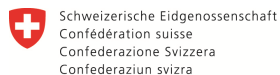




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Swiss Confederation

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Energetic
Solutions

Jan W. Bleyl

IEA DSM ExCo Stakeholder Workshop

When will it happen? Facilitators, IEC and other Lessons Learned for ESCo Market Development

Jan W. Bleyl-Androschin
Energetic Solutions &
IEA DSM Task 16 Operating Agent

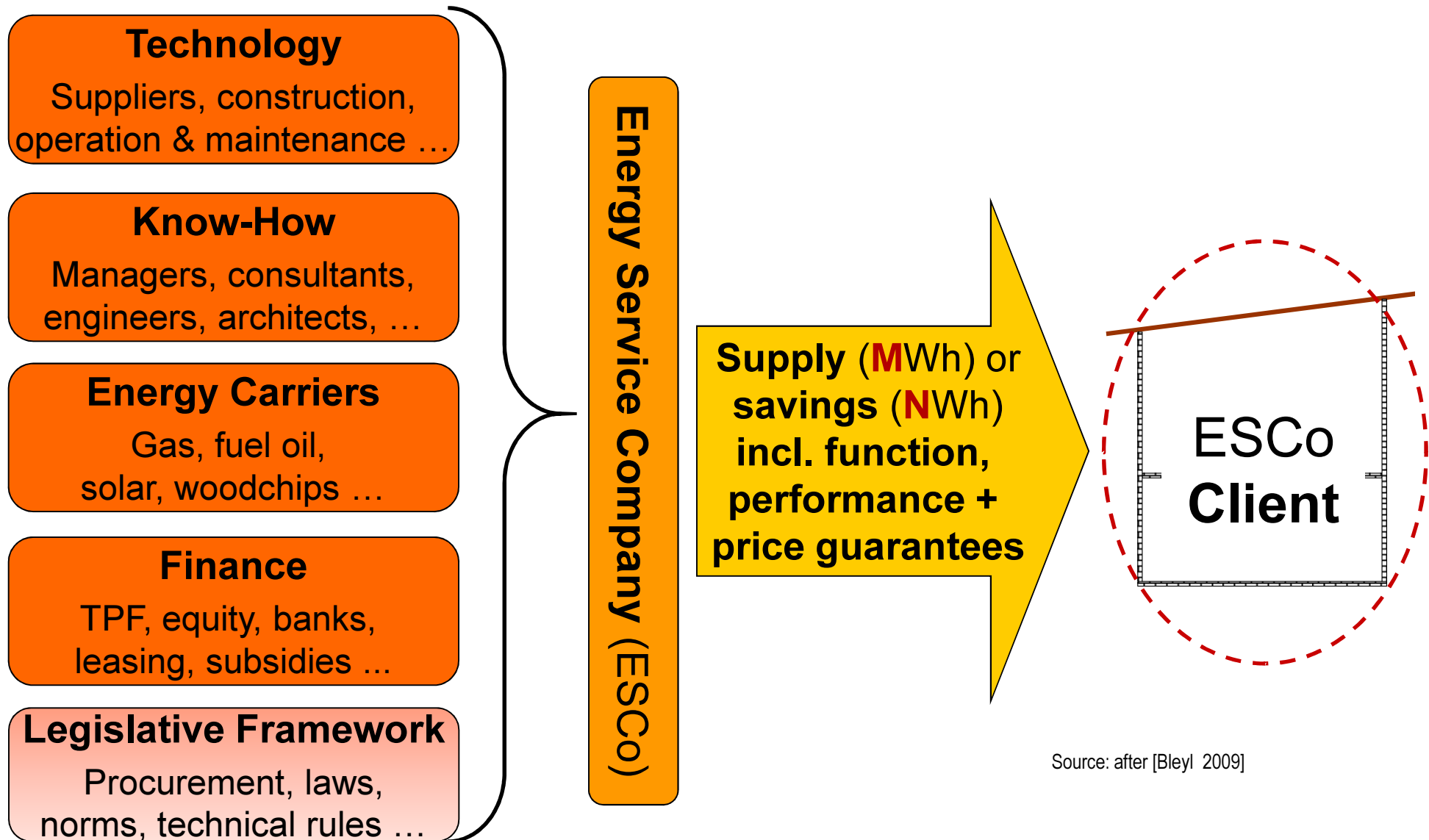
Lucerne, October 16th 2013

Outline

- 1. Energy-Contracting / ESCo: What are we talking about?**
- 2. The Client matters! And needs to decide!**
- 3. 'Facilitators' to enable the client**
- 4. The Integrated Energy-Contracting model to combine EE + RE**
- 5. Summary and Discussion**

What is Energy-Contracting / ESCo Services?

