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Task XVI  
"Competitive  
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# ESCo Market Development in Russia - Lessons to be Learned from Germany/Europe

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- 1. Two basic business models (in German) ESCo market: EPC and ESC and their market shares**
- 2. EPC vs. ESC: (Standard) market properties and limitations**
- 3. ESC – a business model for Renewables, CHP or heat recovery**
- 4. Integrated Energy Contracting (IEC) – A new ESCo business model**
- 5. EPC – market development: Demand side driven**
- 6. Comprehensive building refurbishment – the future?**
- 7. Some lessons learned**

# Two Basic ESCo Products (in German) Markets: ESC and EPC

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German ESCo market: ~ 1,600 Mio €/a [Prognos 2009]

Energy  
Supply-  
Contracting

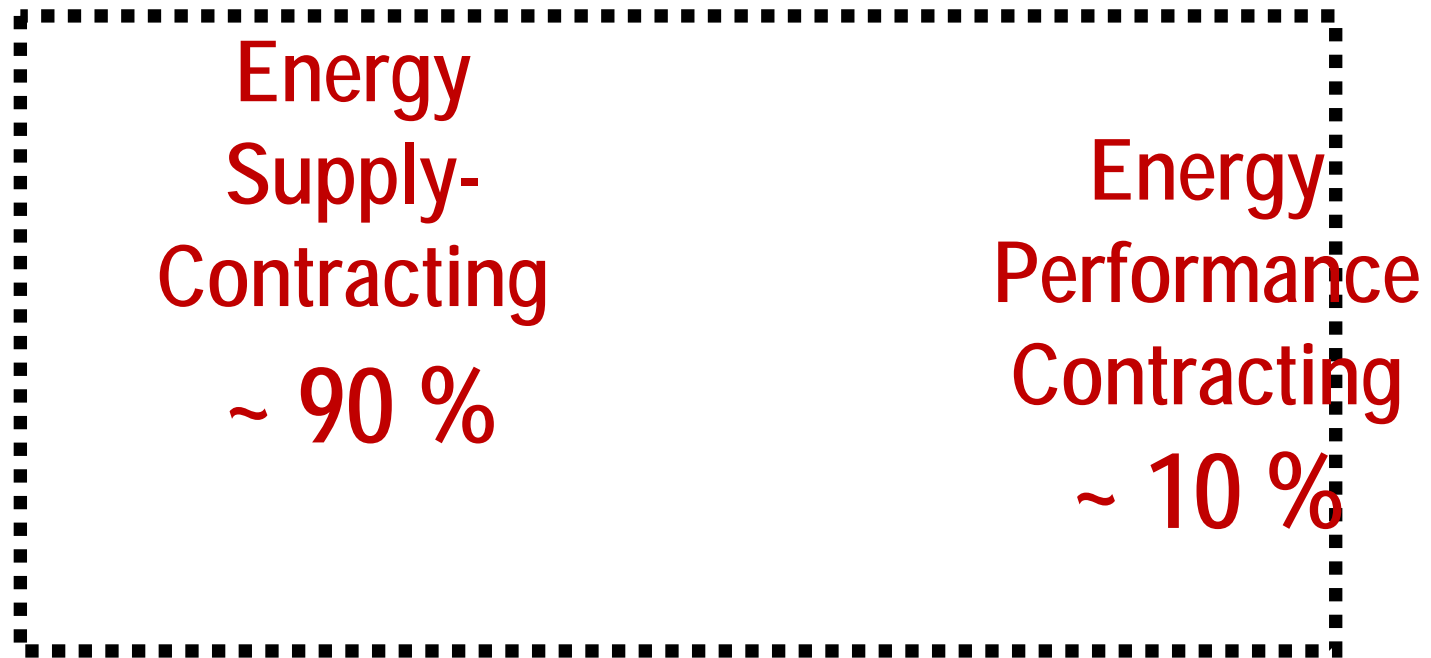
Energy  
Performance  
Contracting

Market shares?

# ESC is Dominating the Market

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German ESCo market: ~ 1.6 Bio €/a [Prognos 2009]



Sources: [Prognos 2009], [VfW 2009]

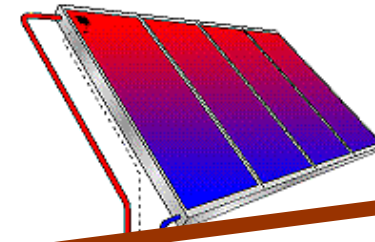
# ESC vs. EPC: Market Properties

	ESC	EPC
<b>End-use markets</b>	Residential, Industry, Commerce, Public ...	only Public Buildings, Hospitals, Leisure
<b>Efficiency potentials</b>	15 – 20 % (limited scope of service)	20 – 25 % (30 – 50 %)
<b>Project Size: Minimum energy cost baseline</b>	~ 20,000 €/a	> 100,000 €/a (ESP Berlin: 1,88 Mio €/a)
<b>Share in ESCo market (in Germany 2008)</b>	~ 90 %	~ 10 %
<b>Business model</b>	M Wh	Savings („N Wh“) => Baseline problems => high transaction cost

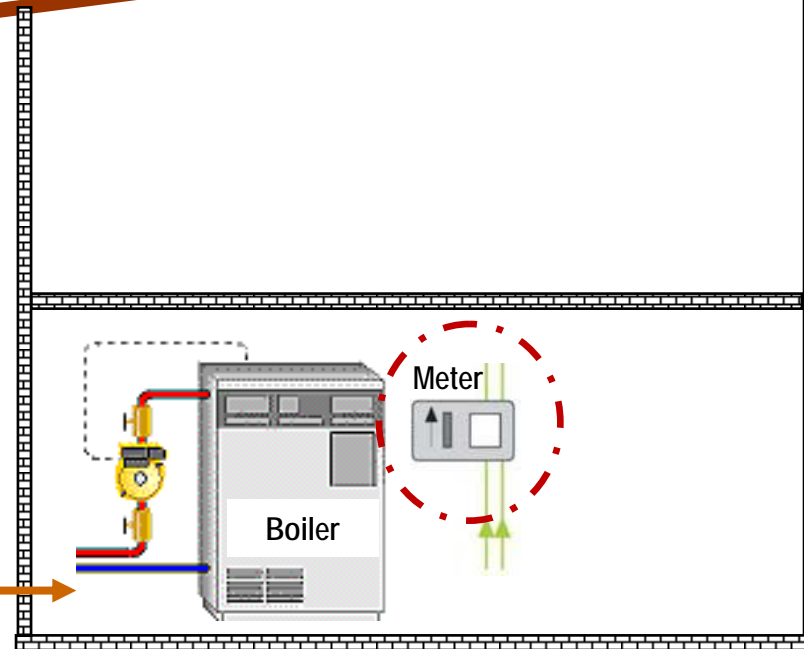
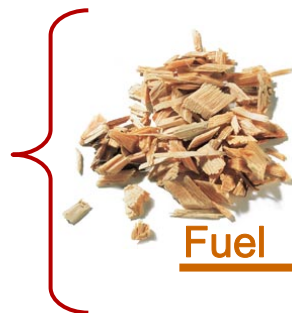
# What is Energy Supply Contracting (ESC)?

- ✓ **Supply of useful energy** (heat, steam, electricity ...) from **Renewables**
- ✓ **Business model: MWh delivered**
- ✓ **ESC is not discussed a lot ...**
- ✓ **Good Business model for Renewables, CHP or Heat Recovery ...**

Solar Supply-Contracting  
=> MWh<sub>Solar</sub>



Energy Supply Contracting (ESC)  
=> MWh



Source: after [Bleyl 2008]

# Energy Services – Hotspot Berlin

Mini-CHP works in many cases...

