

IEA DSM Task 16 'Innovative Energy Services'

Phase III Energy Efficiency and Demand Response Services (end)

Phase IV Life-Cycle Cost; 'Deep Retrofit'; Simplified M&V; (Crowd)-Financing & Taxonomy(start)

Task Status Report

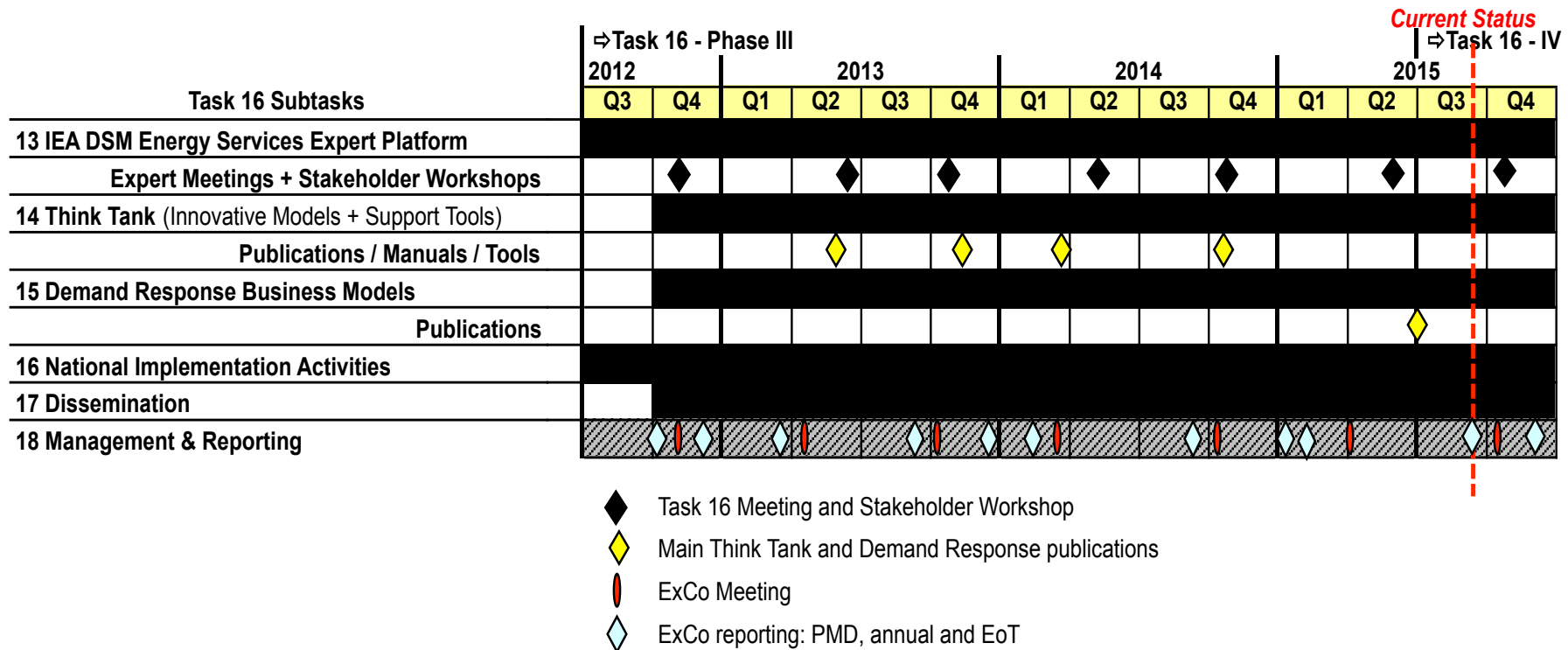
Jan W. Bleyl, Task 16 Operating Agent

Executive Summary

- 1. Phase III accomplished, targets met, budget surplus: 1.700 EUR => Phase IV**
- 2. Phase IV kicked off 01 July 2016:**
 - ⇒ 3 national stakeholder workshops (GIZ, Switzerland) in 2015
 - ⇒ Next platform meeting: 23-25/02/16, Brussels
 - ⇒ Think Tank topics defined & started (LCC pre-feasibility, Simplified M&V, Crowd-fund for EE, Deep retrofit “bankable”)
 - ⇒ Preliminary budget: 104.500 EUR => goal: 217.500,- EUR
- 3. Participants Phase IV: Netherlands, Switzerland, GIZ for 9 m, Maybes: Austria, Belgium, Canada, England, Korea, Norway**

