

The Integrated Project NEEDS is built as a series of Research Streams (RS), each addressing a specific area of research. Besides the RS Integration, the Streams can be grouped in three main 'blocks'.

NEEDS includes 66 partners, representing 26 Countries (12 Member States from the EU-15, 9 new EU Member States, 3 Mediterranean Countries, 2 Countries extra-EU). It presents a balanced mix of Universities, Research Institutions, Industry, NGOs.

RS Integration

Enhancements in energy externalities:

- RS 1a LCA of new energy technologies
- RS 1b New and improved methods to estimate the external costs of energy conversion
- RS 1c Externalities associated to the extraction and transport of energy
- RS 1d Extension of the geographical coverage of the current knowledge of energy externalities

Development of long term strategies:

- RS 2a Modelling internalisation strategies, including scenario building
- RS 2b Energy Technology Roadmap and Stakeholder Perspectives

Input to policy making & dissemination:

- RS 3a Transferability and generalisation
- RS 3b Dissemination/communication

Stream Leaders

- Integration: ISIS - Institute of Studies for the Integration of Systems (Italy)
- RS 1a DLR - Deutsches Zentrum fuer Luft- und Raumfahrt e.V. (Germany)
 - RS 1b IER - University of Stuttgart (Germany)
 - RS 1c OME - Observatoire Méditerranéen de l'Energie (France)
 - RS 1d Charles University in Prague (Czech Republic)
 - RS 2a CNR - IMAA - Consiglio Nazionale delle Ricerche Istituto Metodologie per l'Analisi Ambientale (Italy)
 - RS 2b PSI - Paul Scherrer Institut (Switzerland)
 - RS 3a E-CO Tech (Norway)
 - RS 3b Fraunhofer ISI (Germany)

NEEDS is co-ordinated by ISIS

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INTEGRATED PROJECT

6th Framework Programme

Priority 6.1: Sustainable Energy Systems

Sub-priority 6.1.3.2.5: Socio-economic tools and concepts for energy strategy

About NEEDS

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The ultimate objective of the NEEDS Integrated Project is to evaluate the full costs and benefits (i.e. direct + external) of energy policies and of future energy systems, both at the level of individual countries and for the enlarged EU as a whole. In this context, NEEDS is an ambitious attempt to develop, implement and test an original framework of analysis to assess the long term sustainability of energy technology options and policies.

NEEDS entails major advancements in the current state of knowledge in the areas of:

- Life Cycle Assessment (LCA) of energy technologies ;
- Monetary valuation of externalities associated to energy production, transport, conversion and use ;
- Integration of LCA and externalities information into policy formulation and scenario building ;
- Multi-criteria decision analysis (MCDA), to examine the robustness of the pro-posed technological solutions in view of stakeholder preferences.

NEEDS Innovation

For each specific research field analysed, NEEDS requires a sizeable innovation effort, including:

- The analysis of new energy technologies options, and, in general, of renewable energy technologies for which the current LCA knowledge is insufficient (e.g. fuel cells and other hydrogen-based technologies, advanced fossil fuels, advanced nuclear, offshore wind, photovoltaics, bioelectricity, etc.)
- The development of new and improved tools for the monetary valuation of externalities of energy, targeting major innovation at several stages of the Impact Pathway Approach (IPA), in terms of: (i) methods; (ii) impacts so far insufficiently addressed; (iii) the availability and reliability of quantitative evidence.
- The development of a consistent and robust analytical platform allowing to integrate the full range of information and data on LCA and external costs into a Pan-European modelling framework, and to build scenarios for the future European energy system.

NEEDS Integration

A continuous integration activity will ensure that all interlinkages between research streams are fully recognised, their design continuously validated and enhanced, and their implementation appropriately carried out.

