



IEA Initiative on
Demand Side Management
Technologies and Programmes

Fourty Eighth Executive Committee Meeting
Pre-Meeting Document (PMD) – Part 1

11 – 12 October, 2016
Brussels, Belgium



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MATTERS FOR THE EXECUTIVE COMMITTEE

Concept paper Update: Power Systems Flexibility as the pillar towards higher vRES shares <ul style="list-style-type: none">➤ Discuss whether the objective is interesting and the way forward
Data Analytics for Energy Efficiency <ul style="list-style-type: none">➤ Discuss whether the objective is interesting and the way forward
Task 17 - Integration of Demand Side Management, Distributed Generation, Renewable Energy Sources and Energy Storages – Phase 3. <ul style="list-style-type: none">➤ Approve the Task Status Report
Task 24 – Behaviour Change in DSM: Helping the Behaviour Changers – Phase 2 <ul style="list-style-type: none">➤ Approve the Task Status Report➤ As we only have 3 countries paying towards ST9, we do not have the requisite 4 countries needed to undertake in-depth country validation for an international ‘standard’. However, ST9 is continuing to develop and test the tool, paid by utilities in the US, which our participating countries have access to. Four publications have been published to date, including the psychometric validation of the tool with Southern California Edison customers. We have received invaluable feedback on the tool from over 70 experts at the Task 24 workshop at the BEHAVE conference, which has further helped shape the tool. If any of our 3 participating countries wants to use the tool in the design and implementation of ST7, we can arrange to do so, but it will not be a ‘formal’ international validation (seeing there are only 3 countries).
Task 16 – Phase 4 – Innovative Energy Services – Life-Cycle cost; ‘Deep Retrofit’; Simplifies M&V; (Crowd)-Financing & Energy Services Taxonomy <ul style="list-style-type: none">➤ Approve the Task Status Report
Task 25 – Business Models for a More Effective Market Uptake of DSM Energy Services <ul style="list-style-type: none">➤ Approve the Task Status Report
Concept paper: Smart Energy Services – Joint project DSM/ISGAN <ul style="list-style-type: none">➤ Discuss whether the objective is interesting and the way forward
Programme Visibility <ul style="list-style-type: none">➤ Approve the Status Report
DSM University <ul style="list-style-type: none">➤ Approve the Status Report
PMD Part 2: Task Zero <ul style="list-style-type: none">➤ Approve the Task Zero proposal
PMD Part 2: Financial Report 2015 and approval of Budget for 2016 <ul style="list-style-type: none">➤ Approve the financial report 2015➤ Approve the budget for 2016

AGENDA

IEA Demand-Side Management Energy Technology Initiative Forty Eighth Executive Committee Meeting 11-12 October, 2016, Brussels, Belgium

Monday 10 October 2016

18:00 – 20:00 Operating Agents Meeting – venue TBD
Visibility Committee Meeting – venue TBD

Tuesday 11 October 2016

9:00 – 17:00 **Executive Committee meeting**
Renaissance Brussels Hotel
Rue du Parnasse 19
1050 Brussels, Belgium

Wednesday 12 October

8:30 – 16:00 **Venue:**
Renaissance Brussels Hotel
Rue du Parnasse 19
1050 Brussels, Belgium

Thursday 13 October

9:30 – 16:30 **DSM DAY**
Renaissance Brussels Hotel
Rue du Parnasse 19
1050 Brussels, Belgium

09:00 – 10:00

1. GENERAL BUSINESS/WELCOME

- 1a. Welcome – *Rob Kool*
- 1b. **ExCo approval** of the Agenda DOC A
- 1c. **ExCo approval** of the Forty Seventh ExCo meeting Minutes – Stockholm, Sweden Distributed earlier
- 1d. Status of the Implementing Agreement
- 1e. IEA Relations DOC B
 - Secretariat news
 - Contacts with possible sponsors/new participants
 - *Rob Kool*
 - IA relations, BCG and ECG, – *Rob Kool*
 - Report from the Project Preparatory Committee (PPC)
 - – *Rob Kool*
 - Operating Agents meeting report – *Rob Kool*

10:00 – 10:30

Coffee break

2. NEW WORK

10:30 – 11:00

2a. Task 26 on Multiple Benefits for Energy Efficiency
Presented by Chairman Rob Kool

11:00 – 11:30

2b. Update: Power Systems Flexibility as the pillar towards higher vRES shares DOC C
Diego García Carvajal, European Copper Institute

11:30 – 12:30

2c. Discussion on Data Analytics for Energy Efficiency DOC D
Stefan Galsworthy, Quby, Austria

12:30 – 13:30

Lunch

3. CURRENT TASKS – LOAD SHAPE CLUSTER

13:30 – 14:00 3a. Task 17 – Integration of DSM with other Distributed Energy Resources – Phase 3 DOC E
– Réne Kamphuis/Matthias Stifter

The proposed New Tasks discussion will aim at one of the following decisions:

1. Decide to initiate the new Task based on work done to date.
2. Decide to initiate the Task Definition for a new Task. Interested countries must be prepared to assign the appropriate expert(s) to participate in that process.
3. Decide that additional work is needed on the concept paper. Interested countries must be prepared themselves, or to assign the appropriate Experts to help further develop the concept.
4. Decide to pursue the subject in co-operation with other parties within the IEA or elsewhere
5. Rejection (or moth-balling)

14:00 – 14:30 3b. Task 24 Closing the Loop – Behaviour Change in DSM: DOC F
Helping the Behaviour Changers – Phase II.
Task Status Report
– Sea Rotmann, SEA - Sustainable Energy Advice, New Zealand

4. CURRENT TASKS – LOAD LEVEL CLUSTER

14:30 – 15:00 4a. Task 16 – Phase 4 – Competitive Energy Services DOC G
– Task Status Report
– Jan W. Bleyl, EnergeticSolutions, Austria

15:00 – 15:30 Coffee break

15:30 – 16:00 4b. Task 25 Business models for a more effective market DOC H
uptake of DSM energy services. Task Status Report –
– Ruth Mourik, DuneWorks, the Netherlands

16:00 – 17:00 4c. Smart Energy Services– Joint ISGAN/DSM project DOC I
– Matthias Stifter

17:00 Adjourn

19:00 Hosted Dinner

FRIDAY 18 March 2016

5. PROGRAMME VISIBILITY

09:00 – 10:00 5a. Programme Visibility Report Sea Rotmann DOC J
– Sea Rotmann
Website statistics – see Attachment section

10:00 – 10:30 5b. Development of the DSM University DOC K
– Hans Nilsson

	5c. How to build more faculties within DSMU/Leonardo Energy – <i>Rob Kool, Hans Nilsson</i>	
10:30 – 11:00	Coffee break	
11:00 – 12:00	6. ADMINISTRATIVE MATTERS	
	6a. Task Zero, status report	PMD Part 2
	6b. Financial Report 2016 – <i>Andreas K. Enge</i> Budget 2017 Accountax Status Report Status of Common Fund payments	PMD Part 2
	6c. Decision on plans for the Forty Nineth ExCo meeting April 2017	
	6d. Plans for the Fiftieth ExCo meeting October 2017	
12:00 – 13:30	Lunch	
13:30 – 15:00	7. SPECIAL SESSION	
	7a. Discussion on how to develop and implement our strategy further – <i>Rob Kool/Hans Nilsson/Maria Alm</i>	
	7b. Collaboration with the IEA – <i>Tyler Bryant/Rob Kool</i>	
	8. OTHER ISSUES	
	Adjourn	

APPENDIX TO THE AGENDA “Issues for the decisions and the process to reach decisions”

The delegates are URGED to prepare their responses to presentations carefully and primarily by contacting possible stakeholders before the meeting. The format for these proposed New Tasks will be a brief presentation that focuses on the:

- Motivation for the proposed work (what issues does it tackle?) what is it trying to achieve? Who is the target audience?;
- Objectives;
- Approach to accomplishing the proposed work;
- Expectations/Results and Deliverables
- Dissemination plan – what will need to be done to get the results adopted? Who will do it?
- Required resources

Concept and Task Definition Papers (Process and phases)

Before a new Task is starting the concept has to be defined and presented in order to attain the interest of possible participants.

PHASE 1: IDENTIFY NEW ACTIVITIES

Resulting in a **CONCEPT PAPER (2-5 pages)** containing

- Motivation
- Objectives
- Approach
- Expectations/Results

PHASE 2: DEFINE NEW ACTIVITIES

Requiring an **EXPERTS MEETING** to propose

- Table 1. Task Work Plan Resource needs: Task or cost sharing
Table 2. Dissemination, Task Information Plan

CONTENTS OF PROPOSALS FOR NEW WORK

The document that will propose the new work to the Executive Committee could be organized and have the

Following contents:

1. Background and motivation
2. Objectives
3. Issues for the new work (scope)
4. Structure (sub-tasks)
5. Management (responsibilities of the Operating Agent, Subtask leaders and Experts)
6. Deliverables (for whom, target groups)
7. Time Schedule and milestones
8. Funding and Commitments (Resources needed)
9. Meetings plan
10. Information activities
11. Co-operation with other IA's, the Secretariat and other interested parties
12. Country contributions to funding and Tasks

Annexes: Detailed description of Subtask

REPORT FROM THE IEA SECRETARIAT

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Information on recent developments within the IEA Secretariat

GENERAL IEA BUSINESS

High-level energy efficiency conference October 14th

On October 14th the IEA will host its first high-level global energy efficiency conference in Paris. The conference will feature ministers, business leaders, senior policy makers and leading thinkers in the field of energy efficiency from Europe, Asia, Africa, Latin America and the US. The theme of the conference will be innovative action to accelerate progress on energy efficiency. Members from IEA DSM are all invited and if you are interested in coming please let Tyler know.

Update from technology and R&D networks

Exceptional efforts to raise awareness of the value of the Technology Collaboration Programmes (TCPs)

The year 2015 marked the 40th anniversary year of the Implementing Agreement mechanism. Exceptional efforts included a series of high-level events, each of which were historical “firsts” vis-à-vis the Implementing Agreements.

- On 18 September, under the theme **“Preparing the next 40 years of multilateral energy technology collaboration”** the Secretariat hosted a first-ever meeting led by the IEA Executive Director with representatives of more than 30 TCPs plus officials from the CERT and the WPs as well as Partner countries (China, Mexico and South Africa) to identify opportunities to expand and enhance IA activities.
- The 2015 IEA Ministerial meeting included a session dedicated to international collaboration with special focus on the TCPs. A short animated film portraying the TCPs was shown during the Ministerial meeting. Recognising the importance of multi-lateral collaboration to accelerate energy technology development, demonstration and deployment, faster cost reduction, and appropriate policies, Ministers asked the IEA to strengthen its energy technology outreach activities and expand participation of Member and non-Member countries, the science and research communities, industry partners and other stakeholders. Ministers endorsed the rebranding of the Implementing Agreements as **IEA Technology Collaboration Programmes (TCPs)** and asked the Secretariat, the Governing Board (GB) and the relevant Standing Groups and Committees to strengthen the energy technology and innovation-related activities of the Agency. The choice of the new TCP brand, marking a ‘new era of technology collaboration’, reflects enhanced effort to strengthen the TCPs and to better communicate related outcomes to policy makers and external stakeholders.
- On Thursday 10 December at the 21st session of the Conference of the Parties to the United Nations Framework for a Climate Change Convention (COP 21) the IEA organised an event, **“Accelerating Innovation through Energy Technology Collaboration”**, in which four TCPs contributed thought provoking presentations on a range of collaborative

initiatives and experiences in support of energy technology innovation.

Strengthening links with/within in the Energy Technology Network

At the CERT 16-17 February meeting a workshop was held on the margins of the meeting on the theme of **“Maximising the Impact of IEA's Technology Collaboration Programmes through Enhanced Co-operation in the Energy Technology Network”**. The event provided an opportunity for eight TCPs with end-of-term dates within the next 24 months to share recent activities and achievements with CERT delegates. He referred to the TCPs as the hidden gems of the IEA as they not only support the IEA's work, but they are also highly valued by many partners. He added that it is time these gems shine for all the world to see, and that we must strengthen their role in the work of the agency.

The June 2016 CERT meeting provided an opportunity for Delegates to discuss the value of these workshops and to consider the focus and shape of the next event which is scheduled to be held on the margins of the February 2017 CERT meeting. Once the focus of the February 2017 event has been decided, the Secretariat will be contacting relevant TCPs to explore contributions.

Accelerating and broadening outreach to Partner countries

A priority of the IEA is to strengthen and accelerate co-operation with non-member countries (partner countries). Enhanced engagement efforts are targeted for Chile and Mexico (in the process of becoming members of the IEA); China, Indonesia, Morocco, Singapore, and Thailand (countries participating in a programme of association with the IEA); and Brazil, India, Russia and South Africa. The following recent activities support this enhanced engagement worldwide:

- A Ministerial-level event in February 2016 which opened the way to creation of an Indonesian Centre of Excellence. Six TCPs contributed to an expert level workshop **“Bridging the Gap, Promoting Global Partnership”**.
- The IEA and China have launched the process of establishing a **joint energy centre in Beijing**.
- The Secretariat of the **Clean Energy Ministerial** will be housed at the IEA in Paris. The 2017 CEM Ministerial will be held in Beijing, China.
- At the June 2016 CERT meeting the Secretariat presented an IEA Global Engagement Report and outlined plans to identify existing TCP training opportunities and their target audience in order to examine ways of integrating TCP training modules into broader **IEA training and capacity building efforts**. A report will be made to the CERT at the November 2016 meeting. TCPs willing to contribute to IEA training and capacity building activities should contact Carrie Pottinger (carrie.pottinger@iea.org).

TCPs seeking guidance and support for inviting partner countries to become members should contact the Carrie Pottinger (carrie.pottinger@iea.org) (cc: your respective desk officer).

Important CERT decisions

In February 2016 CERT meeting resulted in two important decisions concerning TCPs:

- New, simplified procedures for **TCP requests for extension (RfE)**, effective for TCPs with end-of-term dates after 1 November 2016.
- A new **“Communications Framework”** (CF) for enhanced communication between the TCPs (with guidance from the Working Parties) and the CERT. Though the CF is formally effective beginning 1 November 2017, TCPs are encouraged to review the additional opportunities for interaction and reporting as soon as possible.

TCPs are encouraged to consult the documents available on the Forum (www.iea.org/tcp/forum username: forum - password: network) and to seek guidance through their desk officer, the programme manager, or their respective working party.

Update on energy efficiency division activities

IEA ENERGY EFFICIENCY Strategy and engagement

Following the strategy discussion at the March 2016 EEWP meeting, the Secretariat met with senior policy officials at the Energy Efficiency Consultation Meeting, before discussing the strategic plans at the Standing Group on Long-term Cooperation and the Governing Board on at the end of March. Further discussion on the IEA's role in the international energy efficiency landscape and potential future projects are scheduled at the September EEWP meeting.

In April, the Secretariat hosted the inaugural meeting of the IEA Energy Efficiency Industry Advisory Board (IAB) at which the strategy was tested and future work priorities were discussed. The second IAB meeting will be held in October.

By the time of the EEWP meeting, the IEA will also have hosted its first forum on integrating energy efficiency and renewable energy. The forum, organised jointly by the IEA's Energy Efficiency Division and Renewable Energy Division, provides an opportunity to hear from innovative private sector actors and policy makers in this emerging area, and to discuss the contribution that the IEA could make through its future work plan.

Technology Collaboration Partnerships

The Energy Efficiency Division has worked closely with a number of IEA Technology Collaboration Partnerships (TCPs) over the last few months, providing desk officers to the Energy Efficiency End-Use Equipment (4E), Demand Side Management (DSM) and Energy in Buildings and Communities (EBC) TCPs. The Division collaborated with the 4E TCP on the material related to appliances in the 2016 Market Report, with the DSM TCP on the material related to ESCOs and business models, and has supported the EBC TCP by providing reviews of annex draft reports. The Head of Division will be attending the EBC in November 2016.

Analysing energy efficiency

Energy Efficiency Market Report

The 2016 Energy Efficiency Market Report (EEMR) draft is complete and will be launched on October 10th at the World Energy Congress in Istanbul. The structure of this year's report is a departure from previous years. Incorporating feedback from stakeholders including EEWP members, the report has been shortened in length, focused on key analysis including the core indicators of energy efficiency, the drivers of market activity and the market for energy efficiency services. In addition, the Report includes a separate chapter on China, reviewing progress over the last decade and prospects under the 13th Five Year Plan (2016-20). A theme running through the market report is that policy is central to the development of functioning markets that support energy efficiency.

This year's report has been produced with input from seven other divisions across the IEA, two IEA Technology Collaboration Partnerships and the Energy Research Institute of China. A China "pull-out" was produced and launched in China on 6th September.

Ruth Mourik and her team of researchers were also contributors to the report summarising Task 24 research.

IEA/China Modelling and Data Exchange

The E4 Programme and China's National Development and Reform Commission's Energy Research Institute (ERI) is helping the IEA improve its data on China, while also helping to build ERI's modelling capabilities. The project that emerged is to develop a 2050 Energy Efficiency Roadmap for China using the IEA's Energy Technology Perspectives Times Model and China's rich data set. IEA and ERI staff are undertaking the modelling which is covering all sectors of the economy and looking at the most cost-effective way to decarbonise China's energy system.

Another project with ERI is sharing the IEA's methodology that measures the impact of energy efficiency on energy demand. ERI staff visited the IEA to learn how to adapt this methodology

to understand the impacts energy efficiency has had in China. The analysis was featured in the 2016 Energy Efficiency Market Report.