with more and more customers



CHP Lindenhof  
20 kW<sub>el</sub> / 46 kW<sub>th</sub>

CHP Pulvermühle  
50 kW<sub>el</sub> / 95 kW<sub>th</sub>

CHP Bremer Höhe  
18 kW<sub>el</sub> / 42 kW<sub>th</sub>

CHP Ostseeplatz  
34 kW<sub>el</sub> / 78 kW<sub>th</sub>



CHP BSR  
50 kW<sub>el</sub> / 95 kW<sub>th</sub>

CHP Stadt & Land  
50 kW<sub>el</sub> / 95 kW<sub>th</sub>

CHP BIM  
34 kW<sub>el</sub> / 78 kW<sub>th</sub>

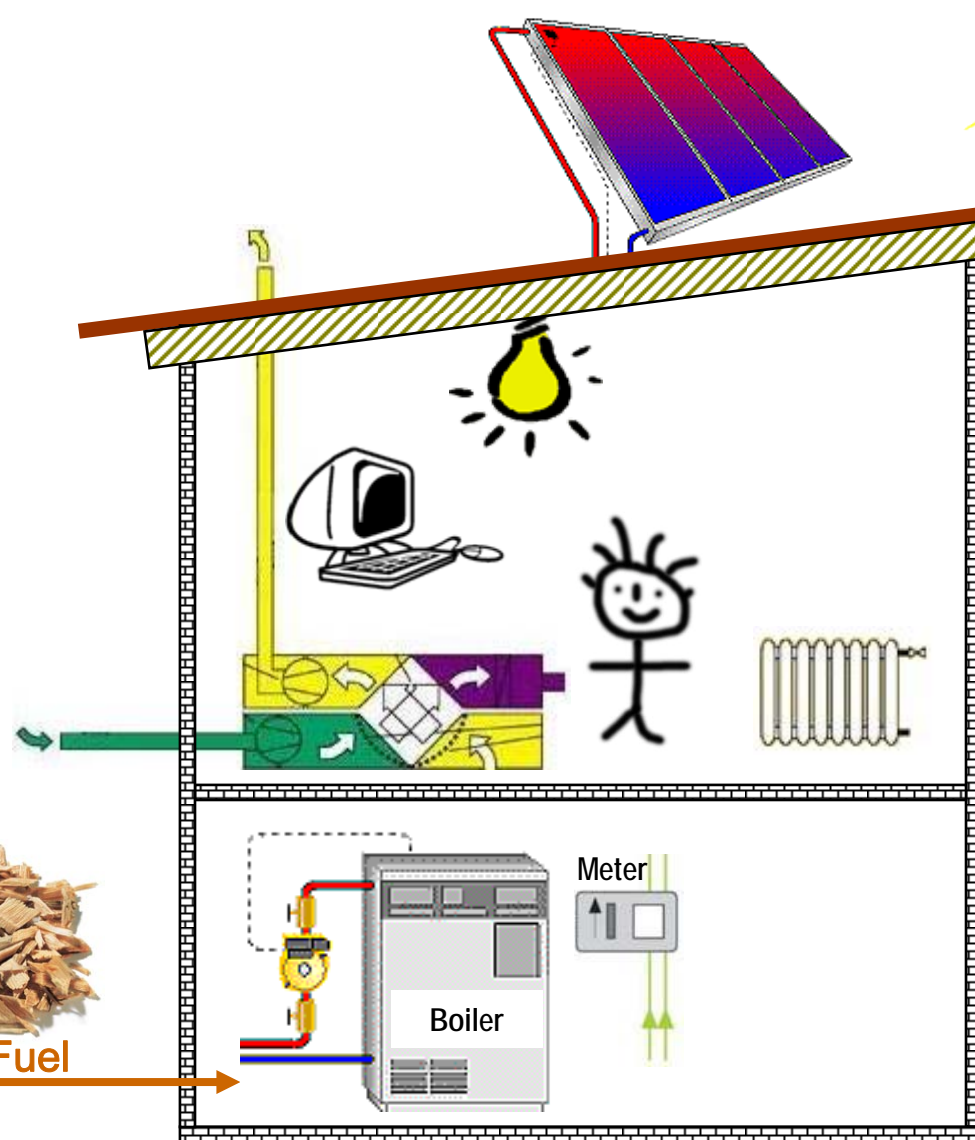
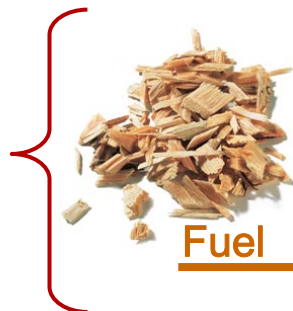
CHP Lindenhof  
20 kW<sub>el</sub> / 46 kW<sub>th</sub>

