



IEA Implementing Agreement
Demand-Side Management
Technologies and Programmes

**FORTY SECOND
EXECUTIVE COMMITTEE
MEETING**

**PRE-MEETING
DOCUMENT (PMD)
Part 2**

End of Term Report, Strategy and Criteria Form

*16 – 18 October
Lucerne/Rigi, Switzerland*



Mr Lopez Lopez
Chair IEA End-Use Working Party
International Energy Agency
9, rue de la Fédération
75739 Paris Cedex 15
France

29 August 2013

Dear Mr Lopez,

Re: Application for Fifth Term, Implementing Agreement on Demand-Side Management Technologies and Programmes.

As the current Chairman of the IEA Implementing Agreement on Demand-Side Management Technologies and Programmes (DSM) I would like to request that your committee considers the application for an extension of this Implementing Agreement from 15 February 2014 for a period of five years.

Please find attached the three documents that comprise our application, being:

- 1) The Assessment against CERT criteria form;
- 2) The End of Term Report 2008 - 2012
- 3) The Strategic Plan 2014 - 2018

As this represents the unanimous wish of the 15 current members and 2 sponsors of the DSM IA, I very much hope that you will look favourably on this application.

Yours sincerely,



Rob Kool
Chair, DSM Implementing Agreement

**International Energy Agency
Demand-Side Management Programme**
*'Promoting Energy Efficiency and Demand-Side
Management for global sustainable development
and for business opportunities'*
<http://www.ieadsm.org>

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CERT CRITERIA for Implementing Agreement Requests for Extension

Implementing Agreement on Demand-Side Management Technologies and Programmes

CRITERIA	TERM EVALUATION	
	Current	Future
Structural and management criteria		
(a) Strategic direction	5	5
Relevant points for overall assessment: <ul style="list-style-type: none"> • Does the work programme of the Implementing Agreement (“IA” hereinafter in the Table) coincide with the strategies of the CERT and the relevant Working Party? 		
Comment: There have not been any changes in the work programme except that focus has shifted to ensure that the results/products are relevant to the planning processes and methods, and to the business environment. In particular that business models are continuously developed for the uptake of new technologies.		
(b) Scope	4	4
Relevant points for overall assessment: <ul style="list-style-type: none"> • Is the work programme of the IA sufficiently substantive and comprehensive? • Is the participation by countries broad enough? • Does the IA justify the transaction costs of international collaboration? • Does the work programme contribute positively to the quality of the IEA energy technology collaboration programme? 		
Comment: The refocusing mentioned allows the DSM-Programme to be more relevant to more stakeholders in particular in the industry. The participation from countries could be improved and we have developed interesting contacts in Asia, the Middle-East and Africa.		
(c) Contractual and management requirements	5	5
Relevant points for overall assessment: <ul style="list-style-type: none"> • Does the IA meet the management requirements of the IEA? • Are objectives, strategic plan and annual work programmes in place? • Is the Annual Report provided in a timely and complete manner? • Does the IA comply with the contractual obligations of its Agreement and the terms of the IEA Framework for International Energy Technology Co-operation? 		
Comment: Yes to all issues		
Performance-based criteria		
(d) Contribution to technology evolution / progress	3	5
Relevant points for overall assessment: <ul style="list-style-type: none"> • Do results of the work of the IA add significant value to technology evolution (performance improvement; potential for innovation)? • Have IA results been cited in the literature and/or recognised by awards? • Have IA results been used by institutions in participating countries? • Are there significant "success stories" originating from the IA? • Are there spill-over effects to other energy technology areas? 		

Comment: DSM is understood differently in different societies. An assessment of this has been made in the Annual Report 2010 showing that the results produced were highly relevant but not sufficiently disseminated and known. In particular the scientific society should be better addressed. The DSM-University concept will help in this respect.

The results have been used in the ETP2012.

Several articles were written for the ECEEE.

The behaviour study has been used in the EGRD, and will be available for the ISGAN workshop.

ISGAN EXCO members attended the DSM workshop.

The knowledge of the energy services is actively used by EBC (ECBCS)

e) Contribution to technology deployment / market facilitation	4	5
<p>Relevant points for overall assessment:</p> <ul style="list-style-type: none"> • Is the strategy and work programme industry –relevant? • Are there significant examples that technology deployment is accelerated and that relevant markets are facilitated through the work of the IA? • Does industry participation help to guide the direction of the IA and accelerate technology deployment? 		
<p>Comment: The cluster perspective (load-shape and load-level) have been very useful and served the purpose perfectly when energy business was monopolized. The perspective is still relevant but needs to be complemented with the new perspective on Potential (planning) and Acceptance (business-models and behavior).</p>		
(f) Policy relevance	4	5
<p>Relevant points for overall assessment:</p> <ul style="list-style-type: none"> • Do IA results feed into policy-making processes in home countries? • Are key data available in a format that can be used by policy makers? • Are findings used in IEA analysis which feeds into policy making processes? • Are findings used in IEA Ministerial, G8 and other high level events? 		
<p>Comment: Yes, though the market liberalization develops differently in different countries and makes it a bit complex to address. We would have appreciated a better co-operation with some of the IEA Secretariat projects to ensure that material was better disseminated and used</p>		
(g) Contribution to environmental protection	5	5
<p>Relevant points for overall assessment:</p> <ul style="list-style-type: none"> • Does the IA make contributions to cost-efficient reduction of environmental impact? 		
<p>Comment: The purpose of the Implementing Agreement is to improve energy efficiency performance as a means for e.g. climate protection, energy economy and associated benefits from better use of resources.</p>		
(h) Contribution to information dissemination	2	5
<p>Relevant points for overall assessment:</p> <ul style="list-style-type: none"> • Are results of IA work adequately disseminated to: <ol style="list-style-type: none"> 1) participating countries? 2) IEA Member countries? 3) private sector? • Has the IA contributed to IEA Secretariat efforts to promote your activities, for example through the <i>OPEN Bulletin</i>? • Is the website complete and up-to-date? 		

Comment: The statistics from down-loads and social media shows good compliance. We are however far from satisfied and that is the reason to develop the IEA DSM-University in collaboration with industrial partners.

The web site is both complete and up-to-date, but will be completely modernized in the next term, as it looks outdated.

(i) Outreach to IEA non-Member countries

4

4

Relevant points for overall assessment:

- Are appropriate results of IA work adequately disseminated to IEA non-Member countries?
- Do IEA non-Member countries participate in IA workshops, analysis or other activities?
- Does the IA participate in CERT, Working Party/Expert Group or Secretariat outreach efforts?

Comment: See above under (b)

Value-based criteria

(j) Added value

4

5

Relevant points for overall assessment, in terms of:

- Reduced or avoided research costs?
- Return on investments and improved competitive position?
- Contribution of R&D results to cost reduction?
- Results that could only be achieved through the international collaboration project?
- Interaction with other IAs, the Working Parties/Expert Groups, the CERT and the IEA Secretariat?
- Active participation of national institutions in the IA work programme?
- National R&D capabilities through improved access to personnel exchange, training, information, technology or equipment?

Comment: Our guide-books on e.g. evaluation, energy efficiency obligations, development of incentives and grid-saving DSM have been widely applied and bears witness to all of the above. The new Tasks on behavioural issues and the focus on energy services are unique.

The studies on energy services add to development of the ESCo's and the implementation of EU legislation: Belgium and the Netherlands started branch organisations based on the DSM workshops. In all Tasks National private and public parties participate.

To make the evaluation metrical, scores from **1** to **5** are introduced:

5 (excellent), **4** (good), **3** (average), **2** (insufficient), **1** (very insufficient).

Scores can be supplemented by short comments. As not all criteria are relevant for all IAs, some will generate "not applicable" (**n.a.**) as an answer.



EXTENSION IEA DSM PROGRAMME 2014 - 2019

IEA

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INTRODUCTION

The main purpose of this End-of-Term Report is to provide the End Use Working Party (EUWP) members with information on the Demand-Side Management Implementing Agreement. This information will enable the Working Party to decide whether or not to recommend that the term of the Agreement be extended and to enable them to advise on strategic directions for the Agreement.

This End-of-Term Report will also be used to highlight the results of the Agreement's work, raise the profile of the Agreement and attract interest from both Member and non-Member countries to consider participation in this Agreement. The Report will be posted in the password-protected area of the DSM Programme's website and summarized in the Programme's newsletter.

The information presented in this report was organized according to the guidelines provided by the IEA Secretariat. The period of review is January 2008 to February 2014.

OBJECTIVES AND STRATEGY

Demand Side Management (DSM) refers to all changes that originate from the demand side of the market in order to achieve large-scale energy efficiency improvements by deployment of improved technologies. Depending on market organisation in each country such changes involve different actors. In many cases the utilities play an active role.

The IEA Demand-Side Management (DSM) Programme is responsive to the energy policies, programs and market needs of the participating countries, and as they continue to change, so must the Programme change. Since the DSM Programme began in the early 1990s, the energy sector has changed dramatically in many participating countries, but the vast potential for improvement on the demand side remains largely untapped.

The IEA DSM Programme is neutral to the structure of the energy sector and remains prepared to deliver the research requested to suit the needs and interests of participants. To do this the Programme must closely follow the developments of the market from both a governmental and business perspective as well as track the changing stakeholder situation.

Working on the demand side is more important than ever. Deployment of the technologies and diffusion of efficient products are key issues for success. There is a definite need to consider with whom and how, in order to address more appropriately the stakeholders that can make a difference, be they governments, agencies, industry, end-users, utilities or NGOs.

A global exchange of experiences is of great importance in order for countries to develop both models for implementation that facilitates trade across borders and create a base for facilitating/enabling technologies to be developed, produced, shipped and used in a way that improves their performance and makes the cost for the applications acceptable. The IEA DSM-Programme provides such a global platform for development.

Countries have different terminology for DSM-measures and the IEA DSM-Programme tries to cover them and

address them correctly. We work with both Energy Efficiency measures that affect the load level and with Load Management measures that motivate and require Demand Response to affect the load shape and especially the peak load.

(1) THE OBJECTIVES OF THE DEMAND-SIDE MANAGEMENT (DSM) AGREEMENT ARE TO:

The Programme has two major objectives directed at its two major stakeholder groups. The Programme will provide to:

- (a) governments of the participating countries: increased capabilities to develop policies and programs for more effective use of DSM and energy efficient products; and
- (b) energy businesses: the information and tools necessary to create new cost-effective products and services in response to domestic and global opportunities;

But the Programme also enables access to information to:

(c) stakeholders that advocate energy efficiency and sustainable energy systems approaches with knowledge about the opportunities and barriers;

- Government includes administrations, authorities, regulators etc. and their associations.
- Energy businesses include system operators, transmission and distribution companies, brokers, wholesalers, utilities and their associations. Suppliers of “enabling hardware and software technologies” are included in this category.

(2) ORGANISATION OF THE PROGRAMME

To promote synergy and increase impact, the Programme structures its activities into two clusters, depending on the potential or desired impact on the load curve of the energy system (see also appendix 1 for further details and views on the cluster organisation).

LOAD SHAPE CLUSTER

This 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. Work within this cluster primarily increases the reliability of systems. See Appendix I.

LOAD LEVEL CLUSTER

This cluster includes Tasks that seek to shift the load curve to lower demand levels or shift between loads from one energy system to another. Work within this cluster primarily targets the reduction of emissions. See Appendix I.

