



International Energy Agency

**Implementing Agreement on
Demand-Side Management
Technologies and Programmes**

1999 Annual Report

International Energy Agency

**Implementing Agreement on
Demand-Side Management
Technologies and Programmes**

1999 Annual Report

Edited by Anne Bengtson
Executive Secretary
IEA Demand-Side Management Programme

January 2000

Foreword

This report is the sixth Annual Report of the IEA Implementing Agreement on Demand-Side Management Technologies and Programmes, summarising the activities of the sixth year.

The report was published by the Executive Committee and was edited by the Executive Secretary, with contributions from the Operating Agents.

Stockholm, January 2000

Table of contents

	Page
Overview of the IEA and the Demand Side Management Agreement	5
Chapter I Chairman's Report	7
Chapter II Task Summaries	13
Task I International Database on Demand-Side Management Technologies and Programmes	13
Task II Communications Technologies for Demand-Side Management	14
Task III Co-operative Procurement of Innovative Technologies for Demand-Side Management	15
Task IV Development of Improved Methods for Integrating Demand-Side Options into Resource Planning	16
Task V Investigation of Techniques for Implementation of Demand-Side Management Technology in the Marketplace	17
Task VI DSM and Energy Efficiency in Changing Electricity Businesses	18
Task VII International Collaboration on Market Transformation	19
Task VIII Demand Side Bidding in a Competitive Electricity Market	20
Task IX The Role of Municipalities in a Liberalised System	21
Chapter III Task Reports	22
Task I International Database on Demand-Side Management Technologies and Programmes	22
Task II Communications Technologies for Demand-Side Management	29
Task III Co-operative Procurement of Innovative Technologies for Demand-Side Management	34
Task VI Mechanisms for Promoting DSM and Energy Efficiency in Changing Electricity Businesses	44
Task VIII Demand-Side Bidding in a Competitive Electricity Market	52
Chapter IV Executive Committee Members IEA DSM Technologies and Programmes	56

Overview of the IEA and the Demand Side Management Agreement

International Energy Agency

The International Energy Agency, founded in November 1974, is an autonomous body within the framework of the Organisation for Economic Co-operation and Development (OECD) which carries out a comprehensive program of energy co-operation among its 23 member countries. The European Commission also participates in the work of the Agency.

The policy goal of the IEA include diversity, efficiency and flexibility within the energy sector, the ability to respond promptly and flexibly to energy emergencies, the environmentally sustainable provision and use of energy, more environmentally-acceptable energy sources, improved energy efficiency, research, development and market deployment of new and improved energy technologies, and co-operation among all energy market participants.

These goals are addresses in part through a programme of international collaboration in the research, development and demonstration of new energy technologies under the framework of over 40 Implementing Agreements. The IEA's R&D activities are headed by the Committee on Energy Research and Technology (CERT) which is supported by a small Secretariat staff in Paris. In addition, four Working Parties (in Conservation, Fossil Fuels, Renewable Energy and Fusion) are charged with monitoring the various collaborative agreements, identifying new areas for cooperation and advising the CERT on policy matters.

IEA Demand-Side Management Programme

The Demand-Side Management Programme is a new collaboration with seventeen IEA member countries working to clarify and promote opportunities for Demand-Side Management (DSM).

The members are:

Australia	Japan
Austria	Italy
Belgium	Korea
Canada	Netherlands
Denmark	Norway
European Commission	Spain
Finland	Sweden
France	United States
Greece	United Kingdom

Nine projects or "Tasks" have been undertaken since the beginning of the Demand-Side Management Programme. The overall program is monitored by an Executive Committee consisting of representatives from each of the member countries. The leadership and management of the individual Tasks are the responsibility of Operating Agents. These Tasks and their respective Operating Agents are:

- Task I:** International Data Base on Demand-Side Management Technologies and Programmes – Mr. Harry Vreuls, NOVEM, The Netherlands
- Task II:** Communications Technologies for Demand-Side Management - Mr. Richard Formby, E.A. Technology, United Kingdom
- Task III:** Co-operative Procurement of Innovative Technologies for Demand-Side Management – Dr. Hans Westling, Promandat AB, Sweden
- Task IV:** Development of Improved Methods for Integrating Demand-Side Management into Resource Planning – Dr. Grayson Heffner, EPRI, United States
- Task V:** Investigation of Techniques for Implementation of Demand-Side Management Technology in the Marketplace – Mr. Juan Comas, FECSA, Spain
- Task VI:** DSM and Energy Efficiency in Changing Electricity Businesses - Dr. David Crossley, Energy Futures Australia, Pty. Ltd., Australia
- Task VII:** International Collaboration on Market Transformation – Mr. Verney Ryan, BRE, United Kingdom
- Task VIII:** Demand Side Bidding in a Competitive Electricity Market – Mr. Frank Sharman, EA Technology Ltd, United Kingdom
- Task IX:** The Role of Municipalities in a Liberalised System – Martin Cahn, Energié Cités, France

For more information see our web site on the Internet:

<http://dsm.iea.org>

CHAPTER I

Chairmans Report

**Jan Moen, Chairman
Executive Committee**

Introduction

The IEA Demand-Side Management Programme is an international collaboration with 16 IEA Member countries and the European Commission, working to clarify and promote opportunities for demand-side management (DSM). For the purposes of this Programme, DSM is defined to include load management, strategic conservation and related activities. Through co-operative activities, participants will collaborate to help DSM technologies to reach their full market potential, thereby allowing energy systems to function more effectively and giving energy system investments enhanced value for gas and electricity customers.

The shaping of the Programme, whose work is summarised in this Annual Report, began over five years ago, following an IEA Conference on Demand-Side Management in Sorrento, Italy. During the first years, experts met to define the work to be undertaken and to draft the Annexes to the Implementing Agreement that described that work and the resources required to accomplish it. In October 1993, the work under this Agreement began when the Executive Committee put five Annexes into force. At that time, the Executive Committee, also approved five Operating Agents to manage the five Tasks (the term Task is used to describe the work to be done under the contractual Annex to the Implementing Agreement).

Status of the Implementing Agreement

During 1999, Belgium joined the Programme, bringing the total to 17 countries and the European Union as official signatories of the Implementing Agreement. The twelfth Executive Committee meeting was held in Copenhagen, Denmark in April 1999 and the thirteenth Executive Committee meeting was held in Amsterdam, the Netherlands in October 1999.

Structure of the Co-operation Programme

The Programme is managed by an Executive Committee composed of two representatives from each participating country. The management of each individual Task is the responsibility of the Operating Agent.

In 1999 the Programme initiated three new Tasks bringing the total active Tasks to seven. Task I has established an international data base on demand-side management. Task II is assessing options for applying communications technologies to DSM programmes. By conducting competitive procurement of more efficient DSM technologies, Task III is speeding up the process of marketplace penetration. Task VI is developing a range of practical mechanisms whereby economically justifiable DSM and energy efficiency can be incorporated into changing electricity business environments, such as restructured electricity industries and competitive electricity markets.

The three new Tasks are Task VII on “International Collaboration on Market Transformation”. Task VIII on “Demand Side Bidding in a Competitive Electricity Market” and Task IX on “The Role of Municipalities and Energy Efficiency in a Liberalised System” A brief description of the Tasks and of expected results follows in Chapters II and III.

Participation as of December 1999

COUNTRY	TASKS						
	I	II	III	VI	VII	VIII	IX
Australia		●		● ■			
Austria							
Belgium*				●			
Canada		●					
Denmark	●		●	●			
European Commission	●		●	●			
Finland		●	●	●	●	●	
France				●			● ■
Greece				●			
Italy							
Japan				●			
Korea			●	●			
Netherlands	● ■	●	●	●		●	●
Norway				●	●	●	
Spain	●		●	●		●	
Sweden	●		● ■	●	●	●	●
United Kingdom		● ■	●	●	● ■	● ■	
United States			●				

■ Operating Agent

*New member

Achievements of the Programme

The three new Tasks added to the Programme this year reflect the fast changes occurring in the energy industry. From the start of this Programme the Executive Committee and Task experts have recognised the important link between energy and global environmental issues, such as climate change and greenhouse gases. And, it is encouraging to see that the results of this year’s political events vigorously underline the importance of our work in energy efficiency. For example, the Kyoto Protocol strongly emphasises the necessity of energy efficiency and acknowledges that it is a demand side issue.

Highlights of the Tasks

Achievements of the Programme's work during 1999 are highlighted below. The details of these and many other accomplishments are covered in the individual Task reports in Chapter III.

Task I: 207 programmes listed in the INDEEP database have now been collected, and efforts this year have concentrated on software development and testing, further data collection and quality improvement.

Task II: The status and potential of wideband communications media access by residential customers and the implications for energy related services were quantified. Work to design and implement a working prototype of a customer flexible DSM gateway has begun.

Task III: A workshop on Lessons Learned was held in London, UK 24–25 February 1999, attracting 75 delegates from 14 countries. IEA, EU and UK policies and programmes were presented as well as Task III Pilot Procurements. An external evaluation report was produced. The award winning clothes drier and industrial motor were displayed at the IEA's 25th anniversary celebration in May 1999. Procurement activities continue in the areas of lighting, copiers and LED traffic lights.

Task VI: Extensive research has been completed on the 25 mechanisms which have been identified as being suitable for further development. Three Practitioners Workshops were held in Australia and France in May 1999, and in Japan in August 1999, attracting mainly those who eventually will be involved using the developed mechanisms.

Task VII: The Task was formally initiated at the October, 1999 Executive Committee meeting. The objectives are to increase the market share of today's energy-saving products and practices and to accelerate the use of the most efficient new technologies in order to reduce the use of energy and other primary sources, thereby reducing the emission of greenhouse gases and other harmful pollutants.

Task VIII: National surveys have been conducted using developed questionnaires to evaluate current Demand Side Bidding schemes, analyse generic features, strengths and weaknesses. They were compiled into National Reports, summarising the views and experiences of Demand Side Bidding products in each of the participating countries.

Task IX: The Task was formally initiated at the October 1999, Executive Committee meeting. This Task will examine municipal activities and practices, explore how municipalities are involved in energy markets, in particular DSM, and determine their responsibilities and opportunities. The goals of this new work are to ensure that municipalities play a role in energy markets and to strengthen their capacity to participate in liberalised markets in a positive and dynamic way by providing access to information on the changes occurring and pilot projects that have been carried out. The Task work will address the overarching question of how to create conditions which encourage DSM and energy efficiency policies that maintain economic competition and help to meet national commitments to the Kyoto Protocol.

New Collaborative Work

A review of the present DSM and Energy Efficiency situation in the participating countries was conducted during the April 1999 Executive Committee meeting. At the conclusion of this review a list of possible areas for future work was developed. At the October 1999 Executive Committee meeting, five proposals for new work, based on that list, were presented to the Committee for discussion. Two of those proposals were accepted by the Committee by approving their Task Definition Phase. One of these new Tasks will focus on Energy Service Companies (ESCOs) and the other will address New Products and Services in Competitive Electricity Markets.

The objectives of the proposed work on ESCOs are to 1) promote an understanding of the benefits of performance contracting, 2) clarify the potential contribution of performance contracting to promote energy efficiency and minimise global climate change, 3) promote an understanding of the necessary regulatory and legal context under which ESCOs may operate, and 4) identify the market potential in countries where there is not a mature ESCO industry. The expected results will include detailed country reports on the establishment and success of ESCOs. Countries with mature ESCO industries will provide information such as, model performance contract language, examples of legislation permitting the use of performance contracts, and case studies of successful retrofits using performance contracts. Those countries participating in the Task without mature ESCOs will report on information such as, the existing legal and regulatory barriers as well as the potential size of the market for an ESCO industry.

There are several driving forces in the energy industry, including privatisation and deregulation, which are having a clear impact on DSM and energy efficiency strategies. As these changes occur, it is necessary to establish an understanding of the particular roles of utilities, government and third parties in promoting customer DSM and energy efficient services. Therefore the other new Task will focus on new products and services offered by utilities and the support provided by governments through the development of functioning energy markets and commercial stimulation of energy efficient products.

The main objectives of the Task will be to 1) study what kind of products and services are being offered, 2) what the impact of these products and services are having on energy efficiency and environment, 3) what kind of potential new products are coming into the market, and 4) how government can stimulate the demand for these new products and reduce any barriers.

Programme Visibility

The Programme has a web site which underwent significant improvements and upgrades in 1999. The address is <<http://dsm.iea.org>>. All Task web sites are linked to the Programme's home page. In addition to publishing and distributing an Annual Report for the Programme, and reports on the results of the ongoing Tasks, the Programme issued three Spotlight newsletters in 1999. This year, the Programme's Visibility Committee, chaired by Harry Schaap, the Australian Executive Committee member, developed a comprehensive plan to better market the Programme and its results. One recommendation was to review how the Executive Committee members and Operating Agents disseminate Task and Programme information. A review was conducted at the October 1999 Executive Committee meeting. While the current efforts were deemed to be effective, to reach even more of its target audiences, the Program will, in the future, focus on more downloadable reports and more linkages between the Programme's web site and other relevant sites.

Benefits of Participation

The benefits of international collaboration and co-operative activities of this Programme will be of value in a number of additional important ways. The term Programme is used to describe the work to be done under the legal contract, the Implementing Agreement, and this Programme deals with data, software, analysis, strategy development and studies. A significant benefit for the participating countries is participation itself — the learning process.

