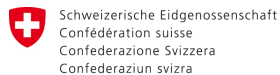
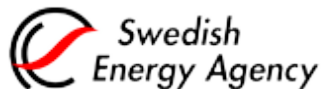




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JAN W. BLEYL

IEA-DSM, Task 16 (Phase III): "Innovative Energy Services" (ESCo-Services, Energy-Contracting)

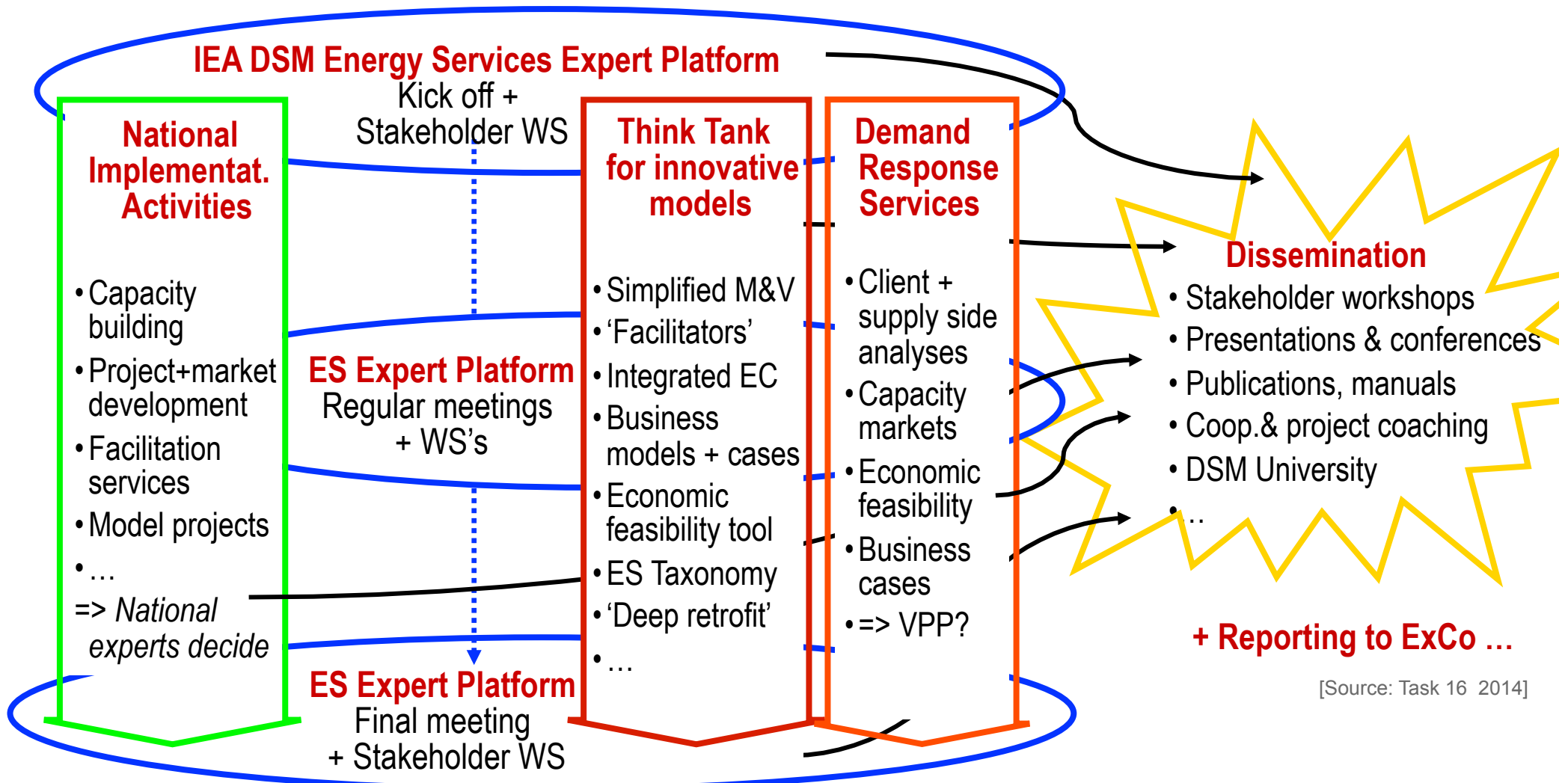
Task Status Report to ExCo *October 16th 2014, Graz, Austria*