Energy Efficiency Outlook for India

The IEA (Global Energy Economics Directorate) has worked with E4 to model the energy efficiency potential in India. Each energy-consuming sector of the economy was modelled using two scenarios, the Baseline Scenario which assumes business-as-usual, and the Efficiency Scenario which assumes that policies and their implementation are adequate to achieve the potential of all known energy efficiency measures which are economically viable in the period to 2040. A report on this analysis will be available in November 2016.

Behaviour

On 10-11 May 2016, the Energy Efficiency Division hosted the third workshop in the energy efficiency and behaviour series, this time focussing on the transport sector. The agenda featured the following themes: i) driving more efficiently (eco-driving, feedback instruments, ICT and route management), ii) purchasing more efficient vehicles, iii) innovative business models, iv) promoting public transport (carrots and sticks) and v) fuel switching. The workshop is part of a wider IEA project on energy efficiency and behaviour, and the findings will be synthesised with those from earlier events on buildings and industry. The key findings from the workshop will also inform future IEA work on transport and energy efficiency policy.

International and organisational Cooperation

G20

The G20 Energy Ministerial in June in Beijing adopted the Ministerial Communiqué which recognises the importance of energy efficiency. Ministers also welcomed the Energy Efficiency Leading Programme (EELP), agreed by the Energy Sustainability Working Group (ESWG). G20 Leaders endorsed the EELP and encouraged members to “significantly improve energy efficiency based on the specific needs and national circumstances of each member and promote energy conservation through appropriate lifestyle changes.” The G20 Leaders Communiqué also stated that “we will explore innovative collaborative arrangements for international cooperation on energy efficiency.” This refers to a discussion led by Germany at the G20 on future international energy efficiency institutional arrangements, particularly in terms of the IEA and the International Partnership for Energy Efficiency Cooperation (IPEEC). A discussion will be held on this topic at the next EEWP meeting.

The G20 EELP recognises the work of the existing task groups, including the work jointly led by the IEA on networked devices, and creates several new work streams, including one jointly led by the IEA on data. (see below). The IEA Secretariat took part in various energy-related G20 meetings, including co-presenting the opening keynote on energy efficiency with IPEEC at ESWG 2 in Shenzhen in April, and co-hosting, with IPEEC, a workshop on G20 energy efficiency activities in the margins of the same meeting.

The IEA has continued to chair the Connected Devices Alliance (CDA), which doubles up as the G20 Task Group on Networked Devices, led by the United Kingdom and the IEA. The CDA is a group of around 300 government, industry and international organisation representatives that aims both to maximise network-enabled energy savings and minimise the energy consumption from all networks and network-connected devices. A workshop was held at the IEA on 19-20 May at which projects focussing on developing metrics and policy implications associated with intelligent efficiency (ICT enabled systems efficiency) were discussed. During the remainder of 2016, the CDA will be reviewing the design, operation and policy principles for networked devices, with a view to launching and disseminating a revised set in 2017.

The IEA, working with the French government, also proposed a G20 task group on strengthening the collection and quality of end-use data. This initiative has been accepted by the G20 and incorporated into the broader energy efficiency package. A meeting with France’s ADEME to discuss how to take this work stream forward was held in September and a first workshop is being planned alongside an international statistics workshop in December.

Energy efficiency policy analysis

Market-based Instruments

In response to the request of the G7 (see 3.1 above), the IEA has begun a comparative study of market-based instruments specifically designed to promote energy efficiency. The study will examine market mechanisms and economic instruments such as tendering and auction programmes, and utility obligations and white certificates, analysing the choices that policy-makers face and the key factors behind successful programme design and implementation in different contexts. Drawing upon the global evidence, the study will evaluate international experiences with market-based instruments, making them available for international exchange and to inform national policy debates. The study will draw upon data and experiences from the Agency, its member, accession and partner countries and the wider constituency.

The study will examine the cost-effectiveness of programmes, the distribution of costs and benefits, and the extent to which programmes have impacted on the development of energy service markets. In doing so, it will set out the global coverage of market-based instruments and analyse the design options open to policy makers, such as the high-level choice between instrument types, defining obligation targets, compliance mechanisms, the treatment of other policies in operation and the options available to market participants in delivering savings. In summary, the study will:

- (a) map the coverage of market-based instruments at the global level;
- (b) present the central design options available to countries wishing to implement market-based instruments;
- (c) evaluate the chosen approaches, identifying critical success factors; and
- (d) set out the potential of such instruments to deliver substantial energy efficiency outcomes as part of the energy transition.

As part of the project, at least one workshop will be held during late autumn / winter 2016/17. A report will be produced for the G7 in Q1 2017 and material on the coverage of market-based instruments will appear in the 2016 Market Report.

The Secretariat would like to build on this work and expand into new related modules, potentially around business models for delivering efficiency and capacity building for governments considering implementing market-based instruments.

Multiple Benefits and Energy Efficient Prosperity

The Multiple Benefits theme will continue to feature strongly in the Market Report, with the analysis on emissions, imports and spending in the 2015 report updated for 2016, and new analysis on avoided infrastructure spending from efficiency gains. The IEA sponsored and participated in the International Energy Policy and Programme Evaluation Conference in Amsterdam on June 7th-8th, which had a multiple benefits theme; Brian Motherway gave a keynote address in the opening session.

As mentioned in the last report to the Secretariat, the Energy Efficiency Division organised two events on Energy Efficient Prosperity. The [first event](#), at COP21, sought to move beyond discussions about the energy savings benefits of energy efficiency policies to showcase the social and economic outcomes of policies implemented around the world. The second event, part of the Bali Clean Energy Forum on 12th February explored the benefits of energy efficiency for electricity security (lowering peak demand), economic development, access, climate change and other development objectives. A synthesis of the findings from these workshops will be published this month. It takes a journalistic approach and tells stories focusing on each of the benefits highlighted during the events.

Evaluating Policies in Asia and Latin America

Energy efficiency policy evaluation has emerged as an area of particular interest to several emerging economies including China, Brazil, India, Indonesia and Mexico. The fundamental need is to understand which existing programmes are effective and why, how to improve them, and which additional policies are needed to achieve national and international goals and targets.

In Indonesia, the Division has been working closely with a consultant and the Ministry of Energy and Mineral Resources to evaluate the impact of Indonesia's existing energy efficiency policies and how far these policies will get Indonesia towards its goal of reducing energy consumption by 17% by 2015. A draft report of this evaluation has been completed and is under review. In addition to estimating the impact of policies, it provides advice on how to strengthen existing policies and begins to explore future measures and their potential energy savings impact. The Division will continue to work with Indonesia on policy evaluation and development moving into 2017. In Mexico, the Division is working with the Ministry of Energy (SENER), the National Commission for the Efficient Use of Energy (CONUEE) and an expert consultancy to evaluate the impact of two energy efficiency policies: i) energy efficiency standards (i.e. air conditioners, lighting and refrigerators); and ii) non-residential building energy codes. The project is currently undergoing data research and compilation in order to develop a baseline and evaluation framework for each energy efficiency policy. The aim is to present the findings and build government staff capacity in a final workshop by Q1 2017.

Training and Capacity Building

Energy Efficiency in Emerging Economies Training Week

In June 2016, the Division hosted the second Energy Efficiency in Emerging Economies Training Week attended by 130 participants in 40 emerging economies. This training event is the only one in the world dedicated to sharing experience with planning, implementing and evaluating energy efficiency policies in emerging economies. Fatih Birol opened the training week, stressing the importance of the event for the IEA's open door policy, which seeks to build closer relationships with developing and emerging economies. He also said it reflected the elevated importance of energy efficiency at the IEA.

To help with the training event, the Division brought together experts from across the IEA, IEA Technology Collaboration Programmes, Global Fuel Economy Initiative (GFEI), Copenhagen Centre for Energy Efficiency (C2E2), UNIDO, World Bank, EBRD, UNEP, SLOCAT, UNSE4All, GIZ, to name a few. Ambassadors from the Netherlands, Canada and Australia and a representative from Germany spoke about domestic and international energy efficiency efforts.

The training week sought to 1) deepen participants' network with colleagues from around the world and with IEA experts in order to help strengthen energy efficiency cooperation and 2) build the technical expertise of the next generation of energy efficiency policy advisors.

The Division is currently looking for funding to conduct a 2017 Energy Efficiency in Emerging Economies Training week. Please contact us if you are interested in contributing.

Energy Efficiency Indicators

The Division is working closely with countries to improve energy balances and to develop energy efficiency indicators through workshops, training events and tailored advice. Complementing the G20 initiative (see Section 3.2 above), the IEA would like to make energy efficiency indicator training material available for free online to help scale up energy efficiency data and indicators efforts and to reach countries, officials, researchers and students who may not have had access to IEA training events. The Division launched a market consultation to find a contractor to help the IEA develop online energy efficiency training material. A contractor has been selected and we hope to begin work with them on the training content this month. A pilot of the online training course is expected next year and we invite EEWP delegates to test it and provide feedback.

UPDATE: POWER SYSTEM FLEXIBILITY AS THE PILLAR TOWARDS HIGHER vRES SHARES

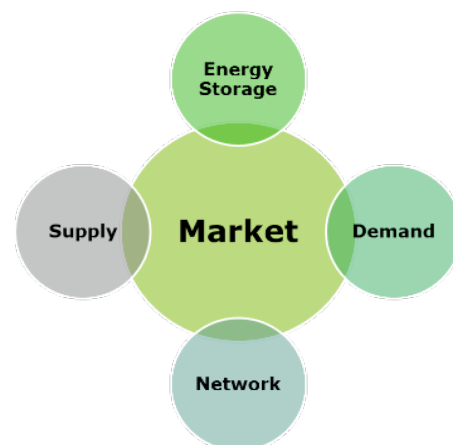
The last decade has seen advances that have made variable renewable energy sources (vRES), such as wind and solar energy, almost cost competitive with conventional energy sources under many circumstances. On the other hand, delivering low carbon energy when and where it is needed presents a very different challenge, **bringing the issue of flexibility in the forefront of system design. The key question for the transition to low carbon energy systems is: “how can we ensure that future power systems have the flexibility needed in order to match variable demand with variable supply?”**.

Outline of the project

Policies should enable harnessing as much flexibility out of the existing system as possible

Power systems were designed to use flexible generation and power networks to meet variable demand and are not optimally designed in the case when also supply is variable and distributed. As vRES penetration levels increase, changes are needed, to enable harnessing as much flexibility out of the existing system as possible. The policy actions needed can be mapped to five key categories:

1. **Supply:** Key actions are needed to increase flexibility of existing fleet and to integrate distributed and variable resources to the system.
2. **Demand:** DSM constitutes a key potential of low-cost flexibility. Key actions are needed to promote the participation of demand in system operation, and harness its flexibility potential.
3. **Grids:** Key actions are needed on leveraging the full potential and expand transmission systems, and on transforming today’s passive distribution grids into smart grids.
4. **Storage:** Key actions are needed to promote distributed energy storage technologies and prepare bulk energy storage options needed for seasonal balancing in high penetrations.
5. **Markets:** markets is the overlaying area of actions needed to enable the needed transformation, as all regulations and incentives emerge from here. Key actions are needed to enable wholesale markets to more optimally integrate vRES, expand and adapt balancing markets, link retail markets to flexibility and adapt grid codes.



Although the best mix of policies needed for a specific system derive from the inherent system characteristics and flexibility economics, this categorization allows the creation of clear checklists of policies for the promotion of system flexibility.

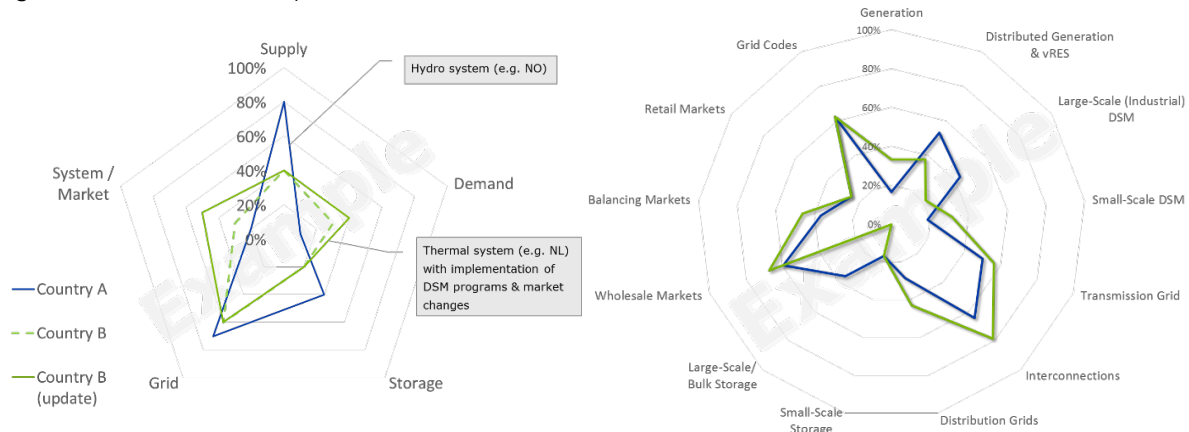
Since 2013, Ecofys and European Copper Institute have been working together on the development of a flexibility roadmap which includes an assessment tool for testing the readiness of a power system on the road towards near 100% renewables. The results of this work can form the foundations for IEADSM for further development as well as integration with the IEADSM knowledge base (in particular task 17).

Creating a tool to assess the system readiness to higher vRES shares

The vision for this task is to further develop and test an assessment tool (the Flexibility Tracker) that a) informs policy makers on the policies needed for the transition to low carbon energy systems, and b) monitors the readiness of the system towards higher vRES shares. An advanced prototype of such tool already exists and is currently being tested in 8 EU markets. In this proposed task, we will develop a systematic assessment of the compliance of different systems to the needed policies and to allow the identification of the respective policy gaps. The idea will be to apply the methodology to a broader set of

countries, including countries outside the EU, and develop it to a framework for organising the key information of the flexibility and on tracking how planned policies support this vision. This could provide an invaluable tool for tracking the best practices and actions needed for preparing the power systems of the future. An online platform is foreseen in this task to organise and share the results and help raising awareness.

The methodology is based on combining a set of flexibility KPIs that refer to the needed policy actions. The KPIs are accompanied by explanatory texts that will educate users on the need and background for each policy. On rating a system, each KPI is assessed based on a set of clear questions on the a) current situation (answer based on statistics) or on b) compliance with policies (based on Y/N questions). In a current prototype version, the tool comprises approx. 60KPIs, organised in the 5 key categories mentioned above and 13 subcategories. The assessment is done based on a set of 100 questions. The figure below shows example assessments.



Creating global awareness on flexibility

The ultimate goal of this task is to create a policy setting tool aiming to synthesise, communicate and promote results from related IEA tasks and to educate and raise global awareness on the topic of flexibility and energy transition in power systems. In a nutshell the tool will allow:

- **Ranking** of the vRES readiness (flexibility) of different systems
- **“Educate”** on key challenges of flexibility
- Develop a **global database** on policies on how systems comply to the flexibility challenge
- Identify **best practices**, investigate regional issues, raise awareness

Description of the project & status update

Flexibility report

The mapping of flexibility options in the electricity system has been completed in 2014 resulting in the report 'Flexibility Options in Electricity Systems' that can be accessed through the following link: <http://www.leonardo-energy.org/white-paper/flexibility-options-electricity-systems>

Summary of the flexibility report

It is widely recognised that increasing flexibility is key for the reliable operation of future power systems with very high penetration levels of variable renewable energy sources (VRES). The starting point of this report is the understanding of the flexibility requirements for enabling the transition to such power systems. Furthermore, this report aims in providing a comprehensive assessment of the complete spectrum of flexibility options (instead of focusing on specific ones) and to identify key barriers for their deployment.

Flexibility is the ability of a power system to maintain continuous service in the face of rapid and large swings in supply or demand. Traditionally, flexibility was provided in power systems almost entirely by controlling the supply side. In systems with increasing shares of VRES, additional flexibility is needed to maintain system reliability as the variations in supply and demand grow to levels far beyond what is seen today. VRES reduce the flexibility resources in the system by displacing traditional supply side flexibility providers while simultaneously increasing the need for flexibility due to their inherent stochastic nature. This creates a "flexibility gap" that will need to be covered by new flexibility options.

Variability impacts all different power system operational timeframes. A transformation of power system operational planning is expected. The question of having sufficient resources to meet demand is changed to having sufficient flexibility resources to balance net demand forecast errors and fluctuations. By increasing VRES penetration levels, the impacts to more long-term timeframes become more visible. This affects the choice of suitable flexibility options: in shorter timeframes, response times are of more importance; in longer timeframes, the ability to offer large storage content and long shifting periods would be of more importance.

Power systems should deploy the most economic resources for provision of energy and operational flexibility. New flexibility resources will compete with flexibility capabilities of the existing system, such as network expansion, existing supply flexibility. In this report, a detailed analysis of the characteristics of the key flexibility options is presented. We analyse 16 options covering five key categories of flexibility provision, i.e. supply, demand, energy storage, network and system.

The results show that different flexibility options are best suited to different operational timeframes. The variety of options show that there are several options to consider in each timeframe. As expected, the main mature options are on the supply side; on the demand side, a key mature option is the large-scale industrial demand response, while pumped hydro is the main mature storage technology. Most of the new demand and storage options are small scale technologies. The development of these options depends on the enabling communication and control infrastructure, which for such small scale units will represent a relatively higher share of costs. In the long run, only one storage technology competes with thermal power plants (however in the expense of high losses): Power to gas. For systems with higher VRES shares, more sophisticated control of VRES can be a more cost effective opportunity for providing system flexibility (or alternatively, reducing the needed flexibility). This option however faces institutional, perceptual, and potentially political challenges due to the perception that renewable energy is being wasted.

