

SEC Tools



Energy Services

Vladimír Sochor

SEVEN, The Energy Efficiency Center

January 2007

Chepelare, SEC-TOOLS Meeting

Energy Savings in Context of Czech Republic

- **Estimated share of energy production of RES from total energy production**
„ecological lobby“ till 15%
„energy lobby“ available 6-7%, realistic 3%
- **Estimation of energy saving potential from energy consumption**
generally 15-20%

Aim of Energy Services Providing

Optimization of energy consumption

the best form



Implementation of energy savings measures,
when investment is paid from guaranteed
volume of energy savings



Types of Energy Services

- **consultancy**
- **preparation of documentation**
- **reconstruction of energy system**



Consultancy

- **immediate**
 - for public – consultant centers
 - marketing of energy suppliers
- **long terms**
 - consultant companies
 - design companies
 - realization companies

Preparation of Documentation

- **energy audits**
- **energy labeling**
- **various studies**
(in relation to energy efficiency)
- **project design documentation**

Content of Energy Audits

- * „width and depth“ of energy audit
- * energy audit as feasibility study
- * study „to get in table“
- * first step to implement energy saving measures



Reconstruction of Energy System

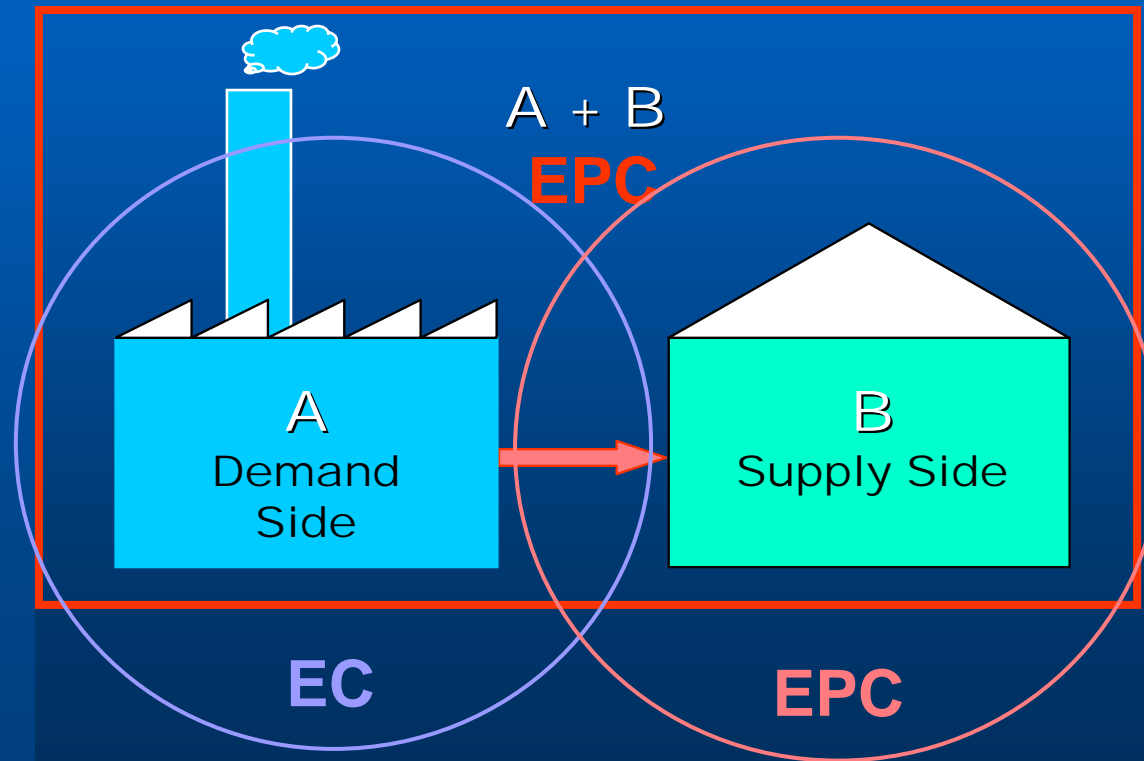
- usual delivery of project
- energy service