**Jan W. Bleyl – Energetic Solutions,
Austria and Germany**

Executive Summary

- 1. Outreach:** Korea (Stakeholder workshop Oct. '14), **Linköping University** (ES Taxonomy), **South Africa** and **Pakistan** (ESCo training for bankable project calculation and financing), **EBC Annex 61 'Deep retrofit' ...**
- 2. Think Tank:**
 - ⇒ **ESCo Market and Project Development: A Role for 'Facilitators' to play. Including national perspectives of Task 16 experts (T16)**
 - ⇒ **Simplified measurement & verification + quality assurance instruments for energy, water and CO₂ savings (ECEEE'14)**
 - ⇒ **The life of ESCo Project Facilitators (by Task 24)**
 - ⇒ **Demand Response Services: Economic feasibility (abstract submitted)**
- 3. Budget:** **67% spent after 26 month** (out of 36 month) in-line with planning
- 4. Outlook:** Task 16 Phase IV to start in July 2015?

Task 16 Structure



[Source: Task 16 2014]

Accomplishments since last meeting

Energy Service Expert Platform (subtask 13)

- ✓ **16th experts meeting**, held in Belgium May 7-9 2014. The main agenda items were presentation and discussion of national implementation activities, discussions on current Think Tank topics and dissemination activities.
- ✓ Preparation of the **17th experts meeting**, to be held in Seoul, Korea in October 22-24 2014.

Accomplishments since last meeting (cont'd)

Energy Service Expert Platform + Dissemination (subtasks 13+17)

1. 16th stakeholder workshop held in Belgium May 7 2014:

- ⇒ *Morning session*: “**How to overcome the barriers for retrofitting large private and public building stocks**” in cooperation with Belesco
- ⇒ *Afternoon session*: “**Project and market facilitation**” and “**European Code of Conduct for EPC Providers**” organized jointly with the European ‘**EESI 2020**’ and ‘**Transparens**’ projects

2. Preparation of the 17th Task 16 stakeholder workshop to be held in Seoul, Korea on October 22 2014

Accomplishments since last meeting (cont'd)

Think Tank (subtask 14)

- ✓ Finalization and publication of a peer-reviewed paper on ***Simplified measurement & verification + quality assurance instruments for energy, water and CO₂ savings. Methodologies and examples*** published at ECEEE Industrial Summer Study, paper ID 1-088-14, Arnhem, the Netherlands June 2014
- ✓ Finalization and publication of an IEA DSM Task 16 discussion paper ***ESCo project and market development: A role for 'Facilitators' to play. Including national perspectives of Task 16 experts*** on IEA DSM Task 16 website

Accomplishments since last meeting (cont'd)

Think Tank (subtask 14, cont'd)

- ✓ Commissioning of a Task 24 discussion paper on **practical guidance for Change Management**, titled: *The life of ESCo Project Facilitators. If only the client knew, understood, trusted, cared and engaged ...*
- ✓ Work continued on business models for **comprehensive building refurbishment ('deep retrofit')** in cooperation with IEA EBC Annex 61: Further development of an *economic feasibility evaluation tool including sensitivity analyses* for deep retrofit application

Task 16 Discussion Paper on Facilitators incl. national perspectives

**ESCo Project and Market
Development: A Role for
'Facilitators' to Play. Including
National Perspectives of Task 16
Experts**

by Task 16 experts **Adilipour;
Bareit; Bleyl; Coolen; Jang, Hye-Bin;
Kempen; Ungerböck**
with guest contributions by **Lohse,
KEA; Borchard, Zellner, GIZ**

Task 16 discussion paper, May 2014

Download available from
www.ieadsm.org => Task 16



Task 16 paper on Simplified Measurement and Verification (M&V) of savings

Bleyl, Jan W. et.al
Simplified measurement & verification + quality assurance instruments for energy, water and CO₂ savings. Methodologies and examples accepted for publication at ECEEE Industrial Summer Study, paper ID 1-088-14, Arnhem, the Netherlands June 2014
by Bareit; Bleyl; Sattler and with inputs from Task 16 experts

Bleyl et al., paper ID # 1-088-14

Simplified measurement & verification + quality assurance instruments for energy, water and CO₂ savings. Methodologies and examples

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Sattler@energie-consulting.at

1. Abstract

Measurement & Verification (M&V) is a prerequisite to assess the quantitative outcomes of energy, water or CO₂ saving measures and to translate these into savings cash flows for energy efficiency financing and other purposes.

