Activity C6 final report
Contracting models

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S.O.L.I.D. ESCo – History

• First ESCo Projects starting in 1998
  • Shared portfolio with nahwärme.at worth over $140 mil
  • Initial experiences
  • Collection of Know – How

• implementation of 10 ESCo plants
  • 3 x District Heating Plants (DH)
  • 5 x Local Heating Plants (LH)
  • 2 x Solar Cooling Plants (SC)
**Important Definitions**

- **ESCo = Energy Service Company**
  
  An ESCo is a commercial business providing energy solutions including designs & implementations of energy saving/energy supply projects (Profit after Payback Period)

  (ESCO = Energy Service Contract)

- **EPC = Engineering, Procurement & Construction**

  Contracting arrangement about the design, installation, material procurement and implementation of a project, either directly or by subcontracting of the work (Sales Project)

  (EPC = Energy Performance Contract)
SOLID or other turnkey plant provider
• Plans and installs the solar thermal plant (EPC)

The ESCO:
• Operates, maintains and finances the solar thermal plant
• guarantees a certain heat/ cold price over the contract period to the client

The client:
• provides the (roof) area for the solar thermal collectors and space for other technical components
• buys heat (for hot water, space heating, process heat) and/ or cold (for cooling) from the ESCO
ESCo Project is...

Suitable for

- Customers with high energy saving potential and high energy demand under steady use
- Owner is willing to adopt new technologies
- Opportunity for long-term use (10 – 25 years)
- High energy prices & good reliability/rating of the customer

Not suitable for

- Recently completed new building projects (except an integration in existing system allowed / possible).
- Site with frequent activity/physical structure changes (difficult to implement a project)
- Low energy prices and low solar radiation
Todays energy cost

ESCo Type: “Shared Savings”

Future Energy Cost

Direct Savings

Revenues for ESCO

Invest by SOLID-ESCO
Shared Saving

- The ESCo obtains project funds from a third party financier but keeps the risk

- ESCo provides most or all of the financing needed

- The owner pays the ESCo its share of savings as specified under the shared-savings contract (usually more than 50%) between the ESCo and the owner

- The ESCo makes profit, if its share of savings exceeds the loan repayment to the financier
Advantages for Costumers

✓ Overcome the challenge of high upfront investments
✓ State-of-the-art technical / economic solution
✓ High efficiency / quality of the plant (Monitoring)
  • ESCo controls & optimizes the system
  • Goal: high & stable energy supply
✓ Low financial risk for the customer
Advantages for Customers

- Lower energy prices
- "Turnkey plant" (EPC) - service provided by one company
- Operation and maintenance by one stakeholder
- Advantage of grants (e.g.: Non profit enterprises, USA)
- Possibility of lower interest rate
  -> (International Financing)
- Prestige & Marketing opportunity
  -> renewable Energy
Barriers of an ESCo Project

- Often "new technology" for customer
- Lack of know-how about subsidies, technology, pilot projects
- Doubts that solar yield are reachable
- Doubts on the quality/integration of the solar system
- Very low energy prices
- Higher Project development effort versus "sales project"

  • Equity & Loan Procurement, expensive & time consuming
  • Currency fluctuations
• Each project is unique
  • Local energy prices
  • Local legal (company foundation) & financial framework
  • Different country risk

Risk data from August 2011; Source: D&B Finland
Standard contracts are not useable – adaptation necessary

The contract is a developing process with the
- customer
- banks,
- lawyers
- ...

Strong local partners needed
Technical questions

• How to calculate the solar gains?
  • Source Meteonorm & NASA data
  • Simulation tools
  • PISTACHE tool from France

• How to guarantee solar earnings (xy MWh/ year)?
  • Calculation – safety margin ~ 10%

• How to ensure good quality of the installation?
  • Planner’s, installer’s know how of collectors & components
  • Online Monitoring
Financial questions

- Minimum amount of investment necessary?
  - Preparation Costs
  - Benchmark: > 1 Mill. USD

- What about the financial reliability of the ESCO and the client?
  - Contract provisions for bankruptcy/ change ownership

- What about insurance of the installation?
  - Must be insured (part of the contract)
Financial questions

• How to calculate the energy price?
  • Project specific
  • General “energy demand rate” + “energy capacity rate”
  • Lower energy price by a fixed percentage + index adjustment
**ESCo Contract – main questions**

**Legal questions**

- What is the average contract duration?
  - Possibility depends on the payback period
  - Mostly around 20 years
- Who owns what?
  - Exact definition of ownership necessary
- Transfer of ownership & end of contract?
  - Exact definition necessary
- Customer take over the responsibility/plant, etc.
ESCo Contract - main contents

• Scope of services provided by the ESCO
• Contract duration
• Delivery guarantee (xy MWh/year)
• Price, price structure, price index
• Invoicing and payment schedule
• Minimum consumption by the client
• Compensation if energy is not delivered/consumed
• Main technical features of the solar installation
• Right to install solar system and access to the site
• Ownership during and after the contract
• Measurement method and points
ESCo Contract - main contents

• Maintenance measures (extent, frequency, costs), technical auditing
• Liability, insurance and warranties in case of damages
• Provisions in case of bankruptcy and/or change of ownership of the ESCO or the customer
• Confidentiality issues, conflicts of interest
• Reasons to terminate the contract, settlement of disputes
• Appendix: technical part, scope of supply and services
Target Groups

- Customers with high energy costs/demand
- Local Governments & Public Customers
  - Hospitals, Airports, Schools/Universities, Parlaments, etc. (Infrastructure)
- Financially strong private Customers
  - Industry (low - & middle temperature processes)
  - Office Buildings
  - Etc. -> let us know your ideas!!
Conclusion

- ESCo project = Good vehicle for projects
- ESCo project = “Shared savings” between customer & ESCo
- High energy prices & long term use necessary
- ESCo Projects are more work & time intensive
Thank you for your attention

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