In the case of energy services is important ownership of installed equipment

owner is supplier = outsourcing or contracting

owner is customer = performance contracting

Energy Services



Reconstruction by Energy Services

- type of measure
relation to payment period
- contract lasting
4 – 15 years / or longer (depends to ownership)
- combining other services in one contract
preparation of reconstruction (incl. project design),
financing, service and maintenance, various
possibilities of energy system operating



Energy Services in Heat Supply Systems

Usually marketing access of supply
in relation to real energy supply

Services provided by ESCO
service at the side of customer
(protecting of customer)

**Possibility of cooperation
method of win - win**



Right Conditions

- right object or energy system
- right expectations of customer
- sufficient preparation before decision on form of solution and form of financing



**NEED OF PRELIMINARY ANALYSIS
incl. approval with various suggestions**



Energy Performance Contracting

Third Party Financing

Contract Energy Management

Technology Performance Contracting

Contract Du Resultat

Important features:

- technical and financial aspects in one contract
- complex service
- lower risks for customer, guarantee for performance



Basic Features of Energy Performance Contracting

source of payments mainly
energy savings in supply side



measures lower mainly final
consumption at the supply side



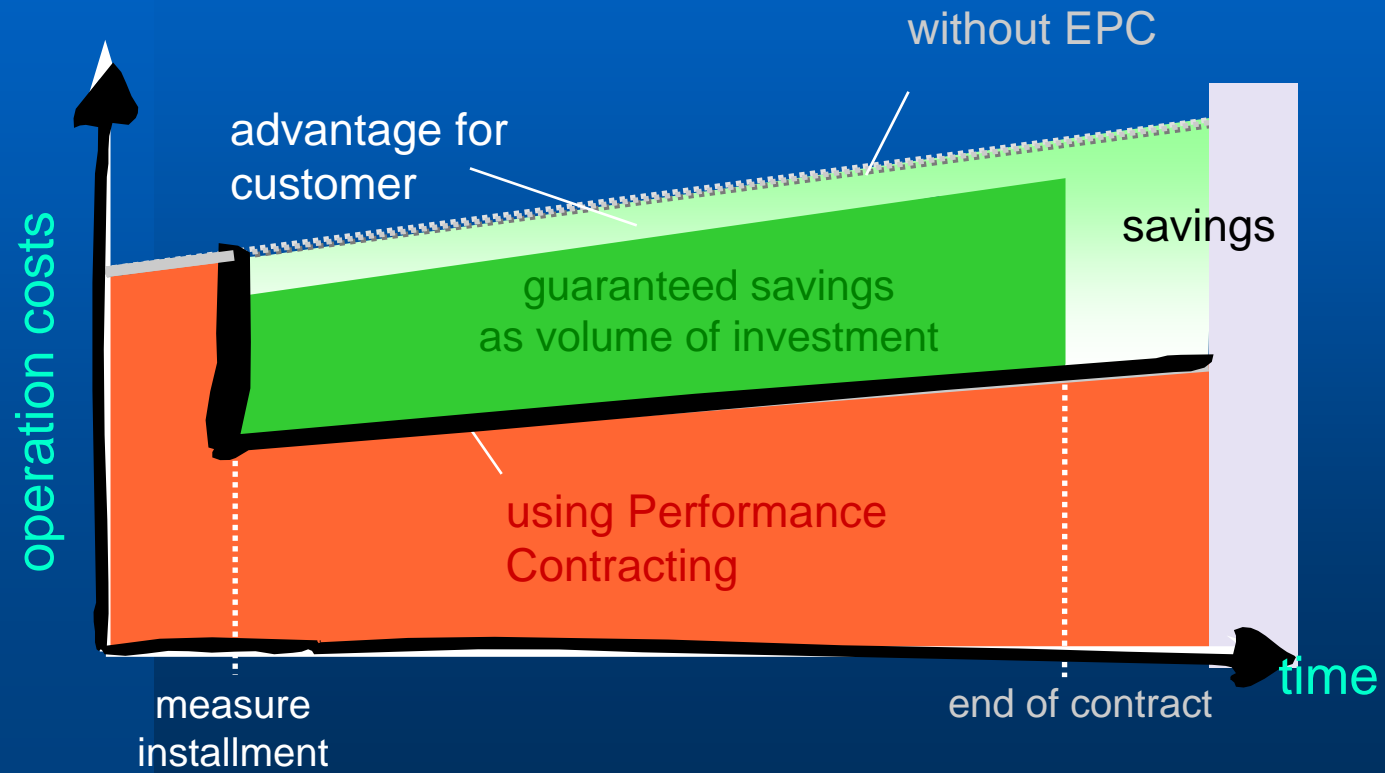
guarantee of achievable volume
of energy savings