In practice M&V - if pursued at all in the case of in-house implementations - is often complicated by limited data availability or accuracy, a limited comparability between 'Baseline' and 'Reporting' periods or a lack of a clear M&V plan and having the resources to follow it up. If accomplished, understanding M&V reports requires expertise, which is not necessarily available on the facility owner side. To make things worse, exercising M&V is a rather boring topic - even within the professional energy community.

At least in many European countries, commonly acknowledges methods for M&V of energy, water or CO₂ savings are mostly based on utility meters and invoices - whereas in Anglo-Saxon influenced markets 'retrofit isolation techniques' for individual saving measures are accepted as good practice for the verification of energy savings cash flows (e.g. IPMVP Options A or B).

All of the aforementioned adds to the inherently complex nature of energy efficiency projects. And it often results in insecurity for energy managers, project developers, ESPs and their (potential) ESP customers and financiers on verifiable future energy savings cash flows, which may lead to risk surcharges or no project implementation at all. Yet a full scale M&V plan is often not applicable or desired, due to its (perceived) complexity, lack of resources or its cost is prohibitive for smaller projects.

As a possible solution and feasible compromise between no M&V at all and the (perceived) accuracy of a full scale M&V approach, this paper will introduce simplified M&V approaches for individual or groups of electricity, heat, water or CO₂ saving measures (ECM), which can

Accomplishments since last meeting (cont'd)

Demand Response Services business models (subtask 15)

- ✓ Analyses of Austrian capacity markets and framework (by e7)
- ✓ Development of a simplified capacity market DR revenue model for Austria to conduct feasibility analyses of business cases
- ✓ Analyses of end-use sectors in Austria and preparation of a cement industry business case study (by e7)

Accomplishments since last meeting (cont'd)

Coaching of individual National Implementation Activities (subtask 16)

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

Accomplishments since last meeting (cont'd)

International Dissemination and cooperation (subtask 17, selection):

- ✓ **ESCo introduction training** in Lahore, Pakistan (March 2014)
- ✓ Publication and presentation of '**Simplified M&V paper**' @ ECEEE Industrial Summer Study (June 2014)
- ✓ **Economic evaluations to communicate between technicians and management. Methods, calculation and examples – an introduction.** Seminar for energy technicians in industry (June 2014)
- ✓ Co-operation with other ongoing energy service projects
 - **ECB Annex 61** => Deep retrofit Economic feasibility, business models
 - '**EESI 2020**' – lead by BEA and 'Transparens' – lead by sEVEN
 - **IEA IETS Annex 16 Energy Efficiency in SMEs** => IEC model
 - **Linköping university** => ES taxonomy

Accomplishments since last meeting (cont'd)

International Dissemination and cooperation (subtask 17 cont'd)

- ✓ Two ESCo manager trainings in **South Africa** in cooperation with **SANEDI** and **SAGEN: Investment grade Calculation, Analyses & Financing of ESCo Projects** (for EPC and ESC Business Models). Introduction & **hands-on training** in Johannesburg and Capetown (Aug. 2014)

Activities + goals for next 6 month

Energy Service Expert Platform (subtask 13)

- ✓ Execution of the **17th experts meeting, to be held in Seoul, Korea** on October 23-24 2014. The main agenda items will be discussion of national implementation activities, discussions on current Think Tank topics and dissemination activities.
- ✓ Preparation of the **18th experts meeting**, planned to be held either in **France** (back to back with ECEEE summer studies) or in **Switzerland** in spring 2015 (location and date tbd, *Markus* ?)