Interdisciplinary + Life Cycle Service with Guarantees



Source: after [Bleyl 2009]

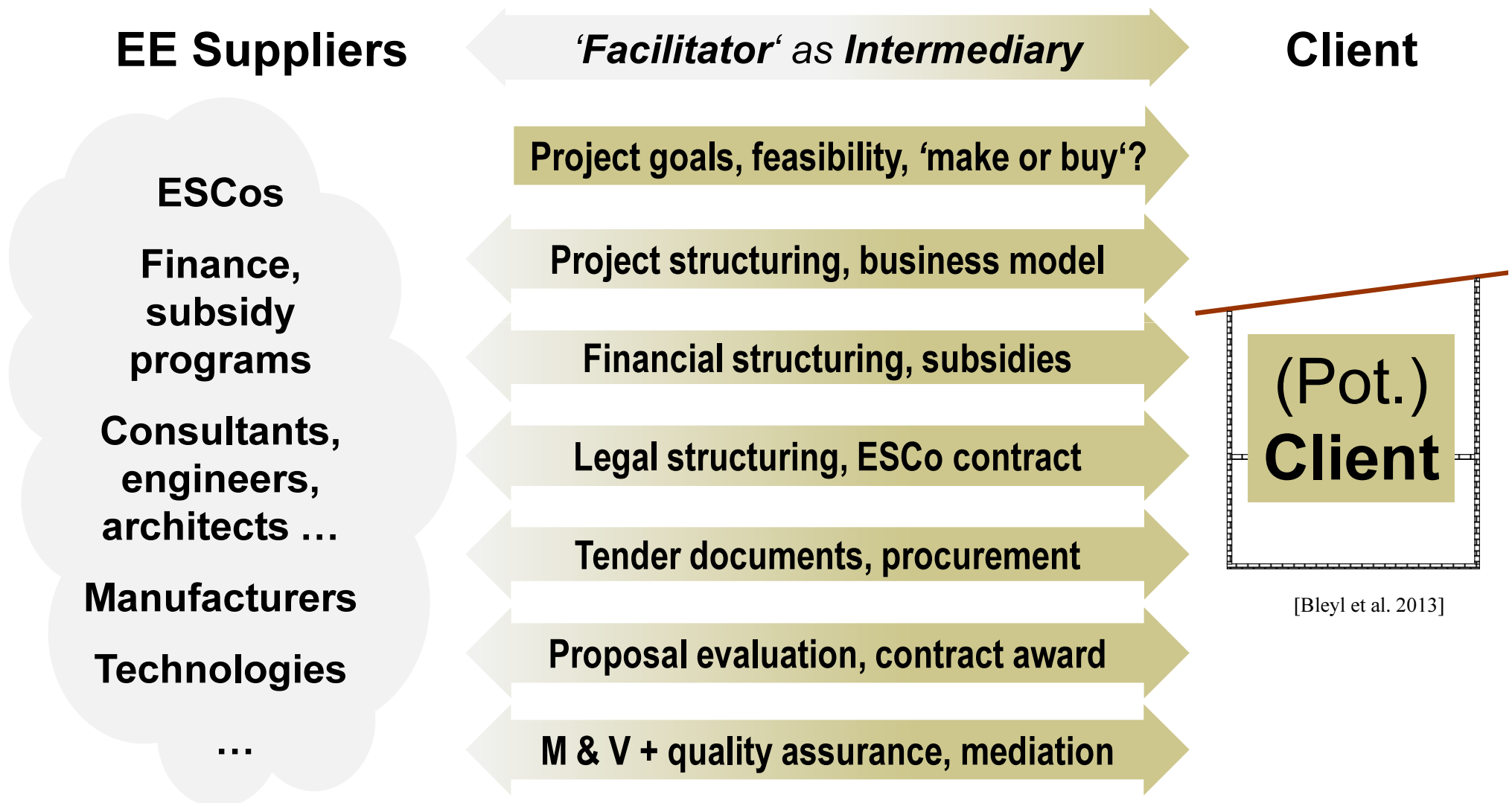
It's the Client who must decide!!!

