IEA DSM Task 16 'Innovative Energy Services'

Final Task Management Report

52nd IEA DSM TCP ExCo Meeting
London, Great Britain, October 2nd, 2018

Jan W. Bleyl, Task 16 Operating Agent

For more information, visit www.ieadsm.org

Outline

1. **Objectives and Activities** (in a nutshell)
2. **Budgets** (Phase IV and aggregated)
3. **Operational structure**
4. **Think Tank key activities and accomplishments**
5. **Participating countries, institutions and financing partners**
6. **Thank you and good bye**

Task 16: Objectives and Activities in a nutshell

1. **Think Tank: Innovations in performance-based Energy Services** (ES):
   => e.g. ***Simplified Measurement & Verification*** *(sM&V);* ***Project and Market Facilitators; Integrated Energy Contracting*** *(IEC);* ***Financing; Demand Response Services*** *(DR);* ***Life-Cycle Cost-Benefit Analyses*** *(LCCBA);* ***Deep Energy Retrofit*** *(DER);* ***Multiple Project Benefits and Beneficiaries Methodology …***
2. **Set up an Energy Services Expert Platform:**
   => ***Expert meetings, mutual exchange & coaching & collaborations …***
3. **Support National Implementation Activities** (NIA):
   => ***Individual ES market development in participating countries***
4. **Dissemination of results:**
   => ***Publications; stakeholder workshops; DSM-University …***

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Task 16 Phase IV Budget vs. Expenditures

(as of 30 June 2018 excl. VAT)

Subtasks *unit*	Total budget *EUR*	Cumulative spending *EUR*	% spent *%*	Remaining *EUR*
19 Energy Services Expert Platform	**22.000**	**19.360**	**88%**	**2.640**
20 Think Tank for innovative Energy Services	**73.920**	**80.080**	**108%**	**-6.160**
21 Coaching of National Implementation Activities	**14.520**	**13.640**	**94%**	**880**
22 Dissemination & Cooperation (international + national)	**15.840**	**14.080**	**89%**	**1.760**
23 Management & Reporting (to ExCo)	**37.840**	**38.280**	**101%**	**-440**
Subtotals	**164.120**	**165.440**	**101%**	**-1.320**
Travel costs	**14.700**	**13.377**	**91%**	**1.323**
Other costs	**2.880**	**5.300**	**184%**	**-2.420**
Totals	**181.700**	**184.117**	**101%**	**-2.417**

⇒ **Spending** of last reporting period: **43,112** EUR, adding to a **total expenditure of 184,117** EUR (= 101% of total budget)

⇒ **Income** during last reporting period: **15,000** EUR (against **15,000 EUR billed**), **Total income realized: 181,700** EUR (= 100% of total budget)

Task 16 Budget Phases I - IV

(as of 30 June 2018 excl. VAT)

Subtasks	Total budget	% of budget
unit	EUR	%
Energy Services Expert Platform	**146.500**	**16%**
Energy Services Think Tank	**316.920**	**34%**
Demand Response Services (Phase III)	**27.200**	**3%**
Coaching of National Implementation Activities	**77.020**	**8%**
Dissemination (Internat. + Nat.)	**63.840**	**7%**
Management & Reporting	**175.840**	**19%**
Subtotals	**807.320**	**87%**
Travel costs	**94.400**	**10%**
Printing&other	**30.380**	**3%**
Totals	**932.100**	**100%**

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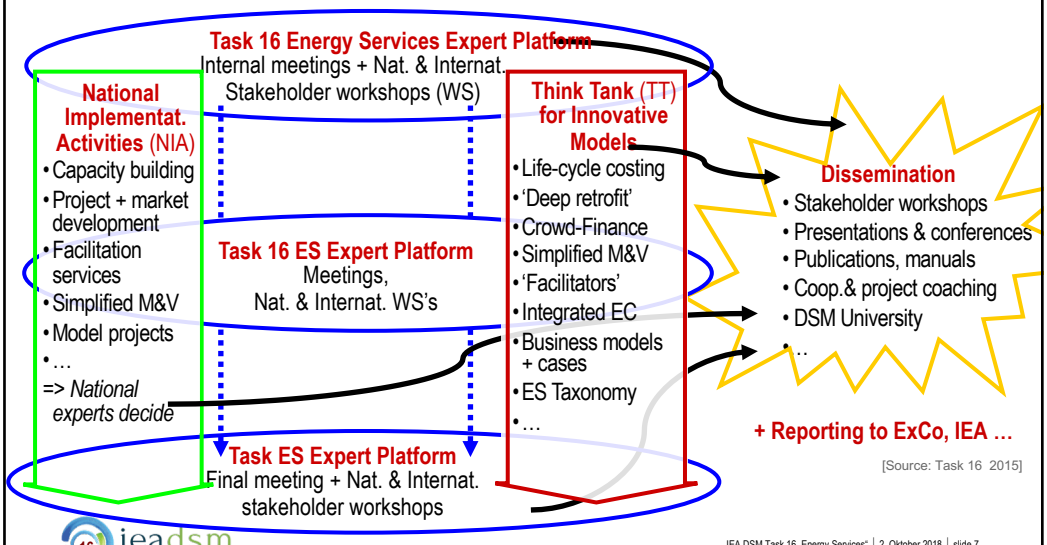
IEA DSM Task 16 „Energy Services" | 2. Oktober 2018 | slide 6

Task 16 operational structure



[Source: Task 16 2015]

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Task 16 Think Tank:
Key activities and accomplishments

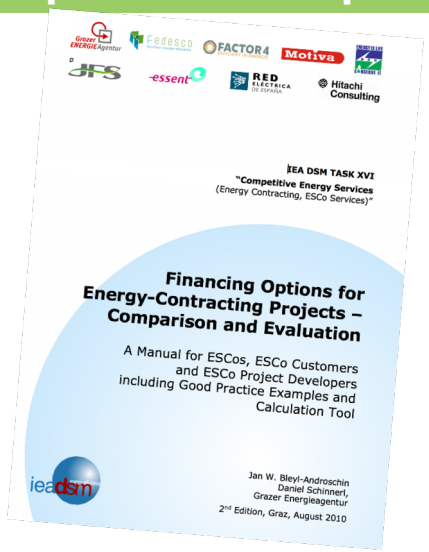
Financing of EE / ESCo

Task 16 discussion paper:
Financing options incl. good practice examples

Financing Options for Energy-Contracting Projects – Comparison and Evaluation.
A Manual for ESCos, ESCo Customers and ESCo Project Developers including national Good Practice Examples.

Task 16 discussion paper, Aug. 2010

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



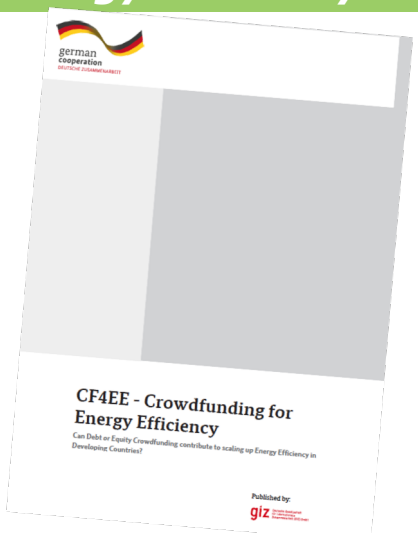
Joint Task 16 & GIZ discussion paper:
CF4EE - Crowdfunding for Energy Efficiency?

CF4EE - Crowdfunding for Energy Efficiency.

Can Debt or Equity Crowdfunding contribute to scaling up Energy Efficiency in Developing Countries?

Published by GIZ Oct. 2016

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



ENERGETIC SOLUTIONS
JAN W. BLEYL

Welcome to

Training on Bankable Calculation, Analyses and Financial Modelling for Sustainable Energy Investments

(for Efficiency and Renewable Projects)

Introduction & Hands-on Training

Jan W. Bleyl, Energetic Solutions

Simon Zellner, Energy Finance Advisor for GIZ REETA

Kingstown, Jamaica, 14 - 16 May 2018

Definition and business models of performance-based Energy-Contracting

(ESCo or Energy Efficiency Services)?

