

PROJECT FINAL REPORT

Grant Agreement number: 269119

Project acronym: ENERI 2010

Project title: Belgian EU Presidency Conference on Infrastructures for Energy Research

Funding Scheme: FP7-CSA-SA

Period covered: from 01/05/2010 to 28/02/2011

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4.1 FINAL PUBLISHABLE SUMMARY REPORT

Executive summary

The project aimed to organize a conference on Infrastructures for Energy Research (ENERI 2010) during the Belgian Presidency of the European Council. The conference was a 1.5 day event held in Brussels in the new conference facilities Square Brussels Meeting Centre on November 29th and 30th, 2010.

The conference objectives are to present the ESFRI's Energy Thematic Working Group Report 2010 and the three new research infrastructures which have been identified in the update 2010 of the ESFRI roadmap as well as to contribute to the development of a comprehensive strategy for research infrastructures in the energy field at pan-European level, in the framework of the European SET-Plan and of the ESFRI Roadmap. ENERI 2010 aimed also to contribute to the identification of possible actions to increase the human capital affecting the implementation of the energy research projects and to the analysis of the impact of research infrastructures (including e-Infrastructures) on the implementation of energy policies and sustainable development.

The target audience was the scientific community, R&D and science policy managers, the energy sector and industry, policy decision makers.

Summary description of the project context and the main objectives

The **Roadmap of the European Strategy Forum on Research Infrastructures (ESFRI)** states in its 2008 update: *The availability of economically competitive, environmentally friendly sustainable energy resources within the framework of a politically secure supply is key for European development. At present the EU leads the world in the efficient use of energy, in promoting new and renewable forms of energy, and in the development of low carbon emission technologies. **All these aspects rely on a multitude of test facilities and Research Infrastructures. The EU needs to have a strong base in these aspects, to be able to maintain the lead in the global search for new energy solutions.** (...) A sustainable energy future is possible if a large mix of energy technologies are developed and deployed. The approach to energy problems must be systematic and address the production, transport, transformation and final uses of energy.*

The goals of the European energy policy are very challenging:

- by 2020 the emission of green house gases should be reduced by 20%;
- the renewable energy contribution should be tripled up to 20% of primary energy and the share of biofuels should rise to 10%, while reducing the foreign dependence on the supplies;
- on the 2050 scale, new nuclear technologies such as Generation IV fission reactors and fusion energy are deemed to make important contributions in order to meet the climate and environment goals.

The **Strategic Energy Technology Plan (SET-Plan)** adopted by the European Union is aimed to meet these goals and to stimulate major technology breakthroughs such as:

- the development of second generation biofuels as a competitive alternative to fossil fuels;
- the development of the commercial use of CO₂ capture and storage technologies;
- the doubling of the capacity of largest wind turbines for off-shore use;
- the development of the commercial readiness of large-scale photo-voltaics and concentrated solar power;
- enabling a single, smart electricity grid for massive integration of renewable and de-centralised sources;
- bringing to market poly-generation and fuel cells;
- securing the competitiveness in nuclear fission technology.

In particular the SET-Plan emphasizes the need for new research infrastructures in the field of energy. This need was also underlined by the European Council of Ministers which in March 2008 asked : to improve and enlarge the Community's world-class knowledge base of energy researchers and research institutes ('capacity building'), including by reducing barriers to mobility, attracting world-class human capital, improving science education, and by asking the European Strategy Forum on Research Infrastructures (ESFRI) to identify the need for European research infrastructures in the field of energy technologies, such as renewable energy technologies.

The Energy section of the ESFRI Roadmap 2008 identified four mature projects and referred to three emerging ones. Considering the strategic importance of the European energy agenda ESFRI decided to continue and strengthen its dialogue with the countries and energy agencies on new research infrastructures of European relevance soon after the publication of its Roadmap 2008. A Thematic Working Group (TWG) on Energy was set up and given the mandate to pay particular attention to the definition and assessment of research infrastructures as distinguished from testing facilities and research programmes/projects and to evaluate proposals for research infrastructures, with a view towards their being included in an update to the ESFRI Roadmap 2008 in the field of Energy.