- ✓ **ESCo is just a 'delivery mechanism',**
which clients need to decide for (or not).
- ✓ **Clients need to decide what they want?** And what kind of
(external) support they need to implement DSM projects?
 - ⇒ In-house implementation or Outsourcing(= make or buy)?
 - ⇒ In- or excluding financing?
 - ⇒ ...
 - ⇒ ... state of the art ESCo packages are modular
(packaged according to a clients needs)
- ✓ **=> Much more attention on the client/buyer side of the
market needed => mass roll outs possible, e.g. in Berlin**

'Facilitators' as Enablers and Link between Clients and ESCOs



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Conclusions

1. Facilitators are **enablers for ESCo Market development**
2. They serve as **intermediaries between clients and ESCos** ‘(corporate) cultures’, interests and expectations
3. **Buyer-led approach enables competition** between ESCos, other EE suppliers but also financiers
4. Facilitator approach provides a **level and knowledgeable playing field** for a fair competition
5. F. cost: **1 - 14 % of EE investments**. => obstacles for clients. Often outweighed by maximized savings, lower prices and better quality
6. Clients need organizational + individual **change processes** => new territory for most energy efficiency professionals

Discussion and Outlook

1. How to **multiply** and **fund** the Facilitator approach?
2. How to **establish and standardize procedures in public and private sector administrations** to move from individual projects, led by highly motivated individuals, to mass roll-outs of comprehensive building refurbishment portfolios?
3. What are suitable '**sticks, carrots and tambourines**', but also **practical approaches to enable change processes** on the client side of the market?

Task 16 paper on the role of ,Facilitators`



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

ESCo market development: A role for Facilitators to play

Bleyl, Jan W. et.al
**ESCo Market Development: A
Role for Facilitators to play**
in ECEEE Summer Studies,
paper ID 3-472-13, Belambra
Presqu'île de Giens, France June
2013

Jan W. Bleyl
IEA DSM Task XVI c/o Energetic Solutions
Lendkai 29, 8020 Graz, Austria or Frankfurterstr. 12, 76344 Leopoldshafen, Germany
EnergeticSolutions@email.de

Nathalie Adilipour
Swedish Energy Agency
Kungsgatan 43, P.O. Box 310, SE-631 04 Eskilstuna, Sweden
Nathalie.Adilipour@energimyndigheten.se

Markus Bareit
Swiss Federal Office of Energy (SFOE)
3003 Bern, Switzerland
markus.bareit@bfe.admin.ch

Charles-Henri Bourgois and Johan Coolen, both
Factor4
Lange Winkelhaakstraat 26, 2060 Antwerpen, Belgium
Charles-Henri.Bourgois@factor4.be, johan.coolen@factor4.be

Ger Kempen
Escoplan
Binnenhof 62-b 1412 LC Naarden, The Netherlands
g.kempen@escoplan.nl

Kim, Kil-Hwan and Jang, Hye-Bin, both
Korea Energy Management Corporation
388, Poemun-Daero, Suji-Gu, Yongin-Si, Kyonggi-Do, 448-994, Republic of Korea
kimkh@kemco.or.kr, janghb@kemco.or.kr

Cho, Sung-Hwan
Jeonju University, Dep. of Mechanical and Automotive Engineering
1200 3-ga, Hyoja-dong Wansan-gu, Jeonja 560-759, Republic of Korea
shcho@jj.ac.kr

Lieven Vanstraelen
Fedesco Knowledgecenter
Royal Green House, Rue Royale 47, 1000 Bruxelles, Belgium
lvanstraelen@energinvest.be