ESG business model recommended for CHP, Renewables or heat recovery (whenever energy can be measured directly)

# Integrated Energy-Contracting: A new ESCo business model

1. Building on simpler ESC model
2. Expand scope of service to complete building (HVAC, user motivation, building shell)
3. Quality assurance replaces EPC savings guarantee

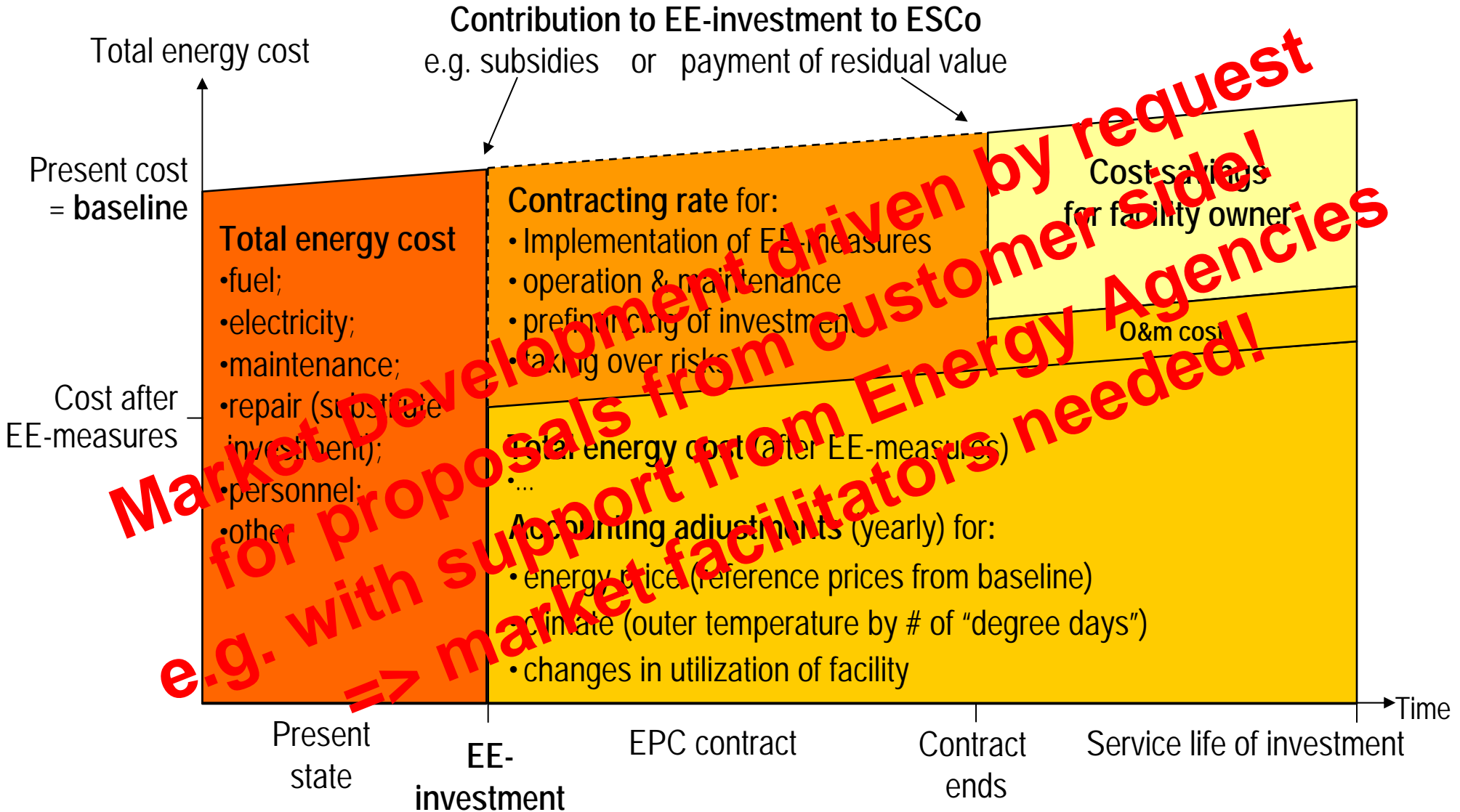
Energy Supply Contracting (ESC)  
=> MWh