Activities + goals for next 6 month (cont'd)

Energy Service Expert Platform + Dissemination (subtasks 13+17)

- ✓ Execution of the **17th Task 16 stakeholder workshop** to be held in Seoul, Korea on October 22 2014
 - *Morning session: Good examples of ESCo in industry, public and building sectors*
 - *Afternoon session: Selected Think Tank results, Policies and examples of European ESCos and Chinese ESCo market situation*
- ✓ Preparation of the **18th Task 16 stakeholder workshop** to be held either in France (back to back with ECEEE summer studies) or in Switzerland in spring 2015 (exact date and topic tbd)

Activities + goals for next 6 month (cont'd)

Think Tank (subtask 14)

- ✓ Continue work on ***Simplified measurement & verification + quality assurance instruments for energy, water and CO₂ savings. Methodologies and examples. Including examples and national perspectives of Task 16 experts*** as IEA DSM Task 16 discussion paper
- ✓ Continue work on business models for **comprehensive building refurbishment ('deep retrofit')** in cooperation with IEA ECB Annex 61: Further development of an **economic investment grade and financing evaluation tool including sensitivity analyses** for deep retrofit application
- ✓ Drafting of ***Taxonomy paper on energy services*** to be published in a peer-reviewed journal in cooperation with Linköping university

Activities + goals for next 6 month (cont'd)

Demand Response Services business models (subtask 15)

- ✓ Continue data collection on DR-potentials in selected end-use sectors, implementation cost and balance power market products in preparation of DR-ES business models.
- ✓ Identification of a Korean expert (and possibly others) => ideas for other resources or cooperation opportunities from ExCo members are still welcome
- ✓ Preparation of an abstract on **Economic feasibility of DR business models** for submission to ECEEE summer study and/or Internationale Energiewirtschaftstagung (IEWT 2015)

Activities + goals for next 6 month (cont'd)

Coaching of individual National Implementation Activities (subtask 16)

- ✓ Continue implementation of individual NIA plans to develop know how and energy service 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

Activities + goals for next 6 month (cont'd)

Dissemination and cooperation (subtask 17)

Publications, presentations or workshops planned:

- ✓ Co-operation with other ongoing energy service projects and institutions:
 - **EBC Annex 61** => Deep retrofit business models
 - **'Transparens'** – lead by sEVEN
 - **IEA IETS Annex 16 Energy Efficiency in SMEs** => business models
 - **Linköping university** => ES taxonomy and other topics
 - **FH Pinkafeld** applied science university => Master class energy services
 - **dena** (German Energy Agency) => Simplified M&V guidebook
- ✓ Continue know how transfer + supervision for **start-up ESCo in Croatia**
- ✓ **Economic evaluations to communicate between technicians and management. Methods, calculation and examples – an introduction.**
Seminar for energy technicians in industry (Nov. 2014)

Activities + goals for next 6 month (cont'd)

Dissemination and cooperation (subtask 17 cont'd)

- ✓ ESCo manager trainings in Pakistan in cooperation with GIZ: **Investment grade Calculation, Analyses & Financing of ESCo Projects (for EPC and ESC Business Models). Introduction & hands-on training** in Lahore, Pakistan (Dec. 2014)
- ✓ Another Task 16 **Leonardy ENERGY DSM University webinar?**
- ✓ Presentation of an '**ESCo university**' as a pre-conference workshop and the '**Facilitator**' approach at the ESCo Europe conference 2015 in Milan (January 2014)

Activities + goals for next 6 month (cont'd)