- **Saves money.** Many types of activities can be carried out more economically in a collaborative mode than if conducted within one national program. Each country funds only a portion of the work, but has access to the entire results of the project.
- **Saves time.** Work can often be completed more quickly through task sharing and data sharing, accelerating the pace of technological development and application.
- **Increases the size of the technology data base.** The large number of countries included in a collaborative project enlarges the general pool of information available beyond what any one country could manage to assemble by itself.
- **Permits national specialisation.** As part of a collaborative effort, countries can specialise in certain aspects of a technology development or deployment while maintaining access to the larger pool of information from the entire project.
- **Enables complex and/or expensive projects to be undertaken.** Many countries do not have the expertise or resources to undertake every desirable research project. A collaborative project enables the strength and contribution of many countries to undertake collectively what individually would be prohibitive.
- **Enhances national R & D programmes.** National researchers involved in international projects are exposed to a multiplicity of ideas and approaches.
- **Promotes standardisation.** Collaborative work encourages the use of standard terminology, notation, units of measurement, while also encouraging the portability of computer programmes, and common methodology, procedures and reporting formats make interpretation and comparison easier.
- **Accelerates the pace of technology development.** Interaction among project participants allows cross-fertilisation of new ideas, helping to spread innovative developments rapidly, while increasing the range of technologies and approaches employed.
- **Promotes international understanding.** Collaboration promotes international goodwill, and helps participants broaden their views beyond their national perspective.

How to Participate

If your country has signed the Implementing Agreement, contact the Operating Agent of the Task(s) you are interested in, or the Executive Committee member from your country.

If your country has not signed the Implementing Agreement, and is an IEA-member country, contact the Executive Committee member from your country, or the Executive Secretary, Ms Anne Bengtson, who will provide you with the name of your country's representative to the IEA/CERT. If your country has not signed the Implementing Agreement or is not an IEA-member country, contact Mr. John Newman, the IEA Secretariat, who will provide you with information on how to proceed.

Chairman
Mr. Jan Moen
Director of Regulation and DSM
Norwegian Water Resources
and Energy Administration
Middelthunsgate 29
Postboks 5091 - Majorstua
N-0301 Oslo 3
Tel: +47 22 95 95 95
Fax: +47 22 95 90 99
E-mail: janm@eunet.no

Mr. John Newman
International Energy Agency
Office of Energy Conservation
and Efficiency Division
9 rue de la Fédération
75739 Paris Cedex 15
France
Tel: +33 1 40 57 67 15
Fax: +33 1 40 57 67 49
E-mail: john.newman@iea.org

Ms. Anne Bengtson
Box 621
182 16 Danderyd
Sweden
Tel: +46 8 510 50830
Fax: +46 8 510 50831
E-mail: anne.bengtson@telia.com

ACKNOWLEDGEMENTS

The efforts of the following people continue to be essential to the Programme's success. The Operating Agents who are identified in Chapter III, the Executive Secretary, Anne Bengtson, the advisor, Fred Morse, the newsletter editor, Pamela Murphy Kunz, and the webmaster, Verity Saunders.

CHAPTER II

TASK I: International Database on Demand-Side Management Technologies and Programmes

Description

Task I is divided into seven Subtasks over a six-year period (1994–2000). The first Subtask was a pilot project to explore the feasibility and nature of an international database on DSM programmes. Participants assessed the transferability of DSM programme results, the usefulness of existing data collection instruments for databases on DSM programmes, and the level of interest among potential users of an international database on DSM programmes.

The second Subtask built on the results of the first, to identify DSM programmes for an international database. Participants distributed a questionnaire – known as a data collection instrument (DCI) – to collect information on DSM programmes and analyse the responses.

The outcome of the first two Subtasks resulted in the design of an international database, the third Subtask, which produced a database that is accessible to all participating countries.

The programme information is entered into the database and the quality of the data is improved under Subtask four (finalised in 1999). This information is used for analysis and dissemination of the results, Subtask five. Annual updates have been implemented in Subtask six, and international promotion has been carried out as part of Subtask seven. Subtasks four to seven are interrelated and continue throughout the entire work plan period.

Expected results include

- A design for data collection and development of an international database on DSM programmes;
- Creation and maintenance of an international DSM programme database on the Internet;
- Reports on successful DSM programme approaches and results.

TASK II: Communications Technologies for Demand-Side Management

Description

The Task will assess the best available options for applying communications technologies to DSM and customer services programmes in Participants' countries, develop models to carry out evaluations and specify the R&D and demonstration efforts which are required to bring these options to fruition. A new activity within the project is to specify a customer gateway through which the identified services can be provided. Also being considered is the migration of services from narrowband to wideband communication media.

The main criteria for evaluating these technologies is their potential to improve the efficiency of energy resource use and to provide customers with better services at lower cost. Examination of available standards and codes of practice for software, hardware, communication protocols and interfaces, as well as relevant international standards where they apply will also be carried out.

The assessment has covered communications technologies for load control, data transmission, data processing, load management, advanced metering, automated meter reading and billings, customer interface services, and automation for improving distribution quality and system security. The study has categorised and described the Customer/Utility communications environment and technological development taking place and planned for usable communications media. These media particularly include radio, telephone and power line communications.

The Task has developed methodologies and models to link the data exchanges relating to Customer/Utility requirements and information flows to the communications media capabilities to transfer the information. The models enable the costs of technically viable solutions to be quantified. Field trial evaluations using the models have been carried out by four participating countries.

Expected results include

Nine substantive reports:

- Description of communications requirements for utilities
- Assessment of the best types of communications technology for meeting different performance criteria in pursuit of demand-side management goals
- Progress towards harmonised standards for communications technology which would allow system compatibility across Participating countries
- Identification of key priorities for research development, and demonstration to bring emerging DSM-related communications technologies to the marketplace
- Communications traffic and system costs calculation methodologies and algorithms
- Communications evaluation model
- Standard customer gateway specification
- Migration strategies from narrowband communications to wideband media
- Development of prototype of a customer flexible gateway

TASK III: Co-operative Procurement of Innovative Technologies for Demand-Side Management

Description

This Task is divided into six Subtasks, of which the first aims to define a process for international procurement of innovative DSM technologies by purchasing parties from several countries. Expected outcomes include specifications and procedures to coordinate interest in DSM technologies and yet allow for differences in equipment performance characteristics between countries.

Also expected to emerge are guidelines for selecting among competing manufacturers in co-operative international procurement processes, guidelines for adhering to differing legal codes and advice suitable support mechanisms in order to maintain the demand pull.

Subtask two involves selecting and describing innovative DSM technologies which would be suitable for international collaborative efforts and contribute energy savings if an international competitive procurement process were carried out to bring them to the marketplace. Building on this foundation the third subtask will draft pilot specifications for a pilot competitive procurement of a selected innovative DSM technology while the fourth will contact key market actors to promote specifications and their applications.

The fifth subtask will finalise detailed specifications for the procurement process, and the Task will then conclude with lessons learned from the Procurement Process developed.

Expected results include

A series of workshops and reports that will detail and describe the activities described in the first three Subtasks above. One outcome of all these events will be competitive international procurement procedures, improved understanding of markets, and an evaluation of international procurement of innovative DSM technologies.

TASK IV: Development of Improved Methods for Integrating Demand-Side Options into Resource Planning

Description

This Task will undertake an in-depth review and documentation of utility structures and integrated planning approaches in agency member countries. Participants will join in a review and comparative assessment of government and utility power sector planning priorities in member and non-member countries with a view to their implications for the integration of DSM options into resource planning. They will also compile information on the methods, techniques, and models for demand forecasting and integrated planning being used in their respective countries by utilities and government.

Based on this review, a guidebook will be developed describing alternative approaches and summarising examples of how these methodologies have been incorporated. Case studies documenting successful applications will be included from several countries.

Taking into consideration the factors influencing DSM in participating countries, guidelines are developed on how to transfer processes, methods, techniques, and models for incorporating DSM in resource planning from one country to another. Included in this book will be issues related to differences in market conditions, supply characteristics, utility structure, regulatory environments, pricing and tariff structures and government policies.

Task IV will also undertake work to investigate mechanisms to promote DSM and energy efficiency in new business environments. This includes to present and critically review mechanisms which have been used, or proposed for use, as well as develop the concepts for potential new and improved mechanisms, to incorporate DSM and energy efficiency into restructured electricity industries.

Expected results include

- Comparison of utility structures and characteristics in different countries
- Inventory of existing processes, models, methods, and techniques in various electric resource planning applications
- Recommendations for development of improved methodologies
- Guidelines on transfer methods, techniques and models
- Guidebook approaches and methodologies for analysis and planning of demand-side programs
and integration of DSM options in utility resource planning
- Comprehensive reports which reviews existing mechanisms for promoting DSM and energy efficiency in new electricity business environments and provides the concepts for new and improved mechanisms
- Communication of the results through 3 regional workshops and on the world-wide-web

This Task is completed and therefore not included in the Chapter on Task Reports.

TASK V: Investigation of Techniques for Implementation of Demand-Side Management Technology in the Marketplace

Description

Participants developed a common methodology for implementing DSM technology with residential small commercial and small industrial customers. This methodology models small customer markets in basic units with objective characteristics such as kinds of end-use equipment, cost of network equipment, family or business types, and socio-cultural values. Participants have also conducted a survey in their countries of the methods that utilities and governments have successfully used to market DSM technologies in residential, small commercial and small industrial markets.

Based upon the methodology developed above, each participant has carried out a pilot project for a particular small customer market. Later, the results of the pilot programmes were measured and their success evaluated. Results in different countries were compared, and their similarities and differences were explained. Within each country, results of the pilot programme were compared with results of previous programmes in order to document improvements realised in programme effectiveness.

Expected results include

A methodology for implementing DSM technologies in small customer markets; pilot programmes for effective implementation of DSM technologies in such markets; reports comparing and evaluating pilot programme results. At the conclusion of this Task, a better overall understanding of the actors in the small customer market for DSM technology has evolved.

This Task is completed and therefore not included in the Chapter on Task Reports.

TASK VI: DSM and Energy Efficiency in Changing Electricity Businesses

Description

This Task is designed to develop in detail a range of practical mechanisms for promoting the implementation of economically justifiable demand-side management (DSM) and energy efficiency by changing electricity businesses, such as in restructured electricity industries and competitive electricity markets.

To meet the needs of the participating countries, Task VI is studying and developing mechanisms suitable for traditional monopoly structures as well as for restructured electricity industries and competitive electricity markets.

Task VI will:

- Develop a range of practical mechanisms;
- Identify the public policy implications of these mechanisms;
- Communicate a range of information about the mechanisms.

Task VI is not aiming to tell governments and industry regulators what they should do. Neither will it make comparisons between countries in relation to their relative success or otherwise in promoting DSM and energy efficiency. Rather Task VI will make available to responsible authorities objective factual information about the mechanisms they could use to promote DSM and energy efficiency in changing electricity businesses. The decision on whether to implement any of the mechanisms clearly lies with the responsible authorities in each sovereign country. The information provided by Task VI is intended to assist and inform this decision.

Expected results include

- Report on mechanisms for promoting the implementation of DSM and energy efficiency by changing electricity businesses
- Regular Task VI newsletter
- Regional workshops in Europe and Asia Pacific
- Series of technical reports, articles in international publications and less detailed publicity material for targeted audiences
- Internet site with summaries of results and details on specific mechanisms
- Report on the public policy implications of mechanisms for promoting DSM and energy efficiency in changing electricity businesses.

Task VII: International Collaboration on Market Transformation

Description

The need to meet Kyoto targets and to reduce greenhouse gas emission through greater energy efficiency provides the driving force behind the Market Transformation Task. Utilising the forces of the market and transforming those markets to better respond to energy efficient products helps to contribute to a more sustainable path whilst still maintaining a future vision of economic prosperity. In the broadest sense the Task is expected to facilitate a new approach to market transformation in order to bring about the changes that are required in international markets so that new energy efficient technologies penetrate the market and start to achieve their true potential. If successful, the Task will contribute significantly to the accelerated take up of energy efficient technologies in the market place and will assist in the conservation of energy and reduction in the emissions of greenhouses gases.

The Task will:

- Increase the market share of today's energy-saving products and practices
- Accelerate the use of the most efficient new technologies in order to reduce the use of energy and other primary resources, thereby reducing the emission of greenhouse gases and other potentially harmful pollutants.
- Provide an on-line forum for exchange of Market Transformation information

One important aspect will be the deeper involvement of retailers – both in the formulation of key criteria that will accelerate the acceptance of energy efficient products, and intensified targeting of the most appropriate methodology that will lead to an increase in sales. The involvement of multinational chains of distributors and retailers with business in a wide range of participating countries will be key to this process.

Expected results include

- Shared knowledge of international approaches to market transformation
- Access to information about best practice and lessons learned in market transformation
- Access to, and contacts with, a wide variety of participating countries from which to draw project partners
- A conference dealing with Market Transformation and sharing international perspectives
- Regular briefings on current practices and latest knowledge of Market Transformation practice

Task VIII: Demand Side Bidding in a Competitive Electricity Market

Description

Demand Side Bidding (DSB) is a mechanism that enables the demand side to participate in the electricity trading market, in particular enabling customers to balance their demand against the price on offer, and in some cases to influence the offer price itself. The main types of DSB involve a bid for a customer's total demand into an electricity auction mechanism, and a bid for a change in demand in return for a fee. Both of these types of mechanism are important as they offer customers a better opportunity to manage their consumption of electricity and have an impact on the global environment.

The Task will:

- Evaluate and promote demand-side bidding as a means to improve the global environment
- Evaluate current demand-side bidding schemes, analyse for generic features, strengths and weaknesses, and provide guidelines for the development of new schemes and enhancements to existing schemes.

