



CENTRAL & EASTERN EUROPEAN
ENERGY EFFICIENCY FORUM

13–16 JUNE 2018

SEROCK, POLAND



New methods in public procurement (PPPs, ESCO)

Panel session

Thursday, 14th June 2018, 09:00 – 10:30

Panel Leader: Katarzyna Wardal, Knauf Insulation

Aims of this session

- × Which financing models for EE in public sector are available? Which level of energy savings can be achieved with these methods?
- × How to aim for higher energy savings? Is there a need for additional sources of financing?
- × The recent Guide on statistical treatment of EPCs in public accounts by the EIB and Eurostat - which opportunities does it bring?
- × What (else) needs to be done to increase the use of effective models for EE in public buildings - e.g. is there a need for a methodological guide (re accounting, public procurement rules, etc.) to increase the uptake of Energy Performance Contracting? Is there room for regional cooperation in the CEE region on that - sharing experience?

Agenda

- × 1. Welcome and session aims (5 min)
- × 2. Introductions (5 min)
- × 3. Presentations by our speakers (40 min)
- × 4. Q & A for clarification only (5 min)
- × 5. Breakout groups (15 min)
- × 6. Feedback to plenary (20 min)
- × 7. Close

Time is tight, let's use it as your friend!

I will be clear about how much time we have left 😊

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European Union
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Dynamic Light

KOPERNIKUS
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Die Zukunft unserer Energie



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13 - 16 June 2018

Financing models for energy efficiency upgrades of street lighting: Best practices in Central and Eastern Europe

Matthias Hessling | Aleksandra Novikova | Kateryna Stelmakh | Julie Emmrich



Aims and tasks



Aim

- Assist municipalities on financing energy efficiency and low carbon upgrades of
 - Street lighting
 - Public buildings

Tasks

- Extensive overview and analysis of financing models used to finance the upgrade of the public infrastructure.

Methodology



Interviews via Phone and E-Mail

- Ministries, utilities, municipalities, cities, EU funds, other IFIs, etc.

Model overview structure

- Key actors and their roles
- Projects that could be financed
- Advantages and disadvantages

Online Survey

- Sent to 34 associations of municipalities and 300 other stakeholders.

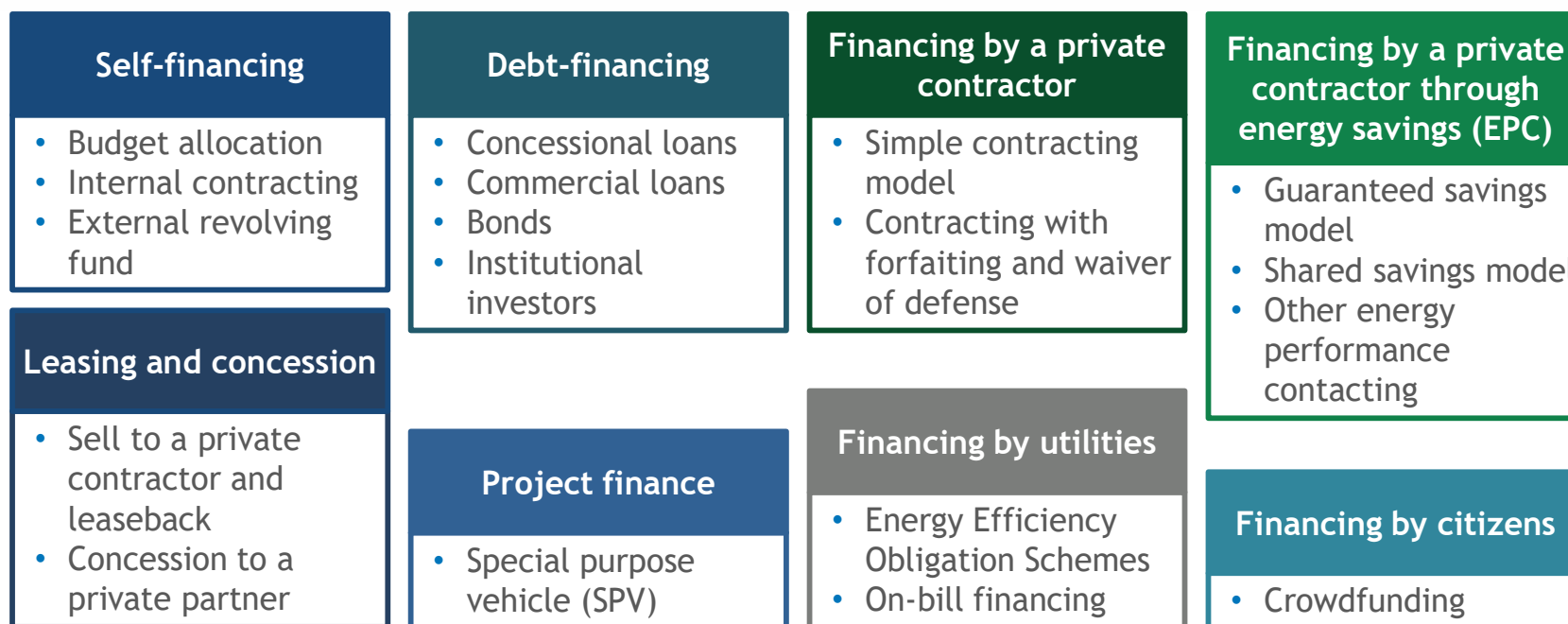
Furthermore

- Literature review
- Screening project websites
- Screening database

Conducting individual case studies

- Model context
- Projects scope
- Involved stakeholders
- Implementation experience
- Outcomes

Review of models



Source: Novikova, A. Stelmakh, K., Hessling, M., J. Emmrich, I. Stamo. 2018. Guideline on finding a suitable financing model for public lighting investment. Best practice guide. Deliverable D.T2.3.3 of the Dynamic Light project financed of INTERREG CE platform.

