InEECO – Initiative Energy Efficiency Contracting in Baden- Württemberg’s Public Buildings
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2. Regional energy service markets
3. IEA on DER - Energy Services to implement energy strategy
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1 KEA´s Mission and Working fields

- RE& EE concepts in buildings, neighborhoods
- Energy Master Planning (region, cities, neighborhoods)
- RE& EE in SME
- Implementation of regional climate protection concept
- User behaviour programs
- Consultants for policy makers, government
- Non-investive energy commissioning
- EPC/ESC facilitation
- Market facilitation for energy services Contracting Initiative
- R&D innovative financing instruments
- Turnover €3M
- 33 employees (2/3% engineers, architects)

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2-Regional Energy Service Markets

- 1110 municipalities, 35 counties in Baden-Württemberg
- 1/3% of state area: woods
- Average number of inhabitants: 10,000 / municipality
- Number of municipalities > 30,000 inh.: 45
- Framework conditions require "sustainable" projects not "low hanging fruits" business policies

**Potential:** buildings eligible for energy services: 80,000 (380 Mm²)
- Average age of building fabric and infrastructure: 35 yrs
- Average age of HVAC: 25 yrs
- Potential for deep refurbishment: €250-300bn < 15 yrs

**Regional ESCOs:** bring SMEs into the game! 25 utilities and 20 handcraft SMEs providing Energy Supply Contracting; EPC providers: 10 from which are 2 SME EPC providers + 2 utilities
Regional Framework Conditions: require approaches respecting regional decision making criteria—what works in Berlin will not automatically find acceptance in high developed non-urban regions:

- High identification with public infrastructure
- Money inserted into EE, de-carb, RE projects will be tracked over time by administration and an interested community
- Reluctance to financing tools—only spend what you have
- Decision making will always refer to strong SME structures

In the case Energy Performance Contracting and Energy Supply Contracting Solutions this means in comparison with the first generation of EPC projects in Berlin:

- No low-hanging fruits—investments
- Include a mix of energy and non-energy related measures when you touch the building anyway
- Specific investment costs initiated in Regional EPC: 80-150 €/m² (compared to 30-50 €/m² in Berlin)
Do we really use the appropriate business models?

The “owner-directed”/”inhouse”- approach lacks EE incentive mechanisms:

- In EU more than 90 percent of building refurbishments are carried out in “owner-directed or in-house” business models:
  - Architects/planners are responsible for planning, procurement, quality assurance in the construction phase
  - Building owner-provides (mostly non-experts) funding, engages bank loans for funding and is in charge for the building operations after the accomplishment of the construction phase
  - Crafts/Trades Men: construction, maintenance services

- Experienced malfunctions of “owner-directed/in-house business models”:
  - Open feedback model with no feedback and response (PERFORMANCE) integrated
  - Decision making is typically not referring to life-cycle based criteria
  - Lacking stimulation to meet calculated efficiency targets and fixed investment budgets
KEA

2-Regional Energy Service Markets

% R&D Business Models for DER, SMESCOs Financing mechanisms

Contracting-Initiative/ Competence Centre 15 40 %

- 120 stakeholders
- Identification of market hurdles
- Roadmap „10 steps to improve BW energy service market"

Market-facilitation 15 %

KEA

Project Facilitation 30 %

- EESI Award 2009
- Best facilitator

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Contracting Initiative/ Competence Centre
- Essential to develop the market in a broad approach
- Tailored regional EPC market

How to?
- Gather all major stakeholders from industry, ESCOs, building owners (private, commercial, public), banks, funds, cooperatives and policy makers
- Identify major hurdles for the market in each sector
- Elaborate first approaches to overcome those
- Set up a roadmap
- Institutionalize the approach in a Contracting Competence Center

What we are working on in the CCC:
- Public relations and initiatives, standardization of contracts and procedures, simplification
Measures to implement a **sustainable regional EPC strategy** on the project level

- **First generation of EPC** is not yet perceived as an important part of EU building strategy as it focuses only parts of the buildings and low-hanging fruits (Association of German Cities 2011)

- **Although DE energy service market** is widely considered „mature“ energy services especially EPC is far away from a remarkable market share for EE

How to overcome that....

- **Plan** of technical measures: a feasibility study is a necessary prerequisite to identify + set up individual contracting project objectives and to achieve maximum energy conservation

- **Terms of rating**: to get ESCOs engaged to create solutions for individual project targets it is necessary to design **corresponding terms of rating** which do not only account for NPV criteria
# Deep Energy Renovation Priority for Cold OECD

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<th>ASEAN</th>
<th>Brazil</th>
<th>China</th>
<th>European Union</th>
<th>India</th>
<th>Mexico</th>
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<th>United States</th>
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<td><strong>Technology</strong></td>
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<td>Advanced envelope – cold climate</td>
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<td>Reduced cooling loads – hot climates</td>
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<td>More efficient use of biomass</td>
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<td>Deep renovation of existing buildings</td>
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<td>Zero-energy new buildings</td>
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Note: Recommendations limited to top two for technology and policy, all items could be relevant for most countries. Red indicates immediate priority, while gold indicates second priority.
3. Energy Services to implement EE strategies

How to advance EPC into a tool for EU building strategy

- Energy Savings (%)
  - 25%
  - 50%
  - 75%

- Investment /m² (€/m²)
  - 25
  - 50
  - 75
  - 100
  - 250
  - 500
  - 750

Deep Energy Retrofit

- Regional KEA- EPC
  - EPC „first generation“

Energy Supply Contracting
3. Energy Services to implement EE strategies

RE-ESC

- Target: Refurbishment of a swimming pool refinanced by EPC savings
- The guaranteed energy and maintenance cost savings gathered in a neighborhood EPC concept refines the
- a) Investment costs of the neighborhood EPC based on RE, micro grid and EE measures in 5 buildings
- b) Investment costs of a major renovation of a swimming pool
3. Energy Services to implement EE strategies

Energy and Cost savings of 18 ESC- Projects from 2002- 2014

- Energieeinsparung
- Kosteneinsparung

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5- InEECo- the project funded by EIB to increase the EPC market in our region

„Initiative Energie- Effizienz-Cocontracting in public buildings“

- Co-funded by EIB, ELENA program (European Local ENergy Assistance)
- Targets:
  a) direct: initiate €30M in 3 years in approx. 15-20 EPC projects; guidelines and simplified tools for EPC in public buildings
  b) indirect: qualification of facilitators, EPC market development in Baden-Württemberg
- We consider InEECo as the major implementing tool in the context of the Contracting Initiative BW

Quelle: microsoft
5. Ineeco

- **What will be subsidized:** facilitation process including the signature of an EPC contract
- **Target group:** public buildings, municipalities, counties, public bodies,
- **Leverage factor:** 20:1
- The leverage factor is supporting projects which aim at medium to high level investments

**Case study:**
- Investment costs initiated by EPC project : 2.000.000 €
- Facilitation costs: 100.000 €*
- Leverage factor: 2.000.000 € / 20 =100.000 €
- The subsidy may be 90 perc.% of 100.000 €
Project time period: 3 yrs
Start: April 2015
Timeline:
- March- May 15: information phase:
- Current status in Oct. 15: € 2.8M
- June 2016: EPC investments appr. €10 M
- June 2017: EPC investments appr. €20 M
- June 2018: EPC investments appr. €30 M
- Meeting of steering committee and interim reports: month 6, 12, 18, 24, 30, 36
Ineeco steering group (1 meeting accomplished)

- Discussion of terms and conditions between facilitators and building owners
- Discussion and optimization of tendering and stipulation material
- Development of a new re-financing tool for ESCOs
- Development of an information campaign to push the demand
- Assessment of the approval process of EPC in the public sector
- Members: Association of Municipalities, Cities, Counties, public hospitals, public social entities, ESCOs, funding entities

Ineeco working group:

- Lead of Ineeco & risk carrier: KEA
- Project coordination
- Quality assurance
- Co-Workers: regional EAs, 1 SME facilitator, 2 engineering companies
5. Ineeco

- **Ineeco- Task force „Public information campaign“**
- **Target groups**
  - Municipal decision makers, statal building management
  - ESCOs, handcraft companies, SMEs, municipal utilities
  - Facilitators in regional energy agencies and engineering companies
- **Funding entities**
- **Associations of public bodies**
- **Core Messages:**
  - Ineeco structure (brief)
  - Supported activities
  - Example calculations
  - Coordination with other grant programs
- **Distribution path ways:**
  - 50% of activities are put in meetings on local level (decision maker level)
  - E-mail, Ineeco - homepage
5. Ineeeco

- **Task force group „Financing“**
- **Targets:**
  - Set up refinancing pool for EPC projects with attractive fixed mid-term loan interest rates
  - Include forfaiting model
  - Develop project level technical and economical assessment tool for EPC projects
  - Develop mutual federal and statal funded re-assurance tools for loan program
  - Collect private money

InEECo will also initiate new re-financing tools for ESCOs by involving US private equity assessment tools such as ICP
5. Ineeco

- **Task force group: Public EPC approval structures**
  - Every public EPC project is considered as a loan related debt and has to be assessed in a complex calculation and approval process.
  - Joint effort with legal advisors from statal department of municipal affairs, assocciation of ESCOs and department of environment a working group will be set up to analyze 10 Ineeco projects with special regard „how to simplify the process and increase the transparency of the assessment process.
  - Development of a simplified approval process for EPC in public buildings.
5. Ineeeco-impact plan

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<th>biomass boilers</th>
<th>CHPP</th>
<th>highly efficient fossil heating systems</th>
<th>hot water with solar panels</th>
<th>heating distribution and pumps</th>
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<th>lighting</th>
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<td>4 (a)</td>
<td>10</td>
<td>115(b)</td>
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5. Ineeeco- our assignements

- Stakeholder Committee
- EIB
- InEECo

- Akquisition
- Feasibility Study
- Decision Making Process
- Procurement Process
- ESCo Award Implementation

Municipalities, Counties, Cities
6. Experience so far and first conclusions

- InEECo has been well received by stakeholders as a consecutive step of Baden-Württembergs Contracting Initiative which identified 10 major hurdles and a roadmap to overcome them.
- InEECo started officially early June 2015.
- InEECo was able to combine funding from EIB with national funding program.
- Obstacle: loan guarantee is a challenge to an Energy Agency but after all feasible.
- **First step of information campaign** has been set off in April 2015 (information channels of target groups with broad support from stakeholder group) and was well received.
- 8 projects are in preparation: although high attractive support from EIB the decision making process is decelerating the InEECo time line.
- InEECo is highly attractive for EPC projects with high-investive working programs such as EPC for DER.
- Cooperation with EIB is so far very constructive and very helpful (thank you to the team!!)
- Questions- Suggestions? Let me know: Ruediger.Lohse@kea-bw.de