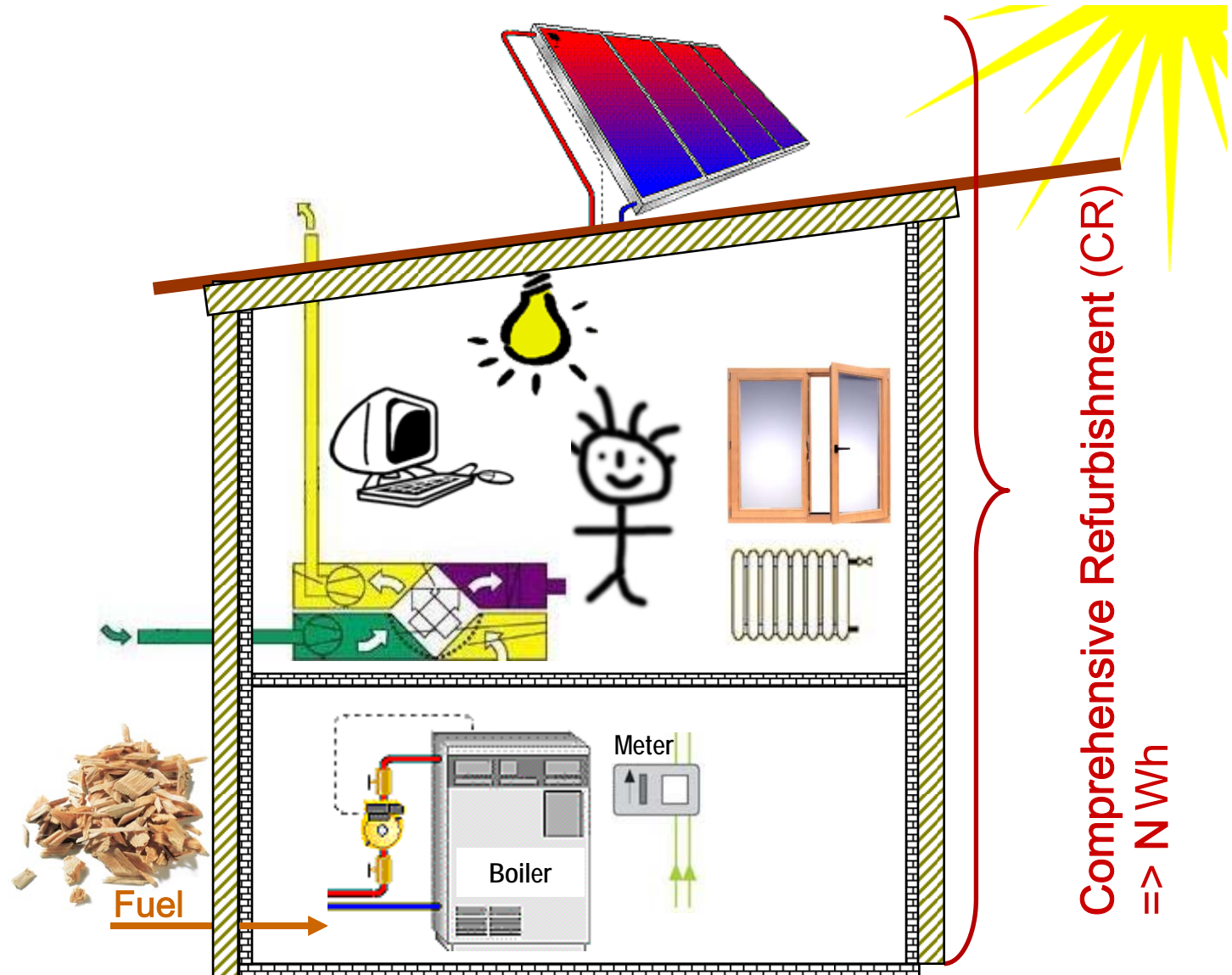
Integrated Energy Contracting (IEC)  
(= ESC + saving measures)  
=> MWh + N Wh



