International Energy Agency

Demand-Side Management Technologies and Programmes

2005 annual report

Implementing Agreement on

ieadsm energy efficiency

International Energy Agency

Implementing Agreement on Demand-Side Management Technologies and Programmes

2005 Annual Report

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

January 2006

Foreword

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

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

Stockholm, January 2006

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Overview of the IEA and the IEA Demand-Side Management Programme

The International Energy Agency

The International Energy Agency (IEA) acts as energy policy advisor for its 26 member countries in their effort to ensure reliable, affordable and clean energy for their citizens. Founded during the oil crisis of 1973–74, its initial role was to coordinate measures in times of oil supply emergencies. But during the last decades, the energy markets have changed, and so has the IEA. It now focuses well beyond oil crisis management on broader energy issues, including climate change policies, market reform, energy technology collaboration and outreach to the rest of the world. With a staff of around 150, mainly energy experts and statisticians from its 26 member countries, the IEA conducts a broad programme of energy research, data compilation, publications and public dissemination of the latest energy policy analysis and recommendations on good practices.

To support these core issues, the IEA created a contract – the Implementing Agreement – and a system of standard rules and regulations, that would allow interested Member and non-Member governments to pool resources and research the development and deployment of particular technologies. The basic aims of the IEA are:

- To maintain and improve systems for coping with oil supply disruptions;
- To promote rational energy policies in a global context through co-operative relations with non-member countries, industry and international organizations;
- To operate a permanent information system on the international oil market;
- To improve the world's energy supply and demand structure by developing alternative energy sources and increasing the efficiency of energy use;
- To assist in the integration of environmental and energy policies.

To achieve these goals, the IEA carries out a comprehensive program of energy cooperation and serves as an energy forum for its member countries.

For more than 30 years, technology collaboration has been a fundamental building block among IEA Member and non-Member countries in facilitating progress of new or improved energy technologies. There are currently 40 Implementing Agreements working in the areas of Fossil Fuels, Renewable Energies and Hydrogen, End-Use (Buildings, Industry and Transport), Fusion and Cross-Sectional Activities.

The IEA Committee on Energy Research and Technology (CERT) and its Working Parties review the effectiveness, achievements and strategy of each Implementing Agreement.

IEA Demand Side Management Programme

The Demand-Side Management (DSM) Programme, which was initiated in 1993, deals with a variety of strategies to reduce energy demand. The following 17 member countries and the European Commission have been working to identify and promote opportunities for DSM:

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

Programme Vision: In order to create more reliable and more sustainable energy systems and markets, demand side measures should be the first considered and actively incorporated into energy policies and business strategies.

Programme Mission: To deliver to our stakeholders useful information and effective guidance for crafting and implementing DSM policies and measures, as well as technologies and applications that facilitate energy system operations or needed market transformations.

The Programme's work is organised into two clusters:

- The load shape cluster, and
- The load level cluster.

The "load shape" cluster includes Tasks that seek to impact the shape of the load curve over very short (minutes-hours-day) to longer (days-week-season) time periods. The "load level" cluster includes Tasks that seek to shift the load curve to lower demand levels or shift loads from one energy system to another.

A total of 16 projects or "Tasks" have been initiated since the beginning of the DSM Programme. The overall program is monitored by an Executive Committee consisting of representatives from each contracting party to the Implementing Agreement. 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 Database on Demand-Side Management & Evaluation Guidebook on the Impact of DSM and EE for Kyoto's GHG Targets – *Completed*
Harry Vreuls, SenterNovem, the Netherlands

Task II Communications Technologies for Demand-Side Management – *Completed*
Richard Formby, EA Technology, United Kingdom

Task III Co-operative Procurement of Innovative Technologies for Demand-Side Management – *Completed*
Hans Westling, Promandat AB, Sweden

Task IV Development of Improved Methods for Integrating Demand-Side Management into Resource Planning – *Completed*
Grayson Heffner, EPRI, United States

Task V Techniques for Implementation of Demand-Side Management Technology in the Marketplace – *Completed*
Juan Comas, FECSA, Spain

Task VI DSM and Energy Efficiency in Changing Electricity Business Environments – *Completed*
David Crossley, Energy Futures, Australia Pty. Ltd., Australia

Task VII International Collaboration on Market Transformation – *Completed*
Verney Ryan, BRE, United Kingdom

Task VIII Demand-Side Bidding in a Competitive Electricity Market – *Completed*
Linda Hull, EA Technology Ltd, United Kingdom

Task IX The Role of Municipalities in a Liberalised System – *Completed*
Martin Cahn, Energie Cites, France

Task X Performance Contracting – *Completed*
Hans Westling, Promandat AB, Sweden

Task XI Time of Use Pricing and Energy Use for Demand Management Delivery
Richard Formby, EA Technology Ltd, United Kingdom

Task XII Co-operation on Energy Standards
Operating Agent to be determined

Task XIII Demand Response Resources
Ross Malme, RETX, United States

Task XIV Market Mechanisms for White Certificates Trading
Antonio Capozza, CESI, Italy

Task XV Network-Diven DSM
David Crossley, Energy Futures Australia Pty. Ltd, Australia

Task XVI Competitive Energy Services
Jan W. Bleyl, Graz Energy Agency, Austria and Seppo Silvonen, MOTIVA, Finland.

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Also, visit the IEA DSM website: http://dsm.iea.org

CHAPTER I

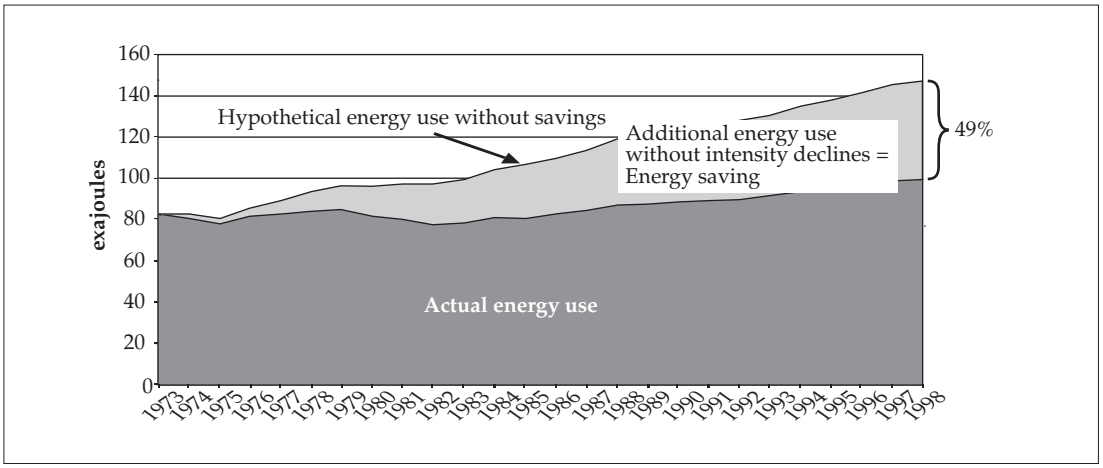
Chairman's Report

DSM on the rebound

The past year was a remarkable one from the point of view of energy efficiency awareness. Never before have we seen so many initiatives from world leaders to put energy efficiency at the top of the agenda and to really back the rhetoric with action. The IEA DSM Ministers, the G8, the EU Green Paper, the Chinese Energy Conservation Plan and many other regional and national actions show that world leaders have sensed that sustainability begins with energy efficiency. In short, energy efficiency has become the number **ONE** issue on the agenda of world leaders when energy is discussed. But still old habits are hard to break. It is upon us to show how energy efficiency can become a reality and "The first choice of measures", to make DSM a rebound-effect.

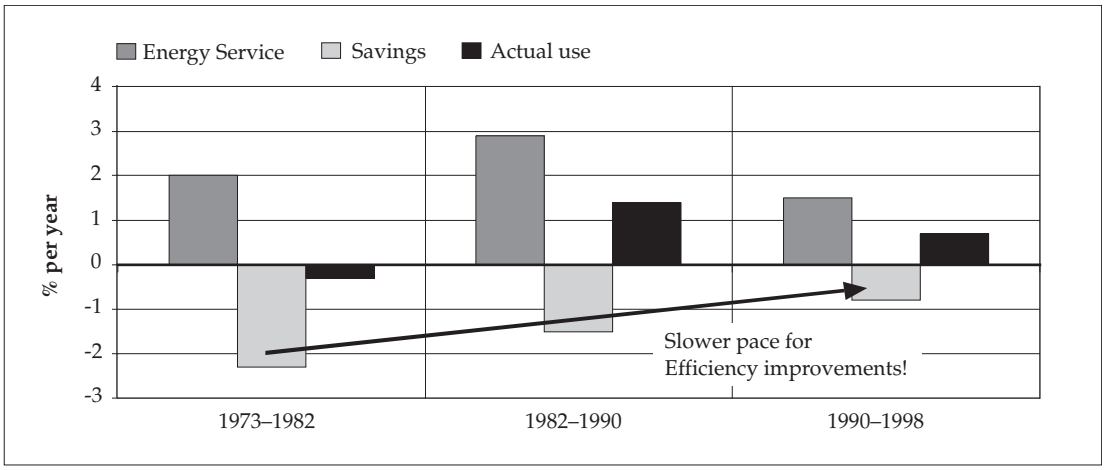
Some people use the expression "rebound" in a pejorative way to indicate that actions for energy efficiency do not pay off but are wasted away in more use of energy. The argument is valid but not correct. Energy efficiency is only one characteristic among many in goods that use energy. People may feel a need for more of those goods because of what they represent for them in their living. So if there is a "rebound" that makes people better off that cannot be blamed on the energy efficiency policies. But then it could still be worthwhile to consider how we use our technology improvements and whether sustainability offers a quality for our lives as well as "more goods"?

The IEA Secretariat published an eye-opening report in 2004 entitled, "30 Years of Energy Use in IEA Countries". This report shows that the development to our present standard of living, since the first oil-crisis in the early 70's, is mostly dependent on energy efficiency improvements. Without more effective use we would have to use 50 % more energy than we actually do today. Energy use in 11 OECD-countries[1] has grown by some 20 % but is exceeded by a factor 2–3 by efficiency improvements.



[1] These 11 countries count for 80 % of the entire energy use within the OECD, which makes the figures and result significant.

The report however also shows that these efficiency improvements are slowing down since the first decade of the IEA's existence. That is where the DSM-Programme in particular has a role to play to develop the mechanisms for large-scale energy efficiency improvement.



We have not only to move the issues forward through our Tasks but also to put much more effort into dissemination within the Tasks and for the Programme as a whole by establishing the "DSM Centre of Excellence" as a concept with a meaningful content. We have to develop our methods to not only deliver reports but handbooks, training materials, seminars, etc. and to join in co-operation with parties that can manifest their need for such information and deliver it to stakeholders and users.

We will also have to push for improvement in the overall policy structure to adopt and promote DSM. This could mean for load shape and load level activities respectively, the following:

Load shape

Policy: *"Countries should develop a regulatory regime that appoints responsibility for resource adequacy in the electric systems and, when the regime so allows, makes demand- side balancing service the prioritised option."*

That will deliver:

- **Less Price Volatility** by improving short term price elasticity
- Improved **System Reliability** by reducing peaks and adding to safety margins
- Enhanced **System security** by reducing dependency on vulnerable supply resources
- Improved **Restoration capacity** by dispatching in/after emergency situations
- **Risk management** by Demand Response measures
- **Less costly network reinforcements** since energy efficiency measures will be active alternatives
- **Distributed generation** as an alternative to transmission lines
- Improved **operation and use of flowing renewable** sources

By means of e.g.:

- Metering
- Control and Communications
- Dynamic Demand Changes to offset Renewable Generation Intermittency
- Modelling and Forecasting
- Market Design
- Storage
- Customer appreciation (behaviour)

Load level

Policy: *"Countries should have a system for assessment of the least-cost delivery of energy services, that includes both the demand and supply side, and allows a judgement on divergence from possible sustainable paths. Based on this it should be decided how market actors should be engaged in delivery of the services"*

That will deliver:

- Development of **markets for energy service companies** and performance contracting
- **Allocation of commitments and obligations** that mobilises the better set of actors for large scale energy efficiency actions, e.g. use of "White Certificates, Public sector procurement, municipality initiatives, etc
- **Organisation and targeting of support programmes** for energy efficient products
- Improved allocation of **obligations for reduction of GHG-emissions** between sectors and countries
- Improved use of **market communication mechanisms,** e.g. standards and labels
- Assessment which gives input to how further **research and support** mechanisms should be distributed among actors

By means of e.g.:

- Appliances
- Lighting
- Building performance
- Systems configuration, e.g. Distributed generation
- Delivery mechanisms, e.g. ESCO
- Programmes for delivery

Highlights

One Task completed work in 2005. Highlights of this Task are presented below.