ESCo value proposition to clients: Integrated service with output guarantees.

Client: 'Make or buy'?

Technology
Suppliers, construction, operation & maintenance …

Know-How
Managers, consultants, engineers, architects, …

Energy Carriers
Gas, fuel oil, solar, woodchips …

Finance
TPF, equity, banks, leasing, subsidies …

Legislative Framework
Procurement, laws, norms, technical rules …

Energy Service Company (ESCo)

Supply (MWh) or **Savings** (NWh) **incl. function, performance + price guarantees**

Source: after [Bleyl 2009]

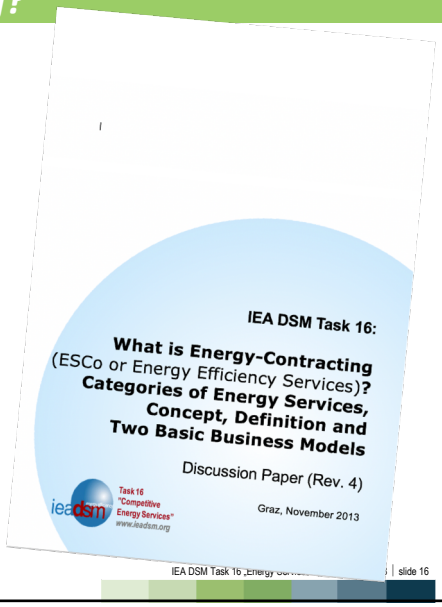
ESCo
Client

Task 16 Discussion Paper:
What is Energy-Contracting?

What is Energy-Contracting
(ESCo or Energy Efficiency Services)?
Categories of Energy Services,
Concept, Definition and
Two Basic Business Models

Task 16 Discussion Paper (Rev. 4), Nov 2013

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



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Welcome to BL&P Kick-off Workshop:

Integrated Utility Services (IUS) Market Platform Model.
Business Model Development and Pilot Phase

Jan W. Bleyl, Cathy Dalmeida for Energetic Solutions
Simon Zellner, Energy Finance Advisor for GIZ REETA

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Residential Sector

Peer reviewed paper on
Energy-Contracting in the Residential sector

Energy Contracting: How much can it Contribute to Energy Efficiency in the Residential Sector?
Transaction and Life Cycle Cost Analyses, Market Survey and Statistical Potential in ECEEE Summer Study, paper ID 3-472-13, Belambra Presqu'île de Giens, France June 2013

by **Bleyl; Eikmeier; Seefeldt**


Bleyl et al., paper ID 3-472-13

ESCo market development:
A role for Facilitators to play

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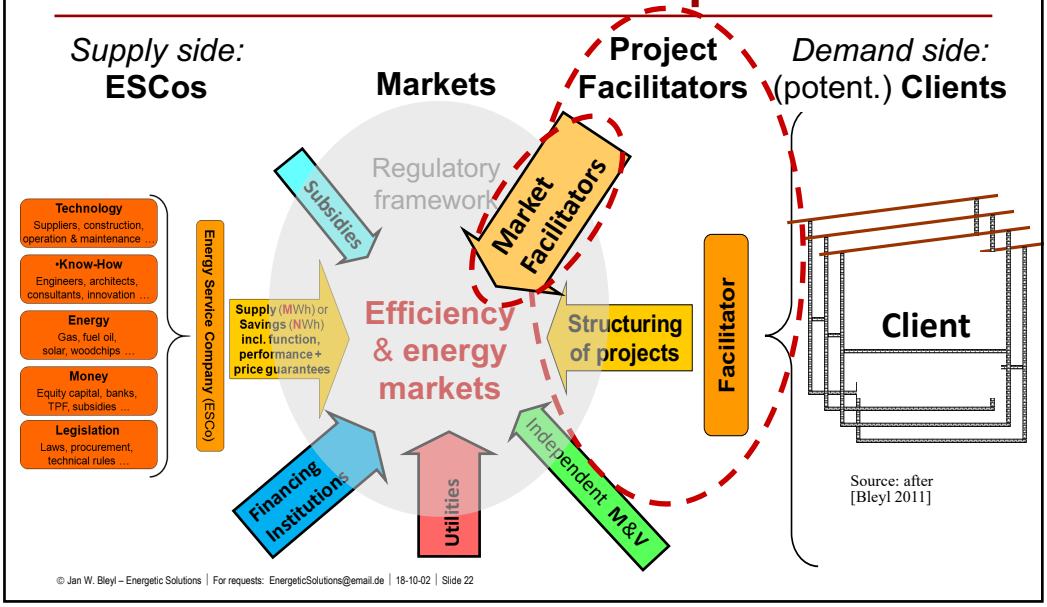
Abstract