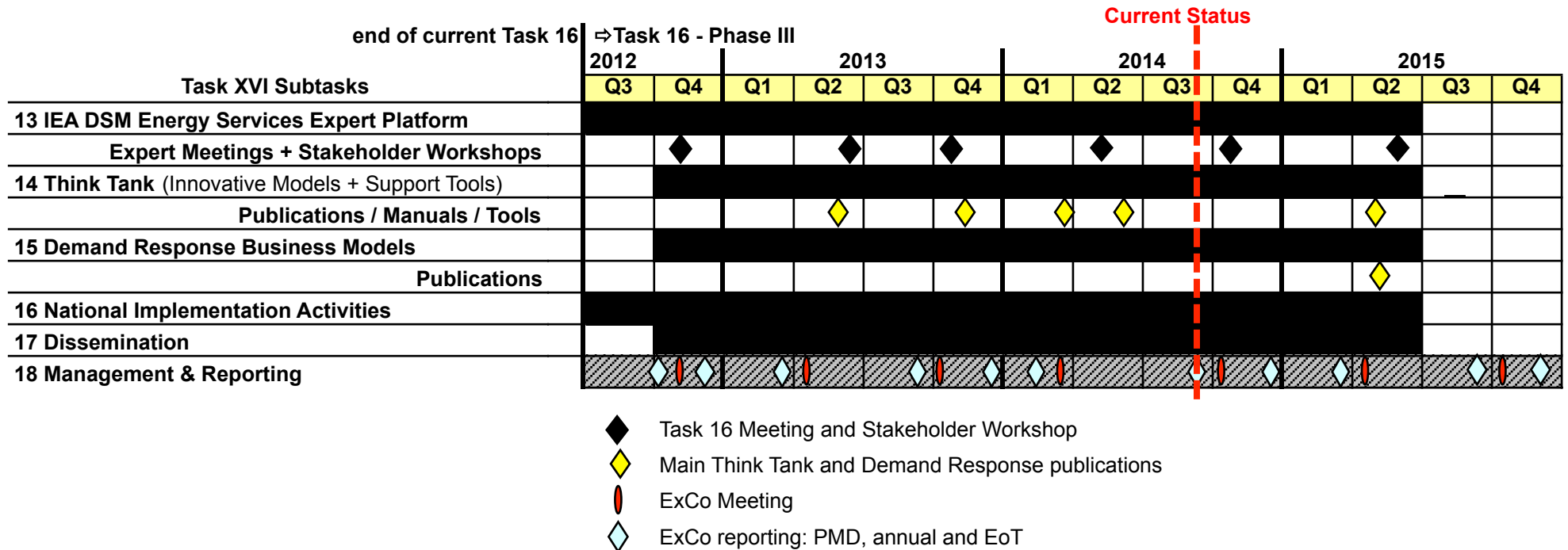
Dissemination (subtask 17)

More Dissemination on an academic level?

- ✓ Energy Policy special issue?
- ✓ IEA DSM books?
- ✓ IEA secretariate books
- ✓ DSM university

Task 16 Schedule

Task 16-Phase III Timetable (as of August 2014)



**Time wise we have spent 26 months out of the 36-month project duration.
All scheduled events and reporting targets have been met.**

Task 16 Budget vs. Expenditures

(as of August 2014 and based on 5.7 participating countries, excl. VAT)

Subtask	unit	Total budget EUR	Cumulative spending EUR	% spent %	Remaining EUR
13 Energy Services Expert Platform		36.000	25.200	70%	10.800
14 Energy Services Think Tank		87.000	62.000	71%	25.000
15 Demand Response ES Business Plans		27.200	11.200	41%	16.000
16 Coaching of National Implementation Activities		12.800	9.200	72%	3.600
17 Dissemination (Internat. + Nat.)		13.000	10.000	77%	3.000
18 Management & Reporting		42.000	26.400	63%	15.600
Subtotals		218.000	144.000	66%	74.000
Travel costs		28.000	19.200	69%	8.800
Printing&other		9.000	6.400	71%	2.600
Totals		255.000	169.600	67%	85.400

=> After 26 months (out of the 36 month project duration)
67% of the budget has been spent and is in-line with planning.

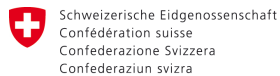
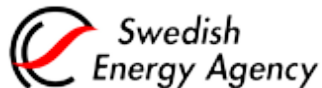
Task 16 Budget vs. Expenditures

(Summary)

- The **total spending of last six month was 49,700 EUR** adding to **total expenditure of 169,600 EUR**, which equals **67 % of the total budget**.
- The **income during last reporting period was 14,985 EUR** (against 29,985 EUR billed). This adds to a **total realized income of 149,985 EUR** against a **total budget of 255,000 EUR**.



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JAN W. BLEYL

**Thank you for your
continued support
of IEA DSM Task 16!**

PS: IEA DSM Task 16 - Phase III builds on work,
which was previously led by Graz Energy Agency.
Thank you GEA!

Looking ahead ... Task 16 Phase IV?