The two clusters cover both technology and non-technology aspects (economy, behaviour, monitoring). “Hardcore” technology aspects are the domain of ISGAN (former ENARD activities) and 4E. Modelling the different technologies for an optimal performance and shaping/creating the right conditions for implementation based on a connection between the supply side and the demand side.

The Tasks in each of the clusters are managed by the Programme’s Executive Committee (EXCO) as a group. Tasks within each cluster are closely coordinated to build upon the relationships in sharing their results and in addressing

similar target groups. The EXCO has also been able to concentrate its management attention on each cluster at subsequent EXCO meetings.

It has been possible to handle the financing for new work more rationally with the better overview provided by this clustering and with the synergies between the Tasks in each cluster made clear.

PROGRAMME PRODUCTS

With the aim that the Programme should deliver more readily available products to be used and implemented, a range of products have been developed that could suit several categories of users and that could be developed and delivered in sequence during the work of a Task. The Programme's products include:

- **reports** from the on-going work (Minutes from Experts meetings, compilations of presentations, questionnaires, etc.)
- **publications** of results (analysis, overviews and conclusions that might be accompanied by background material, etc.)
- **articles** for professional journals , including peer-reviewed academic literature.
- **workshops** and **presentations** at workshops and conferences
- **forums for dissemination** and/or **discussion** with possible users, customers, decision-makers, etc.
- **growing pool of individuals and organisations** in each country that develop new expertise in DSM issues and solutions
- **databases**
- **software** for calculations, simulations, etc.
- **training seminars and courses**
- **expert platforms**
- **social media** presence
- **award of Excellence** to be delivered once a year to a company or a product that facilitates DSM.

Each of the Tasks have carefully planned how the work can be made available to their stakeholders by integrating several of their products and also by continuously reviewing how dissemination can be improved. The Operating Agents have explicitly stated what products they intend to deliver and have done so in a special dissemination Subtask as an integral part of their work.

NEW ADDITIONS TO THE WORK PROGRAMME:

The Executive Committee (EXCO) has an on-going process to consider proposals for new work. The Committee used the Programme's Strategic Plan to guide the identification of new work in Technology and Policy Areas summarized below:

- increasing energy prices (and market design issues)
- smart meters and feedback systems
- security of supply - study how energy systems respond to crisis
- portfolio development - study on how economies can reduce electricity growth by 10 or 20 percent in 10 years by energy efficiency and DSM measures vs. growing demand
- models and initiatives for boosting technologies , aggregated procurements, dynamic top-focused standards, clearinghouses for programmes and projects e.g. CDM/JI related
- energy efficiency ownership (new aggregators) / branding of Energy Efficiency
- networking and initiatives to reinforce services and promotions (ESCOs, marketing, municipality involvement)

- rate-design by performing a comprehensive analysis of various economic incentives and fiscal measures, including pricing systems, tariffs and levies. Develop new tools for international comparison of the impact of different tariff systems and energy labels on GHG emission reduction
- climate change – energy efficiency in the CDM-projects. Quantify and document the impact of EE on climate change fungible instruments
- regulatory matters related to energy efficiency - What areas of energy efficiency are best regulated and what should be purely market-based
- lack of awareness of DSM – link with ownership and aggregators.
- bottom-up evaluation /monitoring and verification
- transmission/distribution needs
- Policy instruments: standards and labelling, white certificates (follow up practices), tax policies, demand response (legal property rights) certificates, optimizing investments
- Behaviour Change and better understanding of implementation of DSM measures

INCREASE THE VALUE OF THE PROGRAMME.

The value of the Programme is evaluated as being good (see appendix), but at the same time is mentioned as an element that could improve.

The EXCO has started a number of initiatives to increase the value:

- Start an online course on DSM, both as a general topic, and as a product of the Task. This production will take place in collaboration with our new sponsor, European Copper Institute (ECI). This course will get on line in the first half of 2014. The knowledge of the implementing agreement, and thereby value to participants will increase by this easy to access instrument.
- Bring the website up to present standards, securing better positions in search engines and easy to reach reports.
- Increase the number of publications during the runtime of a Task, instead of the publication of a report at the end.
- Link with members and partners to get a better outreach. An example is the report that was published together with RAP. By translation and an extended network the number of downloads was much bigger than of other recent reports.
- Use social media to both attract new Task participants and contributors and increase the outreach.

The programme is in contact with a number of new possible participants: South Africa, Thailand, China and some institutes in the Middle East to increase the number of participants and increase the outreach at the same time.

There is some debate about giving more policy advise, in our opinion this is the work of ISGAN, but the programme will provide input to them and to the other parts of the IEA (Technology Network) both active and on request.

CONCRETE TASKS IN THE IMMEDIATE FUTURE

This strategy is formulated based on an overview of the problems of energy efficiency in dealing with the demand side as they are perceived by the Programme. It is the task of the EXCO to find participants and funding to deal with as much of this topic as possible.

To make it more concrete the EXCO will translate this strategy into a work plan. This work plan will include work on:

- Integration of Demand-Side Management, Energy Efficiency, Distributed Generation and Renewable Energy Sources within one research project. In this Task load shape and shift will be important elements.
- Competitive energy services, where the option to simplify contracting and stimulate energy services as a tool for both saving money and reducing CO2 will be major focus point.
- The role and contribution of end users to the optimal implementation of smart grids.

- Building on the bridge between the knowledge of behavior and organization change and the deployment of energy efficient technology in order to provide professionals in the field of Demand Side with tools to increase their effectiveness.
- A strong outreach project to increase international knowledge of DSM this includes an on line DSM course and a new website (thereby working on a “new” image for the Programme).

PARTICIPATION OF COUNTRIES AND INDUSTRY

PARTICIPANTS IN THE IMPLEMENTING AGREEMENT 2008 – 2012 & PARTICIPATION ON THE EXECUTIVE COMMITTEE ¹

COUNTRY	Number of Executive Committee Members	Utility/Industry	Government
Australia	1		1
Austria	1		1
Belgium	1		1
Canada	1		1
Denmark	2	1	1
Finland	2		2
France	2		2
Greece	2		2
India	2		2
Italy	2	2	
Japan ²	2	2	
Korea	2	2	
Netherlands	2		2
New Zealand	2		2
Norway	1		1
Spain	2	2	
Sweden	1		1
Switzerland	2		2
United Kingdom	1		1
United States	1		1
Regulatory Assistant Project (RAP) ³	2	2	
European Copper Institute	1	1	

Participants in the Tasks that were active during January 2008 – December 2012 are shown below, categorised as government, industry, utility or research institutes. If the number of Task Participants changed over the course of the Task’s work, the maximum participation is shown.

¹ There is one non-IEA member county currently participating in this Programme, namely India. Kuwait and Saudi Arabia are likely to join in the near future.

² Sponsor – remained Sponsor until 17 October 2008

³ Sponsor – became Sponsor on 9 June 2011

Participant Category	TASKS										Total
	15	16	17	18	19	20	21	22	23	24	
Task											
Government	4	6	2	2	2	1	4	2	1	4	28
Industry	2	3	2	2	3	2	4		4	X ⁴	22
Utility	12	1	2	1	2	1	1				20
Academic	-		7	-	1					1	9
Other								1			1
Total	18	10	13	5	8	4	9	3	5	4	80

PARTICIPATION BY INDUSTRY REPRESENTATIVES IN THE TASKS:

In this report the term “industry” is broadly used to include all private sector businesses and organisations, such as utilities, manufacturers, marketing firms, trade associations, etc.

Industry involvement in the Agreement’s activities during the reporting period

PARTICIPATION BY INDUSTRY REPRESENTATIVES IN THE WORK OF THE TASKS WAS:

Task 15 – Network Driven DSM

Country Energy (Australia), Energex (Australia), Energy Australia, Ergon Energy (Australia), Jemena (Australia)

Powerlink Queensland (Australia), SP Ausnet (Australia), TransGrid (Australia), Réseau de Transporte d’Electricité (France), Electricity Networks Association (New Zealand), Transpower (New Zealand), ESKOM (South Africa), RED Eléctrica de España (Spain), ABPS Infrastructure Pvt Ltd (India), Electricity Networks Association (New Zealand)

Task 16 – Competitive Energy Services (Energy-Contracting, ESCo Services)

Graz Energy Agency GmbH (Austria), Japan Facility Solutions, Inc. (Japan), Essent Retail services BV, Essent Local Energy Solutions, Hitachi Consulting

Task 17 – Integration of Demand Side Management Distributed Generation, Renewable Energy Sources and Energy Storages

Arsenal Research (Austria), AIT Austrian Institute of Technology (Austria), Merinova Oy (Finland)

ECN, RED Eléctrica de Espana (Spain), Silverstein & Associates , National Renewable Energy Laboratory

Lapeenranta University of Technology (Finland), ENEXIS B.V., Vienna University of Technology (Austria), ECSE3/G2ELAB, TNO (Nederland)

Task 18 – DSM and Climate Change

ABPS Infrastructure Pvt Ltd (India), RED Eléctrica de España, Everis (Spain)

Task 19 – Micro Demand Response and Energy Saving

VTT Technical Research Centre, Public Power Corporation (PPC), RED Electrica de Espana , EA Technology Ltd

⁴ In this task industry is participating in workshops, but not as an official Task Participant

JI Network (the Netherlands) , University of Gröningen
Task 20 – Branding of Energy Efficiency Bureau of Energy Efficiency (BEE) India, Lawrence Berkeley National Laboratory (USA), RED Electrica de Espana (Spain)
Task 21 – Standardisation of Energy Savings Calculations Enerdata, Korean Energy Management Corporation (Korea), RED Eléctrica de Espana (Spain), Schiller Consulting Inc (USA)
Task 22 – Energy Efficiency Portfolio Standards RED Eléctrica de Espana (Spain), Regulatory Assistance Project (RAP)
Task 23 – The Role of Customers in Delivering Effective Smart Grids KEMA Nederland BV, Korean Power Exchange, SP technical Research Institute of Sweden, EA Technology Ltd
Task 24 – Closing the Loop –Behaviour change in DSM: from theory to policies and practice National Energy Research Institute (NERI) (New Zealand)

PARTICIPANTS FROM GOVERNMENT IN THE WORK OF THE TASKS

Task 15 – Network Driven DSM ADEME (France), Electricity Commission (New Zealand), Oak Ridge National Laboratory (USA)
Task 16 – Competitive Energy Services (Energy-Contracting, ESCo Services) Graz Energy Agency GmbH, FEDESCO, Motiva Oy, Bureau of Energy Efficiency (BEE), Swedish Energy Agency Swiss Federal Office of Energy
Task 17 – Integration of Demand Side Management Distributed Generation, Renewable Energy Sources and Energy Storages Gestore dei Servizi Elettrici (GSE), Korea Energy Management Corporation (KEMCO)
Task 18 – DSM and Climate Change Sustainability Victoria (Australia), ADEME (France)
Task 19 – Micro Demand Response and Energy Saving ADEME (France), Bureau of Energy Efficiency (BEE)
Task 20 – Branding of Energy Efficiency ADEME (France)
Task 21 – Standardisation of Energy Savings Calculations ADEME (France), Enova SF (Norway), NL Agency (The Netherlands), Swiss Federal Office of Energy, (Switzerland)
Task 22 – Energy Efficiency Portfolio Standards Bureau of Energy Efficiency (BEE) (India)
Task 23 – The Role of Customers in Delivering Effective Smart Grids Enova SF
Task 24 – Closing the Loop –Behaviour change in DSM: from theory to policies and practice NL Agency (The Netherlands), Swiss Federal Office of Energy (Switzerland), SPF Economie (Belgium), Swedish Energy Agency (Sweden)

With the exception of Task 22 we see a combination of industry and government participation. Putting a percentage to this collaboration doesn't make much sense in this End of Term report, but it's good to see that the interest of industry in the different Tasks continued and, in the newest Tasks, even increased.

