member of: FEDARENE

EMPOWERING HORIZON 2020

An Innovative Financial Scheme-

# Energy Performance Contract

*3rd of October 2017, Iasi*

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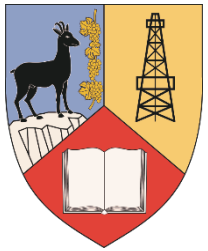
Director AE3R

# AE3R- Short description

The Energy Efficiency and Renewable Energy Agency “AE3R Ploiesti – Prahova” started its activity in 2009 as a regional energy agency covering about 4.700 skm with a population of roughly 800.000 inhabitants. The Agency is one of the members of the largest European networks FEDARENE (European Federation of Regional Energy and Environment Agencies).

**Our founding members are:**

- Prahova County Council
  www.cjph.ro



- Ploiesti Municipality
  www.ploiesti.ro


- Provide latest information about key EE and RES industry insights. Bring European and international attention to the challenges and opportunities facing the EE and RES sectors in our region and, in so doing, stimulate more effective action towards constructive change.
- Provide a platform for public authorities, business people, politicians, and technology experts from Romania and abroad.
- Promote energy saving solutions and boost technology and know-how transfer.
- Promote effective dialogue between stakeholders.
- Target group oriented training, addressing the actual capacity development needs of our stakeholders.

# PARTNERSHIPS

- COM- Convenant of Mayors

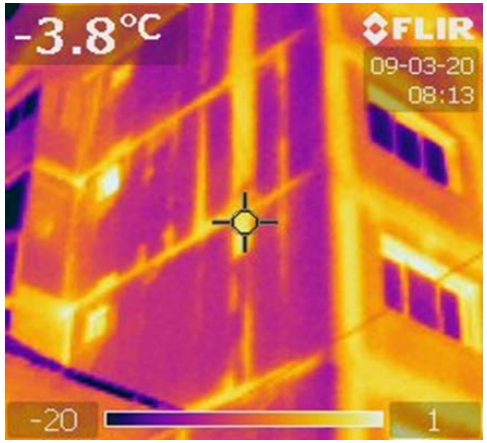
- ARPEE- Romanian Association for Promoting Energy Efficiency- co-administrator of The European Code for Conduct on Energy Performance Contracts

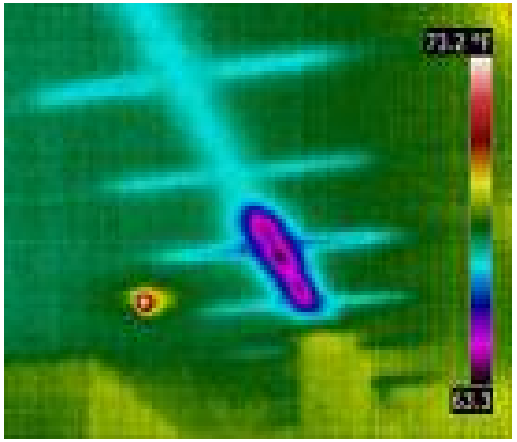
- ESCOROM- the Association of the Energy Services Companies from Romania- co-administrator of The European Code for Conduct on Energy Performance Contracts

- ANRE- Romanian Energy Regulatory Authority

- AIIR- Romanian Association of Buildings Services Engineers (RABSE) Bucharest Subsidiary

- SIER- the Association of Power Engineers from Romania



The employees of AE3R Ploiesti – Prahova Agency are trained and authorized to issue thermographic reports using the infrared camera, energy audits and provide Energy Performance Certificates for buildings. The Agency inspected a large part of the public buildings in Prahova County providing energy audits or energy performance certificates as appropriate and technical expertise for refurbishment or attracting funds to implement the recommended energy efficiency measures.