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

Task I started more than 10 years ago (in 1994) and focused on collecting, storing and analysing information on DSM and EE projects and was enlarged in 2002 for evaluation. In 2004 a new analysis report on the INDEEP was published. In 2005, the database continued to be available on the website and was used by the public. The emphasis in the work during the last years was on evaluation and link energy savings to emission reduction.

Many governments have signed the UNFCCC and the Kyoto Protocol to this Convention. Also the EU Directive for Buildings Performance (EDBP) and the (forthcoming) EU Directive on Energy End-use and Energy Services (ESD) request demonstrable progress and verified savings. In the light of these developments experts from Sweden, the Netherlands, Korea, Italy, France, Denmark, Canada and Belgium worked together to prepare an evaluation Guidebook, which contains two volumes, both finalised in 2005.

Volume I deals with evaluation theory and advises on how to conduct evaluations for five types of policy measures and programs. Seven key analytic elements were identified that need to be addressed in virtually all energy efficiency program evaluations. Volume II holds over thirty evaluation case examples from the participating countries. Both volumes are freely available on the IEA DSM Implementing Agreement website.

Achievements

The major accomplishments of the Tasks that were ongoing in 2005 are summarised below. Additional details can be found in Chapter II.

Task I – Evaluation Guidebook

Key accomplishments in 2005 include:

- A complete description of an evaluation framework for five types of policy measures: regulation, information, economic incentives, voluntary agreements and combinations;
- A selection of case examples from the eight participating countries;
- Documentation of evaluation reports and on the website an electronic copy is available.

Task XI – Time of Use Pricing and Energy Use for Demand Management Delivery

Task XI started in February 2004. Key accomplishments in 2005 include:

- Completed project on methodologies, benefits and costs of providing disaggregated energy use feedback to smaller customers to motivate energy savings. Report completed including conclusions and recommendations.
- Completed project on Time of Use Pricing for smaller customers to motivate demand profile shape change. Report completed including conclusions and recommendations.
- Completed project on the issues and potential viability of bidding aggregated smaller customer demand and embedded generation into scheduled generation markets. Report completed including conclusions and recommendations.
- Developed new project proposals to quantify the use of dynamic profiles within profile settlement systems and methodologies for validating smaller customer demand response changes.

Task XII – Co-operation in Energy Standards

This Task continued its phased initiation as a basis for development of more concrete actions and possible collaboration with other IEA-Programmes:

- Ongoing funding and further strengthening of the allied APEC-ESIS website from a number of APEC member economies. APEC-ESIS is the existing information delivery mechanism that is envisaged to be used for disseminating the outputs to be produced under Task XII.

- Standards for commercial generic renewable energy technologies such as Solar House PV Systems (SHS) and Solar thermal Water Heaters (SWH) to be considered in energy standards co-ordination alongside traditional domestic appliances and generic commercial equipment, thus critically widening the scope of energy standards DSM to cover both demand side technologies and mass produced distributed consumer scale renewable energy technologies.
- Energy standards and labelling becoming a key policy tool to deliver on the IEA and G8 emphasis on energy efficiency as their highest sustainable energy strategic priorities.

Task XIII – Demand Response Resources

Task XIII started in February 2004. Key accomplishments in 2005 include:

- A Market Characterization Tool Kit was produced for use by Task participants.
- An analytical report of the demand response market was completed.
- A Communication Tool Kit was produced for use by Task participants.
- The project portal was significantly expanded to include a research library, online tools, collaboration areas for working groups and stakeholder groups, and early drafts and final releases of the intellectual property being developed by the project.
- A final version of the Country Comparison Report was published for review and comment by the Country Experts.
- The DR Research Library continues to be expanded as new reports are collected. A "search" feature to facilitate easier access to information was also deployed.
- A final version of the DR Market Potential report was published for review and comment by the Country Experts.
- A Market Potential Calculator was developed and posted on the project portal. This calculator translates the DR market potential benchmarks established from the DR product survey process to local market demographics to estimate the potential for a given marketplace.
- The DR Product Database has been loaded to the project portal. This database contains over 100 DR products from markets around the world. It provides information on the product characteristics as well as product performance (if available).
- A report on the DR Valuation methodology and sample implementations was published for review by all Country Experts.
- DR Technology case studies were collected and catalogued in an online library. A draft report has been circulated to the Country Experts for review and comment.
- A collection of DR Market Barriers has been assembled from the Country Experts. A draft report has been circulated to the Country Experts for review and comment.

Task XIV – Market Mechanisms for White Certificates Trading

Task XIV started in June 2004. Key accomplishments in 2005 include:

- A kick-off meeting was held during which the Task work plan was refined and plans reviewed for the first Task workshop.
- A MOU was signed between the Task and the Central European University relevant to the Task attendance as observer of a student of this Academia, with full access to the Task outcome for her PhD dissertation.

- The Task web site was opened and relevant information were made available with two access levels (a restricted and an open one).
- The first Task workshop was held in London in November 2004.
- The second Task workshop took place in Paris in April 2005.
- The third Task workshop was held in Lund (Sweden) in June 2005.
- The fourth Task workshop took place in Groningen (Netherlands) in October 2005.
- Three interim reports were jointly set up and issued.

Task XV – Network-Driven DSM

Task XV started in October 2004. Key accomplishments in 2005 include:

- Establishment of the Task XV website as a sub-site on the IEA DSM website. The Task XV website includes both a public site and an Experts secure site which is the main working location for Task XV. The internet address of the public site is: http://dsm.iea.org/NewDSM/Work/Tasks/15/task15.asp.
- Development of the on-line data collection form for the worldwide survey of network DSM projects (Subtask 1). The data collection form is linked to a database located on the Task XV website.
- Completion of the worldwide survey of network DSM projects (Subtask 1) and completion of a report listing and summarising network-driven DSM projects implemented around the world. This report includes 44 case studies of network DSM projects and draws some conclusions about the DSM measures used in the case study projects.

Work in preparation

Advanced Lighting

Lighting Programmes have been in focus for DSM activities for a long time. In the climate related work and in the work related to e.g. rural electrification in the third word it has been observed that the DSM-programmes for lighting could serve as models both for new work on lighting and for dissemination of other technologies.

The Energy Efficiency Information Hub

The motivation for creating the Energy Efficiency Information Hub is the need for access to an overview of information on public policy energy efficiency and commercial energy efficiency as well as easy access to contacts, reports and base information. The objectives are to create and launch the "Energy Efficiency Information Hub of the World" in order to provide easy access to data on energy efficiency activities in other countries for experiences, energy efficiency staff (inspiration, exchange of experience) and for new comers (network access). There are also plans to combine the IEA policies and measures data base and pooling of information available within the IEA framework. In addition to constructing the hub and the associated data base, an analysis will simultaneously be launched using some of the data in the data base in order to illustrate its usefulness.

The INDEEP Data Base is a starting point as it already contains a substantial list of public policy programs, but is experiencing problems like difficulties in obtaining input (in 2004 the update was ended) and the data base software and presentations are quite old fashioned and the search function is poor.

The new information hub should result among others in higher cost-effectiveness of energy efficiency initiatives; a greater learning curve for those not already experts within energy efficiency and dissemination and standardisation of evaluation practises.

Competitive Energy Services

The motivation for the work is to contribute to the success of further increasing energy efficiency that will play a vital role in coping with the challenges of our common energy and environmental future. Avoiding energy consumption by improving end-use efficiency, is still the single most effective way to meet all three key targets of energy policies: (1) security of supply; (2) affordable costs of energy services; and (3) environmental soundness. Initiatives worldwide, like the proposed EU Directive on Energy End-use Efficiency and Energy Services, with an objective to increase energy efficiency by 1% per year, underlines this perspective. Energy services like performance contracting (EPC) have successfully proven to be an effective DSM instrument and if designed properly can create a win-win-win- situation: (1) guaranteed energy and cost savings for the facility owner; (2) a business opportunity for energy service companies (ESCOs); and (3) less emissions into the environment.

In order to contribute to the market penetration of energy performance contracting and innovative energy services, the objectives (based on work done in Task X) are: (1) to establish an IEA DSM performance contracting expert platform; (2) to support the development of specific national work plans and activities for implementing energy services in the market with a focus on selected market segments, like public buildings, elderly homes or private service buildings; (3) to design, elaborate and test innovative energy services and financing models and to publish them in a series of manuals; and (4) to position the IEA DSM performance contracting platform as a competence centre for international dissemination and assistance services (e.g. coaching, training) in the field of energy services.

The benefits for the participating countries will be: (1) participation in the IEA DSM performance contracting expert platform; (2) building up know-how and capacity on innovative energy services and financing models; (3) the manuals on innovative energy services and aspects which can be adopted, translated and used in the participating countries; (4) mutual feedback, coaching and experience exchange for developing country specific plans and activities; (5) enlarging the market for performance contracting and energy services in the countries; (6) EU countries can prepare for the upcoming EU-Directive on energy end-use efficiency and energy services; (7) developing business opportunities for internationally acting ESCOs; (8) active role of the IEA DSM Agreement in international dissemination of EPC and assistance services beyond the scope of current member countries; and (9) additional income for the DSM Implementing Agreement from developing services (e.g. training, coaching and other products to sell as DSM competence centre).

The Task consists of six Subtasks: (Subtask 1) review of previous Task X; (Subtask 2) national Implementation Plans; (Subtask 3) IEA DSM performance contracting expert platform; (Subtask 4) innovative energy services and financing Think Tank; (Subtask 5) national Implementation Activities; and (Subtask 6) international dissemination and centre of excellence. Each Subtask will produce a deliverable in the form of reports and/or manuals.

Integration of Demand Side Management, Energy Efficiency, Distributed Generation and Renewable Energy Sources

The motives for the proposed work which are: energy policies in various countries are promoting energy efficiency, distributed generation (DG) and renewable energy sources (RES) which has resulted in an increasing share of distributed generation and especially intermittent types of distributed generation, like wind power, solar, small hydro and CHP (small and micro-CHP). This kind of non-predictable electricity generation is causing increasing problems in electrical networks (both in local distribution networks and transmission networks including cross-border networks).

The IEA has several implementing agreements dealing with distributed generation (wind, photovoltaic, CHP) energy storage and DSM. An integrated system based approach is, however, missing. Inside the IEA DSM Agreement there are several Tasks in the load shape cluster where distributed generation is included as a resource for demand response, but the question of how to handle the integrated distributed energy resources has actually not been studied.

The main objective of the Task would be to study how to achieve the optimal integration of distributed generation, energy storages and flexible demand, and thus increase the value of distributed generation and demand response and decrease problems caused by intermittent distributed generation in the physical electricity systems and in the electricity market. The work has been planned to be carried out in two stages. The objective of the first stage is to carry out a scoping study for defining the second stage. The main results of the first stage would include: (1) state-of-the art of the integrated concept of distributed energy resources and problems related to it; (2) feedback from the stakeholders; and (3) definitions of the detailed further work. The objective of the second stage of the Task is to provide to the different stakeholders the integration-based solutions and examples on successful best practices to the problems defined.

