system modeller in the future. Specification and preparation phase are defined in the online system. An example was presented about the Köstendorf in Germany with different component models (like radiator with sensor). This platform is a first step towards modelling of multi-energy system containing of the methodology and workflow for collaboration. The outlook is that it would be an engineering platform on the web.

EERA secretary General, Adel El Gammal

Moderator the session on the perceived added value of the ECRIA project. The idea is to gather material for the next run of similar concept call. This type of project had a previous generation (IRP), which were extremely efficient to enable the collaboration between the different Joint Programme. There is uncertainty on the continuation of the ECRIA despite their good results. He presented the main characteristic of ECRIA projects. Some positive impacts of the ECRIA are the discussion undertaken with national governments for dedicated techno support, collaborative activities generated by the project involving non project-partner (industry,...), Research mobility scheme to support transnational research collaboration, number of joint publications. There is a need for mobility fund for it to happen. The achievement of the previous programme (IRP) are impressive and stems from the availability of funds to enable collaborative research. Current challenges: link with the industry to bring the technology to higher level (TRL 7-8). The added-value compared to an ERA_NET is the use of output from national projects counted as in-kind contribution, so the activities start on existing assets. They also avoid duplication of effort through national clustering. Need for new ECRIA- perspective for Horizon Europe and support to SET Plan: need of collaborative research, need of alignment of national and EU project towards the SET plan.

Open discussion on the lesson learned.

Stephen McPhail discussed that the interpretation of the different ECRIA projects on the way to implement has varied slightly, however the output aim at a common goals. The definition of the project call of ECRIA could be more clarified. A comment on the definition of the project should be more sharpened to improve the narrative. A comment from the audience: what is the difference between ECRIA and IP project in FP6 ? The collaborative money in these IP instrument was much higher. There should be more definition of the collaborative part, not specific research should use the funding, the budget should be higher to ensure higher quality collaboration. Comments from Isabelle Südenmeier: funding is needed to operate durable programme and dissemination (continuation). Bernd emphasised the flexibility of ECRIA which make it a



very versatile tool which has its own benefit. We should focus on the valuable element of IP and ECRIA programme.