Task 16 Schedule update (Phase III)

Task 16 - Phase III+IV Timetable (as of September 2015)



Phase III started on 1 July 2012 and has ended on 30 June 2015.

All scheduled events and reporting targets have been met.

**Phase IV has started operation on 01 July 2015 and will end 30 June 2018.
Detailed schedule upon other countries decisions for participation (or not)**

Task 16 Budget vs. Expenditures (Phase III)

(as of 30 June 2015 excl. VAT)

Subtask unit	Total budget EUR	Cumulative spending EUR	% spent %	Remaining EUR
13 Energy Services Expert Platform	36.000	37.600	104%	-1.600
14 Energy Services Think Tank	87.000	85.600	98%	1.400
15 Demand Response ES Business Plans	27.200	26.400	97%	800
16 Coaching of National Implementation Activities	12.800	14.200	111%	-1.400
17 Dissemination (Internat. + Nat.)	13.000	13.700	105%	-700
18 Management & Reporting	42.000	39.800	95%	2.200
Subtotals	218.000	217.300	100%	700
Travel costs	28.000	28.400	101%	-400
Printing&other	9.000	7.600	84%	1.400
Totals	255.000	253.300	99%	1.700

⇒ **Spending** of last reporting period: was **42,400 EUR** adding to **total expenditure of 253,300 EUR** (99 % of the total budget) ⇒ **Surplus of 1.700 EUR**

⇒ **Income** during last reporting period **26,988 EUR** (against **45,015 EUR billed**).
⇒ total to be realized income **255.00 EUR** (*assuming outstanding bills get paid*)

Accomplishments since last meeting

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Energy Service Expert Platform (subtask13)

- ✓ **18th experts meeting held in France May 30 – June 1 2015** (back to back with ECEEE summer studies). The main agenda items were presentation and discussion of national implementation activities, current Think Tank topics and dissemination activities and plans for Task 16 Phase IV
- ✓ Preparations started for **the 19th experts meeting**, to be held in Spring 2016 (exact date and location tbd)

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

- ✓ Execution of a **national stakeholder workshop “ESCo Themenwerkstatt”** in the framework of the GIZ MATA in Bad Lauterburg, Germany on 08 July 2015
- ✓ Preparation of a **national stakeholder workshop “Bankable Calculation & Financing of Energy Efficiency Projects”** during the GIZ Renewable Energy Week in Berlin, Germany to be held on 14 October 2015
- ✓ Preparation of a **national stakeholder workshop “Einsparcontracting in öffentlichen Gebäuden”** to be held in Ittingen near Bern, Switzerland on 25 November 2015

Accomplishments since last meeting (cont'd)

Think Tank (subtask 14)

- ✓ Publication of a Task 16 discussion paper 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 *More examples still welcome*
- ✓ **Business models for comprehensive building refurbishment** ('deep retrofit') in cooperation with IEA ECB Annex 61:
Application of 1. economic feasibility evaluation and 2. bankable tool to case studies, e.g. in Denmark, Germany and Austria
More case studies welcome
- ✓ Drafting of a **Taxonomy paper on Energy Services** to be published in a peer-reviewed journal in cooperation with