Task 16 to be continued after June 2015?

Last ExCo tasked new projects to provide a 2-pager – to allow for early planning and budget allocations.

=> The Task 16 2-pager is in the PMD

Task 16: "Innovative Energy Services".
Energy Efficiency and Demand Response Services
Outline for Phase IV (2015-2018)

'Delivery mechanism' for energy policy targets and market development

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

Performance-based energy services (ES) - also referred to as Energy-Contracting or ESCo service - is a many times proven 'deliver mechanism' for implementing energy efficiency measures such as lighting, HVAC or building refurbishment. An ESCo takes over the technical and economical implementation risks and provides performance guarantees for the results. ES are also well suited to implement renewable energy systems with guaranteed outputs.

Task objectives (Phase IV)
To further contribute to the know how and market development of ES, Task 16 is working to:

1. sustain the well established IEA DSM energy services expert platform for exchange and mutual support of experts, partners & invited guest,
2. support and follow up country specific national implementation activities (NIAs) in order to foster ESCo project and market development,
3. design, elaborate and test innovative energy and demand response services and financing models and publish them (Think Tank),
4. use the Task's Energy Service Expert Platform as a competence centre for international and national dissemination and assistance services (e.g., coaching, training),
5. contribute to the "DSM University".

Subtasks, structure and schedule
The work is structured as follows:

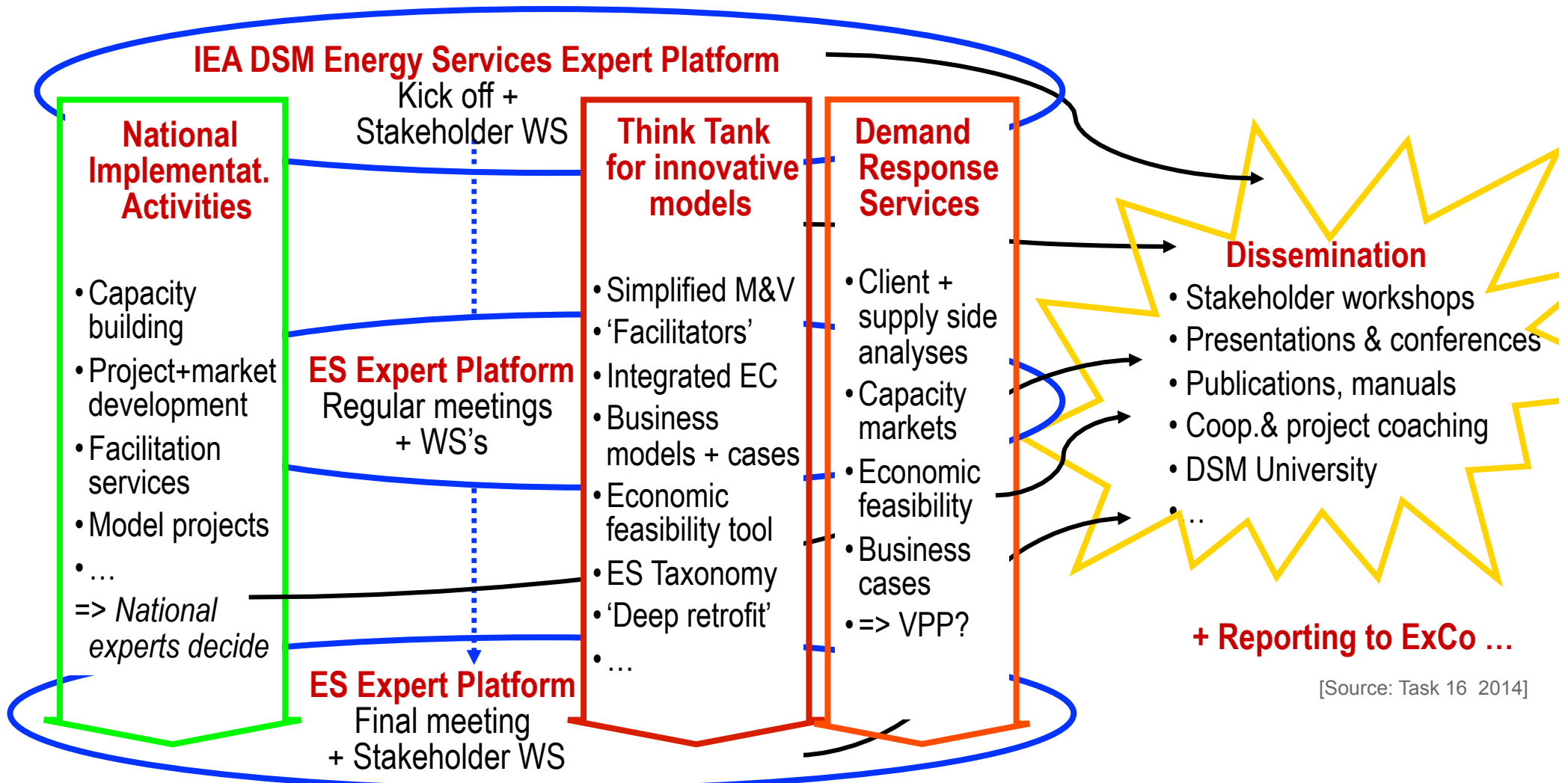
Figure 1: Task 16 structure and sub tasks