Expected results include

- Report on the national surveys of market participants
- Report on the national surveys of customers
- Surveys of technologies for DSB schemes
- Evaluation of existing DSB schemes
- Guidelines for the development or improvement of DSB schemes
- Report of findings and conclusions of the Task

Task IX: The Role of Municipalities in a Liberalised System

Description

The project will investigate how the roles of local authorities in demand side management are affected by a liberalised market and in the light of these changes and examples of good practice, to prepare guidelines for improving the local authorities' service delivery in this field. Demand side management includes action to improve energy efficiency, load management and action to reduce CO² emissions by energy substitution. Local authority activities in this field will be assessed for replicability, choice of targets, its effectiveness in producing long term results, response to social and political needs, response to conditions of the liberalised market and the likelihood of resources and financing being found on a long term basis. The Task will provide an up to date view of municipal action in the participating countries and the likely results that can be expected from such action.

The Task will:

- Identify municipal roles and practices in DSM activity within the context of their national energy scene and evaluate their effectiveness
- Evaluate the impact of liberalisation of energy markets and identify how municipalities can respond to this
- Define priorities for municipal action on DSM
- Make recommendations how municipalities can improve their service delivery on DSM both in-house and to third-parties
- Propose an action guide relating to DSM at municipal level, presenting common factors and specific features and to illustrate with examples.

Expected results include

- Report on the roles and responsibilities of municipalities in the energy field and the participating countries role in promoting energy efficiency
- Report on different approaches to liberalisation and their impact on energy efficiency activity in participant country, which will form the basis of an assessment of the situation faced by municipalities
- Report on best practice projects to promote energy efficiency which have been introduced by municipalities and action introduced in response to liberalisation
- Recommendations for guidelines at national and local levels regarding the role of municipalities in DSM and how the current restructuring process affects the role that they can play
- Publication of an action guide on local authority practice on energy efficiency including specific guidelines and recommendations and illustrated by practical examples

CHAPTER III

Task I: International Database on Demand-Side Management Technologies and Programmes

Operating Agent: Mr Harry Vreuls, Netherlands agency for energy and the environment (Novem), the Netherlands

Objectives

The objectives of Task I are to establish and maintain an international database on demand-side management programmes, analyse the data collected, and disseminate the information resulting from the analysis. These activities should help utilities and governments in participating countries to design demand-side management (DSM) programmes which reach more customers and save more energy at lower cost.

Task description

The international database on energy efficiency programmes (INDEEP) has made information available on electric and gas utility DSM programmes as well as those carried out by others (e.g. government agencies and energy service companies). The database consists of programmes implemented by the countries participating in this Task, plus as many other countries as possible. INDEEP focuses on programme descriptions and key summary data on programme costs, participation rates, energy and demand savings, market delivery designs, and evaluation methodologies.

Practical information, such as programme contacts, are also included in the database. In addition, summaries of pertinent data are provided periodically in order to present the lessons learned in particular types of programmes (e.g. lighting programmes in commercial buildings, or appliance rebate programmes for energy-efficient refrigerators). General analysis is disseminated and the use of a uniformed programme information data framework is being promoted.

Two advisory groups provide guidance to INDEEP activities. The IEA DSM Executive Committee provides management oversight to the Task and advises at critical junctures during the process of designing, implementing and maintaining the database, or with dissemination strategies. The Task I Experts group includes government and utility representatives, database specialists, and DSM professionals who provide advice regarding the database design, data collection, data analysis activities, and guiding the direction of the Task.

Task I officially began May 1, 1994. The first year was a pilot project to explore the feasibility and nature of an international database on DSM programmes. During the second year participants collected DSM programme data and started to compare DSM programmes among participating countries. Data analysis began during the third year, as well as software development (a prototype) and information products were pub-

lished and disseminated. During the fourth year a first analysis report was produced, and the platform for the database software was discussed and the Internet chosen. The fifth year has seen the development of the Internet software for the INDEEP database, as well as a discussion on the future of the database from 2000 onwards. This (ongoing) sixth and final year will see the software testing finalised. A second analysis report will be prepared, as well as a final progress report.

Table 1 shows the seven Subtasks, their main activities and periods for the six-year period.

Table 1

Subtask for Task

Subtasks	Main activities	Main period
1: Programme identification	develop survey questionnaire implement survey questionnaire identify programmes, workshop	year 1
2: Design planning	determine data to be collected develop DCI and definitions pre-test DCI, evaluate DCI	year 1 and 2
3: Design database	select software package start software development	year 2
4: Data collection and entry	data collection using the DCI quality control on data data entry	year 2 up to 5
5: Data analysis and report preparation	analyse the first 100 entries prepare a report including lessons learned, dissemination of information	year 2, 3 and 6
6: Updates to database	update existing data add new data improve software	year 3 to 5
7: Promoting and marketing	prepare and distribute information material present INDEEP at conferences and workshops develop a marketing strategy to transfer INDEEP	ongoing second half of year 4 to 6

Activities completed in 1999

During 1999 the activities in Task 1 concentrated on software development, and testing, data collection and quality improvement.

INDEEP software development and testing

The beta release of the INDEEP Internet software and the results of the testing were discussed with the Experts and the software developer early in 1999. One of the major changes was the search engine, used for retrieving information in the data base. There are now three types of searches:

1. Programme search

This is for users wishing to find programmes for a country or a specific technology. It is also a useful tool if the user already has some information on a programme (e.g. from the one-page summary) and wants more information on that specific programme. This option is then used to find the relevant programme, by programme name or programme code. The programme(s) matching the selection criteria are then presented. This information includes only: programme name, country, dci number and technology code. The presentation method can then be chosen.

2. Advanced search

This uses the various fields in the database to find a group of programmes. The fields are organised into four groups:

Group I: General

Group II: Energy related

Group III: Marketing related

Group IV: Others

Field value can be filled in within each group, but a combination of fields can also be used in the search. The result initially includes just the programme name, country and programme code. A second selection can be made allowing various ways of presenting the information.

3. Free query

One of the main elements in the database is the management experience gained during programme implementation. This information is stored as text in the field "lessons learned". The free query search gives the user the opportunity to search for those programmes containing a word or combination of words (e.g. success, failures, cfl, commercial). The free query also searches the field "programme summary". This search shows how many times the specific word(s) are used in the programme description, the programme code, country and the programme summary (minimum is 1). Only the top 20 results are presented. All searches have a second option, i.e. how the programme information should be presented. Figure 1 shows this option screen.

Figure 1: Screen for the INDEEP database with options on presenting a selection

How Should the Results be Presented ?

All variables of the Database for every (selected) programme 4 DCI Pages

Selection of variables for every (selected) programme One page summary

First Page of DCI

Detailed text or data information for specific fields (user defined)

Global analysis for significant variables

Selection of variables for (selected) programmes as one group List with programme and expert names

Graphical presentation for specific fields (user defined)

Detailed text or data for specific fields (user defined)

Comments (Printed on the result documents) 1 selected programmes

[Empty text area with scrollbars]

These reports will appear in a new window. Close it to return to this screen.

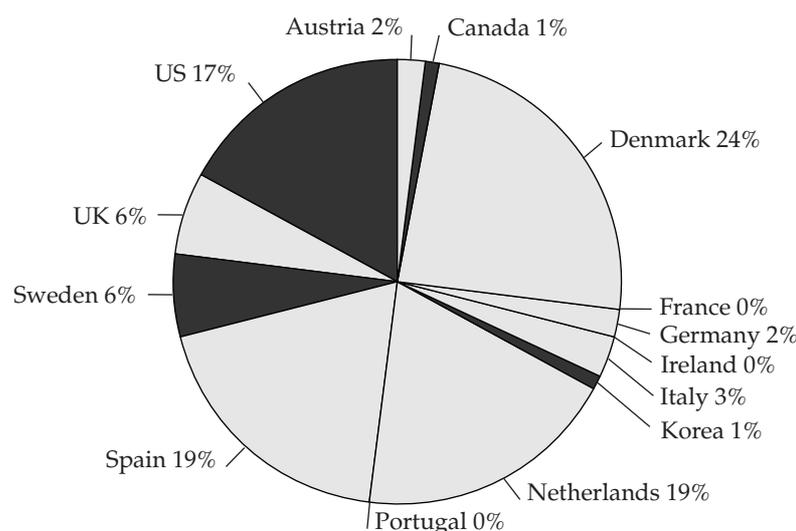
Preparation for the multi-language version of the INDEEP database was started in 1999. The text fields in the database contain information in English only, but the menu is also available in Spanish, Dutch, Italian, French and German. The reports are also available in these languages.

Data collection and quality improvement

This year (1999) was the last year in which experts gathered information on new programmes and updated information for programmes included in the INDEEP database. At the end of the year information on 227 programmes was stored in the database. Most of these programmes were implemented in countries within the European Union: 54 in Denmark, 43 in Spain and 42 in the Netherlands. Programmes from the United States, Canada and Korea are also included. Figure 2 shows the distribution of the programmes over the various countries.

The quality of all 13 Swedish programmes was improved and the information updated. The quality control for all programmes started at the end of the year, and information will be updated as necessary. The best quality programmes will be included in the second analysis report on INDEEP, to be published in the year 2000.

Figure 2: Programmes in the INDEEP database by country



Activities planned for 2000

At their meeting in April 1999 the Executive Committee approved an extension of Task 1 (until April 2000) to allow more time for data collection, testing and developing the software, and programme data analysis. Software testing will be finalised early in the year 2000 and the multi-language version will be available for participating countries in the spring of that year. From the summer onwards the database will be freely available on the IEA DSM website.

A second analysis report will be issued on the INDEEP database. The structure of the first five chapters will remain the same as the first report. Chapter six will present a deeper analysis of the main types of programmes or differences in specific elements. Chapter seven will describe successful programmes, taking the participation rates into account.

A final report on the INDEEP project 1994–2000 will be prepared and presented at the Executive Committee thus completing this task.

Involving industry and other organisations

Each national expert is responsible for contacting utilities and governmental agencies within his country, to assess general DSM information needs and the specific need for (and usefulness of) an international database on energy efficiency programmes.

The information presented in papers and at conferences has resulted in contact with the Operating Agent requesting additional information. Two projects supported by the European Union SAVE programmes use information from this Task.

Reports

The following reports, articles and information products were finalised in 1999:

1. List of DSM programmes for EU countries in the INDEEP database, August 1999
2. Testing the international INDEEP database for approval, September 1999
3. INDEEP reports 1996 onwards, October 1999
4. Change request for final INDEEP software, November 1999
5. One-page summaries, to be selected by the Internet software

The following products are planned for the year 2000:

1. INDEEP database with multi-language menu on the IEA DSM website
2. INDEEP database software manual
3. INDEEP second analysis report
4. INDEEP final report

Meeting Schedule

Meetings held in 1999:

- 28 and 29 January, Paris, France
- 4 and 5 June, Mandelieu, France
- 4 and 5 October, Copenhagen, Denmark

Meetings planned for 2000:

- 21 and 22 February, Amsterdam, The Netherlands

Task I came into force on 28 October 1993 and will continue until 1 April 2000.

Activity Time Schedule

Activity	Start Date	Completion	1994	1995	1996	1997	1998	1999	2000
1. Programme Identification (participating countries)	94 05 01	96 05 01	█	█	█				
Additional programmes (including non-participating countries)	94 12 01	98 09 01		█	█	█	█		
2. INDEEP design planning Data Collection Instrument	94 12 01	98 05 01		█	█	█	█		
3. Design Database	95 05 01	96 05 01		█	█				
4. INDEEP data collection & entry	95 05 01	99 12 31		█	█	█	█	█	
5. INDEEP data analysis and report preparation	97 01 01	00 03 31				█	█	█	█
6. Updates to the database	96 05 01	99 12 31			█	█	█	█	
7. Promotion and marketing	94 10 01	99 11 30	█	█	█	█	█	█	

Participants

Denmark

Mr Casper Kofod
DEFU (till 1 November 1999)
P.O. Box 259
DK-2800 Lyngby
Energy Piano (from 1 November 1999)
L.F. Cortzensvej 3
KD-2830 Virum
E-mail: epiano@image.dk

Spain

Gerardo González
Red Eléctrica (REE)
Paseo del Conde de los Gaitanes, 177
La Moraleja E-28109 Alcobendas,
Madrid
Tel: +34 91 6502012
Fax: +34 91 6504542
E-mail: ggonzalez@ree.es

Sweden

Anders Lewald
Swedish National
Energy Administration
P.O. Box 310
SE-631 04 Eskilstuna
Tel: +46 16 5442000
Fax: +46 16 5442099
E-mail: anders.lewald@stem.se
and

Lena Neij
Lund University, Environmental and
Energy System Studies
Gerdagatan 13, SE-223 62 Lund
Tel: +46 46 2224604
Fax: +46 46 2228644
E-mail: lena.neij@miljo.lth.se

The Netherlands and Operating Agent

Harry Vreuls
Novem
P.O. Box 17
NL-6130 AA Sittard
Tel: +31 46 4202258
Fax: +31 46 4528260
E-mail: h.vreuls@novem

Task II: Communications Technologies for Demand-Side Management

Operating Agent: Mr J R Formby, EA Technology, United Kingdom

Objectives

This Task is to assess the best available options and strategies for applying communications to DSM and customer services programmes in the Participants' countries, develop models to carry out evaluations, and specify the technology and demonstration efforts which are required to bring these options to fruition. To date the assessment has covered communications technologies for load control, data transmission, data processing, load management, automated meter reading and billing, customer alarm services, customer generation management and automation for improving distribution quality and system security. A separate activity within the subtask is to specify a customer gateway through which the identified services can be provided.

The main criteria for evaluating these technologies is their potential to improve the efficiency of energy resource use and to provide customers with better services at lower cost.