The Agency projected and supervised the installation of several photovoltaic systems in the county, providing energy management services for the beneficiaries (public authorities) starting from the concept phase, through design, authorization, implementation and exploitation. One of those systems became the first in the country which received green certificates for the solar energy produced and the local authority owning the installation became the first public authority to receive energy producer license from RES.

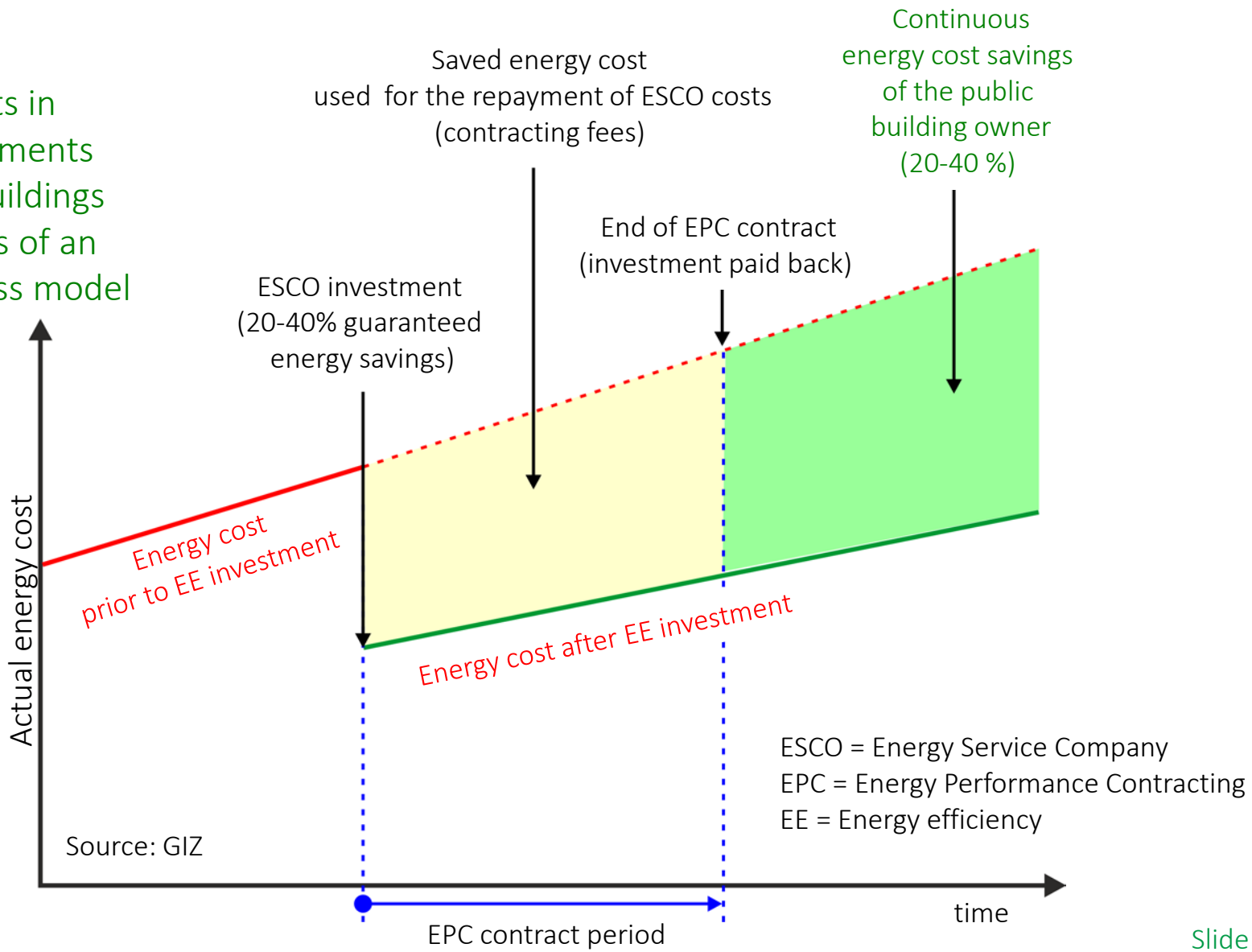
# Definitions of EPC

Energy Performance Contracting (EPC) is …

- *… a contractual arrangement between the beneficiary and the provider (normally an ESCO) of an energy efficiency improvement measure, where investments in that measure are paid for in relation to a contractually agreed level of energy efficiency improvement. (EU Energy Services Directive)*
- *… a form of 'creative financing' for capital improvement which allows funding energy upgrades from cost reductions. (JRC-IET)*
- *… the procurement of works and services on the basis of net present value of future energy savings. (EBRD)*
