International Energy Agency

Demand-Side Management Technologies and Programmes

2009 annual report

Implementing Agreement on

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Implementing Agreement on Demand-Side Management Technologies and Programmes

2009 Annual Report

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

January 2010

Foreword

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

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

Stockholm, January 2010

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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 28 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 28 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 co-operation 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 42 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 20 member countries and the European Commission have been working to identify and promote opportunities for DSM:

Australia	France	New Zealand
Austria	Greece	Norway
Belgium	India	Spain
Canada	Italy	Sweden
Denmark	Japan	Switzerland
European Commission	Korea	United Kingdom
Finland	Netherlands	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 21 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 – *Completed*
Richard Formby, EA Technology Ltd, United Kingdom

Task XIII Demand Response Resources – *Completed*
Ross Malme, RETX, United States

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

Task XV Network-Driven DSM – *Completed*
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.

Task XVII – Integration of DSM, Energy Efficiency, Distributed Generation and Renewable Energy Sources
Seppo Kärkkäinen, VTT, Finland

Task XVIII – Demand Side Management and Climate Change
David Crossley, Energy Futures Australia Pty. Ltd, Australia

Task XIX – Micro Demand Response and Energy Saving
Linda Hull, Barry Watson, John Baker, EA Technology Ltd., United Kingdom

Task XX – Branding of Energy Efficiency
Balawant Joshi, ABPS Infrastructure Private Limited, India

Task XXI – Standardisation of Energy Saving Calculations
Harry Vreuls, NL Agency, the Netherlands

Task XXII – Energy Efficiency Portfolio Standards
Balawant Joshi, ABPS Infrastructure Private Limited, India

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Also, visit the IEA DSM website: www.ieadsm.org

CHAPTER I

Chairman's Report

Large scale deployment programmes pave the way for sustainable energy systems.

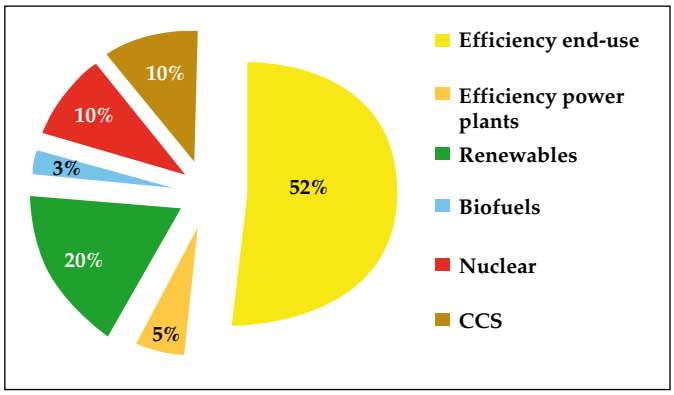
Hans Nilsson, Chairman of the IEA DSM-Programme

After the COP-15 meeting in Copenhagen it has been sufficiently clear to the world that the threat of climate change is imminent and calls for actions go well beyond what has been undertaken so far.

The IEA secretariat has in its publication "World Energy Outlook 2009", WEO, demonstrated the magnitude of such a task by showing which measures are needed to cut back greenhouse gas emissions, GHG, to a level that enables us to even have a chance to put the brakes on climate change.

The most remarkable fact in this message, and contrary to what most debate and newspaper articles make us believe, is that by far the biggest share of the solution is on the demand side – in improvement of the end-use energy efficiency! More than 50% of the reduction has to come from energy efficiency measures, see figure 1.

Figure 1: Means for decarbonising till 2030 (IEA WEO 2009)



A closer look further reveals that another 5% in efficiency improvements is to be found in the power plants, and that 23% could be aspired from renewable and biofuels. This is stunning since the issues that normally occupy the headlines and the political debate, i.e. nuclear and CCCS (Carbon Capture and Storage), counts for only 10% each!

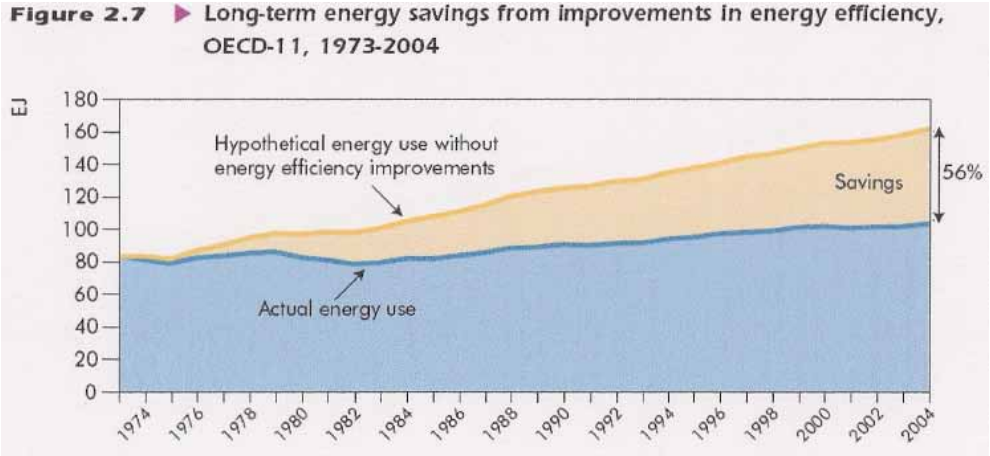
Deployment and potential

This is what a calculation based on economic assumptions only would conclude. In reality it means that we are facing an unprecedented deployment of energy efficiency technologies in a short period of time. A surge of "organised and orchestrated" energy efficiency measures that goes far beyond the "spontaneous" efficiency installations in the market – such that are made continuously to improve productivity when old equipment is replaced.

The way to make it all work, is large scale deployment programmes – also known as DSM, Demand Side Management. The good news is, however, (a) that it can be done, (b) that it can be done with profit, and (c) that the margins for profit will further grow while we are doing it, due to the market learning processes.

Firstly, if we look back over the past 35 years we find that society has improved its energy efficiency on a large scale. Energy use in the OECD countries has grown but it would have grown even more without the continuous change in equipment and services. In the 30 year period between 1973 and 2004 such savings are, as calculated and shown in the IEA publication ETP 2008, more than 50 %, see figure 2.

Figure 2: Improvements in energy efficiency as shown in "Energy Technology Perspectives 2008", (their figure 2.7).



This clearly shows that large scale savings can be achieved, but also indicates that we may have to consider more in detail how the resulting savings should be used. Should we use them to increase the wealth (more travel, bigger apartments, more powerful cars, etc.) or should we use it to reduce the pressure on the environment, save resources and keep the temperature at reasonable levels? Maybe we should do both – One modus in the industrialised world (reducing pressure) and another in the developing (increasing wealth)?

The traditional argument is that in a perfect market all possible efficiency improvements are undertaken spontaneously as rational agents (customers, users) arrive at decisions that it is profitable to do so. Others, however, argue that there is a big unrealised potential to achieve and that the costs for that are negative, i.e. there are profits to be made but not yet realised. The technique to illustrate such opportunities is by showing an energy efficiency supply curve. This has been used in the literature since the 1980s, but has recently been made more well-known when used also by the consultancy company McKinsey, see figure 3.

There is nowadays very little debate over the fact that there is a potential for profitable efficiency measures to be realised. The discussions are rather about the size of the potential. Is it small, when transaction costs are added to the cost of the measure? Or is it big, when also other benefits – e.g. in productivity and comfort – are added to the profit?[1]

[1] Also called NEB i.e. "Non-energy benefits.

In the policy debate it seems as if most focus is concentrated on the technicalities to determine the size of the potential, such as:

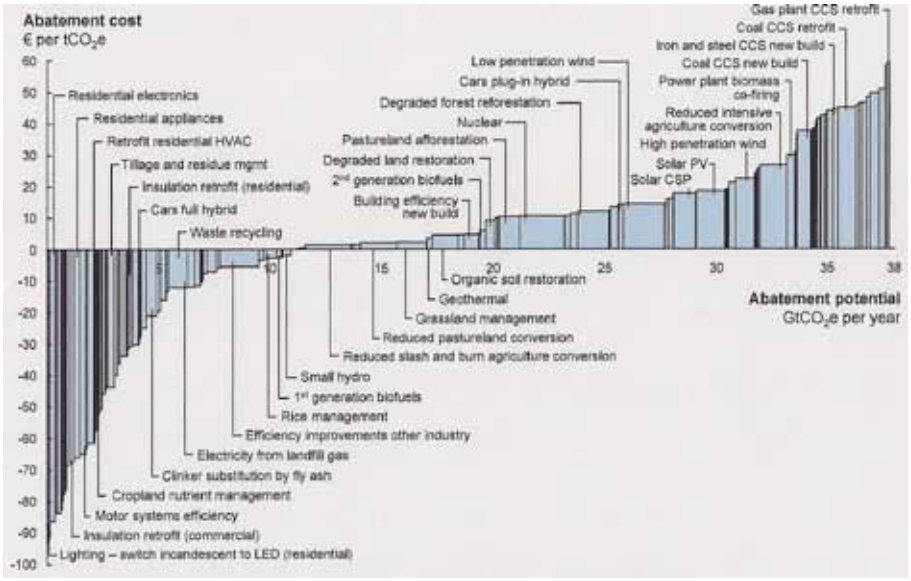
- calculation methods (do they reflect the Life-Cycle Costs or only the shorter pay-backs, what is the size of the discount rate and is it real societal rate or personal implicit rate).
- Performance of the technology and its maturity (over time)

There is less debate over **how** the potential should be realised. We must however consider that to release the potential, acceptance (by the actors) to make use of the technology and changes in installations is required. *The result equals potential multiplied by acceptance*.

Result = Potential * Acceptance

If the acceptance is low, the result is low even if the potential is huge!

Figure 3: Global GHG abatement cost curve beyond business-as-usual till 2030. The area with negative costs is mainly composed by energy efficiency measures. (Source: Pathway to a low-carbon economy. McKinsey and Company)



Learning makes the potential grow

A new technology coming to the market often has small chances to compete in terms of cost with the existing, incumbent technology. The innovators often have to concentrate on smaller niche markets where the customers have a higher willingness to pay. These niches are the thresholds to the bigger market acceptance. The buyers may favour new challenging technologies or have small opportunities to use the existing technology. Whatever the reason they have a higher willingness to pay and will then serve as "the horse before the cart".

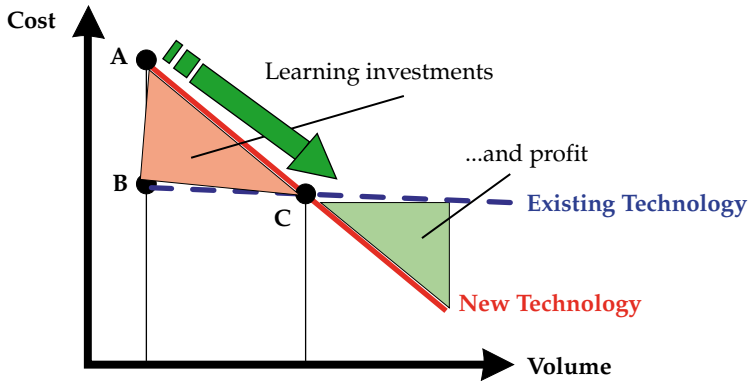
As the market builds up gradually the new technology however gets cheaper. Partly because of advantages of scale, but even more since the suppliers learn and their different brands of the technologies are developed. The phenomenon is described with the "Learning Rate" (LR), typically in the area of 15–20 %, which means that the

technology gets 15–20 % less costly to produce by each doubling of the accumulated market volume.[2]

The effect of the phenomenon is that future technology could be the cheaper in the long run, but is stopped in its infancy because of the short-run higher costs. It is actually possible to model different energy system futures with on one hand a traditional (business-as-usual) system that emits a lot of carbon and on the other hand a different "carbon-lean" system where the costs for the two systems are equal.[3] In the latter system new carbon-lean technology enters, grows and gets cheaper by the growing volume.[4]

The problematic difference between such systems is then not the costs per se, but the financing of the build-up period. There is a need to find "learning investments" to enable the new technology to reach a level when it can compete cost-wise on its own merits, see area ABC in figure 4. Such investments might technically be called "subsidies" in a budget, but are in reality investments in a future when the profit can be reaped.

Figure 4: Learning curve and learning investment that yield a profit once the "break-even" point (C) is passed. Financing is needed to "ride down" the learning curve.



Changing of an already changing landscape

The technology and the business are changing fast. We therefore have to keep a close eye on both what we can achieve in terms of energy efficiency and what tools we have at our disposal. Demand Side Management, DSM, traditionally works to make energy services more efficient in two ways:

- **The load level**, which means that we can both apply a *"strategic load reduction"* that enables us to get the same amount of service (light, heat, cooling, power) with less energy, and apply a *"strategic load growth"* that enables us to shift from use of a carbon-emitting supply to a carbon-lean supply without the loss of services (e.g. from fossil fuel-based supply to electricity from low-carbon sources)
- **The load shape**, which means that we can reduce the peaks and fill the valleys in the load curve over time (day, week, season) thereby strategically using the supply side resources better

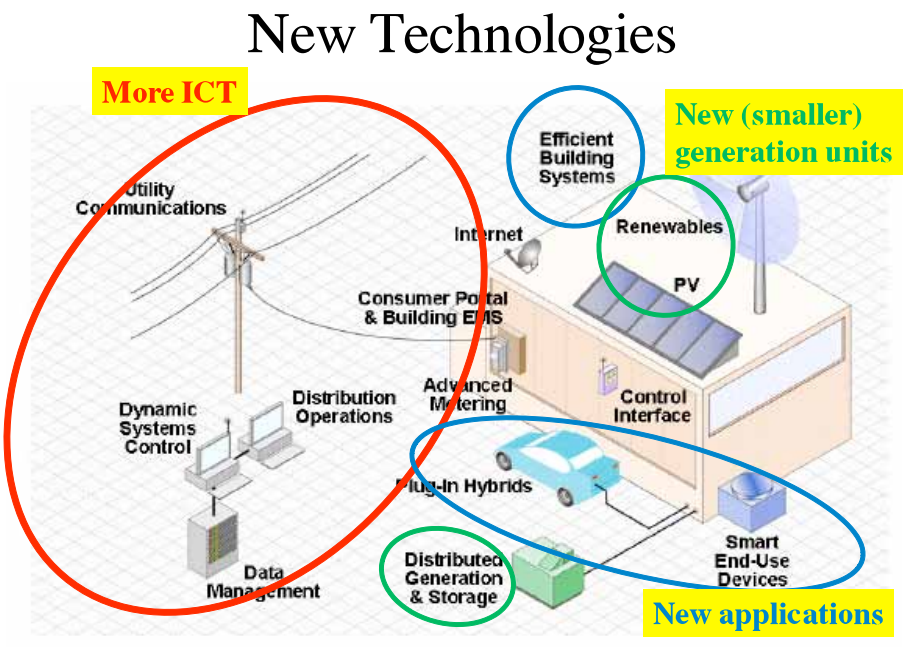
[2] http://www.iea.org/textbase/nppdf/free/2000/curve2000.pdf
[3] http://www.iea.org/textbase/nppdf/free/2000/creating_markets2003.pdf
[4] The Stern-review made use of this in their calculation that shows that the costs to safeguard against harmful climate change are smaller than those of the damages from the change.

The technology we can use and promote is changing in several aspects, as illustrated in figure 5:

- **"Intelligence",** with the use of ICT, Information and Communication Technology, the different links in the supply chain are getting "smarter". With new metering and communication, as well as computing facilities, a customer and a supplier can get and provide services that are much more designed to the purpose than it used to be. The smart grid is developing.
- **Size**, generation units, in particular, are developed to enable use of smaller and local resources for "distributed generation", be it wind, solar, biofuels etc. in a scale that also fits the service need and the customer preferences.
- **Application,** Just as intelligence is entering the supply side it is matched on the demand side in appliances that can operate more according to needs. Future vehicles may be in whole or in part supplied from the grid and also then be charged at times when it is most convenient for the system.
- **Business**, traditional supply side business has, because of the very nature of the technology, been "technology driven". Suppliers generated and distributed power from central stations to users whose need were pieces of equipment. Suppliers made power available to users.

The above changes in technologies may turn the business towards being "service-driven" according to the real needs (where needs are the services that the equipment provides) rather than to the availability.

Figure 5: Changes in technology gives new opportunities and new challenges



Source: An EPRI Initiative to Advance the Efficient and Effective Use of Energy

Deployment policies and measures

Pulling the pieces together we find that there are good chances to meet the demands to create a new energy system that both delivers better services, as required by the users, and emits less carbon, and that does so with good economy. The key issue is to speed up and scale up the deployment. There is however not one single trick that does the job. There are several and many of them have to be used and composed into orchestrated actions.

The IEA DSM-programme has worked with many of the measures and for several of the policy categories throughout the years. We stand prepared to develop them further.

Programme approaches

The measures to manage demand can be of many sorts as seen in the table 1. There are basically two main approaches, either to mandate (order) that something should be done or to make use of the market and the economic instruments. In reality most measures combine the two approaches.

