

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)



Principle Split of Tasks

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

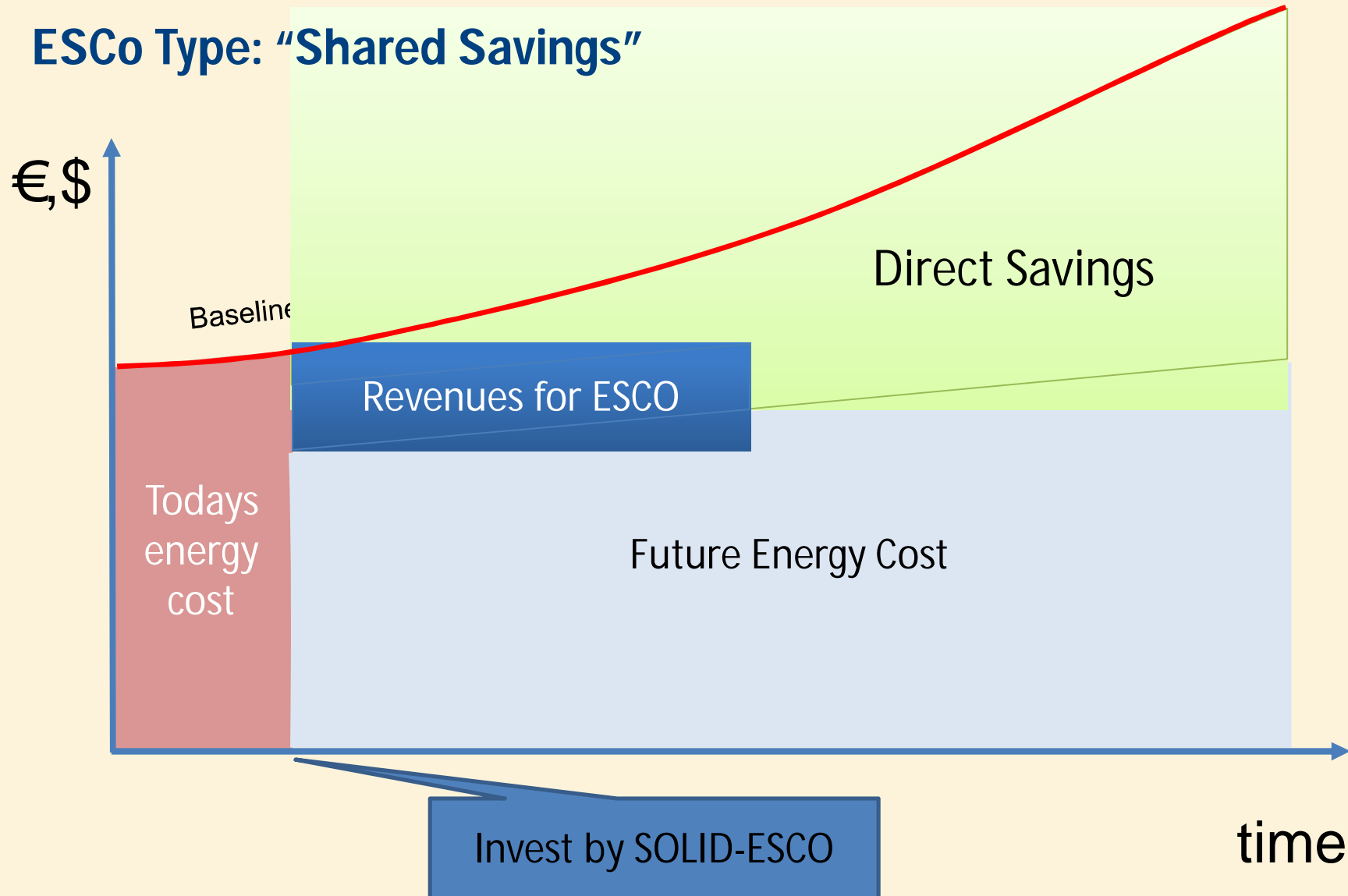
- Customers with high energy saving potential and high energy demand under steady use
- Owner is willing to adopt new technologies
- Opportunity for long-term use (10 – 25 years)
- High energy prices & good reliability/rating of the customer

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

ESCo Structure - Principle

ESCo Type: "Shared Savings"