PARTICIPATION IN ACTIVITIES AS A PARTNER:

The IA started as a partner in the PEPDEE project, but as the Secretariat didn't take the Agreement serious in their contribution and didn't include the responsible Operating Agent, the EXCO decided to minimise the collaboration.

ATTENDANCE AT TASK EXPERTS MEETINGS AND OPEN SEMINARS:

The Tasks of the DSM Implementing Agreement often use workshops as part of the projects. There is no clear figure on the total sum of participants, as not everybody has kept count.

TASK	Attendance at Task Experts Meetings, Workshops and Open Seminars in 2008 - 2012			
	Task meetings	Participants	Seminars/Conferences	Participants
Task 15	1	10	1	15
Task 16	10	89	10	445
Task 17	8	45	4	82
Task 18	3	15	-	-
Task 19	5	44	-	-
Task 20	2	15	-	-
Task 21	4	42	1	22
Task 22	2	11	-	-
Task 23	2	14	1	15
Task 24	8	153	5	650

POTENTIAL FOR INCREASED PARTICIPATION

The level of participation is quite high at present. Nonetheless the Executive Committee expects to increase that level in the next five year period. The involvement of additional countries from the +5 group would be helpful to meet the IA's objectives and to make DSM a globally addressed issue. There are no real constraints on country or industry participation.

The recruitment of Sponsors is an on-going process and we are looking for four specific categories:

- industry that manufactures and markets specific technologies for DSM, such as metering and related enabling technologies,
- industry that has an intermediary role in making DSM work, such as transmission companies, regulators and system operators,
- utility associations that gather information and promote utility businesses, including DSM activities, and
- utilities that undertake DSM programs in their countries

ENTITIES THAT WITHDREW FROM THE AGREEMENT DURING THE TERM UNDER REVIEW:

- Australia
- Canada
- Denmark
- New Zealand

ENTITIES THAT JOINED THE AGREEMENT DURING THE TERM UNDER REVIEW:

- New Zealand
- Regulatory Assistance Project (RAP) – Sponsor

THE WORK PROGRAMME AND NATURE OF WORK

THE TASKS

A) CURRENTLY ACTIVE TASKS

<i>Name</i>	<i>Starting date</i>	<i>Expected completion date</i>
Task 16 – Competitive Energy Services (Energy Contracting ESCo Services) Phase I - III	July 2006	April 2015
Task 20 – Branding of Energy Efficiency	January 2009	April 2013
Task 21 – Standardisation of Energy Savings Calculations	April 2009	April 2013
Task 23 – The Role of Customers in Delivering Effective Smart Grids	June 2012	November 2013
Task 24 – Closing the Loop – Behaviour Change in DSM: from theory to policies and practice	June 2012	December 2014

B) TASKS COMPLETED DURING THE PERIOD OF REVIEW

<i>Name</i>	<i>Starting date</i>	<i>Expected completion date</i>
Task 15 – Network-Driven DSM	October 2004	October 2008
Task 17 – Integration of Demand Side Management Distributed Generation, Renewable Energy Sources and Energy Storages, Phase I and II	September 2007	August 2012
Task 18 – DSM and Climate Change	March 2008	November 2010
Task 19 – Micro Demand Response and Energy Saving	January 2009	March 2010
Task 22 – Energy Efficiency Portfolio Standards	March 2010	April 2012

THE NATURE OF THE AGREEMENT'S ACTIVITIES.

All of the current Tasks have a significant amount of cost-shared work and most of the current Tasks involve a degree of Task-sharing. The Executive Committee organises Special Sessions, usually two per year on national activities. For example, Standby Power (**New Delhi, India, 2 April 2008**) and White Certificates: the Italian experiences gained in Regulation, Monitoring & Verification and Electricity Market contexts (**Milan, Italy, 22 October 2008**)

Other workshops, held in conjunction with Executive Committee meetings were:

- **Vienna, Austria – 1 April 2009** - “Demand Side Management (DSM) and Energy Efficiency – Elements for Optimizing our Energy Systems”
- **Chester, United Kingdom – 21 October 2009** - Is DSM the Answer? – Solving the problems of Tomorrow’s Electricity Systems
- **Rueil-Malmaison, France – 7 April 2010** - Last Evolution of Demand Side Management in the World
- **Stockholm, Sweden – 6 October 2010** - The Smartness of Smart Grids
- **Washington D.C., United States – 13 April 2011** - Experiences with Energy Efficiency Resource Standards
- **Jeju-Island, South Korea – 2 November 2011** - How to Develop DSM in Korea
- **Trondheim, Norway – 18 April 2012** - Current Issues in Demand Side Management
- **Espoo, Finland – 14 November 2012** - Current Issues in Demand Side Management

CO-ORDINATION WITH OTHER BODIES

WITH OTHER AGREEMENTS OR INTERNATIONAL PROGRAMMES

The agreement participated in the Buildings Coordination Group and the Electricity Coordination group. The work programme was discussed with the Implementing Agreements 4E and ISGAN. At the moment there isn’t an overlap with either of them. This doesn’t give any guarantees for the future, as the policy part of ISGAN tends to look at demand response as well. Both IA’s are aware of this possible overlap.

The Chair of this Implementing Agreement and the VC of 4E (former Chair) are working in the same team in the Netherlands and discuss developments regularly to guarantee that the activities are different.

As the start of the ISGAN IA the line between the two IA’s was drawn in the following way:

- ISGAN is working on in-depth technology (ENARD) and policy issues
- DSM is working on modelling, research concerning the end-user and stimulating energy efficiency by technology deployment and behaviour change.

The interest in policy sometimes tends to get into the direction of deployment/behaviour change. The option to integrate the IA’s has been debated by different participants. The conclusion of ISGAN members was that they don’t want to broaden the scope at the moment, as they are afraid to lose focus. DSM has offered ISGAN to present this 5-year strategy to their EXCO.

The EUWP and CERT have created a numbers of IA’s (long) after IA DSM. New countries and new EXCO members sometimes make the distinction between the IA’s blurry. IA DSM has increased the behaviour change activities in

the last years, but hasn't entered new research areas. As such both collaboration and distinction between work done has to be a two way street and not the sole task of this Programme

IA DSM contributed and will keep contributing to the work of the Secretariat whenever possible. As such the IA attended three NEET workshops and gave presentations in Russia and South Africa.

The IA also contributed to the World Energy Outlook.

Some EXCO members and operating agents collaborated with the European Council for an Energy Efficient Economy (eceee) to disseminate IA knowledge.

STRENGTHS AND WEAKNESSES OF THIS IEA IMPLEMENTING AGREEMENT.

A) STRENGTHS

- 1) A wide international perspective.
- 2) Less bureaucratic than most other networks. There is less administration and red tape, which makes it easier to manage projects.
- 3) The sharing of information can occur on a formal and informal basis.
- 4) All participants come to the table as equals.
- 5) Participants have the ability to define the Task work and therefore achieve their desired goals.
- 6) The link with the International Energy Agency (IEA) adds prestige to the work
- 7) The international scope enhances the level of participation

B) WEAKNESSES

The weaknesses are presented in the internal evaluation:

- 1) Dissemination outside own circle.
- 2) Proving added value to policymakers.
- 3) An image problem of being "last century"

INFORMATION DISSEMINATION

TASK PUBLICATIONS

a) **Task 15 – Network Driven DSM** – In force October 2004 - October 2008

<i>Report name</i>	<i>Date of report</i>
Task 15: Research Report No1: Worldwide Survey of Network-Driven DSM Projects. Second Edition	10 October 2008
Task 15: Research Report No 2: Assessment and Development of Network-Driven Demand-Side Management Measures. Second Edition	10 October 2008
Task 15: Research Report No 3: Incorporation of DSM Measures into Network Planning. Second Edition	10 October 2008
Task 15: Research Report No 4: Evaluation and Acquisition of Network-Driven DSM Resources. Second Edition	14 October 2008

Task 15 Research Report No 5: Role of Load Control and Smart Metering in Achieving Network-related Objectives. First (and only) edition.	13 October 2008
Database: Case Studies Database: Detailed case studies of network-driven DSM projects. Includes 64 case studies	October 2008
Database: Load Management Technology Database: Detailed descriptions of load control and metering technology products. Includes 17 product descriptions	October 2008
Final Management Report	

b) **Task 16 – Competitive Energy Services (Energy Contracting, ESCo Services):** Phase I - In force July 2006 to June 2009/Phase II – July 2009 – June 2012/Phase III – July 2012 – June 2015

Report name	Date of report
Book contribution: “ ‘Energy – Contracting’ to Achieve Energy Efficiency and Renewables using Comprehensive Refurbishment of Buildings as an Example. A Guide for Building Owners and ESCOs” from Urban Energy Transition, Elsevier Science & Technology edited by Peter Droege.	March 2008 (ISBN-13:978-0-08-045341-5)
Manual: Opportunity Cost Tool, Comparison and Evaluation of Financing Options for Energy-Contracting Projects	March 2008
Comprehensive Refurbishment of Buildings through Energy Performance Contracting. A Guide for Building Owners and ESCOs,	November 2008
Manual: Publishing of “Comparison of Financing Options for Energy-Contracting. A manual for ESCOs, ESCO customers and ESCO project developers” in cooperation with Energymag, possibly with French translation	2 nd quarter 2009
eceee Conference paper – eceee Proceedings: Energy Efficiency First! Integration of Demand Side measures into Energy Supply Contracting Models (Integral Energy Contracting)	June 2009
eceee Conference paper – eceee Proceedings: Energy Contracting: How much can it Contribute to Energy Efficiency in the Residential Sector?	June 2009
Umfassende Gebäudesanierung durch Energie-Einspar-Contracting. Ein Leitfaden für Gebäudenudeeigentümer und Contractoren. Vorläufige Endversion,	August 2009
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.	September 2009
Reprint of chapter:” ‘Energy Contracting’ to Achieve Energy Efficiency and renewables using Comprehensive Refurbishment of Buildings as an Example. A Guide for buildings owners and ESCOs” from Urban Energy Transition, Elsevier Science & Technology, edited by Peter Droege.	3 rd quarter 2009
Integrated Energy Contracting (IEC). A new ESCo Model to Combine Energy Efficiency and (Renewable) Supply in Large Buildings and Industry.	October 2009
What is Energy-Contracting? Concept, Definition Two Basic Business	October 2009