Different countries and different parts of a country have different requirements, different criteria and different stages of development in the application of DSM and related services. The level of sophistication of the relevant communications technologies is also important in these differences. This Annex is examining available standards and codes of practice for software, hardware, communication protocols and interfaces, as well as relevant international standards. The intention is to be guided by the best practice for software, hardware, communication protocols and interfaces, as well as international standards where they apply. The intention is to develop and promote best practice in meeting different national needs and to derive value judgements on communications systems and technologies that offer cost effective solutions to energy management and services deployment.

The Task has defined the climate for the application of DSM and services which could use Customer/Utility communications within each participating country. It has also defined Customer/Utility functions which are seen as being the most attractive and necessary in each country and converted them into information flows and data rates for communication between Customers, Utilities, and Services Providers. The study has collected information from each participating country and categorised and described the Utility/Customer communications environment and technological developments which are taking place and planned for all the potentially usable communications media. The media particularly include radio, telephone and power line communications, as well as wideband media. Descriptions of performance of trials and field trials have also been included and channel capacity, error performance and overall suitability of the different media quantified in supplying a developing market.

The Task has developed methodologies and models to link the data exchanges relating to Utility/Customer requirements and information flows to the communications media capabilities to transfer the information. This has enabled multiple media communications hierarchies such as telephone and power line communication to be constructed which utilise the potential of each medium to achieve given functional requirement in the most efficient and effective way from the point of view of complexity, reliability and security. The models also enable the costs of technically viable solutions to be quantified. Field trial evaluations using the models have been carried out by four participating countries.

The results of these communication architecture studies are being used as inputs to standards forming organisations to assist with the tasks of defining protocols, signalling, interfacing standards and gateways for customer/Utility communications systems on an international basis.

A subtask to specify a standard customer gateway through which to provide identified customer DSM and other services has been completed with the participation of six countries.

A flexible customer gateway design has been specified so that different media and protocols could be handled on both sides of the gateway in order to accommodate future expansion of media and services.

A second subtask to evaluate possible routes for using wideband communication media, developed for entertainment, internet and computing purposes, to implement narrowband utility services has been completed and reported. The subtask is a collaboration among six countries.

The subtask now in progress is to implement the flexible gateway design using the agreed specification. The subtask commenced in July 1999 and will be completed together with a demonstration in April 2000. A schematic diagram illustrating the gateway as the link between service providers and customer service applications is shown in Figure 1.

The narrowband bus and equipment connected to it are required to be extremely low cost and user friendly, incorporating powerful "Plug and Play" protocols.

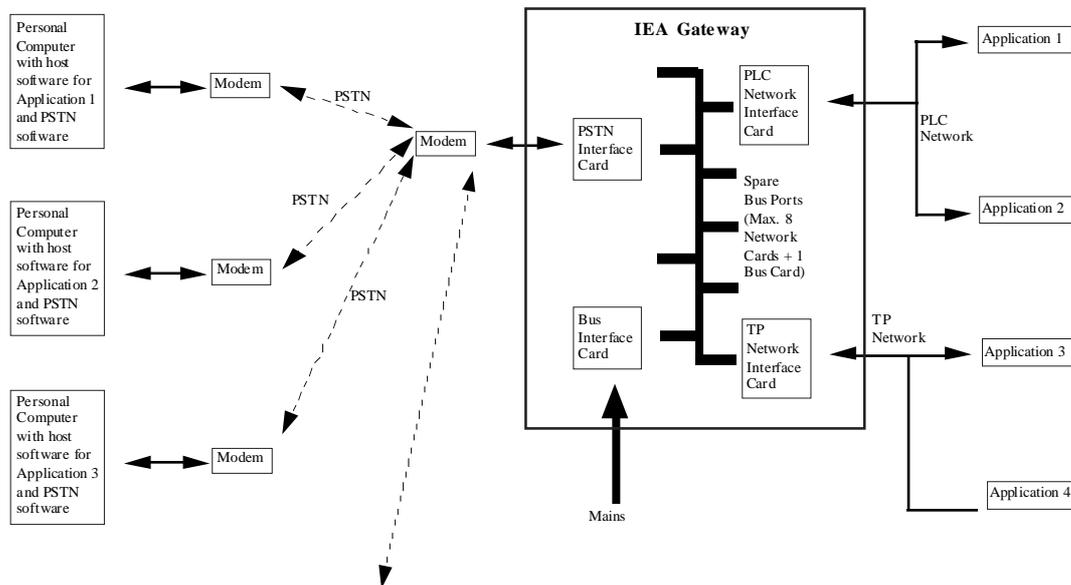
The initial demonstration subtask uses the telephone network as the external to the premises communication medium. The media used inside customer premises will be power line and twisted pair. Expansion to other media and protocols both inside and outside customer premises is allowed for.

Potentially all customers are available for the provision of energy and related services using communication. Bundles of services will be targeted at specific customer groups using the communication infrastructure and possibly managed by a separate service provider company.

In order to prime the market and develop routes to the provision of customer services, a trial of services and technology is needed. This requires involvement of manufacturers, infrastructure providers, services providers and technology providers. The DSM Agreement Executive Committee have approved the concept of a field trial subtask to achieve these objectives and promote routes to the exploitation and achievement of energy related services in the market place. A subtask proposal will be formally considered in April 2000.

Figure 1

**IEA GATEWAY - ILLUSTRATION OF COMPLETE SYSTEM
(1 External and 2 Internal Networks; Multiple Applications and service providers)**



Activities completed in 1999

- April 1999 Completion of Wideband Media subtask
- July 1999 Commencement of Gateway Implementation subtask
- October 1999 Presentation of Field Trial Concept Proposal

Activities planned for 2000

- Completion of Flexible Gateway Implementation subtask and demonstration
- Presentation and voting of Gateway Field Trial subtask

Involvement of industry and other organisations

The collection of information about Customer/Utility Value Added Services and the communications technologies and protocols in participating countries has involved a great deal of interaction with organisations in each country. Much of the work has been carried out through detailed dialogue with utilities and hardware manufacturers. Customer groups and Government organisations have also been involved in consultations to assess national needs and Customer/Utility service motivators. The Gateway implementation subtask directly involves manufacturers from several countries.

Reports

Reports produced in 1999:

February 1999 "Migration of Customer/Utility Services to Wideband Communication Media"

Reports planned for 2000

April 2000 Report of Gateway Documentation

Meeting Schedule

Meetings during 1999:

18–19 January 1999, Barcelona, Spain

13 April 1999, Copenhagen, Denmark

8–9 July 1999, Chester, United Kingdom

25–26 October 1999, Amsterdam, Netherlands

Planned meetings 2000:

6–7 March 2000, Port Macquarie, Australia

Task II was entered into force on 1 October 1993, and was extended by the addition of two new Subtasks to a total duration of three and a half years i.e. 31 March 1997. A new Subtask commenced in January 1998, to specify a Customer Gateway for delivering value added services. An additional Subtask to define strategies for wideband communication channels for Customer/Utility services commenced in March 1998. A Task to implement the design of a flexible customer gateway, specified earlier, started in July 1999 with completion planned for April 2000.

Activity Time Schedule

Activity			1993	1994	1995	1996	1997	1998	1999	2000
Customer/Utility needs	93 10 01	94 09 30	—							
Communications Technologies	93 10 01	94 09 30	—							
Relate needs and Communications	94 10 01	95 09 30		—						
International Standards	94 10 01	96 09 30		—	—					
R&D Priorities	94 10 01	96 09 30		—	—					
Costing Model	96 01 01	97 03 31				—				
Communications Model	96 01 01	97 03 31				—				
Customer Gateway Specification	98 01 01	98 06 30						—		
Wideband Communication Strategy	98 01 01	98 06 30						—		
Customer Gateway Implementation	99 08 01	00 04 30							—	

Participants

Australia

Mr. Dennis Stanley
Product Development Manager
NorthPower
P.O. Box 786
Port Macquarie
NSW 2444
Telephone: +61 2 6582 8777
Telefax: +61 2 6582 8662
E-mail: d.stanley@northpower.com.au

Canada

Mr. Sam Peralta
Ontario Power Technologies
800 Kipling Avenue
KR297 Toronto
Ontario M8Z 6C4
Telephone: +1 416 207 5931
Telefax: +1 416 207 6216
E-mail: sam.peralta@oht.hydro.on.ca

Finland

Dr. Pentti Uuspää
Senior Research Engineer
VTT Energy
Energy Power and Systems
Tekniikantie 4C, Espoo
P.O. Box 1606
FIN-02044 VTT
Telephone: +358 9 456 6438
Telefax: +358 9 456 6538
E-mail: pentti.uuspaa@vtt.fi

Mr. Pekka Koponen
Research Scientist
Distribution Automation
VTT Energy
Energy Power and Systems
Tekniikantie 4C, Espoo
P.O. Box 1606
FIN-02044 VTT
Telephone: +358 9 456 6755
Telefax: +358 9 456 6538
E-mail: pekka.koponen@vtt.fi

Netherlands

Mr. Jan Griffioen
ENECO
Transport & Produktie
Rochussenstraat 200
Rotterdam (Room 401)
Postbus 1598
3000 BN Rotterdam
Telephone: +31 10 457 7125
Telefax: +31 10 457 7741
E-mail: j.griffioen@eneco.nl

Mr. Erik van Hooren
Nutsbedrijven Maastricht
P.O. Box 104 262 01 MJ
Maastricht
Telephone: +31 43 350 5788
Telefax: +31 43 350 5930
E-mail: erik.van.hooren@nutsmaas.nl

United Kingdom

Mr. Andrew David
Asset Management
Pentwyn Road
Nelson
Mid Glamorgan CF46 6LY
Telephone: +44 1443 452 322
Telefax: +44 1443 452 352

Operating Agent

Mr. Richard Formby
E A Technology Ltd
Capenhurst
Chester CH1 6ES
United Kingdom
Telephone: +44 151 347 2509
Telefax: +44 151 347 2226
E-mail: jrf@eatl.co.uk

Administrator

Ms. Maureen Smith
E A Technology Ltd
Capenhurst
Chester CH1 6ES
United Kingdom
Telephone: +44 151 347 2344
Telefax: +44 151 347 2226
E-mail: ms@eatl.co.uk

Task III: Co-operative Procurement of Innovative Technologies for Demand-Side Management

Operating Agent: Dr. Hans Westling, Promandat AB, Sweden

Objective

The objective of Task III is to establish a co-operative demand-pull procedure to bring more energy-efficient and environmentally-adapted demand-side management technologies to the marketplace, to rank innovative candidate technologies for competitive procurement activities, and to procure key DSM technology options that have not yet reached the marketplace in order to demonstrate and test the procedure developed.

Description

Task III has been divided into a number of subtasks, one of which has been to define a process for international co-operative procurement of innovative DSM technologies. This process – the Market Acceptance Process – has been described in the report “Co-operative Procurement – Market Acceptance for Innovative Energy-Efficient Technologies”, which has been, and still is, widely distributed. The Task III participants – Denmark, Finland, Korea, The Netherlands, Spain, Sweden, United Kingdom, United States and the European Commission through DG XVII – have seen participation in this Task as *taking part in a learning process*. Experience obtained from work on the process, exchange of information during and between Experts meetings and learning from the procurement preparations and realisations are important elements of the work.

Other subtasks have included the selection of technologies that are most suitable for co-operative, innovative and diffusion activities, and formulation of specifications and realisation of pilot procurements. Seven technological areas were investigated: lighting, wet appliances (clothes washers and dryers), copiers, vending machines, consumer electronics, industrial motors and LED traffic signals. Procurements and promotion activities have been carried out, or are going on, in some of the areas. The final subtask includes evaluation of the procurement process developed, after the pilot projects and other gained experience.

The expected benefits of Task III work are that combined efforts of participating countries can create a larger impact than activities conducted by a single country. Procurement activities (carried out concurrently for the same technological area), and especially in combination with supporting mechanisms (economic incentives, information, labelling, etc.) can strengthen interest and accelerate market introduction. Gradually tougher requirements may contribute to innovation and may, from time to time, be adopted for:

- technology procurement for technological solutions not yet existing on the market,
- procurement activities by leading or anchor buyers restricted to the 25% best products on the market,
- standards (minimum requirements).

It is evident in some areas that only through combined efforts is it possible to create such an impact and interest among manufacturers that they are willing to run the risk of investing further capital in research and development for manufacturing processes. The existence of a full set of requirements from important buyers may also reduce the risks for the manufacturers. Using combined efforts from a number of countries, contributing fairly limited economic resources, may also result in an impact of the same magnitude as that achieved by using large, very costly rebate programmes directed to consumers.

Activities completed in 1999

Pilot Procurements

The suitable number of pilot procurement projects to concentrate on has been thoroughly discussed by the Experts, who initially decided that at least three projects were needed and should be fulfilled, if possible, in order to gather sufficient background experience. During the evaluation of the DSM Agreement, one suggested action was that the number of pilot projects be increased to five in order to get sufficient experience. The purpose of the projects has been to show how a collaborative procedure can function at an international level and to draw conclusions from this work. There have been procurements and promotion activities in four of the Task III technological areas – *wet appliances, lighting, industrial motors and copiers* – and a procurement and promotion activity in *LED traffic signals* was discussed at an international workshop in Stockholm in September 1999.