The diagram shows the IEA DSM Energy Services Expert Platform structure. It includes National Implementational Activities (Capacity building, Project-market development, Facilitation services, Model projects, National experts decide), EB Expert Platform (Regular meetings, WSs), and Demand Response Services (Simplified MBM, Facilitated, Integrated EC, Business models + cases, Economic feasibility tool, ES Testimony, Deep retrofit, Client + supply side analyses, Capacity markets, Economic feasibility, Business cases, VPP?). Subtask 19 is the ES Expert Platform (Final meeting, Stakeholder WS) and Subtask 20 is the ES Think Tank. A 'Dissemination' box lists Stakeholder workshops, Presentations & conferences, Publications, manuals, Coop. & project coaching, and DSM University. Reporting to ExCo is also indicated.

Think Tank topics and research questions for Task 16 Phase IV

1. **Comprehensive refurbishment (,Deep Retrofit‘, ,NZEB‘):**
 - **Economic feasibility** and opportunity cost?
 - **Investment grade calculation** and **financing** (business cases)?
 - **Business models?** How to factor in **non-energy-benefits** (NEB)?
2. **Energy services Taxonomy journal paper**
3. **Demand response business models** (cont'd) + **Demand response services and VPP** (market analyses, economic feasibility)
4. **Knowledge transfer to emerging and developing markets:**
Relevance, methodologies, lessons learned (**GIZ**)
5. **Financing: Crowd-financing, funds** for EE and RES investments, e.g.
 - Access to CAPEX for smaller projects in SME and communities?
 - How to bridge in particular the mezzanine financing gap?
6. Further contributions to the **DSM university**
7. ... + further **Task 16 expert suggestions**

Continue with well established structure



[Source: Task 16 2014]

Task 16 Phase IV: **Required resources**

Cost + task sharing:

- 1. Cost sharing: 14,500 EUR/a**
- 2. Task sharing: 0,5 – 1 person month/a**
over a **three year project period.**

Matters for the ExCo

1. **Assess interest?**
2. **Interest provided: Task the OA to prepare a detailed Task work plan for the next ExCo**



Documentation of ExCo Vote: (Task 16 needs ≥ 4 countries)

Country	Vote	Country	Vote
Australia		Norway	
Austria	no. next year?	Saudi Arabia	
Belgium			
Canada		South Africa	
Finland		Spain	
France		Sweden	
India		Switzerland	
Italy		UK	
Korea		US	
Netherlands	yes		
New Zealand		RAP	
Totals:	Yes:	> Maybe:	< Maybe:



ExCo Vote: (Task 16 needs ≥ 4 countries)

Country	Vote	Country	Vote
Australia		Norway	
Austria	no. next year?	Saudi Arabia	
Belgium	no?		
Canada		South Africa	???
Finland	???	Spain	
France		Sweden	???
India	???	Switzerland	???
Italy		UK	
Korea	???	US	
Netherlands	yes	Eurelectric	support
New Zealand		RAP	support
Totals:	Yes:	> Maybe:	< Maybe: