European Experience with ESCO financing

Energy Performance Contracting

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Introduction – Potential in the residential sector

- Buildings in the EU are responsible for more than 40% of total EU energy consumption, and the residential sector for about 25%
- Renovation of existing buildings is one of the key challenges for meeting our 2020 energy goals
- With an overall stock of over 200 million homes in the EU-27, appr. 1% new homes being built per year, 0.5% demolition rate/a, about 70% of the building stock in 2050 is already built in 2005
- In addition, only 0.3% of the building stock is subject to an energy refurbishment per year, most of the buildings *(over 90%)* will stand in 2020 as in 2005, without having been energetically refurbished
- Refurbishment of buildings requires a major financial effort, estimated to be in the range of 40 up to 100 billion Euros per year for 40 years at EU level

ESCO Definition

- ESCOs guarantee the energy savings *(a performance guarantee can revolve around the actual flow of energy savings from a project, or can stipulate that the savings will be sufficient to repay monthly debt service costs)*

- Remuneration of ESCOs is directly tied to energy savings achieved

- ESCOs can finance, or assist in arranging financing by providing a savings guarantee

- ESCOs retain an on-going operational role in M&V over the financing term

Typical ESCO Services

- Energy audits, feasibility studies
- Engineering design
- Equipment procurement
- Subcontractor management
- Construction
- Measurement and verification
- Operation and maintenance
- Project financing (optional)

- Under an energy performance contracting *(EPC)* arrangement, ESCO develops, implements and finances *(or arranges financing of)* an energy efficiency project, and uses stream of income from cost savings to repay costs of the project, incl. costs of investment

- Essentially, ESCO will not recover all of the costs unless project delivers all of the energy savings guaranteed

- Usually under an EPC there is no supply of energy

Guaranteed Savings contracting model

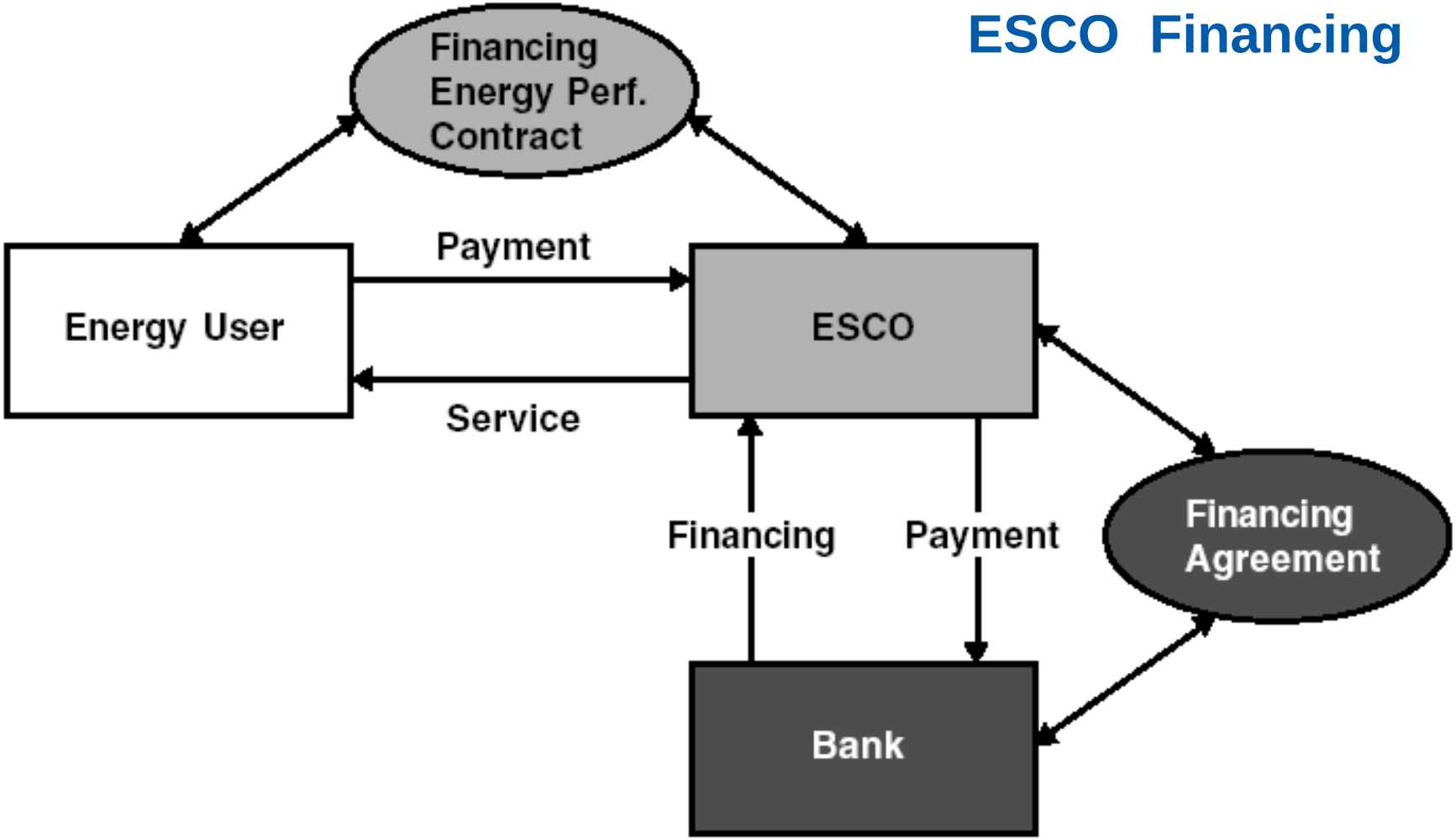
- Under this type of contract, energy user borrows money from a financial institution with a performance guarantee from the ESCO
- ESCO takes over entire performance risk
- The guarantee could be that the level of energy savings achieved will be no less than the debt repayment *(positive cash flow for project)*
- In countries with well established banking structure, high degree of familiarity with project financing and sufficient technical expertise