In the wet appliances area, where The Netherlands has had the Project Management role, the “*IEA-DSM Drier Promotion Competition*” has now ended. In spite of previous indications of interest, no new entries were received during the Second and Final Round of the competition, where 1 January this year was the closing date. The marketing of the winner of the First Round of the competition, the AEG heat-pump drier, continues in Germany and in some other European countries, e.g. The Netherlands, Denmark, Sweden and Spain. In some of the countries, there are subsidies/rebate schemes and information activities. In the new heat-pump drier – the first Class A drier – the energy consumption is reduced by half. Work is under way to inspire the production towards industrialisation in order to lower the price and increase the number of dryers manufactured. Other manufacturers have been looking into the possibilities of refining their existing driers along the requirements of the IEA-DSM Competition, and an “*Eco Drier*” has now appeared on the German market but, up till now, it is only marketed on a limited scale.

In lighting, where the United Kingdom has been the Project Manager, the “*Replacement Incandescent Lamp – Future Bulb – Technology Procurement Competition*” has been closed. Only one submission was received and assessed by the project steering group, representing four IEA countries. It was concluded that the product did not meet all the requirements – for example energy reduction by 30%, substantially longer life, dimming capabilities, easy to combine with existing fixtures and reasonable price – so the project had to be closed. Even though there was no winner in this competition, it made a great influence on the market in so far as the manufacturers have adapted their CFLs more to the real needs expressed in the Task III specification for the “*Future Bulb*”, for example easy dimming, and they have also reduced the prices. Lately, interest has been shown from smaller developers in this field, and a patented prototype was presented in the November issue of the magazine “*Lighting Equipment News*”.

Table 1: Overview of Task III Pilot Projects

Pilot Projects	Project Manager	Energy Reduction Goal	Results	Main Lessons *
<i>Wet Appliances:</i> IEA DSM Drier Promotion Competition	The Netherlands	50%	Entry fulfills all criteria	Market plans should be a condition for receiving an Award
<i>Lighting:</i> Replacement Incandescent Lamp – Future Bulb – Competition	United Kingdom	30%	One entry, not fulfilling all criteria. Subsequent one-off prototype produced which apparently meets criteria.	Competing with other important development projects among manufacturers, as CFLs
<i>Copiers:</i> Copier of the Future Competition	United States	By 70–75% down to 30%	Entry and prototype fulfilling all criteria	Receipt of the Award was the real challenge which was the driving force
<i>Industrial Motors:</i> IEA Hi-Motors Competition	Finland	20–40% reduction of losses	2 prototypes fulfilling all criteria	The Award was the real challenge. Most motors bought by systems suppliers, low initial purchase price important
<i>LED Traffic Signals</i>	Sweden in collaboration with Finland and The Netherlands	Reduction of: energy costs 35–95%, maintenance costs 50–75%	In starting phase	Different interest in different countries concerning individual lamps or whole signal heads

* 60 different lessons identified by Project Managers in London Workshop Report

In the industrial motors area, which has had Finland as project-managing country, there were two winners in the “IEA Hi-Motors Competition”: ABB Finland with a 75 kW motor, and ABB Sweden with a 5.5 kW motor, both fulfilling all the competition requirements, and both receiving the “IEA DSM Award of Excellence”. In these motors, the losses of energy have been reduced by 20–40%. After the Award Ceremony, which was held in conjunction with the Task III Workshop in London 24–25 February this year (see further below), ABB has started the marketing of these energy-efficient motors. A presentation of the Hi-Motors was made at the Hanover Fair in April, and another at the EEMODS 99 conference 20–22 September in London.

In copiers, Switzerland acted as Project Manager during the preparatory stage, after which the United States took on the Project Management role from the autumn of 1997. The launching of the “Copier of the Future” competition took place in September 1998 and submissions will be accepted every six months until September 2000. One entry was received at the closing date of the First Round of the competition, 1 April 1999, and it fulfilled all the mandatory requirements. An announcement about the competition and receipt of promising submissions was made at the ECEEE in southern France in June this year, and the Award Ceremony took place during the “COMDEX/Fall 99” in

Las Vegas, United States, on 16 November. The winner was Ricoh Company, Ltd., Japan. The winning copier is a network capable, mid-speed digital photocopier that consumes less than 10 Watts of energy in standby mode. Other features include its ability to enter and recover from standby mode within 10 seconds, efficient duplexing performance and reliable and convenient copying capabilities. There are indications that the use of energy for a standardised usage pattern will be reduced by two thirds, which means coming down to almost 30%. Buyers that have expressed interest in purchasing or leasing the winning copier include Credit-Suisse (Switzerland), Ikea and Volvo (Sweden) and 3M and Kinko's (United States).

The *LED traffic signals* project has had Sweden as project managing country. The replacement of conventional traffic signals with LED signals can reduce energy costs by as much as 80–90%. The potential for maintenance costs savings is very high. There is great support for the project from The Netherlands, Finland and Sweden. There was an international LED Traffic Signal Workshop in Stockholm, Sweden, on 27–28 September with large attendance. Issues discussed include the state of the art in research and technology, forming of an international buyer group and national groups of buyers, joint procurement, or national procurements in parallel using the same specifications, and/or competitions for “IEA DSM Awards of Excellence” and promotions.

There is still some interest in the *consumer electronics* area, but the project has been kept on a low-profile basis.

A *vending machines* project has been considered by the Experts to be important from a pedagogical point of view, an opinion also expressed by the European Commission DG XI. Denmark has good knowledge in the area and considers producing a specification. If a procurement competition is a way of working in this area will be decided later.

The Market Acceptance Process, Task III, its technological areas and procurement competitions are presented on the Internet (in addition to the Task III home page (<http://stem/IEAprocure/>) also on the IEA DSM and other web sites).

Workshops and conferences

The Task III international workshop “*Accelerate innovation and market transformation of energy-efficient products*” took place in London 24–25 February 1999 with participation of about 75 delegates from 14 countries. The workshop, which was organised by IEA DSM Task III in collaboration with the European Commission DG XVII, Energy, and the U.K. Department of the Environment, Transport and the Regions, DETR, was addressed by the U.K. Energy Efficiency Minister. During the workshop, IEA and European Commission policies and programmes were presented. An overview of Task III work was given by the Operating Agent and the pilot procurements were presented and examined by the project managers. Extensive background documentation had been worked out. It included i.a. presentations of the process, pilot projects and about 60 preliminary lessons learned from self-evaluation (based on the experts’ and project managers’ answers to a comprehensive questionnaire). A report by an independent external evaluator of the Task III process and projects, professor Peter Lund from Finland, and a report of similar collaborative energy-efficiency projects in the USA were presented. The Award Ceremony for the IEA Hi-Motors Competition took place during the workshop, and the two winners were presented with the “IEA DSM Award of Excellence”.

The “*LED Traffic Signal*” international workshop was held on 27–28 September 1999 in Stockholm. The workshop attracted some 70 people from several European countries,

North America, South Africa, Taiwan and Korea. The attendees represented all steps in the chain, from LED suppliers to end users, including control manufacturers and LED lamp makers. Procurements and promotion activities, jointly or nationally in parallel using similar specifications and/or competitions for IEA DSM Awards of Excellence were discussed.

In connection with the IEA 25th Anniversary and the Ministerial Conference in Paris in May this year, the 'IEA Hi-Motors' with one of the ABB motors and the 'IEA DSM Drier' with the AEG drier were presented as examples of successful IEA projects.

Activities planned for 2000

Since Task III will be concluded by the end of 1999, discussions have been going on about different possibilities for a continuation of the work. Many participants of Task III have expressed an interest in creating an informal network, physical and/or electronic, in the form of a Working Group. Continued activities within a new Task have also been mentioned as a possibility. At the Executive Committee Meeting in April 1999, it was decided that the Task III activities were to continue as a Working Group within the DSM Agreement, where some of the remaining pilot projects could be continued until included in the new, recently decided "Market Transformation" Task which will start in 2000.

The Second Round of the "*Copier of the Future*" competition will continue and the deadlines for applications are 30 April and 30 September 2000. Accelerated development efforts will be made by the First Round Award winner, Ricoh, and according to information received, the "IEA DSM Award of Excellence" is the critical motivator.

The *LED traffic signals* project, which was discussed at the International Workshop in Stockholm in September 1999, will be further planned during 2000. Joint and/or national activities in parallel will be discussed at a workshop which may be combined with a seminar at the Intertraffic Fair in Amsterdam 12 April 2000, where the final results of a visibility research study and a study of the LED traffic signal conversion in Europe, ready at the end of January 2000, will be presented.

Activities in some of the other Task III areas will proceed. In the *wet appliances* area, the marketing of the winning AEG heat pump drier will continue with promotion activities and, in some countries, rebate schemes and support. In the *industrial motors* area, the buyer group contacts and information activities to support the Award-winning ABB motors will continue. The IEA Hi-Motors brochure (originally in English) is planned to be printed in other languages. A Finnish version is already decided. The winning motors will also be exposed at different industrial fairs.

The IEA DSM Co-operative Procurement activity has inspired to plans for procurement activities through the *European Commission DG XVII* within the refrigeration area. The *Inter American Development Bank* has included procurement as one tool within its programme for future activities. The individual countries participating in Task III have started their own procurement activities and, in some cases, joint activities in order to inspire further introduction of energy-efficient products.

Two final reports will be drawn up by the Operating Agent in collaboration with the Experts. The first one, the "Management" Report, is expected to be ready by the end of March. The second one, the "Technical Report (which will include presentations and discussions from the Task III 1999 Workshop in London) is expected to be ready in the summer of 2000.

Involvement of industry and other organisations

Extensive contacts and several meetings with manufacturers have been held in all the areas, and especially in *wet appliances, lighting, copiers and industrial motors*. Contacts with manufacturers have been established at several national and international conferences and fairs, where the Operating Agent and the Experts have presented Task III work. Such international conferences and fairs in 1999 include the Task III Workshop in London in February, the ACEEE's Third Annual Market Transformation Workshop in the United States in March, the World Energy Day in Austria in March, the IEA Market Transformation Conference in Paris in April, the Hanover Fair in April, the ECEEE conference in France in June, the EEMODS '99 motor conference in London and the LED Traffic Signals international workshop in Stockholm, both in September, and finally, a CIB conference in South Africa also in September.

The receivers of the "IEA DSM Award of Excellence" – AEG for the drier, the ABB Group for the motors and Ricoh for the copiers – carry on marketing activities for the new products, where the Award plays an important role.

The participating countries have, to a varying degree, carried out systematic identification of buyers interested in the chosen technological areas. In several of the countries, national buyer groups have been established for specific products, in which the countries have an interest.

Reports

Reports produced in 1999

Examples of reports, working documents, competition documents and information products prepared by/for the Experts in 1999:

- Presentations on the Internet (<http://stem/IEAprocure/>), continuously updated, including:
 - Task III Co-operative Technology Procurement
 - Co-operative Procurement. Market Acceptance for Innovative Energy-Efficient Technologies
 - The Challenge and The Market Acceptance Process
 - Replacement Incandescent Lamp
 - Wet Appliances and Drier Promotion Competition
 - Consumer Electronics
 - Efficient Copiers
 - High Efficient Induction Motors
- Presentation on the Internet (<http://www.epa.gov/appdstar/esoe/techpro.html>) of the *Copiers of the Future* procurement.
- Presentation on the Internet (<http://info.lut.fi/ente/sahko/Hi.Motors/Intro.htm>) of *IEA Hi-Motors Competition*.
- *Proceedings from the Task III Workshop "Accelerate innovation and market transformation of energy-efficient products"*, London, United Kingdom, 24–25 February 1999. Compiled July 1999. These proceedings include:
 - *Overview of Annex III Work - Procurement Process, Pilot Projects and Self-Evaluations*, report by Hans Westling, Promandat AB, Sweden.
 - *IEA DSM Annex III Co-operative Procurement - Case studies*, short presentations by Hans Westling and the Project Managers.

- *Lighting Energy Efficiency Partnership, LEEP - Case Study*, short presentation by Keven Verdun, The Lighting Association, United Kingdom.
- *Annex III Technology Procurement - Copier Pilot Project: Evaluation Case Study*, presentation by Alison ten Cate, EPA, United States.
- *IEA-DSM Annex III - Co-operative Procurement: Project Update - Future Bulb*, by Paul Davidson, BRE, United States.
- *U.S. Energy-Efficiency Technology Procurement Projects: Evaluation and Lessons Learned*, report by Marc Ledbetter, PNNL, United States.
- *Evaluation of Annex III on Cooperative Procurement of The International Energy Agency's Demand Side Management Agreement*, final report by Peter Lund, Solpros, Finland.
- *Documentation for the Copier of the Future Award Presentation*, prepared by Rachel Schmeltz, EPA, United States.
- *Documentation before and after the LED Traffic Signals Workshop*, prepared by Nils Borg, Borg & Co, Sweden.

Reports planned for 2000

- Task III Final Management Report
- Task III Final Technical Report

Meeting schedule

Experts meetings held in 1999:

February 25–26, London, United Kingdom.

June 21–22, Brussels, Belgium.

December 1–2, Stockholm, Sweden (final Task III Expert Meeting).

Activity Time Schedule

Activity	Start Date	Completion Date	1993	1994	1995	1996	1997	1998	1999
Subtask III:1 Market Acceptance Process	93 11 15	95 10 01		■	■				
Subtask III:2 Technology Screening: Step 1 (3 areas)	93 11 15	94 11 30		■					
Step 2 (2 more areas)	94 11 04	95 03 04			■				
Step 3 (further areas)	95 01 30	98 06 30			■	■	■		
Subtask III:3 Specification Pilot Project(s) (different areas)	95 03 01	99 12 31			■	■	■	■	■
Subtask III:4 Market Contact: (first pilot(s))	95 06 15	97 02 28			■	■			
further pilots	96 06 15	99 12 31				■	■	■	■
Subtask III:5 Further Procurement	96 04 01	99 12 31				■	■	■	■
Subtask III:6 Lessons learned									
Lessons Learned-preliminary	97 10 01	98 12 31					■	■	
Lessons Learned-final	99 01 01	99 12 31							■

Task III was entered into force on October 28, 1993, and will be completed on December 31, 1999.