Visibility

Maintaining and increasing visibility of the programme among its key audiences continues to be a major issue. The principal tools available at present are the website, and electronic news mail, the Annual Report, the Spotlight newsletter and Task flyers.

The Annual Report for 2004 was produced and distributed to approximately 300 recipients in January 2005. It pulls together in one substantial document both overviews of the Programme's activities and details of each of the individual Tasks.

Beginning in 2004, the Spotlight is produced in electronic format only, designed as a printable newsletter. It is distributed by e-mail to wide list of contacts. Executive Committee members forward the newsletter to those national contacts who used to receive the printed version or they print and distribute hard copies. One issue was produced in 2005. Articles covered include:

- REEEP and the DSM Programme, a perfect match?
- Building a Demand Response tool kit
- Competitive Energy Services
- Evaluating Energy Efficiency Policies & DSM programs
- India explores IEA DSM membership

At the start of a new Task, a flyer is produced to stimulate interest in participating in the Task. When the work is completed, a flyer is produced highlighting the results and directing the reader to the Task products.

There remains, though, a clear need for a printed document for use in raising awareness of the programme as a whole and in encouraging new participants. The Executive Committee approved the production of a Programme brochure, which sets out the aims and objectives of the Programme and gives brief outlines of the current and completed Tasks. It will be accompanied by the flyers that describe each Task in more detail and give relevant contact details. This brochure will be completed during 2006.

The website (http://dsm.iea.org) continues to serve as a vital window on the programme's activities. Further improvements to its layout and content have been made and a great deal of information can be obtained from this single source. Analysis of visits to the site shows a worldwide readership. Of particular interest to visitors is the 'e-news' page that is regularly updated and also sent out by email every two or three months to over 700 targeted contacts. The website has a 'shop front' in which the Programme's principal outputs can be displayed in a manner relevant to non-participants. Each Task has at least a basic minimum sub-site within the main DSM web site, with the comprehensive Task web site located either within the main site or elsewhere and linked back to it.

Co-operation with other organisations

The Climate Technology Initiative (CTI)

Steps have been taken to have deeper contacts with other IEA Programmes and especially with the Climate Technology Initiative, CTI, based on possibilities for mutual benefit. The CTI has a network and is arranging events that could be useful for DSM-work to be more focused on user needs. The DSM has products and expertise that is useful for CTI in its mission. The co-operation will be organised by:

1. *Identifying the local contact persons* in participating countries and encourage that they seek contact between them. These will be the respective Executive Committee delegates.
2. *Inviting observers* from each other to the Executive Committee meetings. This could preferably be the Executive Committee delegate from the country where the meeting is held.
3. *Appointing Programme Liaisons* that will be charged to suggest to the both parties how they could make use of each others contacts and products for improvement of the total output. These liaisons could be the chair, vice chairs, operating agents (in DSM) and activity leaders (in CTI).
4. *Making a report* to each Executive Committee meeting on the issues that are of mutual interest.
5. *DSM-representatives being inviteded* to CTI seminars to present relevant issues.
6. *DSM requesting* CTI for assistance in relevant issues such as finding contacts for the work.

The Renewable Energy and Energy Efficiency Partnership (REEEP)

The Chairman met with the Chief Executive Officer of REEEP, Ms. Marianne Oesterkorn to discuss two kinds of projects where collaboration between the DSM Programme and REEEP could take place with REEEP support. The first was a project related to energy services companies or energy performance contracting where REEEP would like to undertake a related programme in India. The second was a project dealing with the assessment of the situation regarding demand response in several African countries where REEEP at present is working together with the African Development Bank.

REEEP is in the process of establishing a "clearing house" on the internet, with the objective of becoming a best practice source about energy efficiency and renewable energy on the web. This would be a good vehicle for the DSM Programme to disseminate information from completed Tasks to a wider audience, with funding from REEEP to develop some of the existing DSM material into a form where it could be placed into REEEPs information bank.

CIGRE (International Council on Large Electric Systems) is one of the leading worldwide Organisations on Electric Power Systems, covering their technical, economic, environmental, organisational and regulatory aspects. The Chairman submitted a paper to CIGRE which has been accepted. The paper is primarily based on making the DSM Programme known to a CIGRE audience and will be presented at their next meeting in Paris. In early 2005, CIGRE formed a new working group named Demand Side Response. The working group has very large objectives and covers almost everything on demand response extensively. The working group will produce a technical report by the end of 2007. The Programme will continue to communicate with CIGRE about its past, present and future work.

Participation in the IEA DSM Programme as of December 2005

COUNTRY	Task I		Task II	Task III	Task IV	Task V	Task VI	Task VII	Task VIII	Task IX	Task X	Task XI	Task XII	Task XIII	Task XIV	Task XV	Task XVI
	Indeep subt. 8	subt. 9	compl.	compl.	compl.	compl.	compl.	compl.	compl.	compl.	compl.						
Australia			✿		✿		✿							✿		✿	
Austria					✿					✿	✿						✿
Belgium	✿	✿					✿										
Canada		✿	✿											✿			
Denmark	✿	✿		✿	✿		✿	✿				✿		✿			
European Commission				✿		✿	✿		✿						✿		
Finland			✿	✿	✿	✿	✿	✿	✿		✿	✿		✿			
France	✿	✿	✿		✿		✿			✿					✿	✿	
Greece							✿		✿		✿	✿					
Italy		✿	✿		✿						✿			✿	✿		
Japan	✿		✿		✿		✿				✿			✿			
Korea	✿	✿		✿	✿		✿	✿						✿			
Netherlands	✿	✿	✿	✿	✿	✿	✿	✿	✿	✿	✿	✿		✿	✿		
New Zealand*													◆				
Norway	✿		✿		✿	✿	✿		✿		✿			✿	✿		
Spain			✿	✿	✿	✿	✿		✿	✿		✿		✿		✿	
Sweden	✿	✿		✿	✿	✿	✿	✿	✿	✿	✿	✿		✿	✿		
Switzerland*			✿		✿												
United Kingdom			✿	✿	✿		✿	✿	✿			✿			✿		
United States	✿			✿	✿						✿			✿		✿	
World Bank/ Tanzania						✿											

* New Zealand – not yet Participants in the Implementing Agreement

■ Operating Agent and participating country

✿ Participating country

◆ Operating Agent to be determined

Completed Tasks

* Withdrawn

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 database.** 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 specialize 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.

Streamlined Steps for Joining the IEA DSM Implementing Agreement

If you are from a country that is a member of the IEA or that is currently participating in an Implementing Agreement, take these three steps and you can join the IEA DSM Programme:

1. Talk to Us
2. Meet with Us
3. Write to Us

And You Are In!! Details below:

Interested Country	**IEA DSM Program**
1. Talk to Us – Your country expresses interest in joining the Implementing Agreement by contacting an Operating Agent, the Chairman or the Executive Secretary	The Executive Committee promptly provides information on activities, participation obligations, benefits and the process to join the Programme. The Executive Committee also invites country to attend Executive Committee meetings and Task meetings of interest.
2. Meet with Us – Your country attends Executive Committee meetings and Task meetings as an Observer.	
3. Write to Us – If your country is interested in joining the DSM Programme, your country's Minister sends a letter to the IEA Executive Director identifying the contracting party, who will sign the Implementing Agreement, the Executive Committee member from that country, and the Task or Tasks that country will participate in. Immediately upon receiving a copy of that letter, the IEA DSM Progamme will consider your country to be a participating country.	Immediately upon receiving a copy of that letter, the IEA DSM Progamme will consider your country to be a participating country

If your country is not a member country of the IEA or not participating in an IEA Programme, after Step 1 the Executive Committee will forward your country's expression of interest in joining the DSM Programme to the IEA Secretariat for consideration and approval. Once that approval has been received, the IEA DSM Executive Committee will vote to invite that country to join the Implementing Agreement. If favourable, the Executive Committee will invite your country to the next Executive Committee meeting, leaving Step 3 to complete the process to join.

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Acknowledgements

The efforts of the following people continue to be essential to the Programme's success. The Operating Agents who are identified in Chapter IV, the Executive Secretary, Anne Bengtson, the Advisor, Fred Morse, the Newsletter Editors, Sheila Blum and Pam Murphy, and the Webmaster, Verity Saunders.

CHAPTER II

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

Operating Agent: Mr. Harry Vreuls, Dutch Government Agency for Innovation and Sustainable Development (SenterNovem), the Netherlands

Objectives

The objectives of Task I are to establish and maintain an international database on demand-side management programmes and to improve the evaluation of DSM and energy efficiency improvement programmes and their international comparison.

In 2005, the last subtask (to develop a draft evaluation guidebook on the impact of DSM and EE programmes related to Kyoto greenhouse gas targets; subtask 9) was finalised.

The general objective for this subtask nine is to improve the common knowledge on evaluation and assist the national and internal evaluation process by an evaluation guidebook. The draft evaluation guidebook should give governments, energy and/or environmental agencies and utilities more insight in the contributions of national and regional programmes for reducing greenhouse gas emissions and international comparison for the impact of policies and measures.

The INDEEP database itself, the analysis report on the data collected, and the dissemination of the information resulting from the work and the analysis (conducted in the period 1994–2004) 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.

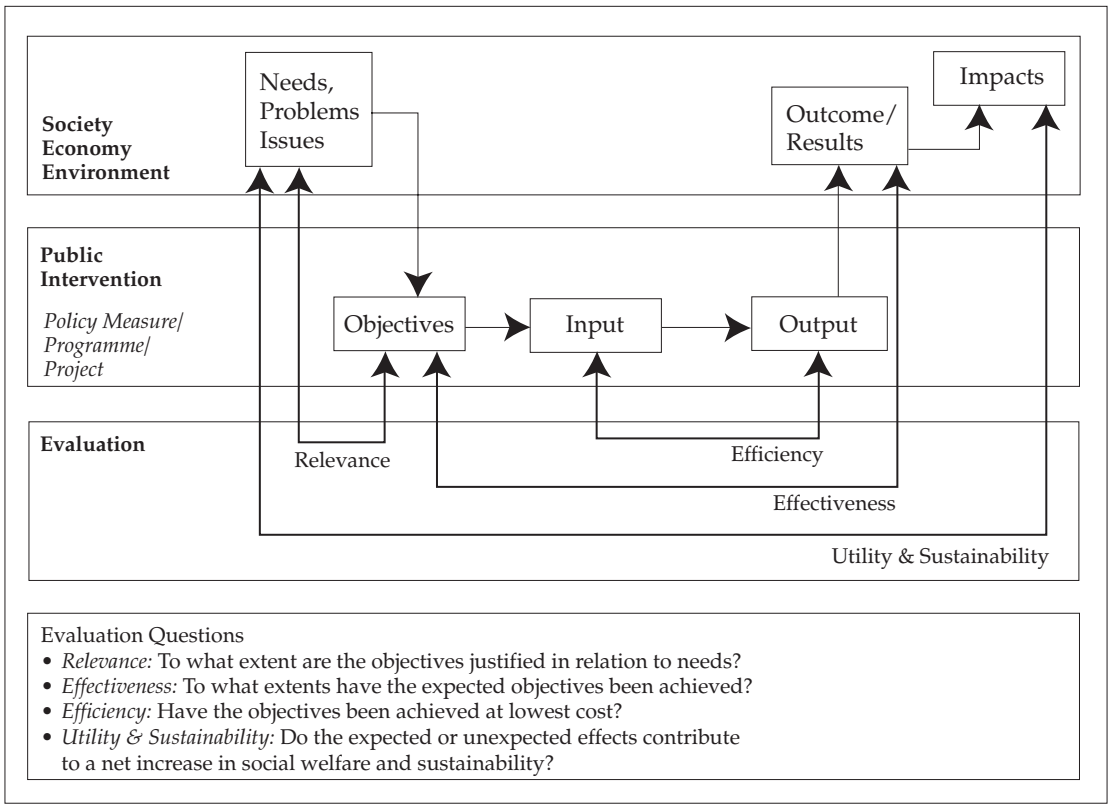
Progress

Evaluation guidebook on the impact of DSM and EE programmes for Kyoto's GHG targets (subtask 9)

Eight countries are participating in this subtask: Belgium, Canada, Denmark, France, Italy, Korea, The Netherlands and Sweden. The original work plan for this subtask had two phases. The first phase was to develop a common framework, to clarify the function of scenarios and measurements for evaluation guidelines, to compile a draft international evaluation guidebook for energy efficiency programmes, focussed on GHG mitigation and also to communicate and promote the guidebook. The second phase included activities to test, modify and finalise the evaluation guidebook. In 2002 the Executive Committee approved this first phase. During the experts meeting at the end of the year 2002 and early 2003 the experts concluded that priority setting in the work was needed and a revised work plan was developed. In April 2003 the Executive Committee approved this. The main approach was to use national and international

expertise to collect and judge the information on evaluating EE and DSM projects, programmes and policy measures. Several round-table discussions and knowledge exchange meetings were organised in 2003, in combination with experts' to discuss draft versions of the guidebook. The project is clearly different from previous work in that it focuses on the evaluation *methods* currently used and not on evaluation *results*. Furthermore, it does not aim to present evaluation theory from A–Z. Instead the project identified some of the most *critical points* related to evaluation of specific categories of EE policy measures, based on experience from the participating countries.