EPC

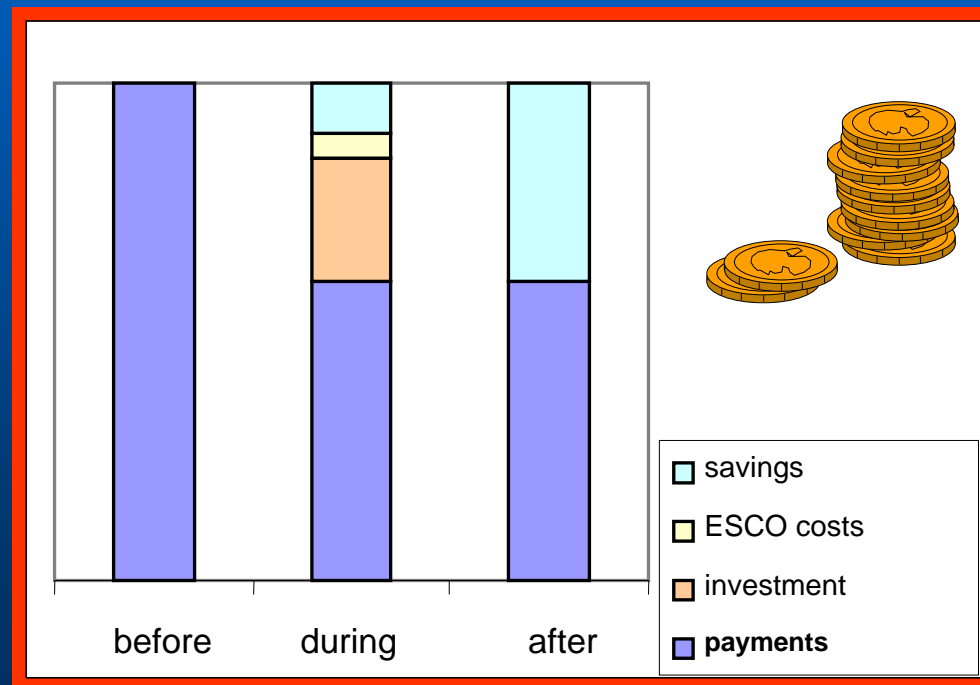
complex
solution
including
guarantees

Energy Performance Contracting Characteristics



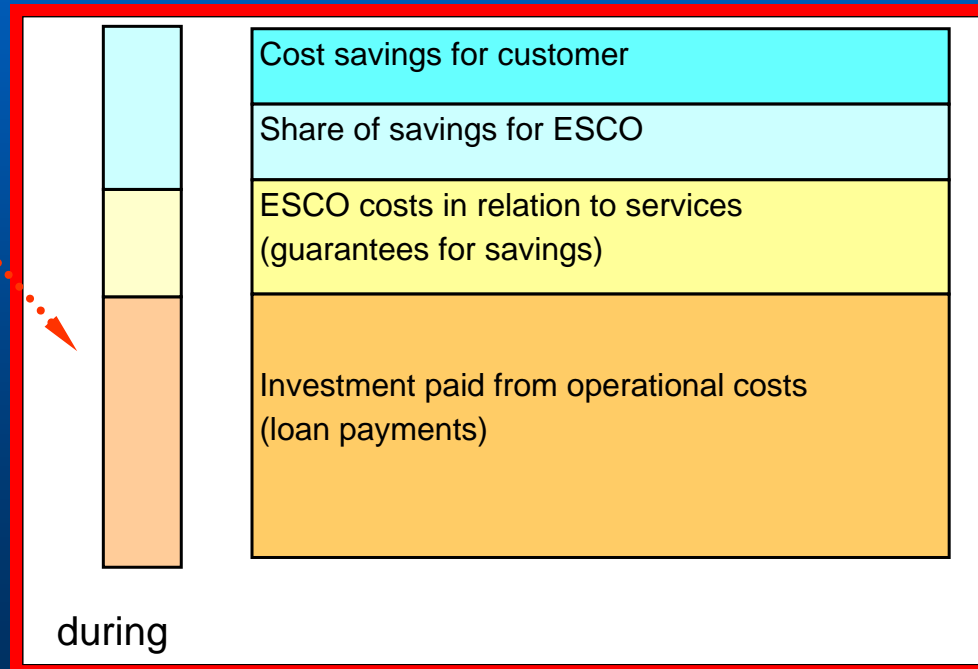
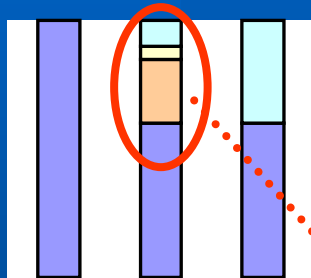
Energy Performance Contracting

Structure of payments (for energy, ...)