Energy Contracting (Chauffage)

- Provision of set of energy services *(mainly heating and cooling, lighting, etc.)* with quality criteria *(e.g. indoor temperature)*
- May include supply of electricity/ fuel
- Client pays fee that guarantees quality of the service, incl. energy savings *(reflected in lower cost for service)*
- Strong incentive for ESCO to provide services in efficient manner, however, very often limited to energy conversion efficiency *(boilers)*

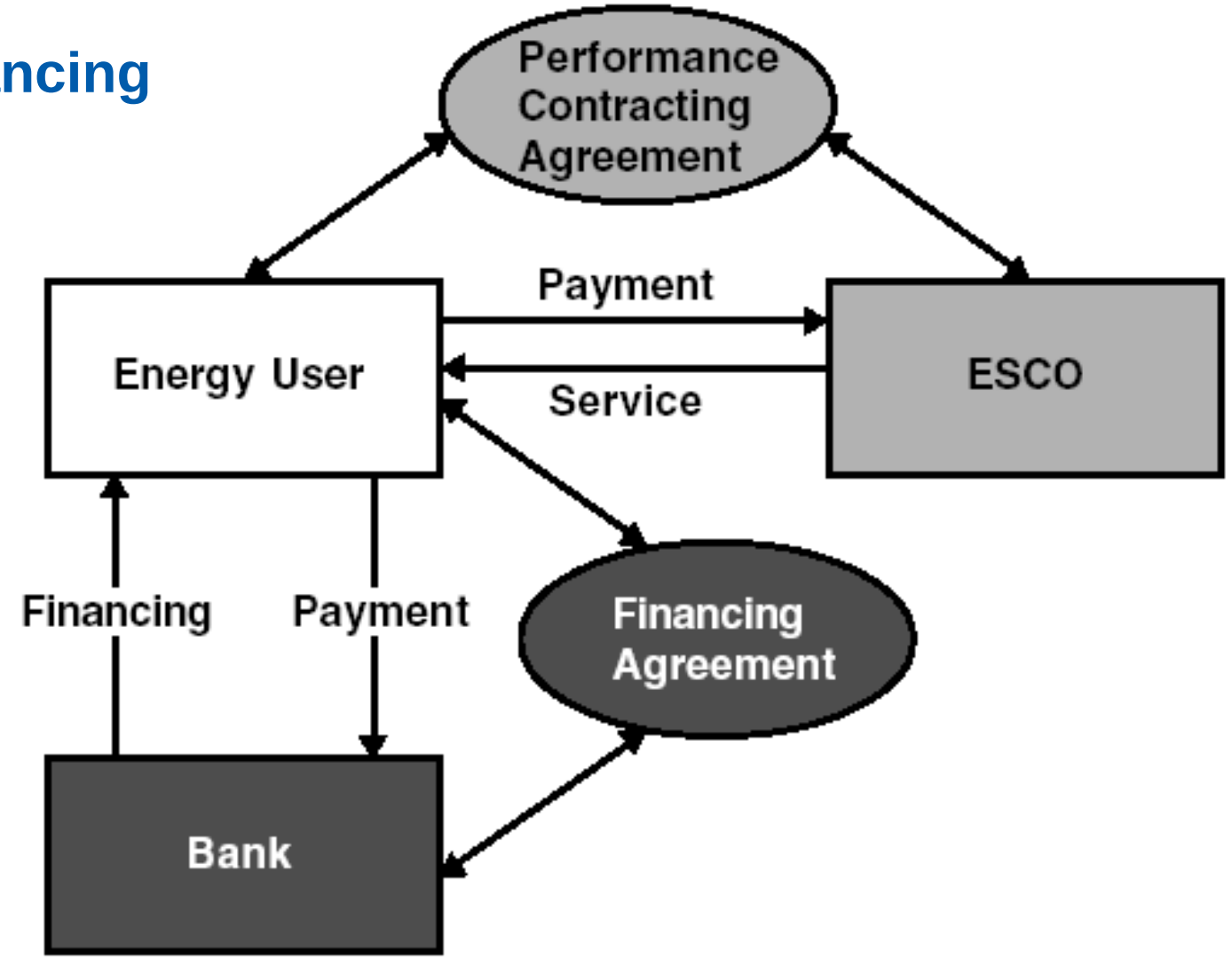
Third Party Financing (1)