A final expert meeting was organised in May 2004. At that meeting the experts agreed on the outline of the reports and commented on draft chapters and case examples. In 2005 several chapters of Volume I and Volume II were drafted, commented on by experts using e-mail and finalised.



The *Guidebook* consists of two volumes. Volume I deals with the evaluation theory and recommends how evaluations for five types of policy measures and programmes should be conducted. This new approach involves organising evaluations into seven key analytic elements. Each chapter deals with one of the types of policy measures and is structured according to the *seven key analytic elements*:

1. Policy measure theory used.
2. Specification of indicators for the success of a measure.
3. The baselines for the selected indicators.
4. Assessment of outputs and outcomes.
5. Assessment of energy savings and emissions reductions and other relevant impacts.
6. The calculation of costs, cost-efficiency and cost-effectiveness.
7. The level of evaluation effort.

These seven key elements are placed in a preferred evaluation framework (see also figure on page) for a normative evaluation in that inputs, outputs and impacts are organised in combination with the role an evaluation should play within the public environment.

Chapter 2 deals with the evaluation of *regulation* policy and measures (laws and implementing rules regarding requirements for devices to advance energy-efficient design and construction) and the seven key analytic elements are illustrated in detail for two categories: building codes and minimum energy performance standards, Chapter 3 discusses the evaluation of *information* programmes. Most of the case examples in Volume II fall into this category. This chapter is organised in two sections. One deals with the categories general information, labelling and information centres and the other covers energy audits, education and training. Five groups of *economic incentives* are the topic in chapter 4. This includes the broad range of subsidies, rebates, taxation, grants, loans etc. but also the policies dealing with bulk purchasing, technology procurement and certificate trading systems. Chapter 5 deals with the evaluation of Voluntary Agreements, and discusses the key elements for evaluating the so-called strong compliance agreements. Chapter 6 addresses three types of policy measure packages: regulation, information, economic incentives, voluntary agreements, information, economic incentives and market transformation. Chapter 7 lists the authors' conclusions.

In general it is recommended that a considerable step forward in improving the distribution of the experience gained from evaluations would be to ensure that the evaluation reports (that are written in the national language) at least all contain an English-language summary. In order to increase this knowledge exchange and the quality level of evaluations, the European Commission or the IEA might consider supporting the development of a specific energy efficiency evaluators network.

This guidebook could be a step forward in easing the comparison of these impacts. The European Commission, DG Environment, and the UNFCCC secretariat could use the experiences and output from this Task and continue e.g. via a trial to review several national reports using the key analytic elements as introduced in this guidebook.

Almost every handbook on evaluation argues that it is important to discuss the evaluation framework at the start of the implementation and the experts involved in the Task recall this.

Volume II of the Guidebook covers the country examples and an overview on these examples and is organised by country. The country reports all follow the same structure: first a description of the national system of energy efficiency policy measures, followed by the system for evaluating, monitoring and data collection on energy policy measures and relevant scenarios. Then a chapter on methods for evaluating energy efficiency programmes including a short overview for

- Methods used
- Baseline (ex ante evaluation) and relation with national scenario/model
- Ex post evaluation
- Use of indicators
- Calculations on GHG emission impact for evaluated programmes

The final chapter holds the case examples on evaluations. The following evaluation case examples by type of policy measure are included:

	Policy type	Case examples	Country
1	Regulation	Building codes	Belgium
		Energy Efficiency Regulations for Residential Equipment	Canada
		Energy management scheme for large buildings	Denmark
		Minimum energy performance standards	Korea
		Energy Performance Standard (EPS) for houses	Netherlands
2	Information	Local energy efficiency information centres	Belgium
		Energuide for houses	Canada
		Energy labelling of small buildings	Denmark
		Free-of-charge electricity audit	Denmark
		Project 'Red-Hot' (element of stand-by campaign)	Denmark
		The 'A' campaign 1999	Denmark
		Promotion campaign for efficient ventilation	Denmark
		Information campaign (2001)	France
		Local energy information centres (Espaces Info Energie, EIE)	France
		Audits ("Aides a la decision")	France
		Energy audits in industry	Korea
		Energy audits in buildings	Korea
		Energy Efficiency Rating Labelling	Korea
		Information centres in local region	Sweden
		Information and education programme 1998-2002	Sweden
3	Economic	Criteria adopted for the evaluation of primary energy savings in end-uses	Italy
		EE Certificates	Italy
		Rebate programme for highly efficient electric inverters	Korea
		Financial incentives for DSM	Korea
		Energy premium scheme households	Netherlands
		Energy Investment Reduction (EIA and EINP)	Netherlands
4	Voluntary Agreements	Canadian Industry Program for Energy Conservation (CIPEC)	Canada
		Voluntary Agreements	Korea
		Voluntary Agreements on Industrial energy Conservation 1990–2000	Netherlands
		Eco-energy	Sweden
5	Combined policy Measures	Rebate programme for household appliances	Belgium
		STEM programmes	Sweden

Activities completed in 2005

All activities were completed in 2005, among these are:

- Evaluation guidebook Volume I and II
- Country reports
- Library with electronic copies of evaluation reports
- Promotion of the guidebook at conferences
- Leaflet to promote the use of the evaluation guidebook

Involvement of industry and other organisations

Each national expert is responsible for contacting utilities, governmental agencies, research institutes etc. within their country, to assess general DSM information needs and the specific need for (and usefulness of) an international database on energy efficiency programmes. In the subtasks, representatives from energy agencies, energy utilities, universities, research institutes and ministries are involved.

Reports

1. Evaluation guidebook Volume 1: Evaluating Energy Efficiency policy measures & DSM programmes, based on national case studies & national and international experiences
2. Evaluation guidebook Volume I1: Evaluating Energy Efficiency policy measures & DSM programmes, country reports and case examples used for the evaluation guide book

Activity time schedule

Task I came into force on 1 May 1994 and has been finalised in October 2005.

Activity	94	95	96	97	98	99	00	01	02	03	04	05
1. Programme Identification (participating countries)												
Additional programmes (including non-participating countries)												
2. INDEEP design planning Data Collection Instrument												
3. Design Database												
4. INDEEP data collection & entry												
5. INDEEP data analysis and report preparation												
6. Updates to the Database												
7. Promotion and Marketing												
8. Maintenance and update												
9. Evaluation Guidebook, phase 1												

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Task XI: Time of Use Pricing and Energy Use for Demand Management Delivery

Operating Agent: Mr. Richard Formby, EA Technology, United Kingdom

Description

Successful implementation of demand side participation in competitive energy markets is an essential process for world energy sustainability and system security. In this regard, a major impact of implementing competitive markets in energy supply and demand management, is to expose energy suppliers and traders to the cost of their own energy and demand imbalance against agreed contracts. In this trading environment, flexible, responsive and low cost demand side participation processes, based on accurate customer consumption data, are very attractive options for reducing imbalance risk and improving system security. Interruptible contracts and Demand Side Bidding (DSB), together with standby and interruption payments, are used by larger customers to take advantage of time of use energy pricing. Many liberalised market structures and operating systems mitigate against demand side participation by smaller customers, with profile metering an obvious example. In this case, time of use metering used for larger energy users is replaced by "profile metering" for smaller customers. "Profile metering" offers some of the benefits of time of use metering at lower cost but removes any incentive for customers to modify their energy demand profile through demand management. Verification of demand changes which result from existing DSB implementation requires time of use energy metering. Task XI will investigate "time of use metering" and developed "profile metering" for smaller customers as mechanisms for driving DSB and energy savings.

Feedback of end use energy consumption data to customers and their energy management systems helps in reducing energy use and also in moving elements of demand to lower cost periods It also allows any significant changes customers make in their energy use pattern to be fed back to them so that they can see the results and value of their efforts. The main benefits of providing this information are to focus customers' attention on their energy use, its specific impact on the environment and in encouraging savings. It also assists the demand aggregation process for smaller customer DSB.

Task XI addresses the issues of Time of Use Pricing, Energy End Use and Feedback mechanisms and Demand Side Bidding by smaller customers in energy markets.

Results

- Report to quantify the impact on energy saving and DSM processes of end use monitoring and feedback for smaller customers.
- Report to quantify the benefits of time of use pricing and its impact on demand response for smaller customers.
- Report to quantify the pricing, control and validation requirements and mechanisms to facilitate DSB for smaller customers.

Objectives of Task XI

The overall objective of Task XI is to increase the motivation of smaller customers to save energy through energy end use presentation, modify their energy demand profile through time of use pricing and provide mechanisms for their bidding demand into competitive energy markets.

The Task has:

- Quantified mechanisms and technologies to motivate smaller customer, energy reduction through feedback of end use information.
- Quantified energy end use disaggregation methods and their value for providing feedback to customers to achieve energy savings.
- Analysed time of use pricing and metering for smaller customers; what has been implemented and results to date in participating countries. Assessed the potential impacts of Tariff TOU pricing, Dynamic pricing and Real Time pricing on smaller customer end uses.
- Estimated costs and benefits of energy time of use pricing and end use monitoring for smaller customers.
- Defined technical, system and smaller customer requirements for bidding aggregated demand and local generation into energy markets. Considered mechanisms for implementing demand changes and providing validation and reward.

Progress

Energy End Use Monitoring and Feedback

The final report on Energy End Use Monitoring and Feedback has been completed. The report has analysed work carried out and results of trials involving customer groups to quantify their responses to end use energy saving motivators. It has also assessed the impacts on different customer responses and energy saving from different levels of end use demand disaggregation and the way information is presented. Feeding back disaggregated energy end use information to smaller customers using a range of methodologies has been shown to motivate energy savings of the order of 10 %.

Direct measurement of specific customer, end uses of energy on a continuous basis is generally too expensive for wide scale application to smaller customers. Estimates of the costs of face to face and Internet interviews with customers to collect data and feedback end use information and advice have shown this to be an attractive option.

It is recommended that end use disaggregated energy data statistics, available for national populations in many countries, should be added in simple form to smaller customer energy bills.

Time of Use Pricing

The final report on Time of Use Pricing for smaller customers has been completed. The report relates together three main types of TOU pricing: Tariff, Dynamic and Real Time, with particular concentration on whether customers are allowed to manually override remote demand switching commands. If no override option is allowed, single rate tariff metering may be used for billing. Individual end use demands are considered for their potential to be remotely switched and their possible use inhibited for infrequent, short periods. Notice times required by customers in order to accept

remotely switched demand changes as well as reward mechanisms are considered. Quantification of the benefits of Dynamic TOU pricing in reducing peak demands and the costs of implementing individual end use switching are carried out.

