

Annex XVII

INTEGRATION OF DEMAND SIDE MANAGEMENT, DISTRIBUTED GENERATION, RENEWABLE ENERGY SOURCES AND ENERGY STORAGES

1. Objectives

The main objective of the proposed Task is to study how to achieve the optimal integration of flexible demand (Demand Response, Demand Side Management) with Distributed Generation, Energy Storages and Smart Grids, and thus increase the value of Demand Response, Demand Side Management and Distributed Generation and decrease problems caused by intermittent distributed generation (mainly based on RES) in the physical electricity systems and at the electricity market. The Task deals with integration aspects both at local (distribution network and customer) level and at transmission system level where large wind farms are connected.

Thus the integration means in this connection:

- how to optimally integrate and combine Demand Response and Energy Efficiency technologies with Distributed Generation, Storage and Smart Grids technologies, at different network levels (low, medium and high voltage)
- and, how to combine the above mentioned technologies to ideally support the electricity networks and electricity market

2. Activities

The objectives shall be achieved by the Participants in the following Subtasks:

- (a) Subtask 1: Information collection on the characteristics of different types of DER in the integrated solutions
- The information to be collected and analysed is dealing with integrated solutions where energy efficiency/demand response is combined (or seen possible to combine) with at least one of the following technologies: distributed generation, energy storage or smart grid technology aspects. The exact definition of DG will be defined, but it includes both low and medium voltage level generation as well as large aggregated generation of small units at transmission system level (like wind farms). The information is collected both by the OA and country experts based on research, pilot projects, demonstrations and other experiences.

The information is collected from the different voltage levels. OA prepares a list of projects/public sources on the available information and prepares a draft of questionnaire to country experts. This is discussed at the first expert meeting and agreed how country experts proceed with the information collection.

The exact form of the information collection will be defined at the first expert meeting, but information to be collected include at least

- technical information on the integrated use of DER (minimum requirement is DR or DSM in combination with one of the following technologies: DG, storages, Smart Grid Technologies)
- penetration levels of technologies
- market conditions
- economy
- impacts on different voltage and system levels

(b) Subtask 2: Analysis of the information collected and preliminary conclusions (state of the art)

On the basis of the collected information a draft synthesis report and preliminary conclusions are written down including

- State of the art of integration of DER at customer, network, system and market level; pilot and research projects and actual applications
- Why the integration is useful and what impacts it has (technical, market)
- Preliminary conclusions on improvements needed to enhance the integration
- Preparation of the workshop

The draft analysis and preparation of the workshop is done by OA with the assistance of country experts

(c) Subtask 3: Feedback from the stakeholders: Workshop

An open workshop is arranged with stakeholders with the objectives

- To collect additional information from the invited speakers
- To get feedback on the preliminary conclusions
- To get inputs for the future work

OA produces the workshop proceeding with the conclusions

(d) Subtask 4: Final conclusions and the detailed definition of the further work

As a result of the previous subtask the final products of the study are produced including

- The updated synthesis report with conclusions and first set of best practices
- Detailed work plan for the additional work

3. Expected Results

The products of work performed in this Annex will be designed for use by national and regional governments, utility regulators, and electricity transmission, distribution and supply companies.

Results of the joint activity will include:

(a) *Subtask 1:*

Information collection questionnaire and information collected by country experts

(b) *Subtask 2:*

Draft synthesis report and preliminary conclusions on the basis of the information collected in subtask 1

(c) *Subtask 3:*

An open workshop and workshop proceedings

(d) *Subtask 4:*

- The final synthesis report on the integration with conclusions and first set of best practices
- Detailed work plan for the additional work

4. Specific Obligations and Responsibilities of the Operating Agent

In addition to carrying out the specific responsibilities enumerated in Articles 5 and 7 of this Agreement, the Operating Agent shall prepare, review and distribute the results mentioned in paragraph 4 above.

5. Funding

(a) Common Fund

A common fund shall be established by the Executive Committee and shall be included in the annual Programme of Work and Budget for the purpose of funding the obligations of the Operating Agent under this Annex.

(b) Task Costs

The total Budget of the Operating Agent for carrying out the management of the Annex over a 12 month period is set at EUR 83,000 at August, 2007 prices. If significant changes in price levels or the scope of activities under the Annex occur, the Executive Committee, acting by unanimity of the Participants, shall consider whether to adjust the Programme of Work to the available funds or increase the Budget.

(c) Sharing of Task Costs

The Budget shall generally be funded by the participants through a standard contribution of five per cent of the Budget plus a pro rata contribution based on a countries' percentage contributions to the Budget of the Agency, where pro rata percentages are applied to the portion of the Budget which remains to be funded after the standard contribution are made. However, this formula may be modified by the Executive Committee acting by unanimity of the Participants in the Task. The contribution of the European Communities and Associated Contracting Parties shall be determined by the Executive Committee, acting by unanimity of the Participants in this Annex.

(d) Payment Terms

The Operating Agent shall send invoices to the Participants at the beginning of each financial year of the Task. Payments from each Participant must be received by the Operating Agent no later than 60 days after the participant's receipt of the Operating Agent's invoice.

(d) Changes in Numbers of Participants

If the number of Participants changes, the shares of contributions to the costs will be adjusted accordingly by the Executive Committee, acting by unanimity of the Participants. New Participants shall pay the full share of the costs beginning with the project year in which they become Participants.

(e) Individual Financial Obligations

In addition to the contributions described in sub paragraph (c) above, each Participant shall bear the all the costs it incurs in carrying out its obligations under the Annex.

(f) Task Sharing Requirements

The level of effort to perform the work specified in this Annex is estimated for each participant 6 personweeks

6. Operating Agent

Technical Research Centre of Finland (VTT) is designated as Operating Agent.

7. Entry in Force, Term and Extension

This Annex shall enter into force 1 September 2007 and shall remain in force until 27 September, 2008. At the conclusion of that period, this Annex can be extended by at least two participating countries acting in the Executive Committee, for a period to be determined at that time, provided that in no event shall the Annex continue beyond the current term, or actual termination, of the Implementing Agreement.

8 Participants in the Task

The contracting parties in this Task are the following:

The Finnish Funding Agency for Technology and Innovation (TEKES), Finland
The Ministry of Commerce, Industry and Energy, Korea
SenterNovem, the Netherlands
The Ministry of Science and Technology, Spain
U.S. Department of Energy (DOE)