ESCO Financing

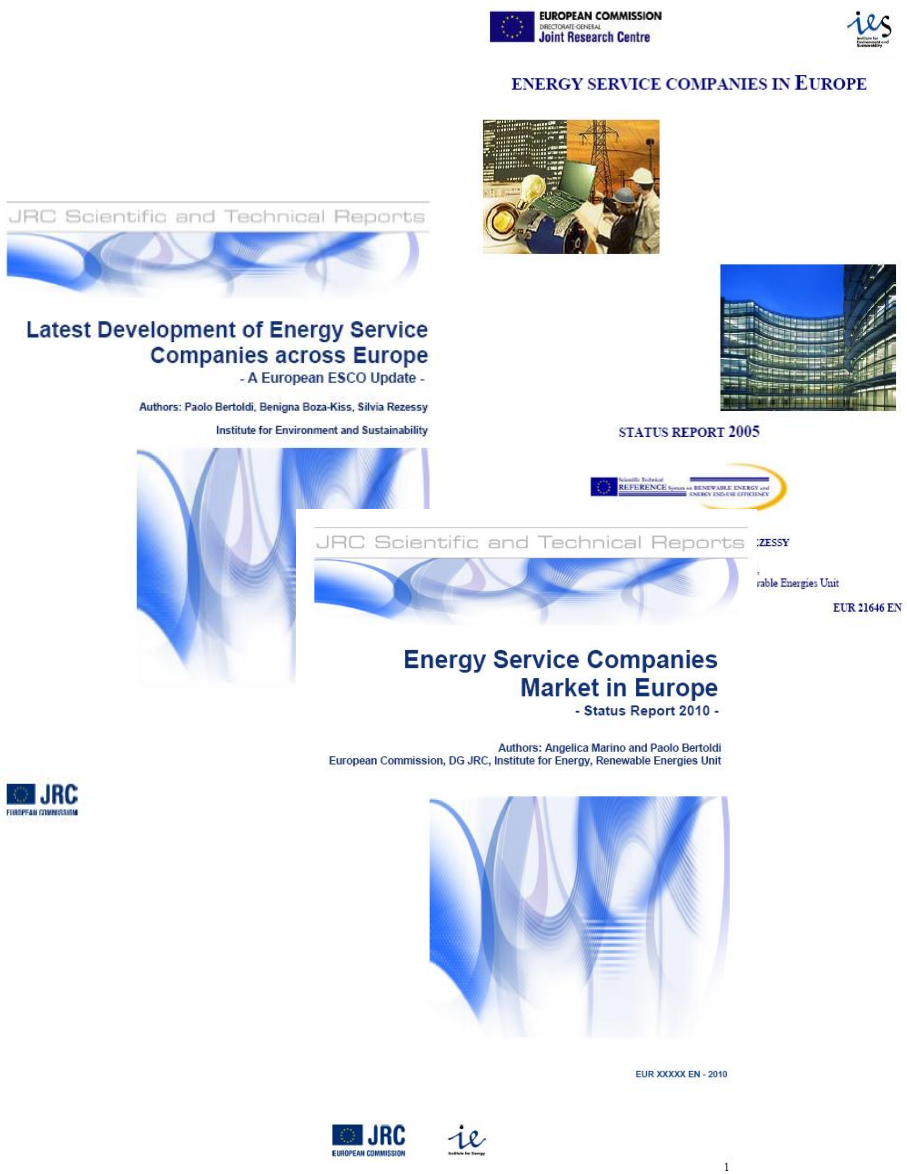


Third Party Financing (2)

User Financing



- Monitoring of market development since 2002
- Workshops – initiating exchange of experience
- Status 2010: ESCO market far from utilizing its full potential, significant differences across Europe
- We are collecting data on national ESCO markets in 2011: pls send your data
- The reports are available online: http://re.jrc.ec.europa.eu/energyefficiency/ESCO/index.htm



ESCOs in Europe – Some facts and figures (1)

- Number of ESCOs estimated between 650 to 1040 companies in 2010
- DE, FR and IT large number of ESCOs *(>100)*, *while* only a few ESCOs *(3-30)* established in most countries
- Project financing depends on access to finance on the market
- Western Europe: financing via bank loans to ESCO or to client, ESCOs' and clients' internal funds, state funds
- Eastern Europe: financing with ESCOs' own funds and through financial institutions (commercial banks, EBRD credit line to industry)

ESCOs in Europe – Some facts and figures (2)

- Most popular form of contract and service is still Energy Contracting or Chauffage with supply of energy *(dominant in DE, ES, FR, IT, UK)*
- EPC is increasing market share in most EU-15 countries, in particular DE, FR, SE, UK
- ESCO projects do not cover residential sector apart from a few selected pilot actions, incl. some very interesting IEE projects
- ESCOs invest in projects that offer appropriate profit at an acceptable level of risk

Trends and main projects

- Traditionally, public sector *(buildings)* in primary focus *(trustful, large systems, short payback times, open for outsourcing, often augmented by governmental or IFI aid)*
- Residential buildings sector *(multifamily buildings)* is starting up in some countries *(e.g. DE, EE, FR, HU, IT, NO)*, including some deep retrofits
- ”Low hanging fruits” already addressed *(public lighting, HVAC, control systems renovation)*