The study estimated the financial viability of implementing different TOU pricing regimes by equating reliable and flexible demand shift, including operation of embedded generation, with scheduled generation, transmission and distribution network construction costs.

Other than direct space and water heating demand shift carried out by reducing thermostats, the study has identified air conditioning, lighting and some domestic appliances as potential end uses, which could be moved off-peak. Customer small scale micro generation also has an important role to play in generating outside normal heat led times, and made responsive to TOU pricing.

The study concluded that Tariff, Dynamic and Real Time TOU pricing could deliver valuable demand reductions depending on the end use demands being controlled. Combinations of Tariff, Dynamic and Real Time pricing can be considered where different demands in the same household are managed by each mechanism. This is particularly the case where no customer override is allowed and single rate metering can be used. Customer acceptance of infrequent and short duration end use inhibits requires evaluation.

Demand Side Bidding for Smaller Customers

The final report on Demand Side Bidding for Smaller Customers has been completed. The report considers mechanisms for enabling the demand side to participate in energy markets. The study has analysed requirements for validating "available" blocks of smaller customer demands and the possible impacts of dynamic demand profiles on Supplier settlement systems. Analysis has been carried out of potential end use demands which could be aggregated and made available by customers. Consideration has been given to payments for demand "turndown" by smaller customers and possible costs of implementing automatic systems.

Smaller customer demands between 0.5kW and 3kW per customer have been shown to be potentially "available" for aggregation. Targeting high demand, smaller customers using electric space heating and cooling, water heating and embedded generation is the most attractive starting point for DSB cost effectiveness. Refrigeration and lighting are also shown to be attractive targets for DSB implementation.

This study has shown that, in principle, DSB for aggregated smaller customer demands is technically feasible and would contribute significantly to system management. However, a number of areas requiring further study have been identified.

Activities completed in 2005

Reports

Reports completed

- Subtask 1 – Smaller Customer Energy Saving by End Use Monitoring and Feedback
- Subtask 2 – Time of Use Pricing for Demand Management Delive
- Subtask 3 – Demand Side Bidding for Smaller Customers

Meeting schedule

Meetings held in 2005

7–8 March, 2005, Roermond, Netherlands.

Activity time schedule

Task XI was entered into force in October 2003 and was completed in June 2005.

Consideration of support is being given by the Executive Committee for two new Subtasks which deal with issues of:

- profile settlements and dynamic profiles resulting from TOU pricing and demand bidding
- demand change validation for Demand Side Bidding mechanisms

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Task XII: Co-operation on Energy Standards

Operating Agent: to be confirmed

Task XII is still gathering funding support for the formal start of its work programme, which was developed by Mr. Frank Pool, New Zealand. In particular it is still working to attract a lead sponsor since the hoped-for support from the Australian Greenhouse Office did not materialise in practice. The United Kingdom has shown interest in reshaping the Task work plan and in taking over the Task leadership. Task XII is currently working closely with the developing APEC-ESIS interactive website development project as it has always been envisaged that Task XII and APEC-ESIS would be strongly complementary activities. In the meantime, the APEC-ESIS website is being more fully populated with relevant information, the pro-active energy standards notification system is being implemented, site programming is being updated, the site hosting has shifted to Taiwan from Bangkok given the ongoing strong Taiwan institutional support, and funding support for APEC-ESIS has been obtained from Taiwan, Australia, Canada, New Zealand and the USA – the latter in particular having assisted with the co-hosting of the complementary CLASP website. The Task XII Operating Agent (Frank Pool) has held promising discussions with the Chair of the APEC Expert Group on New and Renewable Energy Technology (EGNRET) and the Team Leader of the ADB Renewable Energy and energy Efficiency for the Pacific (REEP) project to include standards for commercial generic renewable energy technologies such as Solar House PV Systems (SHS) and Solar thermal Water Heaters (SWH) in APEC-ESIS. This extension to generic renewable technologies and applications is also highly relevant to the work of the IEA DSM IA as the distinction between supply and demand side is broadened in the new Tasks XIII (DRR) and XV (Network DSM).

The objective for Task XII remains to address the widespread problem of disjointed standards for energy using products and systems in different parts of the world. Task XII is now even more relevant in a world where energy efficiency delivery programs will be valued to provide "hard" greenhouse gas abatement in all countries either for domestic commitments or as part of funded Kyoto flexibility mechanisms – as well as contributing to growing energy security and electricity reliability concerns.

The Task focus on energy standards because they underpin all programs on market transformation, tax incentives, rebates and voluntary endorsement labelling programs.

Energy standards are also at the core of the regulated MEPS and labelling programs on appliances and equipment that are underway in 50 countries – including nearly all developed countries – and applied on a regional basis in Europe and North America, with other initiatives underway for Asia under ASEAN as well as other regions. In an increasingly global market, current inadequate systems to facilitate active co-ordination and mutual awareness of different standards and standards setting procedures are an increasing barriers to global, regional and national energy efficiency gains.

Task XIII: Demand Response Resources

Operating Agent: Mr. Ross Malme, RETX Energy Services, USA

Objectives

The project made considerable progress during the past reporting period and continues to work toward the original objectives specified in the Annex document approved by the Executive Committee.

1. Identify and develop the country-specific information needed to establish the potential for demand response.
2. Perform the market and institutional assessment needed to set realistic goals for the contribution of DRR to sector objectives.
3. Mobilise technical and analytic resources needed to support the implementation of DRR programs and track their performance.

Progress

An updated Country Comparison report *(Subtask 2)* based on input from all Country Experts was issued. A DR Market Potential report *(Subtask 3)* that established DR market potential benchmarks, modeling techniques, and consumer survey tools was also issued. In addition, with the direct cooperation of Walter Grattieri, the Italian Expert, we developed an Online DR Market Potential Calculator was developed. With this tool, a user can input some basic market demographic information, and the tool will translate the DR market potential benchmarks to their market. A DR Valuation report *(Subtask 4)* that proposes a methodology for estimating the net present value for DR was produced. The methodology utilises probabilistic modeling techniques to value the future impact DR can have in a liberalised market. Demand Response Technology case studies *(Subtask 5)* were produced by Australia, Denmark, Italy, Netherlands, and Norway. These case studies are organised into a database on the project portal. An Online DR Product Database *(Subtask 6)* was created. The database contains nearly 100 DR products from Australia, Denmark, Norway, Spain, Sweden, and USA. The online tool allows a user to search for specific products using selective search criteria. This information will be used to highlight strong performing and/or innovative products that others should consider during any product design discussions in their countries. In addition, input from nearly all countries on some of the DR market barriers they encounter has been collected. As part of the Task communication plan *(Subtask 7)*, the OA Team issued 6 project newsletters, jointly hosted two DR workshops with the Expert Meeting host, and gave several presentations at industry conferences.

The OA Team continues to discuss and encourage the Country Experts to formulate in-country implementation plans *(Subtask 8)*. A memo was circulated to all Country Experts providing guidance and suggestions on how to do this. Plans are underway to hold a conference in Paris during the summer of 2006 for all Task XIII participants, particularly the European participants, to share their experiences.

Activities completed in 2005

During the performance period, the following milestones and deliverables were accomplished:

- The Market Characterisation Toolkit was created with most countries completing a Marketplace Overview survey and many started on building a proxy model of their marketplace in preparation for examining potential Demand Response Resources.
- Project Guidebooks were created for each country to facilitate the creation of country specific analysis and plans which will lead to a fully developed business case for demand response at the conclusion of the project.
- The project portal was significantly expanded to include a research library, online tools, collaboration areas for working groups and stakeholder groups, and early drafts and final releases of the intellectual property being developed by the project.
- A final version of the Country Comparison Report was published for review and comment by the Country Experts. It is enclosed here for review and approval by the ExCo.
- The DR Research Library continues to be expanded as new reports are collected. We also incorporated a "search" feature to facilitate easier access to information.
- A final version of the DR Market Potential report was published for review and comment by the Country Experts. It is enclosed here for review and approval by the ExCo.
- A Market Potential Calculator was developed and posted on the project portal. This calculator translates the DR market potential benchmarks established from the DR product survey process to local market demographics to estimate the potential for a given marketplace.
- The DR Product Database has been loaded to the project portal. This database contains over 100 DR products from markets around the world. It provides information on the product characteristics as well as product performance (if available).
- A report on the DR Valuation methodology and sample implementations was published for review by all Country Experts.
- DR Technology case studies were collected and cataloged. A draft report has been circulated to the Country Experts for review and comment.
- A collection of DR Market Barriers has been assembled from the Country Experts. A draft report has been circulated to the Country Experts for review and comment.
- The third Country Expert meeting was held in San Francisco, California on February 2–3, 2005.
- The fourth Country Expert meeting was held in Stockholm, Sweden on June 13–14, 2005.
- The fifth Country Expert meeting was held in Melbourne, Australia on November 9–10, 2005.
- Overall work plan and budget were revised and improved based on experience to date and feedback from three additional experts meetings since the last status report. Based on expert feedback and the progress to date, task extensions have been proposed to extend the Task through the end of 2006 and await ExCo approval.

Publications

Completed Publications

- Demand Response Resources Newsletter
  - 3 issues published in June, July, and September 2005
- Project Guidebooks
  - Distributed at Experts Meeting including A4 versions
  - 1 updates distributed through the project portal for three chapters

Presentations

- North America
  - US DRCC Town Hall Meeting
  - Canada OEB Task XIII Briefing
  - PLMA Spring Meeting
  - NARUC Spring Meetings
  - DistribuTECH
  - US DRCC Road Shows
  - PIER California DR Workshop
- Europe
  - Renewable Resources, Brussels
  - EU JRC Advanced Metering Workshop, Ispra
  - CIGRE Task XIII Presentation (Turin, Italy)
  - Norway Task XIII Workshop
  - Finland Task XIII Workshop
  - REEEP Task XIII Briefing
  - CTI Task XIII Briefing
- Asia
  - India Task XIII Briefing
  - Korea Energy Symposium
  - Task XIII Telephone Conferences

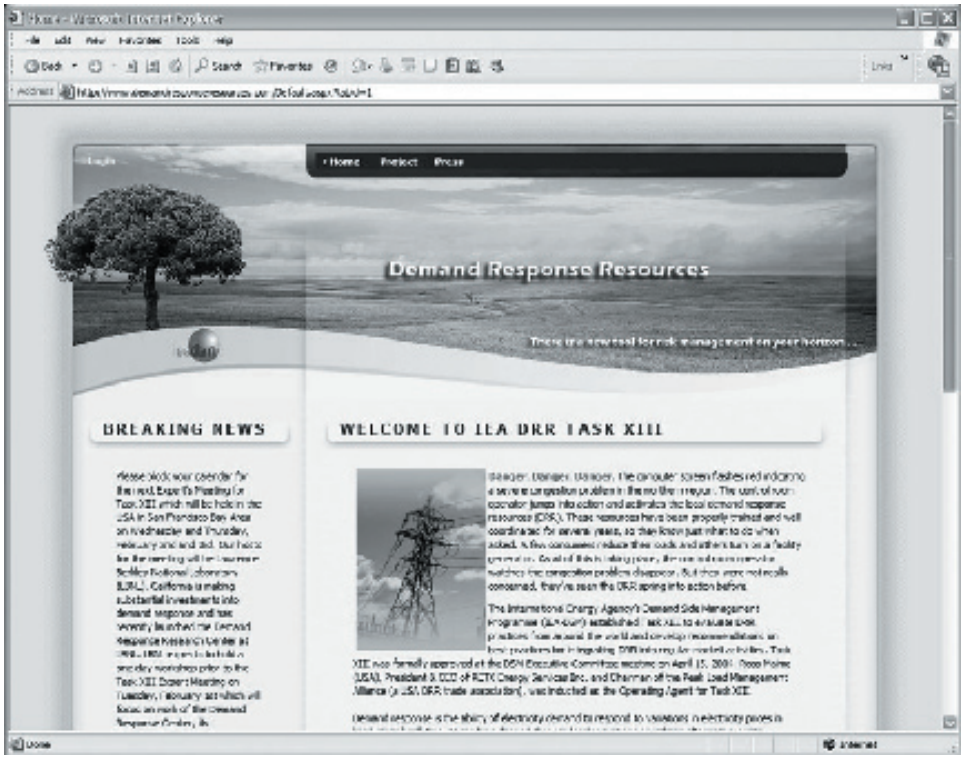
Activities planned for 2006

During the next reporting period, the following deliverables are scheduled for completion:

- Final release of the DR Technology toolkit and report based on input from all participating countries.
- Final release of the DR Market Barriers toolkit and report based on input from all participating countries.
- Additional updates to the project guidebook based on implementation experience of participating countries if the project extensions are approved.
- Additional experts meetings, newsletters, monthly teleconferences, and other implementation support if the project extensions are approved.
- A series of market implementation strategy presentations will be hosted at three or four locations for the participating countries to present their implementation plans.
- The project final report will be produced and presented at the Fall 2006 ExCo meeting.