Participants

Denmark

Ms. Rina Sapru
Danish Energy Agency
Amaliegade 44
DK-1256 Copenhagen K
Telephone: +45 33 92 67 01
Telefax: +45 33 92 75 48
E-mail: rs@ens.dk

Ms. Maria Rizzo
Danish Energy Agency
Amaliegade 44
DK-1256 Copenhagen K
Telephone: +45 33 92 68 90
Telefax: +45 33 91 55 81
E-mail: mcr@ens.dk

Commission of the European Union

Mr. Paolo Bertoldi
Directorate General XVII Energy
Rue de la Loi 200
B-1049 Brussels
Telephone: +32 2 295 2204
Telefax: +32 2 295 5852
E-mail: paolo.bertoldi@cec.eu.int

Finland

Mr Heikki Härkönen
Motiva
P.O. Box 462
FIN-02151 Espoo
Telephone: +358 9 45 66 092
Telefax: +358 9 45 67 008
E-mail: heikki.harkonen@motiva.fi

Mr. Seppo Silvonen
Motiva
P.O. Box 462
FIN-02151 Espoo
Telephone: +358 9 45 66 090
Telefax: +358 9 45 67 008
E-mail: seppo.silvonen@motiva.fi

Korea

Mr. Shin, Kwan-Hong
International Cooperation, KEMCO
3001-1 Pungdukchun-ri, Suji-eub,
Yongin
Kyunggi 449-840
Telephone: +82 331 260 4555
Telefax: +82 331 260 4549
E-mail: khshin@kemco.or.kr

Netherlands

Mr. Ruud Trines
NOVEM
P.O. Box 8242
NL-3503 RE Utrecht
Telephone: +31 30 23 93 645
Telefax: +31 30 231 6491
E-mail: r.trines@novem.nl

Mr. René Kemna
Van Holsteijn en Kemna
Electronicaweg 14
NL-2628 X6 Delft
Branch office: Av. Albert 126
B-1190 Brussels, Belgium
Telephone: +31 15 275 57 55
+32 2 349 10 20
Telefax: +31 15 275 57 88
+32 2 349 1028
E-mail: r.kemna@vhk.nl

Mr. Hans-Paul Siderius
Van Holsteijn en Kemna
Electronicaweg 14
NL-2628 X6 Delft
Telephone: +31 15 275 57 55
Telefax: +31 15 275 57 88
E-mail: h.p.siderius@vhk.nl

Spain

Mr. Fernando Borbon
Sevillana (ENDESA Group)
Dept. of Marketing
Avenida Borbolla, 5
E-41004 Sevilla
Telephone: +34 95 441 7311
Telefax: +34 95 453 4953
E-mail: borbon@sevillana.grupoendesa.com

Mr. Carlos Gonzalez
UNESA
c/Francisco Gervas 3
E-28020 Madrid
Telephone: +34 9 15 67 48 00
Telefax: +34 9 15 67 49 82
E-mail: cgonzalez@unesa.es

Sweden

Mr. Egil Öfverholm
Swedish National
Energy Administration
Box 310
SE-631 04 Eskilstuna
Telephone: +46 16 544 20 40
Telefax: +46 16 544 22 60
E-mail: egil.ofverholm@stem.se

Ms. Heini-Marja Suvilehto
Swedish National
Energy Administration
Box 310
SE-631 04 Eskilstuna
Telephone: +46 16 544 20 00
Telefax: +46 16 544 22 60
E-mail: heini-marja.suvilehto@stem.se

United Kingdom

Dr. Paul Davidson
BRECSU, BRE, Building Research Establ.
Garston, Watford WD2 7JR
Telephone: +44 1923 66 4437
Telefax: +44 1923 66 4087
E-mail: davidsonp@bre.co.uk

Mr. Paul White
ETSU
Harwell, Didcot, Oxfordshire, OX11 0RA
Telephone: +44 1235 43 3583
Telefax: +44 1235 43 2390
E-mail: paul.white@aeat.co.uk

United States

Mr. Marc LaFrance
Office of Building Equipment
U.S. Department of Energy, DOE
Mail Stop EE-42, Room 5E-036
1000 Independence Avenue SW
Washington, DC 20585-0121
Telephone: +1 202 586 8423
Telefax: +1 202 586 5557
E-mail: Marc.Lafrance@ee.doe.gov

Mr. Scott Thigpen
Energy Star Labeling
Atmospheric Pollution Prevention
Division
U.S. Environmental Protection Agency
Routing 6202-J, 401 M Street, SW
Washington, DC 20460
Telephone: +1 202 564 9002
+1 202 564 9190
Telefax: +1 202 565 6674
E-mail: higpen.scott@epa.gov

Mr. Jeff Harris
Lawrence Berkeley National Laboratory
Energy & Environment Division
1250 Maryland Avenue S.W., Suite 500
Washington, DC 20024
Telephone: +1 202 484 0883
Telefax: +1 202 484 0888
E-mail: jpharris@lbl.gov

Ms. Rachel Schmeltz
U.S. Environmental Protection Agency
401 M Street, SW
MS 6202N
Washington, DC 20460
Telephone: +1 202 564 9124
Telefax: +1 202 565 6674
E-mail: schmeltz.rachel@epa.gov

Operating Agent

Dr. Hans Westling
PROMANDAT AB
P.O. Box 24205
SE-104 51 Stockholm
Sweden
Telephone: +46 8 667 80 20
Telefax: +46 8 660 54 82
E-mail: hans.westling@promandat.se

Secretariat

Ms. Ann-Charlotte Hamvik
Hamvik Konsult AB
Telephone: +46 8 731 03 65
Telefax: +46 8 767 15 65
E-mail: hamvik.konsult@telia.com

Names of Project Managers and Specialists for the different technological areas can be obtained from the Operating Agent or the Experts.

Task VI: Mechanisms for Promoting DSM and Energy Efficiency in Changing Electricity Businesses

Operating Agent: Dr David J Crossley, Energy Futures Australia Pty Ltd

Objectives

The objectives of Task VI are:

- to develop in detail a range of practical mechanisms whereby economically justifiable DSM and energy efficiency can be incorporated into changing electricity business environments;
- to identify the public policy implications which would follow a decision by the responsible authorities to implement each of the various mechanisms, including:
 - actions which would be required by, and changes to the responsibilities of, privately- and publicly-owned utilities, governments, and industry regulators;
 - impacts of the mechanism on market structures and oversight;
 - effects of the mechanism on trading and financial arrangements;
 - consequences of the mechanism for new industry structures, rules of conduct, consumer interests, legislation and regulation;
- to identify and discuss the transitional issues for existing DSM programs arising from changing electricity business environments;
- to communicate and disseminate a range of information about the mechanisms.

Definitions

The mechanisms which will be considered in Task VI are not DSM and energy efficiency programmes. Rather they assist the implementation of such programmes. Mechanisms are targeted at organisations which develop and implement DSM and energy efficiency programmes and are intended to make it easier for these programmes to be implemented. In contrast, DSM and energy efficiency *programmes* are targeted at energy end-users and are intended to change the way in which energy is used and therefore achieve commercial outcomes for the programme implementer.

The following examples are provided to illustrate the distinction between mechanisms and programmes.

Mechanism	Programme
A regulator allowing electricity businesses to increase their electricity prices to cover the cost of providing cash rebates to customers who purchase energy efficient appliances	An electricity business providing cash rebates to customers who purchase energy efficient appliances
A Government establishing an energy efficiency funding agency such as the United Kingdom's Energy Saving Trust	An electricity business participating in the funding agency's programs directed at customers
A wholesale electricity pool establishing a protocol for demand bidding into the pool	An electricity business offering low-priced interruptible electricity supply to customers and then bidding demand reductions into the pool
An electricity business implementing performance contracting where the cost of services provided by the business is only paid for by customers if specified results are achieved	An electricity business offering to provide customers with energy efficiency improvements through performance contracting where the cost of the improvements is paid for from reductions in the customer's electricity bill

Activities during 1999

During 1999, work continued on all three subtasks within Task VI:

Subtask VI/1: Detailed Development of Mechanisms;

Subtask VI/2: Communication of Information About the Mechanisms;

Subtask VI/3: Public Policy Implications.

From late 1997, work in all the Task VI Subtasks has been proceeding simultaneously. Subtasks in Task VI are each concerned with a different aspect of the topic which Task VI is addressing rather than sequential stages in completing the work. Sequential staging of the work on each different aspect occurs within each Subtask rather than between Subtasks.

Subtask VI/1: Detailed Development of Mechanisms

Development of Mechanisms

Work during 1999 has concentrated on developing the 26 mechanisms which were initially identified by the Task VI Experts as being suitable for further development. Following the October 1999 Experts meeting, the number of mechanisms being developed has now been reduced to 25. Extensive research has been carried out and sources of further information identified. Mechanism descriptions have been completed using the format agreed by the Task VI Experts and incorporating comments made by the Experts and by participants in the three Practitioners Workshops held in Australia, France and Japan. Drafts of the complete mechanism descriptions have been circulated twice to the Experts for comment. In addition, a set of mechanism summaries was produced for participants in the Practitioners Workshops and was also circulated to the Experts.

Existing Mechanisms Database

Several Task VI participants have updated the information on existing mechanisms in use in their countries which is included in the existing mechanisms database. Details of over 100 mechanisms are now included in the database. The database is available through the Task VI Internet secure site. Access to this site is restricted to the Task VI Operating Agent, Experts and contractors.

Subtask VI/2: Communication of Information About the Mechanisms

Information Dissemination

The Operating Agent prepared and distributed three editions of the *Task VI Experts Newsletter*.

The contractor Verity Saunders Strategic Communication, carried out updating of various elements of the Task VI public Internet web site.

The contractor, As/Tech, completed routine updating and revision of the Task VI Experts Internet secure site, which now comprises:

- existing mechanisms database;
- external contacts database;
- IEA DSM Programme contacts database;
- Task VI discussion group;
- Task VI Experts Newsletter downloadable files;
- Task VI Status Reports downloadable files;
- Task VI Working Papers downloadable files;
- Task VI Research Reports downloadable files;
- sources of further information;
- software downloads links page.

Practitioners Workshops

Practitioners workshops were held as follows:

- on Friday 21 May 1999 in Sydney, Australia;
- on Friday 28 May 1999 in Sophia Antipolis in the south of France;
- on Friday 27 August 1999 in Fukuoka, Japan.

At these workshops the draft developed mechanisms were presented for comment to a range of practitioners who may eventually be involved in using the mechanisms. The practitioners' comments comprised a form of "reality check" on the practicality of the developed mechanisms.

Subtask VI/3: Public Policy Implications

The contractor Center for Resource Solutions completed the final draft of Task VI Research Report No 3: Public Policy Implications of Mechanisms for Promoting DSM and Energy Efficiency in Changing Electricity Businesses. This report was approved for publication by the Executive Committee members representing Task VI participants.

The Center for Resource Solutions also completed the public policy sections for the descriptions of each the 25 developed mechanisms. A first draft of the public policy section for the final Task VI report was also completed.

Activities during 2000

The original timetable called for Task VI to be completed by the end of 1999. However, this timetable has been slightly delayed because of shortage of funds caused by one Task VI participant not paying their financial contribution. It is now intended that Task VI will be completed by the end of March 2000.

Subtask VI/1: Detailed Development of New Mechanisms

Over the first three months of 2000, the following work will be carried out in Subtask VI/1:

- finalisation of the draft mechanism descriptions, including incorporating final comments received from the Experts;
- preparation of the final Task VI report, Research Report No 3, on developed mechanisms and their public policy implications, which will include the finalised mechanism descriptions.

Subtask VI/2: Communication of Information About the Mechanisms

Over the first three months of 2000, the following work will be carried out in Subtask VI/2:

- creation of a developed mechanisms database for inclusion in the Task VI Experts Internet secure site.

Subtask VI/3: Public Policy Implications

Over the first three months of 2000, the following work will be carried out in Subtask VI/3:

- completion of material on public policy implications of the developed mechanisms for inclusion in the final Task VI report.

Publications produced during 1999

1. Research Report No 2: *Public Policy Implications of Mechanisms for Promoting DSM and Energy Efficiency*. Final draft
2. *Developed Mechanism Descriptions* (Two drafts).
3. *Summaries of Developed Mechanisms* (for circulation to participants in the Practitioners Workshops)
4. Three editions of the *Task VI Experts Newsletter* were produced during 1999. These were circulated to all Task VI Experts and contractors plus Executive Committee members from countries participating in Task VI.

Electronic files of all these publications are posted on the Task VI Experts Secure Site on the Internet.

Reports to be produced during 2000

1. Research Report No 3 on developed mechanisms and their public policy implications.

Experts Meetings

The following Experts meetings were held during 1999:

- 12th and 13th April 1999 in Copenhagen, Denmark.
- 26th October 1999 in Amsterdam, the Netherlands.

Activity Time Schedule

Task VI was entered into force in April 1997 and shall remain so for three years.