- *… a turnkey service, which provides customers with a comprehensive set of energy efficiency, renewable energy and distributed generation measures and is accompanied with guarantees that the savings produced will be sufficient to finance the full cost of the project. (EPA)*

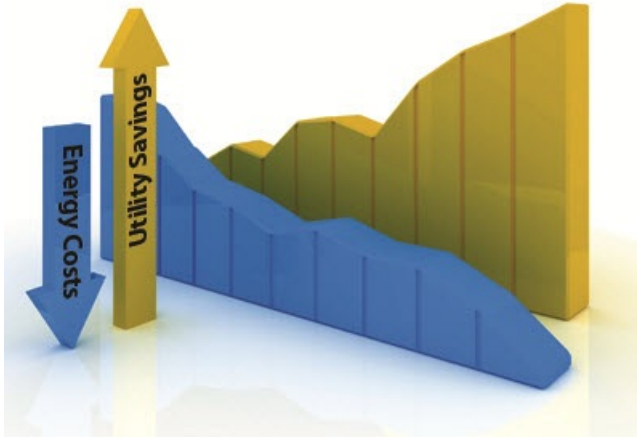
# The concept of EPC

ESCO invests in EE improvements of public buildings on the basis of an EPC business model



# EPC in a Nutshell

- The basic principle of Energy Performance Contracting is that energy efficiency investments are paid for [*in whole or in part*] over time by the value of energy savings achieved.
- Key elements of any energy performance contract are.
  - An external organization (ESCO) implements energy saving measures to improve energy efficiency of a facility and utilizes the stream of income from cost savings to pay for the investment.
  - The contract is structured so that the compensation is contingent on demonstrated performance, i.e. the ESCO takes a risk.
  - There is an agreed method for measuring and verifying energy savings.



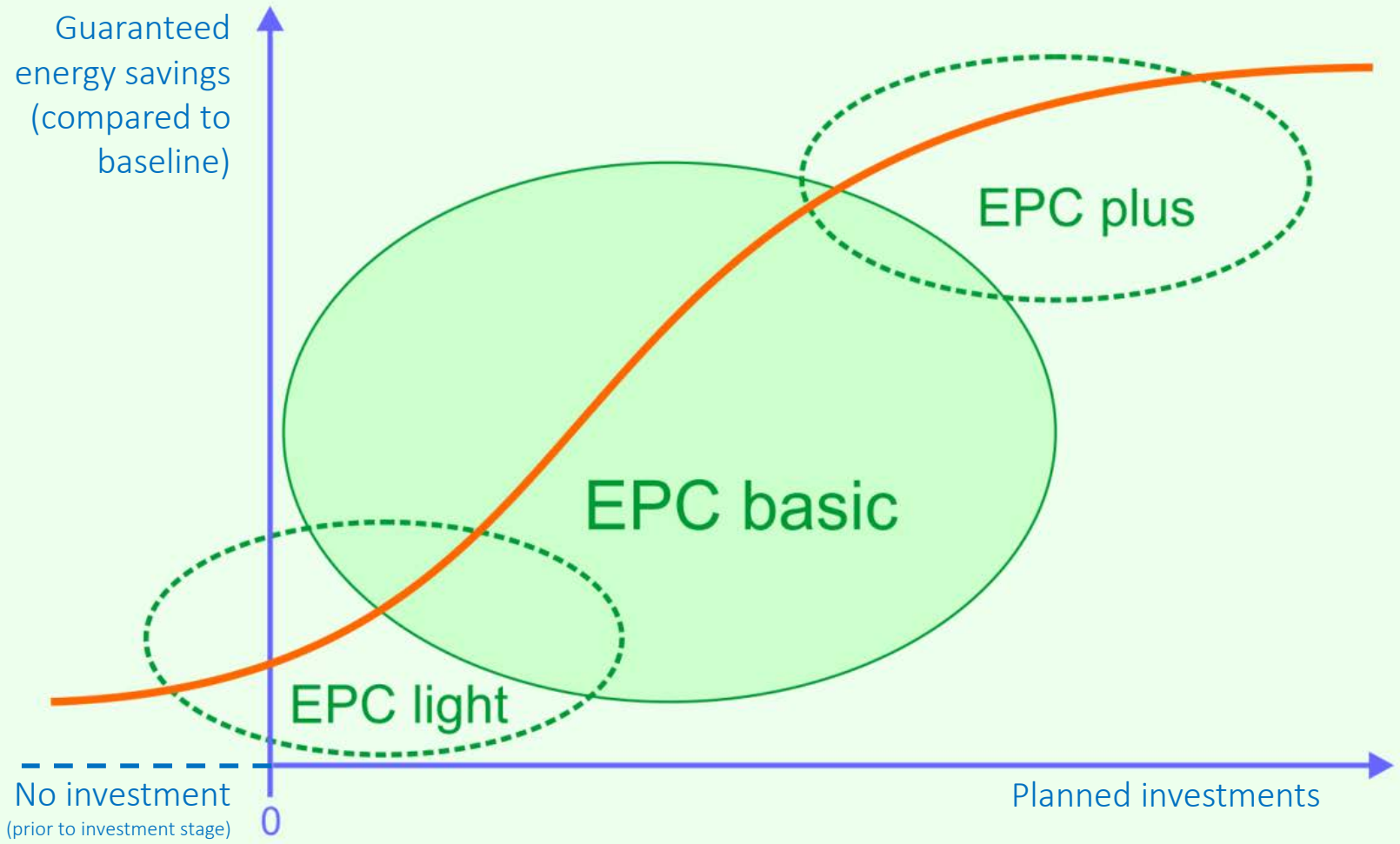
# Role of ESCOs in EPC

*An Energy Service Company (ESCO) implements a customized energy service package, consisting of planning, building, operation & maintenance, optimization, (co-) financing and user behaviour.*

*The contract between ESCO and building owner contains guarantees for cost savings and takes over financial and technical risks of implementation and operation for the entire project duration of typically 5 to 15 years.*

*The EPC service or main parts of it is paid by realized energy cost savings.*

# EPC business models



| EPC Business Models | EPC light | EPC basic | EPC plus |
|---|---|---|---|
| Ownership of installations | All installations property of the building owner. | Ownership of all equipment and facilities installed in a building is usually transferred to the building owner at the date of acceptance as stipulated in the contract. | |
| Energy savings achieved | Typically 10-20 % | Typically 20-60% | Ideally >70% |
| Investor | ESCO | ESCO or the building's owner ( using subsidies, if they are available ) | ESCO and the building's owner share the investment's cost ( both using subsidies, if they are available) |
| Financing | ESCO pays only staff cost. | ESCOs own equity, loans, subsidies, financial contributions from the building owner. | |
| Contract duration | In most cases 2-3 years | In most cases 5-15 years | Often >15 years |

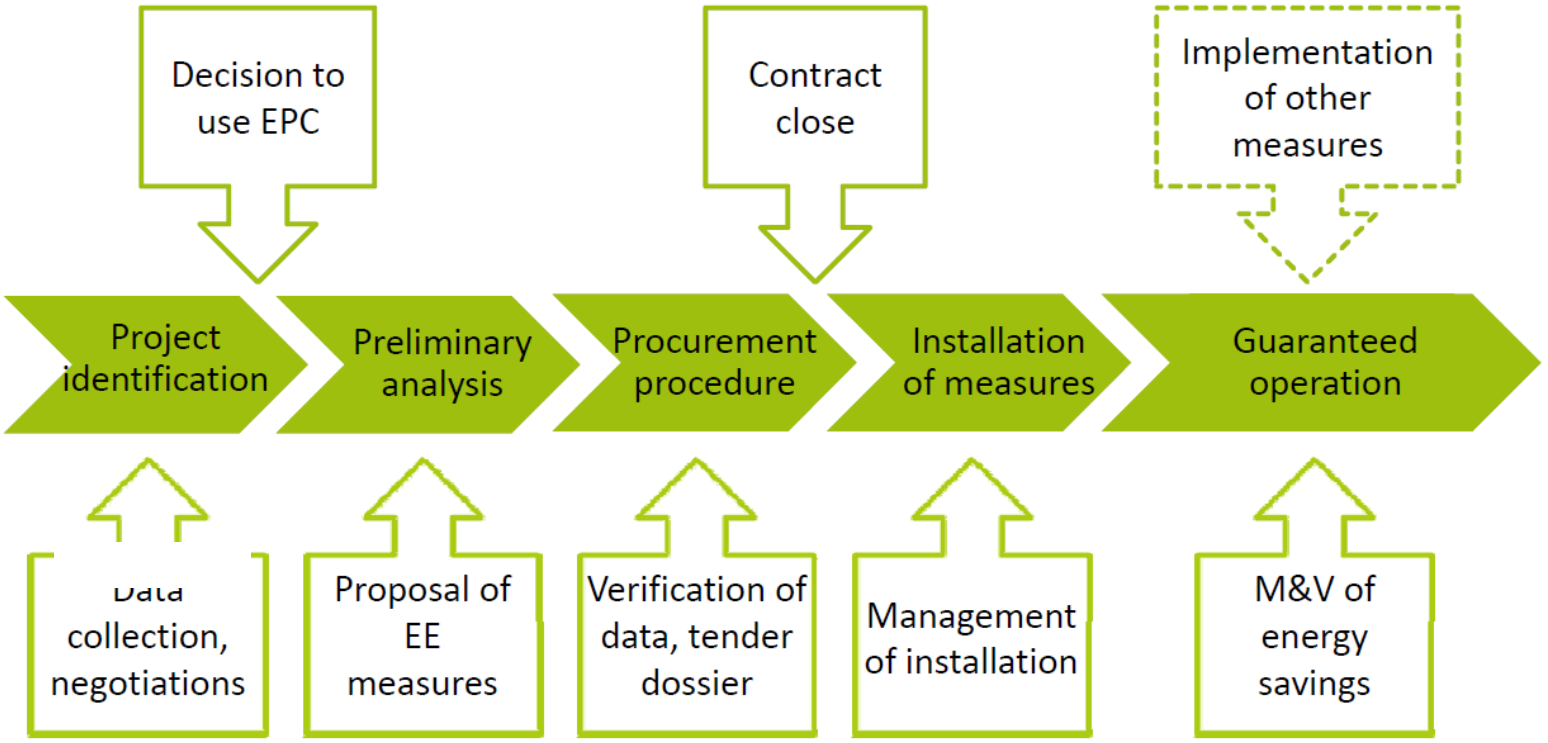
# EPC projects in public buildings

## Pool of public buildings in the city of Moravska Trebova (Czech Republic)

- Complex of five municipal buildings
  - Two primary schools
  - Three administrative buildings
- Measures
  - Installation of new efficient heat sources
  - Installation of IRC system (heat consumption is controlled in each room individually)
  - Savings in lighting
  - Efficient equipment for water consumption
- Facts
  - Contract duration: 10 years
  - Investments: 430,000 EUR
  - Initial energy costs (baseline): 420,000 EUR/y
  - Guaranteed savings: 80,000 EUR/y
  - Guaranteed savings: 19%
  - Reduction of CO2 emissions: 285 t/y

# Development of EPC business cases

Main stages of an EPC project:




Source of the underlying chart: Transparense.eu

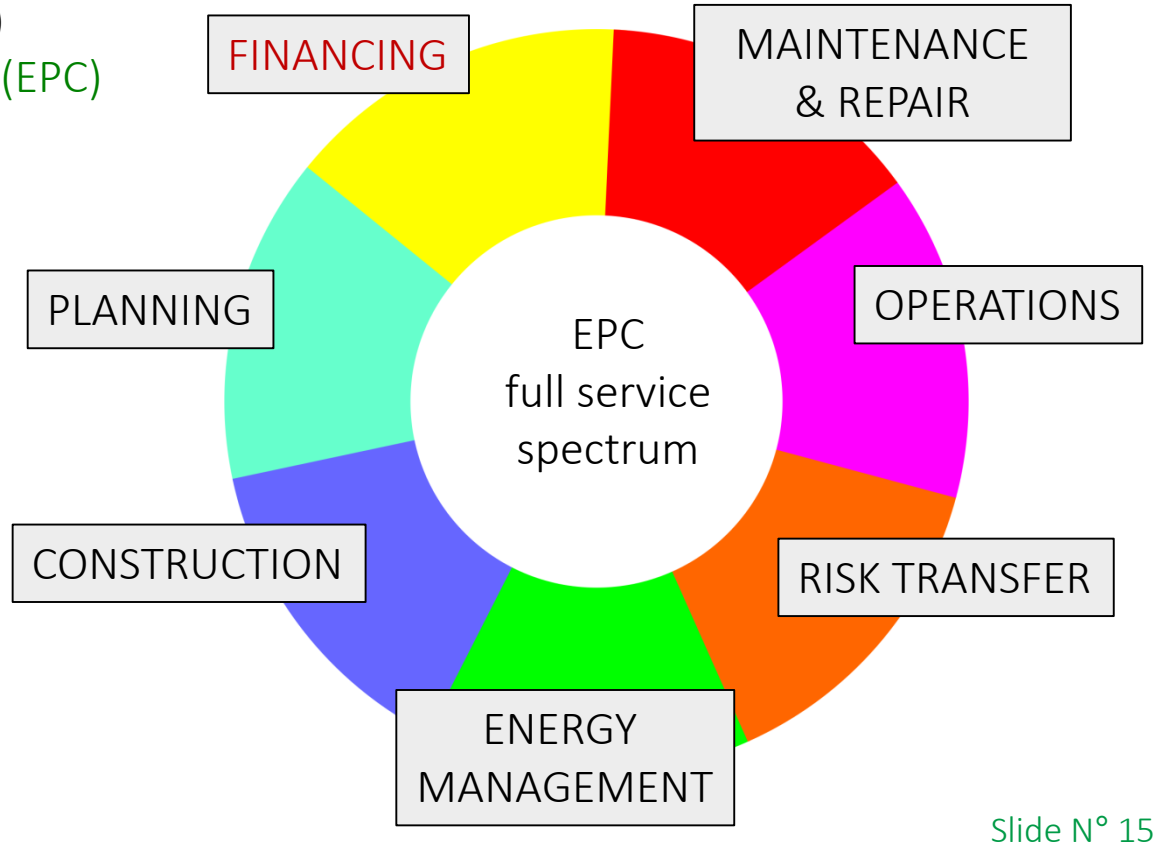
# Financing as a part of EPC services

Public building owners can finance energy efficiency measures in general by means of

- Commercial and bank credit (loans)
- National or international subsidy programs and schemes, if available
- Own financing (budget-financed)
- Energy Performance contracting (EPC)

Financing is an important part of the services covered in an EPC.

For many potential customers financing is the most attractive part of EPC services for public buildings.



# Financing models for EPC projects

- Third party financing
  - Credit of ESCO (pure credit or credit with sale of claims/forfaiting/factoring)
  - Credit of building owner
- ESCO financing
  - Financing with interal funds of the ESCO (own equity, loans, leasing, renting)
- Building owner's financing
  - Financing with internal funds of the building owner, backed by an energy savings guarantee provided by the ESCO.
  - From the public building owner's internal capital expenditure budget and from existing lines of credit.

# Factors influencing the choice of financing models for EPC projects

- Economics of the project
  - Number of years of contract duration acceptable to both the public builidng owner and the ESCO.
  - Net present value (NPV) of guaranteed savings compared to total cost calculated for an EPC project.
  - Necessary down-payments to be provided in advance or in instalments, in addition to EPC service fees based on guaranteed savings
- ESCO's ability and willingness to invest own equity and to provide bank guarantees.
- Public building owner's ability and willingness to provide budget funding.
- Available subsidies from national or international sources
  - Grants / Soft loans / Tax incentives
- Creditworthiness of the ESCO and the building owner.
  - Potentials and restrictions for the public building owner to acquire additional loans.
  - Equity/loan ratio or collateral required from ESCOs.
- Conditions in a country's financial sector
  - Financing institutions' interest and trust in EPC business models for public buildings.
  - Interest rates for commercial long-term ESCO loans.
  - Specific (more favourable?) conditions offered for public lenders.

# Legal framework at EU level

EU Directives promoting EPC for public buildings

- Directive 2012/27/EC of the European parliament and of the Council of 25 October 2012 on energy efficiency, (Energy Efficiency Directive; EED)
  - The EED defines energy performance contracting as: “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 investments (work, supply or service) in that measure are paid for in relation to a contractually agreed level of energy efficiency improvement or other agreed energy performance criterion, such as financial savings”

- Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings (Energy Performance of Building Directive; EPBD)
  - Member states shall encourage public authorities to take into account the leading role which they should play in the field of energy performance in buildings.

- Directives 2009/72/EC and 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and gas
  - Member states shall strongly recommend that electricity and gas undertakings optimize the use of electricity or gar, for example by providing energy management services.

# Legal framework at EU level

EU Directive on public procurement

Directive 2004/18/EC of the European Parliament and of the Council of 31 March 2004 on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts, which is still implemented in national legislation of EU Member States was replaced by:

Directive 2014/24/EU of the European Parliament and of the Council of 26 February 2014 on public procurement

Directive 2014/24/EU is currently on its way of being implemented in national legislation of EU Member States.

# Legal background of EPC at national level

## Romania:

- Laws and regulations promoting EPC in public buildings:
  - Law 121/2014 regarding energy efficiency. Law no. 121/2014
    - Regulatory domain and objectives (Art. 1)?
      - (1) The purpose of this law is to create the legal framework for the elaboration and implementation of national policies on energy efficiency in order to achieve the national target of increasing energy efficiency.
      - (2) The policy measures regarding energy efficiency are applied to the entire chain: primary resources, production, distribution, supply, transportation and final consumption.
      - (3) The national indicative target for reducing energy consumption is set to be 19% by the year 2020

- Laws and regulations ruling over the public procurement process
  - OUG 34/2006 on the award of public procurement contracts, public works concession contracts and service concession contracts, published in the Official Gazette no. 418 of 15 May 2006.
  - The Emergency Ordinance is about to be modified by the introduction of efficiency criteria.

*Thank you for your attention!*

Contact: office@ae3r-ploiesti.ro
www.ae3r-ploiesti.ro

You can reach us on: