

## *Annex IV*

### DEVELOPMENT OF IMPROVED METHODS FOR INTEGRATING DEMAND-SIDE OPTIONS INTO RESOURCE PLANNING

#### 1. *Objective*

The objective of this Task is to communicate and develop improved methodologies for integrating demand-side management (DSM) options into utility resource planning and related government policies. This Task will focus on assisting utilities and governments in Participants' countries to examine and include demand-side options, on an equal basis, as alternatives or additions to conventional and non-conventional supply-side resources.

#### 2. *Means*

In order to accomplish the foregoing objective, Participants will carry out the following Subtasks:

- (a) Subtask IV/1 Review and Documentation of Utility Structure and Characteristics in Agency Member Countries

Participants will conduct a review and comparative assessment of the different utility structures and characteristics in IEA Member countries, with a view to their implications for the integration of DSM options into resource planning. Based on information provided by Participants, the Operating Agent will document the regulatory frameworks, utility structures (including the degree of vertical integration), market characteristics, pricing mechanisms, and government policies that may influence the implementation of DSM programmes. This information will be distributed to Participants and Operating Agents in all the Annexes to this Agreement.

- (b) Subtask IV/2 Inventory of Available Methods for Assessing the Benefits, Costs, and Impacts of Demand-Side Options

Participants will compile information on the methods, techniques, and models being used in their respective countries by utilities and governments to address various issues related to the planning, analysis, and forecasting of the benefits, costs and impacts of DSM options. A wide range of methods, techniques and models will be surveyed in this Subtask, including those for:

- (1) Collecting data on customer needs and characteristics;
- (2) Market assessment and market penetration analysis;
- (3) Load forecasting (energy and peak, load shapes, and consumption);
- (4) Identification of DSM options;
- (5) Identification of planning criteria;
- (6) Screening of DSM options;
- (7) Assessing technical and economic DSM potential;
- (8) Estimating achievable DSM potential;
- (9) Designing DSM programmes;
- (10) Measuring and evaluating programme impacts;
- (11) Performing benefit/cost analysis;
- (12) Production costing and capacity expansion analysis of supply options;
- (13) Integration of supply and demand options;
- (14) Assessing environmental externalities.

To assure consistency, a survey instrument and a set of standardized definitions will be developed and reviewed by the Participant. The information assembled on each method, technique or model will include at least the following items:

- (1) General description and purpose;
- (2) Analytical algorithms;
- (3) Available documentation;
- (4) Data requirements and sources;
- (5) Availability of data;
- (6) Related software packages, if any;
- (7) Ownership and distribution;
- (8) Terms of availability;
- (9) List of major users;
- (10) User experience and satisfaction;
- (11) References and citations.

Participants will identify in their respective countries the major organizations involved in the development and utilization of appropriate processes, methods, techniques and models to compile the initial inventory. In succeeding years, the Participants will identify additional developments in their countries relative to the development, enhancement, or modification of the processes, methods, techniques and models used.

(c) Subtask IV/3 Preparation of Guidebook on Analytical Methodologies

Participants will review the information compiled in Subtask IV/2 to identify alternative approaches and methodologies utilized for various aspects of demand-side planning and integration of demand-side options in utility resource planning. Based on this review, a guidebook will be developed describing the alternative approaches and methodologies, and summarizing how these have been incorporated into the available models and software. In preparing this guidebook, careful attention will be devoted to recognizing the different supply characteristics, market conditions, regulatory situations, pricing and tariff structures, and government policies in different Participants' countries, and examining how the various methodologies and approaches apply to these different countries. The guidebook will include three to five case studies from different countries documenting the successful application of some of the methods, techniques, and models identified.

(d) Subtask IV/4 Development and Recommendation of Procedures for Improved Analytical Methodologies and Models

Participants will review the results of Subtasks IV/1, IV/2 and IV/3 and will identify the need for improving the available approaches, methodologies, and models to facilitate analysis and planning of demand-side options and integration of demand-side resources into the utility resource planning process. This Subtask will be carefully co-ordinated with relevant Subtasks and activities in Annexes II and V to avoid any duplication of effort. The recommendations shall be developed taking into consideration the differences amongst Participants' countries with respect to the factors influencing DSM implementation.