Subtask	1997	1998	1999	2000
VI/1 Detailed Development of New Mechanisms and Evaluation Criteria	—————			
VI/2 Communication of Information About the Mechanisms	—————			
VI/3 Public Policy Implications	—————			

Participants

Australia

Dr. Harry Schaap
Assistant Director Environment
Electricity Supply Association of
Australia
(ESAA) Ltd.
GPO Box 1823Q
Melbourne Victoria 3001
Telephone: +61 3 9670 1014
Telefax: +61 3 9670 1069
E-mail: schaap@esaa.com.au

Belgium

Dipl.Ing. Marcel Didden
Katholieke Universiteit Leuven
Dept. of Mechanical Engineering
Division of Applied Mechanics
and Energy Conversion
Celestijnenlaan 300A
B-3001 Heverlee, Leuven
Telephone: +32 16 322 516
Telefax: +32 16 322 985
E-mail: marcel.didden@mech.kuleuven.ac.be

Denmark

Mr. Ole Thorbek
Head of Section
Danish Energy Agency
Ministry of Environment and Energy
44 Amaliegade
DK 1256 Copenhagen K
Telephone: +45 33 926786
Telefax: +45 33 114743
E-mail: ot@ens.dk

European Commission

Mr. Randall Bowie
DGX VII-C-2
Commission of the European
Communities
Rue de la Loi 200
B-1049 Brussels
Belgium
Telephone: +32 2 295 3633
Telefax: +32 2 296 6283
E-mail: Randall.BOWIE@cec.eu.int

Finland

Mr. Seppo Kärkkäinen
Research Professor
VTT Energy
P.O. Box 1606
FIN-02044 Espoo
Telephone: +358 9 456 6406
Telefax: +358 9 456 6538
E-mail: seppo.karkkainen@vtt.fi

Mr. Eero Pere
Business Unit Director
Finnish Electric Association (SENER)
P.O. Box 100
FIN-00101 Helsinki
Telephone: +358 9 686 1646
Telefax: +358 9 686 1647
E-mail: eero.pere@energia.fi

Mr. Pentti Puhakka
Energy Department
Ministry of Trade and Industry
P.O. Box 37
FIN-00131 Helsinki
Telephone: +358 9 160 4813
Telefax: +358 9 160 2695
E-mail: pentti.puhakka@ktm.vn.fi

France

Mr. Jean-Pierre Tabet
Chargé de Mission
Service Economie-Pro prospective
ADEME
27 rue Louis Vicat
75737 Paris Cedex 15
Telephone: +33 1 47 652063
Telefax: +33 1 40 957453
E-mail: jean-pierre.tabet@ademe.fr

Mr. Jérôme Bottin
Direction de la Stratégie, Dept. Marchés
Electricité de France
2 rue Louis Murat
75384 Paris Cedex 08
E-mail: jerome.bottin@edf.fr

Greece

Mr. Konstantin Anastasopoulos
Distribution Operations Department
Public Power Corporation
27 Patisision Street
GR-104 32 Athens
Telephone: +30 1 523 6582
Telefax: +30 1 523 9692
E-mail: ppcded@otenet.gr

Japan

Mr. Naoya Sugai
Group Manager
Office of Energy Efficiency
Marketing and Customer Relationship
Department
Tokyo Electric Power Company
1-1-3 Uchisaiwai-cho, Chiyoda-ku
Tokyo 100
Telephone: +81 3 3501 8111
Telefax: +81 3 3596 8517
E-mail: t0543439@pmail.tepco.co.jp

Korea

Dr. Kwan-Hong Shin
Manager International
Co-operation Division
Korea Energy Management Corp.
6-8 Sunae-Dong, Bundang-Ku
Sungnam
Kyunggi 463-020
Republic of Korea
Telephone: +82 342 710 6151
Telefax: +82 342 710 6069
E-mail: khshin@www.kemco.or.kr

Netherlands

Mr. Jan van den Berg
Manager Forecast and Information
SEP NV
Postbus 575
6800 AN Arnhem
Telephone: +31 26 372 1452
Telefax: +31 26 372 1158
E-mail: bergjmv@sep.nl

Norway

Mr. Terje Stamer Wahl
Advisor
Norwegian Water Resources & Energy
Administration
Postboks 5091-Majorstua
N-0301 Oslo
Telephone: +47 22 959595
Telefax: +47 22 959000
E-mail: tsw@nve.no

Spain

Dr. Jesús Martín-Giraldo
Union Fenosa
Capitán Haya 53
28020 Madrid
Telephone: +34 91 567 6467
Telefax: +34 91 567 6679
E-mail: UF4200400@uef.es

Sweden

Mr. Egil Öfverholm
Swedish National
Energy Administration
Dept. for the Transformation of
Energy Systems
Box 310
SE-631 04 Eskilstuna
Telephone: +46 16 544 2000
Telefax: +46 16 544 2260
E-mail: egil.ofverholm@stem.se

United Kingdom

Mr. Nick Eyre
Head of Policy Development
Energy Saving Trust
21 Dartmouth Street
London SW1H 9BP
Telephone: +44 171 654 2444
Telefax: +44 171 654 2444
E-mail: nicke@est.co.uk

Operating Agent

Dr. David Crossley
Managing Director
Energy Futures Australia Pty Ltd
6 Reserve Street
Neutral Bay NSW 2089
Australia
Telephone: +61 2 9953 1844
Telefax: +61 2 9953 1299
Mobile: +61 411 467 982
E-mail: crossley@efa.com.au

Assisted by:

Dr. Jan Hamrin
Executive Director
Center for Resource Solutions
Presidio Building 49
P.O. Box 29512
San Francisco CA 94129
United States
Telephone: +1 415 561 2100
Telefax: +1 415 561 2105
E-mail: jhamrin@resource-solutions.org

Dr. Ed Vine
Staff Scientist
Lawrence Berkeley National Laboratory
Building 90-2000
Berkeley CA 94720
United States
Telephone: +1 510 486 6047
Telefax: +1 510 486 4673
E-mail: elvine@lbl.gov

Mr. Hal Wilhite
Director of Research
Ressurskonsult A/S
Box 1171 Majorstua 17
N-0367 Oslo
Norway
Telephone: +47 22 114864
Telefax: +47 22 466090
E-mail: hwilhite@compuserve.com

Mr. Sébastien Ducos
Business & Relations Manager
As/Tech
4 place Bienvenue
75015 Paris
France
Telephone: +33 1 70 912400
Telefax: +33 1 70 912401
E-mail: ds@astech.fr

Ms. Verity Saunders
Verity Saunders Strategic
Communication (VSSC)
56 rue Sedaine
75011 Paris
France
Telephone: +33 1 47 001317
Telefax: +33 1 47 001317
E-mail: verity@cybercable.fr

TASK VIII: Demand-Side Bidding in a Competitive Electricity Market

Operating Agent: Frank Sharman, EA Technology, United Kingdom

Objectives

The aim of Task VIII is to evaluate and promote Demand Side Bidding (DSB) as a means to improve the global environment. This will be done by evaluating current DSB schemes and analysing for strengths and weaknesses. Finally it will provide guidelines for the development of new DSB schemes and enhancements to existing schemes.

Progress report

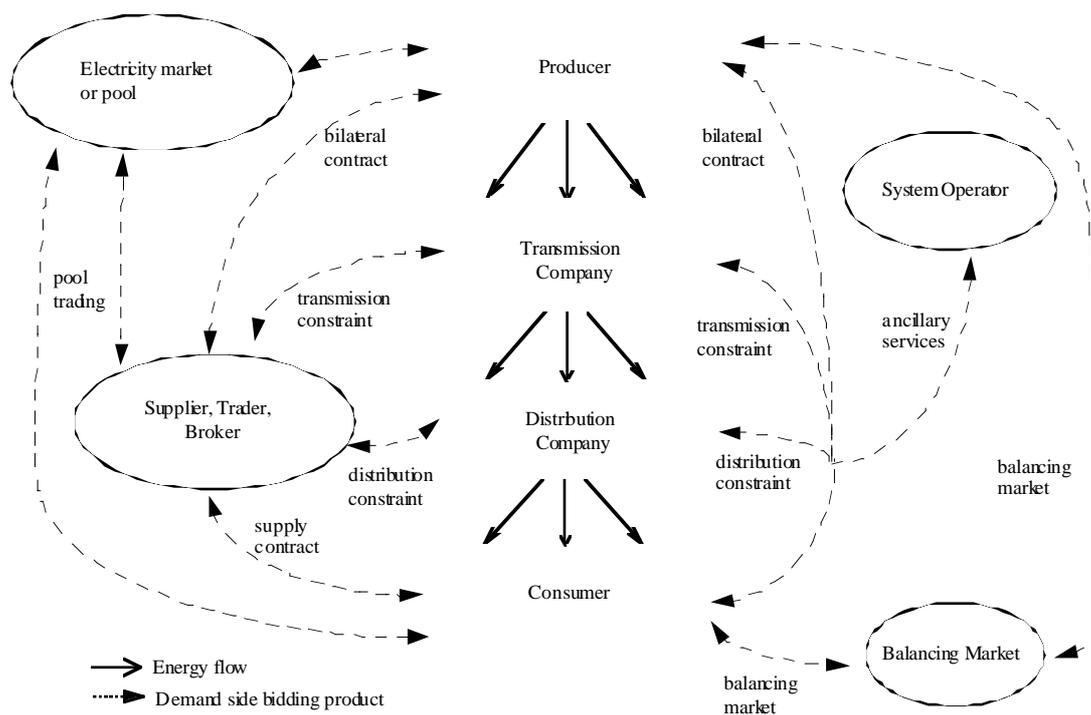
Task VIII arose from a desire to identify which types of DSB are successful or unsuccessful, and to find how to make schemes more successful. This needs new DSB schemes to be targeted at the most appropriate customers and electricity loads, as well as being designed to meet the objectives of all interested parties:- customers, generators, suppliers, network operators, regulators, environmental policy makers, etc.

To meet Task VIII objectives requires information about the electricity markets and trading arrangements in the participating countries together with views and opinions towards Demand Side Bidding. This information has been gathered from each of the participating countries using five different questionnaires, one for each of the different market participants:-

- market operator
- system operator
- transmission network owner
- regulator/government
- electricity supplier/trader

The diagram below shows the links between these organisations and the electricity customers, and indicates which of them may be developed into DSB schemes or products. For example, there is a link between the Consumer and the Transmission Company, labelled “transmission constraint”. This indicates that, in a region affected by a shortage of transmission capacity, it would be possible for the Transmission Company to set up a DSB scheme whereby some consumers would agree to reduce their demand when requested by the company. In return, the company would pay a fee to the consumers made up of some or all of the following components:- (a) for being willing to participate, (b) for each actual demand reduction, perhaps in proportion to the size of the load reduction and related to the speed of reaction. As the diagram shows, there are many other similar possibilities available.

Figure 1:
Schematic diagram showing the possible DSB products between the market participants



The information collected during the surveys has been gathered into five national reports and one overall summary report. These are not yet all completed, but they show clearly that all the electricity markets permit DSB products to operate, but unfortunately there are few schemes operating successfully at the moment. Most of the current DSB schemes are only available to large industrial customers, and where these allow demand interruptions they are hardly, if ever, called. In such cases it appears that the fees paid to the customers act more as electricity subsidies, than effective DSB schemes.

All of the countries surveyed have a spot market or pool, which allows the demand side to participate, but the extent to which the demand side does participate is very limited. For example, in the England and Wales electricity pool, the demand side cannot bid their total demand requirements, but instead a limited number of large consumers are permitted to offer demand reduction bids that are treated in a similar way to generation. In the other countries, the liberalised customers are able to offer bids for their total demand into the day-ahead spot market or pool. However, very few, if any, of these customers then re-trade this electricity in the within-day market or the balancing market, due to the low clearing prices available in these markets.

The only way for domestic customers to participate in DSB schemes is through a supply contract offered by their Supplier. Such contracts are offered to customers with direct electric heating in both Finland and Spain. In return for a lower tariff, the Supplier has the option of interrupting the supply to a customer's heating system a limited number of times each year. However, feedback obtained during the survey suggests that although the reduced tariffs are popular with customers, the interruptions to supply are very unpopular. In practice, interruptions are rarely, if ever, called.