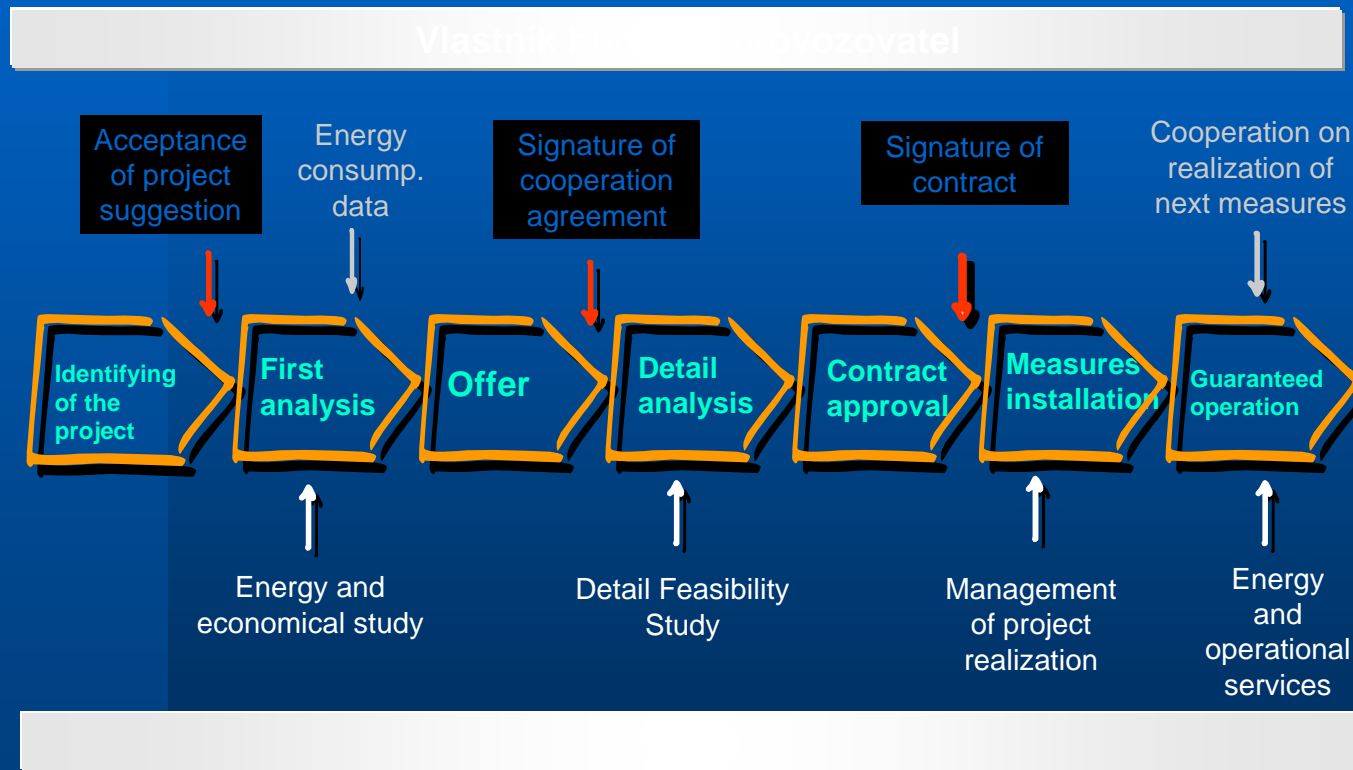


Energy Performance Contracting

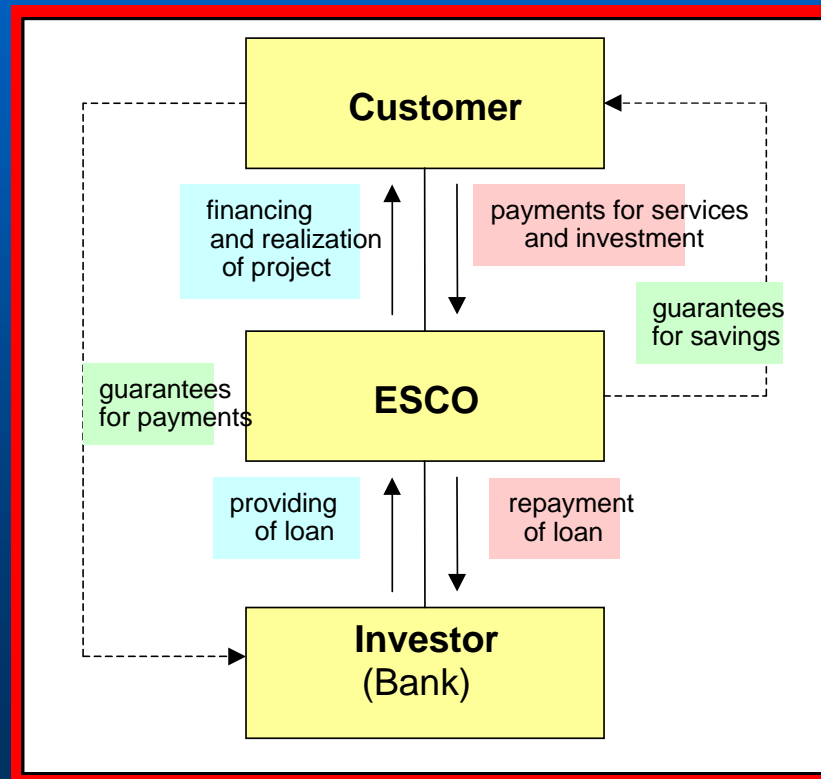
Savings shares



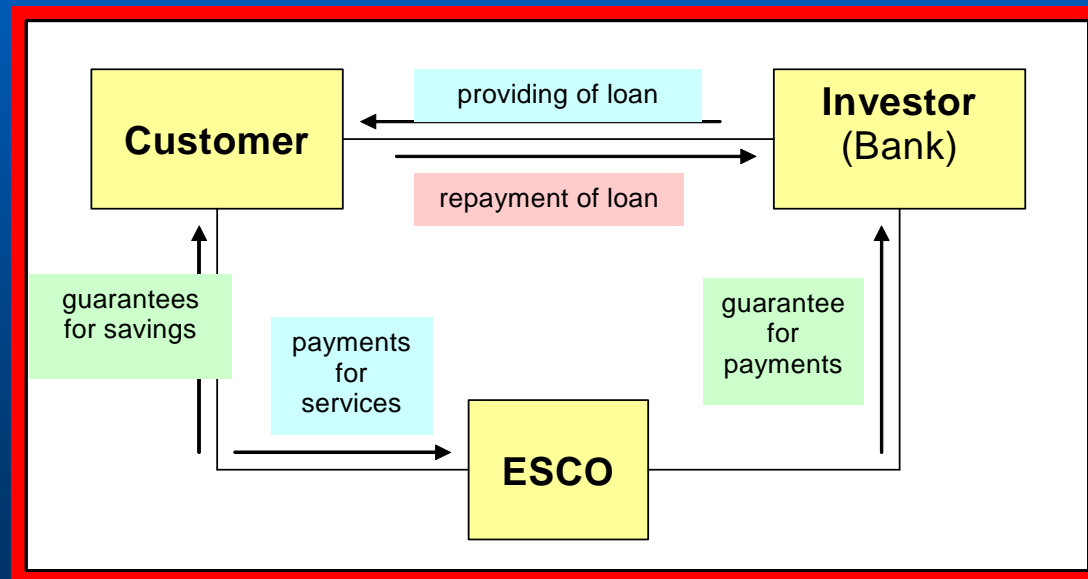
Project Processing



Financing by ESCO



Financing by Bank





Basement of Guarantees for Savings

TYPES OF MEASURES : constructional
technological

Guarantees for savings are sensible only when after measures installments the customer can spoil energy savings by his bad behaviour.



Guarantees for Savings

Basement of energy services solved by EPC method is in taking risks

Examples of risks in ESCO contracts:

- mistakes in suggestion and design of project
- bad technology
- bad operating of energy system
- bad maintenance
- higher emissions
- unexpected price movement
- change of market

**lower
volume of
real energy
savings**



Real Situation in Czech Republic

- insufficient motivation to save energy
- obligation to announce public tender
- expectation of customers
- changes of various forms of solution



Criteria for Choosing Right ESCO

- Financial volume of savings – definition of guaranteed savings
- Volume of energy savings – hard to define future volume of savings (necessary to define clear conditions for calculation)
- Investment and energy savings – joint items
