



# Q-DIRECT

## Development of referentials for belgian quality in distributed renewable energy concepts

**DURATION OF THE PROJECT**  
Phase 1: 01/01/2007 – 31/01/2009  
Phase 2: 01/02/2009 – 31/01/2011

**BUDGET**  
778.545 €

**KEYWORDS**  
Quality systems, small renewable energy systems

### CONTEXT

Renewable energy markets are increasing in different technological areas giving rise to rapid technical evolutions and a lagging of qualified professional structures. Good quality installations are essential for end customer satisfaction but just as much a necessity for the sustainable growth of the renewable energy implementation.

Bad examples & installations have proven to have the capacity to throw back the acceptance of a new technology by several years or decades, as has been experienced in the solar thermal and heat pump sector in the past. Quality assurance measures are the only way to minimise the number of bad examples.

Q-DIRECT will structure the quality requirements in a thorough manner such that the different industrial sectors of distributed small scale renewable energy systems are provided with an instrument to successfully implement quality systems.

lutions as well as the quality systems and standardisation (normalisation) that are linked in some way to the technologies under consideration, are presented in an extensive and structured manner.

Based on this 'inventory' common syntheses reports will be drafted in the frame of work packages 3 and 4 with respect to the technical respectively organisational aspects for the realisation of quality systems & regulations for distributed (renewable) energy systems.

These research reports will serve as a basis for:

- Development of technological roadmaps for the implementation of quality systems for the technologies in full development.
- Participating in international normalisation committees, initialisation of national committees or working groups
- development of testing infrastructures by the participating research institutes (grid connection, biomass heating equipment, heat pumps, ...)

### PROJECT DESCRIPTION

#### Objectives

The main objectives of the project are :

- To develop and provide an integrative structure and basis for normative work on the technologies under consideration taking into account cross-links with conventional technologies
- To develop and provide an extensive and coordinated technological roadmap for the development of quality systems & labelling of the six technologies under consideration
- To prepare the implementation phase of these quality systems by studying the institutional, procedural and organisation and financial aspects

These aspects will be covered for the 5 renewable energy technologies as indicated below combined with integration aspects into the electrical grid & building related.

#### Methodology

It is important to first investigate the state of the art of market, supply chain and ongoing & foreseen technological evo-

A similar approach will be followed for the organisational and implementation related aspects of the quality requirements and quality systems.

Due to the continuous and rapid evolutions in the technologies under consideration, quality requirements and systems equally evolve correspondingly. Therefore a bi-annual update of the situation is necessary and will have to result in feedback towards the developed referentials for quality systems & regulations.

### INTERACTION BETWEEN THE DIFFERENT PARTNERS

Interaction between the different partners & research institutes will be as follows :

- Analysis reports of work package 2 will incorporate all contributions of the research organisations ; 'inter-technology' working groups will handle horizontal cross-technology issues (e.g. grid connection or building technical installation issues, testing aspects, ...). The results of the inter-technology work will be incorporated in the same documents ;
- Both Work package 3 and Work Package 4 start with an



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Solar energy systems (3E)	Bio-energy systems (VUB - CRA)	Heat pumps (DNI)	Ventilation systems with heat recovery (BBRI - DNI)	Urban wind turbines (3E)
Integration and interfaces: <ul style="list-style-type: none"> <li>• Electric grid interfaces (KUL-ELECTA)</li> <li>• Building physics integration (BBRI-3E)</li> <li>• HVAC Integration (BBRI-3E)</li> </ul>				

integrative synthesis analysis in which the task team will identify the common bases of the work realised on all technologies

- Work Package 3 and 4 result in a technical and organisational roadmap for quality systems and these will integrate all work of all partners
- Work package 3 will result in an "Action & Subject List for Normative Work" for Belgian actors incorporating the research results of all partners.

use of existing experiences. Beside the evident advantages of efficiency gains, the ligning up with international evolutions support the international market position of belgian technology producers.

The third work package lays a common basis for the quality systems for the different technologies. Common elements such as aspects related to electric grid interfaces and the integration into the built environment will be studied.

Finally a complete quality referential for each envisaged technology will be developed. In addition, a roadmap will be developed for a step-wise introduction in time of increasing levels of ambition after a discussion with sector federations (market feasibility) and public authority (requirements for public support schemes). WP4 studies the institutional, procedural and organisation aspects, including a study of feasible financing options for the implementation of quality systems.

### EXPECTED RESULTS

The first work package assures the coordination of this multi-disciplinary and broad scope project.

The second work package establishes the state of the art with respect to technology, supply chain and quality systems. Special attention is given to international standardisation, normative framework and quality systems to ensure maximum

### PARTNERS

R & D organisation	Relevant core competences & know-how
3E	Solar thermal, PV and small wind turbines : Quality systems development, technology and market analysis, technology and market analysis, product design
VUB CRA-W	Small & medium scale biomass systems : Test stand, product innovation, standardisation,...
De Nayer Instituut	Solar water heater systems : Test site solar water heater performance testing, system design and system measurements of residential HP systems. Heat pump systems : Design and in situ measurements of domestic ventilation systems with heat recuperation
WTCB	Building integration aspects : Product testing & modelling, installation quality, standardisation and performance regulation work
KU Leuven	Electrical integration aspects: Test stand grid connection, standardisation, grid management know how

### CONTACT INFORMATION

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#### Follow-up Committee

For the complete and most up-to-date composition of the Follow-up Committee, please consult our Federal Research Actions Database (FEDRA) by visiting <http://www.belspo.be/fedra> or <http://www.belspo.be/ssd>