- Deep retrofits *(e.g. building insulation)* not commonly undertaken by ESCOs: in combination with incentives !

Typical ESCO Project Size

- Classic ESCO service usually provided to large energy users, spending at least 100,000 €/a on energy
- Only large energy users can have energy retrofit projects large enough to absorb ESCO fees needed to cover the costs
- Single households unable to benefit from ESCOs because of minimum size criteria
- Social Housing special case – main issue: how to recuperate investment costs from tenants ?

Main specific barriers	Possible solutions
Lack or mismatch of appropriate financing - High transaction costs - High perceived risk of ESCO investment - Lack of expertise/ experience on financial market - Lack of ”off-balance sheet” solutions, more commercial banks financing needed - Accounting problems (investment vs. operating costs)	- Favourable policy framework to shorten payback times *(energy saving obligations, tax schemes, feed-in tariffs, building certifications)* - Pooling strategies to reduce transaction costs - Lower investment risks through financial instruments *(funds, guarantee schemes + ESCO assurance)*
In relevance of residential buildings sector, incl. social housing - Split incentives or landlord/ tenant dilemma - Decision making process in multifamily properties - Social housing: legal issues to increase rent	- Removing legal barriers

Conclusions

- ESCOs are an important instrument for delivering improved energy efficiency and establishing a market for energy savings
- However, ESCOs can't be the "silver bullet" and there are other means to deliver energy efficiency solutions
- ESCOs are for-profit organizations, they should not be expected to tackle projects with too high level of risk and/ or low expected profit
- Key to unlocking the enormous potential for energy efficiency worldwide is securing financing
- Solid measurement practices and verifiability are some of the important elements in providing the confidence needed !