Energy-Contracting is a many times proven 'delivery mechanism' to implement demand side energy efficiency

Demand side and clients need
'Facilitators' *(= ‚EE-Architects') to enable market and project development*

Key role of Project and Market ‚Facilitators' => Lesson learned: Demand pull needed



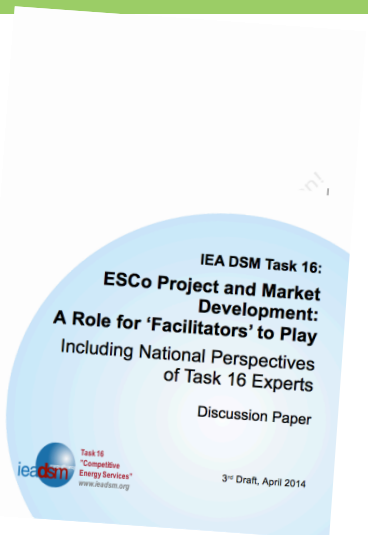
Task 16 Discussion Paper on **Market and Project Facilitators**

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

by **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



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Peer reviewed paper on the **Role of ‚Facilitators' in Project and Market Development**

ESCo Market Development: A Role for Facilitators to play
in ECEEE Summer Study, paper ID 3-472-13, Belambra Presqu'île de Giens, France June 2013

by **Adilipour; Bareit; Bleyl; Bourgois; Coolen; Kempen; Kim, Kil-Hwan; Jang, Hye-Bin; Cho, Sung-Hwan; Vanstraelen**


Bleyl et al., paper ID 3-472-13

ESCo market development:
A role for Facilitators to play

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Abstract

Energy-Contracting is a many times proven 'delivery mechanism' to implement demand side energy efficiency

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DSMU#1: Leonardo ENERGY Webinar: **Role of ‚Facilitators' for ESCo Market Development**

ESCO MARKET DEVELOPMENT: A ROLE FOR FACILITATORS TO PLAY

By Jan Bleyl 19/12/2013

Channel: webinar
Sector: industry, non-residential buildings
Purpose: energy efficiency, energy management
Rating: ★★★★★ Average: 5 (2 votes) ☆☆☆☆☆ Your rating: None

▼ Information

Date & time: Tue, February 4, 2014 - 15:00
Duration / timezone: 1 hour / Central European Time (check here your local time)
Moderators: Jan Bleyl (Energetic Solutions, IEA DSM Task 16)
Content:
This webinar will introduce the 'Facilitator' concept and discuss its added value for the development of comprehensive, performance based demand side EE and RE projects and ESCo markets. Besides enabling project development, another important feature of the buyer-led project facilitation approach is to foster competition between ESCos, other EE suppliers but also financiers on a fair and supportive playing field.

During the webinar we will discuss questions such as: What challenges and barriers does a (potential) client encounter, when setting out to procure comprehensive, performance based energy service packages or EE projects? Which know-how, procedures and organizational change processes are needed? And how can clients be enabled to do so?

The webinar builds on a recent ECEEE publication by IEA DSM Task 16.

► Register
► Video
► Presentation

About the speaker

Jan W. Bleyl

Job title: Senior consultant and owner
Company: Energetic Solutions
Country: Austria

More about this speaker

Access: http://www.leonardo-energy.org/webinar/esco-market-development-role-facilitators-play

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GIZ ESCo Guide: Assessing Framework Conditions for Energy Service Companies

Chapter 3:

Facilitators: a missing link for enabling clients and creating a 'demand pull'

Published by GIZ May 2014

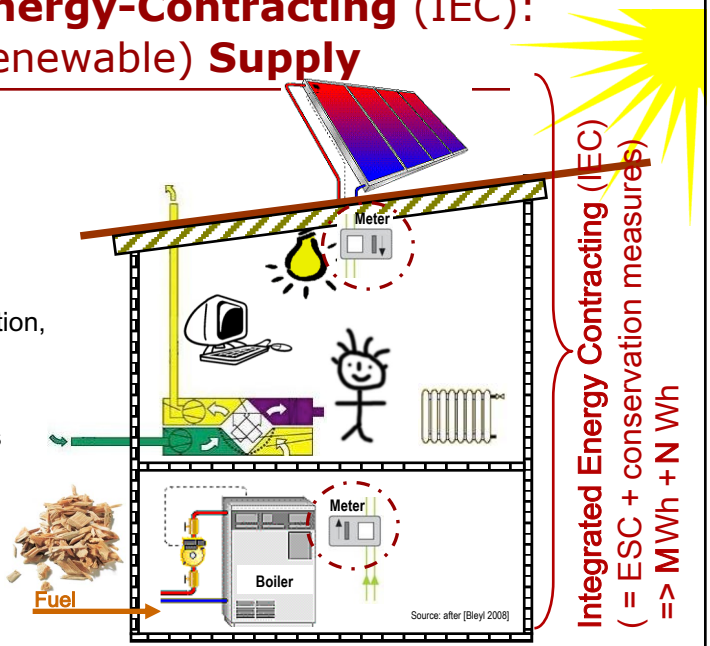
=> builds on several Task 16 papers (Facilitator, What is Energy-Contracting? ...) and includes reference to Task 16

Follow-up work?

Integrated Energy Contracting: A new Business Model to combine Savings and (renewable) Supply

Integrated Energy-Contracting (IEC): **Savings** + (Renewable) **Supply**

1. Building on **simpler ESC model**
2. **Expand scope to savings in entire facility** (HVAC, user motivation, building shell ...)
3. **Simplified M&V:** Savings calculations + quality assurance



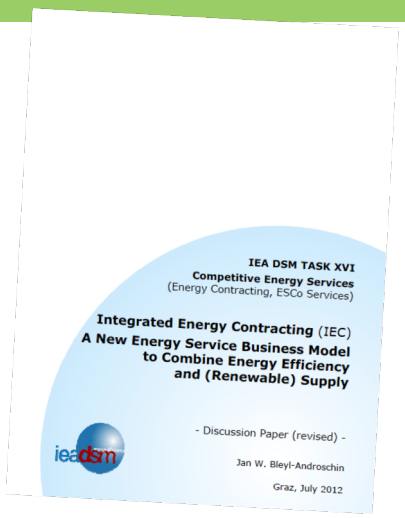
Task 16 Discussion Paper on
Integrated Energy Contracting

Integrated Energy Contracting (IEC)

A New Energy Service Business Model to Combine Energy Efficiency and (Renewable) Supply

Task 16 discussion paper, April 2014

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

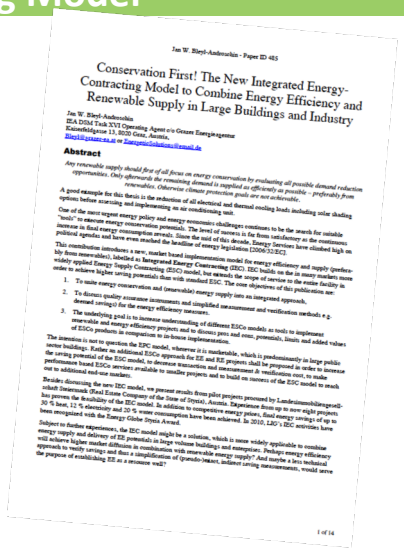


Peer reviewed paper on the
Integrated Energy Contracting Model

Bleyl, Jan W.

Conservation First! The New Integrated Energy-Contracting Model to Combine Energy Efficiency and Renewable Supply in Large Buildings and Industry

in ECEEE Summer Study, paper ID 1-485, Belambra Presqu'île de Giens, France June 2011


Conservation First! The New Integrated Energy-Contracting Model to Combine Energy Efficiency and Renewable Supply in Large Buildings and Industry

Demand Response Services

Task 16 Discussion paper on **Demand Response Service**

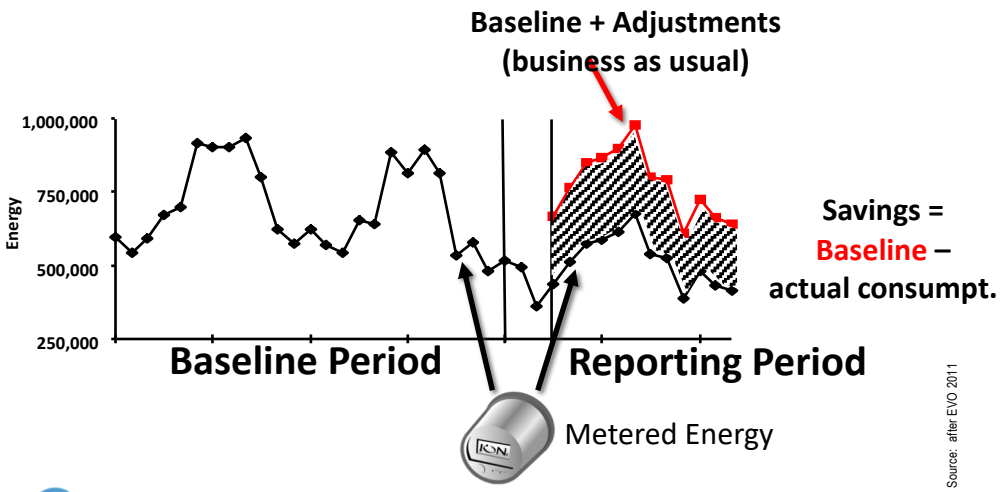
Amann; Amann; Bleyl:
Demand Response Services: Economic Pre-Feasibility Model and Case Studies for Austria

Task 16 discussion paper, Sept. 2015

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

Simplified Measurement & Verification of Savings

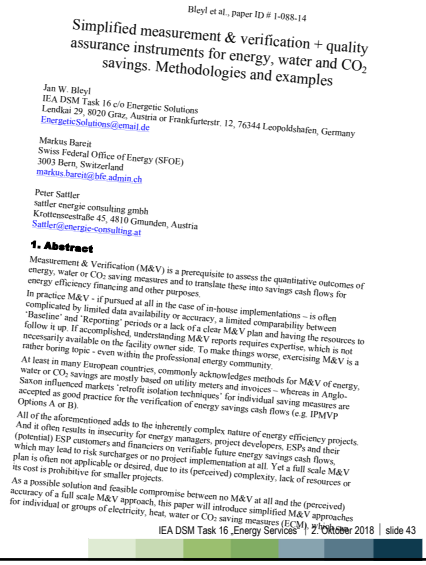
Basic problem: Indirect appraisal only
=> Savings can only be calculated/estimated



Task 16 paper on **Simplified Measurement & Verification** (sM&V) **of savings**

Bleyl, Jan W. et.al
Simplified measurement & verification + quality assurance instruments for energy, water and CO_2 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 CO_2 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 CO_2 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 CO_2 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 CO_2 saving measures (ECM). Thereby

DSMU#18: Leonardo ENERGY Webinar: **Simplified Measurement & Verification**

Access: http://www.leonardo-energy.org/resources/102/simplified-measurement-verification-for-energy-water-co2-sav-57a1d73662f4c

Adoption of sM&V as 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?