Models.	
Final Task Report (Phase 1: 2006–2009)	February 2010
Comprehensive Refurbishment of Buildings through Energy Performance Contracting. Good Practice Examples Amended. A Guide for Building Owners and ESCos	June 2010
Opportunity Cost Tool, Comparison and Evaluation of Financing Options for Energy Contracting Projects. Good Practice Examples Amended. A Manual for ESCo, ESCo customers and ESCo project Developers.	July 2010
Integrated Energy Contracting (IEC). A new ESCo Model to Combine Energy Efficiency and (Renewable) Supply in Large Buildings and Industry. IEA DSM Task16 Discussion Paper.	October 2010
eceee Conference paper: Conservation First! The New Integrated Energy-Contracting Model to Combine Energy Efficiency and Renewable Supply in Large Buildings and Industry.	June 2011
How to unite energy Conservation and (Renewable) Supply? The new Integrated Energy-Contracting Model. In memoriam of Prof. Manfred Heindler.	July 2011
Methodological comparison of ESC and EPC ESCo business models	October 2012

c) Task 17 – Integration of Demand Side Management Distributed Generation, Renewable Energy Sources and Energy Storages: Phase 1 – September 2007 – to September 2008, Phase 2 – January 2010 – August 2012

<i>Report name</i>	<i>Date of report</i>
Petten Workshop: presentations and summary	July 2008
Integration of Demand Side Management, Distributed Generation, Renewable Energy Sources and Energy Storages. Visions of successful integration and conclusions. Poster Session in “Third International Conference on Integration of Renewable and Distributed Energy Resources”.	December 2008
Integration of Demand Side Management, Distributed Generation, Renewable Energy Sources and Energy Storages – Final Synthesis Report Vol. 1.	December 2008
Integration of Demand Side Management, Distributed Generation, Renewable Energy Sources and Energy Storages – Final Synthesis Report Vol. 2.	December 2008
Integration of DSM, DG, RES and ES	2011
Full electric and plug-in hybrid electric vehicles from the power system perspective. Subtask 5, Report No. 1	August 2012
Micro-CHP technologies for distributed-generation. Subtask 5, Report No. 2	August 2012
Heat pumps for cooling and heating. Subtask 5	August 2012
Photovoltaic at customer premises, Subtask 5, Report No. 4	August 2012
Smart metering, Subtask 5	August 2012
Stakeholders involved in the deployment of micro-generation and new end-use technologies,	August 2012

Assessment of the quantitative effects on the power systems and stakeholders – case studies from Austria and Finland. Subtask 8 Report.	August 2012
Summary and conclusions. Subtask 9 Report.	August 2012

d) **Task 18 – DSM and Climate Change** In force March 2008 to November 2010

<i>Report name</i>	<i>Date of report</i>
Working paper 1:	
Working paper 2: Preliminary Study of Emissions Trading Schemes in the UK and Australia	2009
Research Report No 1: Interactions between Demand Side Management and Climate Change	2010
Research Report No 2: Principles for Assessing Emissions Reductions from DSM Measures	2010
Research Report No 3: Mitigating GHG Emissions and Delivering Electricity System Benefits	2010
Research Report No 4: Funding DSM Projects with Revenue from Carbon Trading	2010
Working paper: 3 Time of Use Pricing and Emissions Mitigation	2010
Database: containing detailed case studies of 18 DSM projects	2010
Database: containing detailed studies of 13 greenhouse gas emissions mitigation projects	2010

e) **Task 19 – Micro Demand Response and Energy Saving** In force January 2009 – to 30 March 2010.

<i>Report name</i>	<i>Date of report</i>
Micro Demand Response and Energy Savings Products – Definition of the Requirements and the Options for Effective Delivery	March 2010

f) **Task 21 – Standardisation of Energy Savings Calculations** In force April 2009 to April 2013.

<i>Report name</i>	<i>Date of report</i>
Standardisation of Energy Savings Calculations, State-of-the-Art	March 2010
Template Energy Savings Calculation for Case Examples	July 2011
Country Reports with National Case Applications for energy savings and greenhouse gas reduction	2012

g) **Task 22 – Energy Efficiency Portfolio Standards** In force March 2010 to April 2012

<i>Report name</i>	<i>Date of report</i>
Report on 'Best Practices in Designing Energy Efficiency Obligation Schemes'	April 2012

h) Task 23 – The Role of Customers in Delivering Effective Smart Grids In force June 2012 to November 2013

Report name	Date of report
Subtask 1 Report showing the impact of markets on customers' willingness and ability to participate in Smart Grids	March 2010

i) Task 24 - Closing the Loop–Behaviour Change in DSM: From theory to practice: In force June 2012 to December 2014

<i>Report name</i>	<i>Date of report</i>
Positioning paper for Brussels workshop	2012
Positioning and definitions paper for Oxford workshop	2012
Template for Models of Understanding Behaviour Change	2012
Task 24 Pecha Kucha presentation (PowerPoint/film)	2012
5 participating countries' Pecha Kucha presentations (PowerPoint/film)	2012
Interviews of Experts' own energy stories (film)	2012
Oxford workshop 25 minute film and graphic storytelling	2012

DISSEMINATION OF THE TASK RESULTS

Chapter 4 of the Programme's Procedural Guidelines describes how the Programme conducts its review and approval process for internal working documents and formal Task reports.

The programme has established a Visibility Committee to assure that all Programme information-related activities and products are of high quality and contribute to the Programme's mission. The Visibility Committee consists of the Chairman, the Visibility Committee Chairman, an Executive Committee member representative, and one Operating Agent representative. The Executive Secretary for the Programme, the Editor of the Spotlight Newsletter, the Webmaster and the Executive Committee Advisor assist this Committee.

This Committee is responsible for the development of communication strategies, identification of information, dissemination opportunities, allocation of resources and assessing the effectiveness of all communication and visibility activities. The Visibility Committee reports to the Executive Committee.

The major information products of the Programme, in addition to the Task reports and flyers are the Web Site, the Annual Report, the Spotlight Newsletter and the Programme Information Brochure as well as increased presence in social media and networks. Copies of each (non digital elements) are enclosed with this document.

Dissemination activities include conference presentations, information posted on the website, promotional materials and press publications. Some examples include:

Task 16 - eceee Conference paper – eceee Proceedings: Energy Efficiency First! Integration of Demand Side measures into Energy Supply Contracting Models (Integral Energy Contracting)	June 2009
Task 16 - eceee Conference paper – eceee Proceedings: Energy Contracting: How much can it Contribute to Energy Efficiency in the Residential Sector?	June 2009

Task 16 - <i>eceee Conference paper: Conservation First! The New Integrated Energy-Contracting Model to Combine Energy Efficiency and Renewable Supply in Large Buildings and Industry.</i>	June 2011
Task 17 - Presentation at 2009 IAEE European Conference	September 2009
Task 17 - Presentation at End-Use Working Party (EUWP) workshop on Electricity in the future Transport System.	September 2009
Task 17 - Presentation at 5 th Dubrovnik Conference on Sustainable Development of Energy Water and Environment Systems.	October 2009
Task 17 - Presentation at ENARD workshop	October 2009
Task 17 – Presentation at Joint Eurelectric/IEA DSM event	March 2010
Task 17 – Presentation at CICED Conference in Nanjing, China	September 2010
Task 17 – Presentation at IEA DSM workshop “The Smartness of Smart Grids”	October 2010
Task 21 – Presentation at the International Energy Program Evaluation (EPEC) Conference on “Energy Savings Calculations: what are we heading for? Increasing libraries of guidelines and handbooks or global harmonization and (inter)national standards?”	August 2009
Task 24 – Closing the Loop –Behaviour change in DSM: from theory to policies and practice National Energy Research Institute (NERI) (New Zealand) / RSA (Italy)	August 2012 and September 2012
Task 24 – Closing the Loop –Behaviour change in DSM: from theory to policies and practice Presentation and workshops on “Closing the loop” at the eceee summer study	June 2013

MECHANISMS TO ENHANCE COMMUNICATIONS AND INCREASE VISIBILITY OF THE AGREEMENT:

The mechanisms used to enhance communication and increase visibility are based on the Programme’s Communication Strategy.

This strategy has four parts:

1. improving communication and dissemination tools,
2. improving Task support,
3. reaching our target audiences, and
4. evaluating impacts.

“WELL TARGETED INFORMATION DISSEMINATION – A CHECK-LIST OF SUGGESTED PATHWAYS”

Task report covers include the name of the DSM Implementing Agreement and number and title of the Task. A brief description of the IEA’s collaborative programme is also included. To help raise the profile of the Programme, journal articles based on Task work is being done within the IEA DSM Programme.

All public documents and the website now include the IEA disclaimer.

“MONITOR COMMUNICATIONS ACHIEVEMENTS”

Disseminating information to targeted audiences is an on-going activity. This End-of-Term report and the strategic plan describes the Programme’s information dissemination efforts and results.

SIGNIFICANT DEVELOPMENTS IN, OR PLANS FOR, INFORMATION DISSEMINATION ACTIVITIES.

- A new website was designed at the end of the last reporting period and has undergone further substantial developments during the current reporting period, to improve information exchange and facilitate direct contact with the Programme’s target audiences and Internet search engines. During the reporting period Facebook, Twitter, LinkedIn, and YouTube have been added to the website, to disseminate the Programme’s work and interact with the Programme’s target audience. A statistical analysis tool provides the Executive Committee with reports on the effectiveness of the site by measuring site usage as well as tracking downloads of each individual Task report.
- The Spotlight Newsletter is a printable electronic newsletter that reports on Tasks and Programme news, and relevant DSM issues. The newsletter is distributed 4 times a year through the Executive Committee members and the Operating Agents to a wide group of readers. The Spotlight Newsletters for the reporting period are attached.
- During 2012 the website was developed and now has new sections for news, columns, workshops, calendar and latest reports.
Annual Report – The Annual Report summarises the work of the Programme for that year and is a requirement of the IEA Secretariat. The style and format have been maintained during 2008–2012. It contains the Chairman’s Report focusing on achievements of the Programme and new work initiated that year. It summarises the work for each current Task reporting on their objectives, scope of work, progress for the year, activities completed and planned, involvement of industry and other organisations and lists the reports produced in that year and those planned for the next year. It presents an activity time schedule and lists all participants. The report is disseminated to each Executive Committee member, and Operating Agent as well as to the members of the End-Use Working Party (EUWP) and Energy Efficiency Working Party (EEWP). The 5 Annual Reports for the reporting period are attached.
- Workshops – [IEA DSM Programme workshops](#) are held relative to national and international interests in conjunction with bi-annual Executive Committee meetings or Task experts meetings. Some workshops focus on a specific topic, while others summarise the Tasks work for audiences in the host country. All IEA DSM Programme participants have been requested to identify national events and to present IEA DSM Programme information at those meetings.

- A Programme Information Brochure was produced in 2006 to provide a summary of the Programme and is still being used successfully. The brochure is a folder containing updateable leaflets containing programme information, along with current Task flyers. The brochure has proven to be a very useful promotional aid. The brochure with [current flyers](#) and DSM Programme information is attached.
- Publications Management and Promotion – The web site provides downloadable reports, brochures and presentations for the new, current and completed Tasks. A [“Key Publications”](#) page provides access to the principal Programme outputs; others are available via the Task areas of the site. Programme publications including the [Annual Report](#) and the [Spotlight Newsletter](#) are also available. Task reports are summarised in the “Spotlight Newsletter”.

The publications in the Library are categorised as:

- a) “Current” – Information that is readily available.
- b) “Available through the Operating Agent only” – Where proprietary information clauses are still enacted by the participating countries and contact with the Operating Agent must be made.
- c) “Archive” – Listed but not available to the public

The Operating Agents are required to submit their reports to the web-based Library and the Webmaster is required to promote and disseminate them appropriately and according to the Task Information Plan.

Country specific information is kept in a repository, which the Executive Committee members, Operating Agents and experts are encouraged to upload.