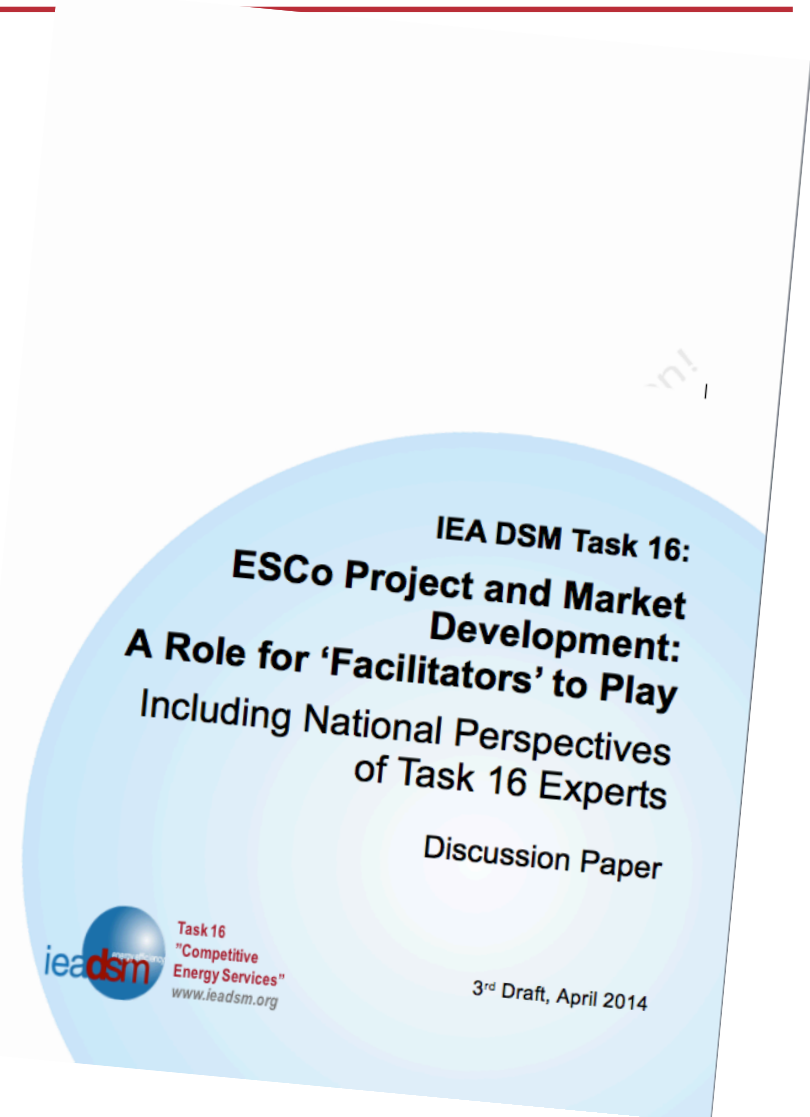
Task 16 Discussion Paper on Facilitators incl. national perspectives

**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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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

Demand Response Services business models (subtask 15)

Work finalized:

- ✓ Publication of a Task 16 discussion paper
Demand Response Services: Economic Pre-Feasibility Model and Case Studies for Austria September 2015

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

Dissemination and cooperations (subtask 17, selection)

Co-operation with other ongoing energy service projects and institutions:

- **ECB Annex 61 => Deep retrofit feasibility analyses and business models**
- **IEA IETS Annex 16 Energy Efficiency in SMEs => business models**
- **Linköping University => ES taxonomy and other topics**
- **dena (German Energy Agency) => Simplified M&V guidebook (in German language)**
- ✓ 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 (3,5 – 4,0 Mio EUR investment)

Dissemination and cooperations (subtask 17, cont'd)

- ✓ **ESCo manager trainings in Medenec, South Africa, Caribbean in cooperation with GLZ: *Investment grade Calculation, Analyses & Financing of ESCo Projects (for EPC and ESC Business Models)*. Introduction & hands-on training**
- ✓ **New Life-cycle cost workshop for evaluation of energy efficiency and renewable projects an introduction presented in Vienna and Salzburg**

dena-Praxishilfe. Einsparnachweise im Energiespar-Contracting (Germany)

dena (German Energy Agency)

dena-Praxishilfe

Einsparnachweise im Energiespar-Contracting

(M&V for Energy Services, focus on simplified approaches)

by Bleyl; Holz; Schenker, March 2015

=> builds on our ECEEE 2014 paper, with reference to Task 16

Other national versions?