Ancillary services seem to be the main area where DSB products are operating successfully, although such products are only available to large industrial sites. In this

Participants

Finland

Mr. Seppo Kärkkäinen
VTT Energy
Energy Systems
P.O. Box 1606
FIN-02044 VTT
FINLAND
Telephone: +358 9 456 6404
Telefax: +358 9 456 6538
E-mail: seppo.karkkainen@vtt.fi

Netherlands

Mr. Jan Griffioen
ENECO
Rochussenstraat 200
P.O. Box 1598
Rotterdam
3000 BN
NETHERLANDS
Telephone: +31 10 457 7125
Telefax: +31 10 457 7741
E-mail: j.h.griffioen@eneco.nl

Norway

Mr. Klaus Livik
Sintef
Energy Systems Division
N7034 Trondheim
NORWAY
Telephone: +47 73 59 72 00
Telefax: +47 73 59 72 50
E-mail: Klaus.Livik@energy.sintef.no

Spain

Mr. Fernando Manzanares
Endesa SA
Principe de Vergara, 187
28002 Madrid
Telephone: +34 91 566 8800
Telefax: +34 91 590 8395
E-mail: fmanzanares@endesa.es

Sweden

Ms. Margareta Bergström
Swedish National
Energy Administration
Energy Emergency Planning Division
P.O. Box 310
SE 631 04 Eskilstuna
Telephone: +46 16 544 2148
Telefax: +46 16 421217
E-mail: margareta.bergstrom@stem.se

United Kingdom

Mr. Mark Bailey
Yorkshire Electricity
Wetherby Road
Scarcroft
Leeds LS14 3HS
Telephone: +44 113 289 5704
Telefax: +44 113 289 5677
E-mail: Mark.Bailey@yeg.co.uk

Operating Agent

Mr. Frank Sharman
EA Technology
Capenhurst
Chester CH1 6ES
UNITED KINGDOM
Telephone: +44 151 347 2352
Telefax: +44 151 347 2570
E-mail: fws@eatl.co.uk

CHAPTER IV

Executive Committee Members IEA DSM Technologies and Programmes

Chairman

Mr. Jan Moen
Director of Regulation and DSM
Norwegian Water Resources and
Energy Administration
Middelthunsgate 29
Postboks 5091 - Majorstua
N-0301 Oslo 3
Telephone: +47 22 95 95 95
Telefax: +47 22 95 90 99
E-mail: janm@eunet.no

Vice Chairman

Dr. Harry Schaap
Assistant Director-Environment
Electricity Supply Association of
Australia
(ESAA) Ltd
GPO Box 1823Q
Melbourne Victoria 3001
Telephone: +61 3 9670 1014
Telefax: +61 3 9670 1069
E-mail: schaap@esaa.com.au

Vice Chairman

Mr. Arnold J.W. Sijben
NOVEM Departments of
Energy Supply and Coal
Swentiboldstraat 21
P.O. Box 17
6130 AA Sittard
Telephone: +31 46 4202 300
Telefax: +31 46 4528 260
E-mail: a.sijben@novem.nl

AUSTRALIA

Dr. Harry Schaap
Assistant Director-Environment
Electricity Supply Association of
Australia
(ESAA) Ltd
GPO Box 1823Q
Melbourne Victoria 3001
Telephone: +61 3 9670 1014
Telefax: +61 3 9670 1069
E-mail: schaap@esaa.com.au

Mr. Alan Morrison
Corporate General Manager
Strategy Division
ACTEW Corporation
G.P.O. Box 366, Canberra 2601
Telephone: +61 6 248 3301
Telefax: +61 6 249 7552
E-mail: alan.morrison@actew.com.au

AUSTRIA

Mr. Paul Viktor Gilli
Institut für Wärmetechnik
Graz University of Technology
Inffeldgasse 25
A-8010 Graz
Telephone: +43 316 873-7301
Telefax: +43 316 873-7305
E-mail: reetz@iwt.tu-graz.ac.at

BELGIUM

Prof. W.D'Haeseleer
K.U. Leuven Energie-Instituut
c/o Toegepaste Mechanica en
Energieconversie
Celestijnenlaan 300A
B-3001 Leuven (Heverlee)
Telephone: +32 26 322 510
Telefax: +32 16 322 985
E-mail:
william.dhaeseleer@mech.kuleuven.ac.be

Mr. L. Meuleman
Energy Administration
Ministry of Economic Affairs
North Gate III
E. Jacqmainlaan 154
1000 Brussels

CANADA

Mr. Tim McIntosh
Senior Economist
Office of Energy Efficiency
Natural Resources Canada
580 Booth Street
Ottawa, Ontario, K1A 0E4
Telephone: +1 613 943 2396
Telefax: +1 613 947 4120
E-mail: tmcintos@nrcan.gc.ca

COMMISSION OF THE EUROPEAN COMMUNITIES

Mr. Randall Bowie
Energy Directorate (DG XVII)
Commission of the
European Communities
Rue de la Loi 200
B-1049 Brussels, Belgium
Telephone: +32 2 295 3633
Telefax: +32 2 296 6283
E-mail: Randall.BOWIE@cec.eu.int

DENMARK

Mr. Claus Andersen
Danish Energy Agency
Ministry of Environment
and Energy 44 Amaliegade
DK-1256 Copenhagen K
Telephone: +45 33 926700
Telefax: +45 33 114743
E-mail: ca@ens.dk

FINLAND

Mr. Juha Haikonen
Senior Technical Adviser
Technology Development Centre (Tekes)
Energy Production Technologies
P.O. Box 69
FIN-00101 Helsinki
Telephone: +358 10 521 5879
Telefax: +358 10 521 5903
E-mail: juha.haikonen@tekes.fi
Mr. Seppo Kärkkäinen
Technical Research Center of Finland
Energy and Power Systems
Tekniikantie 4C
P.O. Box 1606
FIN-02044 Espoo
Telephone: +358 9 456 6406
Telefax: +358 9 456 6538
E-mail: seppo.karkkainen@vtt.fi

FRANCE

Mr. Jean-Pierre Tabet
Economic Division
ADEME
27 rue Louis Vicat
75737 Paris, Cedex 15
Telephone: +33 1 47 652063
Telefax: +33 1 40 957453
E-mail: jean-pierre.tabet@ademe.fr

ITALY

Mr. Walter Grattieri
Electrical Research Center, ENEL
Via A, Volta 1
20093 Cologno, Monzese (Milan)
Telephone: +390 2 7224 5404
Telefax: +390 2 7224 5465
E-mail: grattieri@pea.enel.it

JAPAN

Mr. Toyoto Matsuoka
Director, Policy Planning Division
New Energy and Industrial Technology
Development Organization (NEDO)
Sunshine 60, 28F, 1-1, 3-Chome
Higashi-Ikebukuro, Toshima-ku,
Tokyo 170
Telephone: +81 3 3987 9402
Telefax: +81 3 3981 1059
E-mail: matsuokatyt@nedo.go.jp

Mr. Hironori Nishihara
Chief Officer
Policy Planning Dept.
NEDO
Sunshine 60, 29F, 1-1, 3-Chome
Higashi-Ikebukuro, Toshima-ku
Tokyo 170-6028
Telephone: +81 3 3987 9402
Telefax: +81 3 3981 1059
E-mail: nishiharahrn@nedo.go.jp

REPUBLIC OF KOREA

Mr. Kee-Doo Hong
Director, Energy Conservation Policy
Division, MOCIE
Jung-Ang-Dong 1, Kwacheon-City,
Kyunggi-Do, 427-760
Republic of Korea
Telephone: +82 2 500 2437
Telefax: +82 2 503 9650

Mr. Kwan-Hong Shin
Manager
International Cooperation Team,
KEMCO
3001-1 Pungdukchun-ri, Suji-eub,
Yongin
Kyunggi 449-840
Telephone: +82 331 260 4555
Telefax: +82 331 260 4549
E-mail: khshin@kemco.or.kr

NETHERLANDS

Mr. Arnold J.W. Sijben
NOVEM Departments of
Energy Supply and Coal
Swentiboldstraat 21
P.O. Box 17
6130 AA Sittard
Telephone: +31 46 4202 300
Telefax: +31 46 4528 260
E-mail: a.sijben@novem.nl

NORWAY

Mr. Jan Moen
Director of Regulation and DSM
Norwegian Water Resources and
Energy Administration (NVE)
Middelthunsgate 29
Postboks 5091 - Majorstua
N-0301 Oslo 3
Telephone: +47 22 95 95 95
Telefax: +47 22 95 90 99
E-mail: janm@eunet.no

Mr. Eric O. Malm
Norwegian Water Resources and
Energy Administration (NVE)
Middelthunsgate 29
Postboks 5091 – Majorstua,
N-0301 Oslo 3
Telephone: +47 22 959595
Telefax: +47 22 959099
E-mail: eric.malm@nve.no

SPAIN

Mr. Juan Comas
FECSA (ENDESA Group)
Paralelo 51
08004 Barcelona
Telephone: +34 93 404 1537
Telefax: +34 93 443 1559
E-mail: jcomas@fecsa.es

Ms. Carmen Rodriguez Villagarcia
DSM Department Manager
Red Eléctrica de Espana
Plaza de los Gaitanes 177
La Moraleja 28109 Madrid
Telephone: +34 91 650 8500/2012
Telefax: +34 91 650 4542/7677
E-mail: carmenrodri@ree.es

Mr. Carlos Gonzalez
Unidad Electrica S.A. (UNESA)
Francisco Gervas 3
28020 Madrid
Telephone: +34 91 567 4800
Telefax: +34 91 567 4982
E-mail: cgonzalez@unesa.es

SWEDEN

Mr. Egil Öfverholm
Energimyndigheten (STEM)
Box 310
S-631 04 Eskilstuna
Telephone: +46 16 544 2000
Telefax: +46 16 544 2260
E-mail: egil.ofverholm@stem.se

Ms. Tea Alopaeus-Sandberg
Energimyndigheten (STEM)
Box 310
S-631 04 Eskilstuna
Telephone: +46 16 544 2000
Telefax: +46 16 544 2260
E-mail: tea.alopaeus-sandberg@stem.se

UNITED KINGDOM

Dr. Paul Davidson
BRECSU
Building Research Establishment
Garston
Watford
Herts WD2 7JR
Telephone: +44 1923 664437
Telefax: +44 1923 664087
E-mail: davidsonp@bre.co.uk

Mr. Roger Gebbels
EEBP
DETR
Ashodown House
123 Victoria St
London SW1E 6DE
Telephone: +44 171 890 6619
Telefax: +44 171 890 6635
E-mail: roger_gebbels@detr.gsi.gov.uk

UNITED STATES

Mr. William E. Noel
U.S. Department of Energy (EE-42)
1000 Independence Avenue, S.W.
Washington D.C. 20585
Telephone: +1 202 586 6149
Telefax: +1 202 586 5557
E-mail: william.noel@ee.doe.gov

CONSULTANT TO EXCO

Dr. Frederick Morse
Morse Associates, Inc.
1808 Corcoran St. N.W.
Washington D.C. 20009, United States
Telephone: +1 202 483 2393
Telefax: +1 202 265 2248
E-mail: fredmorse@morseassociatesinc.com

WEBMASTER

Ms. Verity Saunders
Strategic Communication
56 rue Sedaine
75011 Paris, France
Telephone: +33 1 47 00 13 17
Telefax: +33 1 47 00 13 17
E-mail: verity@cybercable.fr

IEA SECRETARIAT

Mr. John Newman
International Energy Agency
Office of Energy Conservation
and Efficiency Division
9 rue de la Fédération
75739 Paris Cedex 15
Telephone: +33 1 40 57 67 15
Telefax: +33 1 40 57 67 49
E-mail: john.newman@iea.org

SPOTLIGHT/ NEWSLETTER EDITOR

Ms. Pamela Murphy Kunz
Morse Associates Inc.
1808 Corcoran Street N.W.
Washington D.C. 20009, United States
Telephone: +1 202 483 2393
Telefax: +1 202 265 2248
E-mail: pmurphy@morseassociatesinc.com

CHAIRMAN and EXECUTIVE COMMITTEE SECRETARY

Ms. Anne Bengtson
Box 621
182 16 Danderyd, Sweden
Telephone: +46 8 510 50830
Telefax: +46 8 510 50831
E-mail: anne.bengtson@telia.com

CHAPTER V

TASK I

International Data Base on Demand-Side Management Technologies and Programmes

Operating Agent

Mr. Harry Vreuls
NOVEM Sittard
Swentiboldstraat 21
P.O. Box 17
6130 AA Sittard
The Netherlands
Telephone: +31 46 4202 258
Telefax: +31 46 4528 260
E-mail: h.vreuls@novem.nl

TASK II

Communications Technologies for Demand-Side Management

Operating Agent

Mr. J.R. Formby
Technology Group Manager
E.A. Technology
Capenhurst, Chester CH1 6ES
United Kingdom
Telephone: +44 151 347 2509
+44 151 339 4181
Telefax: +44 151 347 2500
E-Mail: jrf@eatl.co.uk

TASK III

Co-Operative Procurement of Innovative Technologies for Demand-Side Management

Operating Agent

Dr. Hans Westling
Promandat AB
Box 24205
S-104 51 Stockholm
Sweden
Telephone: +46 8 667 8020
Telefax: +46 8 660 5482
E-mail: hans.westling@promandat.se

TASK IV

Development of Improved Methods for Integrating Demand-Side Options into Resource Planning

Operating Agent

Dr. Grayson Heffner
Program Manager, Demand-Side Management
Electric Power Research Institute, EPRI
2000 L. Street NW, Suite 805
Washington D.C. 20036, U.S.A.
Telephone: +1 202 293 6340
Telefax: +1 202 293 2697
E-mail: gheffner@msm-epri.com

TASK V

Investigation of Techniques for Implementation of Demand-Side Management Technology in the Marketplace

Operating Agent

Mr. Juan Comas
FECSA (ENDESA Group)
Paralelo 51
08004 Barcelona, Spain
Telephone: +34 93 404 1537
Telefax: +34 93 443 1559
E-mail: jcomas@fecsa.es

TASK VI

DSM and Energy Efficiency in Changing Electricity Businesses

Operating Agent

Dr. David Crossley
Managing Director
Energy Futures Australia Pty Ltd
6 Reserve Street
Neutral Bay NSW 2089
Australia
Telephone: +61 2 9953 1844
Telefax: +61 2 9953 1299
Mobile: +61 411 467 982
E-mail: crossley@efa.com.au
Internet Web Site: <http://www.efa.com.au>

TASK VII

International Collaboration on Market Transformation

Mr. Verney Ryan
Building Research Establishment BRE
Energy Division
Garston Watford WD2 7JR
United Kingdom
Telephone: +44 1923 664 318
Telefax: +44 1923 664 097
E-mail: ryanv@bre.co.uk

TASK VIII

Demand-Side Bidding in a Competitive Electricity Market

Operating Agent

Mr. Frank Sharman
EA Technology Ltd
Capenhurst, Chester CH1 6ES
United Kingdom
Telephone: +44 151 347 2352
Telefax: +44 151 347 2570
E-mail: fws@eatl.co.uk

Task IX

The Role of Municipalities and Energy Efficiency in Liberalised System

Operating Agent

Mr. Martin Cahn
Ul. Sikorskiego 8
32-400 MYSLENICE
Poland
Telephone: +48 12 274 2632
Telefax: +48 12 274 2632
E-mail: martin@tf.com.pl