Demand Response Resources Portal

An important aspect of the IEA DRR Task XIII project is the sharing of knowledge and best practices in planning and deploying effective, reliable demand response resources within the participants' markets. The challenge to this goal is the fact that the participating countries are spread around the globe in different time zones and different methods of communicating and sharing information. Today's internet technology provides an exciting and effective approach to overcoming this challenge – a web-based project portal has been created to serve as a virtual center of knowledge for all participating countries. All that is needed is an internet browser, a user ID, and a password to access all the latest news, information, research, tools, meeting information, presentations, newsletters, and all the other valuable information being gathered and created to support the deployment of demand response resources around the world. The portal is very easy to use and navigate and is located at *http:/www.demandresponseresources.com*.



Deliverables planned for 2005

List of products produced

- Country Market Comparisons Report
- DRR Market Potential Report
- DR Potential Online Calculators
- DR Valuation Toolkit (Part 1)
- DR Valuation Toolkit (Part 2)
- DR Valuation Report with definition and analysis of case studies and modeling tools used to produce the toolkit
- DR Product Online Database
- DR Technology Case Studies Library

- DR Technology Catalog and Report – Draft
- DR Market Barriers Case Studies and Report – Draft
- Task XIII Experts Meetings
- Task XIII Newsletters
- Task XIII Research Library Updates
- Task XIII Project Portal Updates
- Task XIII Presentations and Whitepapers
- Task XIII Mid-Term Evaluation

Deliverables planned for 2006

List of products planned

- DR Technology Catalog and Report – Final
- DR Market Barriers Case Studies and Report – Final
- DR Market Implementation Strategy Meetings
- Task XIII Project Portal Updates
- Task XIII Project Guidebook Updates
- Task XIII Newsletters
- Task XIII Presentations and Whitepapers
- Final Project Report

Meeting schedule

Meetings held in 2005

- The third Experts Workshop for Task XIII was held in San Diego, California on February 2nd and 3rd 2005 and focused on delivery of the DR Potential Toolkit, the Communications Toolkit, and preparation for DR Valuation work in the first half of 2005.
- The fourth Experts Workshop for Task XIII was held in Stockholm, Sweden on June 13th through 14th 2005 and focused on delivery of the DR Valuation Toolkit, work on the Technology Assessment Toolkit, and preparation for development of DR Market Implementation Strategies.
- The fifth Experts Workshop for Task XIII was held Melbourne, Australia on November 9th through 10th 2005 and focused on Technology Assessment, Market Barrier issues, and development of DR Market Implementation Strategies for each country.

Meetings planned for 2006

- The sixth Experts Workshop for Task XIII is tentatively planned for Amsterdam in the Spring of 2006 and will focus on development of DR Market Implementation Strategies for each country and planning for the regional delivery workshops.
- A series of 3 to 5 regional delivery workshops are planned for the Fall of 2006 with the most likely locations to include Australia, Paris, a Nordic location to be determined, and one or two locations in the US or Canada. One of the objectives of the Spring 2006 Experts meeting will be the finalisation of all delivery workshop locations and dates.

Activity time schedule

The Task came into force in February 2004 and will end in June 2006.

Activity	2004	2005	2006
Phase 1 Subtask 1 – Project Objectives			
Subtask 2 – Country Objectives Market Characterisation			
Phase 2 Subtask 3 – Market Potential of DRR			
Subtask 4 – DRR Valuation			
Subtask 5 – Role and Value of Technologies			
Subtask 6 – Business Plan Development			
Phase 3 Subtask 7 – Communication, Collaboration and Workshops			
Subtask 8 – Implementation			
Education, Management and Administration			
Executive Relations, Education and Evangelising			
Project Management and Administration			

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Task XIV: Market Mechanisms for White Certificates Trading

Operating Agent: Mr Antonio Capozza, CESI S.p.A., Italy

Objectives

This project ("Task") aims to address:

- whether – and how – a scheme involving the issuing and the trading of White Certificates provides an effective means of attaining targets of reduction of:
  1. primary energy consumption (main concern)
  2. CO_2 emissions (secondarily)
- what is the most suitable format for such a scheme
- what implementation problems are involved, at national and extra-national levels
- how it can interact with other schemes.

Market-based policy instruments are increasingly being favoured in a wide range of energy and environment policy fields, due to their economic efficiency, benefits for competition, positive incentives for cost reduction and continuous improvement and ability to minimise and equalise costs of compliance with policy targets. They are particularly applicable where Countries have mandatory quantitative targets for the actors concerned that must be met in a verifiable way, inside national or extra-national obligation programmes, and within a fixed period.

Examples of this policy approach include:

- **White Certificates**: Energy Efficiency trading schemes – end-use energy efficiency programmes;
- **Black Certificates:** Carbon trading schemes – programmes for reducing CO_2 emissions;
- **Green Certificates:** Renewable Energy Commitment trading schemes – increased use of renewable energy sources in power generation.

The focus of the present Task is on White Certificates, but it will consider the operation of their trading in an economic environment where Green and Black Certificates trading also occur.

Certificates offer a number of practical benefits for all parties involved. For regulatory Authorities, they can be an easily-verifiable way to track compliance with policy targets. For parties obliged to comply with targets, they offer a means to achieve compliance at least cost, and also offer the flexibility to comply either through 'in-house' action, by contracting with other parties for their supply, or simply by purchasing certificates in a third-party marketplace. For those able to create and sell certificates, they offer an additional revenue stream which is independent of their other business activities, thus offering hedging and risk-management benefits in addition to direct financial rewards.

Progress

The key concerns to be considered are subdivided into issues of "principle" and "practical" issues.

Principle (Policy) issues

- Specificity and effectiveness of a certificate trading mechanism to promote energy efficiency projects
- Obligation-bound actors
- Who can buy and who can sell
- Targeted sectors and energy efficiency programmes
- How to create demand for White Certificates trading
- Possible cost-recovery mechanisms
- Competition issues
- Interactions with other policy tools for the promotion of energy efficiency
- Interactions with other trading schemes
- Prospects for an enlarged extra-national market for tradable certificates

Practical (Operational) issues

- Criteria for design and development of projects for energy efficiency in end-use
- Valuation issues
- Monitoring mechanism and non-compliance regime
- Trading mechanisms
- Rebound effects

The Task is based on regular workshops to be held in the participating Countries at four months' intervals. Each workshop will explore a set of issues coming under one of the following main headings:

- Expectations and already gained experiences
- policy/principle issues
- organisation/practical issues
- national and international systems for White Certificates
- interaction with other trading schemes and with other EE policies

No subdivision into subtasks is planned.

The Task XIV was started up in June 2004 in a kick-off meeting and the first workshop was held in November 2004. All the other workshops are due between 2005 and 2006. The Task will be concluded in June 2006 with the issuing of a Final Report.

Activities completed in 2005

ADEME (France) offered to host the **second workshop**. This Task event, which took place at Paris IEA premises on April 14th 2005. The title of the workshop was: "Principle/policy issues". The workshop was open to all the local stakeholders and interested people; it considered in particular:

- the French background and the expectations in introducing a new trading oriented scheme for White Certificates, in the frame of their national energy policies and relevant Energy Efficiency targets
- presentation of an ongoing energy efficiency certificates trading scheme currently implemented in New South Wales, Australia. These certificates are part of a larger Greenhouse Gas Abatement Scheme introduced by the State Government of New South Wales, the most populated state in Australia.
- remarkable experiences in Countries where similar trading schemes are being applied (Italy, UK) present expectations of other Countries (France, Sweden) on the matter.

A round table considered the main subject of the workshop and focused the position of France, Italy and UK relevant to:

- motivations for the choice of a White Certificate System
- eligible and obliged agents
- ex-ante evaluation of energy savings

The audience included representatives from:

- French Ministry of Economy, Finance and Industry
- ADEME
- EdF
- CREDEN – Centre de Recherche en Economie et Droit de l'Energie – Université de Montpellier
- CIRED – Centre International de Recherche sur l'Environment et le Développement
- GME – Italian Electricity Market Operator
- Energy Future Australia as advisors of Government of New South Wales – Australia;
- DEFRA – UK Department for Environment Food and Rural Affairs
- Journalists from specialised Press
- Delegate from United Nations Environment Programme as well as the attendance of the Task 14 experts and guests.

The above workshop was followed by a one day's task experts meeting, devoted to a deeper insight of the results of the workshop held the previous day. During this meeting also comparisons among national schemes on White Certificates and among national implementation of particular energy saving measures were discussed.

The International Institute for Industrial Environmental Economics (IIIEE) of University of Lund – Sweden, offered to host the **third workshop**. This Task event took place on June 16th 2005 at IIIEE premises. The title of the workshop was: "National or international systems for White Certificates" and the subject of operational/practical issues

relevant to White Certificates Systems was particularly handled. The workshop was open to all the local stakeholders and interested people; it considered in particular:

- presentation of the schemes on White Certificates adopted or forecast at present in France, Italy and UK, with special emphasis to the operational aspects and the adopted national choices.
- renewable Energy Certificates System - Prospects of Green Certificates in Norway-Sweden.
- transaction costs: how can these cost voices influence the overall cost of an energy savings projects and how they can affect the White Certificates market.
- national or international systems of certificates: advantages and problems in national or EU-wide systems of certificates.

A round table considered the following subjects:

- Rationale of the choice of a White Certificates system
- Market problems in White Certificates trading – transaction costs
- EU-wide or national certificates systems?
- Experiences, conclusions and recommendations

The audience included representatives from:

- STEM (one of the Swedish Organisations participating to the Task)
- IIIEE (one of the Swedish Organisations participating to the Task)
- Elforsk (one of the Swedish Organisations participating to the Task)
- Fortum – Sweden
- Swedish representative from research and industry in the energy field
- ADEME – France
- French Ministry of Economy, Finance and Industry
- EdF – France
- Ministry of Economy – Netherlands
- Red Electrica – Spain

as well as the attendance of the Task 14 experts and guests.

A Task experts meeting was held in connection to the above workshop, devoted to a deeper insight of the results of the workshop itself. During this meeting the subject of comparisons among national schemes on White Certificates and among national implementation of particular energy saving measures were carried out and some more precise choices were done on how to keep into account the involved costs.

SenterNovem (Netherlands) offered to host the **fourth workshop** This workshop was held in Grøningen on October 27th 2005, in the frame of "ENERGY CONVENTION GRØNINGEN 2005 – Energy scenarios and strategies for change in countries, regions and cities", October 26–28. The title was: "Organisation/practical issues: additionality, penalties, costs".