Activities + goals for next 6 month

Activities + goals for next 6 month

Energy Service Expert Platform (subtask19)

- ✓ **Expert platform teleconferences** (to integrate new Task 16 members)
- ✓ Preparation of the **19th experts meeting**, to be held in 2016 (exact date and location tbd; preliminary planning for Spring in the Netherlands)

The main agenda items will be presentation and discussion of national implementation activities, discussions on current Think Tank topics and dissemination activities

Activities + goals for next 6 month

ES Expert Platform + Dissemination (subtasks 19+23)

- ✓ Execution of a **national stakeholder workshop** “**Einsparcontracting in öffentlichen Gebäuden**” to be held in Ittingen near Bern, Switzerland on 25 November 2015
- ✓ Execution of a **national stakeholder workshop** “**Bankable Calculation & Financing of Energy Efficiency Projects**” during the GIZ Renewable Energy Week in Berlin, Germany to be held on 14 October 2015
- ✓ Preparation of the **19th stakeholder workshop**, to be held in 2016 (exact date and location tbd; preliminary planning for Spring in the Netherlands)

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

Think Tank (subtask 20)

- ✓ **Simplified measurement & verification** + quality assurance instruments for energy, water and CO2 savings. Methodologies and examples. Including examples and national perspectives of Task 16 experts.
=> Further additions from (new) Task 16 participants
- ✓ Continue work on business models for **‘Deep Retrofit’ of buildings**: Application of pre-feasibility and bankable tools to more case studies. Work in close cooperation with IEA ECB Annex 61
=> Further case studies from (new) Task 16 participants
- ✓ Finalize draft of a **Taxonomy paper on Energy Services** to be published in a peer-reviewed journal in cooperation with Linköping University
- ✓ Continue work on **Crowd-Financing for Energy efficiency and renewable investments**: What can Crowd-Financing contribute? Access to CAPEX for smaller projects in SME, communities? Bridge the mezzanine financing gap? Reduce risks and transaction cost? In cooperation with GIZ

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

Coaching of individual National Implementation Activities (subtask 21)

- ✓ 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 & cooperation (subtask 22)

Publications, presentations or workshops planned:

- ✓ **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
 - ⇒ FH Pinkafeld - applied science university => Master class on energy services
- ✓ **Economic appraisals to communicate between technicians management & financiers.** Methods, calculation and examples – an introduction. Seminar for energy technicians in industry (December 2015)
- ✓ Continuation of know how transfer and supervision for a start-up ESCo in Croatia on a 1 MW_{el} wood chip gasification CHP and other projects

Dissemination and cooperation

(subtask 22 cont'd)

- ✓ **ESCO manager trainings** in Marokko, Thailand, Jordan in cooperation with GIZ: **Investment grade Calculation, Analyses & Financing of ESCo Projects** (for EPC and ESC Business Models). Introduction & hands-on training
- ✓ **Chairing of finance session during European Utility Week 2015** in Vienna (November 2015)
- ✓ Task 16 Leonardo ENERGY IEA DSM University webinar on **Simplified M&V** 16 December 2015

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

IEA DSM Task 16 'Innovative Energy Services'

Phase IV Life-Cycle Cost Appraisals; 'Deep Retrofit'; Simplified M&V; (Crowd)-Financing & Taxonomy

Outline for Phase IV (07/2015 - 06/2018)

Operating Agent Contacts:

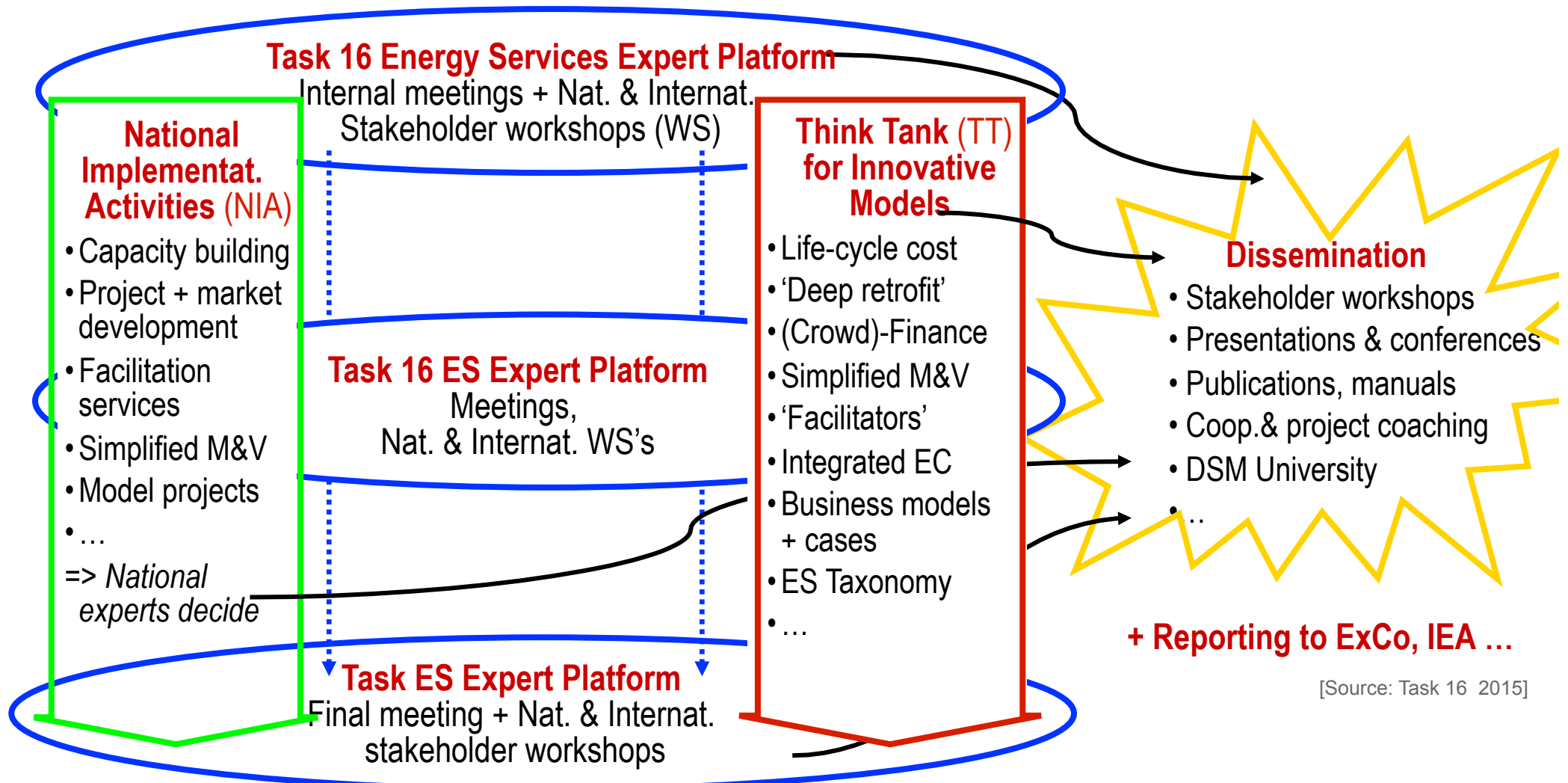
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Continue in well established structure. With new Think Tank and NIA topics



[Source: Task 16 2015]

Think Tank topics and research questions for Task 16 Phase IV (1/2)

1. Life Cycle Costing and economic rationale of EE and RES:

- **3 Methodologies** how to perform Life-Cycle Cost appraisals:
1. Pre-feasibility, 2. Comparison of variants, 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**

Think Tank topics and research questions for Task 16 Phase IV

(2/2)

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

+ further **ExCo and Task 16 expert suggestions?**

Task 16 outlook on Simplified M&V work

- **Building on existing publications** (ECEEE 2014, Task 16 discussion paper with national perspectives, dena)
- Prepare **academic journal publication**
- **Deepening & more examples** for Task 16 discussion paper, e.g. North American perspectives
- **Norms for standard values** (e.g. DIN V 18599-10 ‚EE of Buildings‘: Operating & lighting hours in non-residential buildings)
- **Adaption and publication of national versions**
- Continue **dialogue with IPMVP committee** + other stakeholders

Other proposals or wishes?

