Report on variations of EPC and ESC contracts

1. Energy Services "basic contracting models"

The traditional approach is that a municipality in need of new or renovated energy systems does the investment itself and has control over the installation and the operation of it. This applied to street lighting, buildings, sport areas, tunnels, hospitals, etc. When energy efficiency measures are implemented, the municipality benefits directly from cost reductions. However, the municipality has to have own capital or access to credits and takes on the full economic risks, for example for an inferior quality of the installations, technology risks or equipment damage.

With Energy Performance Contracting, specialised companies, experienced in efficiency, in energy systems installation, in operation and maintenance, so-called "Energy Services Companies" (ESCOs) are able to provide energy services based in two main concepts, Energy Supply or Energy Performance Contracting. In both cases, the ESCO improves the energy delivery to the customer, thus increasing the energy efficiency, and assuming (most of) the risks relating to this investment.

In countries with more advanced EPC markets, ownership, operation and maintenance of the facility is frequently arranged in a similar way. The "classic" Energy Services are provided by:

**Energy Supply Contracts (ESC)**
- Energy supply facilities ownership: ESCO
- Energy supply facilities operation and maintenance: ESCO
- Customer pays a fee based on kWh delivered, calculated by a contractual formula

**Energy Performance Contracting (EPC)**
- Energy supply is not included in the contract (directly contracted with an energy supplier)
- The ESCO or the Customer own the facility
- The ESCO is responsible for operation and maintenance
- The customer pays a fee which is calculated based on the previous situation and the energy efficiency improvements as agreed in the contract
In both cases, public end-users (that become ESCO customers) do not need significant technical know-how within their administration, because the operation is completely transferred to an external specialist. Also, in the "classic models", the service provider also takes over the operating risk, and all or most of the energy savings achieved go to the service provider during the contractual period.

In ESC, the overall facility installed or refurbished to supply the energy is financed by the ESCO, with own or external funds, and obtains the incomes from selling energy at a certain price.

In the EPC case, the service provider finances the energy efficiency investment with own or external funds and gets the fee from the client that finances it through the reduction of its energy bill.

The following text is looking at variations of these models.
2. Advanced contracting models

- **"EPC Light" with no/low investment**
  This model can be applied to any old or new system, when the administration of a building has no staff to undertake adequate energy management. In "EPC light", the energy savings are mainly achieved through organisational measures with low or no investments in new equipment. The ESCO acts as external energy manager taking over the responsibility to operate and optimise the energy related installations. This can be achieved by improving existing energy management systems, improving lighting control, installing sensors in critical areas with high potential savings or substituting lamps or luminaires which need to be changed by more efficient systems with similar investment costs. Depending on the specific needs, the duration of the contract can adapted and can - if so wished by the client and the ESCO - be also rather short (e.g. 2-3 years as no investments needs to be refinanced).

- **"EPC and subsidy"**
  This advanced EPC model combines construction measures, usually supported by a subsidy scheme, with installation of high-efficiency equipment implemented through standard EPC projects. Such approach, if efficiently carried out, offers high synergy effects and makes it possible to attain optimal reduction of energy consumption. It needs to be checked that the subsidy can be "fit" into the EPC model (in some regions, the subsidy can not go to an ESCO but only the owner of the building/installation).

- **"Integrated Energy Contracting"**
  The Integrated Energy Contracting is a combination of Energy Supply Contracting with Energy Efficiency Measures including light measures for comprehensive refurbishment.

  The integrated energy contracting combines two targets:
  - Reduction of energy consumption by implementing energy efficiency measures (e.g. exchange of lamps)
  - Energy supply from renewable energy sources
• **EPC contracting with Code of Conduct**
  This model includes the signature of a Code of Conduct. The compliance with the Code of Conduct serves as a guarantee of the quality of EPC projects. This increased the confidence in using EPC by the potential clients. The Code of Conduct has been tested in specific projects contributing to the promotion of good practice principles both on the side of ESCOs and clients. Some examples of signed Codes of Conduct can be found in [http://www.transparence.eu/](http://www.transparence.eu/).

• **Lighting manufacturers offer ESCO services as added value of direct selling of streetlight products**
  Some lighting systems manufacturers provide ESCO services in order to facilitate the purchasing of the equipment by third parties. In this case, the technical and financing risk is assumed by the technology company (the lighting system manufacturer) by providing Energy Services themselves.

• **EPC contracting with capital from National Funds**
  In some EU countries with less or no ESCOs established, the National Government might take a step forward and provide both funding and energy savings requirements by contract to a Municipality. The government could use National Funds for energy efficiency.

• **Combine EPC for street lighting and other facilities**
  Viability of projects might vary if only streetlight is included in the contract or also other facilities are involved. This could be combinations of, for example, street lighting and public buildings (e.g. town halls, schools, etc.) and/or indoor lighting of buildings and/or facade lighting.

• **EPC and detailed energy audit cost**
  One typical barrier to develop EPC streetlight contracts can be the fact that a detailed energy audit is needed both to evaluate the viability of the project and to prepare the tendering process for ESCO. This detailed audit can cause significant costs, if there is no inventory of the street lighting system is available. An advanced EPC model includes a clause in the energy audit contract indicating that the energy audit will be paid to the ESCO if the EPC contract is not signed after the audit results. If the EPC contract is signed, then the audit cost is included in this contract.
3. Financing facilities for advanced EPC models

The availability of financial resources is one of the key success factors for the implementation of EPC projects. With the financial crises, (pre-)financing for energy efficiency investments has become increasingly burdensome for ESCOs and their customers, especially if they reach their credit lines, credit liabilities and fixed assets burden balance sheets. As a consequence, financing is not a stand-alone-issue, but must be adjusted to the context of the project.

For the selection of the right financing tool, a close look at a variety of different financing schemes has to be taken. For advanced financing schemes, the following aspects should be taken into account:

- Direct financing cost (financing conditions, interest rates, fees …)
- Legal aspects (Rights and duties, ownership, contract cancellation, etc.)
- Required collateral (securities) by financing institution
- Taxation implications (VAT and purchase tax, corporate income tax, etc.)
- Balance sheet & accounting implications (who activates the investment, balance sheet effects like credit lines, performance indicators Maastricht criteria, etc.)
- Management expenditure (transaction cost, comprehensive consultancy, etc.)

- Credit financing

Credit (or loan) financing means that a lender (financing institution - FI) provides a borrower (customer) with capital for a defined purpose over a fixed period of time. Borrowers in our case can be real estate owners, enterprises or ESCOs. A credit is settled over a fixed period of time, with a number of fixed instalments (debt service). These instalments have to cover the amount borrowed, plus interest rates, as well as other transaction costs such as administrative fees. Loans are disbursed against a proof of purchase in order to secure the earmarked use of the funds.

Credits require a creditworthy borrower. This means that a credit has to be backed by the ability of the borrower to perform the debt service. Another factor that influences the borrower’s possibilities to receive a credit is connected to "BASEL II". It means that clients are evaluated by international uniform criteria and divided in classes, which declare the creditworthiness.
The following graphs visualize the basic cash flow relationships for typical credit finance. The cash flows depend on whether the ESCO or the building owner is the lender for the credit.

Credit financing – cash flow in EC projects with ESCO financing

The next figure displays the customer as lender of the credit:

Credit financing – cash flow in EC project with customer finance

In practice, a synthesis between ESCO and customer finance is possible. In many cases the customer contributes to the finance with subsidies, from maintenance reserve funds or with an equity capital share.

- **Leasing Financing**

Leasing is a way of obtaining the right to use an asset – not the possession of this asset. Assets in this context mean investments into energy efficiency conservation measures or into energy supply plants. When leasing an investment, you do not buy it. You only pay for the exclusive right to use it.
Leasing is a contract between the owner of the asset (lesser) and the user (lessee), wherein the former grants exclusive rights to use the assets for a certain period (basic lease term), in return for payment of a lease. The lease is typically paid in annuities to the leasing finance institute (LFI). The lessee can be either an ESCO or the client (building owner).

The basics contract relationships of a leasing agreement are displayed in the following figure. On the left side the ESCO is lessee, on the right side the client is it:

![Contract relationships of a leasing agreement with ESCO (left) or Client (right)](www.european-energy-service-initiative.net/fileadmin/user_upload/gea/standard_documents/Standard6_Financing.pdf)

- **Cession and Forfaiting of Contracting Rates**

Cession is a transfer of future receivables (here contracting rates) from one party (the cessionary – in our case an ESCO) to another (the buyer - in our case a FI). The original creditor (the ESCO) cedes his claims and the new creditor (the FI) gains the right to claim future contracting rates from the debtor (the client).

Two basically varieties of cession are used:

- **Cession:** A cession can be used in addition to a credit or lease financing agreement. The ceded contracting rates serve as (additional) security for the FI and the clients pays the rates (or parts of them) directly to the FI. Sometimes this variety is being labelled as forfeiting. For clarification we propose to distinguish between Cession and forfeiting as stated here.
- **Forfeiting:** If a cession is applied without an underlying financing agreement (credit or leasing), it is called forfeiting. The FI buys the future contracting rates and pays (one time) a discounted present value directly to the ESCO.