

Executive Summary

In Europe a number of different approaches are being followed to stimulate innovative energy research on a national and regional level. Innovative energy research is taken to mean research into energy technologies in the very first stages of development (new inventions as opposed to incremental improvements in standard technologies). The INNER project established cooperation between European national research programmes that stimulate innovative energy research. This cooperation contributed to the coherence and coordination of the European Research Area, through benchmarking of approaches and a set of joint transnational programme activities. The activities are designed to allow a durable collaboration, beyond the INNER ERA-Net project, in the INNER-Network.

Project Objectives

The objective of the INNER project was to establish cooperation between European research programmes, or parts within such programmes, that aim to identify and stimulate innovative energy technologies and unexpected breakthroughs in conventional energy technology fields. This also means attempting to bridge the gap between advances in basic science and energy technology research. The INNER project contributed towards strengthening European efforts to define a policy and suitable approaches to find new ways (energy technologies) to meet the challenges of today's energy economy. Thus, the ERA-Net will help towards ensuring a secure energy supply, which is environmentally sound, while at the same time decreasing dependency on imports.

Specific project objectives were designed to achieve the following results through cooperation and coordination of the national and regional energy research programmes:

- Insight into approaches and methodology, based on both national and regional programmes and other relevant EU, IEA and international initiatives
- Benchmarking of approaches, SWOT analysis
- Development of a joint approach that combines the best elements
- A pilot test of a new joint approach in a certain field
- Development and implementation of joint research programme activities
- Transfer of knowledge and experience to other countries. Special attention will be paid to transferring important findings to project partners and non-participating EU countries that are in the process of developing a policy or instruments in the field of innovative energy technologies or are interested in doing so
- Development of a framework for long term co-operation.

The INNER project will mark the beginning but not the end.



Contractors/Project Partners

Co-ordinator: Forschungszentrum Jülich GmbH
Project Management Organisation Jülich (PtJ),
Germany



French Agency for Environment and Energy
Management (ADEME), France



Centre National de la Recherche Scientifique (CNRS),
France



SenterNovem, The Netherlands



Nordic Energy Research



The Research Council of Norway



Ministry of Science and Higher Education (MSHE)
Poland (during the first 18 months)



National Institute of Engineering, Technology and
Innovation (INETI), Portugal



Slovak Innovation and Energy Agency (SIEA)



Ministry of Science and Innovation (MICINN)
Spain



Swedish Energy Agency (STEM)



Natural Environment Research Council (NERC)
UK



Instytut Paliw I Energii Odnawialnej (EC BREC / IpiEO)
Poland



Associated Partner: National Centre for Research and
Development (NCBiR, Poland)

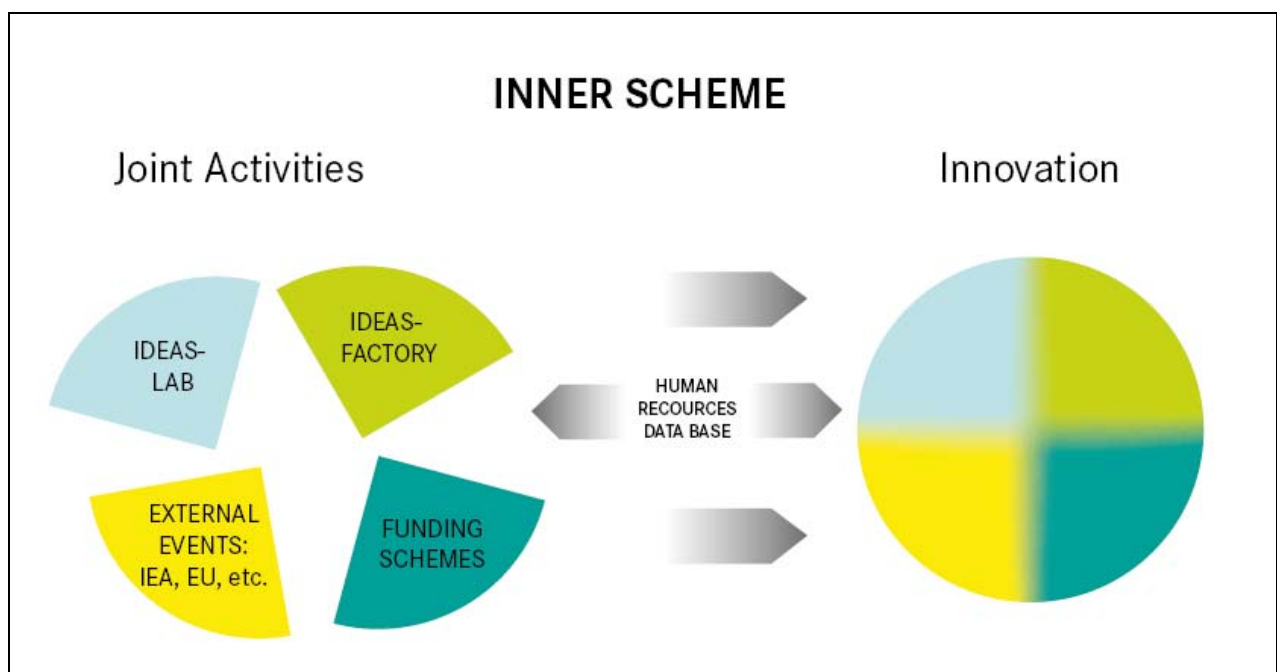
Narodowe Centrum Badań i Rozwoju

Work Performed and Results

During the first 18 months of the INNER project, information on research programmes which aim to support innovative energy research in the partner countries was collected and analysed. Unfortunately, since energy is a highly political issue, these programmes change according to governments. A SWOT analysis seeking to identify the strengths, weaknesses, opportunities and threats of national programmes concentrated far more on the opportunities which the INNER-project could offer through joint activities and collaboration. In addition first ideas for joint activities were put forward and possible research topics were discussed in a brain-storming session producing a very wide range of subjects which were considered by the partners to be highly innovative.

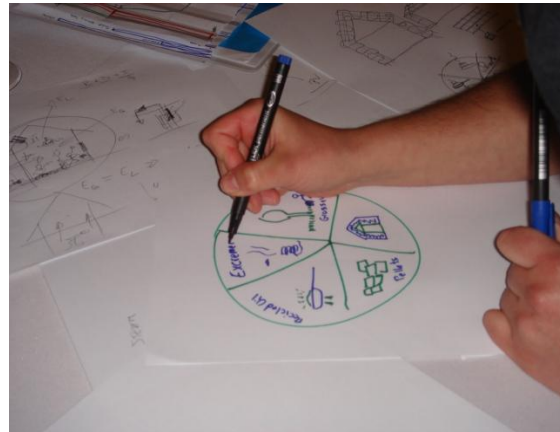
The following 18 month period saw the publication of the N-INNER call for innovative energy research. The Scandinavian partners, the Academy of Finland and the Danish Ministry of Science had agreed to organise this early joint call. PtJ, the German partner, as well as Orkustofnun, Iceland joined NER, RCN and STEM. 51 expressions of interest were received. 5 research projects have now started with a total funding of just over EUR 6 million. The second N-INNER call was launched in 2009 and although Iceland could no longer participate financially, Estonia decided to join. 5 transnational research projects are expected to start by the end of 2009. Latest information is available on the website at www.nordicenergy.net/N-INNER and a brochure has been published. It can be found at the bottom of the following webpage: <http://www.nordicenergy.net/section.cfm?id=1-0&path=19,187>.

The consortium discussed various ways and means of stimulating and identifying innovative ideas for energy research. The Ideas Factory (sandpit) as practised by the Engineering and Physical Sciences Research Council (EPSRC) was discussed in detail. Although extremely interesting, such an action was considered too ambitious and expensive for the INNER project. However, an “**INNER Scheme**” was developed incorporating 2 types of brainstorming workshops closely related to the original “Ideas Factories”. These will develop ideas for new energy research. Events on specific topics organised by the International Energy Agency, the European Union as well as national universities and public organisations will provide both information on the state-of-the-art and platforms for disseminating results. Finally, funding programmes will have to be identified or set up so that innovative energy-related research will take place.



IdeasLabs will be organised for researchers in basic sciences (biology, chemistry, engineering, mathematics and physics) whose work could help energy experts to understand energy-related issues and so improve applications. The first IdeasLab “Physics and chemistry of surfaces and interfaces for energy efficiency” was organised by CNRS in Fréjus, France from 14th to 19th March 2009.

On the other hand, IdeasFactories are problem-orientated and more closely related to end-use and energy systems where technology is in the foreground of interest. The first IdeasFactory with the title “Zero net energy buildings” was held in Marvão, Portugal at the end of May 2008.



Concentrated work was undertaken in small interdisciplinary groups both at the IdeasFactory at Marvão (above) and at the IdeasLab in Fréjus, below.



The 2 events resulted in 7 ideas for new research projects. Initial funding has been allocated to 6 of them.

The INNER project concluded with a policy conference in Lisbon on 28th May 2009 where the results of the INNER joint activities as well as national, European and international policies were presented. The conference programme and presentations can be downloaded at the INNER web site. They are also available on a DVD which includes the conference summary as well as a video of the IdeasFactory, Marvão. The DVD can be obtained directly from INETI/LNEG or from partners in the project.

Intentions and future impact

Experiences and ideas resulting from the joint activities have been discussed and evaluated. A great effort will still be needed to identify and possibly set up new funding programmes which are able to support ad-hoc small transnational research groups working on innovative ideas, in the very early stages of development.

Efforts will be continued to organise future joint calls (N-INNER) assuming the consent of the Ministries concerned and the ability of funding agencies to support such calls in the energy field.

The impact of all activities will finally depend on the cooperation and continued support of Ministries but, in the short-term, there is already more intensive discussion between programme managers. Closer contacts between the researchers themselves have been achieved through the joint activities and this could lead to more mobility of scientists in the future.

Although the INNER ERA-Net Project came to an end on 31st May 2009, many partners will continue to meet at the IEA Expert Group on Science for Energy and at events organised by the EⁿR. Collaboration is now being continued in the **INNER Network**.

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