Approach	Type		Example	
Mandated	Standards		• Minimum performance (MEPS) • Top-runner standard	
	"Agreed Actions"		• Voluntary Agreements • **Technology Procurements** (III)	
	Delegated Actions	By actor	• Regional bodies • **Municipalities** (IX)	
		By Means	• Commitments • **Certificates** (XIV) • **Portfolios** (XXII)	
Market Acceptance	Price-responsive customers		• Taxes; Tax reduction • **Price elasticity (Demand Response)** (II, VIII, XI, XIII, XIX)	• **Branding** (XX) • **Market Transformation** (V, VII)
	Non-price responsive customers	"Commoditising" energy efficiency	• **Energy Services, ESCO** (X, XVI) • Labels	

In addition to the Tasks mentioned in the table and that directly addresses the measures of the typology there are Tasks dealing with: *Evaluation and calculation* (I and XXI); *Planning and design of programmes* (IV, VI, XVIII) and *Impact on grid and systems* (XV, XVII)

Table 1: Measures, types and examples of Demand Side Management to improve energy efficiency. (In brackets number of IEA DSM-Programme Tasks that has dealt with the issue, see www.ieadsm.org)

It would be ideal if all customers were price-responsive, but since they are not, several instruments have been developed to make energy-efficiency more like a commodity (commoditising) and enable more rational choices.

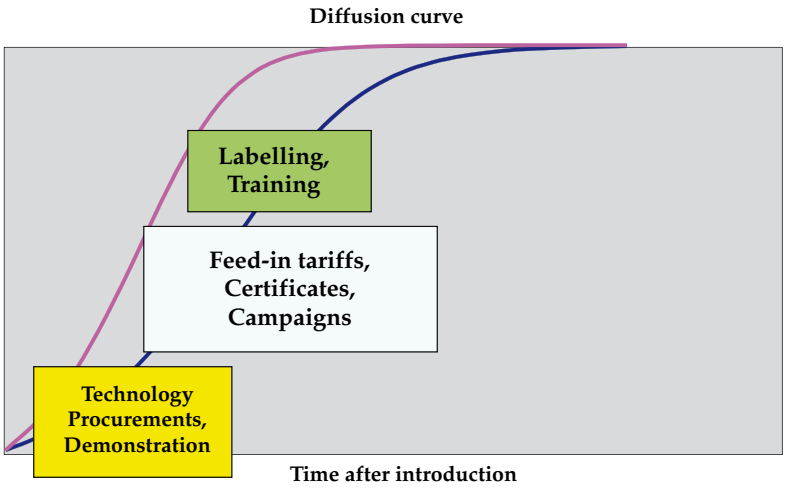
Mandating is typically used to give explicit information or explicit tasks about certain technologies and certain actors that should be activated, whereas the market acceptance is used when the object cannot be easily identified but the performance characteristic can be well defined.

Changing the marketplace[5]

The programmes mentioned can be combined in many different ways depending on what the programmes aim to achieve.

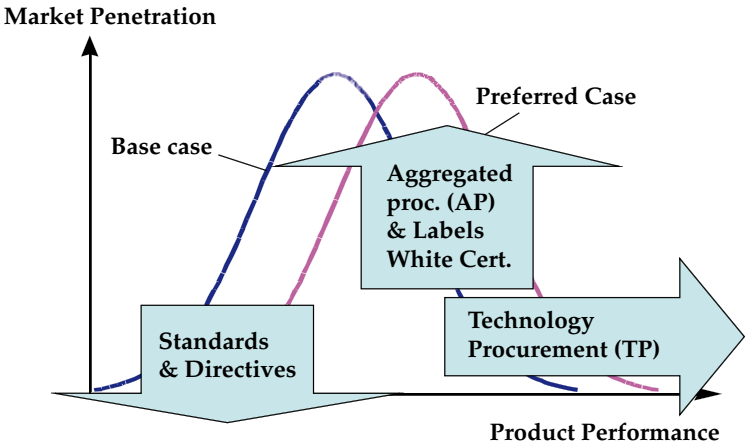
Diffusion of technology could be accelerated to the market by programmes that address different stages in the market uptake, see figure 6. These means could also affect the saturation level and lift the uptake and market penetration higher.

Figure 6: Means for accelerated diffusion to the market



The market benchmarks can be moved in a market transformation, see figure 7.

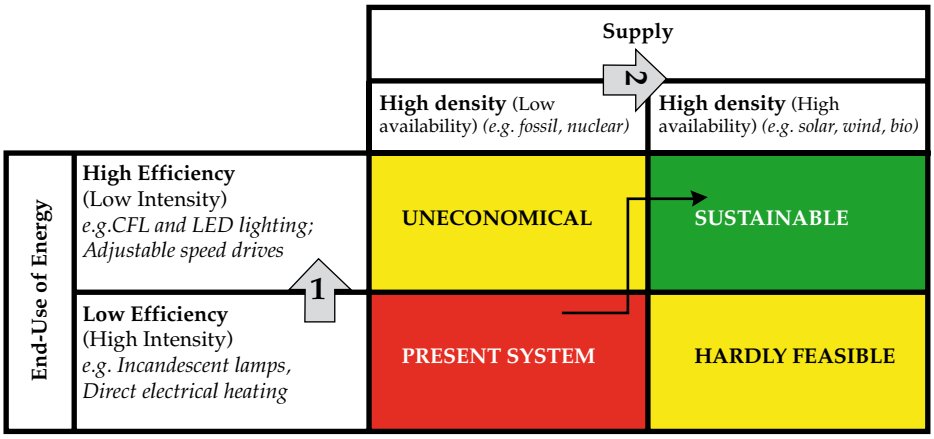
Figure 7: Market transformation requires that all ends of the market are affected.



Application of all these means for energy efficiency and for renewable fuels could in the end deliver a sustainable and robust energy system that makes full use of all its resources, see figure 8.

[5] See also http://www.iea.org/textbase/nppdf/free/2000/creating_markets2003.pdf

Figure 8: Towards a robust and sustainable energy system.



Highlights

One Task completed work in 2009. Highlights are presented below and additional details can be found in Chapter II:

Task XVI – Competitive Energy Services (Energy contracting, ESCo Services) (Phase I)

Task XVI Phase I, started in July 2006 and was finalised in June 2009.

In order to contribute to the market development of innovative and competitive energy services the objectives of the Task were:

- To initiate and support country specific activities for developing the market for competitive energy services (with a focus on individually selected market segments)
- To initiate and establish an IEA DSM Energy Services Expert Platform
- To design, elaborate and test innovative energy services and financing models (published as manuals or publications)
- To position the expert platform as a competence centre for energy services for international dissemination and assistance services (e.g. coaching, training courses, publications)

Key accomplishments included:

- Re-print of "Comprehensive Refurbishment of Buildings" book chapter (a key DSM publication)
- 6 energy service expert platform dissemination workshops were held in Brussels, Helsinki, New Delhi, Deventer, Graz and Vienna;

The Think Tank has worked on a variety of topics which have led to five key publications:

- "Financing Options for Energy-Contracting Projects"
- "Opportunity Cost Tool for Estimation and Visualization of Monetary Saving Potentials"
- "Comprehensive Refurbishment of Buildings through EPC"

- "Energy-Contracting: How much can it contribute to Energy Efficiency in the Residential Sector"
- "Integrated Energy Contracting. A new ESCo Model to Combine Energy Efficiency and (Renewable) Supply in large Buildings and Industry"

National Implementation activities were carried out according to the individual plans of country experts and activities were reported and reviewed at the platform meetings.

Achievements

The major accomplishments of the Tasks that were ongoing in 2009 are summarised below. Additional details can be found in Chapter II:

Task XVI – Competitive Energy Services (Energy Contracting, ESCo Services) (Phase II).

Task XVI Phase II, started in July 2009 and will be finalised in June 2012.Phase II will build on the objectives of Phase I.

The underlying goal is to increase understanding of Energy Contracting as a tool to implement energy efficiency projects: pros and cons, potentials, limits and added values of ESCo products in comparison to in-house implementation.

Benefits for the participating countries and the DSM Agreement will be:

- Enlarging the market for energy services;
- Participation in the IEA DSM energy services expert platform and communicating with external stakeholders;
- Mutual feedback, coaching and experience exchange for country specific market development activities (NIA's);
- Know-how and capacity building on innovative and competitive energy services and financing models from the Think Tank;
- EU countries can prepare for the EU-Directive on "energy end-use efficiency and energy services" and help closing the gap between policy targets and the "real world";
- Task XVI will play an active role in the international dissemination of competitive ES and offer assistance services for the market development in other countries, and
- Developing business opportunities for internationally acting ESCOs

Task XVII – Integration of Demand Side Management Energy Efficiency, Distributed Generation and Renewable Energy Sources – Phase II.

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

The first phase of the Task defined the state of the art of integration. This phase was finished in 2008. On the basis of the results of this phase, the second phase has been planned in 2009. The second phase will start in January 2010.

The main target of the second phase of the Task (Task extension) is to assess the effects of the penetration of emerging DER technologies to different stakeholders and to the whole electricity system. The emerging DER technologies to be discussed include:

- plug-in electric and hybrid electric vehicles (PEV/PHEV)
- different types of heat pumps for heating and cooling
- photovoltaic at customer premises
- micro-CHP at customer premises
- energy storages (thermal/electricity) in the connection of previous technologies
- Other technologies seen feasible in 10–20 years period, especially by 2020.

The main Subtasks are (in addition to Subtasks 1–4 in Phase one):

(b) *Subtask 5:* Assessment of technologies and their penetration in participating countries

(c) *Subtask 6:* Stakeholders involved in the penetration and effects on the stakeholders

(d) *Subtask 7:* Assessment of the quantitative effects on the power systems and stakeholders

(e) *Subtask 8:* Conclusions and recommendations

Task XVIII: DSM and Climate Change

This Task was declared in force in March 2008. Task work started in October 2008 and will be finalised in October 2010.

On a global basis, electricity production is estimated to contribute about 25% of the human-induced increase in greenhouse gas emissions. However, the IEA DSM Programme has not so far carried out any work on possible interactions between electricity DSM and GHG emissions.

Currently, DSM and emission mitigation measures are usually implemented quite independently.

- DSM measures are implemented primarily to assist and improve the operation of electricity systems. Any impacts (positive or negative) of DSM measures on climate change are very much a minor consideration, if they are considered at all;
- Efforts to mitigate GHG from electricity production have focussed on improving the efficiency of both electricity generation and end-use. However, emission mitigation measures focussed on increasing end-use efficiency, have usually not considered any benefits to the electricity system (e.g. peak load reduction) that might be gained through implementing the measures.

The overall aim of the Task will be to reconcile these two different approaches so as to identify areas and circumstances in which DSM can contribute to mitigating GHG emissions and emission mitigation measures can achieve benefits for electricity systems. The Task will then determine what is required to maximise the emissions reductions and electricity system benefits from these two types of measures

Key accomplishments in 2009:

- Development of two on-line case study databases, to store data for DSM projects and emissions mitigation projects;
- Completion of an extensive review of carbon accounting methodologies from around the world
- Completion of an initial analysis of the possible impacts of emissions reduction projects on electricity demand curves and the consequent benefits for the electricity systems; and
- Completion of reviews of three energy efficiency certificate trading schemes currently implemented in Australia and the long-running United Kingdom scheme under which electricity suppliers are obligated to carry out energy efficiency improvements in the residential sector.

Task XIX: Demand Side Management – Micro Demand Response & Energy Saving

Task XIX was initiated in January 2009 and will be completed in March 2010.

The Task will:

Investigate the implementation of TOU pricing, remote/automatic demand switching and energy use monitoring to define specific Demand Response and Energy Saving products. The Task will identify how these products can be delivered into the residential and SME sectors on a commercial basis, with a focus on the business case from the perspective of Energy Saving Service Providers and Demand Aggregators. Funding mechanisms and the provision of information and control(s) infrastructure will be studied and evaluated. The potential for Demand Response measures to contribute towards Supplier targets for energy savings and/or be viable for inclusion within White Certificate or Energy Saving Certificate trading schemes is an important consideration and will also be evaluated.

Task objectives are to:

- Define DR and Energy Saving products to meet System Operator, Supplier, Government and Customer requirements;
- Identify, develop and define packages of DR and energy saving service products for residential and SME customers, based on EUMF, TOU pricing and demand control to meet the above requirements;
- Develop mechanisms to deliver DR and energy saving service products;
- Evaluate how ESSP/DAG businesses can provide DR and energy saving service products for residential and SME customers;
- Develop ESSP/DAG routes to market for residential and SME customers;

- Make an overall assessment of common ground and technologies to be shared with smart metering infrastructure;
- Estimate incremental costs of implementation of product delivery systems; and
- Quantify the business case for the provision of DR and Energy Saving products.

During 2009 the following accomplishments have been achieved.

- In **Subtask 1** a data collection questionnaire was produced to collate background information on how the market structure in the participating countries affects the incentives for demand response and energy saving products to develop. Data collection sheets were completed by the participating countries and an analysis of the results shows significant different incentives between the participating countries, indicated that there will be no 'one size fits all' solution.
- In **Subtask 2** a data collection questionnaire was produced to collate information on energy end use consumption in the participating countries. Data collection sheets were completed in the participating countries and an analysis of results highlights a general shortage of data on end-uses of energy, particularly with regards to the pattern of electricity use by time of day and time of year. This makes it difficult to assess how much load is available for demand response programs on any given occasion.
- In **Subtask 3** a range of delivery mechanisms that can be used as part of demand response and energy saving schemes with small consumers were considered. The schemes considered are broken down into two main categories: Energy Saving and Demand Response schemes. The study highlights that different stakeholders have different drivers for implementing demand response and energy saving program's, which could impact on other stakeholders. The extent to which there is commonality between different industry stakeholders depends on the market structure and the participants' drivers.

Task XX – Branding of Energy Efficiency Services

The Task was initiated in January 2009 and an Experts meeting was held in December 2009, to launch the Task.

The primary motivation for undertaking a Task on this topic is to:

"Develop a cogent and comprehensive framework for promotion of branding of energy efficiency in electricity markets at different levels of maturity".

The Task will:

- Identify knowledge and attitude of private households in developing electricity markets;
- Identify best practices in definition of suppliers of energy efficiency products and services;
- Identify the potential for energy efficiency products and services in other energy consuming sectors such as agricultural, industrial & commercial, etc.;

- Identify the potential for a programmatic approach towards energy efficiency, and
- Identify the barriers to branding of energy efficiency.

Work will focus on three levels of branding: (1) products/services and suppliers; (2) consumers; and (3) strategies.

Expected results will include:

- Analysis of energy efficiency products and important aspects of the energy efficiency value chain.
- Knowledge of possible products and services most suitable for branding based on the market segment from the consumers' perspective.
- Understanding of the relationship between energy efficiency products pricing and maturity of the electricity market and also between electricity price and energy efficiency pricing.
- Branding strategies deployed by the products and services similar in nature to energy efficiency based on the research carried out in the various participating countries
- Access to information about best practices in branding of energy efficiency in four aspects (products, services, programs and companies)
- Regular briefings on dealing with branding strategies and sharing international perspectives

Task XXI – Standardisation of Energy Savings Calculations

The Task was initiated in April 2009 and will be finalised in April 2011. The Task is currently being established and is open for participation.

The overall aim of Task XXI is to identify basic concepts, calculation rules and systems for Energy Savings Calculations (ESC) standards. Additionally a methodology will be developed to nominate and describe the several Demand Response products. Within this framework of basic concept and calculation rules, the relationship to reduction of the environmental impacts in greenhouse gas emissions from energy savings will also be incorporated. The Task will also explore how and by what type of organisations these standards could be used and improved to increase international comparable evaluation of policies and measures.

Three primary objectives for the Task are:

- Summarise and compare the current methods and standards used for determining energy use, energy demand and energy and emissions savings from energy efficiency actions and policies;
- Identify the organisations that are and could be responsible for use and maintenance of such methods and standards; and
- Recommend how existing methods, standards and resources can be expanded and/or used for comparing different countries' and international efficiency policies and actions.

While this project may recommend future efforts to develop international energy efficiency EM & V standards and/or resources, this Task does not involve efforts to produce harmonised standards among the countries involved with this Task.

Work in preparation

Task XXII – Energy Efficiency Portfolio Standards

Task XXII was initiated in October 2009 and is open for participation.

Energy Efficiency is continually being acknowledged as an important tool to address the issue of climate change by reduction in GHG emissions. As a result, many countries have set policy targets for reducing emissions and have identified energy efficiency as one of the measures. To achieve these targets for energy efficiency, the countries have introduced various policies and programmes targeting different sectors such as appliances, buildings, industries, etc. These include a wide range of instruments such as regulatory directives, voluntary agreements, incentives or subsidies, financing options, education and outreach, etc. Such policies and programmes have evolved over a period of time to cater needs as and when these arise. As a result, these programmes tend to have their own objectives and implementation mechanisms. While a number of these programmes have been successful in realising their objectives, in the absence of unified approach, their full potential is often not realised. Further, as these programmes respond to their own incentive mechanisms and subsequently adhere to their own monitoring and verification protocols, it is difficult to quantify total energy efficiency savings which is crucial from the Government's perspective. In order to overcome the existing barriers for energy efficiency programmes and realise its true potential, it is important that a coherent approach that encompasses all the efforts to implement these measures is undertaken.

To address this issue, several states in the United States and European countries have adopted Energy Efficiency Portfolio Standards (EEPS) like programmes as part of their efforts to mobilise energy efficiency improvements. While these programmes have gain momentum in the recent past, wide differences exists in their design and implementation. As a result, these programmes have also met with varying degree of success. Further, there exists tremendous potential for implementation of such programmes in many participating countries.

Most recently, the European Commission has proposed to set binding energy efficiency targets for Member States. In its draft, entitled "7 Measures for 2 Million New EU Jobs", it is acknowledged that the member States won't be able to achieve the 20% goal of cut energy usage set for 2020, but only 11%. The Commission has expressed its intention to propose a directive providing for a binding obligation on Member States in line with the agreed 20 % energy savings objective, subject to further assessment of its impacts and in particular the need to ensure that such obligations are designed in a manner that are compatible with the effective operation of the EU's ETS scheme and the Effort Sharing Decision for the non-ETS sector. The focus of Commission's impact assessment is on the following aspects:

- Such a legally binding target might be sector specific or be general in scope, covering all aspects of the economy

- The nature of a possible general energy efficiency target i.e. physical limit on the energy that each Member State could emit by 2020, or a target based on savings compared to projected energy consumption
- The need for burden sharing measures adapting the target to each Member State

In view of the above, the *primary objective of Task XXII is* **'Development of a Best Practices Guide for Design, Development, Implementation and Monitoring of Energy Efficiency Portfolio Standards**'.

Advanced Lighting

Lighting programmes have been a focus for DSM activities for a long time. In climate related work and in work related to rural electrification in the third world, 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. Work continues to identify an appropriate Task on Advanced Lighting.

Visibility

Maintaining and increasing visibility of the Programme among its key audiences continues to be a major activity of the Executive Committee. The principal tools available at present are the website, the Annual Report, the Spotlight Newsletter, the Programme Brochure and Task flyers.

The Annual Report for 2008 was produced and distributed to approximately 350 recipients in January 2009. It pulled together in one substantial document overviews of the Programme's activities and details on each of the individual Tasks.

Beginning in 2004, the Spotlight Newsletter was produced in electronic format only, designed as a printable newsletter. It is distributed by e-mail to a wide list of contacts. Executive Committee members forward the newsletter to those national contacts that used to receive the printed version or they print and distribute hard copies. Four issues were produced in 2009 which included articles on:

Issue 32 – January 2009

- White Certificates. Italy: What's new after four years of operation?.
- Australia: States take the lead.
- Task XV: Reports are bestsellers.
- Proposed work: Preparing the carbon future.
- Task XVI: Comprehensive refurbishment of buildings with energy services
- New Task: Standardisation of energy savings calculations

Issue 33 – April 2009

- Standardisation of energy savings calculations: Higher on the IEA agenda.
- Case study: Automated demand response system pilot – California, USA.
- Energy efficiency first! – Integration of demand side measures into energy supply contracting models.

Issue 34 – July 2009

- Task XIX: DSM for small consumers.
- Case study: ETSA utilities air conditioner direct load control program Australia.
- Task XVII: Integration of demand side management, distributed generation, renewable energy sources and energy storages.
- Note from the Chairman: Timing is never right.

Issue 35 – December 2009

- Note from the Chairman: Wonderful Copenhagen?
- Task XX: DSM starts work on energy efficiency branding.
- Task XXII: Energy efficiency portfolio standards.
- DSM: Programme covers a lot of ground.
- Case study: Agricultural pump set efficiency improvement programme – India.

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 second flyer is produced highlighting the results and directing the reader to the Task products.

The website (www.ieadsm.org) continues to serve as a vital window on the Programme's activities. Analysis of visits to the site shows a worldwide readership. In 2006 a complete new layout of the DSM website was put in place. During 2007, 2008 and 2009 additional developments have been made to the website and further improvements on the content have been made.

Participation in the IEA DSM Programme as of December 2009

Country	Task I		Task II	Task III	Task IV	Task V	Task VI	Task VII	Task VIII	Task IX	Task X	Task XI	Task XIII	Task XIV	Task XV	Task XVI	Task XVII	Task XVIII	Task XIX	Task XX	Task XXI	Task XXII
	ST 8	ST 9	compl.	compl.	compl.	compl.	compl.	compl.	compl.	compl.	compl.	compl.	compl.	compl.	compl.							
Australia	compl.	compl.	✿		✿		✿						✿		✿		✿	✿				
Austria					✿					✿	✿					✿	✿					
Belgium	✿	✿					✿									✿						
Canada		✿	✿										✿									
Denmark	✿	✿		✿	✿		✿	✿				✿	✿									
European Commission				✿		✿	✿		✿					✿								
Finland			✿	✿	✿	✿	✿	✿	✿		✿	✿	✿			◆	✿		✿		✿	
France	✿	✿	✿		✿		✿			✿				✿	✿		✿	✿	✿	✿		
Greece							✿		✿		✿	✿							✿			
India															✿	✿		✿	✿	✿		✿
Italy		✿	✿		✿						✿		✿	✿			✿					
Japan	✿		✿		✿		✿				✿		✿			✿						
Korea	✿	✿		✿	✿		✿	✿					✿				✿				✿	
Netherlands	✿	✿	✿	✿	✿	✿	✿	✿	✿	✿	✿	✿	✿	✿		✿	✿		✿		✿	
New Zealand															✿							
Norway	✿		✿		✿	✿	✿		✿		✿		✿	✿							✿	
Spain			✿	✿	✿	✿	✿		✿	✿		✿	✿		✿	✿	✿	✿	✿	✿	✿	
Sweden	✿	✿		✿	✿	✿	✿	✿	✿	✿	✿	✿		✿								
Switzerland			✿		✿																✿	
United Kingdom			✿	✿	✿		✿	✿	✿			✿		✿					✿			
United States	✿			✿	✿						✿		✿		✿		✿			✿	✿	
World Bank/ Tanzania						✿																

✿ Operating Agent and participating country ◆ Co-operating Agent and participating country Completed Tasks ✿ Participating country

ST = Subtask

Benefits of participation

- **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 standardization**. Collaborative work encourages the use of standard terminology, notation, units of measurement, while also encouraging the portability of computer programs, and common methodology, procedures and reporting formats make interpretation and comparison easier.
- **Accelerates the pace of technology development**. Interaction among project participants allows cross-fertilization 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.

The IEA DSM Programme provides an international platform of work. This is the only international organization that addresses management of energy on the demand side of the meter in a collaborative manner.

Reflects latest trends and issues

New areas of work are continually added to the Programme's scope to address changes in the energy market.

Enables complex and/or expensive projects to be undertaken

Collaborative projects allow countries to undertake projects that otherwise would be prohibitive due to lack of expertise and/or resources.

Saves time and money

Countries fund a portion of the international team's work, but have access to all project results.

Creates important networks

Specialists active in Demand Side Management, Demand Response, and Energy Efficiency, have the opportunity to work with other key experts from around the world.

Increases the size of the technology database

Collaboration among multiple countries creates a pool of information much larger than a single country could assemble by itself.

Permits national specialization

Countries can focus on particular aspects of a technology's development or deployment while maintaining access to the entire project's information.

Promotes standardization

Encourages the use and diffusion of standard terminology, notations, units of measurement, methodologies, and procedures and reporting formats to make interpretation and comparison easier.

To learn more

Visit the IEA DSM Programme web site www.ieadsm.org, to view:

- Project publications – handbooks, guidelines, technical reports and data bases
- IEA DSM newsletter, Spotlight
- IEA DSM Annual Report
- Contact information
- Conferences, workshops and symposia

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 Programme**
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

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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The efforts of the following people continue to be essential to the Programme's success. The Operating Agents who are identified in Chapter III, the Executive Secretary, Anne Bengtson, the Newsletter Editor, Pam Murphy, and the Webmaster, Solstice Associates Limited.

CHAPTER II

Task XVI: Competitive Energy Services (Energy Contracting ESCo Services)

Operating Agent: DDI Jan W. Bleyl-Androschin, Graz Energy Agency, Austria

Introduction

Task XVI started operation in 2006 and was extended for another 3 years until June 2012. Participation in the Task is open for 1–2 additional countries. This annual report focuses on content and key results of the Task work. A summary activity report is given in the last section.

Towards the Energy Policy Goals

The success of further increasing energy efficiency in all sectors of consumption plays a vital role in coping with the challenges of our common energy future. Avoiding energy consumption by increasing end-use efficiency is a highly effective way to meet all three key targets of energy policies: Security of supply, affordable costs of energy services and environmental soundness.

Energy Efficiency has finally found its way up on the political agendas over the course of the last few years. Worldwide, concrete saving targets have been declared (e.g. the EU strategy "20-20-20 by 2020" concluded by the EU heads of state at their 2007 summit).

But what are the appropriate instruments to bring energy efficiency to the end-user? One of the most urgent energy policy and energy economics challenges continues to be the search for suitable "tools" to execute energy conservation potentials. The level of success is far from satisfactory as the continuous increase in final energy consumption reveals. Now and for the foreseeable future there is an urgent need to conclude and support all suitable political, regulatory and market based instruments for the implementation of Energy Efficiency and Renewables.

Energy Contracting – also labeled as ESCo or Energy Service (ES) – is a many times proven DSM instrument to implement energy efficiency measures for lighting, heating, ventilation and air-conditioning (HVAC-technologies) or even comprehensive refurbishment of buildings. An Energy Service Company (ESCo) takes over the technical and commercial implementation and operation risks and has to guarantee for it's cost and results. ESCo services are particularly well suited to implement innovative energy technologies and renewable energy systems.

The ESCo industry is an expanding business throughout the world contributing to the improvement of energy efficiency, control of energy costs and reduction of greenhouse gas and other emissions. The models of offering these services can get various forms like Energy Supply Contracting (ESC) or Energy Performance Contracting (EPC) resulting in diverse contract models and financing arrangements.

Task XVI serves as a research and expert platform, while national experts carry out individual national implementation activities. The results of Task XVI are discussed and disseminated in a series of stakeholder workshops, publications, presentations at conferences and workshops.

Objectives and Expected Results

In order to contribute to the future market development of Energy Contracting the objectives of Task XVI are:

- To establish an IEA DSM energy services expert platform;
- To design, elaborate and test innovative energy contracting and financing models and publish them;
- To support and follow up country specific activities to disseminate and implement energy services in the market;
- To position the expert platform as a competence centre for energy services for international and national dissemination and assistance services (e.g. coaching, training courses, publications) and to contribute to an "IEA DSM Centre of Excellence".

The underlying goal is to increase understanding of Energy Contracting as a tool to implement energy efficiency projects: Pros and cons, potentials, limits and added values of ESCo products in comparison to in-house implementation.

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

- Enlarging the market for energy services
- Participation in the IEA DSM energy services expert platform and communicating with external stakeholders
- Mutual feedback, coaching and experience exchange for country specific market development activities (NIA's)
- Know-how and capacity building on innovative and competitive energy services and financing models from the Think Tank
- EU countries can prepare for the EU-directive on "energy end-use efficiency and energy services" and help closing the gap between policy targets and the "real world"
- Task XVI will play an active role in the international dissemination of competitive ES and offer assistance services for the market development in other countries
- Developing business opportunities for internationally acting ESCOs

Structure and Methodologies of Task XVI

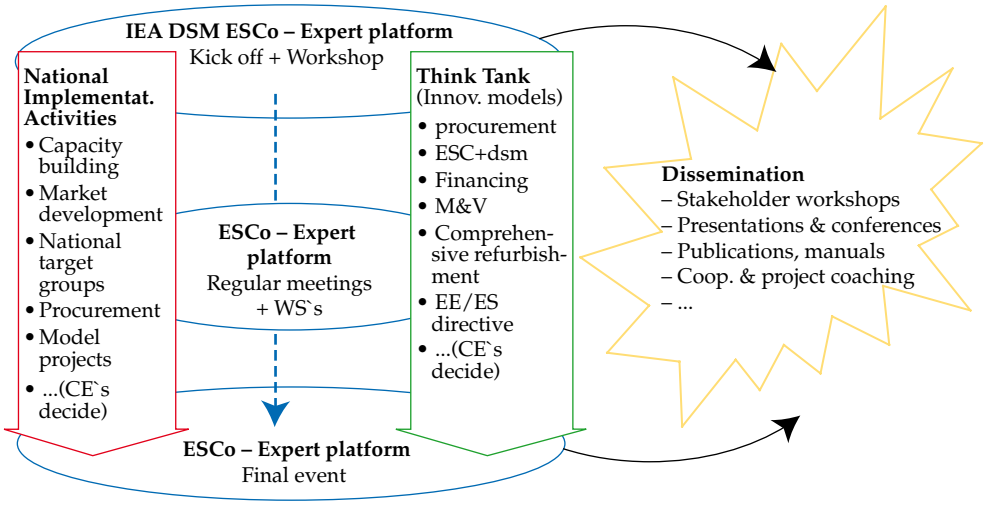
To achieve the project goals, the Task XVI Work Plan consists of four main components:

IEA DSM energy services expert platform (ES-platform, subtask 3)

- Innovative and competitive energy services think tank (Think Tank, subtask 4)
- National implementing activities (NIAs, subtask 5)
- International dissemination activities (subtask 6)

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

IEA DSM Task XVI-Extension: Structure and work packages



In the right pillar, the national implementing activities (NIAs), market development and capacity building activities take place according to the individual needs and resources of the participating country. In the left pillar, the "Think Tank", the experts will follow new developments and elaborate innovative energy service models according to the needs of the participating countries.

The IEA DSM Energy Services Expert Platform (ES platform) serves as the link between the two pillars, as the communication tool internally and externally and as a stage for developing services like coaching and training for the outside world (towards a "Centre of Excellence").

Of particular importance to understand and advance ESCo services is an interdisciplinary approach: Besides technical issues, economic, financial, organizational and legal aspects of energy service packages need to be investigated and accounted for.

Task XVI brings together 9 ESCo experts from currently five countries around the world, who join forces to advance ESCo models and markets. The background of the participating experts is a combination of either ESCos representatives (3), TSO (1), energy agencies (who serve as independent market facilitators and researchers) (3) or consultants (2).

The author wishes to thank the IEA participating countries and their respective financiers and the Austrian Federal Ministry of Transport, Innovation and Technology for their financial support within the framework of the IEA research co-operation.

What is Energy-Contracting (ESCo Service)

We focus on some key features here, assuming that the reader has a basic knowledge of the Energy-Contracting (EC) concept and building energy efficiency.

Most existing EC definitions[6] fall short with regard to important properties of "real" EC projects such as outsourcing of risks to the ESCo, guarantees for "all inclusive" cost and results of the measures implemented, modularity of the service package or optimization according to project cycle cost. These features constitute important quality attributes of "real" ESCo products as opposed to simple energy services. And they constitute an added value compared to in-house implementation models.

Also the two basic business models – either delivery of useful energy (Energy Supply Contracting - ESC) or energy savings (Energy Performance Contracting - EPC) and their implications are not distinguished well enough. Also the modularity of the components of an ESCo service according to the needs of the customer deserves more attention.

Definition and Concept

In a narrow sense we define Energy-Contracting as:

> *„Energy Contracting – also labeled as ESCo or Energy Service – is a comprehensive energy service concept to execute energy efficiency projects in buildings or production facilities according to minimized project cycle cost.*
>
> *An Energy Service Company (ESCo) implements a customized energy service package (consisting of planning, building, operation &maintenance, optimization, fuel purchase, (co-)financing, user behavior …). The ESCo provides guarantees for all inclusive cost and results and takes over commercial and technical implementation and operation risks over the whole project term of typically 10 to 15 years (after [Bleyl+Schinnerl 2008][7])*

The Energy-Contracting concept shifts the focus away from selling units of final energy (like fuel oil, gas or electricity) towards the desired benefits and services derived from the use of the energy, e.g. the lowest cost of keeping a room warm, air-conditioned or lit.

Energy Contracting (EC) is not about any particular technology or energy carrier. Instead EC is a flexible and modular "efficiency tool" to execute energy efficiency projects, according to the goals of the facility owner. It is an instrument to minimize life- or project cycle cost,[8] including the operation phase of the building. The ESCo acts as coordinator and manager of interfaces towards the customer and has to deliver the commissioned energy service to the customer at "all inclusive" prices as displayed in Figure 2.

ESCo products provide either useful energy (Energy Supply Contracting – ESC) or energy savings (Energy Performance Contracting – EPC) to the end user. And they achieve environmental benefits due to the associated energy and emission savings as well as non-energetic benefits such as increase in comfort or image gains.

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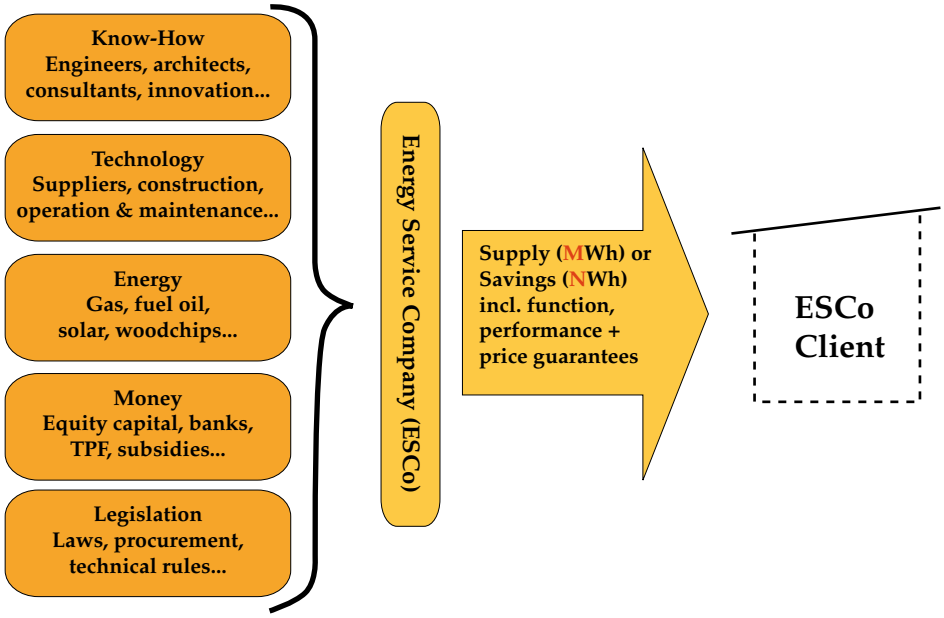
[6] cf. [2006/32/EC], [Bertholdi et.al. 2007], [CEN/CLC/TF 189], [DIN 8930-5], [GEFMA 540], [UZ 50], [VDMA 24198] this list is not exhaustive

[7] Bleyl, Jan W.; Schinnerl, Daniel "Energy Contracting" to Achieve Energy Efficiency and Renewables using Comprehensive Refurbishment of Buildings as an example in: Urban Energy Transition edited by Peter Droege, Elsevier 2008

[8] Here the sum of investment, operation and maintenance cost over the project term, also labeled as total or life cycle cost. E.g. capital-, consumption- and operation cost according to [VDI 2067] or [ÖNORM M 7140]

At Energy Supply Contracting efficient supply of useful energy such as heat, steam or compressed air is contracted and measured in Megawatt hours (MWh) delivered. The model usually includes purchasing of fuels and is comparable to district heating or cogeneration supply contracts. The scope of energy efficiency measures is limited to the energy supply side, e.g. the boiler house.

Figur 2 Energy Contracting: Components of service package and outsourcing of interfaces and guarantees to an ESCo



As for Energy Performance Contracting, the focus is on reducing final energy consumption through demand side energy efficiency measures. The scope is extended to the entire building including measures such as technical building equipment (e.g. HVAC), user behavior or the building envelope insulation as indicated in Figure 3. The business model is based on delivering savings compared to a predefined baseline, also labeled as Negawatt hours (NWh).

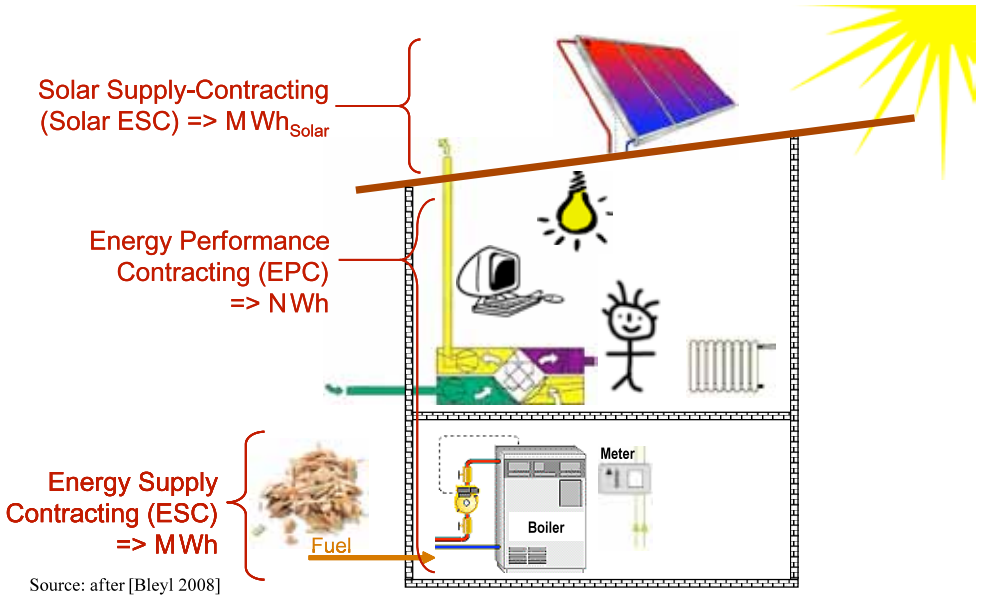
Two Basic Business Models

Two basic business models can be distinguished, cf. Figure 3

- At **Energy Supply Contracting** (ESC) efficient supply of useful energy such as heat, steam or compressed air is contracted and measured in Megawatt hours (MWh) delivered. The business model usually includes purchasing of fuels and is comparable to district heating or cogeneration supply contracts. The scope of energy end-use efficiency measures is usually limited to the energy supply side of the building or enterprise, e.g. the boiler room. It can also be applied to energy supply from renewable sources, e.g. solar ESC.
- As for **Energy Performance Contracting** (EPC), the focus is on reducing final energy consumption through demand side energy efficiency measures. The scope is extended to the entire building or enterprise including measures such as technical building equipment, user behavior or the building envelope insulation as indicated in Figure 3. The business model is based on delivering savings compared to a predefined baseline, also labeled as Negawatt hours (NWh).

Figure 3 illustrates the typical scope of services of the above mentioned Energy-Contracting models.

Figure 3 Scope of services of two basic ESCo models



Source: after [Bleyl 2008]

Most ESCo products are based on either one of the above business models.

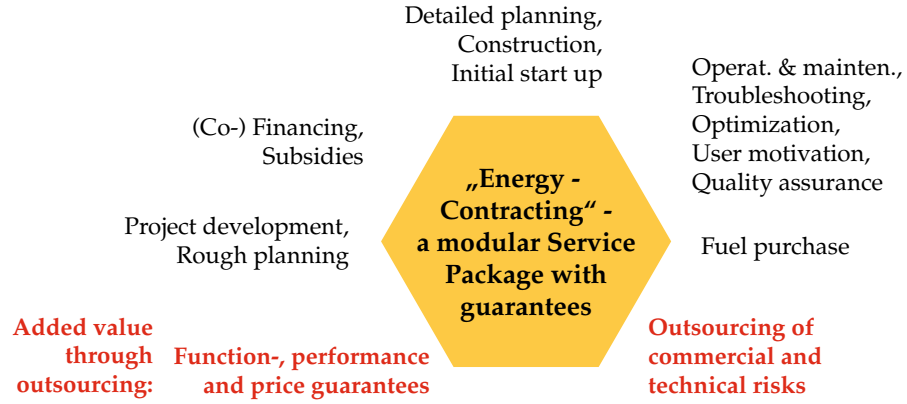
Modular Scope of Services

Most energy efficiency projects differ in their contents and general conditions. Therefore, it has proved to be necessary and sensible to adapt the scope of services specifically to the individual project. This also means the building owner can – depending on his own resources – define what components of the energy service will be outsourced and which components he or she carries out in-house (e.g. financing[9] or ongoing on-site maintenance provided by a caretaker).

The necessary components for implementing energy (efficiency) projects are summarized in an energy service package with result guarantees given to the client as displayed in Figure 4.

[9] In contrast to widespread opinions, the ESCo service package does not automatically need to include financing. Financing can be provided by the building owner, the ESCo or a third financing partner, depending on who can offer the better conditions. In any case, the ESCo can be used as a vehicle and facilitator for financing. This topic has been elaborated in more detail in [Bleyl+Suer 2006] or [Bleyl+Schinnerl 2008a].

Figure 4 Energy Contracting: A modular energy service package with guaranteed results for the client



Source: after (Bleyl+Schinnerl 2008)

All the tasks shown in the figure, such as planning, construction and financing, as well as all the ongoing components of the service, such as operation and maintenance, optimization, purchasing of fuel and quality assurance, have to be covered by the building owner or the ESCo throughout the contractual period.

In the ESCo's prices, all the expenditure items for the defined scope of services throughout the contractual period must be included ("all inclusive prices"). Correspondingly, project or life cycle costs (LCC) are calculated at the Energy Contracting model.

The functional, performance and price guarantees provided by the ESCo and the outsourcing of technical and economic risks to the ESCo constitute an added value for the client, which should be considered at the comparison with an in-house implementation.

Think Tank Key Results 2009

The Think Tank has worked on a variety of topics, which have led to publications and presentations at various national and international events. The following subchapters provide abstracts of the publications of the Think Tank topics. For more details on the topics, please refer to the complete publications.

"Energy Contracting: How much can it contribute to Energy Efficiency in the Residential Sector?" (Abstract)

Transaction and Life Cycle Cost Analyses, Market Survey and Statistical Potential

German statistics count 39,3 Mio apartments in the residential sector with a rental share of 59,4 %. Energy use for space heating and warm water in residential buildings accounts for more than a quarter of the final energy consumed in Germany. Yet, energy efficiency (EE) is not a priority for most building owners. At the same time Energy Contracting (EC) as a market based instrument to access saving potentials has climbed high on political agendas and has even reached the headlines of EE-legislation [2006/32/EC]. But the realistic potential, the limits and obstacles of Energy Service Company (ESCo) products in the residential sector are not well enough understood yet, as the limited market success and repeated statements by different stakeholders tell us.

Answers to these questions are thought in a recently completed research study for the German government. We have undertaken a conceptual analysis of Energy Supply Contracting (ESC) as the market prevailing product as well as an economic analysis of transaction cost and a life cycle cost comparison between in-house and ESCo implementation. The results are compared with the empirical data of a comprehensive market query, interviews and workshops with stakeholders and case studies. Last but not least, we studied statistical housing data to estimate suitable ESCo market potentials in the residential sector.

In this paper, we do not address legal obstacles and the split incentive dilemma, constituted by the lack of a reliable legal framework for the implementation of ESCo projects (for more details, please refer to [Eikmeier et al., 2009][10]).

Over the range of 30–1,000 kW_{therm} installations, the life cycle cost comparison reveals no significant cost advantage for ESCo compared to in-house projects. We found a cost effective minimum project size of 100 kW_{therm} for ESC-projects, derived from transaction cost accrued to implement ESC projects. This figure is confirmed by the market query.

The market query has further revealed around 250 ESCos, whose dominant product in the residential sector is Energy Supply Contracting. Based on their specialized know how, competent ESCos achieve an average efficiency gain of around 5 %. They are more likely to implement innovative and renewable technologies. Although there is still a lack of market data, it can be implicitly derived from other market data and results of our query that the actual market coverage for ESC in the residential sector is between 10 and 20 %.

In the German residential sector, a market potential of 12.3 TWh/a is considered "preferentially suitable" for ESC: This accounts for only 5.6 % of the total statistical demand. An additional, "conditionally suitable" potential amounts to 102.0 TWh/a, mainly limited by small size of the buildings. We conclude that the Energy Contracting potential for the residential sector is confined by three major restrictions (in addition to the lack of a suitable legal framework):

- Due to transaction costs the EC market potential is restricted to project exceeding about 100 kW_{th} in the residential sector.
- Furthermore, with ESC as the prevailing ESCo product in the residential sector, efficiency gains are restricted to the boiler room. Thus savings are limited to around 20 % compared to existing (or 5 % compared to new in-house) installations, whereas the energetic saving potential of the typical building is typically twofold.
- The case for EC can not be built on cheaper cost primarily or other classical outsourcing arguments. Advantages of Energy Contracting can rather be found in the field of outsourcing of technical and commercial implementation and operating risks to the ESCo as well as takeover of function, performance and price guarantees by the ESCo. And if innovative technologies are on demand. Only if these features are perceived as added value by the customers, more EC-products will be able to penetrate the market.

[10] Eikmeier, B., Seefeldt, F., Bleyl, J. W.; Arzt, C.: Contracting im Mietwohnungsbau Abschlußbericht, Bonn April 2009.

We recommend EC product standardization to access the "conditionally suitable" market. Additional efficiency potentials of typically 20–50 % can only be tapped, if demand side building technologies, building envelope (e.g. building insulation, improved glazing) and targeting user behavior are integrated into energy service schemes. This could be achieved either by in-house implementation and/or innovative energy service models such as the Integrated Energy Contracting model [Bleyl 2008]. And off course the legal barriers need to be addressed.

This development requires „educated" customers to demand qualified energy services in the market. Residential building owners or more likely independent facilitators need to learn how to procure ESCo services with guaranteed results. And there is a need to finance this project development process through public money or energy efficiency funds.

This publication was produced in cooperation with Energetic Solutions, building on a project for the German Government [Eikmeier et al. 2009].

"Integrated Energy Contracting. A new ESCo Model to Combine Energy Efficiency and (Renewable) Supply" (*Abstract*)

One of the most urgent energy policy and energy economics challenges continues to be the search for suitable "tools" to execute energy conservation potentials. The level of success is far from satisfactory as the continuous increase in final energy consumption reveals. Since the mid of this decade, Energy Services have climbed high on political agendas and have even reached the headline of energy legislation [2006/32/EC].[11]

"Energy Contracting" (EC) is cited many times as a smart multi-purpose-instrument, which will help to overcome market barriers for Energy Efficiency (EE). While a number of obstacles can be overcome with the EC concept, the realistic potentials, the pros and cons, the limits and added values of ESCo products in comparison to in-house implementation need further clarification.

Energy Performance Contracting (EPC) projects, if implemented properly, have successfully delivered guaranteed energy savings of 20 % and above since they were first introduced in Europe around 1995. Nevertheless, their share in the ESCo market is around 10 % only and market diffusion is essentially limited to the public sector and spread very unevenly throughout Europe.

Besides requiring dedicated and persevering project developers, the EPC model itself imposes obstacles from a methodological point of view, especially if the cost baseline is difficult to determine or if adjustments of the baseline are necessary due to changes in utilization of the building or enterprise. As a consequence, transaction cost of EPC projects are particularly high, resulting in minimum energy cost baselines of 100.000 □/a and above. Also the ESCo's risks associated with the EPC savings guarantee may imply considerable safety surcharges.

The latter problems are not encountered with the Energy Supply Contracting (ESC) model, because no baseline is needed to measure savings. Further on, the ESC-model is also common in other end-use sectors such as industry or housing. The short fall

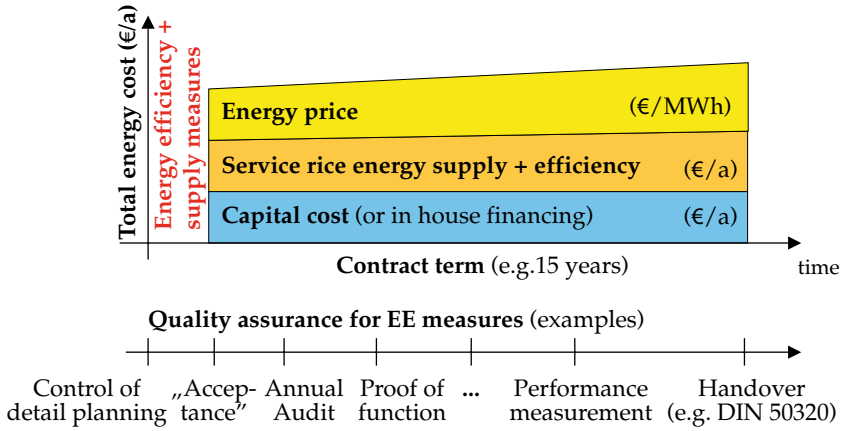
[11] Directive of the European Parliament and of the Council on Energy End Use and Energy Services, *2006/32/EC as of 5 April 2006*.

is, that the scope of ESC measures is typically limited to the energy supply side, not covering demand reductions in the building or the production process itself.

This contribution is on advancements of the ESC model. The objective is to enhance the scope of services by integrating demand side conservation measures in the fields of building technologies, building envelope and user behavior.

An important issue is the discussion of suitable quality assurance and performance verification instruments for the EE-measures implemented as a substitute for the EPC-savings guarantee. As a result we propose an Integrated Energy Contracting (IEC) model to unite energy conservation and (renewable) energy supply into an integrated approach. The concept of the IEC business model including quality assurance is displayed in Figure 5.

Figure 5 Integrated Energy Contracting Model with quality assurance instruments (examples) to combine energy efficiency and supply



Besides discussing the new IEC model, we present experiences from pilot projects procured by Landesimmobiliengesellschaft Steiermark (Real Estate Company of the State of Styria), Austria. The building owners retrofit goals, the procurement and awarding criteria applied and first project results.

Experience from up to now eight projects has proven the feasibility of the IEC model. In addition to competitive energy prices, energy end-use savings of up to 30 % heat, 12 % electricity and 20 % water consumption have been achieved by integrating demand side measures (e.g. controls, hydraulic adjustment, solar, top floor insulation and user behavior) into the ESC scheme. CO_2 reductions are above 90 %, mainly due to switching to a combination geothermal and biomass energy sources.

The value of the future cash flow change reaches up to □ - 250,000 (net savings, including all cost of the EE measures), which could be used to co-finance comprehensive refurbishment of the building shell.

Also for Integrated Energy Contracting (IEC), the decision of the building or business owner to want to invest in energy efficiency remains a basic requirement. We conclude that the proposed Integrated Energy Contracting model achieves to combine the simpler approach of the ESC business model whilst extending the scope of the energy conservation measures to the complete building or enterprises and to all consumption media, e.g. heat, electricity or water.

The EPC savings guarantee is replaced by individual quality assurance instruments, which secure the functionality and performance of the efficiency measures implemented, but not it's exact quantitative outcome over the project cycle, which largely depends on factors external to the ESCo's influence such as changes in ambient climate conditions or utilization of the facility.

Work remains to be done to increase electricity savings and to achieve comprehensive refurbishment including the building shell. Furthermore, fiscal and balance sheet related implications of the IEC Model will have to be reviewed in comparison to EPC.

Subject to further experiences, the IEC model might be a solution, which is more widely applicable to combine energy supply and delivery of EE potentials in large volume buildings and enterprises. Perhaps energy efficiency will achieve a higher market diffusion in combination with energy supply (from Renewables)?

The German version was published in cooperation with the Landesimmobiliengesellschaft Steiermark (Real Estate Company of Styria) who has implemented the model projects.

Dissemination of Results and Discussion with Stakeholders

Task XVI has produced a number of publications and given presentations at various conferences and workshop to disseminate and discuss the Task results. Furthermore stakeholder workshops were organized in conjunction with each project meeting to discuss Energy-Contracting topics relevant to the host country of the meeting.

Task XVI Publications (selection)

- Bleyl, Jan W.; Seefeldt, Friedrich; Eikmeier, Bernd: *Energy Contracting: How much can it Contribute to Energy Efficiency in the Residential Sector?* in Proceedings of ECEEE 2009. Nice, June 2009, download available from www.ieadsm.org
- Bleyl, Jan W.; Schinnerl, Daniel: *Umfassende Gebäudesanierung durch Energie-Einspar-Contracting. Ein Leitfaden für Gebäudeeigentümer und Contractoren. Vorläufige Endversion*, Graz August 2009, download available from www.energytech.at
- Bleyl, Jan W.: *Ganzheitliche Gebäudesanierung mit dem integrierten Energie-Contracting Modell am Beispiel der LIG Steiermark. Ein neues Geschäftsmodell zur Umsetzung von Energieeffizienz und (erneuerbare) Energielieferung für große Gebäude und Gewerbebetriebe.* IEAdsmTaskXVI Diskussionspapier. Graz, September 2009, download available from www.energytech.at
- Bleyl, Jan W.: *Integrated Energy Contracting (IEC). A new ESCo Model to Combine Energy Efficiency and (Renewable) Supply in large Buildings and Industry.* IEAdsmTaskXVI Discussion Paper. Graz, October 2009, download available from www.ieadsm.org
- Bleyl, Jan W.; Ungerböck, Reinhard: *What is Energy-Contracting? Concept, Definition Two Basic Business Models.* IEAdsmTaskXVI Discussion Paper. Graz, October 2009, download available from www.ieadsm.org

Former Task XVI key publications

- Bleyl, Jan W.; Schinnerl, Daniel: *Comprehensive Refurbishment of Buildings with Energy Services*, in Proceedings of ECEEE 2007, Nice May 2007
- Bleyl, Jan W.; Schinnerl, Daniel: *Finanzierungsmodelle für Energiedienstleistungen (Contracting). Ein Leitfaden für Gebäudeverantwortliche, Contracting-Unternehmen, Projektentwickler und Finanzierungsinstitute*, Graz Jänner 2008, download available from www.energytech.at
- Bleyl, Jan W.; Schinnerl, Daniel: *"Energy Contracting" to Achieve Energy Efficiency and Renewables using Comprehensive Refurbishment of Buildings as an example* in: Urban Energy Transition edited by Peter Droege, Elsevier 2008
- Bleyl, Jan W.; Schinnerl, Daniel: "Opportunity Cost Tool, *Comparison and Evaluation of Financing Options for Energy Contracting Projects. A Manual for ESCo, ESCo customers and ESCo project developers*, Graz März 2008, download available from www.ieadsm.org
- Bleyl, Jan W.; Schinnerl, Daniel: *Comprehensive Refurbishment of Buildings through Energy Performance Contracting. A Guide for Building Owners and ESCos*, Graz November 2008, download available from www.ieadsm.org

Meetings held in 2009

Date	Place	Total Experts	Type of meeting	Government	Industry	Academic
2–3 March	Vienna, Austria	8	Experts meeting	3	3	2
4–6 November	Berlin, Germany	9	Experts meeting	2	5	2

Seminars and/or Conferences held in 2009

Date	Place	Total Experts	Type of meeting	Government	Industry	Academic
3 March	Vienna, Austria	ca. 25	Stakeholder workshop	10	10	5
2–4 November	Berlin, Germany	ca. 150	Stakeholder discussions at ESCo Europe'09	25	100	25

Furthermore, Task XVI has given presentations at 19 conferences and seminars in 2009. The estimated outreach to stakeholders in numbers of participants is 375 (30 % Government, 50 % Industry, 20 % Academic).

Positioning of the Task – v.s. other bodies

"Competitive Energy Services" is a unique task in providing an international expert platform for Energy-Contracting experts, developing innovative energy service models, initiating and mutally supporting national implementation activities and disseminating results to national and international stakeholders.

The members of the task work and cooperate with their respective national bodies and projects and are involved in a variety of other international projects, dealing with the implementation of energy efficiency and related topics. E.g. Task XVI has established a cooperation with the European Energy Service Initiative (EESI), carried out in the framework of the Intelligent Energy Europe programme. Cooperation activities are envisaged with Task XXI in the area of project specific calculation of energy savings.

Technology development success stories?

Task XVI is dealing with innovative Energy Service models to implement and deploy any kind of efficiency technology with market based instruments. Task XVI is not developing any particular technology itself.

ESCo services apply whatever (innovative) efficiency technology is available on the market. Accordingly, succesfull expamples are available in all sectors of efficiency technologies such as street lighting, heating, ventilation and air conditioning (HVAC-technologies), combined heat and power systems (micro-CHP) or comprehensive refurbishment of buildings and others.

Reports and Publications planned for 2010

The following publications and reports are planned for 2010:

- Final Task Report (Phase 1: 2006–2009) – 2nd quarter 2010 after ExCo approval
- Final Activity Report (Phase 1: 2006–2009) – 2nd quarter 2010 after ExCo approval
- Comprehensive Refurbishment of Buildings manual including good practice examples from participating countries – 1st quarter 2010
- "How to unite (Renewable) Supply and Energy Conservation? The new Integrated Energy Contracting Model", planned to be published in a book "in memorian Prof. Manfred Heindler" – 2nd quarter 2010
- (Public) procurement of energy services: A guideline how to purchase ESCo services with guaranteed results – 2nd quarter 2010

Additional Think Tank topics may be decided by the country experts.

Meetings planned for 2010

Two meetings of the IEADSM Task XVI Energy Services Expert Platform are planned for 2010 in the first and second half of the year. Dates and locations for 2010 have not been fixed yet.

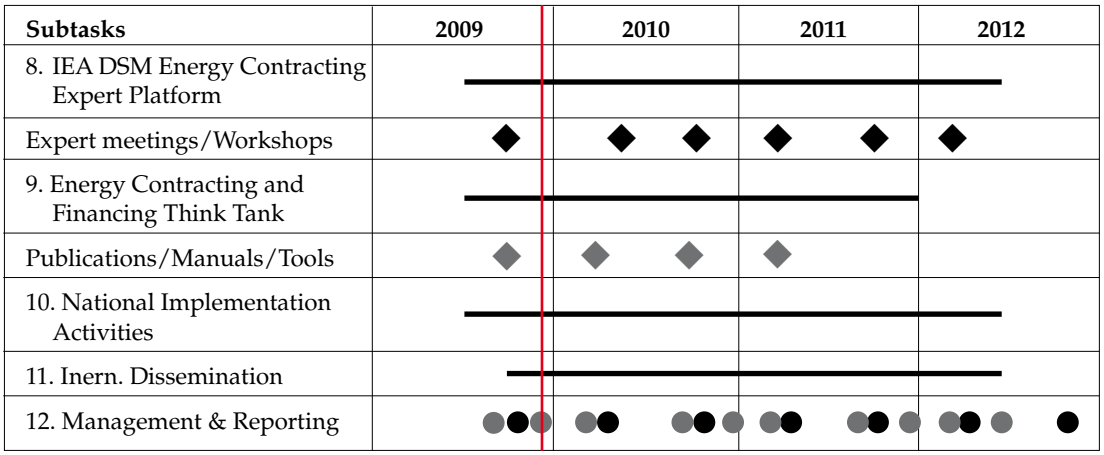
In conjunction with each meeting, a stakeholder workshop will be organized to discuss Energy-Contracting topics relevant to the host country of the meeting and to present and disseminate results of Task XVI. The workshops are open to guests from stakeholder organizations like ESCos, real estate owners, financing institutions and project developers like energy agencies. The stakeholders will be invited by the country experts hosting the workshop.

Activity time schedule

Task XVI started its operation in July 2006 and terminated Phase 1 in June 2009. At its meeting in April 2009 in Vienna, the IEA DSM ExCo has decided an extension of Task XVI for a three year period from July 2009 to June 2012.

An overview of the subtasks including milestones is displayed in the following figure.

Task XVI-Extension timetable and milestones:



Task XVI-Event

Main Think Tank publications

ExCo meeting

ExCo, annual and EoT reporting

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Task XVII – Integration of Demand Side Management Distributed Generation, Renewable Energy Sources and Energy Storages

Operating Agent: Seppo Kärkkäinen, Elektraflex, Finland

Objectives of the Task

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

Thus the integration means in this connection:

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

Content of the work

The first phase of the Task defines the state of the art of integration. This phase was finished in 2008. On the basis of the results of this phase, the second phase has been planned in 2009.

The first phase of the Task (the scope study) included the following subtasks

(a) *Subtask 1:* Information collection on the characteristics of different types of DER in the integrated solutions.

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

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

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

The main target of the second phase of the Task (Task extension) is to assess the effects of the penetration of emerging DER technologies to different stakeholders and to the whole electricity system. The emerging DER technologies to be discussed include:

- plug-in electric and hybrid electric vehicles (PEV/PHEV)
- different types of heat pumps for heating and cooling
- photovoltaic at customer premises
- micro-CHP at customer premises
- energy storages (thermal/electricity) in the connection of previous technologies
- Other technologies seen feasible in 10–20 years period, especially by 2020.

The main Subtasks are (in addition to Subtasks 1–4 of the phase one):

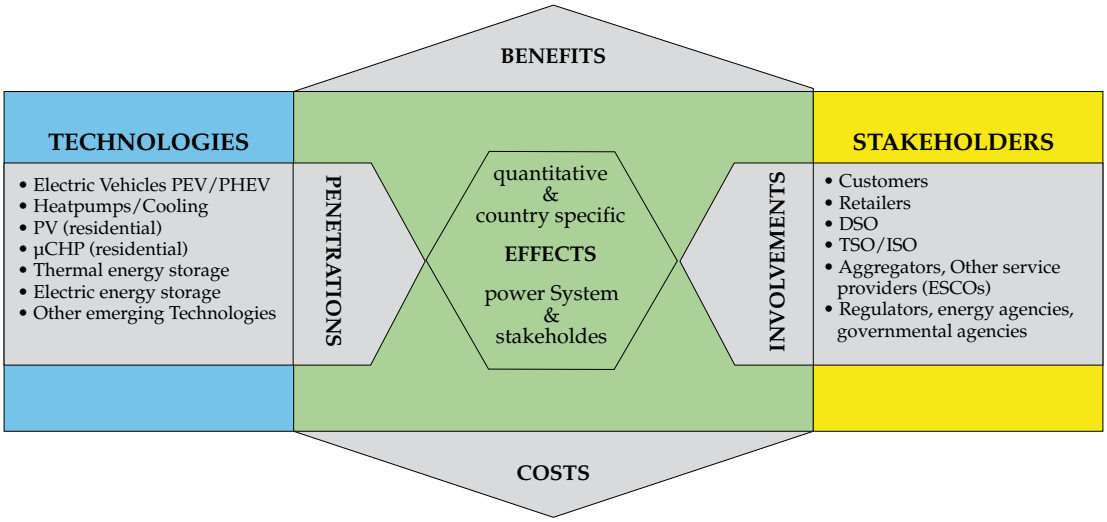
Subtask 5: Assessment of technologies and their penetration in participating countries

Subtask 6: Stakeholders involved in the penetration and effects on the stakeholders

Subtask 7: Assessment of the quantitative effects on the power systems and stakeholders

Subtask 8: Conclusions and recommendations

The figure below describes the concept of this extension.



Progress in the Task

Phase One was completed in 2008 and the final reports are available on the website.

– Task XVII – Integration of Demand Side Management, Distributed Generation, Renewable Energy Sources and Energy Storages – Final Synthesis Report Vol 1.

– Task XVII – Integration of Demand Side Management, Distributed Generation, Renewable Energy Sources and Energy Storages – Final Synthesis Report Vol 2.

Vol l. includes the main report and Vol 2. is the annex report with country descriptions, analysis tools etc.

Phase Two (Task extension) was planned in 2009 and it was accepted in EXCO meetings. Australia, Austria, Finland, France, the Netherlands and Spain have preliminary joined the Task extension, and some other countries are still under discussion.

Activities planned for 2010

The second phase is planned to start in January 2010 and its duration is 2 years. The exact date of the start depends on the interest of countries. The second phase is open to all member countries of DSM Agreement.

Involvement of industry and other organisations

National experts of different countries will represent a mix of industrial, governmental and research organisations.

Reports produced in 2009

Operating Agent has given presentations on the Task in the following conferences and workshops:

- 2009 IAEE European Conference (September 7–10, 2009), Vienna, Austria
- End Use Working Party (EUWP) Workshop on Electricity in the future Transport System. Stockholm, Sweden, September 17, 2009 (presented by Hans Nilsson)
- 5th Dubrovnik Conference on Sustainable Development of Energy Water and Environment Systems, Dubrovnik 29 Sept–3 Oct.
- ENARD workshop, Fredericia, Denmark, 20th October

Reports planned for 2010

Report on the emerging technologies and their penetration in participating countries.

Meetings planned for 2010

Two expert meetings and national workshops.

Participation in Task meetings/seminars/conferences held in 2009

Date	Place	Type of meeting
7–10 September	Vienna, Austria	Conference
17 September	Stockholm, Sweden	Workshop on Electricity in the future Transport System
29 Sept–3 October	Dubrovnik, Croatia	5th Dubrovnik Conference on Sustainable Development of Energy Water and Environment Systems
20 October	Fredericia, Denmark	ENARD workshop

Positioning of the Task – vs. other bodies

Cooperation and coordination has been arranged with IEA Implementing Agreements ENARD and WIND. Participated in the Steering Group of the Integrating Renewables in Grids project of IEA.

Activity time schedule

The Task extension will start 1st of January 2010 and last 2 years.

Subtasks	2010	2011
Subtask 5		
Subtask 6		
Subtask 7		
Subtask 8		

Participants

The participating countries are Australia, Austria, Finland, France, the Netherlands and Spain. Some other countries are under discussion. The country experts will be defined before the start of Task extension.

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Task XVIII: DSM and Climate Change

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

Objectives of the Task

Why DSM and Climate Change?

On a global basis, electricity production is estimated to contribute about 25% of the human-induced increase in greenhouse gas (GHG) emissions. However, the IEA DSM Programme has not so far carried out any work on possible interactions between electricity DSM and GHG emissions.

Creating sustainable energy systems with minimum levels of GHG emissions requires the deployment of both renewable energy and other low emission technologies on the supply side and technologies that increase energy efficiency on the demand side. The purpose of this project is to investigate the potential contribution to mitigating GHG emissions that can be made by demand side management technologies. The fourth IPCC Working Group III Report Mitigation of Climate Change identified demand side management programs as a mechanism that may be effective in reducing emissions.

Currently, DSM and emission mitigation measures are implemented quite independently:

- DSM measures are implemented primarily to assist and improve the operation of electricity systems. Any impacts (positive or negative) of DSM measures on climate change are only a minor consideration, if they are considered at all;
- efforts to mitigate GHG emissions from electricity production have focussed on improving the efficiency of both electricity generation and end-use. However, emission mitigation measures focussed on increasing end-use efficiency have usually not considered any benefits to the electricity system (eg peak load reduction) that might be gained through implementing the measures.

The overall aim of Task XVIII is to reconcile these two different approaches so as to identify circumstances in which DSM can contribute to mitigating GHG emissions and emission mitigation measures can achieve benefits for electricity systems.

Task XVIII will then determine what is required to maximise the emissions reductions and electricity system benefits from these two types of measures.

Benefits to Participants

Participating in Task XVIII enables countries and organisations to:

- understand the interactions between DSM and climate change;
- develop methodologies for assessing the GHG emissions reductions available from specific DSM measures;
- gain information about using DSM programs to mitigate GHG emissions, and about using GHG emission mitigation programs to deliver benefits to electricity systems;

- identify opportunities for funding DSM programs with revenue from GHG emissions trading schemes;
- explore whether use time of use pricing can be used to achieve mitigation of GHG emissions;
- gather the information necessary to launch and participate in deployment programmes for demand-side technologies.

Work Plan

The Work Plan for Task XVIII comprises six Subtasks:

- Subtask 1: Interactions between DSM and Climate Change;
- Subtask 2: Principles for Assessing Emissions Reductions from DSM Measures;
- Subtask 3: Mitigating Emissions and Delivering Electricity System Benefits;
- Subtask 4: Fungibility of DSM and Emissions Trading;
- Subtask 5: TOU Pricing and Emissions Mitigation;
- Subtask 6: Communicating Information about DSM and Climate Change.

Subtask 1: Interactions between DSM and Climate Change

Subtask Objective

To identify circumstances in which DSM may help to mitigate GHG emissions and situations in which DSM may contribute to increasing emissions.

Subtask Deliverable

A report summarising the interactions between DSM and climate change.

Work to be carried out

The Experts will identify DSM projects in their countries in which DSM may have mitigated GHG emissions, and emissions mitigation projects which may have delivered benefits to the electricity system. The information collected about each project will include: details about: the objectives of the project; the DSM measures employed; the emissions mitigation measures employed; the market segments addressed; the regulatory regime under which the project was implemented, the cost of the project; and the impact of the project in terms of MW or MVA and GHG emissions reduced. As information about the projects is received, the Operating Agent will enter it into an on-line database.

Once all the information is collected, the Operating Agent will summarise the results and draw conclusions about the interactions between DSM and climate change.

Subtask 2: Principles for Assessing Emissions Reductions from DSM Measures

Subtask Objective

To identify the principles involved in methodologies for assessing the GHG emission reductions available from specific DSM measures.

Subtask Deliverable

A report summarising the principles involved in methodologies for assessing the GHG emission reductions available from specific DSM measures.

Work to be carried out

The Operating Agent will examine existing carbon accounting methodologies to identify methods which could be adapted to assess the GHG emissions reductions available from specific DSM measures. The Operating Agent will then develop a set of principles for methodologies to assess emission reductions from DSM measures. These principles will be tested by calculating emission reductions from a range of actual DSM projects.

Subtask 3: Mitigating Emissions and Delivering Electricity System Benefits

Subtask Objectives

To identify ways in which DSM programs can be modified so they contribute to mitigating GHG emissions.

To identify ways in which GHG emission mitigation programs can be modified so they deliver benefits to electricity systems.

Subtask Deliverable

A report summarising the ways in which DSM programs and emission mitigation projects can be modified.

Work to be carried out

The Operating Agent will examine the information about DSM and GHG emission mitigation projects in the database and draw conclusions about how the projects could be modified to maximise GHG emission reductions and deliver benefits to the electricity system while still achieving the original project objectives.

Subtask 4: Fungibility of DSM and GHG Emissions Trading

Subtask Objective

To identify opportunities for funding DSM programs with revenue from trading GHG emission reductions.

Subtask Deliverable

A report summarising the ways in which DSM programs can be funded with revenue from trading GHG emissions reductions.

Work to be carried out

The term "fungibility" means interchangeability, particularly of one financial instrument with another based on identical terms. In this context, fungibility refers to the ability to trade any GHG emission reductions that are achieved through DSM programs. Such trading could occur through national and regional emissions trading schemes and possibly also through the two project-based mechanisms under the Kyoto Protocol, the Clean Development Mechanism and Joint Implementation.

The Operating Agent will examine a number of emissions trading schemes and the Kyoto Protocol mechanisms, using input provided by Experts, in order to assess the opportunities, benefits and threats involved in trading emission reductions achieved through DSM programs.

Subtask 5: TOU Pricing and Emissions Mitigation

Subtask Objective

To explore whether time of use pricing can be used to achieve mitigation of GHG emissions.

Subtask Deliverable

A report exploring whether time of use pricing can be used to achieve mitigation of GHG emissions.

Work to be carried out

The Operating Agent, assisted by input from Experts will examine the benefits and impacts of time of use pricing on greenhouse gas emissions and emissions abatement. The work will focus on sectors potentially affected by time-of-use pricing, and in particular the domestic sector and its challenges of peak electricity demand.

Subtask 6: Communicating Information about DSM and Climate Change

Subtask Objective

To identify and engage stakeholders and communicate and disseminate information about DSM as a resource and as a mechanism for mitigating GHG emissions.

Subtask Deliverables

- A Task Newsletter.
- On-line database about DSM and climate change.
- Regional workshops about DSM and climate change.

Work to be carried out

The Operating Agent will provide information about the progress of the DSM and Climate Change Task to the Experts through a regular newsletter.

The Operating Agent will establish and update an on-line database containing information about DSM and GHG emission mitigation projects. Twelve months after the conclusion of the project, public access will be provided to this database.

During the Task, four regional workshops about DSM and climate change will be held; where possible these will be held in conjunction with Experts meetings.

Progress in the Task

Task XVIII was initiated in October 2007 and in March 2008 the Task was declared in force.

Activities completed in 2009

Appointment of Consultants

To ensure that Task XVIII will be completed on schedule, in August 2009 the Task XVIII Operating Agent, David Crossley, engaged two consultants to assist him in carrying out the remaining work on the Task.

Ajit Pujari had a distinguished career in industrial chemistry and has now moved into the carbon accounting area. He specialises in greenhouse gas emissions auditing and calculation methodologies. Ajit has experience in measuring carbon emission for different sectors, and he has strong skills in, and advanced knowledge of, GHG auditing. Ajit is responsible for carrying out Subtask 2 of Task XVIII under David's direction.

Greg Watt had an outstanding career in the electricity industry and government energy agencies in Australia and has been working in IEA Implementing Agreements since the mid-1990s. Greg worked with David Crossley when he was the Operating Agent for IEADSM Task VI and Greg is currently the Operating Agent for Task I in the Photovoltaic Power Systems Implementing Agreement. Greg is carrying out Subtasks 3 and 5 of Task XVIII under David's direction.

David Crossley is continuing the overall management of Task XVIII as the Operating Agent, and he is responsible for carrying out Subtasks 1, 4 and 6.

Subtask 1: Interactions between DSM and Climate Change

- The Experts identified DSM projects in their countries in which DSM may have mitigated GHG emissions, and emissions mitigation projects which may have delivered benefits to the electricity system. A total of 44 projects were identified. The Experts prepared brief summaries of these projects.
- The Operating Agent prepared two Data Collection Forms for DSM and emissions mitigation projects. The Experts from Australia, France and Spain completed entering data into Data Collection Forms for DSM and emissions mitigation projects from their countries. Data for projects in India proved difficult to obtain and the Expert from India is still working on this.
- The IEADSM webmaster completed the development of two on-line case studies databases. These databases store data for DSM projects and for emissions mitigation projects. Data for the projects is progressively being entered into the databases which are accessible through the Experts secure section of the Task XVIII website.

Subtask 2: Principles for Assessing Emissions Reductions from DSM Measures

- Ait Pujari completed an extensive review of carbon accounting methodologies from around the world. He is currently using this information to develop a methodology to carry out an initial analysis of the greenhouse gas emissions reductions available from a peak load reduction DSM project which is currently being implemented in Australia.

Subtask 3: Mitigating Emissions and Delivering Electricity System Benefits

- Greg Watt completed an initial analysis of the possible impacts of emissions reduction projects on electricity demand curves and the consequent benefits for the electricity system.

Subtask 4: Fungibility of DSM and GHG Emissions Trading

- The Operating Agent completed reviews of three energy efficiency certificate trading schemes currently implemented in Australia and of the long-running United Kingdom scheme whereby electricity suppliers are obligated to carry our energy efficiency improvements in the residential sector.

Subtask 6: Communicating Information about DSM and Climate Change

- The Operating Agent continued to provide the Experts with information about the progress of the Task XVIII through emails.
- The Experts secure section of the Task XVIII website has been further developed to function as a communication channel to share information between Task XVIII Experts The secure section includes copies of presentations made at Experts meetings, plus other relevant material.

  The Operating Agent completed the first edition of the Task XVIII flyer with the assistance of the IEADSM Newsletter Editor. The flyer is now available in the public section of the Task XVIII website.

Activities planned for 2010

Subtask 1: Interactions between DSM and Climate Change

- The Operating Agent will complete entering the data for all suitable DSM and emissions reduction projects into the on-line databases.
- The Operating Agent will prepare a report summarising the results of the projects and drawing conclusions about the interactions between DSM and climate change.

Subtask 2: Principles for Assessing Emissions Reductions from DSM Measures

- Ajit Pujari will develop several methodologies for estimating the greenhouse gas emissions reductions available from different types of DSM projects and test these methodologies using data from the on-line case study databases.
- Ajit will prepare a report summarising the principles for methodologies to assess emission reductions from DSM projects.

Subtask 3: Mitigating Emissions and Delivering Electricity System Benefits

- Greg Watt will develop methodologies to assess the benefits to electricity systems available from emissions mitigation projects.
- Greg will prepare a report summarising the ways in which DSM and emission mitigation projects can be modified to maximise emission reductions and deliver benefits to the electricity system while still achieving the original project objectives.

Subtask 4: Fungibility of DSM and GHG Emissions Trading

- The Operating Agent will continue reviewing a number of emissions trading schemes and the Kyoto Protocol mechanisms to assess the opportunities, benefits and threats involved in trading emission reductions achieved through DSM programs.
- The Operating Agent will prepare a report summarising the ways in which DSM programs can be funded with revenue from trading GHG emissions reductions.

Subtask 5: TOU Pricing and Emissions Mitigation

- Greg Watt will investigate the benefits and impacts of time of use pricing on greenhouse gas emissions and emissions abatement. This work will focus on sectors potentially affected by time-of-use pricing, and in particular the residential sector and its challenges of peak electricity demand.
- Greg will prepare a report exploring whether time of use pricing can be used to achieve mitigation of GHG emissions.

Subtask 6: Communicating Information about DSM and Climate Change

- The Operating Agent will continue to provide the Experts with information about the progress of Task XVIII to through emails and through the Experts secure section of the Task XVIII website.

Involvement of industry and other organisations

The following organisations are participating in Task XVIII.

Australia

Sustainability Victoria.

France

Agence de l'Environnement et de la Maîtrise de l'Énergie.

India

Bureau of Energy Efficiency, an agency within the Ministry of Power, Government of India.

Spain

Red Eléctrica de España.

Reports produced in 2009

The following report was produced in 2009:

- Task XVIII Working Paper No 2: *Preliminary Study of Emissions Trading Schemes in the UK and Australia*.

Reports planned for 2010

Work on the following reports will be produced during 2010:

- Task XVIII Research Report No 1: *Interactions between DSM and Climate Change*.
- Task XVIII Research Report No 2: *Methodologies for Assessing Greenhouse Gas Emission Reductions from DSM Measures*.
- Task XVIII Research Report No 3: *Mitigating Emissions and Delivering Electricity System Benefits*.
- Task XVIII Research Report No 4: *Fungibility of DSM and GHG Emissions Trading*.
- Task XVIII Research Report No 5: *TOU Pricing and Emissions Mitigation*.

Experts meetings held in 2009

The second Experts meeting for Task XVIII was held on 30 March 2009 in Madrid, Spain.

Experts meetings planned for 2010

The current work plan for Task XVIII envisages that two Experts meetings will be held during the Task. However, given the usefulness of the first Experts meeting, the Experts agreed that it may be better to hold more than two meetings, provided that there was sufficient work to merit additional meetings. The next Experts meeting has been tentatively set for January 2010 in Melbourne, Australia.

Task meetings/seminars/conferences held in 2009

In association with the Task XVIII Experts meeting held in March in Madrid, the Task XVIII Operating Agent made a presentation on the role of advanced metering and load control in supporting electricity networks at a seminar arranged by Red Eléctrica de España.

Technology development success stories

None.

Positioning of the Task

Previous to Task XVIII, the IEA DSM Programme had not undertaken any work on DSM and climate change. In fact, Task XVIII is the first broad and systematic investigation of this specific topic being carried out anywhere.

Activity time schedule

Task XVIII was initiated in October 2007 and in March 2008 the Task was declared in force. Task XVIII is scheduled to be completed by October 2010.

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Task XIX: Micro Demand Response and Energy Saving

Operating Agent: Linda Hull, Barry Watson and John Baker, EA Technology, United Kingdom

Objectives of the Task

Why micro demand response and energy saving?

The domestic and SME sectors alone consume up to 50 % of the electricity generated in developed countries, and are therefore important targets for the implementation of demand response and energy saving measures. However, in order to achieve the anticipated benefits it is necessary to influence many thousands of micro loads. Recent work under IEA DSM Task XI, *Time of Use Pricing and Energy Use for Demand Management Delivery*, showed that small customers could provide useful Demand Side services through a combination of End Use Monitoring and Feedback (EUMF), Time of Use (TOU) pricing and Demand Side Bidding (DSB). All have the potential to deliver valuable demand profile change and financial benefits. The work demonstrated that relatively small amounts of demand flexibility can have large benefits in reducing peak capacity requirements.

The overall objectives of Task XIX are to define demand response and energy saving products and evaluate how they can be delivered into the residential and/or SME markets on a commercial basis using Energy Saving Service Provider and/or Demand Aggregator businesses. Funding mechanisms and the provision of information and controls infrastructure will be studied and evaluated. The potential for these measures to be accredited for financial support by Governments and Regulators, (White Certificates, EEC/CERT, etc) will also be evaluated. Accreditation to enable Suppliers to include demand response measures towards meeting their energy saving targets is an important consideration and will also be evaluated.

The role of the energy saving service provider/demand aggregator is pivotal to the successful implementation of demand response and energy saving products into the market place. Their tasks will include:

- Identifying and recruiting potential customers;
- Aggregate demand response customer groups;
- Identifying and accessing potential revenue streams;
- Quantifying the energy end use available for energy saving and demand response;
- Finance and install the control and communication infrastructure;
- Validation/accreditation of demand response and energy saving actions
- Accessing available funds and grants;
- Manage demand response payments from end-users and other parties (Transmission System Operator, Distribution Network Owners, Suppliers)

Therefore, this Task is investigating the implementation of TOU pricing, remote/automatic demand switching and energy end use monitoring for SME and residential customers so as to quantify the costs, benefits and business viability of such measures from the perspective of the demand aggregator/energy saving service provider.

The specific objectives of Task XIX are to:

- Define demand response and energy saving products to meet System Operator, Supplier, Government, customer and other market participant requirements;
- Identify, develop and define packages of demand response and energy saving service products for residential and SME customers, based on EUMF, TOU pricing and demand control to meet the above requirements;
- Develop mechanisms to deliver demand response and energy saving service products;
- Evaluate how Energy Saving Service Provider and/or Demand Aggregator businesses can provide demand response and energy saving service products for residential and SME customers;
- Develop Energy Saving Service Provider and/or Demand Aggregator routes to market for residential and SME customers;
- Make an overall assessment of common ground and technologies to be shared with smart metering infrastructure;
- Estimate incremental costs of implementation of product delivery systems
- Quantify the business case for the provision of demand response and Energy Saving products.

Work Plan

The Work Plan for Task XIX, as approved by the Executive Committee, comprises six Subtasks as follows:

Subtask 1: Demand Response and Energy Saving Products

Subtask Objectives

- Define demand response parameters required by System Operator, Energy Suppliers and Balance Responsible Parties
- Determine Energy savings from demand response and EUMF products

Subtask Deliverables

- Part of a report providing definitions of the requirements for micro demand response and energy saving products.

Work to be carried out

The Operating Agent, supported by information provided by the Task Experts, will investigate the needs of System Operators, Energy Suppliers and Balancing Responsible parties in order to define the requirements for micro demand response and energy saving products.

Subtask 2: End Use Demand Changes

Subtask Objectives

- Identify specific demands which could be influenced by the demand change motivating mechanisms defined above
- Identify what demand changes may be possible as a result of applying the motivators to SME end uses
- Identify what demand changes may be possible as a result of applying the motivators to residential customer end uses
- Outline technical architectures for collecting and estimating end use demand information and delivering control motivators to change demand.

Subtask Deliverables

- Part of a report describing the end use demand changes for delivering demand response and energy savings.

Work to be carried out

The Operating Agent, with input from the Task Experts, will analyse the end uses of energy by residential and/or SME customers and will seek to identify those that could be influenced by the demand change mechanisms identified in Subtask 2.

Subtask 3: Demand Response and Energy Saving Delivery Mechanisms

Subtask Objectives

- Define mechanisms for motivating and delivering energy savings by residential and SME customers (disaggregated demand information, TOU pricing, remote switching, DSB and customer interviews)
- Define "smart" metering, disaggregated data and control mechanisms for motivating and delivering demand shifting by residential and SME customers (metering, switching, pricing, EUMF)

Subtask Deliverables

- Part of a report providing details of demand response and energy saving delivery mechanisms and technologies

Work to be carried out

The Operating Agent, supported by the Task Experts, will examine a number of options for residential and/or SME customers using mechanisms such as disaggregated demand information, time of use pricing, remote switching to motivate demand response and energy savings, together with the metering, data collection and control mechanisms required for their delivery.

Subtask 4: SME Customer Costs and Benefits

Subtask Objectives

Determine Energy Saving Service Provider and/or Demand Aggregator costs and benefits for delivering Energy Saving and Demand Shift services for SME customers using disaggregated demand information, metering and control

- Determine Energy Saving Service Provider and/or Demand Aggregator implementation methodologies for delivering benefits and viable businesses
- Estimate energy savings

Subtask Deliverables

Part of a report describing the costs and benefits of demand response and energy saving to SME customers.

Work to be carried out

The Operating Agent, supported by information provided by the Task Experts, will evaluate the costs and benefits associated with the delivery of demand response and energy saving products to SME customers. The information will then be used to identify viable routes to their implementation by Energy Saving Service Providers and/or Demand Aggregators.

Subtask 5: Residential Customer Costs and Benefits

Subtask Objectives

- Determine Energy Saving Service Provider and/or Demand Aggregator costs and benefits for delivering Energy Saving and Demand Shift services for residential customers using disaggregated demand information, metering and control
- Determine Energy Saving Service Provider and/or Demand Aggregator implementation methodologies for delivering benefits and viable businesses
- Estimate energy savings

Subtask Deliverables

Part of a report describing the costs and benefits of demand response and energy saving to residential customers.

Work to be carried out

The Operating Agent, supported by information provided by the Task Experts, will evaluate the costs and benefits associated with the delivery of demand response and energy saving products to residential customers. The information will then be used to identify viable routes to their implementation by Energy Saving Service Providers and/or Demand Aggregators.

Subtask 6: Business Case Estimation

Subtask Objectives

- Determine customer financial instruments and reward mechanisms to achieve commercially viable Energy Saving Service Provider and/or Demand Aggregator businesses delivering CO_2 savings and equivalent, network and generation capacity provision, by modifying demands of residential and SME customers
- Quantify the potential for demand response and energy saving measures to be accredited for meeting Government, Regulator and Supplier energy saving targets (White Certificates, CERT, etc) and obtaining financial support.
- Compare overall costs and benefits

Subtask Deliverables

- Part of a report providing a detailed assessment of the business case for the provision of demand response and energy saving products for residential and/or SME customers.

Work to be carried out

The Operating Agent, with input provided by the Task Experts, will identify potential financial instruments and reward mechanisms to enable Energy Saving Service Providers and/or Demand Aggregators to deliver commercially viable businesses delivering CO_2 savings and equivalent, network and generation capacity provision, by modifying demands of residential and SME customers.

Activities during 2009

During 2009 the following accomplishments were achieved.

Subtask 1

- Data collection questionnaire produced to collate background information on how the market structure in the participating countries affects the incentives for demand response and energy saving products to develop.
- Data collection sheets completed by the participating countries.
- Analysis of the results shows significant different incentives between the participating countries, indicating that there will be no 'one size fits all' solution.

Subtask 2

- Data collection questionnaire produced to collate information on energy end use consumption in the participating countries.
- Data collection sheets completed the participating countries.
- Analysis of results highlights a general shortage of data on end-uses of energy, particularly with regards to the pattern of electricity use by time of day and time of year. This makes it difficult to assess how much load is available for demand response programs on any given occasion.

Subtask 3

- A range of delivery mechanisms that can be used as part of demand response and energy saving schemes with small consumers have been considered. The schemes considered are broken down into two main categories: Energy Saving and Demand Response schemes.
- The study highlights that different stakeholders have different drivers for implementing demand response and energy saving programmes, which could impact on other stakeholders. The extent to which there is commonality between different industry stakeholders depends on the market structure and the participants' drivers.

Activities planned for 2010

Continue work in Subtask 6: Business Case Estimation and hold one Experts meeting.

Reports completed in 2009

Micro Demand Response and Energy Saving Products – Definition of the Requirements, and the Options for Effective Delivery *(expected to be completed this year).*

Reports planned for 2010

The Business Case for Micro Demand Response and Energy Saving

Meetings held in 2009

Date	Place	Type of meeting	Total Experts	Government	Industry	Academic
15–16 Jan	Chester, UK	Experts	12	3	8	1
11–12 May	Nice, France	Experts	9	3	5	1
8–9 Oct	Barcelona, Spain	Experts	9	2	6	1

Meetings planned for 2010

Final Task Experts meeting, will be held on the 8–9 February in Chester, UK.

Involvement of industry and other organisations

The following organisations participate in Task XIX.

Finland

VTT Technical Research Centre of Finland

France

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

Greece

Public Power Corporation of Greece

India

Bureau of Energy Efficiency, an agency within the Ministry of Power, Government of India

Netherlands

University of Groningen and JI Network

Spain

Red Eléctrica de Espana

United Kingdom

Department of Energy and Climate Change, British Gas, EDF Energy, E.ON UK, National Grid, and Scottish and Southern Energy.

Technology development success stories

Task XIX is evaluating the business case for the development of demand response and energy saving products from the perspective of demand aggregators/energy saving service providers. As such, the Task is not directly involved in the development of specific technologies.

Positioning of the Task – vs. other bodies

Many organisations are trying to motivate business and residential customers to save energy. Demand Response and Demand Side Bidding by larger customers are being carried out in many countries to assist energy savings and supply security. Residential customers' participation using a range of demands is not carried out to any significant extent. Task XIX Experts will address smaller customer Demand Response and Demand Side Bidding from both supply and demand side perspectives and routes to implementation.

Activity Time Schedule

The Task came into force on 1 January 2009 and will remain in force until 30 March 2010

Subtasks	2009	2010
Subtask 1 Demand Response and Energy Saving Products		
Subtask 2 End Use Demand Changes		
Subtask 3 Demand Response and Energy Saving Delivery Mechanisms		
Subtask 4 SME Customer Costs and benefits		
Subtask 5 Residential Customer Costs and Benefits		
Subtask 6 Business Case Estimation		

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Task XX – Branding of Energy Efficiency

Operating Agent: Balawant Joshi, ABPS Infrastructure Private Limited, India

Introduction

"Branding of Energy Efficiency" was first identified as an area for new work at April 2006 Executive Committee meeting in Copenhagen. At the 31st Executive Committee meeting held in April 2008, Task XX on Branding of Energy Efficiency was put into force.

The Task is expected to develop significant understanding of barriers associated with branding of energy efficiency and strategies to overcome those barriers. The Task has been proposed with the belief that it should be possible to reverse the fortunes of energy efficiency products and services, if successful branding is achieved. Branding of energy efficiency products and services would increase their visibility and credibility.

The Task is expected to build in the achievement of Task VII. While Task VII has taken the initial step towards development of a framework for market transformation, it is necessary to evolve a comprehensive framework, which could be used by the government and industry to develop the market for energy efficient products.

Objectives

The Primary Objective of this Task would be to 'Develop cogent and comprehensive framework for promotion of branding of energy efficiency in electricity markets at different level of maturity'. Apart from the above mentioned main objective, need for research in the following areas was felt to be immediate:

- To identify knowledge and attitude of private households in developing electricity markets;
- To identify best practices in definition of suppliers of energy efficiency products and services;
- To identify the potential for energy efficiency products and services in other energy consuming sectors such as agriculture, industrial and commercial, etc.;
- To identify the potential for programmatic approach towards energy efficiency; and
- To identify the barriers to branding of energy efficiency;

Subtasks

Subtask I: Energy Efficiency Offerings Analysis

Subtask Objective

To develop the understanding of the energy efficiency offerings such as Products, Services, Programs and Companies, their growth and inter-linkages. The sub-task will attempt to identify drivers behind such offerings.

Subtask Deliverables

A report summarising the energy efficiency offering analysis and important aspects of energy efficiency value chain.

Work to be carried out

As a part of this sub-task, a survey of energy efficiency products and services in all participating countries would be undertaken by the Operating Agent with the help of country experts. Specifically, country experts will assist OA in undertaking following activities: Identify products offering with EE attributes; Assess technological maturity of the EE product; Identify 'Best Practices' in definition of products and services; Identify other aspects amenable to energy efficiency; Identify services/programs serving EE attributes; Identify barriers experienced in successful branding effort; Identify special needs of developing countries and Identify inter-linkages between EE offerings. In addition, the Operating Agent with the help of Country Experts will identify the primary drivers for each of above discussed offering such as products, services, programs and companies. Once all the information is collected, the Operating Agent will summarise the results of energy efficiency product analysis and various other important aspects of energy efficiency value chain.

Subtask II: Energy Efficiency Consumer Analysis

Subtask Objective

To carry out survey in all participating countries of consumers for products and services and to collect data on consumers' attitude towards the products and services which suppliers can provide in the market.

Subtask Deliverables

A report summarising the list of possible products and services most suitable for branding based on the market segment from the consumers' perspective.

Work to be carried out

As a part of this sub-task, survey of consumers in all countries participating in the Task would be undertaken. Appropriate sampling techniques would be used to ensure an optimal sample for the survey. The survey will be carried out specifically for products and services identified in the sub-task I. This will help ensure that the survey is able to collect data on consumers' attitude towards the products and services which suppliers are in a position to provide in the market. The Country Experts in consultation with the Operating Agent will undertake the following activities: Carry out survey of consumers to collect data on consumers' attitude towards the products and services in a particular market; Identify market segments favourable for EE products and services; Identify potential for branding within market segments; Identify market segment which may look forward to EE as a lifestyle choice; Understand the consumers perspective regarding adoption of EE given the cost/benefit analysis of the offerings available in the market; Identify if there are any non monetary costs (inconvenient access, higher breakdown risks, compromise on performance aspects, etc.) that render the EE behaviour unviable,

Subtask III: Assessment of relationship between EE product pricing and maturity of electricity market

Subtask Objective

To identify the relationship between the product offerings and maturity of the electricity market and to establish empirical relationship between electricity price and energy efficiency pricing;

Subtask Deliverables

A report summarising the relationship between EE products pricing and maturity of the electricity market and also between electricity price and energy efficiency pricing.

Work to be carried out

A survey and analysis of market place for energy efficiency products and services in all countries participating in this Task would be undertaken by the Operating Agent with the help of the Country Experts. Based on the results of survey and analysis, the Operating Agent will identify the relationship between the product offerings and maturity of the electricity market and also develop statistical models for determination of relationship between electricity price and energy efficiency pricing. The Operating Agent will also test the applicability of the findings of this study to non-electricity energy segments.

Subtask IV: Review of branding strategies in similar areas

Subtask Objective

To identify the products and services, similar in nature to "energy efficiency" and learn from the strategies adopted by them during early period of their life cycle.

Subtask Deliverables

A report summarising the branding strategies deployed by the products and services similar in nature to energy efficiency.

Work to be carried out

Currently, energy efficiency products and services are at nascent stage of development. Several products such as electricity, organic food, etc and services such as banking, insurance, etc would have passed through this phase during their development. It may be possible to learn from strategies employed by these products and services during early period in their life cycles. The Country Expert along with the Operating Agent will carry out research for identification of products and services which are similar in nature to energy efficiency. They will also carry out survey to identify the branding strategies deployed by them.

Subtask V: Identification of 'Best Practices in Branding EE'

Subtask Objective

To identify case studies and develop best practices in branding of energy efficiency in four aspects such as Products, Services, Programmes and Companies and to identify role of institutional structures and government support in development of successful branding strategies.

Subtask Deliverables

A report summarising best practices in branding of energy efficiency.

Work to be carried out

In this sub-task, survey of successful efforts in branding of energy efficiency in the participating countries as well as other countries will be undertaken. In this regard, Operating Agent will develop questionnaire and circulate the same to all the participating country experts for the development of Case Studies.

This subtask will also help to develop the best practices in branding of energy efficiency in four aspects i.e. products, services, programs and companies. The Country Expert in consultation with the Operating Agent will undertake the following activities for the development of best practices in branding of energy efficiency in four aspects: development of case studies for successful branding efforts across the globe, synthesize information collected during subtask-I & II, understand business enablers for branding in each case, identify best practice in each of the four key aspects of branding of energy efficiency, identify inter linkages for different aspects of branding, identify role of institutional structures and government support in development of successful branding and identify key lessons which may be adopted in development of successful branding strategies.

Subtask VI: Communication and outreach

Subtask Objective

To identify and engage various stakeholders to communicate and disseminate information about the branding efforts in different areas of Energy Efficiency. This would ensure well promulgated information across the masses, which in turn would be beneficial for the branding task.

Subtask Deliverables

Information dissemination would be carried out by preparing six monthly Task Newsletters as well as by conducting two Regional workshops to discuss various regional branding efforts.

Activities completed in 2009

The Operating Agent has followed up the countries that expressed interest in participating in Task XX. India, Spain, France and United States have confirmed their participation in the task. All the participating countries have signed the National Participation Plans. Possibility of one or more countries joining the task is being explored.

Activities planned for 2009–2010

Commence the Task in October 2009.

First Expert Meeting on 7–8 December, 2009.

Second Expert Meeting in October 2010.

Involvement of industry and other organisations

India

Bureau of Energy Efficiency

Spain

Red Eléctrica de España

United States

Lawrence Berkeley National Laboratory

France

ADEME
Département Marchés et Services d'Efficacité Energétique

Reports produced in 2009

None.

Reports planned for 2010

Name of report
Inception Report X
Analysis of Energy Efficiency Offerings

Meetings held in 2009

Date	Place	Type of meeting	Total Experts	Government	Industry	Academic
7 December	Madrid, Spain	First Expert Meeting	6	1	3	2

Meetings planned for 2009–2010

First Expert Meeting in 7–8 December, 2009.
Second Expert Meeting is proposed in October 2010.

Technology development success stories

None.

Positioning of the Task – vs. other bodies

None.

Activity time schedule

The Task has entered into force on October 15, 2009 and will remain in force until October 14, 2011.

Subtasks	2009	2009	2010	2010	2011	2011
Subtask 1 Energy Efficiency Offerings Analysis						
Subtask 2 Energy Efficiency Consumer Analysis						
Subtask 3 Assessment of relationship between EE products pricing and maturity of the Electricity Market						
Subtask 4 Review of Branding Strategies in Similar Areas						
Subtask 5 Identification of "Best Practices in Branding EE"						
Subtask 6 Communication and Outreach						

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TASK XXI: Standardisation of Energy Savings Calculations

Operating Agent: Harry Vreuls, SenterNovem, The Netherlands

Objectives of the Task

The overall aim of Task XXI is to identify basic concepts, calculation rules and systems for Energy Savings Calculations (ESC) standards. Both energy savings and emissions avoidance calculation methods and standards will be evaluated for efficiency activities. Additional a methodology should be developed to nominate and describe the several Demand Response products.[12] The Task will also explore how and by what type of organisations these draft standards could be used (and improved) to increase international comparable evaluation of policies and measures.

The three primarily objectives of this Task are to:

1. Summarize and compare the current methods and standards used for determining energy use, energy demand and energy and emissions savings from energy efficiency actions and policies;
2. Identify the organizations that are and could be responsible for use and maintenance of such methods and standards;
3. Recommend how existing methods, standards and resources can be expanded and/or used for comparing different countries' and international efficiency policies and actions.

While this project may recommend future efforts to develop international energy efficiency EM&V standards and/or resources, this Task does not involve efforts to produce harmonized standards among the countries involved with this Task.

Organisation of the work

The actual research work will be carried out by a combination of the country experts, the Operating Agent, inputs from (experts involved in) standardisation bodies and from Operating Agents and reports for other relevant IEA DSM Tasks. In general the experts are responsible for identifying and obtaining information on ESC standards in their countries. The Operating Agent is responsible for mobilising inputs and comments from standardisation bodies, from other IEA Tasks, and for analysing and drawing conclusions for the information provided by the experts.

At least one but preferable two regional (Europe, North America, Asia, Pacific region) workshops will be organised. Additional to mobilise input for standardisation bodies the developed work will be presented, if possible in a form that could be used for training purposes.

[12] Demand response programs are designed to reduce short-term capacity needs and/or transmission constraints and can includes permanent peak reduction efforts. Task XIII, Demand Response Resources, prepared already a range of DR products.

The work comprises four subtasks:

- Subtask 1: Existing energy savings calculation (ESC) standards and standards under development, and use of most relevant reports for ESC
- Subtask 2: Basic concept, rules and systems for ESC standards
- Subtask 3: Potential for use and continue development and maintenance of ESC standards
- Subtask 4: Communication and information

Subtask 1: Existing energy savings calculation (ESC) standards and standards under development, and use of most relevant reports for ESC

Subtask objectives

The objectives of subtask 1 are following. To identify national and regional existing energy saving calculation (ESC) standards and standards under development to identify and asses the most relevant evaluation and monitoring reports for ESC and to identify basic terms and definitions, calculation rules and systems. Additional to identify the key elements to structure Demand Response products.

Subtask Deliverable

A report summarising the most relevant guidelines and standards – national and international – on ESC, with a focus on identifying common approaches for determining savings and terminology as well as key elements to structure Demand Response products.

Work to be carried out

The country experts will identify national standards and indicate regional standards and also what barriers exist for transforming energy savings calculations into agreed standards. As far as possible these barriers will be researched for different parties (governmental organisations, producers, consumers, scientific groups). The country experts, as well as the Operating Agent, will identify the most relevant evaluation and monitoring reports for ESC. They will asses these reports for use to define basic terms and definitions (concepts), calculation rules and systems. In this process the country experts and the Operating Agent will also investigate key elements in existing DR products in the participating countries. The experts summarise the outcome of the work in a country report.

The Operating Agent will ensure (in co-operating with the participating national experts) that the international standards will be included. He will include experiences from other Tasks within the IEA DSM Agreement, from the finalised Task XIV White certificates, Task I, Evaluation guidebook and Task XIII Demand Response Resources and ongoing Task XVI on Competitive Energy Services and Task XVIII DSM and Climate Change. He will also take care of knowledge development in other IEA Implementing Agreements as the 4E for Efficient Electrical End-Use Equipment. He will ensure that existing knowledge from the UNFCCC (e.g. CDM projects).

The Operating Agent will review the DR products, as indicated by the country experts for the potential to develop a methodology to structure the DR products. He will also take into account the products from Task XIII Demand Resources. The work is restricted to key elements and is focussed on how definitions as used in DR products

could come more in line with those used for energy efficiency improvement programs and definitions use in electric system operation as well as in the ESCO´s business (Task XVI).

He will organise the country experts' assessment of the most relevant documents and review the draft country reports. Once all the information is collected, the Operating Agent will summarise the results and draft a report summarising the most relevant guidelines and standards on ESC and barriers to realise standards as well as key element to structure DR products. The country experts will discuss and comment the draft report.

Subtask 2: Basic concepts, rules and systems for ESC standards

Subtask objective

The objectives of subtask 2 are the following four: To draft the basic terms and definitions, calculation rules and systems that are in use in ESC and how these are transformable to (draft) standards. To develop a methodology to structure Demand Response products, including 'general accepted' criteria. For existing standards or standards under preparation to identify how and why these standards are or could be used in impact evaluation for policies and measures. To provide comments to organisations those have draft ESC standards or standards under development.

Subtask Deliverables

A report dealing with the basic terms and definitions, calculation rules and systems. This report should be organised in such a way that national and international standard organisation(s) and comparable institutions can use it in their standardisation work processes. Also an overview will be presented on how existing guidelines could be utilised or modified to make results from energy savings calculation more comparable and more harmonised in the future. The report also presents definitions as used in Demand Response programmes and products and those are related to energy savings terms and definitions and will hold generally accepted evaluation criteria for DR product and should have the potential to serve as a reference manual for other IEA DSM Tasks. This report should also give attention to reduced greenhouse gas emissions related to energy savings.

A compilation report on the comments to and experiences with commenting on draft ESC standards, including reactions from the standardization organisations on comments and their views on identified barriers (from subtask 1).

Work to be carried out

The country experts will contribute and comment on updated versions of the report on the basic concepts, calculation rules and systems as well as on the section dealing with a methodology to nominate Demand Response products. They will give attention to the opportunities to implement the common elements in the national and regional standards for energy savings calculations and report on the (potential) usefulness of the three level approach and the harmonisation of energy savings lifetime. Related to ongoing or planned standardisation work for energy savings calculations they will consult the national standardisation bodies and – if applicable – draft comments on (selected) national standards.

The country experts will also collect information on potential 'general accepted' criteria to be included in a methodology to structure Demand Response products.

The Operating Agent will draft a report on the terms and definitions, calculation rules and systems for experts' discussion. He will co-ordinate the improvements of this draft report ensuring input from ongoing relevant work in other IEA-DSM Tasks. He will take care that definitions, originating for DR products, will be compatible with relevant existing terminologies, especially the system operation and the market operation terminology as used in energy companies. He will draft the method to structure the DR products and the general accepted criteria that could be used to make the products of IEA DSM Task dealing with DR more comparable and useful to combine by organisations acting in the energy field (e.g. aggregator and ESCO´s).

The Operating Agent will draft comments on regional standards while the country experts will do this for the national standards. The Operating Agent will be responsible for organising the process of discussion on these drafts (using a restricted section of the IEA DSM Website) and the co-ordination of the reactions to and from the standardisation organisations.

The Operating Agent will consult the international standardisation organisations and is responsible for the co-ordination of the country experts' consultations He will also ensure that there is a good communication process with the Operating Agents for other relevant Tasks within the IEA DSM Agreement, for ESC as well as for DR definitions.

He will present preliminary conclusions from the work on international meetings to get involvement from as broader range of market organisations.

Subtask 3: Potential for use and continue development and maintenance of ESC standards

Subtask objectives

The main objective of this subtask is: explore potential use: to what extent the basic terms and definitions, calculation rules and systems could be organised in such a way that (inter)national standards organisations can use these to improve international comparability of energy efficiency impacts; how these standards can ease international more comparable evaluations of policies and measures and how the methodology to nominate and describe the Demand Response products, including 'general accepted' criteria could be used by other IEA DSM Tasks and relevant (inter)national organisations. Additional to identify what organisations could be the main actor to continue the development, the maintenance and future development of these standards and finally to how the information in the report could be used as training material.

To finalise the report on the basic terms and definitions, calculation rules and systems including related GHG emissions and Demand Response products.

Subtask Deliverables

The final report on the basic concepts, calculation rules and systems.

A report on roadmaps along which ESC standards could be further developed, taken into account the working processes of responsible standardisation organisations, but given more attention to international comparability of energy efficiency impacts and related emissions savings. The report will also give attention to improved use of the ESC standards in evaluation of policies and measures.

Work to be carried out

The country experts will research, using the (draft) reports from subtask 1 and 2, the national organisations responsible for the further development of the results of the IEA work into official ESC standards, the working processes and the planning. They will asses the expected use of existing and future ESC standards in evaluation of policies and measures and meta-evaluation and/or reports. They will take into account the relations with (inter)national estimations of GHG emissions. They will consult relevant national organisations for commenting to the draft methodology to structure Demand Response products, including 'general accepted' criteria.

The experts will give input to and comments on the drafts of the final report and the report on roadmaps. They will give special attention to the potential of the draft report for use as support material for training

The Operating Agent will organise the communication with the international standardisation organisations. Two regional workshops could be organised assuming that one workshop will be hosted and one organised from the Task' budget.

He will contact (international) organisations that could be the main actor to continue the work and research how the reports should be organised to fit with the work processes in (inter)national standards organisations. In these contacts he will also explore whether the information for improved international comparability of energy efficiency impacts and international more comparable evaluations of policies and measures as well as definitions for Demand Response products should be presented all together or in different ways.

The Operating Agent will finalise the report on the basic terms and definitions, calculation rules and systems including the section on DR product. For this report he will draft the conclusions and recommendations for maintenance of ESC standards and results from discussion with country experts and relevant market parties and Operating Agents for relevant IEA DSM Tasks.

Subtask 4: Communication and information

Subtask objectives

This Task is targeted to inform experts and engage stakeholders and communicate the ongoing work in the Task on ESC standards, to provoke the Reference manual for DR products and discuss this with other IEA DSM Tasks and to stimulate adoption of the concepts and terms by IPEEC and other international institutions on policies, research, trade and education.

Subtask Deliverables

There will be a range of products. Task leaflets and newsletters will be produced and distributed. At least one presentation on a relevant international conference will be given and one and potential two regional workshops on ESC standards (and relevant DR products) will be organised in co-operation with the country experts.

Status reports for the EXCO meetings and a final report to the EXCO will be prepared.

In relevant workshop related to the EXCO meetings will be participated and the work from the Task will be presented. Contributions will be made to the IEA DSM Annual reports and editions of the spot lights.

Work to be carried out

The Operating agent will be responsible for the communication and information distribution.

The country experts will be involved in drafting the newsletters and the regional workshop(s).

Involvement of industry and other organisations

The national and international standardisation bodies will get involved in the work.

Reports produced in 2009

Updated and revised work plan, Task XXI, August 2009.

Paper on "Energy savings calculations: what are we heading for?. Increasing libraries of guidelines and handbooks or global harmonization and (inter)national standards?" presented at the International Energy Program Evaluation Conference (EPEC conference), August 2009, Portland Oregon, USA

Reports planned for 2010

A report summarising the most relevant guidelines and standards – national and international – on energy savings calculations, with a focus on identifying common approaches for determining savings and terminology, and including key elements to structure Demand Response products.

A report dealing with the basic terms and definitions, calculation rules and systems for energy savings calculations, and related greenhouse gas emissions. This report holds also an overview on how existing guidelines could be utilised or modified to make results from energy savings calculation more comparable and more harmonised in the future.

A compilation report on the comments to and experiences with commenting on draft ESC standards, including reactions from the standardization organisations on comments and their views on identified barriers.

Meetings held in 2009

Experts meeting March 2010 in Utrecht, The Netherlands.

Meetings planned for 2010

Experts meeting in March 2010, Switzerland.

Experts meeting in September 2010, location to be decided.

Workshop on standardisation of energy savings calculations, second half of the year 2010, place to be decided on.

Positioning of the Task – v.s. other bodies

The Task will use the finalised and ongoing work in other Tasks of the IEA DSM Agreements and will also take into consideration standardisation work ongoing in e.g. CEN.

Activity time schedule

The Task entered into force on 1 April 2009 and will remain in force until 30 April 2011.

Subtasks	2010	2011
Subtask 1 Existing energy savings calculation (ESC) standards and standards under development, and use of most relevant reports for ESC		
Subtask 2 Basic concepts, rules and systems for ESC standards		
Subtask 3 Potential for use and continue development and maintenance of ESC standards		
Subtask 4 Communication and information		

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Task XXII – Energy Efficiency Portfolio Standards

Operating Agent: Balawant Joshi, ABPS Infrastructure Private Limited, India

Introduction

The Concept Paper on "Energy Efficiency Portfolio Standards" was presented during Thirty Third Executive Committee Meeting held in Vienna in April 2009. Although, the paper was presented as 'Concept paper' in line with Implementing Agreement guidelines, it included details on various Tasks and Sub-tasks to be undertaken. At that meeting, the Executive Committee decided that the proposal should be taken to Task Definition Phase & work plan be presented during next ExCo meeting. Several participants mentioned that such a project should be "fast-tracked". India, Korea, and Spain declared a positive interest. RAP declared willingness to assist so that the project could move quickly and it was also suggested that new modes of work should be applied to gain time. Austria, Belgium, France, Netherlands, Norway Schneider electric and Denmark were prepared to give the task a further consideration.

Based on the comments during ExCo and subsequently from interested parties, tasks were modified and presented during Task Definition Meeting held in Chester on October 21, 2009. Based on the comments received, Task Definitions were further amended and incorporated in the Task Definition Paper which was placed before the ExCo on October 22, 2009. In the meeting Task XXII on Energy Efficiency Portfolio Standards was put into force.

Objectives

Energy Efficiency is continually being acknowledged as an important tool to address the issue of climate change by reduction in GHG emissions. As a result, many countries have set policy targets for reducing emissions and have identified energy efficiency as one of the measures. To achieve these targets for energy efficiency, the countries have introduced various policies and programmes targeting different sectors such as appliances, buildings, industries, etc. These include wide range of instruments such as regulatory directives, voluntary agreements, incentives or subsidies, financing options, education and outreach, etc. Such policies and programmes have evolved over a period of time to cater needs as and when these arise. As a result, these programmes tend to have their own objectives and implementation mechanisms. While a number of these programmes have been successful in realising their objectives, in the absence of unified approach, their full potential is often not realised. Further, as these programmes respond to their own incentive mechanisms and subsequently adhere to their own monitoring and verification protocols, it is difficult to quantify total energy efficiency savings which is crucial from the Government's perspective. In order to overcome the existing barriers for energy efficiency programmes and realise its true potential, it is important that a coherent approach that encompasses all the efforts to implement these measures is undertaken.

To address this issue, several states in the United States and European countries have adopted Energy Efficiency Portfolio Standards (EEPS) like programmes as part of their efforts to mobilise energy efficiency improvements. While these programmes have gain momentum in the recent past, wide differences exists in their design and implementation. As a result, these programmes have also met with varying degree of success. Further, there exists tremendous potential for implementation of such programmes in many participating countries.

Most recently, the European Commission has proposed to set binding energy efficiency targets for Member States. In its draft, entitled "7 Measures for 2 Million New EU Jobs", it is acknowledged that the member States won't be able to achieve the 20 % goal of cut energy usage set for 2020, but only 11%. The Commission has expressed its intention to propose a directive providing for a binding obligation on Member States in line with the agreed 20 % energy savings objective, subject to further assessment of its impacts and in particular the need to ensure that such obligations are designed in a manner that are compatible with the effective operation of the EU's ETS scheme and the Effort Sharing Decision for the non-ETS sector. The focus of Commission's impact assessment is on the following aspects

- Such a legally binding target might be sector specific or be general in scope, covering all aspects of the economy
- The nature of a possible general energy efficiency target i.e. physical limit on the energy that each Member State could emit by 2020, or a target based on savings compared to projected energy consumption
- The need for burden sharing measures adapting the target to each Member State

In view of the above, the primary objective of this Task is the *'Development of a Best Practices Guide for Design, Development, Implementation and Monitoring of Energy Efficiency Portfolio Standards'*.

Subtasks

Subtask I: Analysis of various approaches to promote EE and their relative efficacy

Subtask Objective

The objective of this task is to analyze various approaches including EEPS like approaches adopted to promote EE and assess their relative efficacy in achieving the desired objectives.

Subtask Deliverable

A report on various approaches for promotion of energy efficiency measures.

Work to be carried out

It is widely known that many countries across the world have adopted variety of approaches for implementation of energy efficiency measures. The European Commission has given a series of directives on energy efficiency standards and labels on processes and appliances, performance of buildings, taxation of energy products and electricity, promotion of CHP, energy end use efficiency and energy services and others. The Commission has also put in place a number of policies to achieve their goal of reducing energy consumption and eliminating energy wastage. The members of the European

Union, following these directives have formulated various approaches in residential, industrial and tertiary sectors. The Commission has however now acknowledged that in the absence of further action, the target of 20 % will not be achieved and recently proposed to introduce binding energy saving targets for Member States. Some of the countries have already placed mandatory commitment/obligation to achieve specific energy savings targets on the part of suppliers. A number of states in the USA have adopted Energy Efficiency Resource Standards (EERS) wherein energy providers are required to meet quantitative targets for energy savings. Each of these approaches has evolved over a period of time; while some of them have achieved the desired objective, others need to be revisited. In this sub-task, an analysis of these approaches to promote EE will be carried out to establish relative efficacy of these approaches.

Subtask II: Development of best practices in design of EEPS

Subtask Objective

The objective of this sub-task is to analyse design parameters and to develop best practices in design of EEPS.

Subtask Deliverable

A report on 'Best Practices in Design of EEPS'.

Work to be carried out

EEPS is expected to ensure that cost effective energy efficiency opportunities are pursued to help manage electricity demand growth, lower overall and peak electricity prices, reduce emissions and address reliability concerns. Many states in the United States and a few countries such as UK, Italy, France, etc have implemented energy efficiency standards like programmes. In France, under its White Certificates Trading program, suppliers of energy must meet government-mandated targets for energy savings achieved through their residential and tertiary customers.

Design parameters of EEPS in each of them vary depending on the specific goal the programme intends to achieve. To be able to design EEPS, decision is required to be taken on a number of key design issues and its associated parameters such as identification of various stakeholders, their roles and responsibilities, target settings, its coverage, timing, duration, potential funding arrangements, measurement and verification, implementation mechanism etc. Some of these parameters are tabulated below.

Table 1: Suggested list of design parameters for EEPS

Approach Adopted for EEPS (Top down or Bottom Up)	Participants
Enactment, regulation or voluntary basis	Coverage
Separate EEPS or part of existing programmes	Timing and Duration
Target Setting; Sector specific or general in scope	Enforcement mechanism
Trading and Buying	Funding
Sunset date	Measurement and Verification
Implementation Mechanism	

Measurement and verification is an important part of EEPS program as it helps ensure that saving targets are met and also provide feedback to oversight agencies, program administrators and other participants to adjust energy savings goals, as needed. The two most commonly used approaches for measuring and verifying energy efficiency are the "deemed savings" approach and the project-specific approach. For example, Europe and some States such as Pennsylvania & Texas in US have adopted deemed savings approach which basically uses pre calculated savings amount for commonly used energy efficiency measures. These values are periodically reviewed and revised based on the results of measurement and verification. Project specific M&V approach is widely used for larger and more complex energy efficiency investments. The approach adopted for M&V is an important design parameter for EEPS like programmes.

Further, it would be important to identify and analyse inter-linkages of EEPS schemes with the other energy efficiency schemes, renewable energy schemes or emission trading schemes e.g. EU's ETS scheme and the Effort Sharing Decision for the non-ETS sector to ensure effective operation of the schemes.

In this subtask, these parameters would be analysed and best practices for design of EEPS will be developed.

Subtask III: Communication and Outreach

Subtask Objective

The objective of this sub task is to identify and engage various stakeholders to communicate and disseminate information on setting and development of EEPS.

Deliverable

Information dissemination would be carried out by preparing two newsletters and by conducting one regional workshop to discuss various aspects of EEPS.

Activities completed in 2009

- Concept paper on the proposed Task presented during the ExCo meeting in Vienna in April 2009;
- Task Definition Meeting held in Chester,UK, in October 2009;
- Task Definition Paper presented during the ExCo meeting in Chester, UK in October 2009: and
- Task XXII was initiated in October 2009.

Activities planned for 2010

- Commence the Task in February 2010
- Complete the Task in January 2011

Involvement of industry and other organisations

None.

India

Bureau of Energy Efficiency

Reports produced in 2009

None.

Reports planned for 2010

Name of report
Report on various approaches for promotion of energy efficiency measures
Report on 'Best Practices in Design of EEPS'

Meetings held in 2009

Date	Place	Type of meeting	Total Experts	Government	Industry	Academic
21 October 2009	Chester, UK	TDM	5	2	3	–

*TDM = Task Definition meeting

Meetings planned for 2010

- First Expert Meeting in April 2010
- Second Expert Meeting in September 2010

Technology development success stories

None.

Positioning of the Task – vs. other bodies

None.

Activity Time Schedule

The Task will begin on 1 January, 2010 and will remain in force until 31 December, 2010.

Subtasks	Starting date	Ending date
Subtask I: Analysis of various approaches to promote EE and their relative efficacy	2010-02-01	2010-07-01
Subtask II: Development of best practices in design of EEPS	2010-07-01	2011-01-31
Subtask III: Communication and Outreach	2010-02-01	2011-01-31

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