Abstract

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

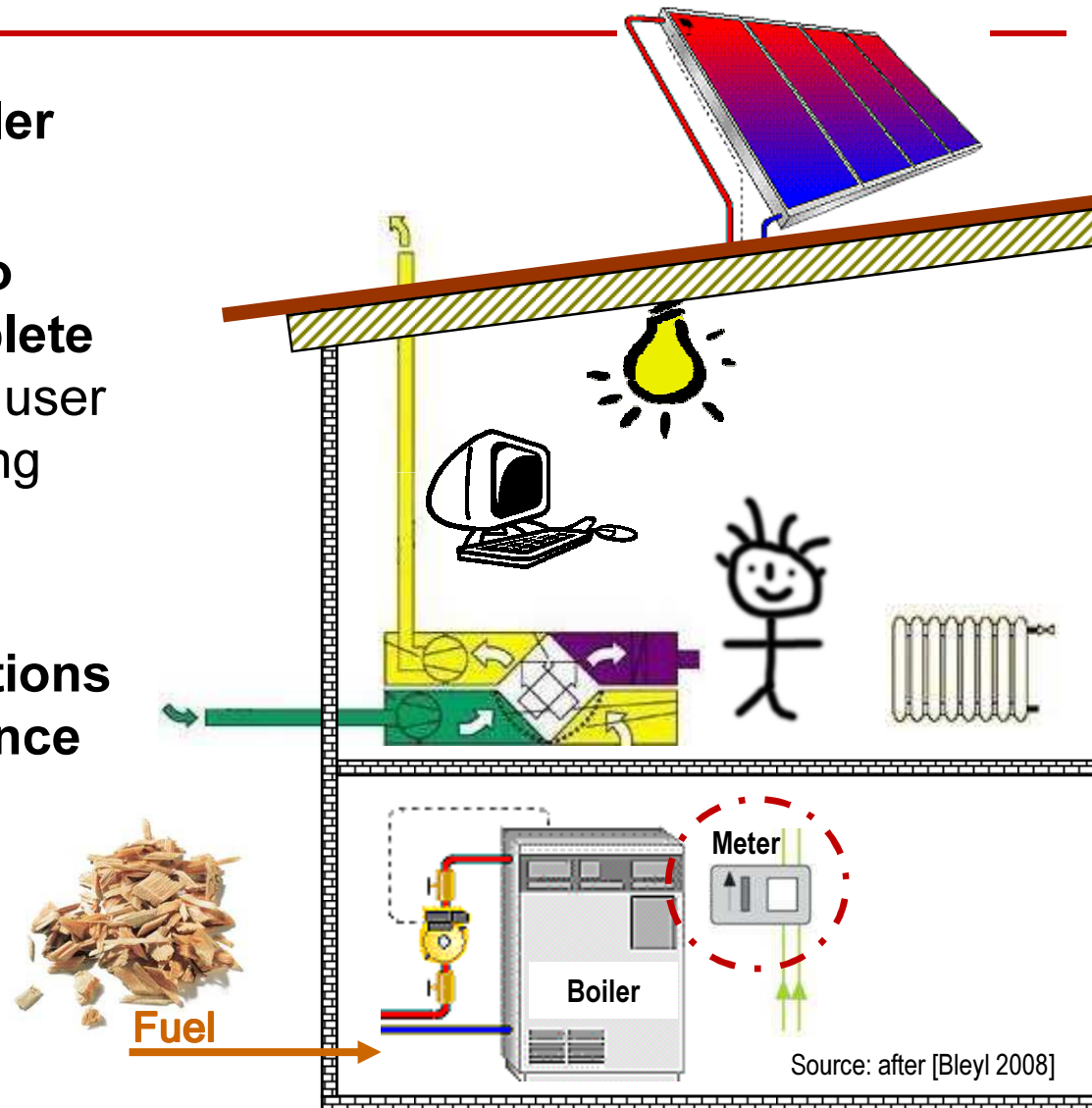


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Integrated Energy-Contracting (IEC): A new ESCo model to combine Energy Efficiency (EE) and Renewables (RE)

Integrated Energy-Contracting (IEC) - Savings + (renewable) Supply

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



Integrated Energy Contracting (IEC)
(= ESC + conservation measures)
=> **MWh + N Wh**

Objectives of IEC

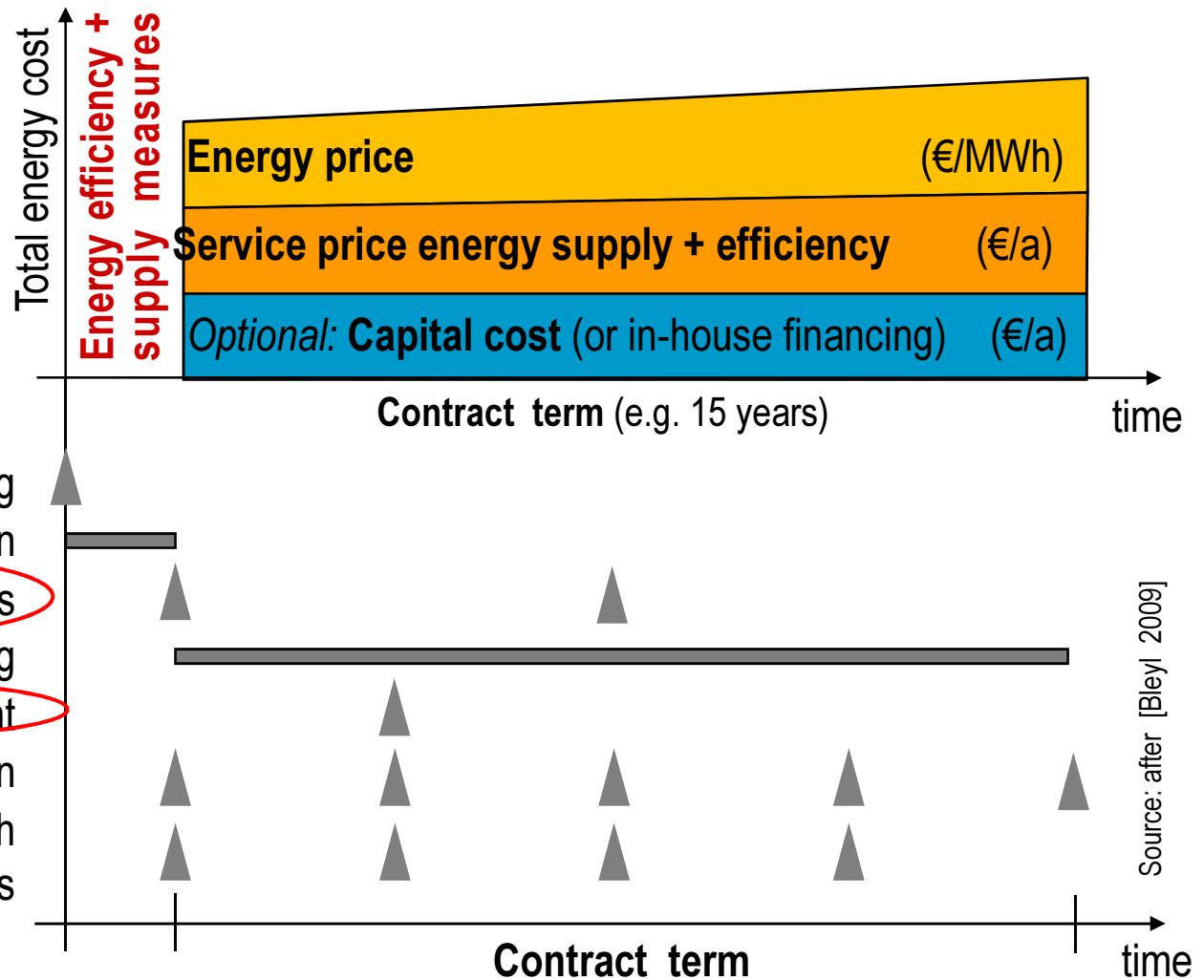
1. To **unite energy conservation and (renewable) energy supply** into an integrated approach / product,
2. to build on success of the ESC model **to reach out to additional end-use markets**,
3. to **increase the saving potential** of the ESC model
=> **conservation first!**,
4. to **decrease transaction, measurement & verification cost**,
5. to make **performance based ESCo services available to smaller projects ...**