Specific market barriers are identified, which may hinder the development of flexibility options. A key difference is that investments in supply options are driven by high market prices, while market price variability (spreads) is an indicator for investments in flexibility. However, market prices and spreads are related to each other, making any intervention on the supply side having impact to the other options. In markets with overcapacities, market price variability is reduced. Therefore, the incentives for flexibility are removed. Making future markets provide sufficient incentives for peaking capacity and flexibility is a key challenge towards systems with higher VRES shares. Furthermore, one main barrier to demand management is a lack of systems and incentives for loads to participate in power system operations. Smart metering infrastructure could boost the prospects for residential and commercial demand management. Finally, reviewing the prequalification standards in markets could open additional markets to new flexibility options and to VRES (e.g. reduction of minimum bid sizes, shorter scheduling periods and reduction of gate closure times).

Flexibility roadmap

Following the completion of the flexibility report, work started to map out the various options in a roadmap towards near 100% renewables for national electricity systems. This roadmap benefitted from input from a wide & international stakeholder panel. The report has also gone through substantial peer review. The resulting report can be downloaded here:

<http://www.leonardo-energy.org/white-paper/power-system-flexibility-strategic-roadmap>

Summary of the flexibility roadmap

Relying almost entirely on energy from variable renewable energy sources (vRES) will require a transformation in the way power systems are planned and operated. This report outlines steps for overcoming the challenges in creating power systems with the flexibility needed to maintain system security and reliability while relying primarily on variable energy resources. The work is largely a synthesis of the many reports and studies on this subject. It seeks to summarize that body of work for a less technical audience that will need to put in place the policies, technical changes, and institutional systems necessary to make the power system of the future a reality. For this work we gathered opinions from a dedicated power system flexibility advisory panel, through two meetings, e-mail exchanges, and an online survey.

The roadmap envisions a transformation performed over three phases or regimes:

- An initial phase with variable generation contributing up to about 10% of the energy demand, characterized by relatively mild changes to conventional power system operations and structures;
- A dynamic middle phase up to about 50% penetration by vRES characterized by phasing out conventional generation and a concerted effort to wring flexibility from existing infrastructure; and
- The high penetration phase that inevitably addresses how power systems operate over longer periods of weeks or months when variable generation will be in either short supply, or over-abundant supply.

Although the roadmap lays out a decades-long and incremental path, it presents actions that need to be taken in the immediate future. The needed policies, research, demonstration projects, and institutional changes need to start now precisely because the path is relatively long and the need so great.

The work presented in this report is organized in five chapters:

Chapter 1 (Introduction) describes the general debate related to the needed transformation of power systems in order to accommodate extra high levels of variable renewables and how this is directly related to increasing the power system flexibility. Further, we explain the notion of flexibility and discuss the status in today's systems.

Chapter 2 (Power System Flexibility Vision) analyses the seven key elements for the transition to reliable, low-cost power systems dependent primarily on vRES. In particular, we discuss the role of **demand**, the changes in **power markets**, the **control of variable renewable generators** for the provision of grid support services, the mechanisms needed to appropriately **reflect diversity-related benefits**, the role of **bulk energy storage**, the **smart grid** evolution, and the management of **surplus energy events**.

Chapter 3 (Key Flexibility Challenges) discusses the key challenges for the transition to systems relying primarily to vRES. We present the three development regimes based on penetration levels of vRES and map the challenges on each regime.

Chapter 4 (Policy and Institutional Frameworks) dives deeper on the policy and institutional frameworks needed to address the challenges in each of the development regimes. For each regime we summarise the needed actions in comprehensive tables (Flexibility Roadmap Policy Checklists).

Chapter 5 (Roadmap summary) presents a roadmap that consists of the actions needed on the transition path towards ultra-high penetration levels of variable renewables.



Current development

A major outcome of the flexibility roadmap was a checklist with indicators to apply to an electricity system. This checklist is currently being tested for 5 national electricity systems:

- Netherlands
- Germany
- Belgium
- Spain
- Poland

A draft of the checklist, as well as draft country reports for the first 3 countries in above list are available on request.

These reports will be tested in the national markets through stakeholder workshops after which they will be further refined.

Future development / possible roles for IEADSM & IEA-ISGAN

Gradual application of the flexibility tracker will continue to more countries. Candidates are Italy, South Africa, United States, France, United Kingdom, ... The tracker will be adjusted based on the learnings for each country.

The knowledge base surrounding this project is increasing. In future, a microsite organising this knowledge and codifying its learnings for policy makers is needed.

Further validation of the tracker on its usefulness to provide input to national energy policy is needed.

There is interest to evaluate the tracker to other entities besides a national electricity system. Examples include subnational regions, supranational regions, industry sectors, cities, ... Each of these will require a modified version, but we expect that a lot of the findings of the current project can be re-used.

DATA ANALYTICS FOR ENERGY EFFICIENCY

Introduction to Big Data

Overview

In our modern society the number of available data is exploding. Companies like Google, Facebook and Apple are storing (and analysing) search action on the internet, activities in social media; shops, airline companies, credit card organisations and banks are storing the data from users of their loyalty programs, their cards and transactions; navigation systems use the driving information etc.

Big Data is a container concept and is determined by the so called 3 V:

- Volume: large number of data
- Varsity: data related to very different topics
- Velocity: quick availability of data

Not only the amount of data is increasing, but also the production of these data is continues speeding up. These two developments make it possible that one can (re)-act earlier to changes.

Big Data is often the combination of data from different sources as well as the use of data for other purposes than those were these data were collected for.

One cause of concern in the Big Data community is uneasiness about sharing data. Privacy is one obvious obstacle.

Big Data and energy use and energy efficiency

Big Data is an enormous opportunity for making energy-efficiency savings. People do not seem to adopt efficient technologies that appear financially attractive. One of the commonly cited reasons is that information about how to save energy is hard or time consuming to collect, or that the efficient devices are hard to use. The use of improved metering information on processes as well as the combination with other (big) data in industrial companies can generate information to be used by the management to improve energy efficiency. Companies may do it there self, but firms that employ Big Data can help better to overcome these challenges.

Smart Meter Data

The introduction of smart meters can result in a large amount of data on the energy use of consumers, detailed over the time of use and (almost) real-time.

Smart and intelligent metering technology allows electricity customers to keep an eye on their current and previous energy consumption at all times. The pivotal role of consumers in energy management will be greatly facilitated by their ability to access their usage data. Such transparency helps end-users to better control their consumption, use energy more efficiently, protect the environment and potentially save money. Organisations can make huge energy efficiency gains, for instance through intelligent lighting and heating systems which only activate when facilities are in use.

Electricity Utility Data

Utilities are approaching the Big Data differently. e.g. EDF begins its plan to roll out 35 million smart meters across France and it will need to start incorporating that flood of data into its way of doing business. Options under research are to use data from the smart meter to better estimate the state of the grid, or use that data to better assess the material lifetime duration” of power lines, transformers and other distribution grid equipment. Or you can basically– and this is the main important part – try to manage the energy consumption: to push the people, or to find the best condition, in which the consumer will consume less, or will consume on a different timescale. This is an area where data will help and that will be an important part of managing grid assets in a world where new customer loads such as plug-in electric vehicles, as well as the increasing share of power being generated by customers themselves, are altering supply-demand balances.

Most of the U.S. utilities data analytics focus to date has been on improving grid reliability and outage response, as well as lowering the cost of distribution operations.

Energy Efficiency

The data ‘explosion’ in energy created a new potential for evaluation, measurement and verification of energy efficiency programs. The data can be used to get quicker and cheaper answers on the impact of policies; more accurate savings estimates; and allow new kind of analysis. While at the moment most impact evaluations has to work with a number of assumptions on the energy use and related items, not only energy use data are more frequently and easier available but also the data to relate changes in energy use with other changes related to the program or not.

Related Activities

Big Data Europe – Empowering Communities with Data Technology

<https://www.big-data-europe.eu/>

The growing digitization and networking process within our society has a large influence on all aspects of everyday life. Large amounts of data are being produced permanently, and when these are analyzed and interlinked they have the potential to create new knowledge and intelligent solutions for economy and society. Big Data can make important contributions to the technical progress in our societal key sectors and help shape business. What is needed are innovative technologies, strategies and competencies for the beneficial use of Big Data to address societal needs.

Climate, Energy, Food, Health, Transport, Security, and Social Sciences – are the most important societal challenges tackled by the European Union within the new research and innovation framework program “Horizon 2020”. In every one of these fields, the processing, analysis and integration of large amounts of data plays a growing role – such as the analysis of medical data, the decentralized supply with renewable energies or the optimization of traffic flow in large cities.

SEED Standard Energy Efficiency Data

(US Department of Energy / Lawrence Berkeley National Labs, NREL)

<http://energy.gov/eere/buildings/standard-energy-efficiency-data-platform>

<http://seedinfo.lbl.gov/>

The Standard Energy Efficiency Data (SEED) Platform™ is an open source software application that fills a major market need for data-driven energy efficiency program design and implementation. The SEED Platform enables streamlining of complex building data and allows users to share selected data with partners or make it publicly available.

IEEE Big Data

<http://bigdata.ieee.org/>

The IEEE Future Directions Big Data Initiative strives to aggregate information about the various endeavors occurring worldwide in order to provide a community of professionals in industry, academia, and government working to solve the challenges associated with Big Data. Through various outlets, participants in the [Big Data Technical Community](#) can learn and collaborate on the multi-faceted Big Data initiative that has applications in many industries and markets. Members of the community have access to extensive resources including publications, videos, articles, interviews, webinars, newsletters, workshops, and conferences.

IEEE Power & Energy Society – Subcommittee on Big Data & Analytics for Power Systems

<http://www.ece.tamu.edu/~lxie/BigDataAndAnalyticsForPowerSystems/activities.html>

Big Data initiative in the US and throughout the world has provided a unique window of opportunity for improving the analytical methods in power system operations. The proposed subcommittee will serve as a professional society hub to enable collective efforts towards defining a big data-driven grid operation roadmap.

This subcommittee will bring together leaders from industry, academia, and government and meet regularly (both face-to-face meeting and Web-based conference calls) to define the architectural, computational, and practical challenges and opportunities brought by the emerging big data in smart

grid. Initial discussion will focus on the standards, management, and analytics of big multi-domain multi-resolution data (PMUs, SCADA, Weather, GIS, etc.) for power grid operations.

→ Matthias Stifter (AIT) TF Member on Data Analytics for Distribution Systems

Upcoming Events

Big Data in the H2020 Societal Challenge Secure, Clean and Efficient energy: 2nd Workshop October 4 @ 10:00 - 14:00

Metering based Data Analytics for Energy Efficiency

With the rollout of smart meters and sensors and increasingly fast connections and processing powers, we are able to collect energy consumption related data from various sources. With the entry of big data technology into the energy domain new ways are opened to harvest energy efficiency. This could be simply done by finding losses, analyzing certain consumption patterns to identify inefficient appliances or devices, or by applying advanced data science methodologies to optimize energy usage.

Recent results from research have proven the applicability and benefit of data analysis for energy efficiency purposes, i.e. in the field of power systems. A new activity of IEA DSM is on its way to be dedicated to the use of **data analytic methods** and approaches to identify **energy efficiency potentials** in consumption and other areas of energy usage.

The identification of applicable analysis methods, technical as well as other requirements on the system and the resulting potentials in energy savings will be on the main focus to investigate in an international setup of experts. Currently this activity is in its planning phase and calls for the involvement of interested parties and experts to specify its context and objectives. The starting phase is planned for autumn 2016.

Examples for Energy Efficient Data Analytics

Efficient Power System Operation

With the usage of power system network data from sensors and meters (e.g. smart meters), it is possible to identify losses and other inefficient network conditions.

Analysis tasks include the objectives and identification of: efficient network operation, decrease losses due to inefficient assets, non-ideal operation points of generators (e.g. reactive power output) or better topologies (improve line impedances), especially in combination with electric cars or distributed generators. Another analysis case could be the identification of unbalanced conditions and the improvement of the voltage band [1].

Figure 0-1 shows the visualization of networks with high losses compared to the average (source: Iberdrola). The voltage unbalance situation is visualized from smart meter data in Figure 0-2, which can cause higher losses in the network operation.

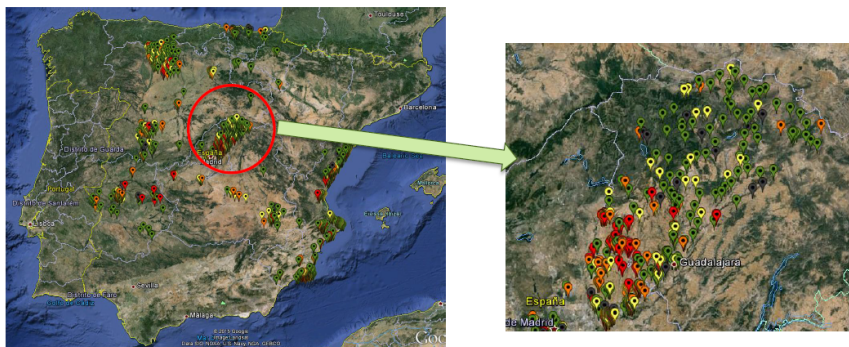


Figure 0-1: Identification of networks with high losses compared to others (Source: Iberdrola)

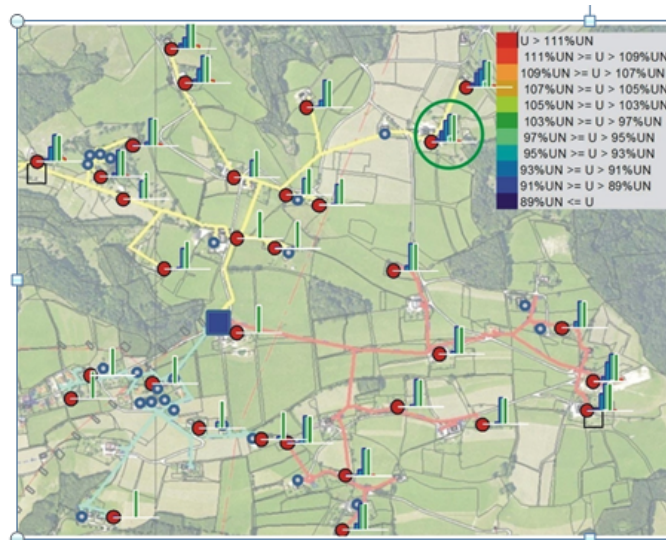


Figure 0-2: Identification of unbalanced voltage situations [2]

Consumer devices and classification

Consumption of electronic devices: use meter data and data discovery to identify the energy consumption of gadgets. For example extract consumption pattern of HVAC, pumps or fridges and compare with energy efficient device pattern.

New service for customers could be, that customer could provide samples of this smart meter and manufacturers could run analysis and evaluate the ROI for exchanging old devices with new (e.g. refrigerator)

Commercial available products for real-time appliance disaggregation and self-learning consumption behavior exists (e.g. WattGo, Smappee).

Consumer segmentation and behavior classification

This includes the identification of energy intensive consumers (segmentation, etc.), with optional using of demographic data for more detailed information. Figure 0-3 shows a classification of two different groups having a flat profile and a power intensive more dynamical profile [3].

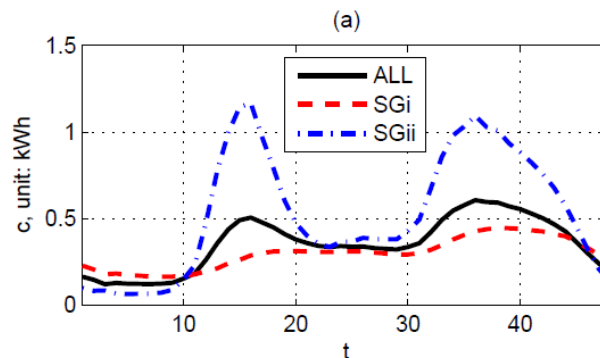


Figure 0-3: Load profiles of different customers based on sub-group discovery [3]

Analysis cases

- Energy contractors: find out customers with potential on energy saving. Together with facilitator or consultant change consumption behavior, processes, devices, etc.
- Network operators: identify consumers using high power (as opposed to energy) and therefore using more network “bandwidth”. Change of energy contract or network usage fee.
- Energy providers can save a lot of balancing energy with better knowledge of the consumer profiles and their deviations from the standard load profiles.

Enduring long term energy saving potential by smart meter

Smart meter roll-out is supposed to save energy due to various reasons (e.g. monitoring and visualization, dynamic tariffs, demand response). Recent studies have shown that a long term energy saving potential is only possible by accompanying energy consulting in households.

In a recent study the effect has been investigated [4]. Figure 0-4 compares the energy saving potentials of smart meter test groups and the reference group, where smart meter groups increase their saving potential. There is also evidence that without energy saving consultancy, the saving potential stagnates.

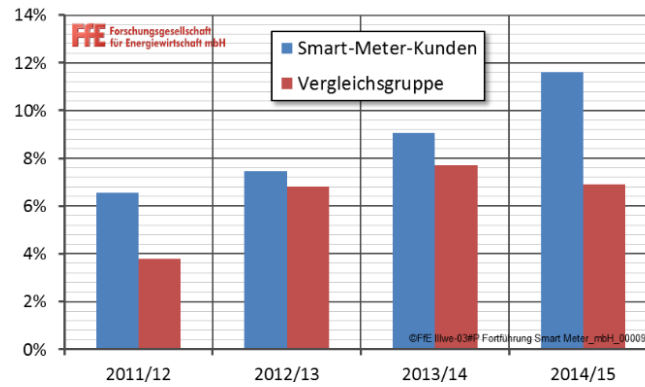


Figure 0-4: Energy savings of smart meter test groups compared to the reference group (no smart meters) [4]

With the correct choice of feedback instrument the intended energy saving will be possible.