Work in progress:

Simplified Measurement and Verification Using Quality Assurance Instruments: A Proposed Concept for Energy, Water and CO_2-Saving Projects

for submission to the **Applied Energy Journal**

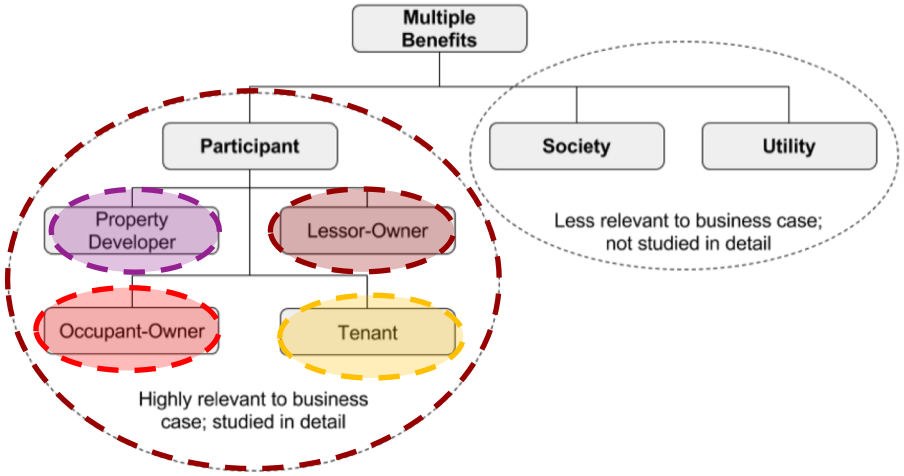
In close cooperation with **EfficiencyOne**, Nova Scotia, Canada *(meaningful in-kind contribution!)*

Multiple Project Benefits Methodology

and its application to

Office Building Deep Energy Retrofit

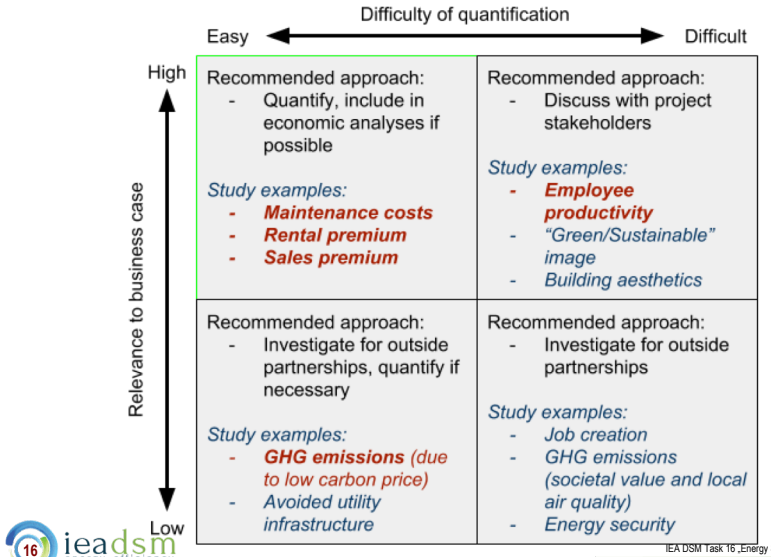
Classification of multiple benefits according to primary beneficiaries => Multiple Beneficiaires of MPB



[Source: Bleyl et al. 2017 based on Lazar & Colburn 2013]

=> „**Multiple Project Benefits** (MPB)"

Multiple Benefits classification grid



Pecuniary values of DER Multiple Project Benefits and their accountability to different stakeholders

Multiple Project Benefits of DER		Range	Valuation EUR/ (m^2 * y)	Valuation PV: EUR/m^2	Beneficiaries (Different owner perspectives): Property develop.	Occupant -owner	Lessor -owner	Tenant
1.	**Work productivity increase** (0.57% - 1.14%)	Lower	10,4	219	-	219	-	219
		Upper	20,8	439		439		439
2a.	**Rental income increase** (1% - 5.3%)	Lower	1,2	25	-	-	25	-25
		Upper	6,4	134			134	-134
2b.	**Building sales price increase** (2.5% - 6.5%)	Lower	100		100	[100]	[100]	-
		Upper	260		260	[260]	[260]	
3.	**CO_2 savings** (6 - 79 EUR/t)	Lower	0,3	6	-	6	-	6
		Upper	3,8	79		79		79
4.	**Maintenance cost savings** (2.1 - 3 EUR/m2/y)	Lower	2,1	44	-	44	44	-
		Upper	3,0	63		63	63	
5a.	**Energy cost savings project term** (25 years)	Lower	16,8	354	-	354	-	354
		Upper	16,8	354		354		354
5b.	**Add. energy cost savings over techn. lifetime** (40 y.)	Lower	16,8	157	-	157		[157]
		Upper	16,8	157		157		[157]
	Totals	Lower PV:			100	780	69	554
		Upper PV:			260	1092	197	738