Not against EPC, wherever it is marketable!

Integrated Energy-Contracting (IEC): Quality Assurance (Examples)

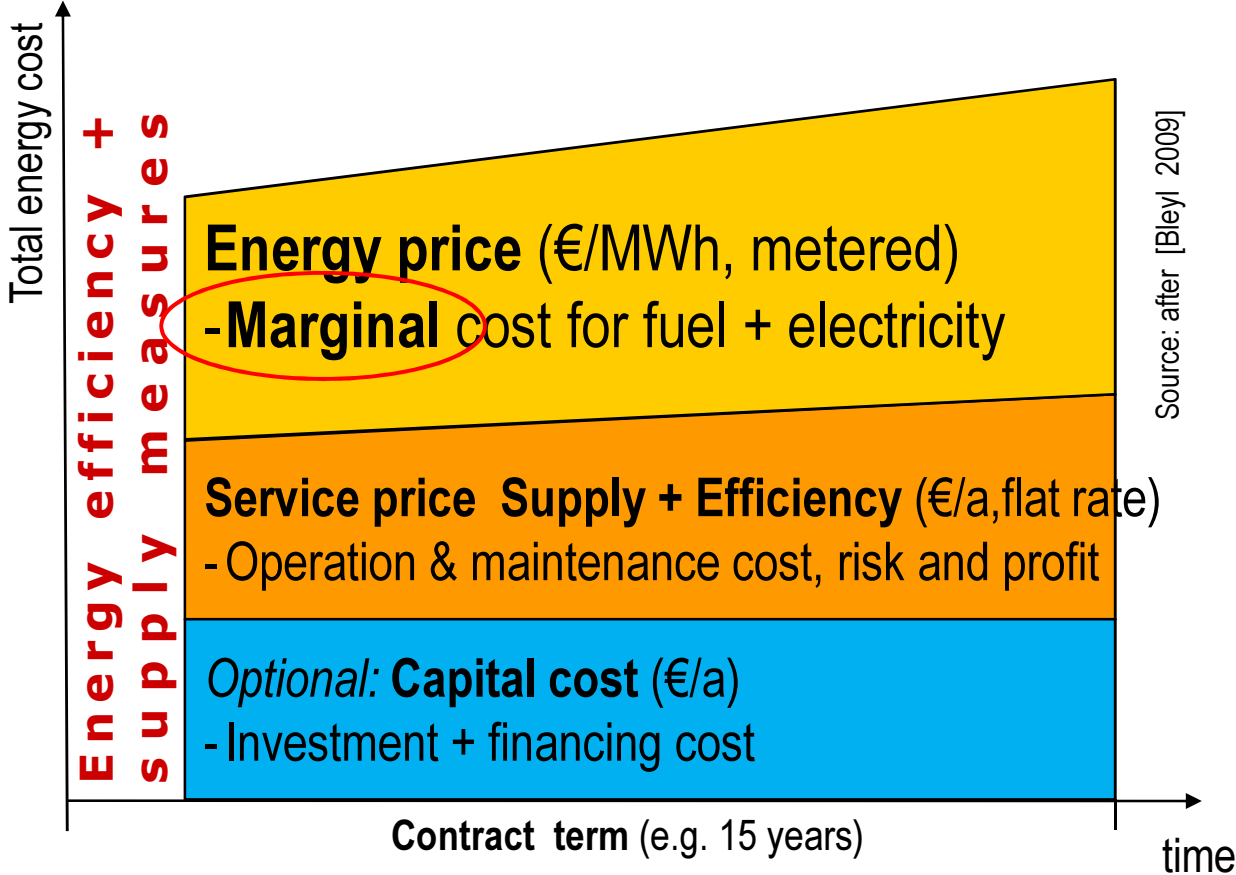
Quality assurance for energy efficiency measures (Examples):

- EPC, Controlling of detailed planning
- Coaching + supervision of construction
- Commissioning, Thermographic analyses
- Energy book keeping
- Performance measurement
- Proof of user motivation
- Annual audits with improvement proposals



Source: after [Bleyl 2009]

Energy price at marginal cost to avoid incentives to sell more



Conclusions and Discussion

- 1. IEC allows to combine (renewable) supply and energy conservation in an integrated (and simpler) ESCo product.**
=> 8 pilot projects have proven feasibility of IEC. More projects needed.
- 2. Quality assurance vs. savings guarantee:**
=> Is e.g. a class “A” building certificate, a thermographic analyses or a key performance measurement enough for a customer?
- 3. Is setting energy prices at marginal cost (or even below) a good concept to reduce incentives to sell more MWh?**
- 4. ESCos can not substitute clients decision to tap into EE-resources**
- 5. Is EE more attractive + better visible in combination with Renewables?**
=> Concerted action of EE and RE stakeholders required!

Task 16 paper on Integrated Energy-Contracting Model



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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 Studies, paper ID 1-485, Belambra Presqu'île de Giens, France June 2011

Jan W. Bleyl-Androschin - Paper ID 485

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

Jan W. Bleyl-Androschin
IEA DSM Task XVI Operating Agent c/o Grazer Energieagentur
Kaiserfeldgasse 13, 8020 Graz, Austria,
Bleyl@grazer-ee.at or EnergeticSolutions@email.de

Abstract

Any renewable supply should first of all focus on energy conservation by evaluating all possible demand reduction opportunities. Only afterwards the remaining demand is supplied as efficiently as possible - preferably from renewables. Otherwise climate protection goals are not achievable.

A good example for this thesis is the reduction of all electrical and thermal cooling loads including solar shading options before assessing and implementing an air conditioning unit.

One of the most urgent energy policy and energy economics challenges continues to be the search for suitable "tools" to execute energy conservation potentials. The level of success is far from satisfactory as the continuous increase in final energy consumption reveals. Since the mid of this decade, Energy Services have climbed high on political agendas and have even reached the headline of energy legislation [2006/32/EC].

This contribution introduces a new, market based implementation model for energy efficiency and supply (preferably from renewables), labelled as **Integrated Energy Contracting (IEC)**. IEC builds on the in many markets more widely applied Energy Supply Contracting (ESC) model, but extends the scope of service to the entire facility in order to achieve higher saving potentials than with standard ESC. The core objectives of this publication are:

1. To unite energy conservation and (renewable) energy supply into an integrated approach,
2. To discuss quality assurance instruments and simplified measurement and verification methods e.g. deemed savings) for the energy efficiency measures.
3. The underlying goal is to increase understanding of different ESCo models as tools to implement renewable and energy efficiency projects and to discuss pros and cons, potentials, limits and added values of ESCo products in comparison to in-house implementation.

The intention is not to question the EPC model, wherever it is marketable, which is predominantly in large public sector buildings. Rather an additional ESCo approach for EE and RE projects shall be proposed in order to increase the saving potential of the ESC model, to decrease transaction and measurement & verification cost, to make performance based ESCo services available to smaller projects and to build on success of the ESC model to reach out to additional end-use markets.

Besides discussing the new IEC model, we present results from pilot projects procured by Landesimmobilien-gesellschaft Steiermark (Real Estate Company of the State of Styria), Austria. Experience from up to now eight projects has proven the feasibility of the IEC model. In addition to competitive energy prices, final energy savings of up to 30 % heat, 12 % electricity and 20 % water consumption have been achieved. In 2010, IEG's IEC activities have been recognized with the Energy Globe Styria Award.

Subject to further experiences, the IEC model might be a solution, which is more widely applicable to combine energy supply and delivery of EE potentials in large volume buildings and enterprises. Perhaps energy efficiency will achieve higher market diffusion in combination with renewable energy supply? And maybe a less technical approach to verify savings and thus a simplification of (pseudo-)exact, indirect saving measurements, would serve the purpose of establishing EE as a resource well?



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Other lessons learned for ESCO market development

Summary and discussion: ***EC is a proven "delivery mechanism"***

- ✓ ESCo models offer **integrated solutions for an entire project life cycle** (planning, construction and operation&maintenance) and an **interdisciplinary approach** (technical, economical, financial, organizational and legal aspects) **to achieve guaranteed performance and results** of the efficiency technology deployed.
=> great, but complex products! (too complex?)

Summary and discussion: ***EC is a proven "delivery mechanism" (2)***

- ✓ **This integrated and multidimensional approach opens up solutions, which are not achievable through a standard, disintegrated implementation process**
(e.g. life cycle cost optimization across investment and operation budgets, integrated planning or performance guarantees over the complete project cycle ...)
- ⇒ **ESCo projects can overcome obstacles** such as financing bottlenecks, lack of know how, personal or motivation + technical or economic risks, but ...

Summary and discussion: ***EC is just a "delivery mechanism"! (3)***

- ✓ **ESCos can not substitute the client's decision to engage in EE!**
- ⇒ **What is the right mixture of 'informing', 'enabling' and 'forcing' (tambourine, carrot and stick) clients to engage in EE-programs and projects?**

Summary and discussion:

Market Development: Buyer driven

- ✓ **Successful market development** - in particular for EPC - was **demand side driven**, meaning (pot.) ESCo customers defined their needs and goals for energy service packages and **put out request for proposals on the market.**
 - ***Studies or IGAs are not sufficient to create projects***

Summary and discussion:

Facilitators to enable clients

- ✓ To foster market development, the role of **independent market and project facilitators as mediators between ESCOs and their (potential) clients** has proven to be of great value.
- ✓ The Facilitator approach also secures **a fair and level playing field for a competition between ESCOs.**
- ✓ This facilitator role requires more active players and **deserves better support + financing!**

Summary and discussion: ***Market Development (2)***

- ✓ **Energy efficiency is often not the driving force / not a stand alone business case** but a (beneficial) side effect
- ⇒ Listen better to the “**real**” **needs expressed by customers** (e.g. non-energy-benefits like increased comfort, better air quality, CO₂-savings or changes in utilization of a facility, necessary maintenance or modernization investments and compliance with safety, fire, health or other standards ...) to **build strategic alliances** with e.g. security, automation, DR ... and to incorporate **energy efficiency goals** and **minimum performance standards** early on in the project development.

Summary and discussion:


Clients need to decide for change

- ✓ ESCo projects require **new organizational routines**, in particular **on the customer side** (e.g. with regard to **procurement practices, interdisciplinary co-operations** between different departments and project engineers or **long-term cross-budgetary financial management**)
- ⇒ What can we learn from Task XXIV:
change of routines in clients organizations?



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**Energetic
Solutions**

Jan W. Bleyl

**Answers and remarks
welcome. Questions also!**

**Can we do something
together?**

Contacts:

Jan W. Bleyl


Phone: +43 650 7992820

EnergeticSolutons@email.de



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**Energetic
Solutions**

Jan W. Bleyl

Reservefolien

Contacts:

Jan W. Bleyl

Phone: +43 650 7992820

EnergeticSolutons@email.de

Brief EPC history: A 'simple' business idea by an engineer

*"We will leave a **steam engine free of charge** to you.*

*We will **install** these and will **take over for five years the customer service. We guarantee** you that the coal for the machine costs less, than you must spend at present at fodder (energy) on the horses, which do the same work. And everything that we require of you, is that you **give us a third of the money, which you save.**" [J. Watt, 1736-1819]*

=> Originally an engineering driven business model

- **Great but too complex for most clients?**
- **Too much focus on technological solution for decision makers?**
- **Need for organizational behaviour change processes considered?**

ESCo (+EE) projects: clients face non-core-business questions



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EE Suppliers

ESCos

Finance,
subsidy
programs

Consultants,
engineers,
architects ...

Manufacturers

Technologies

...