Smart Heat meter monitoring of district heating sub stations

Possible evaluations could include retro-fitting of energy metering to monitor supply and return temperature and detect fault states.

Possible Task Outline

Objectives

- Evaluation and investigation of various statistical approaches and methods to analyse energy efficiency improvement based on electricity metering data.
- Identification and recommendation of accompanying energy consultation actions / information of consumers to maximize energy saving potentials

Subtasks

ST1: Requirements to enable energy efficient analysis

This subtask will deal about requirements on metering data and system to enable the specific analytic evaluations

Also the acquisition of sample data would be handled in this ST.

ST2 Data-based identification of energy saving potentials

This subtask will identify, evaluate and validate data analytic methods to improve energy efficiency. Methods might reach from monitoring to statistical methods for e.g., energy profile classification to validation of energy saving actions.

ST3 Actions to increase and ensure increase of energy efficiency

This Subtask will deal with identification of best practice of measures and actions to ensure long-term energy savings by energy metering systems.

ST4 Knowledge-transfer and dissemination

This subtask will deal with organizing the knowledge transfer and exchange as well as dissemination actions (e.g. website, workshops, publications, reports).

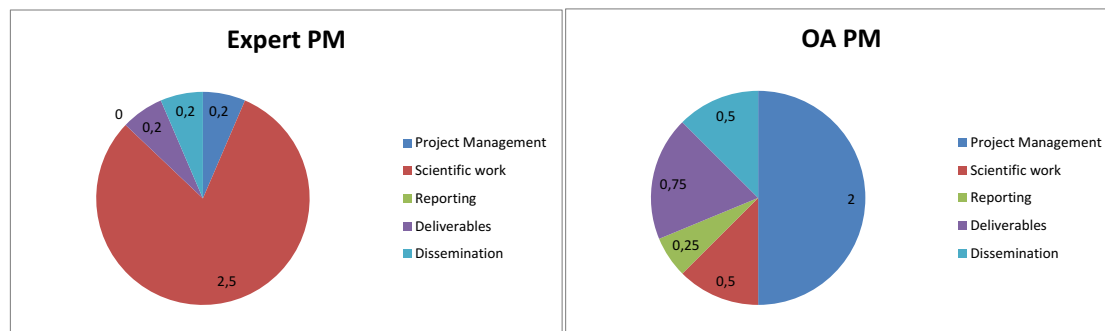
Resources and Budget

The task might be organized as a cost-shared or task-shared action. The following budget structure is currently estimated:

Resources (person month) needed

Person month per year:

PERSON MONTH / year	Expert PM	OA PM
Project Management	0,2	2
Scientific work	2,5	0,5
Reporting	0	0,25
Deliverables	0,2	0,75
Dissemination	0,2	0,5
Total PM / year	3,1	4



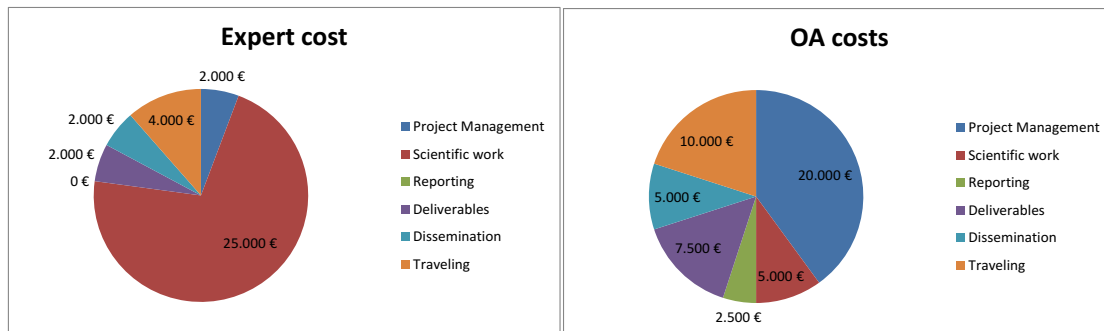
Total resources needed

- Experts: 15 PM per year → 2 years 30 PM
- Operating Agent: 4 PM per year → 2 years 8 PM

Costs (€)

Costs for one person month 10k€

COSTS / year	Expert cost	OA costs
Project Management	2.000 €	20.000 €
Scientific work	25.000 €	5.000 €
Reporting	0 €	2.500 €
Deliverables	2.000 €	7.500 €
Dissemination	2.000 €	5.000 €
Traveling	4.000 €	10.000 €
Total costs / year	35.000 €	50.000 €



Total costs

- Expert: 35k€/year → 2 years 70k€ total → 5 Experts 350k€ total
- Operating Agent 50k€/year → 2 years 100k€

Countries and Experts

Austria

Interests

- Electricity Grid Energy Efficiency (Operational)
- Meter and Sensor based analytics for Energy Efficiency

Competences

- Statistical data analysis and processing, data analytics data bases and computation cluster
- Data from smart meter of various projects (ISOLVES, SmartLVGrid, Leafs, SCDA)
- Electric power systems analysis, demand response
- Energie efficiency and energy monitoring at consumer levels
- Consumer interaction and automation

Experts

- Matthias Stifter - AIT Energy Department, Electric Energy Systems
- Michaela Reisinger – AIT Innovation Systems, Technology Experience

Stakeholders

- (Network operator?)

Sweden

Interests

- Energy Efficiency

Competences

- Digitalization, Data, Energy Efficiency,

Experts

- Senja Nordström (senja.nordstrom@energimyndigheten.se) (SE)
- KiC-Energy related SMEs

Stakeholders

- Swedish Energy Agency: Svetlana Gross (SE)

The Netherlands

Interests

- Using data and insight to develop a number of services relating to energy efficiency and demand side management.

Competences

- Quby: European supplier of smart thermostats and energy displays, Product 'Toon' of energy retailer Eneco

Experts

- Stephen Galsworthy stephen.galsworthy@quby.com
- TNO / Rene Kamphuis

Stakeholders

- Quby / Industry
- TNO / Academics Research

IEA Offices

Interests

- Energy Efficiency (Smart Meter)
- Disaggregation of load profiles

Experts

- Manuel BARITAUD, IEA <Manuel.BARITAUD@iea.org>

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- [4] Michael Hinterstocker and Serafin von Roon, "Bewertung des langfristigen Einsparpotenzials durch Smart Meter und begleitende Energieberatung in Haushalten," presented at the EnInnov 2016, Graz, Austria, 2016.

TASK 17 – INTEGRATION OF DSM, DISTRIBUTED GENERATION, RENEWABLE ENERGY SOURCES AND ENERGY STORAGE – PHASE 3

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1. Summary

Phase 3 of IEA-DSM Task 17 addresses the current role and potential of flexibility in electric power demand and supply of systems of energy consuming/producing processes in buildings (residential, commercial and industrial) equipped with DER (Electric Vehicles, PV, storage, heat pumps, ...) and their impacts on the grid and markets. The interdependence between the physical infrastructure of the grid, governed by momentary power requirements, and the market side, governed by energy requirements, will also be looked upon. The scalability and applicability of conducted and ongoing projects with respect to specific regional differences and requirements will be explored (see <http://www.ieadsm.org/task/task-17-integration-of-demand-side-management/>).

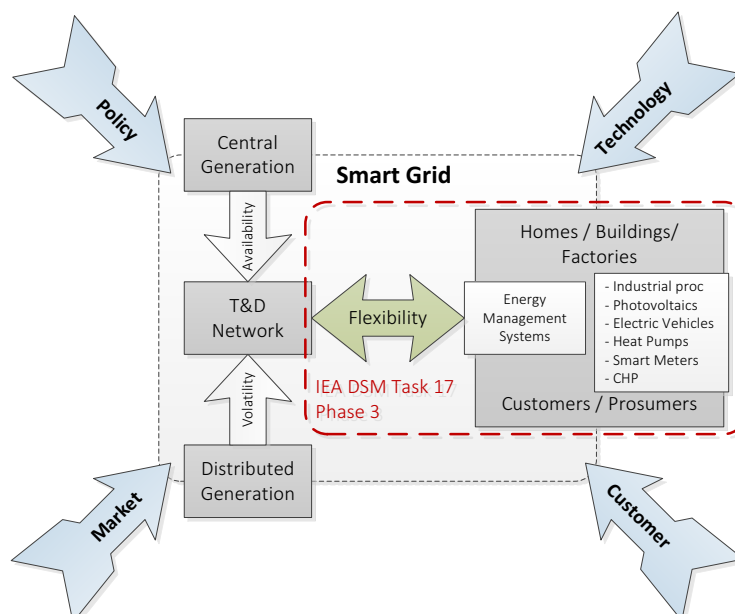


Figure 5 Focus of the IEA DSM Task 17 Phase 3 on enabling the consumption and production flexibility of electricity delivery

The project consists of four subtasks. The Subtask 10 deliverable describes the context and covers the current role and the interactions of flexible consumers and producers in the energy system. Subtask 11

covers the changes and impacts on grid and market operation once optimally using demand flexibility and includes cost/benefit analyses. This Subtask 12 deliverable collects experiences and describes best practices in several countries. Subtask 13 ends with the conclusions. **Fel! Det går inrte att hitta någon referenskölla.** illustrates the approach and the project structure.

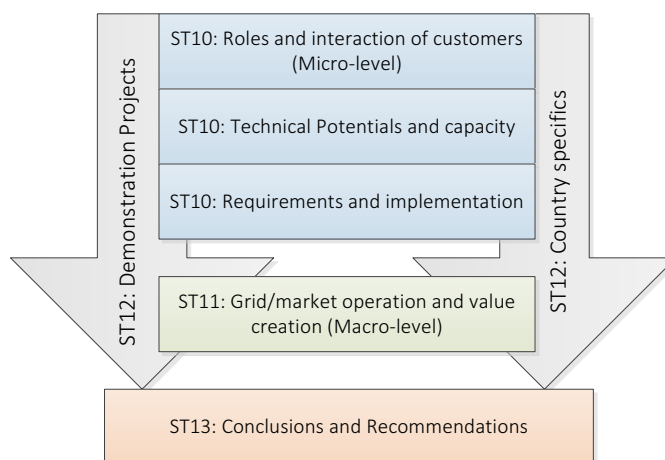


Figure 6: General approach of IEA DSM Task 17

2. Objectives for the last six months

Subtask 10 Role and potentials of flexible consumers

Assess the concepts and implementations of customer and home energy management systems (CEMS/HEMS), possibly linked to the smart meter, in different (participating) countries in relation to flexibility of demand and supply.

Progress towards Subtask objectives

Finalization of ST10 Deliverable

Subtask 11 Changes and impacts on grid and market operation

Assess the impact on grid and market operation based on technology penetration scenarios developed in subtask 5 and 9 (developed in phase 2) by investigating the following areas of interest

Progress towards Subtask objectives

Market development and valuation, as well as cost benefit analysis (CBA) framework has been developed to be fed with results from the analytical framework for assessing the projects with respect to a CBA (from ST 12).

Draft has been reviewed by the experts and document is finalized.

Subtask 12 Sharing experiences and finding best practices

Based on the collected pilots and case studies from the previous subtasks, the results and findings of the finished projects in term of successful implementations, barriers and effectiveness are analysed.

Progress towards Subtask objectives

Country specific additions and projects have been added. Deliverable is finalized.

Subtask 13 Conclusions and recommendations

Recommendations will arrived at in close interaction with the experts' opinions and will at least provide a ranking based on impacts, costs and likely future penetration of the technologies.

Progress towards Subtask objectives

Structure and input phase have been concluded. Document is finalized.

Experts meetings/seminars/conferences held in past six months

Experts meetings

Date	Place	# of Experts	Type of meeting	Government	Industry	Academic

2016-03-08	Webmeeting	8	Web	1	2	5
2016-05-10	Linz/Austria	6	Real	0	1	5
2016-07-28	Webmeeting	6	Web	1	0	5
2016-08-26	Webmeeting	8	Web	1	2	5

Seminars/Conferences

Date	Place	Participants	Type of meeting	Government	Industry	Academic
2016-05-09	Linz/Austria	~40	IEA Joint Symposium	10	15	15
2016-09-28	Australia	30	Lecture on DR	5	5	20
2016-09-15	Netherlands	~100	Meeting Dutch Power association; National Dissemination	10	70	20

Reports produced in the past six months

- ST 10: Roles and Potentials - *Final*
- ST 11: Valuation - *Final*
- ST 12: Use Cases – *Final*
- ST 13: Recommendations – *Final*

3. Objectives for the next six months

Disseminate Deliverables on Website / Conferences / Newsletter / National meetings

Experts meetings/seminars/conferences planned in the next six months

Planned Experts meetings

Date	Place

Planned seminars/conferences

Date	Place
2016-10-20	Vienna Austria / IEA Networking Event -
2017-06-12	Glasgow / UK / CIRED 2017

Reports/Publications planned for the next six months

Conference Paper for CIRED 2017

Journal Review Paper

4. Outreach

Joint IEA Symposium on Demand Flexibility

- ISGAN – Annex 2
- PVPS – Task 14 – Integration of High PV Penetration
- EBC – Annex 58 / Annex 52
- ECES-DESIRE Annex
-

5. Ideas for new work

Evaluation, measurement and verification of DR.
Forecast for DR
Big data for Energy Efficiency and consumer market profiling.

6. Finance

AIT:

- Realization AIT (total/spent): 80k/85k Euro
- OA contribution (total/spent): 45k€/ 50k Euro

TNO: 77 kEuro; progress is on track; total budget 81 kEuro within Task activities

7. Activity time schedule

IEA-DSM TASK XVII - Phase 3	Q2 14	Q3 14	Q4 14	Q1 15	Q2 15	Q3 15	Q4 15	Q1 16	Q2 16
Subtasks									
Subtask 10 - Role and potentials of flexible consumers									
Subtask 11 - Changes and impact on the grid and market operation									
Subtask 12 - Sharing experiences and finding best practices									
Subtasks 13 - Conclusion and recommendations									
Expert meetings									
Biannual country expert meeting									
Workshops									
Workshops with stakeholders and experts									
Reports									
Subtasks reports									
Final report									

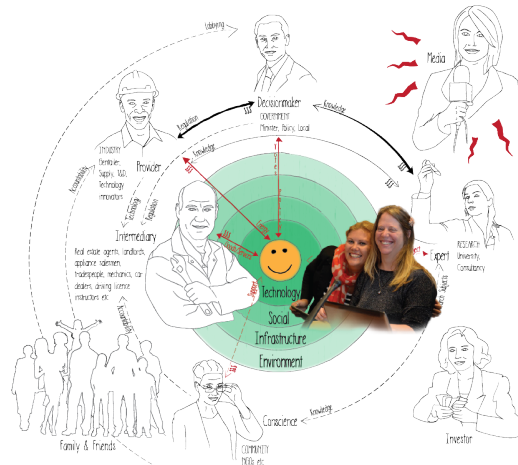
8. Matters for the ExCo

Recommend the ExCo to approve the Task Status Update Report.

9. Participating countries

Austria, Netherlands, Sweden, Switzerland, United States, ECI (European Copper Institute)

TASK 24 – PHASE II: BEHAVIOUR CHANGE IN DSM – HELPING THE BEHAVIOUR CHANGERS



1. Summary

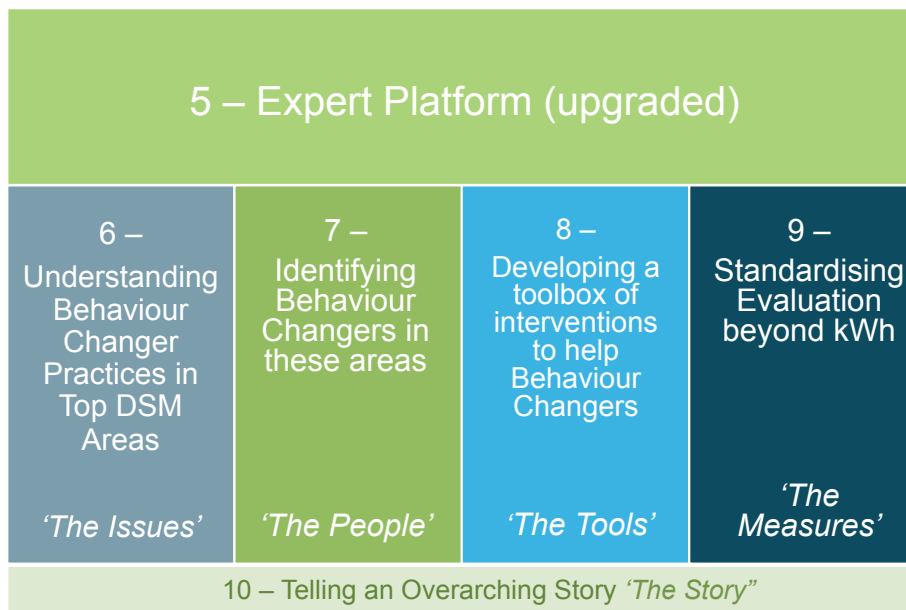
There is no behaviour change ‘silver bullet’, like there is no technological silver bullet that will ensure energy efficient practices. Designing the right programmes and policies that can be measured and evaluated to have achieved lasting behavioural and social norm change is difficult. We believe that this Task, and its extension, helped address these difficulties by developing guidelines, recommendations and examples of best (and good) practice and learnings from various cultures and contexts. We rely on a large, global network of sector-specific experts (researchers, implementers and policymakers) from participating and interested countries to engage in an interactive, online and face-to-face expert platform and contribute to a comprehensive database of a variety of behaviour change models, frameworks and disciplines; various context factors affecting behaviour; best (and good) practice examples, pilots and case studies; and guidelines and examples of successful outcome evaluations. This Task (Phase I) had several Deliverables, including the expert network and platform for continued exchange of knowledge and successes, the large-scale analysis of the helicopter overview and case studies, several reports, factsheets and guidelines on how to evaluate behavioural interventions and the country reports with specific to do’s and not to do’s, future research questions and re-iterated case studies following our best practice recommendations. Phase I of this Task is now finalised and Phase II (How to help the Behaviour Changers) has commenced.

Phase II of Task 24 takes the theory into practice. Building on the solid theoretical foundations of [Phase I](#), we now look at the:

- What?
- Who?
- How?
- Why? and
- So What?

We use a *Collective Impact Approach* methodology and *storytelling* as the overarching language and bring together Behaviour Changers from all sectors (industry, government, research, middle actors and the third sector) with the end users whose behaviour they are ultimately trying to change.

The Subtasks of Phase II



For more information, visit www.leadsm.org



2. Objectives for the last 6 months

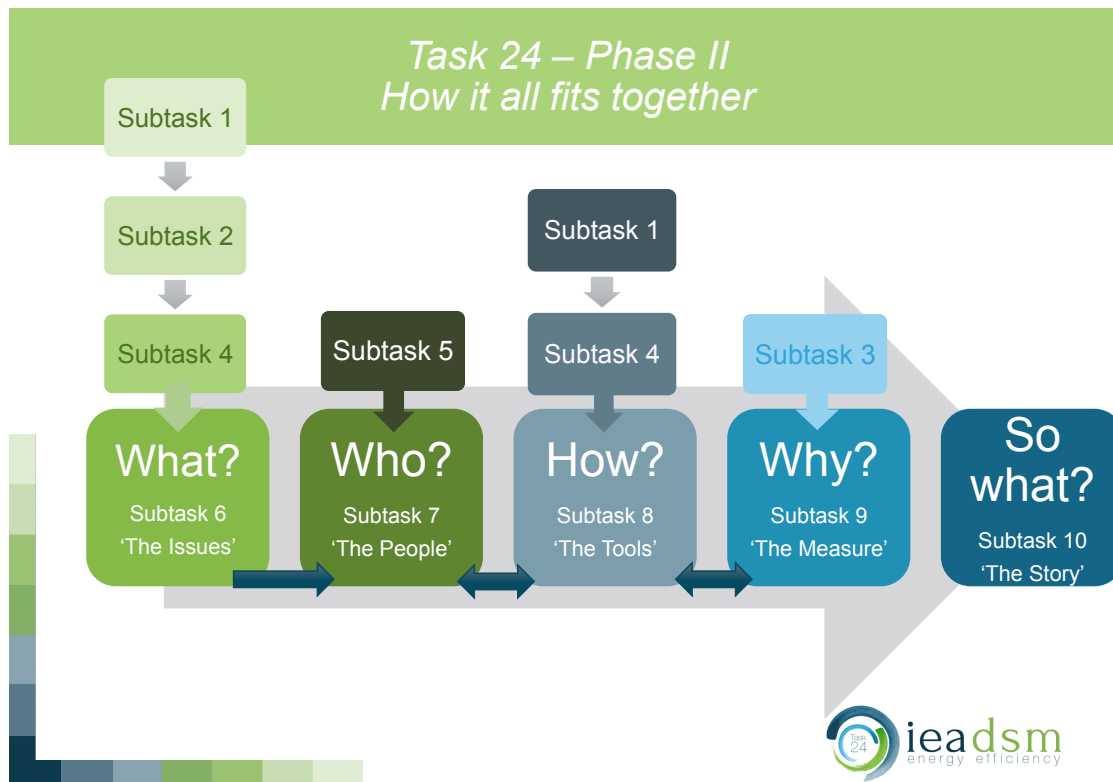
Subtask 5

Objectives

- Expert platform continually growing and getting used
- New content including presentations, videos and reports uploaded
- Continue publicising and dissemination of Task 24, including at international conferences

Progress towards Subtask objectives

Progress in last six months was highly satisfactory, we now have >240 experts on the expert platform and updated the visual branding to the new IEA DSM brand. All other final reports are on the IEA DSM website, which has been updated for both Phase I and Phase II. Google Analytics show continued strong utilisation of the ning website, especially after broadcast emails with links to all new content are sent. We continue having great successes in matchmaking experts, with several spending time at each others' Universities, for example, or developing new research collaborations. The dissemination of the Task is going very well, we have been invited to hold Task 24 workshops in collaboration with two very large international conferences this year – the Energy Cultures conference in July in Wellington and the BEHAVE conference in September in Portugal. In addition, we had a paper accepted for the ACEEE summer study for the first time which was presented and published in the proceedings. We have published our first paper in the high-impact Journal of *Energy Efficiency* and were chosen to be editors for a special edition on storytelling in energy on the highly respected Journal of *Energy Research and Social Science*. We received and accepted over 50 abstracts for this publication which will provide a hugely valuable contribution to the subject of storytelling and energy.



Subtask 6

Objectives

- Building on work from Subtasks 2 and 4, develop lists of common top 3 DSM *implementable* issues and their potentials in each country
- Use the *Collective Impact Approach* and the Task 24 Expert Platform to research and review current approaches and practices, nationally and internationally, on these top issues and provide feedback from the different disciplinary perspectives and their collaborative discussions and negotiations from available case studies and narratives that could illuminate some of the approaches (based on work in Subtask 1, 2 and 7)
- Feed these cases, and the ones analysed in Subtask 1 and 2 into a *Toolbox of Interventions* (ST 8)

Progress towards Subtask objectives

Subtask 6 has now had over 15 workshops, in NL, NZ, CA, SE, IE and at the ECEEE summer study and Energy Cultures, BECC and BEHAVE conferences. We have started collecting lists of DSM interventions and energy efficiency and behaviour priorities in most of these countries and have created a report template, which has been filled in for Sweden, NL and NZ. We have discussed the top 3 issues during workshops and have decided on the following main interventions: Powering tomorrow's neighbourhoods via smart grid sharing in New Zealand; supporting building management operators in hospitals to produce better documentation and communication of energy savings in Canada (on hold as the funding didn't eventuate); landlords and tenants co-designing green leases in commercial buildings in Sweden; promoting better use of ICT in Universities in the Netherlands and using Middle Actor training to help community-led energy efficiency actions in Ireland. We are still waiting to develop our issues with Austria.

Subtask 7

Objectives

- Identify, with help of the ExCo, National Experts and existing Expert Platform the most appropriate Behaviour Changers focusing on at least one of the top 3 DSM issues chosen by each participating country (can include the residential, business and transport sectors)
- Collect detailed information on their specific interests, organisations and past and current work, get each to tell their 'Sector Story'

- Collaborative development of a testable *Toolbox of Interventions* for each top DSM focus area, where each Behaviour Changer sector has clearly identified and measurable roles and responsibilities. This intervention may then be taken into a real-life setting and trialled in practice (either as ST 11 or outside of Task 24)
- The toolbox is built on *national and sectoral context specificities* but will be synthesised and tested (eg in the international conference (ST5)) for the general aspects that are of international validity (ST10 - the overarching story).

Progress towards Subtask objectives

Some work on continued development of the evaluation tools from Subtask 3, Subtask 9 has taken place. We are currently working on a Special Edition Issue on Storytelling for the Journal of Energy and Social Science Research. In addition, our 'magic carpet for behaviour change' collaboration tool has just been published at the ACEEE summer study.

Subtask 9

Objectives

- The goal of this research is to develop and validate a set of tools and metrics that can be used consistently for the evaluation of behaviour-based energy programmes, including but not limited to, eco-feedback, home audits, information and rebate programmes, and social games
- An in-depth assessment of current (best) practice, cultural and disciplinary idiosyncracies, country drivers and needs and the best possible international standard (along the lines of psychometric tools like the IQ test - arguably not a perfect indicator of intelligence, but valuable in terms of enabling measurement and comparison).

Progress towards Subtask objectives

Karlin (the Principal Investigator of this Subtask) et al have published papers at the IEPPEC conference in August 2015 and 2016 that outline the basics of the Beyond kWh toolkit they are developing for Subtask 9, and the results from the psychometric testing. It is co-funded to the tune of ~US\$100,000 by PG&E and Southern California Edison and will receive feedback at the BEHAVE Task 24 conference from over 70 experts. As it stands, the tool will not be able to be validated in each of the participating countries as only 3 countries actually paid to contribute (instead of the 4 needed for the contract). However, the work continues to feed in to Task 24 and is disseminated on our website. The tool will be available to the 3 participating countries' Behaviour Changers for the interventions we design in ST7.

Subtask 10

Objectives

- Collate, analyse and distil all information collected in Subtasks 6-9. Develop an international, interactive handbook with guidelines and recommendations including:
- Evidence of the usefulness of following a Collective Impact Approach to solve complex whole-system, societal energy problems in practice.
- A decisionmaking tool from 75+ cases collected in Subtasks 1, 2 and 7.
- A practical guide on storytelling with the many examples and stories collected here.
- Overview of countries' and sectors' toolboxes of interventions, common findings and learnings.
- Overview of usefulness of the evaluation tools for each country and sector (as developed in ST 3 and ST 9).

Progress towards Subtask objectives

This Subtask will not start until end of 2017.

3. Objectives for the next 6 months

Subtask 5

Continue attracting experts to expert platform. Work on reviewing >50 papers for special edition on storytelling.

Subtask 6

Continue with issues definition including in countries we haven't started in yet (Austria). Start writing issues reports and collate DSM lists in New Zealand, Sweden, the Netherlands, Ireland and Canada.

Subtask 7

Will hold another 5 workshops in next 6 months (BEHAVE, Netherlands, Sweden, Austria and Ireland). Will pull together most relevant Behaviour Changers in each participating country. Workshop notes all written up, workshop protocol finalised, all Behaviour Changer Frameworks (BCFs) animated in prezis.

Subtask 8

Continue working on storytelling and evaluation guidelines, including the paper for the special edition on storytelling in energy.

Subtask 9

Continue working on 'Beyond kWh' toolkit and see how we can best utilise it for our 3 participating countries.

Subtask 10

Not until 2017.

4. Outreach

Outreach of this Task was successful and manifold. We gave more seminars and lectures in Australia, New Zealand, the US and Portugal, as well as the Annex 66 ECB workshop in Vienna, which was extremely successful. We wrote a Spotlight article on this collaboration and have provided input and review of the Annex 66 guidebook and received 2 abstracts for our storytelling special edition from their experts. Several will attend the Task 24 BEHAVE workshop. We are planning to potentially hold a collaborative conference in Beijing next year. Another German University is interested in participating in the Task. We have presented a paper at the ACEEE summer study and run two international workshops at some of the largest behaviour change conferences this year.

Experts meetings/seminars/conferences held in past six months

Experts and stakeholder meetings

Date	Place	# of Experts	Type of meeting	Government	Industry	Academic
Apr 2016	Dublin, IE	12	SHM	6	3	3
Jun 2016	Wellington, NZ	8	IEA	4	2	2
Jul 2016	Wellington, NZ	35	SHM, EX	10	10	15
Sep 2016	Coimbra, PO	70+	EX			
Oct 2016	Stockholm, SE	10	SHM	4	4	2
Oct 2016	Dublin, Ireland		SHM			

Seminars/Conferences/Lectures

Date	Place	Participants	Type of meeting	Government	Industry	Academic
Apr 2016	Vienna, AT	>150	Workshop			
Jul 2016	Wellington, NZ	>250	Conference			
Aug 2016	Monterey, US	>1500	Conference			
Sep 2016	Australia	20+	Lecture			20+
Sep 2016	Coimbra, PO	30	Lecture			

5. Ideas for new work

Task 24 plans to support the new Task 26 on Multiple Benefits Analysis.

6. Activity Time Schedule

Based on 4 participating countries.

Subtasks	2015	2016	2017	2018
ST 0 Admin	█			
ST 5 Platform	█			
ST 6 Issues	█	█		
ST 7 People	█	█	█	
ST 8 Toolbox		█	█	
ST 9 Measure	█	█	█	
ST 10 Story				█
ST 11 Pilots		█	█	█

7. Finance

We have invoiced and received payment from 5 out of 5 countries for Year 1 and 3 countries for Year 2 so far. Canada has unfortunately decided not to join the Task. Budgets are on-track.

8. Matters for the ExCo

As we only have 3 countries paying towards ST9, we do not have the requisite 4 countries needed to undertake in-depth country validation for an international 'standard'. However, ST9 is continuing to develop and test the tool, paid by utilities in the US, which our participating countries have access to. Four publications have been published to date, including the psychometric validation of the tool with Southern California Edison customers. We have received invaluable feedback on the tool from over 70 experts at the Task 24 workshop at the BEHAVE conference, which has further helped shape the tool. If any of our 3 participating countries wants to use the tool in the design and implementation of ST7, we can arrange to do so, but it will not be a 'formal' international validation (seeing there are only 3 countries).

Please also accept this Status Update.

9. Participating Countries

Austria (only 2 years)

New Zealand

Sweden

The Netherlands (only 2.5 years)

Ireland

TASK 16 – INNOVATIVE ENERGY SERVICES – PHASE IV LIFE-CYCLE COST; ‘DEEP RETROFIT’; SIMPLIFIED M&V; (CROWD)-FINANCING & ENERGY SERVICES TAXONOMY

Operating Agent:

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1. Summary

In Task 16 “Innovative Energy Services”, energy service experts and partners from countries around the world join forces to advance know how, experiences and market development of performance-based energy services.

Main subtasks are country-specific National Implementation Activities, an Energy Services Expert Platform for mutual exchange and support as well as national & international dissemination activities including the DSM University. Furthermore national & international stakeholder workshops are organized to discuss energy service topics relevant to the host country and to present and disseminate results of Task 16.

The Think Tank is the common research platform with previous publications such as the ‘Integrated Energy-Contracting’ business model, the ‘Facilitator’ concept, ‘Simplified Measurement & Verification’ of energy savings, Demand Response Services: Economic Pre-Feasibility Model and Case Studies for Austria or Comprehensive Refurbishment (‘deep retrofit’) business models.

In Phase IV, which started in July 2015 and will end in June 2018, the Think Tank is working on Life-Cycle Cost appraisals, ‘Deep Retrofit’ of buildings; Simplified Measurement & Verification of savings (M&V); (Crowd)-Financing for EE & RE projects and a journal paper on energy services taxonomy. This is an overview of Think Tank topics and research questions in Phase IV:

1. Life-cycle Costing and economic rationale of EE and RES:

- **3 Methodologies how to perform Life-Cycle Cost appraisals:**
 1. Pre-feasibility, 2. Comparisons, 3. „Bankable“ incl. financing
- Comparison of tools: Own tools, RETScreen ...
- **Communication with financial decision makers**
- **Case studies** from different DSM applications: Re-lighting, PV, CHP, HVAC, deep retrofit ...

2. ‘Deep Retrofit’ of buildings (Comprehensive refurbishment, NZEB) through Energy Services (in coop. with *EBC Annex 61*):

- **Economic pre-feasibility and opportunity cost to wait** (case studies)
- **Investment-grade calculation & financing** (case studies)

- **Business model advancement** with stakeholders including financiers
 - How to factor in **Multiple Energy Benefits**?
 - **Policy implications & recommendations**
3. **Simplified M&V** (continued):
 - Deepening & more examples
 - Adaption and publication of national versions + academic journal
 - Dialogue with IPMVP + other stakeholders
 4. **Financing: Crowd-financing** for EE and RES investments, e.g.
 - What can Crowd-Financing contribute? Access to CAPEX for smaller projects in SME, communities? Bridge the mezzanine financing gap? Reduce risks and transaction cost?
 - Building on a study in cooperation with GIZ: National perspectives ...
 5. **Energy Services Taxonomy** for an **academic journal paper**
 6. **Knowledge exchange + transfer to developing markets + DSM-University**
 - Simplified M&V, Lessons learned for project & market development (e.g. 'Facilitators') + other topics on demand of national experts

For more information or to explore options how to collaborate, please feel free to contact the Operating Agent Jan W. Bleyl under +43 650 7992820 or EnergeticSolutions@email.de.

2. Objectives and accomplishments since last report

Subtask 19 – Energy Service Expert Platform

Objective: The platform is the internal and external communication hub of Task 16. It consists of the national experts, the operating agent, invited guests and cooperation partners. The platform hosts the internal experts meetings as well as public stakeholder workshops and other seminars.

Progress towards Subtask objectives

- Execution of several expert platform teleconferences on life cycle cost analyses through RETSCREEN
- Initial preparations for the 20th experts meeting to be held on 28-29 May 2017 in France (back to back with ECEEE summer study 2017)

Subtask 19 + 23 – Stakeholder workshops (national & international)

Objective: The expert platform hosts a series of public national or international stakeholder workshops. They are held either back to back with expert meetings or as national stand alone events to discuss energy service topics relevant to the host country of the meeting and to present and disseminate results of Task 16.

Progress towards Subtask objectives

- Preparation of contributions for a Dutch national stakeholder workshop “Gemeentelijk Vastgoed Dag 2016” (Municipal Property Day 2016) to be held in Nyenrode Business Universiteit te Breukelen near Amsterdam, Netherlands on 04 October 2016 (organized by Instituut voor Vastgoed & Duurzaamheid)

Subtask 20 - Think Tank for innovative Energy Services

Objective: Applied research, development and testing of innovative, performance-based energy service models and support tools => publication of the results.

Progress towards Subtask objectives

1. *Simplified Measurement and Verification Using Quality Assurance Instruments: A Proposed Concept for Energy, Water and CO₂-Saving Projects* accomplished and submitted for peer-review and (hopefully) publication to the journal *Renewable & Sustainable Energy Reviews* journal. In close cooperation with EfficiencyOne, Nova Scotia, Canada
2. *Crowd-Financing for Energy efficiency and renewable investments:* Can Crowd-Financing contribute to solve financing bottlenecks for EE and RE projects? E.g. through access to equity or (cheaper) debt financing? In particular for smaller projects in SME and communities? Bridge the mezzanine financing gap? Reduce risks and transaction cost? Analyses based on detailed LCC modeling of 2–3 cases studies. Report finalized in close cooperation with GIZ and KRITTER Advisory Services

Subtask 21 - Coaching of individual National Implementation Activities (NIA)

Objective: Support implementation of country specific national activities to develop know how and energy service markets

Progress towards Subtask objectives

- Implementation of the individual NIA plans to develop know how and energy service markets were followed up, the experts gave presentations and exchanged experiences and good practices during the last platform meeting and through teleconferences in between meetings

Subtask 22 – Dissemination and cooperation

Objective: Dissemination of Task 16 results and experiences through presentations, stakeholder workshops, publications, cooperation with other ES projects and the DSM University

Progress towards Subtask objectives

Publications and presentations at various national and international conferences and seminars were given, e.g.:

- ESCo and investor trainings in St. Kitts: Investment-grade Calculation & Analysis of Energy Projects (*Focus on Savings Model & Cooling Projects*). Introduction & Hands-on Training in cooperation with GIZ
- Facilitation continued for an industrial scale Energy Efficiency Performance contract for a steel manufacturer in North Africa
- Continuation of know how transfer and supervision for a start-up ESCo in Croatia => 1 MW_{el} wood chip gasification + CHP for heat & green electricity supply project (5,5 Mio EUR investment) (ongoing)
- Co-operation with other ongoing energy service projects and institutions:
 - ECB Annex 61 => 'Deep retrofit' business models
 - Linköping University => ES taxonomy and other topics
 - FH Pinkafeld - applied science university => Master class on energy services

Subtask 23 - Management and Reporting

Objective: Project management and reporting

Progress towards Subtask objectives

- No particular activities in addition to regular management and reporting work

Experts meetings/seminars/conferences held in past six months

Experts meetings

Date	Place	# of Experts	Type of meeting	Government	Industry	Academic
April – July 2016	3 Teleconferences	5-7 (each)	Experts meeting	2-3 (each)	3-4 (each)	0

Seminars/Conferences/Workshops

Date	Place	Participants	Type of meeting	Government	Industry	Academic
Jan .+ Feb.	Pinkafeld, Austria	38	Lecture	0	0	38
20 Apr.	Vienna, Austria	14	Seminar	2	12	0
21 Apr.	Vienna, Austria	8	Seminar	3	5	0
30 June	Gmunden, Austr.	6	Seminar	0	6	0

Reports produced in the past six months

- No reports published yet in Phase IV

3. Objectives for the next six months

Subtask 19 – Energy Service Expert Platform

- Preparation of the 20th experts meeting, to be held on 28-29 May 2017 in France (back to back with ECEEE summer study 2017).
The main agenda items will be presentation and discussion of national implementation activities, discussions on current Think Tank topics (Deep Energy Retrofit, Life cycle cost appraisals, crowd funding for EE and RE projects) and dissemination activities
- Continue to hold expert platform teleconferences (e.g. on selected Think Tank topics such as life cycle cost analyses)

Subtask 19 + 23 – Stakeholder workshops

- Presentation at Dutch national stakeholder workshop “Gemeentelijk Vastgoed Dag 2016” (Municipal Property Day 2016) to be held in Nyenrode Business Universiteit te Breukelen near Amsterdam, Netherlands on 04 October 2016 (organized by Instituut voor Vastgoed & Duurzaamheid)

Subtask 20 - Think Tank for innovative energy service models and support tools

1. *Deep Energy Retrofits: Positive Cash Flow but not attractive to investors? Could Multiple Benefits help? (Working title)* Submission of an abstract for a paper for ECEEE Summer Studies 2017 (in cooperation with IEA ECB Annex 61)
2. *Life-Cycle Cost & ‘Deep Retrofit’*: Application of a pre-feasibility and a bankable life-cycle costing tool to case studies. => Further case studies from Task 16 participants. Comparison of different LCC Tools (e.g. RETSCREEN). Analyses in close cooperation with IEA ECB Annex 61
3. *Simplified Measurement and Verification Using Quality Assurance Instruments: A Proposed Concept for Energy, Water and CO₂-Saving Projects* Finalize submission after peer-review and (hopefully) publication. In close cooperation with EfficiencyOne, Nova Scotia, Canada

Subtask 21 - Coaching of individual National Implementation Activities (NIA)

- Continue implementation of individual NIA plans to develop energy service know how and markets.
- To follow up, experts will give detailed presentations and exchange experiences and good practices during the next platform meeting and through teleconferences in between meetings

Subtask 22 – Dissemination and cooperation

Publications, presentations or workshops planned:

- Vietnam: Fact Finding Mission: Demand Side Energy (in cooperation with Electricity of Vietnam (EVN), October + November 2016)
- Life-Cycle Cost workshop for evaluation of energy efficiency and renewable projects - an introduction (Vienna, October 2016)
- *Economic appraisals to communicate between technicians and management. Methods, calculation and examples – an introduction.* Seminar for energy technicians in industry (Gmunden, November 2016)
- Another Task 16 Leonardo ENERGY IEA DSM University webinar (4Q 2016 or 1Q 2017)
- Continue Co-operation with other ongoing energy service projects and institutions:
 - ECB Annex 61 => Deep retrofit pre-feasibility and bankable project analyses
 - Linköping University => ES taxonomy and other topics
 - TU Wien => Guest lecture on energy services
 - Fh Pinkafeld (University of applied sciences) => Masterclass on energy services

Subtask 23 - Management and Reporting

- Regular management and reporting activities + search for one or two more participating countries

Experts meetings/seminars/conferences planned in the next six months

Planned Experts meetings

Date	Place
28-29 May 2017	France (before ECEEE summer study)

Planned seminars/conferences

Date	Place
20/09/16	Task 16 videoconference
04/10/16	Amsterdam (IVVD, Stakeholder WS)
12/10/16	TU Vienna (Lecture)
21/10 + 14/11/16	Vienna, Austria (Seminars)
23/11/16	Gmunden, Austria (Seminar)
03+04/11/16	Vienna, Austria (Seminars)
Oct + Nov. '16	Hanoi Vietnam
Dec. 2016 Jan. 2017	FH-Pinkafeld, Austria (Lecturing)

Reports/Publications planned for the next six months

- *Simplified Measurement and Verification Using Quality Assurance Instruments: A Proposed Concept for Energy, Water and CO₂-Saving Projects* submitted for peer-review and (hopefully) publication to the journal Renewable & Sustainable Energy Reviews journal
- *Deep Energy Retrofits: Positive Cash Flow but not attractive to investors? Could Multiple Benefits help? (Working title)* planned for submission at ECEEE summer studies 2017 (in cooperation with IEA ECB Annex 61)
- Contributions to IEA DSM Spotlight and other shorter formats

4. Outreach of the Task – Success stories

There are no new success stories in Phase IV to be reported yet.

5. Ideas for new work

Task 16 would like to cooperate with Task 26 to include Multiple Benefits in life cycle cost calculations.

6. Finance

An overview of the current budget situation (total budget, cumulative and %-spending and remaining budget) is displayed in the following table:

Budget and cost accumulation by item (in EUR excl. VAT as of 6 September 2016)

Subtasks <i>unit</i>	Total budget <i>EUR</i>	Cumulative spending <i>EUR</i>	% spent %	Remaining <i>EUR</i>
19 Energy Services Expert Platform	18.480	6.600	36%	11.880
20 Think Tank for innovative Energy Services	58.080	22.000	38%	36.080
21 Coaching of National Implementation Activities	11.880	5.280	44%	6.600
22 Dissemination & Cooperation (international + national)	10.560	2.640	25%	7.920
23 Management & Reporting (to ExCo)	35.000	11.000	31%	24.000
Subtotals	134.000	47.520	35%	86.480
Travel costs	14.700	3.381	23%	11.319
Other costs	3.000	0	0%	3.000
Totals	151.700	50.901	34%	100.799

The current Task 16 – Phase IV budget - based on 3,3 participants only - is **151,700 EUR** (comprised of 3 participants x 3 years x 15,000 EUR/year + 1st year from GIZ (15,000,- EUR) + surplus of 1,700 EUR from Phase III).

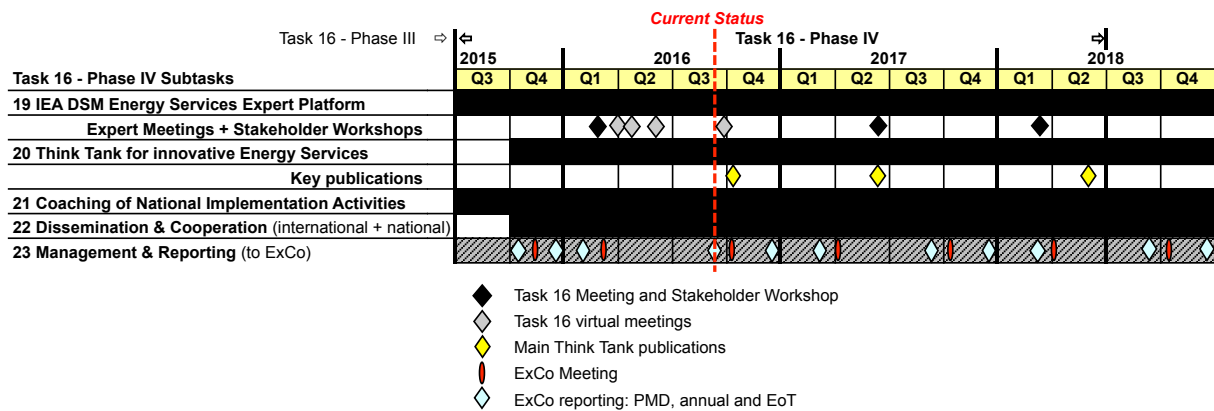
The spending of the last reporting period was 25,415 EUR adding to a total expenditure of 50,901 EUR, which equals 34 % of the total budget.

The income during last reporting period was 45,000 EUR (against 47,997 EUR billed). This adds to a total realized income of 46,700 EUR (31% of budget).

7. Activity time schedule

Task 16 Phase IV has started operation on 01 July 2015 and will end 30 June 2018

Task 16 - Phase IV Timetable (as of September 2016)



All scheduled events and reporting targets have been met.

8. Matters for the ExCo

Recommend the ExCo to approve the Task Status Update Report

9. Participating countries

Nova Scotia, Canada (*in kind*); Germany (*in kind cooperation with Annex 61 (Deep Retrofit)*); GIZ (*until April 16*); Norway; Switzerland; The Netherlands (*in alphabetical order, as of Sep. 2016*).

Hopefully at least one more country expected: 'Maybes' from Belgium, Sweden – any news from the ExCo?

TASK 25 – BUSINESS MODELS FOR A MORE EFFECTIVE MARKET UPTAKE OF DSM ENERGY SERVICES

Operating Agent

Dr. Ruth Mourik
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1. Summary

This task will focus on identifying existing business models and customer approaches providing EE and DSM services to SMEs and residential communities, analysing promising effective business models and services, identifying and supporting the creation of national energy ecosystems in which these business models can succeed, provide guidelines to remove barriers and solve problems, and finally working together closely with both national suppliers and clients of business models. The longer term aim of this Task is to contribute to the growth of the supply and demand market for energy efficiency and DSM amongst SMEs and communities in participating countries.

2. Objectives for the last six months

This Task started November 1st 2014..

Subtask 0 : Pre-scoping: completed before last six months

Subtask 1

This subtask is dealing with all management issues.

Progress towards Subtask objectives

- Overall project coordination and management, including contact relationship management: **ongoing**
- 1.2 Attendance of ExCo meetings, conferences and reporting to IEA DSM ExCo: **ongoing**
- 1.3 Set-up Task Advisory Board (AB) of stakeholders (ExCo, IEA, intermediaries from research, industry, government, community sectors). **We decided that the national experts, and the workshops with stakeholders in the participating countries are our 'advisory' board. Their feedback on the usefulness of the work, both in scientific and in pragmatic terms is most important and guiding our work.**

Subtask 2: Identify proven and potential business models for energy services

There are many energy service business models “out there” and often they are closely linked to existing market structures and policies. In other words, business models are often country and context specific. We will start with an inventory of different existing business models, both in the participating countries and also including global examples of successful business models. In the different participating countries we will analyse what business models exist, and what frameworks (market and policy) accompany them.

Progress towards Subtask objectives

1. Identifying country specific suppliers, clients, and their stakeholder networks and trying to establish national advisory expert networks to continue working with throughout the task: stakeholder lists are being set up and will have been completed before the EXCO meeting in Canada. **Completed for Netherlands, Austria, Switzerland and Sweden and Norway. Completion South Korea ongoing (entered task only after Stockholm meeting).**
2. Narrowing down the focus of both services, target groups and typology of business models in close cooperation with national experts and other relevant stakeholders: initiated and translated into what information to collect in longlist, narrowing down took place during first expert workshop March 9-10th 2015. **Completed.**
3. Clarifying how the different parameters of success of business models and services will relate to each other in the analysis – economic profitability, scale of impact and real savings, business creation, growth rate, synergies with other values, adoption rate etc. Discussed during workshop March 10th, and through literature review being conducted. **Completed.**
4. Developing a task specific typology or categorisation of business models and services for EE. **Completed.**
5. Developing an overview of existing energy service business models in the participating countries and their frameworks/ecosystems and how they meet and incorporate client needs.
 - a. Longlist overview of existing services and business models **completed for all countries except South-Korea**
 - b. Shortlist overview of services **completed for all countries except South-Korea**
6. Reviewing global existing business models and their frameworks/ecosystems with a clear focus on quantifying and qualifying effectiveness (e.g. amount of customers reached, market share, savings aimed for, other outcomes, ROI). **Completed**
7. In-depth comparative analysis of around 4 similar business models in different countries and around 12 per country. Determining patterns, drivers and pitfalls. **Ongoing. Completed for the Netherlands, Sweden, Austria should be completed before Brussels meeting, Switzerland will complete the work before the end of 2016 (pregnancy leave of national expert caused some delay). Norway and South-Korea to start, aim to be finished before end of 2016 for Norway and before next exco meeting in 2017 for South-Korea.**
8. Identifying key factors that make services (and their vendors) succeed in the participating countries through an in-depth analysis of country specific markets and policies for energy services and their influences on business models; **Ongoing. Completed for the Netherlands, Sweden. Planned completion for Austria and Norway before exco meeting in Brussels. Ongoing for the other countries (Switzerland, South-Korea)**
9. Organising country workshops with service providers and clients. Workshops performed in:
 - a. Sweden: 2 meeting, 7-8 December and before Stockholm exco meeting 2016
 - b. Switzerland: 18-19 January
 - c. Austria: 20-21 January
 - d. Netherlands: multiple smaller meetings with stakeholders.

Subtask 3

Not yet started

Subtask 4

- Set up a stakeholder communication and engagement plan. **Completed.**
- Traditional dissemination to external stakeholders and academia. **Ongoing**

- Creating and facilitating a good connection to existing digital and off-line expert platforms within the IEA, e.g. the expert platforms of Tasks 16, 24 and other relevant tasks and the expert platforms for other Implementing Agreements. This connection is meant to provide a ‘matchmaking’ service to enable trans-national, inter-disciplinary teams of experts and end users to collaborate and learn. **Ongoing**

Experts meetings/seminars/conferences held in past six months

Experts meetings so far (including past six months)

- January 8th 2015 Online webinar kick off Task 25
- March 10th 2015 Eindhoven Netherlands, Subtask 2
- Many telco and skype meetings with individual experts
- Expert meeting Sweden December 2015
- Expert meeting Switzerland January 2016
- Expert meeting Austria January 2016
- Expert meeting Stockholm March 2016

Seminars/Conferences

Date	Place	Participants	Type of meeting	Government	Industry	Academic
30-03-2015	Cape Town	mixed	Conference	>20	>40	>40
October 2015	Halifax Nova Scotia	mixed	workshop	>10	>10	
12-13 November 2015	Paris, France	mixed	IEA workshop on influencing business behaviour	>15	>15	>15
November 2015	Dublin-Ireland	mixed	Short meeting To entice Ireland to participate in Task 25	2		
19-11-2015	Webinar Task 25 DSM University	mixed	webinar	>50	>50	>50
December 2015	Stockholm Sweden	mixed	workshop	4	8	4
January 2016	Bern Switzerland	mixed	workshop	5	10	5
January 2016	Graz Austria	mixed	workshop	2	12	1
March 2016	Stockholm Sweden	mixed	DSM day	33%	33%	33%
March 2016	Stockholm Sweden	entrepreneurs	Expert workshop	2	10	2
May 2016	Linz-Austria, coinciding with Smart Grid Week	mixed	IEA meeting where our Austrian national expert presented the Task 25 work	?	?	?

Reports produced (including in the past six months= bold)

- Literature review user centric design in business models
- Presentation of Task 25 as a webinar (online publication)
- Presentation of Task 25 at IEA workshop on influencing business behaviour and decision making towards increased energy efficiency

- Presentation at IEA DSM EXCO Canada DSM day
- Thesis with analysis of Dutch shortlisted cases and impact of user centered design and service orientation on business models
- First Task 25 newsletter
- Global analysis of business models, longlist and shortlist (confidential for now, distributed amongst partners only)
- Spotlight issue on results of analysis
- **Article in the Swedish Magazine Energy Efficiency on the Task 25 work in Sweden.**
- **D2: report with typology and description of existing services and business models in each participating country and their framework/ecosystem; Completed for Sweden and Netherlands**
- **D3: report with review of global business models and services in non-participating countries and their framework/ecosystem;**
- **D4: work in progress report with comparative analysis and key factors for success, including overview of success parameters to assess effectiveness of business models and services.**
- **Conference paper Behave conference on business models, capabilities, context**
- **Paper for special issue Journal for Cleaner Production on user centered business modelling for energy efficiency services**
- **Paper for special issue Energy Efficiency Journal on business models, capabilities and context**
- **Spotlight article on findings so far in task 25**
- **Contribution to the Energy Efficiency Market Report of IEA 2016**

3. Objectives for the next six months

Again, only fill in the Subtasks you will work on in the coming 6 months.

Subtask 1 Task management

- Overall project coordination and management, including contact relationship management
- Attendance of ExCo meetings, conferences and reporting to IEA DSM ExCo
- Continued interaction with our stakeholders (ExCo, IEA, intermediaries from research, industry, government, community sectors)

Subtask 2: Identify proven and potential business models for energy services

1. D2 reports with all the national examples for Norway, Switzerland and South-Korea
2. Continued reporting on D4: best practices and the analysis including useful tips and tricks etcetera.
3. Organising country workshops with service providers and clients in Norway (tbc), Netherlands (tbc), Korea (tbc).

Subtask 3: Creating country specific business models and guidelines for upscaling

- Start with development of frameworks for potentially effective business models and services in co creation with national stakeholders, e.g. suppliers and clients. We will do so in face to face workshops, with the national experts and other relevant stakeholders. Kick-off meeting in Brussels October 14th.

- Start with creating policy guidelines with necessary policies and strategies of different stakeholders, and their timing, to encourage market creation and mainstreaming of selected business models in participating countries.
- Start with contributing to the setting up of piloting activities in each participating country. This activity will be initiated on the basis of the lessons learnt that we would like to turn into practice. We will do this during workshops or in the form of a coaching of entrepreneurs. Exact form to be decided.

Subtask 4 expert platform

- Link to existing DSM IA expert platforms and experts and maintain a section for Task 25.

Experts meetings/seminars/conferences planned in the next six months

Planned Experts meetings

Date	Place
September 2016	Behave conference in Portugal
October 2016	Brussels Belgium, DSM day
October 2016	World Green Building Council Sweden conference

Reports/Publications planned for the next six months

- D2 for Norway, South-Korea, Switzerland
- D4 final reporting once all D2 reports are delivered
- Acceptance of papers submitted to Energy Efficiency and Journal for Cleaner Production

4. Outreach

- We plan to disseminate a newsletter or a spotlight article regularly to a group of several hundred stakeholders internationally.
- We are considering the format for a series of web presentations for the different business models we investigate.

5. Ideas for new work

- xx

6. Finance

- Austria, Sweden and Switzerland have paid 100% of their contribution
- Norway has paid the first 50% of their contribution.
- Copper institute is delivering in-kind and has decided to extend its participation in the Task
- A pre-seed payment of 7500 euro was received in 2014 and paid back
- Netherlands has secured 50% funding. First of two payments received.
- Korea joined the task, first payment not yet received.

7. Activity time schedule

- At the Canada 2015 Exco it was decided to extend the Task with 1 year, with no additional payments required, but to accommodate later entries. The task will run till December 2017. **Especially ST2 and ST3 activities are extended into 2017.**

Subtask 1: Management of the task	Nov-dec 2014	Jan-feb	Mar-may	June-july	Aug-sep	Oct-nov	Dec-jan 2016	Feb-mar	Apr-may	Jun-jul	Aug-sep	Okt-nov
1.1 Set-up of an advisory board (AB)												
1.2 Annual Advisory Board (AB) meetings, exco meetings												

1.3 Overall projectmanagement and financial and administrative duties												
Subtask 2	Nov-dec 2014	Jan-feb	Mar-may	June-july	Aug-sep	Oct-nov	Dec-jan 2016	Feb-mar	Ap-may	Jun-jul	Aug-sep	Okt-nov
2.1 Identifying relevant stakeholders and establishing national advisory expert networks												
2.2 Narrowing down the focus												
2.3 Clarifying parameters of successful business models and services												
2.4 Developing a typology of existing energy service business models												
2.5 Identifying existing business models and frameworks in participating countries												
2.6 reviewing global business models and services and frameworks												
2.7 In-depth comparative analysis												
2.8 Identifying key factors on national level												
2.9 organising regular workshops												
2.10 reporting results												
Subtask 3	Nov-dec 2014	Jan-feb	Mar-may	June-july	Aug-sep	Oct-nov	Dec-jan 2016	Feb-mar	Ap-may	Jun-jul	Aug-sep	Okt-nov
3.1 Developing potentially effective business models/services for each country												
3.2 creating policy guidelines/ roadmaps for policy makers and stakeholders												
3.3 contributing to setting-up piloting activities												
Subtask 4	Nov-dec 2014	Jan-feb	Mar-may	June-july	Aug-sep	Oct-nov	Dec-jan 2016	Feb-mar	Ap-may	Jun-jul	Aug-sep	Okt-nov
4.1 Design of a Stakeholder Engagement Plan												
4.2 Dissemination to academic journals, participation in conferences, creation of outreach material												
4.3 Connection to and utilisation of IEA expert platforms												

8. Matters for the ExCo

4. Approval of Task Status Update Report.

9. Participating countries

1. Switzerland
2. European Copper Institute
3. Austria
4. Sweden
5. Norway
6. Netherlands
7. South-Korea

SMART ENERGY SERVICES/Joint DSM ISGAN project

Potential Relevance and Impact - Joint ISGAN/DSM project

M. Hübner, F. Lundström, M. Stifter

Foreword

Context

This activity is a joint effort of the IEA TCPs ISGAN (Annex 4) and DSM. The collaboration of these IEA programs covers a world-wide network of experts and competences in the field of smart grid technology and the transition of the energy systems. The sustainable - economic and ecological - integration of renewable energy sources and the flexibility of the system are seen as the foremost objectives which smart energy services need to fulfill.

Aim of the document

Identify the potential relevance of smart/digital energy services and the role of policy to support implementation:

- What **opportunities** for the development of the energy system arise from the new Smart / Digital Energy Services, according to the policies in place?
- Which **kind of services** could be developed (with examples) from our perspective?
- How can **policy contribute** and which problems can it help to solve in supporting the evolvement?
- What are **experiences and findings** to support such services, and what are the **barriers** to develop these services?
- Analyse the **role of IEA technology programs** (or other initiatives?) and an **action plan** for the development of smart energy services (DSM, ISGAN, ...?)."

Structure and methodology

The information in this report relies on the knowledge of experts from direct contributions or interviews as well as from literature, public discussions and presentations at conferences and workshops.

The document starts with the motivation and background information of the evolvement of smart digital energy services. After the brief introduction to power systems and mechanisms for power system operation from a market and a transmission and distribution system perspective, the opportunities and impact of smart/digital energy services are discussed. Existing projects are analyzed and their targeted functionalities, involved stakeholders and purpose identified. The role and impact of policy to overcome potential barriers and possible instruments are assessed. Afterward an action and implementation plan is presented in the context of roles of international organizations, like the IEA.

Introduction

Motivation

Evolution of the energy system
Empowering customers
Digitalization
Market integration
Sustainability

Current situation and state of the art

Description how interaction (e.g. market, power system operation) is working currently

World-wide Activities

- Green Button Initiative: Platforms for exchanging consumption data (US)
- SEED: Standard Energy Efficient Data (US)
- Smart Meter Data Exchange platforms: UK (Ofgem), Norway, Sweden?
- EU projects: Flexiciency
- National projects: Germany, Austria

Outlook

Political activities, plans, roadmaps, commitments;

Opportunities of Digital Energy Services

Potential scenarios and applications

E.g. Exchange PV surplus with other (trade energy) on microlevel.

Expected impact

Analyse positive and negative impacts

Existing projects

Business Cases

E.g. exchange consumption data

Stakeholder involved

Customer, companies, regulator, network operator, data security, privacy, consumer protection

Role and impact of policy

Experiences and findings

How to measure the impact of policy

Barriers

Who are the counteracting lobbies?

What are reasons against the implementations? Security of Supply, Market aspects, economic aspects, technical aspects?

Instruments and Measures

What are the existing incentive instruments and measures?

What is their impact/effectiveness?

Policy action plan

Role of International Organisations

IEA ISGAN, DSM

VISIBILITY COMMITTEE REPORT

Submitted by Dr Sea Rotmann, Visibility Committee Chair

Annual Report

The 2015 Annual Report, including a Theme Chapter on “DSM stories in participating countries” was made available electronically to Executive Committee members, Operating Agents and the EUWP and EEWP by the end of January 2015 and was uploaded to the IEA DSM website. Printed copies were sent out to the EUWP, EEWP, Executive Committee Members and Operating Agents in March 2016. Executive Committee Members and Operating Agents were told to ensure that copies are distributed widely to all interested parties.

Website

The website has been updated and has been operational since July 2015. It is undergoing annual maintenance and upgrades in the moment. All ExCo delegates and Operating Agents are strongly encouraged to review the whole website regularly, particularly areas relevant to their activities. It is very easy for information to become out-dated and it is particularly important to upload any new reports and publications as soon as they come out (also include them as headline news items by ticking the appropriate box). Operating Agents have considerable freedom to keep their own Task areas up to date, but other feedback, reporting of functions that appear not to work and suggestions for further improvements should be made via Anne Bengtson anne.bengtson@telia.com and/or the Visibility Committee. In particular, we would be interested to know how useful the social network links are.

Statistics

Total website hits:

December 1, 2015 – February 14, 2016: 1894 sessions, 5125 page views

March 1, 2016 – August 31 2016 7,493 sessions, 17,384 page views

Hits per day:

December 1, 2015 – February 14, 2016: 25

March 1, 2016 – August 31 2016: 40.7

Average time on website:

December 1, 2015 – February 14, 2016: 2min 44 sec

March 1, 2016 – August 31 2016: 2min 13sec

Google Analytics

GA from December 1, 2015 – February 14, 2016 show 5125 sessions (up from 5022) with 1327 users (down from 3386) who spent an average of under 3 minutes per session on the website. 68% of them were new visitors and only 14% (previously just under 50%) of all visitors came from the US (9% from Sweden, and 7% from the UK). These stats are not very good and are significantly tracking down (most likely due to the Christmas break). There was a large spike of almost 150 site views on the 3rd of December.

Downloaded reports for Tasks – we had 91 total downloads since Dec 1, 2015 of which 56 were unique files (including legal texts but excluding Spotlight newsletters which do not show up in this analysis). Most files were downloaded from three Tasks (Tasks 13, 17 and Task 24).

GA from March 1, 2015 – August 31 2016 show 17,384 pageviews with 5,242 users who spent an average of just over 2 minutes on the website.

68% of users were new, with just 7.2% from the US (previously 14%) (Russia accounts for 17.5% of all traffic, UK 8.18%, Sweden 6.5% and China 6.21%). Based on these results Weberweb suggests an independent search engine optimisation analysis be undertaken, with a view to optimise content to improve results for regions being specifically targeted for engagement. If approved, Weberweb will seek

out and provide a quote for initial analysis and then based on those results put forward a proposal to overhaul and optimise the website's content to improve search engine performance and user acquisition.

Downloaded reports for tasks – we had 597 downloads since March 1 2016 (including legal texts but excluding Spotlight newsletters which do not show up in this analysis). Most files were downloaded from Tasks 17, 24 and 25, and from the 16 Mar 2016 Swedish workshop.

Maintenance

The maintenance contract for the website is up for renewal. Weberweb have agreed that the previously quoted rates and maintenance schedule were sufficient for maintaining general operations, however the resources required for searching through publications and documents, and monthly bandwidth usage far exceeded expectations. The previous hosting plan included:

- Disk Space: 20GB
 - CPU: Up to 25% of 2 cores (5GHz)
 - RAM: Up to 25% of 4GB
- Rate: - \$203 annually

However as soon as the site went live it became clear that this was not sufficient and a new dedicated server was set up which includes much greater allocation of resources. The site is currently using approximately 85% of its 20GB allowance, and Weberweb will monitor usage and advise if more disk space is required in the future.

- Disk Space: 20GB
 - CPU: 100% dedicated 4 cores (10GHz)
 - RAM: 100% dedicated 4GB
- Rate: - \$793.56 annually

Weberweb have also suggested that significant improvements and upgrades to the website and its content beyond the scope of the general maintenance agreement be undertaken, and will submit a proposal in the coming weeks.

Website Solstice and Weber Web

Solstice has handed over the original website and all its data to Weber Web (Australia/NZ) and the new website has been operational since July. The contracted annual maintenance and upgrading of any plug-ins etc will be undertaken by Weber Web over the coming few weeks.

Issues

Members should review the website regularly and update their own work/interests, especially reports, any filmed workshops for youtube, presentations for slideshare etc

Spotlight Newsletter

In 2016, two DSM Spotlight newsletters were published so far.

To date, the following 2016 newsletters have been published and are posted on the DSM website:

- Issue 60/published March 2016
- Issue 61/published June 2016
- Issue 62/to be published September 2016
- Issue 63/to be published December 2016

Articles in Issue 60: – March 2016

- Note from the Chairman
- Task 16: Three more years of Energy Services work given thumbs up
- Task 25: "You have to re-invent yourself several times"
- Demand Response – New opportunities for energy providers?

- Sweden – On the way to a fossil-free future
- International symposium – IEA Energy Experts Exchange on Demand Flexibility and RES Integration

Articles in Issue 61 – June 2016

- Note from the Chairman
- Task 24 – A beautiful behaviour collaboration is taking place in the IEA
- DSM University
- South Korea – The energy paradigm shift means a bright future for the economy and the environment

We are grateful to all the Executive Committee members and Operating Agents who have contributed articles to the Spotlight Newsletters in 2016 and hope they will continue to do so for the remainder of the year. In 2016, the Editor was glad to highlight not only the Task work, but also DSM work in the Member countries and any other articles of interest that our ExCo or Operating Agents are involved in. The newsletter was being reviewed to be shorter and in a more concise, electronic format that incorporates hyperlinks.

The Programme has tremendous news to share so please continue to think about, suggest and submit future articles. The Editor is happy to work with you on an article in any form – completed article by you or someone else, information for an article that you would like for the Editor to write, a conference paper that the Editor can convert into a newsletter article or just an idea that you think would make an interesting article. If you have an article to contribute, please email it to Pamela Murphy [pmurphy@kmgrp.net].

Issues

Four newsletters are proposed to be published in 2016.

Brochure

The brochure and inserts have been updated with the new logo and branding and been sent to the Secretary.

Task Flyers

Task flyers are up to date.

Social Media

The Implementing Agreement is getting more traction on social media. We now have a presence on:

- Facebook (IEA DSM Group) with 184 members and growing. Even though most posts are by Anne Bengtson, Rob Kool and Hans Nilsson, there are regularly posts and questions by other participants;
- LinkedIn (IEA DSM Group) with 33 members and staying static. Most posts are by Anne Bengtson and Sea Rotmann. We would need to actively invite people into this group in order to achieve the professional reach that LinkedIn could afford. We may want to close this group as it is not being utilised to its fullest extent.
- Twitter (@IEADSM) with 399 followers. This is the fastest growing social media platform and has fostered a lot of good engagement, re-tweets and mentions. Especially the Academic and Industry sectors seem to respond to this medium. Dr Sea Rotmann is posting for this group.
- IEA DSM Youtube Channel with 54 videos – 35 are Task 24 videos and 19 are DSM University webinars. We need more content from other Tasks. If we start filming some Executive Committee workshops, this would be a great channel to distribute visual information fast.

- Slideshare IEA DSM Programme Bengtson: only recently launched (Dec 2014) and already highly successful with 142 slideshares. However, unless Operating Agents send their slides to the Secretary to upload with specific instructions to do so, the slides will soon also become outdated.
- IEA DSM Task 24 Expert Platform - 245+ members, invite-only (www.ieadsmtask24.ning.com). Very successful multi-media platform to distribute findings from Task 24. The platform is also linked to a dropbox, a Wiki (www.ieadsmtask24wiki.info) and a Twitter account and includes 145 videos and presentations, 125 photos, 6 blog posts, over a dozen discussions, all events associated with the Task, 4 Subtask Groups and member chat and email functions and all expert's short biographies and interests.

Communications Plan and Dissemination Strategies

The Visibility Committee Chair has written a communications plan for the Implementing Agreement and it has been signed off by the ExCo. In it, we analyse in detail our communications history, what works and what doesn't, who our audience is and how well we service them and how we can improve our plan going forward. It should ultimately include individual Task Dissemination Strategies to ensure that the website, Spotlight newsletters and social media channels are utilised well by all Tasks to report their findings and other relevant events.

Dr Sea Rotmann
Visibility Committee Chair

DSM UNIVERSITY

1. Summary

The DSM University develops largely according to plan and in a steady pace where we can deliver in a way that creates confidence from users and interested parties. The “Heartbeat” of the DSM-U is the webinars that are delivered once a month.

Contacts are developing with IPEEC, the IEA secretariat and parts of GIZ but also local actors to promote and make use of the webinars and associated material.

2. Objectives

Webinars

There has till 2016-09-21 been arranged 25 webinars.

The webinars are recorded and both slides and supporting material is made available for registered users.

Contacts with the IEA Secretariat, IPEEC and GIZ (Tanzania) were established during the eceee summer study and will be further developed.

The web-platform

Is available on <http://www.leonardo-academy.org/course/index.php?categoryid=50>

3. Objectives for the next six months

Webinars

The webinars will be arranged and announced in a rolling 6 months plan. The following webinars are planned and suggested

Other guest opportunities

a) Guest IAs: 4E, ISGAN

b) Policy issues: Club of Rome (Wijkman), Municipalities (Mayor NN), EE in buildings (Joyce)

25	Energy Efficiency Obligations – A Toolkit for success	RAP	Edith Bayer, Jan Rosenow
26	Energy-intensive industries – energy efficiency policies and evaluations	Lund University	Christian Stenqvist
27	DSM for the 21- entury		Hans Nilsson
28	The IEA Energy Efficiency Market report – What it means for DSM	IEA	Tyler Bryant
	CANDIDATE LECTURES FOR the future		
	The BEE example (India)	Teri	Ajay Mathur?
	Applications in growing economies (Tanzania, Mongolia)	GIZ	Sven Ernedal?
	Municipalities in Germany	Wuppertal	Peter Henniecke ?
	Energy efficiency and renewablesin Japan and China	Chalmers	Thomas Käberger
	Market uptake	Helsinki University	Peter Lund

c) Planning and integration: Peter Lund (Helsinki University)

Attraction-knowledge

Problem: Rather few registrations for the webinar post-event; high quality content remains underexploited.

Solution: develop short policy briefs (~2 pages) post-webinar to re-promote content.

“Tracks, programmes and Certification”

Tracks: DSM for regulators, DSM for utility engineers

Immediate: Add badges of completion per learning unit (can be exported to Mozilla’s OpenBadges backpack)

Future: Organising webinars into learning programs leading to certification

DSM 101: Basic elements of DSM and energy efficiency explained in short presentations that can be downloaded at any time

4. Outreach

The next issue is to find “outlets” willing to engage in making use of the material and put it into use in their regular activities. The organisations mentioned above have all shown interest but could be prompted further in particular now when our substance mass has reached some maturity.

The webinars will be more actively promoted on facebook and linkedin.

5. Ideas for new work

Steps on the ladder

From this first step follows two more that successively builds the DSMU

1. Platform (to share)

Presently there have been 25 webinars most of them based on material from tasks that have been performed and some ongoing. This makes the platform for the DSMU and it has been shared with organisations that have similar objectives such as ISGAN, eceee, IPEEC, RAP and S3C (an EU project). Thereby the outreach is widened and the DSMU made relevant for bigger audiences.

The webinars are recorded and available both on LEONARDO and on YouTube. The Leonardo source also contains slides from presentations and extra material such as task-publications and articles/papers of relevance.

2. Substance (themes)

Next step, creating a substance of texts-presentations that can be replicated and used by interested parties according to their own wish, is in preparation. It goes under the workname “DSM 101” and will be a series of internet-based short courses (20-30 minutes each) on the themes for DSM:

- The logic of DSM
- Governance
- Energy efficiency - Load level (technical issues)
- Flexibility - Load shape (technical issues)
- Integration (with RES and distributed generation)
- Business models

1. The Logic of DSM, in which motivations and overview is presented in particular to decision makers and people who wants to see how issues connect to each other

a) Strategies for DSM

b) The role of Efficiency and flexibility in systems (IDSM)

c) Actors, and their roles/relations, to make DSM a reality

- d) DSM potential and costs (including rebound)**
2. Governance (or DSM Management), in which incentives, cost/benefit, planning, evaluation and regulation are dealt with but also institutional behavioural issues such as barriers and biases.
 - a) Incentives (carrots and sticks)
 - b) Evaluation
 - c) The plethora of benefits (and for whom)
 - d) Planning and regulation
 - e) Barriers and biases
 3. Energy use (Load Level), technologies and measures to promote load level changes including strategic shifts of energy use to reduce carbon emissions.
 - a) Obligations and certificates (applications and practice)
 - b) Network and grid issues
 - c) Equipment
 - d) Calculation
 - e) Business models
 4. Flexibility – (Load shape), technologies and applications in DR systems and as regards customer benefits and participation
 - a) Incentives (Pricing to reflect capacity needs)
 - b) Demand response practices and market segments
 - c) Technologies
 - d) Market models
 5. Integration, putting energy efficiency, storage and RES together to systems
 - a) Preparing for integration
 - b) Practical examples
 - c) Incentives
 6. Business models, to deliver energy services
 - a) Empowering users
 - b) ESCOs and EPCs
 - c) Municipalities
 - d) Market Transformation

3. Consolidation

Finally there is a need for consolidation so (a group of) participants can rely on that the information provided has a stability and is meaningful in communication. This may call for a system of examination and that there is a responsibility for maintenance and updating. Preferably this will be established in cooperation with a university or an organisation that has reputation in the field of energy efficiency.

Several of our operating agents for different tasks have such roles and might serve as “midwives” for this final step.

6. Finance

	3m	6m	9m	12m	15m	18m	21m	24m	Budget (days)
Developing Products									
A. Webinars.	One every month (Scheduling by Chairs and secretary)								Moderation and communication by ECA (32)
B. 1. Task reports. 2. WEB-casts	Exists								
			1	1	1	1	1	1	Duty of OAs (6)
C. Issue-reports.		1	1	1	1	1	1	1	Editing (7)
D. Theme-Summaries.			2	2	2	2	2	2	Compilation (12)
E. Blogs.	1	1	1	1	1	1	1	1	Writer (8)
F. Key messages.			1	1	1	1	1	1	Writer (6)
G. E-learning.						x	x	x	-
H. Expert advice.						x	x	X	-

I. DSM-U Café.	1	1	1	1	1	1	1	1	Moderation (8)
Management	2	2	2	2	2	2	2	2	(16)
Reporting	2	2	2	2	2	2	2	2	(16)
SUM									111 days at 1k\$

7. Activity time schedule

-

8. Matters for the ExCo

'Recommend the ExCo to approve the Task Status Update Report'.

9. Participating countries

NA



MISCELLANEOUS

Action items resulting from the 47th Executive Committee Meeting

17 - 18 March 2016 – Stockholm, Sweden

WHO	ACTION	WHEN
India Korea Spain	Pay Common Fund invoice for 2015	ASAP
Anne Bengtson	Keep reminding those who have outstanding payments to the Common Fund	On-going
ExCo members	Let Joe Miller and Anne Bengtson know when an invoice is paid	On-going
Rob Kool Sea Rotmann	Maintain contacts with China (NDRC), South Africa, Thailand, IBM (Germany), Australia, Portugal.	ON-GOING
Hans Nilsson Hans de Keulenaer	Move forward with the DSM University according to plan – as well as continue to plan/hold webinars the first weeks of every month	ON-GOING
Rob Kool Sarah Mitchell	Establish contact with Efficiency One social media team to help DSM TCP with their social media	ASAP
Operating Agents	Update a more clear definition in Legal Annex text of their Task	ASAP
Anne Bengtson Francois Brasseur Hans De Keulenaer	Prepare administrative details for the Forty Eighth Executive Committee Meeting in Brussels, Belgium	ASAP
Diego Carvajal Rob Kool Matthias Stifter Hans De Keulenaer	Further explore the topic of Tracking flexibility in electricity systems with increasing renewables	DONE
ExCo members	Review website regularly and suggest further developments	On-going
ExCo members	Suggest topics for the Spotlight Newsletter and provide input for those articles to Pam Murphy	On-going
All	Follow Visibility Committee Chair recommendations to update the website	On-going
Operating Agents	Prepare Task Information Plans and include in each Task Status Report.	On-going
Pam Murphy	Distribute issues of the DSM Spotlight Newsletter	June 2016 September 2016
Operating Agents	Include 1-2 slides in Task presentation, highlighting the main findings to date in respective Task(s).	Present at next ExCo meeting
Hans Nilsson Anne Bengtson Andreas K. Enge	Prepare summary of the background for the existing end-of-year transaction practice and present at next ExCo meeting.	Ongoing
Ruth Mourik	Contact VTT to join consortium for application to H2020	ASAP
Matthias Stifter Svetlana Gross	Further develop paper on Big Data	Present at next ExCo meeting
Matthias Stifter René Kamphuis	Continue development of proposal for potential follow-up activities in Task 17	Present at next ExCo meeting
Jan W. Bleyl	Task 16 Phase IV: Continue talks with interested countries	On-going

Cont. Action Items

Hans Nilsson	Task Zero: Prepare Task Status Report and send to Anne Bengtson for inclusion in the Pre-Meeting Document.	Friday 2 September 2016
Hans Nilsson Hans de Keulenaer	Prepare Status Report on the development of the DSM University and send to Anne Bengtson for inclusion in the Pre-Meeting Document (PMD).	Friday 2 September 2016
Jan Bleyl-Androschin	Prepare a Task Status Report for Task 16 Phase 4 and send to Anne Bengtson for inclusion in the Pre-Meeting Document (PMD).	Friday 2 September 2016
Matthias Stifter René Kamphuis	Prepare Task Status Report for Task 17 and send to Anne Bengtson for inclusion in the Pre-Meeting Document (PMD).	Friday 2 September 2016
Rob Kool	Prepare PPC progress report and send to Anne Bengtson for inclusion in the Pre-meeting Document (PMD).	Friday 2 September 2016
Matthias Stifter René Kamphuis	Prepare further developed proposal on further activities in Task 17 and send to Anne Bengtson for inclusion in the PMD.	Friday 2 September 2016
Sea Rotmann Ruth Mourik	Prepare Task Status Report Task 24 Phase II and send to Anne Bengtson for inclusion in the Pre-Meeting Document (PMD).	Friday 2 September 2016
Ruth Mourik	Prepare Task Status Report for Task 25 and send to Anne Bengtson for inclusion in the Pre-Meeting Document (PMD).	Friday 2 September 2016
Andreas K. Enge Anne Bengtson	Prepare Financial Report and send to Anne Bengtson for inclusion in the Pre-Meeting Document	Friday 2 September 2016
Sea Rotmann	Prepare Visibility Committee Report for inclusion in the Pre-Meeting Document.	Friday 2 September 2016
Weber Web	Provide statistics for every Task every six months and send to Anne Bengtson for inclusion in the Pre Meeting Document.	Friday 2 September 2016
Anne Bengtson	E-mail pdf file of Pre-meeting Document for the Forty Sixth ExCo meeting to the Executive Committee members and Operating Agents.	Monday 12 September 2016 Delayed till 22 September

PARTICIPATION TABLE

As per ExCo meeting – April in Stockholm, Sweden

Participant	In force						Proposed Tasks / extension	16 Ext. Phase 4
	16 Ext. Phase 3	17 Phase 3	24	24 Phase 2	25	26		
	Competitive Energy Services Phase 3 – Energy Efficiency and Demand Response Services	Integration of DSM, Distributed generation, Phase 3	Closing the Loop: DSM From Theory to practice	Closing the Loop: DSM From Theory to practice	Business models and the effective market update of DSM Energy Services	Multiple Benefits of Energy Efficiency	DSM University	
Australia			◆					
Austria	X	X	X	X	X	◆	◆	◆
Belgium	X		X		◆		◆	
Finland			◆	◆	◆		◆	
India		X						
Ireland				◆				
Italy			X					
Korea	X				◆	◆	◆	◆
Netherlands	X	X	X	X	X	◆	◆	X
New Zealand			X	X		◆		
Norway			X	◆	◆	◆	◆	
Saudi Arabia							◆	
South Africa			◆	◆				
Thailand								
Spain								
Sweden	X	X	X	X	◆	◆	◆	
Switzerland	X	X	X	◆	X	◆		X
United Kingdom			◆	◆	◆	◆	◆	
United States		X						
RAP *			◆				◆	
European Copper Institute*		⊖			⊖	◆	⊖	
OPERATING AGENT (OA)	Jan W. Bleyl- Androschin	Matthias Stifter & René Kamphuis	Sea Rootmann & Ruth Mourik	Sea Rootmann & Ruth Mourik	Ruth Mourik	Catherine Cooremans	Hans Nilsson, Hans de Keulenaer	Jan W. Bleyl- Androschin

X = participant

◆ = interested

* = Sponsors

⊖ = in-kind

GLOSSARY

Abbreviation	Explanation
APEC	Asia-Pacific Economic Cooperation
BCG	Buildings Co-ordination Group (consists of 7 Implementing Agreements)
CERT	Committee on Energy Research and Technology in the IEA
CIGRE	International Council on Large Electric Systems
CTI	Implementing Agreement on Climate Technology Initiative
DHC	Implementing Agreement on District Heating and Cooling
DSM	Implementing Agreement on Demand-Side Management
EC	European Commission
ECEEE	European Council for an Energy Efficient Economy
ECES	Implementing Agreement on Energy Storage
ECI	European Copper Institute
EEWP	Energy Efficiency Working Party in the IEA
ENARD	Electricity Networks Analysis, Research & Development
EOT	End of Term
ESD	Energy Services Directive in the European Commission
ETE	Energy Technology Essentials (3-4 page briefs)
ETSO	European Transmission System Operators
EU	European Union
EUWP	End-Use Working Party in the IEA
FBF	Implementing Agreement on Future Buildings Forum
GHG	Green House Gas
HPC	Implementing Agreement on Heat Pump Centre
ICLEI	International Council for Local Environmental Initiatives
IEA	International Energy Agency
IPCC	Intergovernmental Panel on Climate Change
ISGAN	International Smart Grid Action Network (ISGAN)
JFS	Japan Facility Solutions (Japanese Sponsors participating in Task XVI)

KIER	Korea Institute of Energy Research
NEET	New and Emerging Environmental Technologies (IEA networking project - Gleneagles G8)
NDRC	National Development and Reform Commission, China
PMD	Pre-Meeting Document
PVPS	Implementing Agreement on Photovoltaic Power Systems
REEEP	Renewable Energy and Energy Efficiency Partnership
SANEDI	South African National Energy Development Institute
SANERI	South African National Energy Research Institute
SHC	Implementing Agreement on Solar Heating and Cooling
TSO	Transmission System Operators

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OPERATING AGENTS LIST

DSM Implementing Agreement on Demand Side Management Technologies and Programmes – Operating Agents

* Participated at the Executive Committee meeting 17 – 18 March 2016, Stockholm, Sweden

Task 16 – Energy Performance Contracting - Competitive Energy Services - Operating Agent

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

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Task 24 – Closing the loop: Behaviour change in DSM – from theory to policies and practice - Operating Agent

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**Task 25 – Business models for a More Effective Uptake of DSM Energy Services
Operating Agent**

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EXECUTIVE COMMITTEE MEETINGS OF THE IEA DSM ENERGY TECHNOLOGY INITIATIVE

(table excludes the European Union)

Meeting #	Date	Country	Participants	Countries on ExCo
interim	1 –2 April, 1993	Stockholm, Sweden	14	14
1	28 – 29 October, 1993	Kerkrade, Netherlands	13	14
2	24 – 25 March, 1994	Madrid, Spain	12	14
3	13 – 14 October, 1994	Washington D.C., USA	14	15
4	23 – 24 March, 1995	Schaffhausen, Switzerland	15	15
5	19 – 20 October, 1995	Fukuoka, Japan	14	15
6	21 – 22 March, 1996	Paris, France	14	15
7	31 Oct – 1 Nov, 1996	Sydney, Australia	12	15
8	10 – 11 April, 1997	Helsinki, Finland	14	15
9	10 – 13 September, 1997	Oslo, Norway	9	15
10	25 – 27 March, 1998	Seoul, Korea	10	15
11	7 – 9 October, 1998	Chester, United Kingdom	12	15
12	14 – 16 April, 1999	Copenhagen, Denmark	12	17
13	28 – 29 October, 1999	Amsterdam, Netherlands	14	17
15	3 – 6 April, 2000	Ankara, Turkey	12	17
16	12 – 13 October, 2000	Athens, Greece	13	17
17	3 – 4 May, 2001	Eskilstuna, Sweden	12	17
18	3 – 5 October, 2001	Barcelona, Spain	13	17
19	18 – 19 April, 2002	Milan, Italy	15	17
20	3 – 4 October, 2002	Graz, Austria	15	17
21	8 – 10 April, 2003	Canberra, Australia	9	17
22	14 – 15 October, 2003	Paris, France	15	17
23	15-16 April 2004	Trondheim, Norway	16	17
24	13-15 October 2004	Atlanta, United States	13	17
25	20-21 April 2005	Saariselkä, Finland	15	17
26	October 2005	Madrid Spain	14	17
27	April 2006	Copenhagen Denmark	14	17
28	October 2006	Maastricht Netherlands	9	17
29	April 2007	Seoul Korea	10	18
30	11-12 October 2007	Brugge Belgium	15	18
31	2-4 April 2008	New Delhi, India	11	19
32	October 2008	Milan Italy	13	19
33	April 2009	Vienna, Austria	11	20
34	September 2009	Chester, UK	11	20
35	April 2010	Paris, France	11	19
36	October 2010	Stockholm, Sweden	9	19
37	April 2011	Washington, USA	8	18
38	2 – 4 November 2011	Jeju Island, Korea	14	18
39	18 - 20 April, 2012	Trondheim-Tromsö, Norway	10	15
40	September 14-16 2012	Espoo, Finland	10	16
41	24 - 26 April, 2013	Utrecht, The Netherlands	11	17
42	16 – 18 October 2013	Lucerne- Rigi, Switzerland	11	17
43	17 – 21 March 2014	Wellington, New Zealand	9	16
44	15-17 October 2014	Graz, Austria	9	16
45	25 – 27 March 2015	Cape Town, South Africa	9	16
46	22 – 23 October, 2015	Halifax, Nova Scotia, Canada	9	17
47	17 – 18 March, 2016	Stockholm, Sweden	11	18
48	11 – 12 October, 2016	Brussels, Belgium		

No's of Executive Committee meetings held in each country

Netherlands	4	Australia	2	Japan	1
Sweden	4	Denmark	2	Turkey	1
Austria	3	Italy	2	South Africa	1
France	3	Switzerland	2	Nova Scotia	1
Finland	3	UK	2		
Korea	3	Belgium	1		
Norway	3	Greece	1		
Spain	3	India	1		
USA	3	New Zealand	1		