The handled subjects were the following:

- analysis of French, Italian and UK schemes for White Certificates, focusing additionality and penalties
- Netherlands experiences in energy efficiency policies and design of a national White Certificates scheme
- transaction costs in the views of the Participants
- consumer's cost/benefits from a White Certificates scheme

A round table considered the following subjects:

- implementation issues
- costs and consumer benefits

The audience included representatives from:

- SenterNovem (an agency of the Dutch Ministry of Economic Affairs for implementing policies on energy and environment, the Dutch Organisations participating to the Task)
- CEA and EBM (two Dutch consulting organisations in the field of sustainable development)
- ECOFYS (a Dutch organisation specialized in energy saving and renewable energy solutions)
- Ministry of Economy – Netherlands

as well as the attendance of the Task 14 experts and guests.

A Task experts meeting was held in connection to the above workshop, devoted to a deeper insight of the results of the workshop itself. During this meeting the subject of comparisons among national schemes on White Certificates and their harmonisation were considered. Methodologies for impact evaluation on energy savings from previous Dutch policies and issues of measurements of energy savings in buildings were considered as well.

Activities planned for 2006

Enova (Norway) offered to host the **fifth** and last **workshop**. The event will take place in Trondheim on March 23rd 2006. The title will be: "Interaction of White Certificates with other trading schemes and with other EE policies". The considered subjects will be:

- review of the Task performed activities
- updating of White Certificates national schemes
- general approach to market-based measures and involved problems
- Norwegian policies on Energy Efficiency
- the EU EuroWhiteCert Project experiences

An expert meeting will be held in connection to the workshop and will deal with the draft of the Final Report and comments to it.

Involvement of industry and other organisations

Four national Energy Agencies (ADEME for France, SenterNovem for Netherlands, Enova for Norway and STEM for Sweden), a National Environmental Department (DEFRA for UK) and a Research Centre in the energy sector (CESI for Italy) are participating to the Task. Besides, the following further involvements are under way:

Italy

- AEEG, the Italian Authority for Electricity and Gas, with a regulatory role in the fields of Energy Efficiency and White Certificates issuing and trading
- GME, the national Electricity Market Operator, who is in charge of handling the market of White, Green and CO_2 Certificates

France

- French Ministry of Economy, Finance and Industry
- EdF – DER – Power Systems Technology and Economics Department
- EdF – Corporate Strategy Division

Netherlands

- Ministry of Economy – Netherlands
- CEA and EBM (two Dutch consulting organisations in the field of sustainable development)
- ECOFYS (a Dutch organisation specialized in energy saving and renewable energy solutions)

Sweden

- University of Lund, also present EC SAVE and EIE projects
- Elforsk, a centre for industrial R&D
- Swedenergy, the trading organisation of the Swedish power producers, distribution companies and electricity traders, managing CEN-CENELEC groups for standards issuing on REC, ET and White Certificates
- The National reference group on White Certificates (including STEM, University of Lund, Elforsk, Swedenergy)

EU Co-ordinators of SAVE "White &Green" and EIE "EuroWhiteCert" projects

Many of these involved organisations granted in the past and will ensure in the future the presence of their experts during the workshops and/or the Task experts meeting.

Reports

The content of the contributions and of the discussions relevant to the five Task workshops will be processed and synthesised in corresponding *Critical Synthesis (CS) Reports* under the responsibility of the Operating Agent (OA). After approval, each of the four CS reports will become an official Task deliverable.

Reports produced in 2005

- Critical Synthesis Report relevant to France workshop
- Critical Synthesis Report relevant to Sweden workshop

Reports planned for 2005

- Critical Synthesis Report relevant to Netherlands workshop
- Critical Synthesis Report relevant to Norway workshop
- Final Synthesis Report (FR), containing a summary and a review of all the activities undertaken and experiences gained during the progress of the Task.
- Final Management Report

Meeting schedule

Meetings held in 2005

April 14, 2005 – ADEME, Paris, France – 2nd national open workshop

April 15, 2005 – ADEME, Paris, France – 3rd Task Experts meeting

June 16, 2005 – Lund University, Sweden – 3rd national open workshop

June 17, 2005 – Lund University, Sweden – 4th Task Experts meeting

October 27, 2005 – SenterNovem, Grøningen, Netherlands – 4th national open workshop

October 28, 2005 – SenterNovem, Grøningen, Netherlands – 5th Task Experts meeting

Meetings planned for 2006

March 23, 2006 – Enova, Trondheim, Norway – 5th national open workshop

March 24, 2006 – Enova, Trondheim, Norway – 6th Task Experts meeting

Activity time schedule

Task XIV came into force 1 June, 2004 and will continue until 30 June, 2006.

Activity Time Schedule	2004	2005	2006
Task organisation – preparation of 1st workshop			
Report 1st workshop – preparation of 2nd workshop			
Report 2nd workshop – preparation of 3rd workshop			
Report 3rd workshop – preparation of 4th workshop			
Report 4th t workshop – preparation of 5th workshop			
Report 5th t workshop – Final report			

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Task XV: Network-Driven DSM

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

Why Network-Driven DSM?

'Network-driven' demand-side management (DSM) is concerned with reducing demand on the electricity network in specific ways which maintain system reliability in the immediate term and over the longer term defer the need for network augmentation.

While network-driven DSM can also lead to lower prices in a wholesale electricity market, increased energy efficiency and/or reduced greenhouse gas emissions, these are not the major objectives of this type of DSM. The two prime objectives for network-driven DSM are:

- to relieve constraints on distribution and/or transmission networks at lower costs than building 'poles and wires' solutions; and/or
- to provide services for electricity network system operators, achieving peak load reductions with various response times for network operational support.

Task XV is identifying and developing DSM measures that can contribute to achieving these two objectives.

Network problems are becoming significant in countries where electricity demand is increasing and network infrastructure ('poles and wires') is ageing. As loads grow and infrastructure reaches the end of its economic life, the potential cost of augmenting networks is increasing exponentially. In many situations, DSM can delay the need for network augmentation. In certain limited situations, DSM may even be able to cost-effectively eliminate the requirement to build a 'poles and wires' solution.

Task XV is identifying and developing a wide range of DSM measures which can be used to relieve network constraints, whether these constraints are time-related (eg occurring at times of the network system peak) or location-related (eg associated with particular lines or substations) or both. All types of constraint are addressed, including capacity limitations, voltage fluctuations, reliability issues, etc. Such network-driven DSM measures are often more cost-effective, and may also have lower environmental impacts, than network augmentation (ie building 'poles and wires').

In addition to relieving network constraints, DSM can also provide services for electricity network system operators, achieving peak load reductions with various response times for network operational support. Task XV is also covering DSM measures which provide network operational services.

Network-driven DSM measures include:

- distributed generation, including standby generation and cogeneration;
- energy efficiency;
- fuel substitution;
- load management, including interruptible loads, direct load control, and demand response;

- power factor correction;
- pricing initiatives, including time of use and demand-based tariffs.

Participating in Task XV will enable country representatives to:

- understand the advantages and disadvantages of network-driven DSM measures as alternatives to network augmentation and for providing network operational services;
- gain information about network-driven DSM measures currently in use in other countries and about the relative effectiveness of these measures;
- understand the factors which lead to a network-driven DSM measure being effective;
- participate in further developing the identified DSM measures so that they will be successful in achieving network-related objectives;
- identify modifications which can be made to existing network planning processes to incorporate network-driven DSM measures as alternatives to network augmentation;
- understand the interaction between network-driven DSM and the operation of competitive electricity markets;
- participate in developing business models, rules and procedures to achieve the successful implementation of network-DSM measures under different electricity market structures and regulatory regimes.

Objectives

The objectives of Task XV, as approved at the October 2004 Executive Committee meeting, are as follows:

- to identify a wide range of DSM measures which can be used to relieve electricity network constraints and/or provide network operational services;
- to further develop the identified network-driven measures so that they will be successful in cost-effectively achieving network-related objectives;
- to investigate how existing network planning processes can be modified to incorporate the development and operation of DSM measures over the medium and long term;
- to develop "best practice" principles, procedures and methodologies for the evaluation and acquisition of network-driven DSM resources; and
- to communicate and disseminate information about network-driven DSM to relevant audiences.

Work Plan

The Work Plan for Task XV comprises five Subtasks.

Subtask 1: Worldwide Survey of Network-Driven DSM Projects.

Subtask 2: Assessment and Development of Network-Driven DSM Measures.

Subtask 3: Incorporation of DSM Measures into Network Planning.

Subtask 4: Evaluation and Acquisition of Network-Driven DSM Resources.

Subtask 5: Communication of Information About Network-Driven DSM.

Subtask 1: Worldwide Survey of Network-Driven DSM Projects

Subtask Objective

To identify a wide range of DSM measures which can be used to relieve electricity network constraints and/or provide network operational services.

Subtask Deliverable

A report listing and summarising network-driven DSM projects implemented around the world.

Subtask 2: Assessment and Development of Network-Driven DSM Measures

Subtask Objective

To further develop the identified network-driven DSM measures so that they will be successful in cost effectively achieving network-related objectives.

Subtask Deliverable

A report listing and summarising successful network-driven DSM measures and the specific network problems they address.

Subtask 3: Incorporation of DSM Measures into Network Planning

Subtask Objective

To investigate how existing network planning processes can be modified to incorporate the development and operation of DSM measures over the medium and long term.

Subtask Deliverable

A report on ways in which network planning processes can be modified to incorporate DSM measures as alternatives to network augmentation.

Subtask 4: Evaluation and Acquisition of Network-Driven DSM Resources

Subtask Objective

To develop 'best practice' principles, procedures and methodologies for the evaluation and acquisition of network-driven DSM resources.

Subtask Deliverable

A report on 'best practice' principles, procedures and methodologies for the evaluation and acquisition of network-driven DSM resources.

Subtask 5: Communication of Information about Network-Driven DSM

Subtask Objective

To communicate and disseminate information about network-driven DSM to relevant audiences, including representatives of electricity network businesses, government agencies and electricity end-users.

Subtask Deliverables

- A Task Newsletter.
- Information databases about network-driven DSM projects and measures.
- Regional workshops about network-driven DSM held in Europe, North America and Asia.
- Pacific.

Timetable

The timetable for Task XV is shown in the Activity Time Schedule. The Task will be completed over a period of two years, commencing on 18 October 2004, and finishing on 30 September 2006. Subtask 1 has been completed in 12 months. Subtask 2 will take six months, Subtask 3 eight months, and Subtask 4 five months to complete. Subtask 5 commenced approximately two months after the commencement of the Task and is continuing throughout the Task.

Activities During 2005

Following are the major accomplishments in Task XV over the last 12 months.

- Establishment of the Task XV website as a sub-site on the IEADSM website. The Task XV website includes both a public site and an Experts secure site which is the main working location for Task XV. The internet address of the public site is: http://dsm.iea.org/NewDSM/Work/Tasks/15/task15.asp.
- Development of the on-line data collection form for the survey of network DSM projects (Subtask 1). The data collection form is linked to a database located on the Task XV website.
- Completion of the survey of network DSM projects (Subtask 1). The Country Experts completed the collection of information about network-driven DSM projects implemented in their respective countries. The Operating Agent completed collection of information about network DSM projects implemented in other countries and also collected information about additional projects in some participating countries and reviewed and expanded the material collected by the Country Experts. Detailed case studies have been prepared for 43 network-driven DSM projects. This will form the "raw data" for the remainder of the analysis in Task XV.
- Completion of the first draft of a report listing and summarising network-driven DSM projects implemented around the world. This report includes all the 43 case studies and draws some conclusions about the DSM measures used in the case study projects. The report has been circulated to the Country Experts and relevant ExCo members for comment. This report is the major deliverable for Subtask 1 and its completion will conclude the subtask.
- Publication of four issues of the Task XV newsletter. The newsletter provides information about progress with Task XV to the Country Experts and relevant IEA DSM Programme ExCo members.

Participation

Participating Countries

The following countries are participating in Task XV:
Australia;
France;
Spain;
USA.