? How to structure and specify my energy service needs => ToR

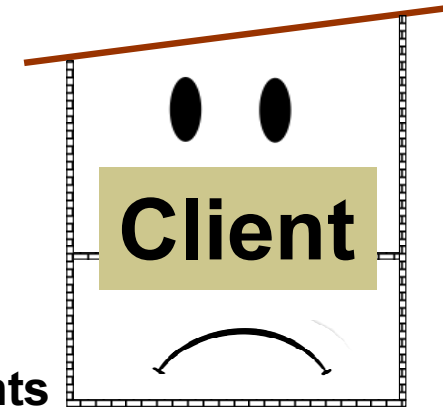
? How to calculate life cycle cost evaluations

? Non-standard procurement procedures

? Contractual design of long-term energy service agreements

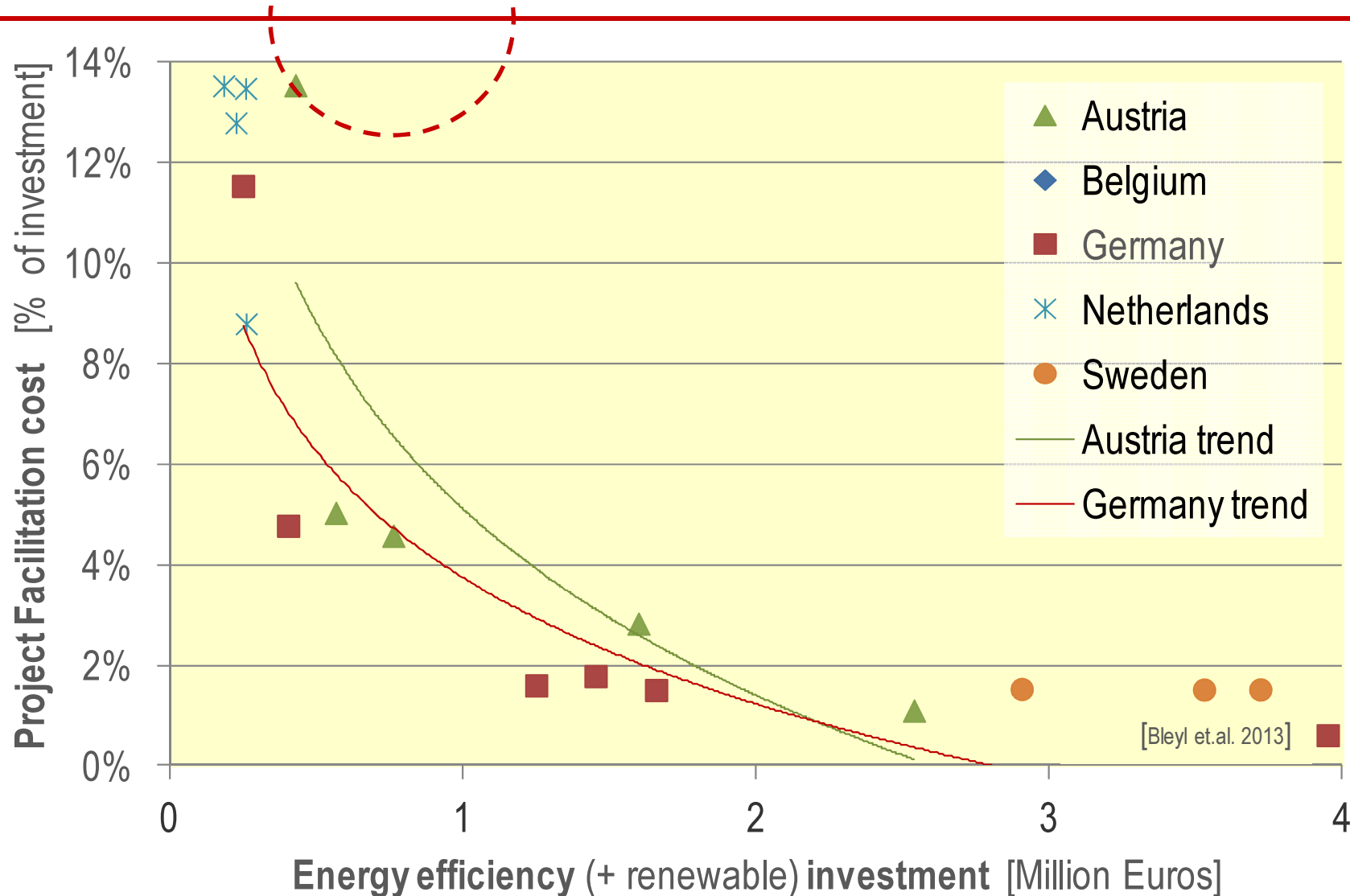
? Multi-year financing across Capex and Opex budgets?

? How to enable changes in my organization and its individuals



Source: after [IEA DSM Task XVI 2010]

Project facilitation cost (Empirical data from 32 projects)



[Bleyl et.al. 2013]