Furthermore ESFRI underlined that increased efforts in R&D and energy technology innovation will be necessary to meet the European energy and climate goals as well as to improve the industry competitiveness: This will require stronger cohesion among the European research actors in energy but also much better performance in the commercialisation of new technologies. For research infrastructures, this will mean that stronger industrial orientation would be beneficial, but also employing research infrastructures more effectively in the innovation chain, for example demonstration or pilot plants serving as research infrastructures. Public-private partnership would be quite essential in realising such innovation driven research infrastructures. Potential vehicles for this development are the Technology Platforms and the Joint Technology Initiatives. It would be highly advantageous for the Member States to coordinate their efforts, to avoid redundancy, and to join forces in new research infrastructures.

The publication of the update of the ESFRI Roadmap was planned for the end of 2010. Organising a conference on infrastructures for energy research at the end of November 2010 fitted thus particularly well with this timetable. In the wider context described above the other major objectives

of the conference were to contribute by a series of keynote speeches and project presentations, a panel discussion and a round table with high level actors from research, industry and policy, to:

- the development of a comprehensive strategy for research infrastructures in the energy field at pan-European level, based on the ESFRI Roadmap and within the broader context of the Grand Challenges and of the European SET-Plan;
- the analysis of the impact of research infrastructures (including e-Infrastructures) on the implementation of energy policies and sustainable development;
- the identification of possible actions to increase the human capital affecting the implementation of the energy research projects.

Description of the main S & T results/foregrounds

The main results of the projects are:

- the setting-up of a conference website
- the establishment of a coherent and robust conference programme including more than 20 speakers representing the European Commission (2 EU Commissioner and high-level representative from the DG Research & Innovation), high-level representatives from energy research infrastructures, the European Energy Research Alliance, the US Department of Energy, the Australian Academy of Science and Technology, the European Investment Bank, the Belgian authorities (Minister of Science Policy, President of the Belgian Science Policy Office)
- the successful organisation of the first European conference on research infrastructures focused on a specific theme (energy), attended by some 280 participants
- the successful organisation of the exhibition, with 11 booths representing the main existing and new ESFRI energy research infrastructures
- the production of a set of conference conclusions
- good media coverage of the event (national TV and several articles in the general press)

Potential impact (including the socio-economic impact and the wider societal implications of the project so far) and the main dissemination activities and the exploitation of results

The conference was expected to have an impact on the development of a comprehensive strategy for research infrastructures in the energy field at pan-European level, in the framework of the European SET-Plan and of the Energy Thematic Working Group Report 2010.

During the two days of the event, it was clearly stated that new and existing energy research infrastructures are needed for the implementation of the Strategic Energy Technology (SET) Plan and for building solid knowledge and technological foundations of future innovation partnerships in the energy field.

At the end, the conference stressed the need to implement the co-development of the Research Infrastructure policies in the Energy domain and of the SET-Plan, looking for increased synergies with the Joint Programming activities of the European Energy Research Alliance and the European Industrial Initiatives, in the context of a strengthened Innovation Union.

The full text of the conclusions is available on the conference website.

The main dissemination activities included, the organisation of a contact with the press at the opening of the conference, which resulted in several press articles and a TV sequence during the evening news at 7.30 pm.

Two articles were also published in the Science Connection magazine. It is a free publication of BELSPO (five times a year) designed to provide an in-depth review of the office's various components. The first article was published before the conference, to announce the event, the second one, gives a short overview of the conference and its main outcome and is combined with an article about the MYRRHA project and an interview of Philippe Mettens on MYRRHA and its importance for Belgium.

The conclusions were presented at the ESFRI plenary meeting held on December 1st 2010 and to the committee of the FP7/Capacities/Research Infrastructures programme on January 21, 2011