Task Information Plans – Task Information Plans are developed during the concept development stage. The Visibility Committee has during the reporting period improved the structure of these plans and how to aid the Operating Agents in the effective promotion and dissemination of Task reports. Task reports are generally disseminated by the Operating Agent to the Executive Committee members of the participating countries and to the Task experts who are then required to disseminate to pre-determined target audiences.

Review of Information Activities – Effectiveness reviews are routinely carried out in each of the DSM Programme’s main information activities, namely:

- a) [Annual Report](#)
- b) [Spotlight Newsletter](#)
- c) Website and related functions - www.ieadsm.org
- d) [Task flyers](#)

The Chairman of the Visibility Committee presents reports on these evaluations to the Executive Committee. The Executive Committee is invited to provide feedback and the Visibility Committee is responsible for making the necessary changes.

FURTHER SCOPE FOR TECHNOLOGY TRANSFER TO NON-IEA MEMBER COUNTRIES AND ANY PLANS FOR SUCH

The Implementing agreement attended a number of NEET workshops and invited several non-member countries to their EXCO meetings and workshops. Among them are Kuwait, Saudi Arabia, and Thailand.

The Implementing Agreement started activities to improve the outreach of the material developed within the Tasks. These activities are bundled under the header “DSM University”.

SCALE OF ACTIVITIES

MEETINGS

During the review period (2008–2012), a total of 10 Executive Committee meetings were held by the Programme. Over 236 people attended those meetings.

<i>Meeting type</i>	<i>No. Mtgs.</i>	<i>No. Participants</i>
Executive Committee meetings	10	236
Task Experts meetings	41	333
Open seminars and conferences Executive Committee	10	Approx. 500 people
Task seminars and conferences	20	719

A breakdown, by Task, is shown below:

Task:	Experts Meetings 2008–2012		Seminars & Conferences/workshops 2008–2012	
	Number of Meetings	Number of Participants	Number of Meetings	Number of Participants
Task 15	1	6	1	15
Task 16	10	89	10	445
Task 17	8	48	4	120
Task 18	3	22	-	-
Task 19	5	44	-	-
Task 20	2	15	-	-
Task 21	3	31	1	22
Task 22	2	11	-	-

Task 23	2	14	1	5
Task 24	5	53	3	109
Executive Committee			Seminars & Conferences 2008-2012	
Executive Committee			10	500

It should be noted that the Programme occasionally holds meetings with senior representatives from industry and government of the country that hosts an Executive Committee meeting or Task experts meeting. During such meetings, the Operating Agents highlight recent accomplishments of their Task that should be of special interest to the invited participants, and the host country has an opportunity to inform the Executive Committee members of important recent developments in their country. The meetings raise awareness of the Programme within the host country and assure that the Programme has an understanding of the current situation in the host country.

APPENDIX I - THE IEA DSM 2008 – 2012 EVALUATION, A SYNTHESIS OF THE QUESTIONNAIRE.

COMMENTS (1):

The overlaps should be reduced by the existing internal IEA co-ordination groups for buildings, energy and renewable fuels. The concepts are fairly well described in the existing strategy (2008-2012) but the text is not easy in particular for someone that is not involved in the daily work Dissemination remains a problem and has at least 2 faces. One is to make stakeholders aware of the subject and the work. The other is to make the results accessible in wider circles both among participants and outside.

1. VALUE OF THE OUTPUT FROM THE PROGRAMME

The output from the Programme seems to be relevant for the participants. The output is even deemed to be, in some instances, innovative. The scope of the Programme however seems to be a problem. Not necessarily that it is wrong but that it is complicated. Comments are made that it is being wide, being policy-related (rather than technology) and being in risk of duplication with other IAs. The duplication risks mentioned relate to IAs: 4E, ISGAN, SHC, and ECBCS.

The participants seem to both have a difficulty in the positioning of the Programme (relate it to other (technology-oriented) IAs) and to communicate the Programme scope (idea) to decision-makers and stakeholders in their surroundings. Partly the terminology and concepts are found confusing, which could depend on that the DSM-concepts are archaic since they were developed as far back as 30-40 years ago?

There is a lack of visibility and dissemination of the work in such a format that enables the outside uptake of experiences/results. This limits the value to a restricted group of Task Participants and for the limited time of the Task-duration.

2. APPLICATIONS IN NATIONAL POLICIES

COMMENTS (2):

The crucial issue here seems to be accessibility and availability of material that is of such a format (length, language) that addresses the concern of important parties such as decision-makers in departments, states, regions and administrations. To the extent that there is a trend to make use of Energy Efficiency Obligations this may call for renewed actions to bring in utilities and their associations to have an exchange on what works and what doesn't. The same for regulators on their applications of EEO.

The application of results from the work, thus being channelled into national policies, seems very limited for national policies. With the exception that the work might have inspired national activities and stakeholders. In spite of the somewhat restrained comments on general applications there are several examples where very practically oriented work regarding e.g. technology procurement (3), Demand Response (13 and 19), ESCo and EPC (10 and 16), "White Certificates" (14), Verification and Calculation (21), and EERS (22), have been "fed in" to local actions. To some extent material has also been used for capacity building in participants' own organization.

Recent events, such as the Fukushima incident, have also motivated governments to rethink their energy policies and put more emphasis on DSM-actions. When (and if) this happens some of the past work may be particularly useful. Participants to some (but very little) extent seem to brief stakeholders in their constituencies about work (Tasks) when started and terminated. This could happen either in direct briefings or in workshops.

COMMENTS (3):

This might be a new focus area in particular with a more defined collaboration with e.g. ISGAN to deploy "Smart Applications" making use of the full range of DSM-activities.

The variety of DSM-measures has a value in that it can be shown to policy-makers that there is a multitude of options and that several of them bring not only economic benefits.

3. APPLICATIONS IN INDUSTRY

There is a difference in the Participants view on industry. Most refer to utility business and service providers whereas others primarily think of industry as users of energy. For the former there are clear cases of how ESCo-EPC (16), DR (13 and 19) and Integration (17) material has been of interest and been applied in developing business-models as well as simulating operations.

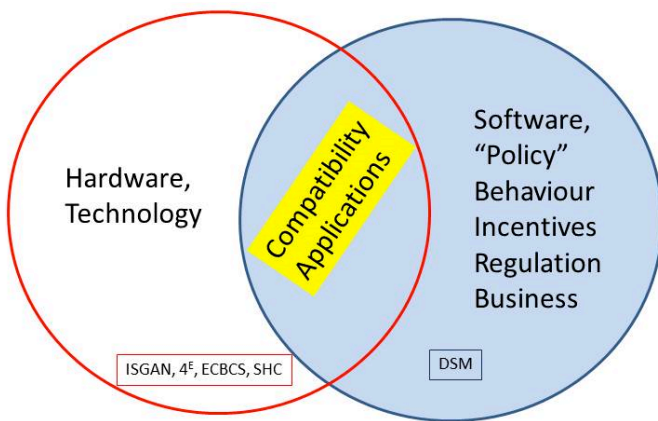
For the latter there is less such evidence, but the development of smart grids have been indicated as serving also local production of energy as well as more sophisticated control.

This might be a new focus area in particular with a more defined collaboration with e.g. ISGAN to deploy "Smart Applications" making use of the full range of DSM-activities.

4. APPLICATION WITH END USERS

Task 16 and in the future Task 23 and 24 seems to be those that have most relevance for end-users.

5. OVERLAP IN PARTICULAR WITHIN THE IEA?



There are several recorded assumptions (or fear) of overlaps. Most (all of them?) seem to be related to IAs who primarily deal with hardware technology issues and where we deal primarily with software policy matters. To the extent that there is a real overlap these should be fairly easy to reconcile (see figure).

The possible overlap between the DSM-Programme and the IEA secretariat is also mentioned. Which should be possible to handle with a more dedicated Secretariat involvement. It might be possible to

illustrate the relation between the two main strands as two circles with a partial overlap and define the area for common issues.

COMMENTS (5):

We need to reiterate that the IEA secretariat has a crucial responsibility for the co-ordination both between IAs and between themselves and the IAs as well as for the "bigger picture" of global sustainability work. The backbone of this is the desk-officer function which would require a closer and more determined participation from them. The combined function of IAs and secretariat could be a very strong unit that might allow more joint forces instead of splits as happen today when new initiatives mushrooms. The secretariat managed Co-ordination groups, that imply that all IAs are invited once a year to discuss co-ordination among them, are good but needs to be elaborated by allowing IAs to closer follow each other by use of web-functions. The preparatory work for new tasks should take not only overlaps but also possible joint interests into account. The EXCO meetings (and related workshops) should be used for both outreach and coordination by invitations to important partners both within and outside the IEA.

Overlaps with other outside programmes, with European Commission (EC) and IPEEC⁵ are mentioned, should also be considered but cannot be as easily handled within "the family".

Such overlaps can be more genuine, but nevertheless be reconciled. The EC participates in some of the IEA IAs working with Renewables. IPEEC is drawing upon the IEA secretariat resources which should, in principle, allow for a harmonic development. An overlap issue is the emergence of new and related networks. IPEEC has been mentioned. The Clean Energy Ministerial⁶ has launched several projects. IRENA⁷ might be involved in some actions that relate to DSM and utilities.

The advice to avoid duplications however acknowledges both that complete avoidance cannot be expected and that some overlap might be a part of a creative/innovative process. That said, it is important that preparations are thorough enough. Potential overlap should be a title in the preparatory documentation. Common and back-to-back EXCO meetings was suggested as well as invitations to other IAs that may be concerned as guest at EXCO meetings.

⁵ <http://www.ipeec.org/default.aspx>

⁶ <http://www.cleanenergyministerial.org/>

⁷ <http://www.irena.org/home/index.aspx?PriMenuID=12&mnu=Pri>

COMMENTS (6):

A start for any improvement of co-operation must start with a better communication (and possibly rephrasing/definition) of our work, call it DSM or whatever. In doing so we also must define (name) receivers of output in categories, define topics of work and possibly refine products to communicate.

Considering the amount of initiatives that comes from several other organizations (see 3 above) and the growing mutual interest among IEA IAs there could be a case for a “formal” SWOT-analysis to illustrate how parties can make use of each other competence

6. HOW DOES DSM COMPLEMENT OTHERS (IN PARTICULAR WITHIN THE IEA)?

Reasonably the DSM-Programme should have a distinct profile different from many others, see figure above. This has however not been communicated or understood in full. The complement that seems to be the most important is that related to smart grids (ISGAN), which is so much more important after an ISGAN workshop where their focus on applications is DR (13, 19 and 23) and Integration (17) but also Behaviour (24) though they have not yet managed to articulate that. An aspect put forward is the DSM-Programme relevance for resource planning and investment which is covered at least in part in e.g. Task 15 (Network Driven DSM) but also requires that several Task results are pulled together and synthesized.

The IEA internal organisation with EEWP and EUWP was mentioned as both an opportunity and a problem. Maybe EEWP should be better informed about our activities..

7. THE DSM PORTFOLIO—ADDITIONS AND PRIORITIES

There is a huge amount of suggestions on both work and the ranking. In the following there is an attempt to bring some order, but there are still many cross-cutting opportunities between the entries. It was pointed out that there is no obligation to cover the entire field of possible DSM!