# Energy Performance Contracting (EPC) – Business Model



# Comprehensive Building Refurbishment (deep retrofit ...) ESCo models – the Future?



Source: after [Bleyl 2009]

# Lessons learned (1/6)

1. 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**.  
**- IGAs are not sufficient to create projects**
2. To foster market development, the role of **independent market facilitators as mediators between ESCos and their (potential) clients** has proved to be of great value (e.g. energy agencies). This facilitator role requires more active players and deserves better support + financing!

# Lessons learned (2/6)

3. Efficiency markets needs **”educated” customers** to demand energy efficiency (services) in the market. And independent facilitators to support them.
4. It requires **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.)
5. And the **decision of the building or business owner to tap into energy efficiency resources** (either voluntarily or forced by regulations) remains a basic requirement – independent of the implementation model.

# Lessons learned (3/6)

- 6. EE often is not the driving force / not a stand alone business case** but a (beneficial) side effect .

Listen better to the “real” needs expressed by customers, build strategic alliances with e.g. security, automation, DR ... to incorporate energy efficiency goals or minimum performance standards early on in the project development.

- 7. High priority on concrete projects** in the end-use sectors of public institutions, tertiary sector, trade and industry as well as housing.

Optimize investment decisions according to **project (or better life) cycle cost** and to ensure the results on a long-term basis.  
**=> ESCo models have a substantial advantages to offer.**

# Lessons learned (4/6)

- 8. Financing is not necessarily the core business of ESCOs.**  
Their core competence usually lies in technical, economic, and organizational matters of an energy service package  
**ESCos should serve as finance vehicle, not necessarily as financiers.**  
*But: Payments to ESCo must be secure*
- 9. Energy-Contracting is a flexible and modular energy service package.** This also implies the ESCo customer may define – depending on his or her own resources – what components of the energy service will be outsourced and which components he carries out himself.

# Lessons learned (5/6)

- 10. ESCo models offer integrated solutions for project life cycle** (planning, construction and operation&maintenance), **ESCo is 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?)
- 11. 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 ...)

## **No easy solutions for Energy Efficiency!**

Many obstacles root in the scattered nature and small units of end-use energy conservation potentials and must not be attributed to Energy-Contracting models.

On the way to better **developed energy service markets** **strong efforts on all levels of policy framework, capacity building and concrete market development remain to be done.**

**In Germany, in Europe and in Russia.**



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**Thank you !**  
**Your questions**  
**are highly welcome.**  
**And your ideas for further**  
**co-operation.**

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# In-House vs. ESCo (outsourcing) implementation

## Decision criteria (checklist)

<b>Decision criteria</b>	<b>in-house</b>	<b>Energy service (outsourcing)</b>
<b>Financing of investment</b>	100 % owner	0 – 100 % owner
<b>Technical + economic risks</b>	Owner	ESCo
<b>Optimization, operation &amp; maintenance</b>	Requires motivated personal	in the own interest of oof ESCo
<b>Guaranteed results (e.g. savings)</b>	No	Yes
<b>Functional guarantees</b>	only warranty period	Over contract term
<b>Price guarantees (e.g. heat price)</b>	No	yes („all inclusive“)
<b>Longterm contractual obligation</b>	No	Yes
<b>Transaction cost for ESCo project</b>	No	Yes
<b>Know-how + Competition of ideas + optimization</b>	Owner (+ consultant)	Owner (+ Consultant) + ESCo
<b>Project specifications</b>	(generally) detailed	(commonly) functional
<b>Service package / Outsourcing</b>	No	Yes
<b>Size of building / facility</b>	Any	Energy cost: ESC: > 20.000 €/a EPC: > 100.000 €/a
<b>Life cycle cost (LCC)</b>	(generally) higher	(generally) lower