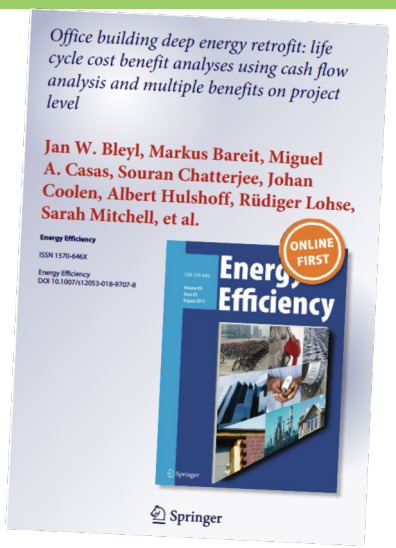
Source: [Bleyl et al. 2017]

Journal publication and Webinar:

Bleyl, Jan W. et al.
Office building deep energy retrofit: life cycle cost benefit analyses using cash flow analysis and multiple benefits on project level, "Energy Efficiency" special journal 2018:
https://doi.org/10.1007/s12053-018-9707-8

by **Bareit; Bleyl; Casas; Chaterjee; Coolen; Hulshoff; Lohse; Mitchel; Robertson; Ürge-Vorsatz**

Leonardo ENERGY Webinar *(DSMU#36):*
https://www.youtube.com/watch?v=j344zdQTL4I&feature=youtu.be



IEA secretariate is referencing Tak 16 results (IEA Webinar 19.09.2018)

	Who benefits?			
	Property developer	Occupant/owner	Lessor Owner	Tenant
Work productivity increase		+		+
Rental income increase			+	-
Building sales price increase	+	+	+	
CO2 savings		+		+
Maintenance cost savings		+	+	
Energy cost savings project term (25 years)		+		+
Additional energy cost savings over technical lifetime (40 years)		+		+
Total lower NPV	100	780	69	554

Source: adapted from Jan W. Bleyl, Energetic Solutions and co-authors, presentation from 6 March 2018, Beyond energy savings: The multiple benefits of energy efficiency, https://www.iea.org/workshops/iea-multiple-benefits-workshop.html

Follow-up planned:

Multiple Beneficiaries of Multiple Project Benefits.

Case Study in the Residential Sector in Ireland

Participating countries (Phases I – IV)

✓	**Austria:**	07/2006 – 06/2012 and again 01/2014 - 06/2015
✓	**Belgium:**	07/2006 – 06/2018 *(all 4 phases!)*
✓	**Canada:**	07/2015 – 06/2018 *(in kind contribution)*
✓	**Finland:**	07/2006 – 06/2009
✓	**GIZ Germany:**	07/2013 – 04/2016
✓	**India:**	07/2006 – 06/2012
✓	**Japan:**	07/2006 – 06/2009
✓	**Korea:**	07/2012 – 06/2015
✓	**Netherlands:**	07/2006 – 06/2018 *(all 4 phases!)*
✓	**Norway:**	07/2015 – 06/2018
✓	**Spain:**	07/2009 – 06/2012
✓	**Sweden:**	07/2012 – 06/2015
✓	**Switzerland:**	07/2012 – 06/2018


Experts: Participating institutions (Phases I – IV)
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Thank you Financing partners (Phases I – IV)
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Task 16 'Innovative Energy Services'

Thank you very much indeed, au revoir and all the best for the TCP relaunch!

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Task 16, Phase V? a possible outline

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