Next Task 16 meetings



Task 16 "Energy Services"

www.ieadsm.org

When	Where	Meeting title
14 Oct. 2016, 13:45 – 17:00	Berlin, Germany	National Task 16 stakeholder workshop „ Bankable Calculation & Financing of Energy Efficiency Projects “ @ GIZ Renewable Energy Week (<i>c.f. simon.zellner@giz.de</i>)
03.-05.11.2015	Vienna, Austria	Conference: ESCo Europe + European Utility week 2015
25 Nov. 2016, 09:00 - 16:40	Ittingen bei Bern, Switzerland	National Task 16 stakeholder workshop „ Energieeinsparcontracting in öffentlichen Gebäuden “ (<i>c.f. markus.bareit@bfe.admin.ch</i>)
23/02, 14:00 – 25/02/2016, 14:00,	Brussels, Belgium	19 th Stakeholder workshop: Day 1: Building Deep Retrofit - Investors Day (Annex 61, BPIE, ICP) 19 th Expert Platform : Deep retrofit, life-cycle cost calculations, Simplified M&V and NIA
Fall 2016 (<i>exact date tbd.</i>)	Netherlands or Switzerland (<i>tbd.</i>)	20 th Stakeholder workshop 20 th Expert Platform
on demand -> Jan	on-demand	Video meetings inbetween physical meetings

Task 16 Phase IV: **Required resources**

Cost + task sharing:

- 1. Cost sharing: 15,000 EUR/a**
- 2. Task sharing: 0,5 – 1 person month/a
by National Experts**

over a **three year project period** (07/2016 – 06/2018)

Task 16 Phase IV:

Expected inputs from national expert

- **Active participation and exchange of experiences** during our meetings (face to face or via telco)
- **6 to 12 monthly reports on your National Implementation Activities** regarding energy efficiency services (can be activities that you are already engaged with in your day to day work)
- **Peer review of publications/reports**, which OA prepares
- **Preparing short national perspectives** (2-4 pages) on the Think Tank topics prepared by the OA

Task 16 Budget vs. Expenditures (Phase IV)

(as of 15 September 2015. All numbers EUR excl. VAT)

- **Surplus from Phase III of 1.700 EUR** proposed to be transferred to Phase IV (assuming the outstanding two bills get paid).
- There is no final budget for Phase IV yet. As of 15 September the **preliminary budget is 104.500 EUR** for the entire 3 year period. This consists of full contributions from Netherlands and Switzerland (3 x 14.500 EUR each) + 1st year from GIZ (14.500,- EUR) + surplus from Phase III (1.700 EUR).
- A more detailed budget will be provided upon other countries decisions for participation (or not).
The plan is to have **4 to 5 cost sharing countries**, which would lead to a **total budget of between 174.000 - 217.500**.

Matters for the ExCo

1. Approve the Task Status Update Report

Participants Task 16 Phase IV: 2,3 ,Yes`. 6 Maybes => Any ExCo news?

- **Netherlands** (NE: Albert Hulsfhoff)
- **Switzerland** (NE: Markus Bareit, Gabriela Weiss Di Spirito)
- **GIZ** (for 9 month) (NE: Simon Zellner)
- **Germany:** in kind cooperation with Annex 61 (Deep Retrofit)

Maybes?:

- **Austria** (NE: Christoph Amman, ...?)
- **Belgium** (NE: Benjamin De Bruyn, Johan Coolen ...?)
- **Canada** (NE: Sarah Mitchel, ...?)
- **England** (NE: Tim Hipperson, Utilitywise?)
- **Korea** (NE: Prof. Cho, ...?) („No for 2015“)
- **Norway** (NE: Emma Julie Otervik, Forsvarsbygg?)
- ...?

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**Thank you very much
for your continued support!**

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