BUSINESS AND GOVERNANCE

- a) Business Models/Conditions. A vast potential for energy efficiency is recorded and some of the barriers addressed whether they are institutional or behavioural. But business organisation remains a problem. Energy Efficiency is technically easy but organisation of the delivery is still complicated. Business is not staged and prepared to deliver Negawatthours
- b) Management of releasing Energy efficiency as a resource. Related to the above governing a system that delivers energy efficiency as standard remains a problem. Actors, Financing, Calculation including all benefits, etc.
- c) Country Specific analysis and calculation of the potential. Many agrees on DSM activities in general and as a principle, but the way forward may have to be more well defined/illustrated to get attention.
- d) Pilot Projects (documented) – Best/Worst Practice? To give features and examples whether to follow or avoid.
- e) Municipalities. In many parts of the world municipalities take their own initiatives and show great innovativeness that can be multiplied.
- f) SMART APPLICATIONS

- g) Demand Response. A huge area but important as a part of the “smartness” of the system. Finland has provided a catalogue of aspects that should be considered.
- h) Smart use of the power e.g. for mobility (charging of vehicles).
- i) Local Generation. Onsite generation and storage for more reliable systems. Other remarks were that DSM does not necessarily require high-tech. installations, that we may need some more long-ranging projects but still being able to deliver more fast responses to distinct problems and finally that there is a need for increased involvement of industry and local government.

8. INTERNAL

COMMENTS (8):

Part of the problems could be handled with more active EXCO-delegates between meetings. Maybe those who participate in a Task should have midway-web-conferences between EXCO-meetings to make sure that the task experts and the OA stays on track. The DSM-University idea needs to be developed further with the main task to make material accessible and available and target it to wider audiences. The cluster organization (see above) may have to re-considered and developed. We may need “cluster-chairs” that keep track of work and of work preparations. There could be a case for “fast tracking” to solve problems in partnership between just a few participants and then these may find if there is a need to go further and develop new Tasks. Our presence in the ASEAN-region and together with APEC (who already has established partnerships on energy efficiency) must be explored.

Operational issues: There is a general satisfaction with the way the Programme is managed. Some criticism on the way that the Tasks are run, in particular when they deliver too late and need extensions to complete the work.

There are however several ideas on improvements. One concern is around dissemination of results which is judged to be weak. Another is the slow start of projects. A third is that the need (and interest) in energy efficiency is more important in the world outside the present participants – are we addressing the right issues and right partners today?

The EXCO-meetings are highly valued for their opportunities to exchange views even if there are some feelings that twice a year is too often OR that we could make use of web meetings as a complement. The EXCO meeting format

COMMENTS (7):

Our “Cluster” organization is based on technical consideration but there may be a need to consider a different “clusterisation” that focus on the actors that should implement the results.

could be widened e.g. with brainstorming sessions.

More active EXCO delegates also between the meetings would facilitate and drive the Task experts to deliver more accurately.

The social network might be more used as a tool for exchange of expert views. Some suggest independent external evaluations of the work. Categorization of membership based on “country-size” has been used from the beginning of the Programme but has since been changed to equal fees for all.

9. COMMUNICATION

The existing means, web site, newsletter and Facebook are generally appreciated. There is a need to distinguish between the strategic communication and the operational, but we must also limit our ambitions and understand that we will never be strong enough to be a policy driving force.

DSM hot topics could be subject for webinars.

The web site is a bit too static and information (even if standardised) on Tasks are not easy to find. Maybe they should have their own web sites. More linking with other IAs (joint workshops) and with research activities within the participating countries. We should seek publicity in journals more often.

COMMENTS (9):

Should EXCO-delegates be more active in dissemination and in social media? We need to build partnerships and alliances in a more effective way both to gain visibility and to pave for dissemination

Strategy of the IEA DSM Programme 2014–2019

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Introduction

Demand Side Management (DSM) refers to all changes that originate from the demand side of the market in order to achieve **large scale energy efficiency improvements by deployment and use** of improved technologies and changes in end user behaviour or energy practices. Depending on market organisation in each country such changes **involve different actors**. In many cases the utilities play an active role.

Working on the demand side is more important than ever. Deployment of the technologies, diffusion of efficient products and changes in behaviour are key issues for success. There is a definite need to consider with whom and how to engage, in order to address **more appropriately the stakeholders that can make a difference, be they governments, agencies, industry, end-users, utilities or NGOs**.

The previous strategy (2008–2012) was centred on the achievements of DSM activities, i.e. the changes of load–shape and changes of load–levels. This new strategy (2014–2019) has its focus on the conditions for the achievements, i.e. (1) the **planning** required to target the huge **potential** and (2) the **business–models** to obtain the **acceptance** on the market. Both the components are needed for results.

In the following there will be an analysis where it is shown that realisation of the benefits from the economically (and otherwise) justified improvements are still

locked in, but could be released, by application of better management - namely, (DSM) Demand Side Management.

Following this analysis the strategic issues for the coming five years are outlined.

Energy Efficiency is not difficult – it is only complicated.

The energy system should deliver services (light, heating, cooling and motive power) to the end users. The service requires two components;

- energy (kWh and GJ) and
- equipment/installations/machinery that transforms the energy to the useful service.¹

The full cost for the service is the cost of these two components put together. To achieve cost effectiveness this combined cost should be minimized for the required amount of service.

The technology for the transformation is generally not difficult. It is about light sources, insulation, motors etc. Known pieces with defined characteristics the efficiencies of which are easily measured and computed. However, it also is about the difficult-to-measure energy behaviours. It is the combination of the pieces that makes it complex. To choose the right combination, to make changes at the right time, to support different skills and find the right tradespeople that can install the right installation or to change it according to shifts in circumstances over the life-time of a household or business. And to try to find an economically and socially sustainable optimal solution that may change depending on individual circumstances, barriers and needs. That makes it complicated!

Energy is delivered in a flow and the cost is calculated based upon the units of energy. The hardware is delivered in pieces at discrete occasions and the calculation of the cost requires a formula that equalises the cost and makes it comparable to that of the energy that was generated. This will necessitate judgment on a variety of issues such as life-time of equipment, utilisation factors, interest rates, energy prices, return of investment etc.

It adds to the complexity that energy efficiency can be achieved in many ways making use of several technologies (lighting, ventilation, automation, control, solar shading, insulation, design etc.) that also may have an impact on the performance of each other. A “Negawatthour” can have many different appearances.

It adds further to the complexity that the economic optimum might not be the only target to aim for. Energy efficiency has multiple benefits that are of interest both to the individuals and the society, such as productivity, energy security, poverty alleviation, asset values, job creation, health, public budgets, productivity, comfort, not to mention all the environmental benefits of reducing energy waste.²

The development of ICT, the miniaturisation of supply side technologies for use of local resources of renewables and application of smart technologies means that the

¹ Which includes end users activities such as: to purchase, install, maintain and use the equipment correctly

² Spreading the net. The Multiple Benefits of Energy Efficiency Improvements. IEA 2012.
http://www.iea.org/publications/insights/ee_improvements.pdf

earlier clear border between demand side and supply side is gradually getting more and more fuzzy.

Traditionally, the issue of levelling the playing field between the supply side and the demand side in order to achieve the least-cost solution of delivering energy services was a simple mathematical problem of equalling the cost for energy efficiency measures on the demand side to the price of the supplied energy. Neo-classical economics taught that actors on both sides being economically rational should eventually lead to the optimal solution.

Experience, however, shows that even if the potential to reduce the use of economic and physical resources is obvious and high, this will not happen by itself.

- The actors involved are several and the interplay between them is complex.
- Actors may try to act rational but are biased by their framing of the issues. Behavioural economics needs to be acknowledged and applied.
- The incentives for all actors are not evenly distributed and homogenous. Some actors even lose money when energy efficiency is applied.
- It is not only an issue of combining the best technologies, but even more so an issue of the behaviour of parties and individuals involved.
- The performance of the energy system has a great impact on environment and even if the impact of individual actions is small the sum may be of huge importance.

The opportunities to improve energy efficiency must be harnessed in a systematic way. This will require management skill – **Demand Side Management (DSM)** skill.

Result = Potential * Acceptance

The potential for cost-effective energy efficiency is already well established. The IEA WEO 2012 estimated it to be of such significant importance that it could both reduce the emissions of GHGs and at the same time reduce the bills for energy use, see Figure 1 below.

The potential per se is therefore not the issue. The problem is to get sufficient acceptance of energy efficiency measures by the users of energy. Any huge number multiplied with zero will stay zero! Acceptance, understanding and uptake have been too low to release the potential in full. DSM means working on both the issues in order to get a full result by a large-scale deployment of energy efficiency.

$$\text{Result} = \text{Potential} * \text{Acceptance}$$

(1) Potential

Compared to present energy use the potentials to reduce the energy use whilst maintaining the same level of service are in double-digit percentages worldwide. There is a need for growth in energy services to get a more even distribution of welfare in all countries. This requires both, deployment of Best Available Technologies (BAT) and development of improved Technologies (BAT+). It also requires to induce changes in behaviour (and purchase, use and maintenance of technologies).

□

□

GHG and temperatures

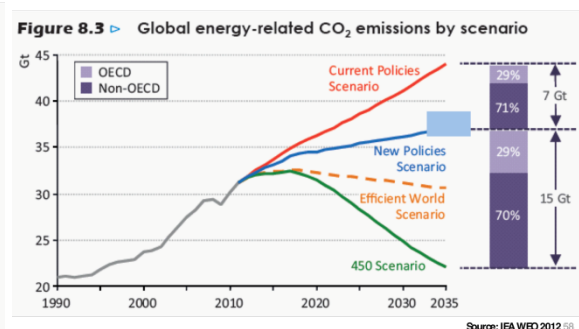
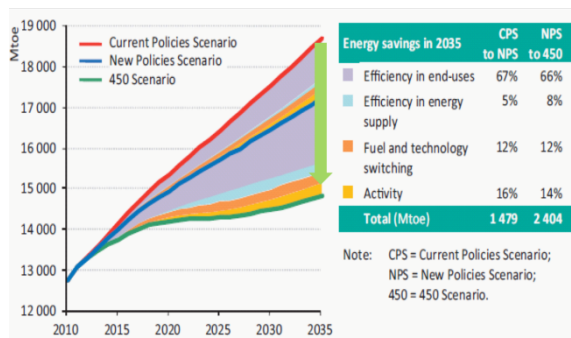


Figure 1: World Energy Outlook 2012 shows that the profitable potential is far from exploited. The “Efficient World Scenario” shows that, if it would be, it could contribute significantly to the necessary reduction of GHG.

Furthermore, this big potential is not fixed but growing for reasons of market dynamics. Prices of energy are generally rising and costs for energy efficiency technologies are declining with market growth and “market learning”.³ Both these effects will result in an even bigger potential.

The potential is still systematically underestimated since:

- The perspective on timing and payback regarding the measures is too short and do not take life-time aspects or investment cycles (several decades) into account.
- The full benefits of energy efficiency are seldom taken into the calculations, partly since they are hard to quantify, and therefore easily underestimated and partly because economic analysis usually shuns the ‘soft’ benefits, such as health, comfort, security, affordability, social responsibility, convenience etc. Flow-on effects on macro-economic measures such as productivity (e.g. if fewer people get sick or have to stay at home to look after sick children when they insulate their homes) are also often ignored in cost-benefit analyses.
- The costs for energy efficiency improvements are overestimated since traditional views on energy efficiency are based on fragmenting and

³ Market learning is normally captured in “learning curves” and comprises both technological and organisational development. In classical innovation terms there are several innovations in parallel such as products, processes, business models and sources of supply.

itemising the changes (pick low-hanging fruits in merit order) instead of making holistic packages of inter-connected activities.

- Some costs (externalities) are not present in the supply side costs/prices to which energy efficiency is compared and some bad behaviours and technologies are currently subsidised, thus making comparisons difficult.
- Planning is normally absent from calculations which assumes that activities are mostly undertaken overnight. Energy declarations and energy management systems are at least in part solving this.

There is generally a common understanding among actors and institutions about these issues, but less about the scale and benefits of ramping up the deployment of energy efficiency, and even less about how it can be done – and by whom.

According to the IEA WEO 2012 we need to see a massive change in investment patterns to achieve the efficient world scenario. Resources have to be funnelled from the supply side to the demand side, see left Figure 2 below. Such operations may involve a change in priorities among actors and development of operational modes that not all of them find natural.

The demand side of the market is often addressed in a simplified manner as if there was a manufacturer and a user. In reality, there are many parties involved in the transaction, see on the right of Figure 2 below. These may or may not be interested in a change that could benefit or threaten their current businesses. We have to be able to address them all with solidly researched and tested material that could raise the acceptance for a change.

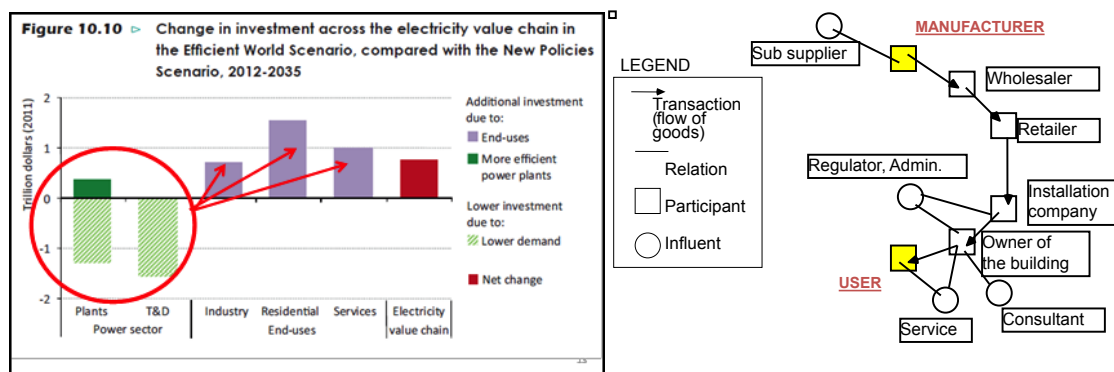


Figure 1: A shift to realise the huge efficiency potential involves many actors. Not all of them winners. Some of them are not fully conscious about their role in the shift.

Actors' different contexts should be considered in terms of how they can act on DSM locally in their daily work. Their general role (and how they can be approached) fall into two categories.

1. The primary actors (involved) who represent those who finance our work and who perform DSM as a part of their daily work (policymakers, managers and programme implementers).
2. The secondary actors (supporting) those who have their own missions (Initiatives, Missions and Research), but who can be co-workers and/or whose results can cross-breed with the IEA DSM Programme.

	Target Group	Should learn about	Via Channel	With Product
P r i m a r y	Policymakers	Costs and Benefits calculations based on real return, including soft benefits	<ul style="list-style-type: none"> • IEA Secretariat, • ExCo members, • Operating Agents 	<ul style="list-style-type: none"> • Direct Contact (supported by e.g. flyers) • Seminar presentations
	Managers	<ul style="list-style-type: none"> • Organisations (Experts?) • Governance • Planning • Methods 	<ul style="list-style-type: none"> • Workshops • Newsletter • Journals (engineering and R&D) 	<ul style="list-style-type: none"> • Articles (both on projects, Tasks and on crosscutting issues) • DSM–University
	Programme implementers	“Tricks” of the trade	<ul style="list-style-type: none"> • Social Media 	
S e c o n d a r y	Initiatives (e.g. IPEEC, CEM, IRENA etc.)	THAT IEA DSM exist and WHAT we can do together	<ul style="list-style-type: none"> • IEA Secretariat, • ExCo members, • Operating Agents 	<ul style="list-style-type: none"> • Direct Contact (supported by e.g. flyers) • Seminar presentations
	Missions (ICLEI, Energy–Cities, etc.)			
	Research and organisations (e.g. ACEEE, ECEEE, CCEEE)	What material is available for their “inspiration” and how it connects to their work.	Assessment lists, Expert platforms, workshops, surveys, active participation in e.g. summer studies, activation of members on social media.	

Table 1: Different actor categories, their “needs” to learn about DSM–issues and examples of ways to reach them

Another look at actors is by trying to find out which institutions they represent in society and the function of those. There is a need to mobilise actors both as catalysts and as operators to release the profitable potential for energy savings.

Actor	Function	Aim	Instrument
Government	Providing institutional setting and incentives/policies	Welfare (including Security and Prosperity)	Law, Taxes, Subsidies, Information, Regulation
Municipalities	Specific institutions (e.g. planning, monitoring)	Public good	Plans and activities within a given jurisdiction
Utilities	Provider	Business (profit)	Energy Energy Services

Supplier (hardware and services)	Provider	Business (profit)	Goods	
User	-	Service (Light, Power, Climate)	Behaviour change	

Table 2: Actors, their function and their interest in the process to achieve energy efficiency

There is a need for the IEA DSM Programme to work on issues related to the potential in order for actors to be more skilled in identifying and visualising the opportunities and to address them accordingly. This is work related to **PLANNING**.

Planning

Instances that should decide on the right DSM measures or about the type and size of programmes may need better tools. Important areas for work are:

- **Integrated Resource Planning, IRP.** In many developing countries there is very little knowledge and experience on the opportunities that DSM may provide.
- **The multiple benefits of energy efficiency – quantification and allocation.** The simplistic calculation currently used says that reduced energy use should pay for the investments and therefore some benefits are left out from the calculation. Some of these may be even more important and bigger than the savings itself. Energy security, health and job creation are such.
- **Stakeholder positioning.** Many stakeholders are reluctant to enter more formal programmes since they do not see the full impact of a change where the focus is on user services and not energy sales. This could apply to the TSOs for instance but also for many others where e.g. utilities reluctance to accept Energy Efficiency Obligations. The same applies to the distribution chain of goods for energy efficiency (see above under ‘The market’).

These issues are of particular importance for governments and municipalities, but also for regulators and branches of industry.

(2) Acceptance

Traditionally, the thinking has been that actors, being rational, eventually should recognise energy efficiency improvements as being “profitable” (in a broad sense) and accept them as their best solution. If they did not take up energy efficiency measures it was because they did not regard them as important which, by definition, meant they were not “profitable” for them.

It is obvious that old business models based on such a paradigm, and in which energy is the main issue instead of the service (light, motive power and climate (heating and cooling)) provided, are insufficient to realise the full potential of energy efficiency.

Even less so when energy supply can be distributed and local, from smaller units, and in smart grids that enables the users to also generate at least some of the energy they need.

The user acceptance and uptake for energy efficiency is far more complicated than the traditional models based solely on economical rational behaviour suggested and gets more complicated with new technologies. The on-going changes in technologies, primarily ICT (smartness) and miniaturisation of supply side options (PV, Wind, Heat-pumps) opens for a radical change of energy business in the near future.⁴

The task for the DSM Programme is therefore also to find and communicate ways to raise the acceptance to promote uptake of energy efficient measures. There is, however, a wide variety of stakeholders that all can either promote acceptance or counteract, the latter normally not wilfully, but by ignorance or doubt.

To foster DSM and make better use of the material we need to build operational **alliances** with representatives for the categories:

Government which is basically our own core constituency but there are several other institutions that are either new on the scene, such as CEM (Clean Energy Ministerial) or that represent technology perspectives that are related to DSM, such as other IAs within the IEA.

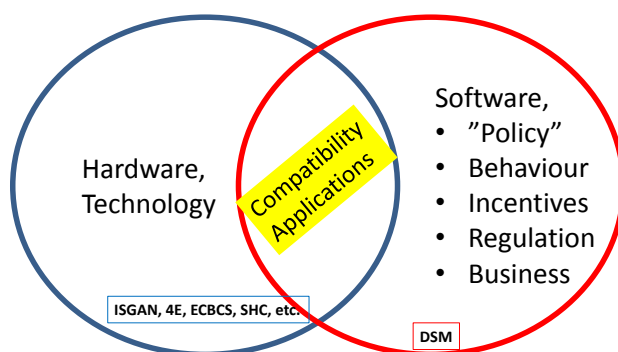


Figure 3: Relation between the DSM-Programme and other IEA Implementing Agreements

- **Municipalities** that, to a growing extent engage in energy issues with the growing market for decentralised, small-scale, renewable energy even if they disengage in the traditional utility sector. In Europe, the Mayors Initiative has grown tremendously.⁵
- **Utilities** that have essentially withdrawn from our Programme and when they show an interest it is mostly in the Load Shape work. For some of them the issues of integration (Task 17) and those related to “smart grids” (Task 23) may be of interest. Our relation to RAP is useful and solid. More

⁴ See e.g. Walt Patterson “Everything you know about electricity is wrong” (<http://www.abc.net.au/environment/articles/2011/06/10/3239321.htm>)

⁵ We have earlier had a fruitful operation with the organisation Energy Cities (Task 9).

utilities are expressing interest in their customers' behaviours (Task 24) and are looking for better ways to promote uptake of their DSM initiatives.

- **Suppliers of hardware and services** that may be the big winners on the market for energy efficiency. These are, however, not very well organised and work primarily in niches defined by the technology they provide. Our new contacts with the European Copper Association (ECI) may be the best way in. Our earlier contacts with big companies such as Schneider may have to be reconsidered and refreshed since interest changes over time.
- **Researchers and innovators** who design new energy efficient technologies and study the societal and economic drivers of market failures. Several Tasks (particularly Task 24) have very strong alliances to researchers from many disciplines (economics, behavioural and evolutionary and ecological economics, social and environmental psychology, anthropology, sociology, science and technology studies, engineering etc), including the private sector (e.g. research consultants doing practical and field research).
- **Intermediaries** who roll out energy services and products such as ESCo's, ESCo facilitators, tradespeople, landlords, realtors, energy consultants, energy auditors and managers etc. These are some of the most important actors as they receive considerably more trust and attention from energy end users. We have not engaged enough with this sector, although Tasks 16 and 24 are actively pursuing this group.

These actors may express their needs in the same terms but need to be supported differently because of their differences in mandates, function and methods. The DSM-Programme has some advantage in this respect having produced material for e.g. regulators, policy-makers, municipalities, ESCo's etc.

There is a need for IEA DSM Programme work on issues related to the acceptance and uptake of energy efficient measures so that actors become more skilled in understanding how decisions can be framed in formats that are useful and operational for different actors. This is work related to **BUSINESS MODELS**.

Business Models

The DSM Programme has for quite some time been on the track of detecting future business (Task 10, 14, 16 and 22) but it might be time to do it more formally by focusing on:

- **Business cases when developing energy efficiency obligations, EEO.** The utility is only one part and others are the suppliers of hardware and services to the market.
- **Energy Management.** There are now several standards for energy management. Probably all of them good but also with differences in applications depending on company size and purpose. There could be

reason to check these out in more detail and provide advice on applicability.

- **Incentivising to upgrade acceptance.** Since users are not fully rational and mostly operate on habits and routines, some of the traditional incentives (subsidies, taxes, information) are not enough to “clear the market” and foster change. There are many different models of understanding behaviour and theories of change that can help improve uptake in a variety of contexts, conditions and situations. The Implementing Agreement can help find the right tactics for different situations, contexts and needs. Behavioural economists have detected some of the systemic errors we have when making decisions and also suggested methods (nudges) to overcome them.
- **Financing:** Debates with the financial sector have shown that financing and technology are often worlds apart. As the two sides don’t understand each other, investments aren’t made that could be very profitable. Within DSM we have to explore this topic in order to give relevant (policy) advice and tools to the market. The ESCo work might be a starting point.
- **Technology and change:** Methods and acceptance of the importance that humans use energy to have services, not the technology per se. There is a growing insight in the IEA Technology Network that knowledge about behavioural issues is essential and has to be made available and made operational to reach the energy efficiency goals. With Task 24 as a starting point we can offer our target group(s) and other Implementing Agreements additional knowledge and tools. Optimising the use of ICT (smart grids/meters, apps) will become a fundamental part of “Technology and Change”.

Strategic Issues

Application of DSM will allow not only economical but also the following societal benefits to be delivered:

- **Less price volatility** by improving short-term price elasticity
- Improved **system reliability** by reducing peaks and adding to safety margins
- Enhanced **system security** by reducing dependency on vulnerable supply resources
- Improved **restoration capacity** by dispatching in/after emergency situations
- **Less costly network reinforcements** since energy efficiency measures will be active alternatives
- **Distributed generation** as alternative to transmission lines
- **Roll-out** of smart meters, feedback devices and support of a smart grid
- Improved understanding of the complex issues driving energy use – **behaviours and practices**, both individual and societal
- Improved **operation and use of flowing renewable** sources
- **Elastic response** as complement to competition

Vision and mission

Based on the previous analyses the DSM Implementing Agreement has the following vision and mission:

The vision of the IEA DSM Programme is that: “Demand side activities should be active elements and the first choice in all energy policy decisions designed to create more reliable and sustainable energy systems”

The mission is to: “Deliver to its stakeholders materials that are readily applicable for them in crafting and implementing policies and measures. The Programme should also deliver methods and applications that either facilitate operations of energy systems or facilitate necessary market transformations.”

Stakeholders (and target group categories)

The Programme has three major stakeholder groups. The Programme will provide:

(a) **governments (including regional and local)** with increased capabilities to develop policies and programmes for more effective use of DSM and energy efficient technologies, and better ways to evaluate the success of such interventions;

(b) **energy businesses with** the relevant information and tools necessary to create new cost-effective products and services in response to domestic and global opportunities

The Programme should also enable access to information and participation to (c) other **stakeholders** that advocate energy efficiency and sustainable energy systems. It will draw on researchers to develop a strong connection between good theory and best practice.

Within this general characterisation of stakeholders it is useful to recognise a multitude of actors that may have interest in DSM such as:

- Utilities
- Regulators
- National, Local and Regional Administrations and Agencies
- Industry and Trade Associations
- System Operators
- Customer Organisations and larger Customers
- Universities
- Research Bodies
- Journalists.

Products, Outlets and “Events”

It is necessary to develop a range of products that could suit several categories of users and that could be developed and delivered in sequence during the work of a Task. The Programme’s products will include:

- Reports from the on-going work (Minutes from Experts meetings, compilations of presentations, questionnaires, etc.)
- Publications of results (analysis, overviews and conclusions that might be accompanied by background material, etc.)

- Website and social media
- The “DSM–University”⁶
- Articles for professional journals and magazines
- Task workshops and presentations at international workshops and conferences
- Forums for dissemination and/or discussion with possible users, customers, decision–makers, etc. both on and offline.
- Growing pool of individuals and organisations in each country that develop new expertise in DSM issues and solutions
- Databases
- Expert platforms
- Software for calculations, simulations, etc.
- Training seminars and courses
- Award of Excellence to be delivered once a year to a company or a product that facilitates DSM.

In particular it has been noted and reported in the DSM Annual reports that the dissemination of results is discouraging. For this purpose it is important to develop the products and the channels for distribution. DSM is complex and requires more efforts e.g. by development of a “DSM–University” that could also include participation with other stakeholders and Implementing Agreements.

The vision is that a DSM–University is a Virtual Centre of Excellence and will provide a consistent and persistent method of delivering value from all IEA DSM tasks and enhance the knowledge transfer and action resulting from the investment made in these IEA DSM sponsored projects. The DSM–University refers to a combination of instructor led training courses, organized research and white paper library, self paced online training, IEA sponsored certifications, actionable toolkits, continuing education credits, monitoring and evaluation services, and a structured knowledge management process to collect, organize, package, and deliver new work completed by IEA DSM Tasks. The Centre will provide an umbrella for stakeholders after projects are completed to further the use of the work performed by their Task.

Allies

Activities all over the world have increased notably to improve energy efficiency and to have a large–scale deployment of technologies. The DSM–Programme is therefore seeking collaboration with entities that have similar ambitions and where our comparative advantages could complement each other. This may not have to be countries but also organisations such as REEEP, CIGRE, the World Bank, IFC, ELI etc.

We will explore the options to work with other parties on this topic. Specifically with ECI and ISGAN.

We should try to be more assertive in participating in workshops and advocating both DSM as an idea as well as specific DSM applications. DSM is however not the catchy buzzword it used to be for many audiences, but it may still gather interest in many developing countries. This should be discussed more in detail with organisations such as REEEP and IRENA. First step is to make them aware of our

⁶ It is clear that Publications are insufficient as tools. They need to be edited and probably remade completely to address user/actor interest and not only be the result from an anonymous Task. **The DSM–University** is a start to make material more available and accessible.

material and a follow up would be to see if they would be interested in some rewriting for their purposes.

We should also discuss with some other IAs within the IEA family if they have similar needs. Starting with ISGAN and ECB. The Secretariat has to play a more dominant role in this.

It is also important to improve co-operation with the IEA Secretariat. The Programme can thereby bring its expertise together with the convening power and dissemination capacity of the Secretariat. This co-operation should be based upon the following principles:

- The Programme has access to experts in the DSM area that could, if desired, make recommendations to the Secretariat on technology development and policy action matters.
- The Secretariat has dissemination capacity to government policy both on a regular basis and at certain specific occasions as well as a dissemination capability for products. This can be accessed for mutual interest of the Programme and the Secretariat to highlight important issues.
- The IEA as a body has a “convening power” in its status and its name that can be used to gather parties from different communities to discuss solutions to special problems.

POSSIBLE FUTURE WORK FOR THE DSM PROGRAMME

GENERAL

The Intellectual Property developed in earlier work should be safeguarded, developed and disseminated, e.g. by considering:

Access and availability of results from completed Tasks is still an important issue. The on-going change of the web site improves the availability but there is still a need to consider how some of the reports should be both easier to access by e.g. editing of the material.

Training and capacity building through the DSM University

Demonstration.

- An integral part of each Task as an information and dissemination Task
- A separate Task collecting case studies
- A separate Task to undertake demonstrations (very expensive and rather involve industry for this)

Task reformation

- Extension: (meaning) that the Task could be reassessed and continued.
- Joint Activity: that the Task could be developed together with other interested parties
- Transformation: that the Task could use its IP and be applied on other issues/technologies, e.g. starting on technology procurements again.
- Service: that the Task (and its output) could be formed as a service to be marketed to other parties

Co-operation with other Implementing Agreements

- Consider a coordinated load levelling activity with the Energy Storage Programme.
- BCG-IAs; Buildings Co-ordination Group (Storage, Buildings and Community Systems, Heat Pump, District Heating and Cooling, Solar Heating and Cooling, Photovoltaics)
- ISGAN
- 4E (End-Use Equipment Energy Efficiency)

SPECIFIC

These are suggestions that have been raised and discussed at meetings during the last years

Issue
<p>Increasing Energy prices (and Market Design issues)</p> <p><i>Problem – Large share of electric heating in homes and they do not like growing prices; energy intensive industry does not like high energy prices; high bills for homeowners (fuel poverty);</i></p> <p><i>Objective – Explore how EE and DSM can mitigate energy price increases</i></p> <p><i>Approach – Workshop.</i></p> <p><i>In February 2003 there was a workshop held in Paris "Demand Response in Liberalised Energy Markets", which also was the trigger for a work within the DSM-Programme called "Demand Response Resources" (Task XIII). This should be followed up with a widening of the concept and also cover other measures. "Market Re-design Options" and cover also White Certificates from our Task XIV.</i></p>
<p>Smart meters in Energy Services</p>
<p>Security of supply</p> <p>Study how energy systems respond to crisis - What happens during a crisis; what do users actually do, do they do load levelling and what impact does this have on reliability and security</p>
<p>Portfolio development – Impact study</p> <p>Study how economies can reduce electricity growth by 10 or 20 percent in 10 years by energy efficiency and DSM measures. How can governments put up targets and meet them</p>
<p>Models and initiatives for boosting technologies</p> <p>Aggregated Procurements, Dynamic top-focused standards, Clearinghouses for programmes.</p>
<p>Energy Efficiency ownership (new aggregators)</p> <p>New aggregators and need for aggregators</p>
<p>Networking and initiatives to reinforce services and promotions (ESCOs, Marketing, Municipality involvement)</p> <p>Address a wider aspect of local responses to energy system problems aside from demand side activities, energy and end use activities</p>
<p>Rate-design</p> <p>Perform a comprehensive analysis of various economic incentives and fiscal measures, including pricing systems, tariffs and levies. Develop new tools for international comparison of the impact of different tariff systems and energy labels on GHG emission reduction.</p>

<p>Problem – Rate designs do not encourage EE; need to use time of day tariffs; electric prices could be good signal, need to incorporate externalities and incentives for EE</p> <p>Objective – Study various rate design strategies and recommend best practices for designing rates to reduce demand and peaks</p> <p>Approach – New Task</p>
<p>Advanced Lighting Programmes. We have to do something for lighting programmes such as e.g. the utility-sponsored roll-out programmes in many developing countries, but also for new lighting technologies that may also be more important for Demand Response and/or more useful in connection with distributed generation. Possible partners: ELI</p>
<p>Climate Change – Energy Efficiency in the CDM-projects</p> <p>Quantify and document the impact of EE on climate change Fungible Instruments</p>
<p>Directive on energy services (EU)</p> <p>Regulatory matters related to energy efficiency - What areas of energy efficiency is best regulated and what should be purely market-based</p>
<p>Lack of Awareness of DSM – Link with Ownership and Aggregators. The IEA DSM-Programme award of excellence could be taken up again. The “State of DSM in the world” also. Another idea was to create a DSM clearinghouse</p>
<p>Bottom up evaluation</p>
<p>Monitoring and Verification – Workshop</p>
<p>Energy Efficiency (low) impact – Link with M&V</p>
<p>Transmission needs</p>
<p>Standards and labeling</p> <p>It was suggested that the development of the suggested new IA should be observed and then possibly discussed with them.</p>
<p>Growing demand</p>
<p>White Certificates (follow up practices)</p>
<p>Tax policies</p>
<p>Planning tools</p>
<p>Optimizing Investments</p>
<p>Distribution needs</p>

Windfall profits
Demand response (legal property right) certificates
Financing related to ESCOs