(e) Subtask IV/5 Development of Guidelines for Adaptation and Application of Suitable Processes and Methods from One Country to Another

Participants will review the applicability of the processes, methods, techniques, and models for assessing DSM options across the range of conditions experienced in the different Participants' countries. They shall then develop a guidebook for the transfer of these processes, methods, techniques, and models from one country to another. In particular, this guidebook shall address issues related to differences in market conditions, supply characteristics, utility structure, regulatory environments, pricing and tariff structures, and government policies.

3. *Results*

The results of this Task shall include the following:

- (a) A report comparing utility structures and characteristics in different countries, pursuant to Subtask IV/1 as described in sub-paragraph 2(a) above;
- (b) A report describing the inventory of existing processes, models, methods and techniques for different types of applications listed in Subtask IV/2 as described in sub-paragraph 2(b) above;
- (c) A guidebook on approaches and methodologies for analysis and planning of demand-side programmes and integration of demand-side options in utility resource planning, pursuant to Subtask IV/3 as described in sub-paragraph 2(c) above;
- (d) A report providing recommendations for development of improved methods, techniques, and models, pursuant to Subtask IV/4 as described in sub-paragraph 2(d) above.
- (e) A report providing guidelines on transfer of methods, techniques, and models among Participants' countries, pursuant to work under Subtask IV/5 as described in sub-paragraph 2(e) above.

#### 4. *Time Schedule*

This Annex shall remain in force for three years. It may be extended by agreement of two or more Participants, acting in the Executive Committee, taking into account any recommendation of the Agency's Committee on Energy Research and Technology concerning the term of this Annex, and shall thereafter apply only to those Participants\*.

#### 5. *Specific Responsibilities of the Operating Agent*

In addition to carrying out the specific responsibilities enumerated in Article 5 of this Agreement, the Operating Agent shall prepare, review, revise, and distribute to Participants the documents and reports specified in paragraph 3 above.

#### 6. *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 overall Budget of the Operating Agent for carrying out the management of the Annex is set at US \$900,000 at January, 1993 prices. Of this amount, expenditure for the the first year that the Annex is in effect is estimated at US \$360,000. 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 Participants through a standard contribution of five per cent of the Budget plus a pro rata contribution based on 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 contributions are made.

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\* This Annex entered into force on 28th October, 1993 pursuant to a decision by the Executive Committee in accordance with Article 2(d) of this Agreement.

However, this formula may be modified by the Executive Committee, acting by unanimity of the Participants in the Task. The contributions of the European Communities and Associate Contracting Parties shall be determined by the Executive Committee, acting by unanimity of the Participants in this Annex.

- (d) *Changes in Number 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.* Aside from the contributions described in sub-paragraph (c) above, each Participant shall bear all the costs it incurs in carrying out its obligations under the Annex.
- (f) *Task-Sharing Requirements.* The expected contribution of each Participant to task-sharing under the Annex is 2 person-months of effort during each year that the Annex remains in force.

## 7. *Operating Agent*

The Electric Power Research Institute (EPRI), United States of America, is designated as Operating Agent.

## 8. *Participants in this Task*

The Contracting Parties which are Participants in this Task are the following:

The Energy Research and Development Corporation (ERDC) (Australia),  
The Verband der Elektrizitätswerke Österreichs (VEÖ) (Austria),  
The Ministry of Energy, Danish Energy Agency,  
The Ministry of Trade and Industry (Finland)\*\*,  
Le Ministère de l'Industrie, des Postes et Télécommunications  
et du Commerce Extérieur (France),  
ENEL S.p.a. (Italy),  
The Ministry of Trade, Industry and Energy (Korea)\*\*\*,  
The Netherlands Agency for Energy and the Environment (NOVEM),  
The Ministry of Industry and Energy (Spain),  
The Swedish National Board for Industrial and Technical Development (NUTEK),  
The Swiss Federal Office of Energy,  
The Government of the United States of America.

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\* See footnote p. 28.

\*\* See footnote p. 28.

\*\*\* See footnote p. 28.

