THE RISK OF GUARANTEED SAVINGS IN ENERGY PERFORMANCE CONTRACTS

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GENERAL PROBLEM WITH ENERGY SAVINGS

"Energy savings estimates contain uncertainties and that many factors confound performance and produce volatility. Study after study has shown that measured energy savings often deviate significantly from predictions, and typically in unfavourable ways. In fact, sometimes savings do not materialise at all, and savings often fail to persist over time"

(Mills et al, From volatility to value: analysing and managing financial and performance risk in energy savings projects, Energy Policy, vol. 34, issue 2, 2006)

EPC - DEIFNITION (EED)

- EPC is a contractual arrangement between the beneficiary and the provider of an energy efficiency improvement measure, verified and monitored during the whole term of the contract, where the **works, supply or service in that measure are paid for in relation to a contractually agreed level of energy efficiency improvement or another agreed energy performance criterion**, such as financial savings
- ESCO is a natural or legal person who **delivers energy services or energy efficiency improvement measures in a final customer's facility or premises**

EPC – DEIFNITION (EXPERTS)

- Under EPC arrangement ESCO implements a project to **deliver energy efficiency and uses the stream of income from the cost savings, or the renewable energy produced, to repay the costs of the project, including the costs of the investment**
- The approach is based on the transfer (to a greater or smaller extent) of technical risks from the client to the ESCO based on performance guarantees given by the ESCO. **In EPC payment is based on performance; a measure of performance is the level of energy savings**

(Bertoldi et al., *Energy service companies in European countries: Current status and a strategy to foster their development*, Energy Policy vol. 34, issue 14, September 2006)

EPC IN EED (1)

- **EED promotes energy performance contracting [EPC] and emphasizes the role of Energy Saving Companies [ESCO] in developing, designing, building, and arranging financing for projects that save energy, reduce energy costs, and decrease operations and maintenance costs** in sectors such as buildings, industry and transport (recital 74)

- EED **obliges all Member States to undertake regulatory reforms to support development of EPC model and remove barriers related to its functioning** (recitals 131 and 133 and art. 7(8))

- Non-residential buildings with the useful floor area above 750 m^2 will be required to assess the feasibility of using EPC model for renovation

EPC IN EED (2)

- **EPCs should be promoted by available model contracts, exchange of best practice and guidelines** (recital 129 and art. 29(4-6))

- Member States should continue **supporting the public sector in the uptake of EPC by providing model contracts that take into account the Guide to the Statistical Treatment of Energy Performance Contracts published in May 2018 by Eurostat** and the European Investment Bank (EIB) on the treatment of energy performance contracting in government accounts (recital 132)

- *The transposition of the EPC provisions of the EED should be carried out by Member States by 11 October 2025*

EPC IN EED (3)

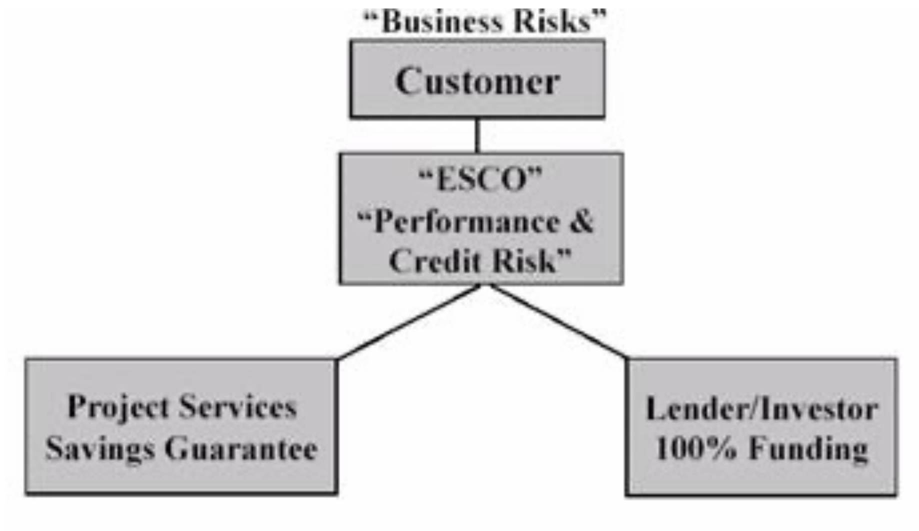
Annex XV

The minimum items to be included in EPCs (or in the associated tender specifications). Among other obligatory provisions, these contracts must provide:

- a clear and transparent **list of the efficiency measures to be implemented or the efficiency results to be obtained**,
- **guaranteed savings to be achieved** by implementing the measures of the contract,
- reference date(s) to establish achieved savings,
- a clear and transparent **list of steps to be performed to implement a measure or package of measures** and, where relevant, associated costs,
- a clear and transparent **display of the financial implications of the project and the distribution of the share of both parties in the monetary savings achieved, namely the remuneration of the service provider**,
- a clear and transparent **provisions on measurement and verification of the guaranteed savings achieved**, quality checks and guarantees,
- provisions clarifying the procedure to deal with changing framework conditions that affect the content and the outcome of the contract, namely changing energy prices and the use intensity of an installation,

EPC MODELS (1)

SHARED SAVINGS MODEL



https://e3p.jrc.ec.europa.eu/articles/energy-performance-contracting

- Performance related to cost of energy saved; the ESCO bills upon actual results
- Value of payments to ESCO is linked to energy price; betting on price of energy can be risky
- Favours projects with short payback ('cream skimming')

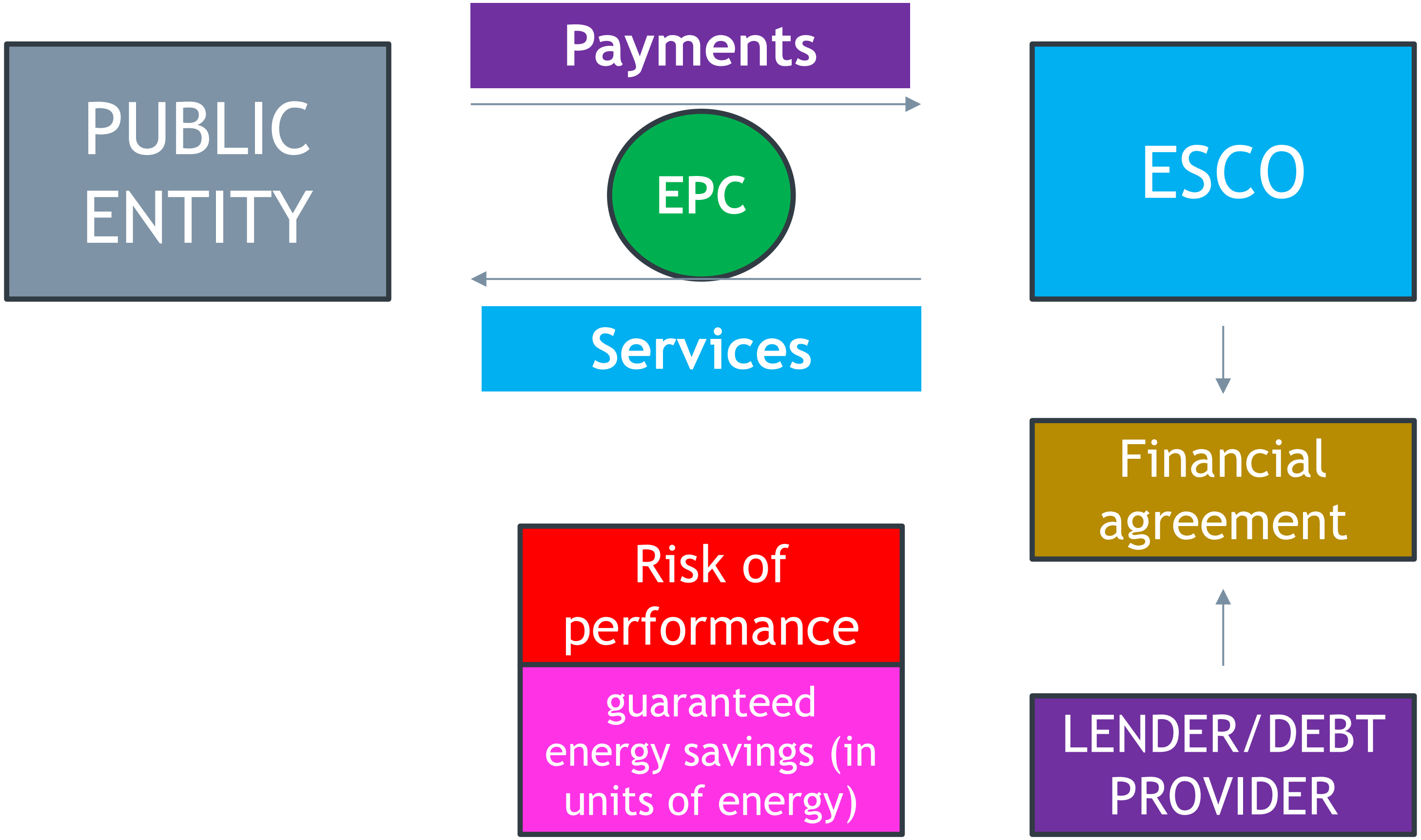
EPC MODELS (2)

GUARANTEED SAVINGS MODEL

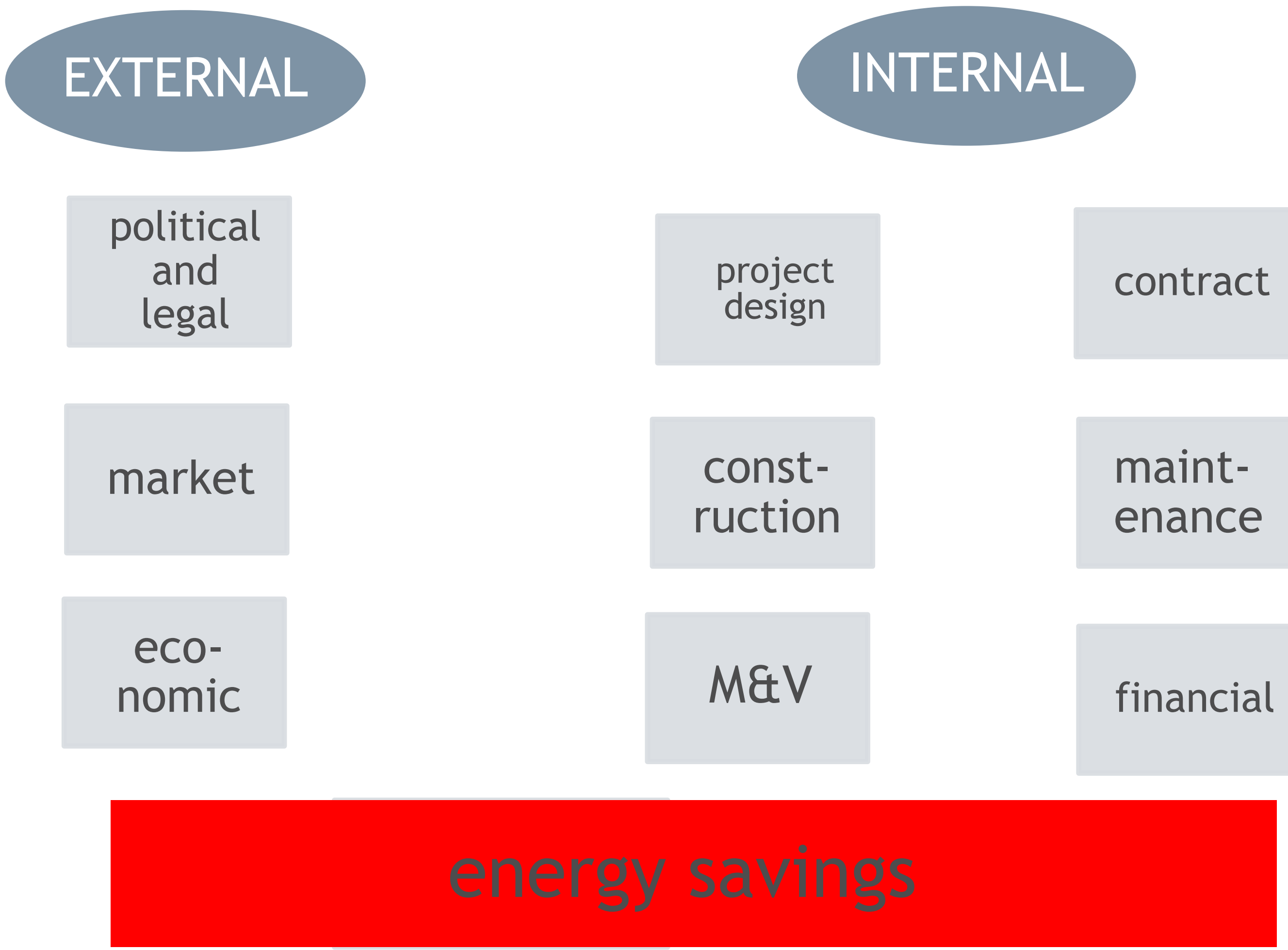
https://e3p.jrc.ec.europa.eu/articles/energy-performance-contracting

- Performance related to level of energy saved
- Value of energy saved is guaranteed to meet debt service obligation down to a floor price
- ESCO carries performance risk
- Customer carries credit risk

EPC - MIXED MODEL



GENERAL RISKS IN EPC PROJECTS



S. Wan et al., International Risk allocation for energy performance contract: a study of commercial buildings in China, Journal of Climate Change Strategies and Management, 2022

RISK OF GUARANTEED ENERGY SAVINGS - GENERAL ISSUES

- Borne mostly by ESCO
- The basis for determining the risk is the technical specification and ESCO offer (baseline vs. mix of savings on heating + electricity + renewable energy sources)
- The risk is borne based on guaranteed energy savings in units (e.g. kWh, GJ) rather than on monetary terms, unless ESCO is also an energy provider
- The essence of the risk is the ESCO's obligation to cover the difference between guaranteed and achieved energy savings (how and on what basis?)
- Extra savings can be shared between the parties

EPC VS. EUROSTAT (1)

- **EPC typically contains a guarantee from the partner [ESCO] that the EPC assets will deliver a minimum level of energy consumption and/or cost savings** for the authority over the lifetime of the contract
- **The savings guaranteed in the EPC will most typically relate to a minimum reduction in volume of energy consumption** (energy consumption savings). Energy consumption savings might be expressed in units of energy or in monetary terms and might relate to a particular form of energy (e.g. electricity, gas) or output (e.g. lighting, heating); energy consumption savings also typically include savings of CO2
- The rules for the recognition of EPC contracts on the balance sheet of the private sector are related to its status as **'economic owner of the asset'** (Eurostat Guidance Note, The recording of energy performance contracts in government accounts, 19 September 2017)
- The absence of a guaranteed level of savings in the EPC does not influence the statistical treatment if the EPC imposes no payment obligations on the authority and involves no government financing. **EPC that has no guaranteed level of savings and imposes payment obligations on the authority and/or involves government financing will be automatically recorded ON BALANCE SHEET** for government

EPC VS. EUROSTAT (2)

In the view of Eurostat, **the EPC must introduce and guarantee an amount of savings, which are calculated in a reliable method and satisfy two main conditions:**

- on a *net* present value basis, the level of savings guaranteed over the duration of the EPC is equal to or greater than the sum of (a) the operational payments forecast to be made over the duration of the EPC and (b) any amount of government financing that is not repayable by the partner (e.g. capital grant); and
- the level of savings guaranteed for each period over which performance against the guarantee is tested is equal to or greater than the operational payments that the authority is forecast to make to the partner [ESCO] in that period

RISK OF GUARANTEED ENERGY SAVINGS - SUBRISKS EXAMPLES

Failure to achieve guaranteed savings, in particular related to:

- the responsibility for the operation of the new asset
- with the maintenance of appropriate standards for the operation of the new asset
- with the approval of a plan for the operation of the new asset
- with the ESCO incurring the costs for the operation of the new asset according to the schedule
- with the ESCO setting up a separate account to accumulate funds for the operation of the new asset
- with the establishment of a guaranteed level of annual average energy savings
- the failure to set a guaranteed level of annual average energy savings
- the absence of an objective system to monitor and measure the level of energy savings
- the procedure for the approval of the monitoring and measurement system for annual average energy savings by the public sector body
- the verification by the public sector body of the performance of the new asset against the guaranteed level of annual average energy savings
- the occurrence of situations that make it necessary to adjust the assumed guaranteed level of annual average energy savings

RISK OF GUARANTEED ENERGY SAVINGS - ISSUES RELATED TO THE RISK EXAMPLES

When assessing the risk of achieving the guaranteed level of energy savings, there should be taken into account, in particular:

- the share of public funds in investment expenditure incurred by ESCO
- the nature, timing and amount of payments (and its changes) made by the public sector entity to ESCO
- payment adjustment rules
- billing rules if the level of energy savings stipulated in the EPC contract is not achieved
- billing rules if a higher level of energy savings than that stipulated in the contract is achieved
- the extent and nature of events resulting from breaches by the public sector body and cases of force majeure which increase the costs of operating the new asset on the part of ESCO, and the manner of calculating any compensation, reductions or exemptions in respect thereof
- the rules on the nature of, and effects of, changes to the contract, in particular if those changes relate to the sharing of risk between the parties to the EPC
- changes to legislation affecting the performance of the contract
- guarantees given by the public sector body or the ESCO relating to energy consumption to cover the construction risk or the risk of achieving savings
- rules on early termination of the contract or suspension of certain provisions of the contract; the amount of the public sector body's share of the ESCO's profit

EXCLUSION OR LIMITATION OF THE LIABILITY

- The risk of guaranteed savings cannot be considered absolute

- The provisions of EPC contracts provide for a number of circumstances in this regard, which are most often obligations of the public entity, including e.g.:
  - not to change the use of the buildings without the ESCO's consent, which could affect the level of guaranteed savings
  - to carry out technical inspections of the buildings and installations
  - to comply with the previously accepted instruction manual for the use of the buildings and to ensure its observance by facility managers and users
  - to bear the costs of utilities in the facilities
  - to notify the ESCO promptly of noticed defects, including failures of elements of the energy management system
  - to remove the consequences of acts of vandalism and theft in the facilities affecting the ESCO's performance of its obligations

Failure to comply with these obligations, if it has contributed to a reduction in the guaranteed energy savings or has adversely affected energy management, shall result in the ESCO being released from liability for the guaranteed energy savings

HOW DO STAKEHOLDERS SEE IT?

- ✓ *The most important effect of mitigating the risk of guaranteed savings is that the public entity only has to properly verify the results achieved and does not have to operationally involve its services in the ongoing process of managing the operation of the installation (ESCO)*
- ✓ *Guaranteed savings are tangible values for the public entity, but they must be related to the investment outlay. This is where a common pitfall arises, namely counting on being able to 'self-pay' the investment from future savings (Public Entity)*
- ✓ *The Bank attaches great importance to both the sharing of project risks and the limits of ESCO liability. In the absence of a limit on abatements or unlimited contractual penalties, it will not be possible to provide debt financing (Bank)*
- ✓ *A detailed description of the savings guarantee (base, level, measurement methodology, management, shortfall penalty and distribution of the surplus) is essential for the success of the EPC project for both contracting parties (Energy Agency)*
- ✓ *If several potential ESCOs are in the running and guaranteed savings are one of the criteria for selecting a bid, energy service providers may overestimate the energy consumption after the retrofitting work. This may result in not being able to achieve the guaranteed savings, even in the case of very good energy management of the facility (Energy Auditor)*

QUESTIONS?

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