Participating Organisations within Countries

Participating organisations within countries comprise the following:

Australia

Eight electricity network businesses at both the transmission and distribution level, comprising: Agility, Country Energy, Energex, Energy Australia, Ergon Energy, Powerlink Queensland, SP AusNet and TransGrid.

France

Agence de l'Environnement et de la Maîtrise de l'Énergie and Réseau de Transport d'Electricité.

Spain

Red Eléctrica de Espana.

USA

Oak Ridge National Laboratory.

Meeting schedule

Meetings held in 2005

- 12–13 April, 2005, Sophia Antipolis, France;
- 17–18 October, 2005, Madrid, Spain.

Meetings planned for 2006

- 22–24 April, Port Macquarie, Australia.

Activity time schedule

Task XV came into force in October, 2004 and will be completed by 30 September, 2006.

Subtasks	2004	2005	2006
1. Worldwide Survey of Network-Driven DSM Projects			
2 Assessment and Development of Network-Driven DSM Measures			
3. Incorporation of DSM Measures into Network Planning			
4. Evaluation and Acquisition of Network-Driven DSM Resources			
5. Communication of Information about Network-Driven DSM			

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Task XVI: Competitive Energy Services

Operating Agent: Jan W. Bleyl, Graz Energy Agency Ltd, Austria
Co-Operating Agent: Seppo Silvonen, Motiva Oy, Finland

Task XVI is a new Task and not yet operational. The initiation of Task XVI and the appointment of Jan W. Bleyl as Operating Agent and Seppo Silvonen as Co-Operating Agent were approved by the Executive Committee in October 2005.

The Chairman and the Operating Agent are inviting member countries to consider their participation. Please contact Jan W. Bleyl (Bleyl@grazer-ea.at) or Seppo Silvonen (seppo.silvonen@motiva.fi) for further details on planned activities, deliverables and Task information plan.

Background and motivation

The new Task will build on the previous Task X ´Performance Contracting´. There are several reasons to take the work further:

- First, *new variations and combinations of energy services* such as innovative financing schemes like leasing, the link to facility management, new quality standards for energy services and the question of verifying savings are all highly relevant topics that should be elaborated further. For instance, pilot ES-projects including comprehensive refurbishment measures show a promising potential and energy savings of up to 50 %.
- Second, the Task should take a more *product oriented approach*; meaning that the knowledge gathered should be transformed in concrete products (manuals, trainings etc.). This will support the dissemination of information on innovative energy services and financing models.
- Third, know-how and market penetration of energy services have not yet reached the desired levels. The success of EPC in different IEA member countries is not spread equally. Thus, the proposed task work programme aims at enhancing the market success of energy services. It will build on the foundations laid in phase I of Task X to develop and carry out *market development and project initiation activities* addressing specific target groups. The joint effort within this task will support the countries in their efforts and deliver benefits through mutual feedback, coaching and experience exchange.
- Fourth, there is considerable interest in the work of the DSM IA in the recently established contacts with CTI, REEP and others. To make best use of the results achieved and to be of benefit for those organisations, useful products must be delivered. This could lead to new services provided to the outside world "enriching of DSM-capacity in the world" (training, consultancy etc.). And this would also be a contribution to "a *DSM-Centre of Excellence*" by the DSM IA.
- Fifth, the new *directive on energy efficiency and energy services* is likely to initiate a wide range of activities in the field of energy services.

Objectives of Task XVI

In order to contribute to the future market development of innovative energy services the objectives of this new IEA DSM Task are:

1. to design, elaborate and test innovative energy services and financing models and to publish them in a series of manuals,
2. to develop and follow up country specific activities for implementing energy services in the market with a focus on selected market segments, like public buildings, elderly homes or private service buildings,
3. to establish an IEA DSM energy services expert platform and
4. to position the IEA DSM energy services expert platform as a competence centre for international dissemination and assistance services (e.g. coaching, training) in the field of energy services and to contribute to an "IEA DSM Centre of Excellence".

Expectations and results

The *benefits* for the participating countries and for the DSM agreement will be:

- Enlarging the market for energy services in the countries
- Building up know-how and capacity on innovative and competitive energy services and financing models (exclusive and first hand information)
- Participation in the IEA DSM energy services expert platform
- Adoption of the manuals on energy services and financing models, translated for use in the participating countries
- Mutual feedback, coaching and experience exchange for developing country specific market development activities (lessons learned in other countries)
- Developing business opportunities for internationally acting ESCOs
- EU countries can prepare for the upcoming EU-directive on energy end-use efficiency and energy services and help closing the gap between policy targets and the "real world"
- Active role of the IEA DSM agreement in international dissemination of ES and assistance services beyond the scope of the current member countries
- Creating the basis for additional income for DSM IA work from developing services (e.g. training, coaching and other products to sell as DSM competence centre).

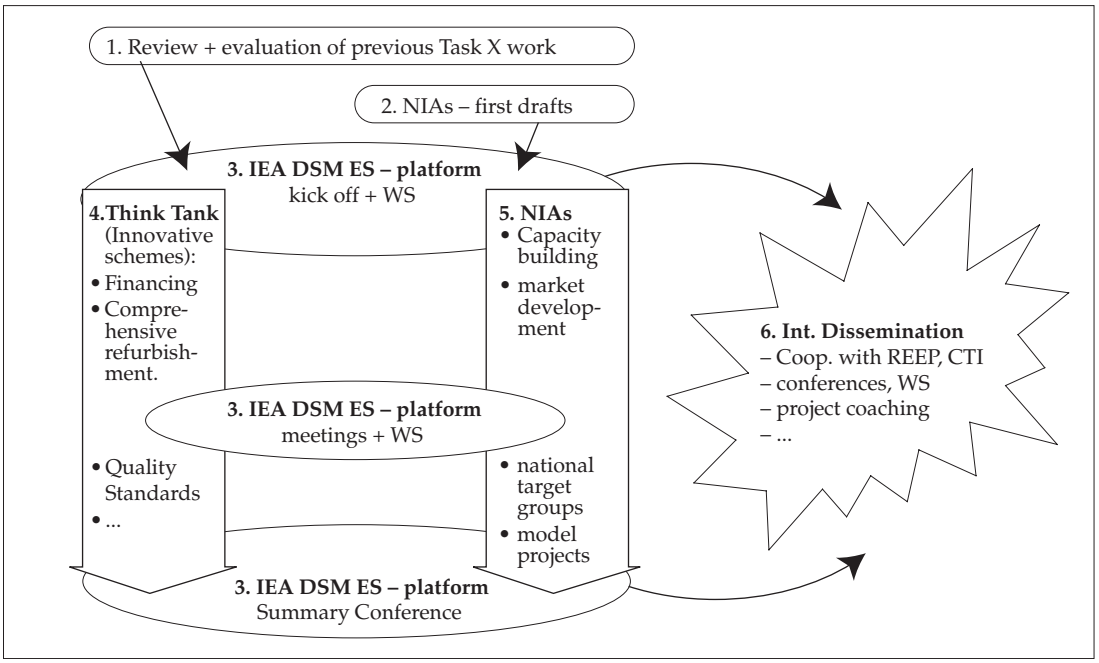
Structure of the work – subtasks

The proposed Task X Work Plan consists of four main components:

1. IEA DSM energy services expert platform (ES-platform, subtask 3)
2. Innovative and competitive energy services think tank (think tank, subtask 4)
3. National implementing activities (NIAs, subtask 5)
4. International dissemination activities (subtask 6)

The following scheme illustrates the general structure and workflow of the proposed Task:

Activities and tasks of the different components of the above organisational structure are explained in the following subtask descriptions.



Review of previous Task X – work

As a preparatory measure and to connect to the previous work, a critical review and internal evaluation of the Task X work done will be carried out. Relevant parts of other major international work done and ongoing will be briefly included. The relevant results achieved and lessons learned will be identified here. A tool-box/menu of possible market development activities will be provided. This will also help the new participants in the Task to catch up and start from the same level.

National implementation activities – first drafts

The objective of this subtask is to work out or adapt national implementation activities (NIAs) with the support of international experience exchange.

All national experts will be invited to sketch their respective national implementing activities ahead of the first platform meeting. This will speed up the process and result in a more effective kick off meeting. A template for the national implementation activities will be provided.

IEA-DSM energy services expert platform

The platform is the internal and external communicative heart of the Task activities, as can be seen in the scheme. It consists of all country experts (CE) and the operating agent (OA).

The platform will host the internal project meetings as well as workshops, open to our target groups. There will be a series of workshops performed in conjunction with the project meetings to introduce and promote the manuals from the project Think

Tank on innovative energy services and financing models (-> 0). In order to support dissemination of the results, the workshops are open to guests from ES stakeholder organisations like real estate owners, ESCos, financing institutions and project developers like energy agencies who will be invited by the CEs.

The platform also serves as an expert pool to provide assistant and coaching services between the task members as well as to external advice seekers. It will communicate with potential interested parties, disseminate material, participate in workshops and put the material on the Internet as information resource.

Last but not least, the platform shall also be a tool to be built on for the future. In a broader sense, the platform shall serve as a foundation for the further development of services by the IEA DSM programme. This also encompasses the activities towards the building of a DSM Centre of Excellence.

Innovative and competitive energy services and financing models think tank

The objective of this task is to further develop innovative and competitive energy services and financing models on the following topics:[2]

- Innovative financing schemes for energy services with a focus on leasing
- Advanced implementation schemes for the comprehensive refurbishment of buildings

Interested countries have proposed additional topics during the Task definition expert meeting, October. 6, 2005, Vienna. There will be a minimum of 3 manuals been worked out in total. Depending on participating countries and resources more topics could be elaborated. The participating countries will make the final selection after the start of the Task.

The results are documented in "manuals". These are practically oriented reports mainly for ESCOs, project developers, consultants, experts and specifically interested clients, which can serve as guidelines.

National implementation activities

Based on subtask 2 all participating countries will conduct national implementing activities in order to bring energy services closer to their respective customers.

The design of the national activities will vary, depending on the individual market situation for energy services (from reinforcing the basics, capacity building to specific market segment development activities and model projects). Already ongoing national activities can be integrated into this national work package and will benefit from the international cooperation. The platform will support the CE in the design of the NAIs and with exchange of experiences. The developed advanced energy service models shall be adapted to the respective national framework, discussed and possibly tested in the countries. CE's can receive coaching and support from platform members for their individual implementation activities and will benefit from the international exchange.

[2] Input for the above mentioned topics can partly be provided by Graz Energy Agency from an ongoing Energy Intelligent Europe project (EUROCONTRACT).

International dissemination and "Centre of Excellence"

The IEA DSM ES-platform is also designed to serve as a competence centre and contribute to an IEA DSM Centre of Excellence.

As a partner to international financing institutions, climate change facilities, JI/CDM bodies, international associations and networks (REEEP, CTI etc.) it intends to offer expertise, support and further services. These possibilities will be further explored during the Task in partnership with the organisations mentioned.

In particular, there is a concrete request from REEP to provide a training seminar on EPC for India. The possibilities to use Internet broadcasting of seminars (like the ManagEnergy workshops of EU DG TREN) shall be explored.

Activity time schedule

Activities are planned to start in the 2nd quarter of 2006, for a period of three years.

Subtasks	2006	2007	2008
1. Review of previous Task X work			
2 National implementation activities – first drafts			
3. IEA DSM Energy Services expert platform			
Expert meetings/workshops			
4. Energy Services and financing Think Tank			
Manuals			
5. National Implementation Activities			
6. Inern. Dissemination			
7. Management & Reporting			

CHAPTER III

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CHAPTER IV

Operating Agents IEA DSM Technologies and Programmes

TASK I

International Data Base on Demand-Side Management Technologies and Programmes

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Time of Use Pricing and Energy Use for Demand Management Delivery

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Task XII

Co-operation on Energy Standards

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Task XIII

Demand Response Resources

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