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 Customers

- ✓ 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

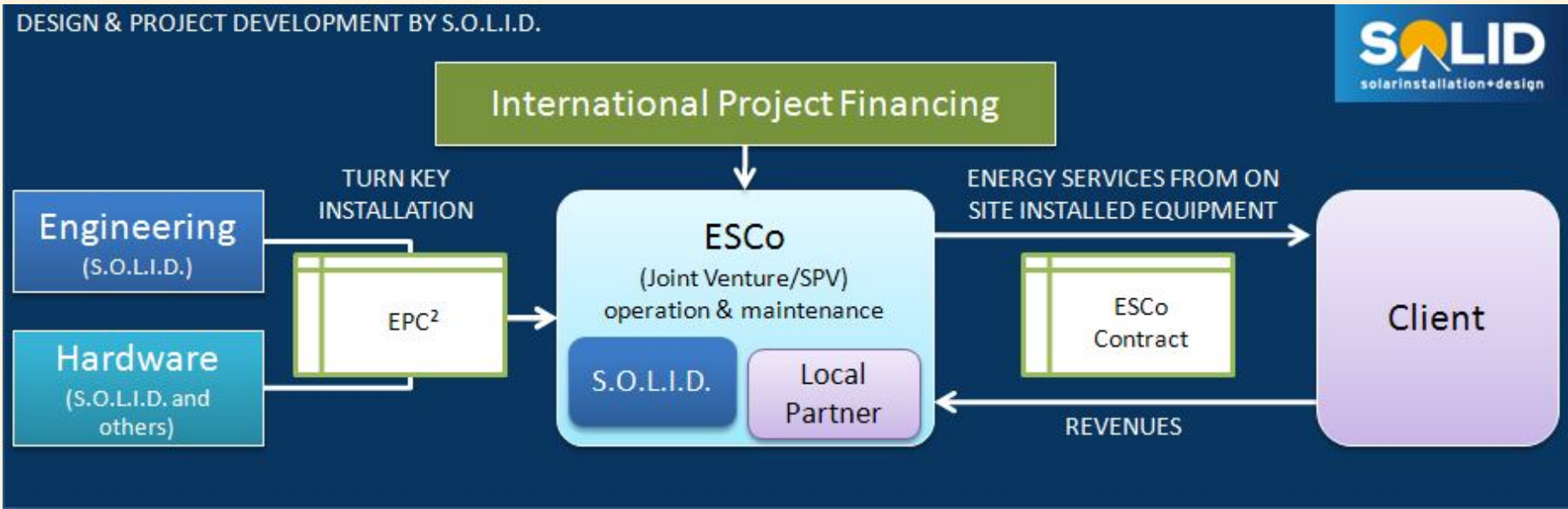


Barriers of an ESCo Project

- 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*

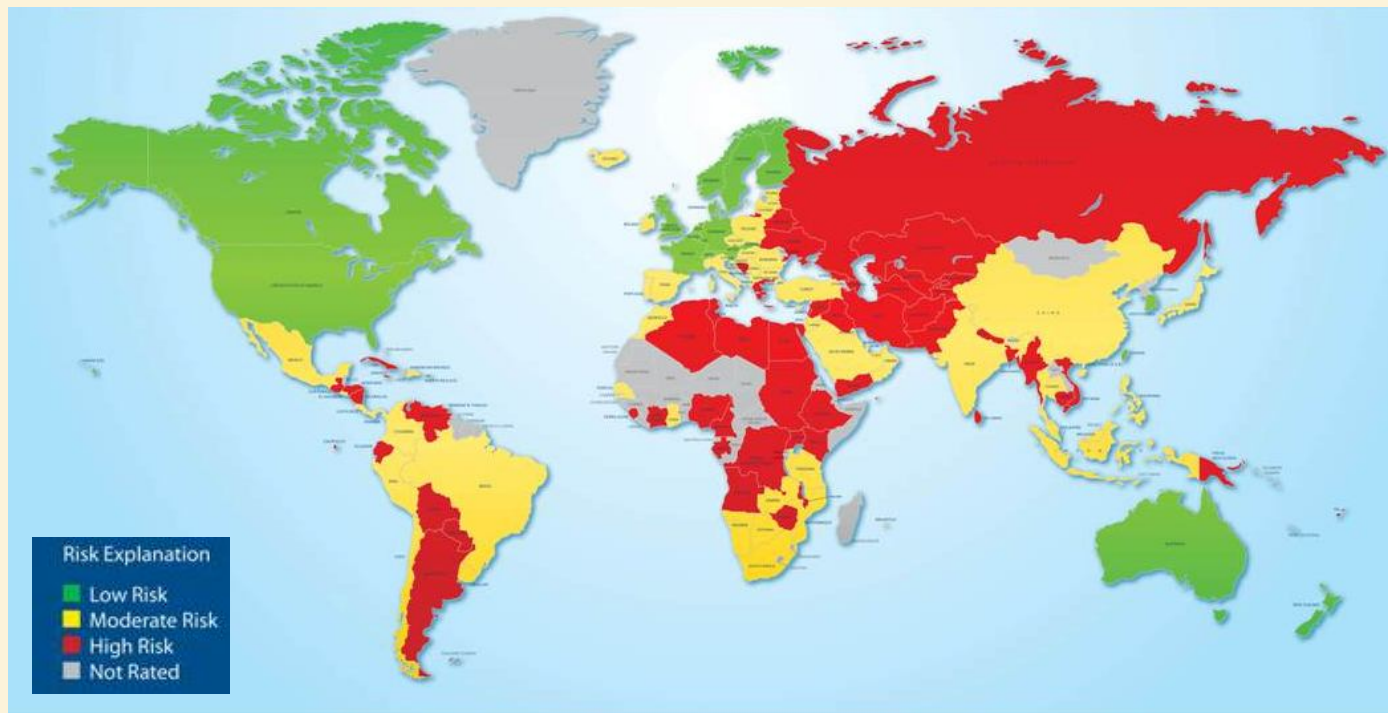


ESCo Structure



ESCo Contract

- 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

ESCo Contract

- Standard contracts are not useable – adaptation necessary
- The contract is a developing process with the
 - *customer*
 - *banks,*
 - *lawyers*
 - ...
- Strong local partners needed



ESCo Contract – main questions

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*



ESCO Contract – main questions

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)*



ESCO Contract – main questions

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, Parliaments, 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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