- Organization of public tender for EPC project – completely another than usual public tender for supplying of anything



EPC Process (for public tender)

1. Find out possibilities of energy savings (audit, preliminary analysis, expert estimation), defining of baseline energy consumption (technical and financial), expecting development
2. Decision of investor (owner of building) to use EPC
3. Completion and organization public tender: text of documentation, text of tender, criteria, choosing of offer
4. Negotiation on text of contract (with ESCOs)
 - verification of saving potential (according to EA)
 - solution of changes and differences
5. Signature of contract
6. Installment, testing
7. Operation monitoring, evaluation of savings, payments



EPC Contract Content

- Energy audit and energy measures suggestion
- Project preparation and potential financing
- Implementation of right measures (design, instalation, operational testing)
- Long term guarantees for equipment operation and efficiency (savings)
- Operation and maintenance (training and monitoring and/or operation of the system)
- Monitoring and evaluation of energy consumption in new conditions



EPC Contract Content

Possible contract appendixes

- List of objects
- Review of present data obtained from customer
- Description of energy saving measures
- Description of energy management
- Price, price structure and payments
- Baseline data
- Saving calculation method
- Contract penalties
- Standard operation conditions
- Project realization time schedule
- Responsible persons of the contractors

Schools in Usti nad Labem in CR



14 primary schools

Schools in Usti nad Labem in CR

Characteristics of project

- | | |
|-------------------------------|---------------|
| ● first tender announcement | February 2002 |
| ● first contract signature | June 2002 |
| ● beginning of first payments | October 2002 |
| ● total investment means | 0,4 MiO EUR |
| ● energy savings per year | 0,1 MiO EUR |
| ● energy saving share | apx. 15,0 % |
| ● contract lasting | 5 years |
| ● period of installment | 2 months |

Psychiatric Clinic Dobransy in CR



Psychiatric Clinic Dobrany in CR

Characteristics of project

- | | |
|-------------------------------|--------------|
| ● tender announcement | May 2002 |
| ● contract signature | July 2003 |
| ● beginning of first payments | January 2004 |
| ● total investment means | 160 ths. EUR |
| ● energy savings per year | 40 ths. EUR |
| ● energy saving share | 8,8 % |
| ● contract lasting | 6 years |
| ● period of installment | 3 months |

Thank you for your kind attention

Vladimir Sochor
SEVEn
The Energy Efficiency Center

www.svn.cz