Case study 1

Revolving funds: internal revolving fund with outsourced services Litomerice, Czech Republic



Litomerice 1



Project overview

- Litomerice is a town relying on coal
- In 2014, the municipality founded the revolving fund + provided initial funding
- Service companies are contracted to implement energy efficiency projects

Financing structure

- Initial funding was 69,000 EUR, covering operational costs and 1st project tranche
- The fund contracts ESCOs against a fixed annual fee paid over the contract period
- Service providers guarantee a saving-rate

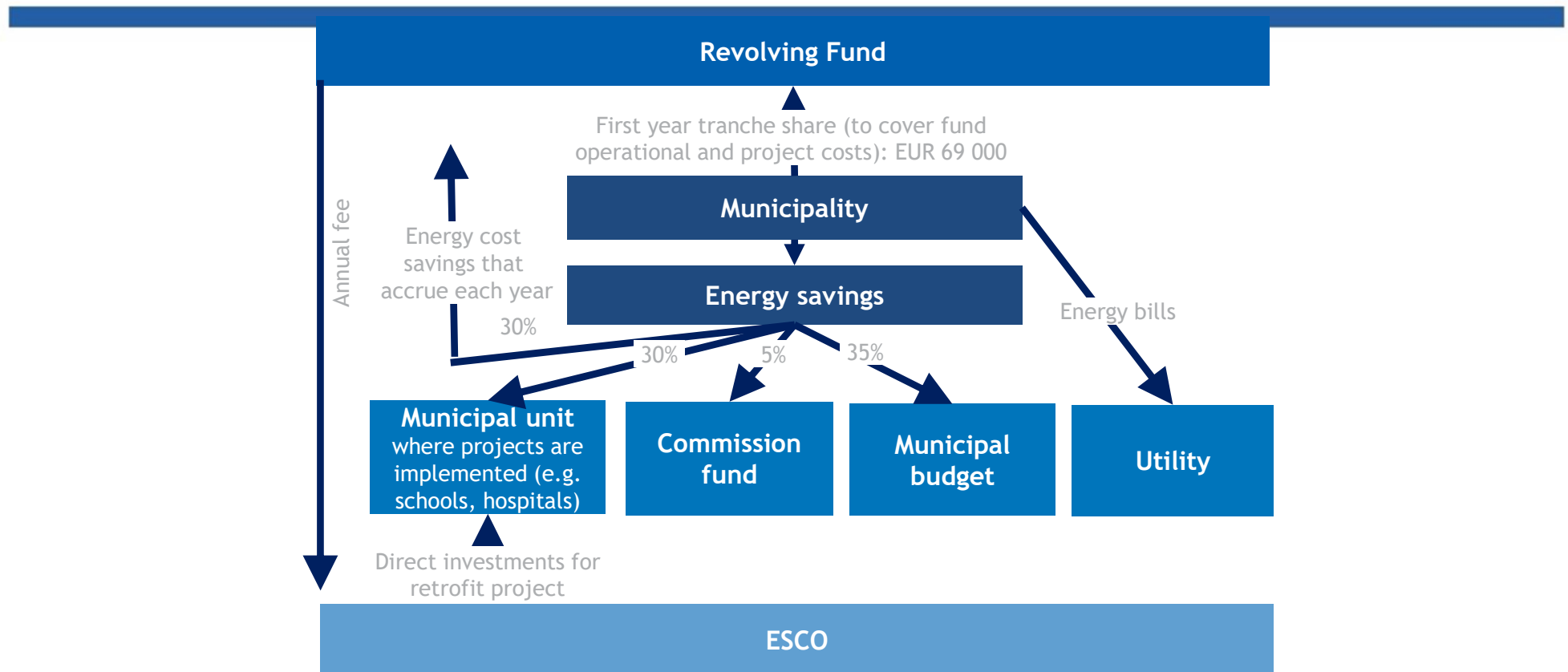
Project scope

- Supported activities include energy audits, procurement and realization etc.
- Projects include building retrofits, street lighting, re energy generation in public institutions.

Implementation & outcome

- In 2014-17, energy cost savings ~300 kEUR
- In 2013-30, energy consumption shall be reduced by 20%

Litoměřice 2



Source: Authors' own figure. Data from City of Litoměřice (2017) and Klusák email com.

Case study 2

Private contracting with forfeiting and waiver of defence Litomysl, the Czech Republic



Model with forfaiting and waiver of defence



Architecture

- The contractor sells part of its receivables to a bank in a “forfaiting transaction”
- The city must pay a part of the fee to the contractor and a part - to the bank
- The city may provide a guarantee to the bank (waiver of defence)

Other features

Projects that can be financed by this model:

- Higher than 1.0m EUR

Jurisdictions that applied this model:

- Dillenburg, Germany and the city of Litomyšl, the Czech Republic

Advantages

Municipalities:

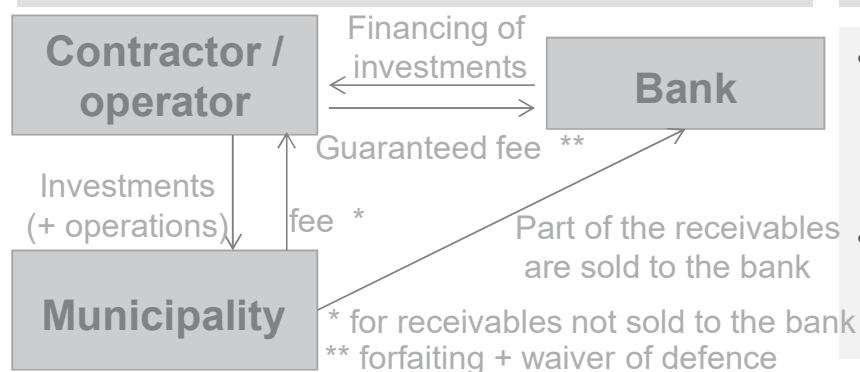
- can use off-balance sheet financing;
- pay lower interest rates than those incurred under the simple contracting model.

Disadvantages

Municipalities:

- face higher interest rates than in concessional loans;
- must contend with highly complex financing arrangements;
- must provide a guarantee for a bank.

Project overview



Financing structure

- Contract period of 10 years
- 97% of receivables sold to the bank (guaranteed by the municipality)
- 26.9% of guaranteed energy savings

Project scope

- Modernization of 1,225 luminaries by LEDs with dimming, traffic monitoring and remote control in real time
- All installation works had to be implemented between 2014-2015

Implementation & outcome

- Given its UNESCO world heritage status, the city conducted lighting upgrade complying with national heritage-rules
- Savings are higher than guaranteed, making the project more profitable for the contractor and the municipality

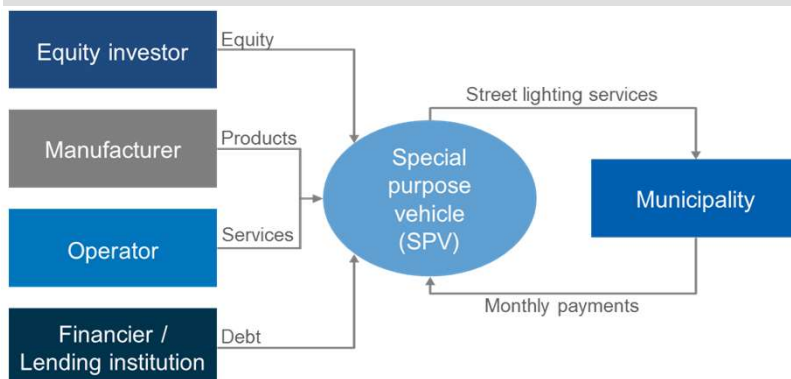
Case study 3

Public-private partnerships: project finance Krapina-Zagorje and Zagreb counties, Croatia



Project finance

Architecture



Other features

Projects that can be financed by this model:

- Large projects with investment costs over 20m EUR and duration 20-25 years

Jurisdictions that applied this model:

- Applied within the EU in Italy and France

Advantages

Municipalities:

- Leverage capital from the private sector
- Can carry out projects off balance-sheet
- Can contract for financial penalties, if targets are not achieved

Disadvantages

Municipalities:

- Suffer high transaction costs when implementing the SPV
- Not suitable for small projects

Krapina-Zagorje +Zagreb counties



Project scope

- Modernisation of street lighting in 57 cities and municipalities
- Replacement of at least 50% of all 70,000 existing luminaires to cut at least 60% of the initial electric energy consumption

Financing structure

- Depending on situation: simple contracting, EPC guaranteed savings, or project finance was applied
- In project finance: a local authority establishes an SPV, applying an EPC guaranteed savings model

Project overview

- Bilateral contract between ELENA and REGEA for TA to municipalities for €790,000 (90% / EIB + 10% / counties)
- Trilateral agreement between REGEA and Krapina-Zagorje and Zagreb counties
- The total investment volume of €20m

Implementation and outcome

- The project has saved up to 60% of baseline energy consumption for municipal street lighting

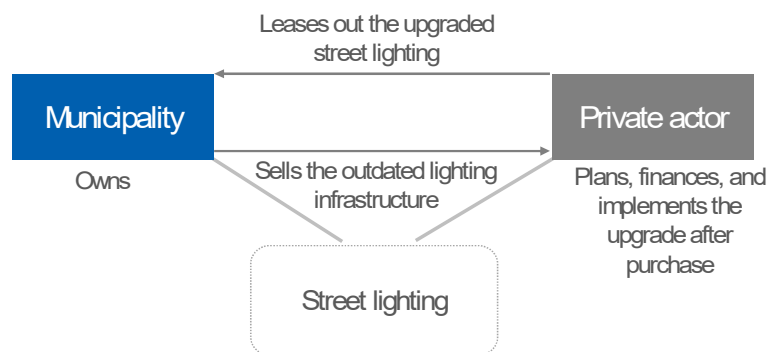
Case study 4

Public-private partnerships: leasing and concession Cesena, Italy



Leasing

Architecture



Other features

Projects that can be financed by this model:

- Suited for projects with high initial investment and high budget restrictions

Jurisdictions that applied this model:

- Not very common in EU, applied in Italy

Advantages

Municipalities:

- Spread financial risks and costs over time
- Outsource technical risks to the private sector
- No debt increase but new infrastructure

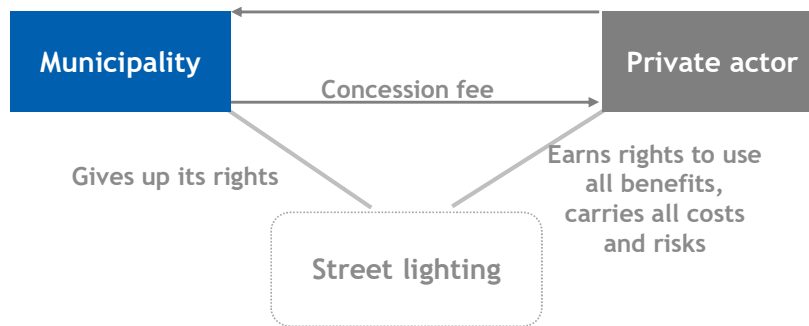
Disadvantages

Municipalities:

- Suffer higher costs in the long-term compared to self-financing
- Have no direct control over the assets

Concession

Architecture



Advantages

Municipalities:

- Spread financial risks and costs over time
- Outsource technical risks to the private sector
- No debt increase but new infrastructure

Other features

Projects that can be financed by this model:

- Any project is suited, as long as contracts are in line with the regulation

Jurisdictions that applied this model:

- Applied within the EU in Italy and France

Disadvantages

Municipalities:

- Suffer higher costs in the long-term compared to self-financing

Cesena: details



Project overview

- Its objective is to decrease energy consumption by 30-40%
- All existing and new street lights shall be upgraded to LED

Financing structure

- The municipal pays a leasing fee to the contractor, which in turn upgrades the street-lighting infrastructure
- At expiry ownership is transferred back

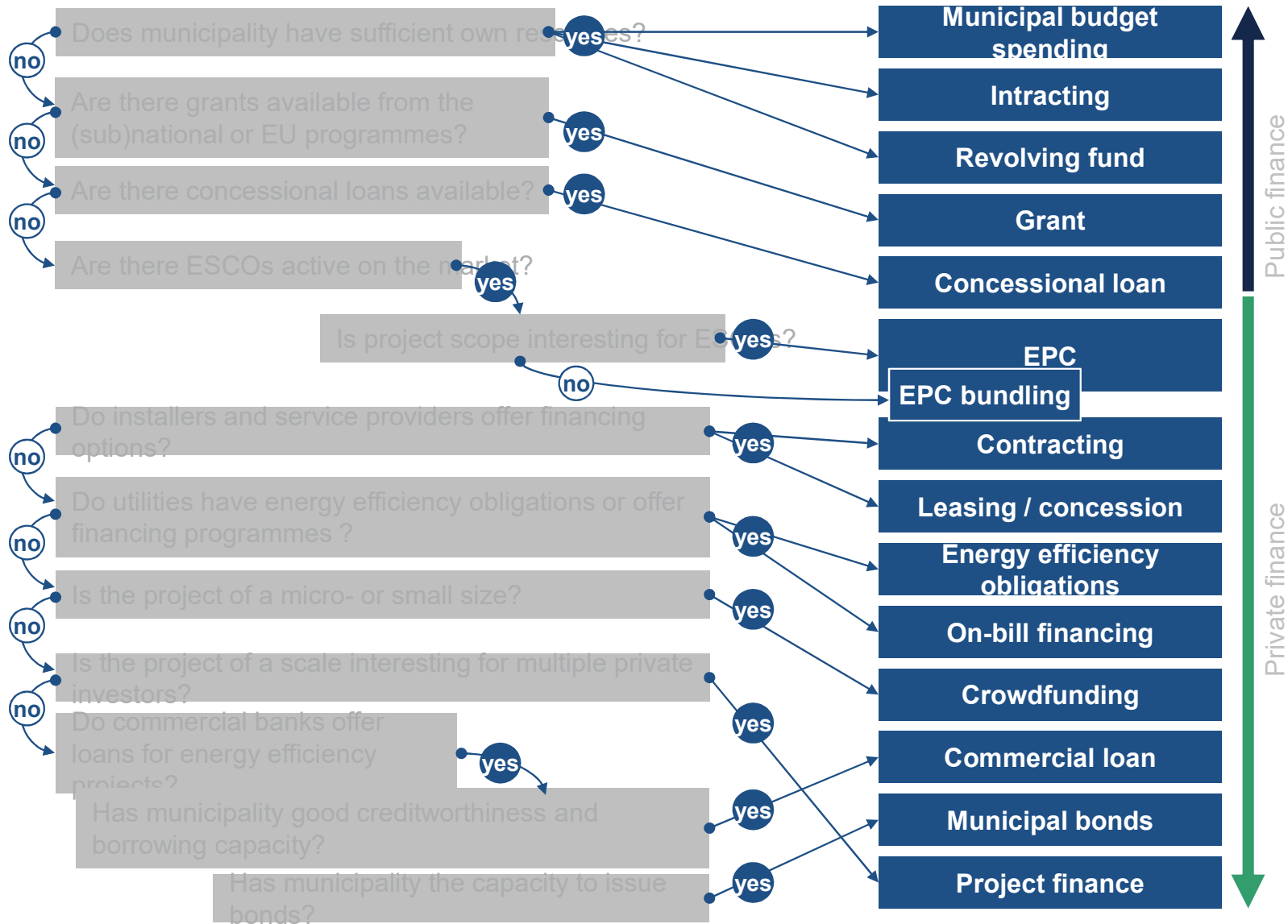
Project scope

- Out of the 21 k luminaries ownership of 15.8 k was transferred to the contracting partner in 2010, renewed in 2015
- The contractor is responsible for maintenance, control and management of the network and upgrading it

Implementation & outcome

- The municipal has created an investment plan together with the contractor
- In 2010-2017, 2.3m EUR were spent to upgrade the oldest 4.9 k luminaries

Decision-making tree



Conclusions



-
- There is no model which is best for every set of individual customer needs
 - Models differ in complexity, degree of autonomy of the municipality, risk sharing between municipality and an eventual private partner, number and kind of involved partners, costs, running time, etc.
 - Consulting an expert before deciding on a model is highly recommended
 - At a later stage, the "Dynamic Light" project will provide a guideline on how to find the most suitable model

Kontakt

Name Aleksandra Novikova
E-Mail aleksandra.novikova@ikem.de

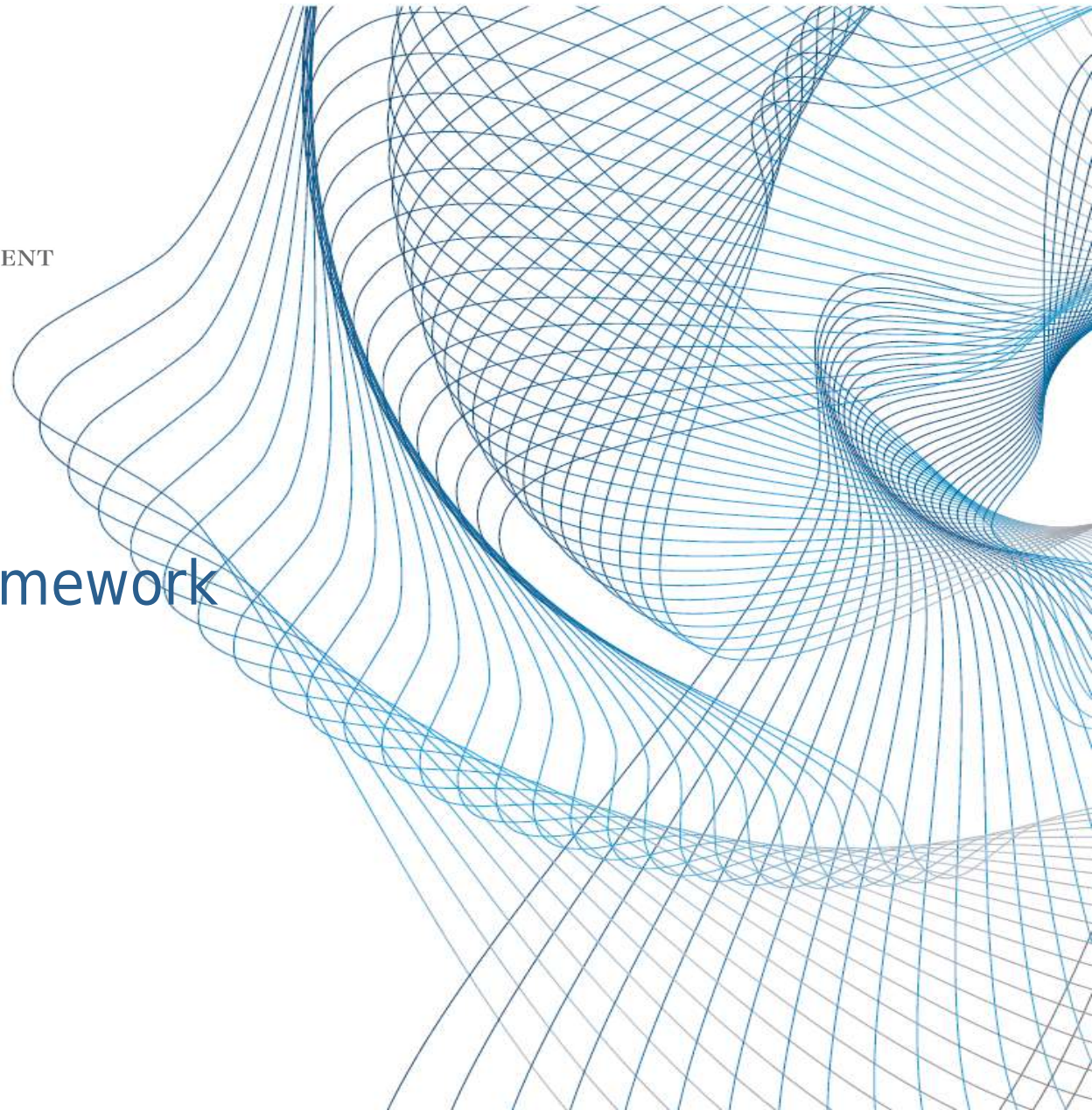
Institute for Climate Protection, Energy and Mobility
Magazinstr 15-16
10179 Berlin
www.ikem.de

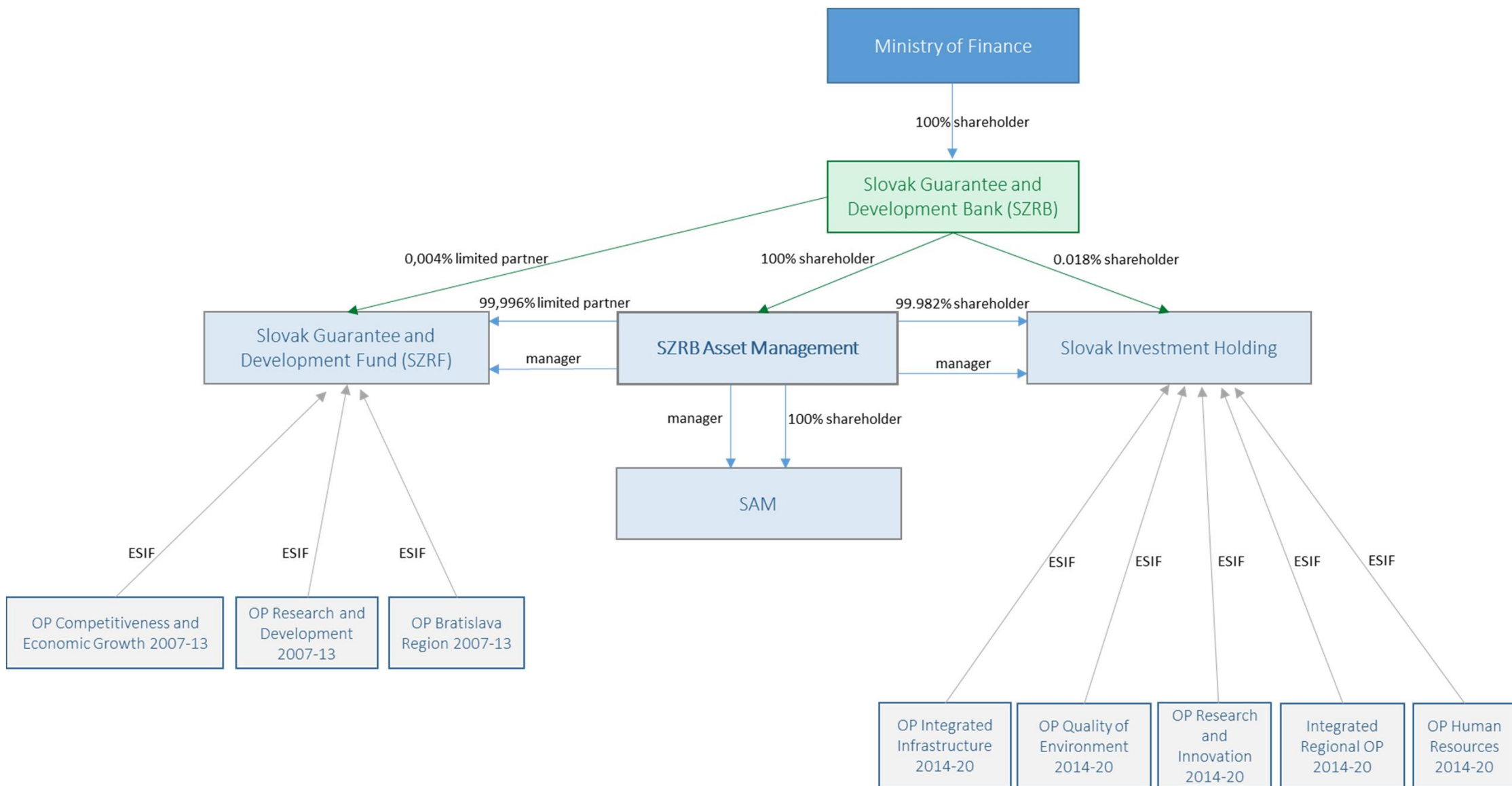
Dynamic Light website with all deliverables:
www.interreg-central.eu/Content.Node/Dynamic-Light.html



Preparing an EPC framework in Slovakia

May 2018
















SZRB Asset Management activities



SIH – Investment areas

Investment Areas		Allocation	Financial Instruments			
			Equity	Mezzanine	Soft Loans	Guarantees
	Infrastructure	 140	✓	✓	✓	✓
	Energy Efficiency	 177			✓	✓
	Waste Management	 73		✓	✓	✓
	SMEs	 160	✓		✓	✓
	Social Economy	 72	✓		✓	✓
SLOVAK INVESTMENT HOLDING	Total	 622				

Energy performance contracts in Slovakia

Benefits for CEE region (besides the obvious)

- EPCs and geographic neutrality – no ESIF limits for developed regions (Bratislava, Warsaw, etc.)
- Culture of fiscal discipline relatively strong in CEE
- EPCs as a learning opportunity in the context of the MFF post 2020
- EU financing is treated more favorably by Eurostat than national government financing

Energy performance contracts in Slovakia

Can public bodies handle the EPC complexity?

- New type of investments + relative complexity (essentially small PPPs)
- A lot of questions/decisions: Is EPC appropriate for me?
 - What is the level of potential energy savings?
 - How do I procure the ESCO?
 - How do I ensure the EPC stays off my debt?
- Various levels of administrative + technical capacity (central vs regional, big vs small)

Energy performance contracts in Slovakia

What we're working on in Slovakia

- Government conception
- Legislative amendments (accounting, taxation, public ownership legislation)
- Methodological guide – step by step approach
 - a) Including a standardized template EPC contract
 - Eurostat ex ante assessment
 - binding or not to be?
 - b) Including a standardized procurement approach

Energy performance contracts in Slovakia

Step by step approach for public bodies

- Preparing pilot projects (university dormitories) and learning along the way
 - Preliminary assessment (energy expenditure, current vs future use of the building)
 - Procure EPC advisor (energy audit + procurement assistance)
 - Procurement of ESCO (by the advisor)
 - Project implementation - installation of EPC assets
 - Verification + monitoring of energy savings
- NEXT> Step by step approach 2.0: large scale projects

Energy performance contracts in Slovakia


What's the market potential?

- 15,000 public buildings in Slovakia
- The more buildings renovated through EPCs, the better
- Not all parts of EPC investments can be repaid with energy savings within a reasonable time period
- Grants could extend the scope of renovation works and the scope of buildings

Energy performance contracts in Slovakia

Financing EPCs

- EIB and IFIs are ready, so are the banks
- EPC Guide is friendly towards EU financing
- Coordinated approach between grants and financial instruments would help (please tell the Commission)
- Technical assistance for project preparation (energy audits + procurement assistance)
- Several alternatives possible – depends on market trends



Roman Dojčák
Advisor to CEO
roman.dojcak@szrbam.sk

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How to build up/renovate and operate buildings
with the guarantee of minimum aggregate costs?

Performance guarantees = key element of
successful construction projects

Aleš Chamrád
CHAMRAD_LEGAL
Prague, Czech Republic
chamrad@chamrad.eu



Current practice in construction projects of public buildings

The roles of designer of the design and constructor are separated, Designer and Contractor (constructor) are selected in separate tender proceedings based on the lowest bid

The lowest price of the design and construction works does not mean the best construction of the building with the minimum aggregate costs

Contractor executes construction works based on detailed specifications (Detailed Design Documentation) provided by the Designer

Designer usually cannot predict all possible alternatives at the time of preparation of the Detailed Design Documentation

- No space given for innovation for the Contractor
- Liability for the project split between the Designer and the Contractor
- High risk of additional extra works/price increase/time delays of the construction projects



Missing performance guarantees in standard construction projects = unpredictable aggregate costs of the building

Missing performance guarantees of maximum operation costs of the building after the handover of construction project

Missing incentive and sanction mechanism for the completion of performance guarantees

No predictability of the operation costs of the building

APES

DESIGN



How to make “smart” construction projects? Time to think about Design - Build and EPC

Design-Build is a method of project delivery in which one Contractor works under a single contract with the Client to provide design and construction works

Contractor executes design and construction works based on functional and/or performance requirements set out by the Client

The roles of designer and constructor are integrated – a lot of space for interactive innovation

Contractor is liable for design and construction works

Lower risk of claims for additional extra works/price increase/time delays of the construction projects

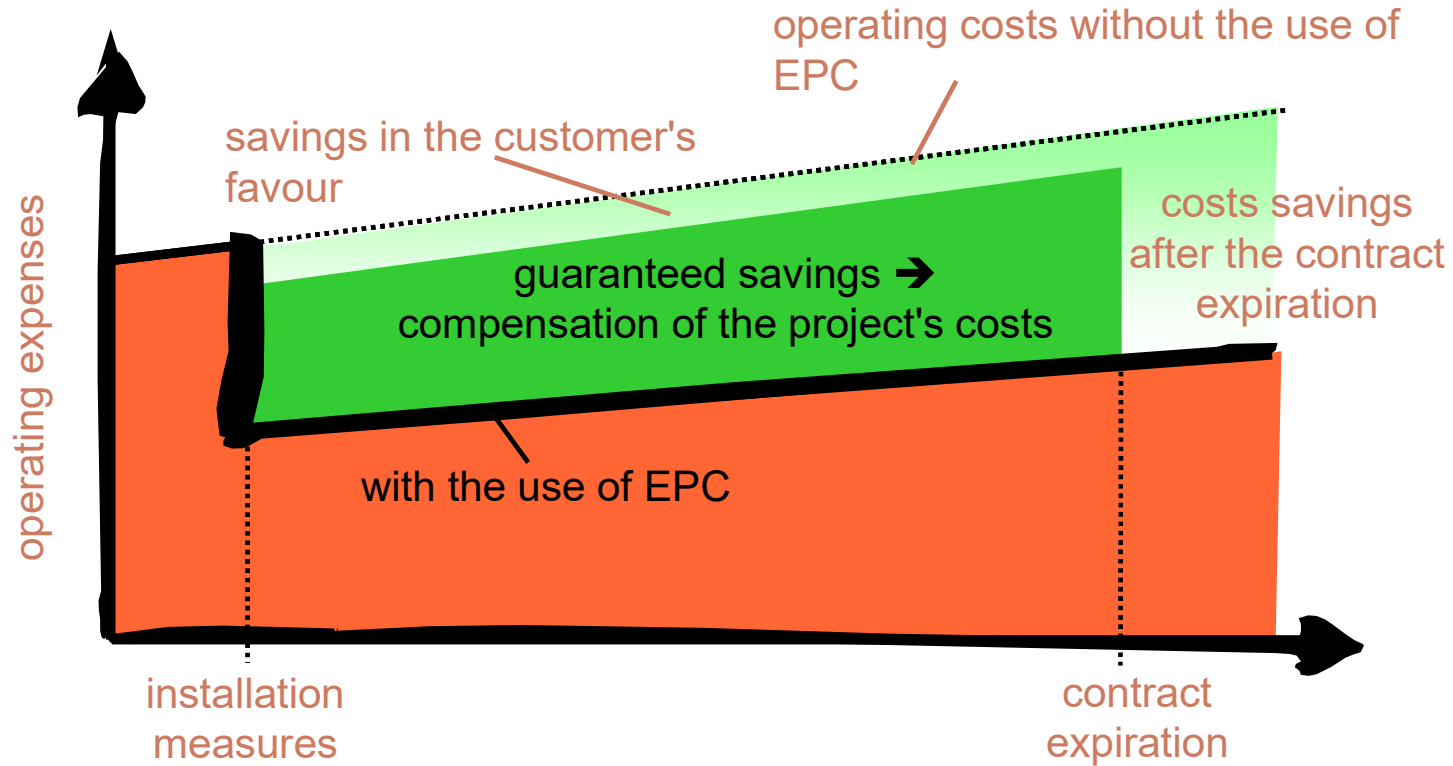
Only functional requirements are usually set up in Design – Build projects

APES

DESIGN & BUILD



Standard EPC performance guarantees scheme



Combination of the EPC and the subsidies

- Use of EPC model if payback period of investment on particular measures does not exceed 10 years
- Use of other methods of financing of installation of particular measures if payback period of investment exceeds 10 years
- Combination of the EPC contracts with subsidies tool for deep building renovation

APES

DESIGN



What about fusion of Design – Build and EPC?

Performance guarantees and significant transfer of risks on ESCOs = key characteristics of the EPC projects

EPC performance guarantees of guaranteed maximum operation costs of the building may apply to the construction of a new building as well to deep renovation

Implementation of Design-Build method with performance guarantees of life cycle costs of the building combined with financial incentives/sanctions

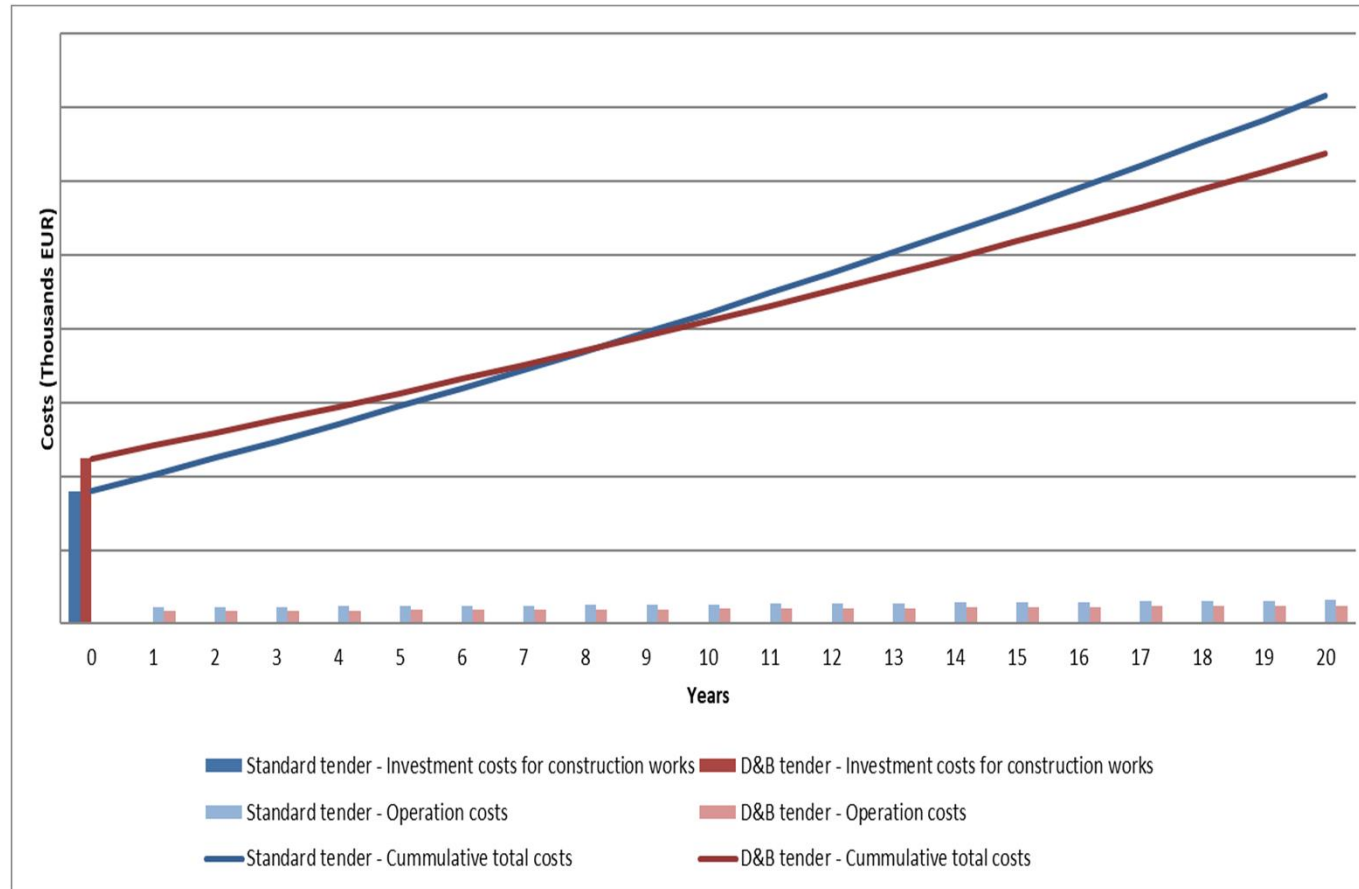
Motivation of the Contractor to implement innovative, smart approach and solutions from which the Client benefits

APES

DESIGN



Performance_Design – Build scheme



What to do to get projects ready?

ESCO companies are ready for

- EPC
- Mixed model
- Performance Design - Build

Who will identify potential projects and prepare relevant project brief / tender documentation?

How to set up functional and performance requirements of the project? It is not easy

Client needs a good advisory expert team

Selection of good advisory expert team by the Client = key element on the way to the execution of successful projects



Taxes and Energy Performance Contract

Influence of EUROSTAT rules on taxation in case of energy service provided via energy performance contracts

What is Energy Performance Contract?

- EED 2012/27/EU Article 2. 27. „ ‘energy performance contracting’ means 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 ***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;*** „

EED gives leniency to energy performance contracting, not providing a special form for accounting an taxation of energy performance contract!

In ***contradiction*** – Preamble (47) „... in an energy performance contract the ***beneficiary*** of the energy service ***avoids investment costs*** by using part of the financial value of energy savings to repay the investment fully or partially carried out by a third party.”



Whose investment?

In case where improving energy efficiency is paid for ***without clearly defined risk assumption*** of ESCO, it can be viewed as ***imputed loan*** similar to ***financial leasing – on balance sheet*** of energy service beneficiary.

Future cash flows from energy savings for settlement of payments ***do not influence on/off balance sheet treatment*** – ***however economic ownership does*** making EPC more similar to ***operating lease*** arrangement!

ESA 2010 7.17 - ***an asset is recorded on the balance sheet of its economic owner*** which is the entity that is "***entitled to claim the benefits associated with the use of the asset by virtue of accepting the associated risks.***"

EUROSTAT guidance note from 19. September 2017, 1.7. defines „... if the EPC-contractor bears the ***majority of the risks and rewards*** associated with the use of the EPC asset, the former should be considered as ***the economic owner*** of the asset and should record it on its balance sheet. „

Although EUROSTAT guidance note refers to government accounts, similar treatment is with private entities contracting EPC, and ***it does define taxation treatment of assets and income in EPC!***

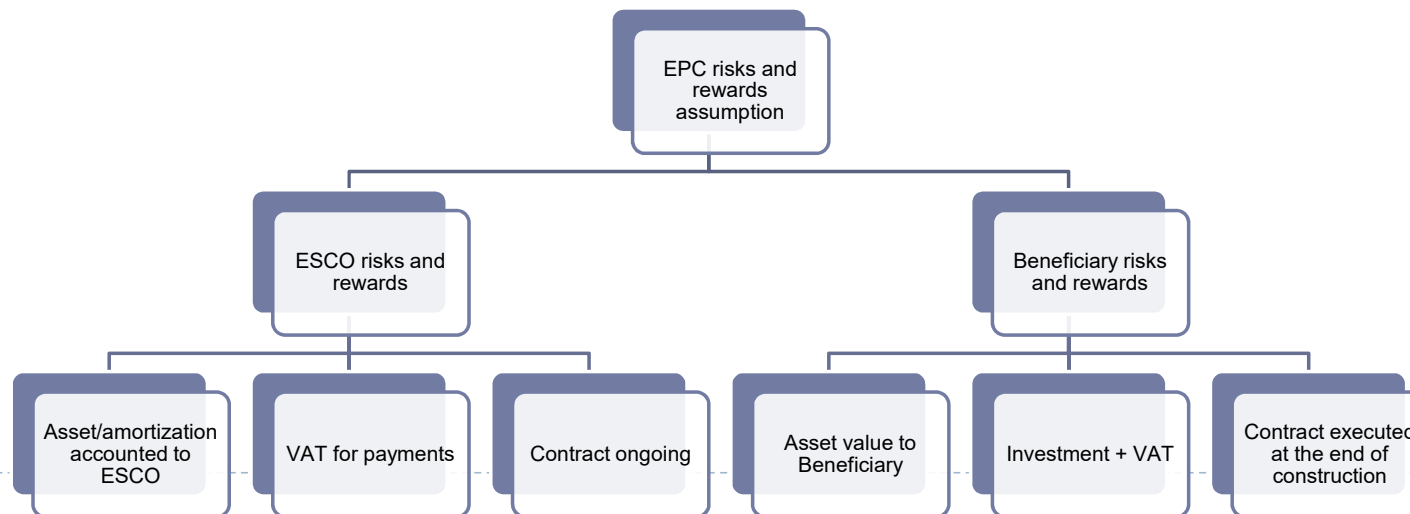


Taxes

Taxes will depend on the moment of execution of contract – transfer of risks and rewards from seller to buyer.

Depending on moment of execution, taxes shall be defined:

- ☐ Income related taxes
- ☐ Asset value
- ☐ Amortisation
- ☐ Value added tax



Comparison of different tax treatments

Taxes will depend on the moment of execution of contract – transfer of risks and rewards from seller to buyer.

Depending on moment of execution, taxes shall be defined:

- ☐ Income related taxes
- ☐ Asset value
- ☐ Amortisation
- ☐ Value added tax

Example:

Investment 1.000.000€

VAT 15%

Income tax 20%

Guaranteed savings value: 150.000€/year

Contract termination: 10 years

2 different options for tax treatment are given in the following table:



Comparison of different tax treatments

Topic	Option 1 – ESCO takes risks and owns economic value		Option 2 – Beneficiary takes risks and owns economic value	
	ESCO Ltd.	Beneficiary	ESCO Ltd.	Beneficiary
Income related taxes	Payments recorded as income	Payments recorded as expense	Investment recorded as income at transfer of assets	Investment recorded as expense
Asset value	Accounted to ESCO	-	-	Asset transferred to beneficiary at the execution
Amortisation				
VAT	On payments		On investment	
Contract execution	Ongoing for ESCO period		Executed at the end of construction	

Example – comparison of different tax treatments

Topic	Option 1 – ESCO takes risks and owns economic value		Option 2 – Beneficiary takes risks and owns economic value	
	ESCO Ltd.	Beneficiary	ESCO Ltd.	Beneficiary
Income related taxes (20%)	30.000 EUR/year (20% of annual income)	150.000 payments recorded as expense	1.000.000 + margin - entire income recorded at the end of construction	10% of investment (200.000+ EUR/year) amortisation as expense
Asset value	1.000.000 EUR accounted to ESCO	-	-	1.000.000+ EUR accounted to beneficiary at the execution
Amortisation	200.000 EUR/year	-	-	200.000 EUR/year
VAT	22.500 EUR/year		150.000+ EUR at investment	
Contract duration	10 years		1 time – at the end of construction	

Ensuring consistency will bring to full scale implementation/roll-out

Due to clear definitions provided by EUROSTAT on ***what is ESCO*** market, ***EU market for ESCO's can be created***, as it made clear distinction of Energy Performance Contract and other arrangements.

To make EU market ***one market*** it is necessary to:

Develop accounting standards: national accounting standard related to international accounting standards – defining taxing in the same way accross EU

Regulation of energy service: creating same terms and definitions for ESCO market

Grants and Inovative financial instruments: defintion of investor, assets, liabilities, time of transaction and procurement rules are necessary for development of market based subsidies for ESCO's and dealing with state aid rules

► ***Enlarging the market:*** ESCO's can renovate multitennant buildings in line with

Thank you for attention!

Ivan Šerić

Questions for breakout groups

- ☐ 1. Please list **1-3 key insights** that you have taken from the presentations.
- ☐ 2. **Which financing models** for energy efficiency in public sector have you found particularly interesting and why? **Which ones already exist in your countries, which ones do you think could be (further) developed & how?**
- ☐ 3. **What could be done to increase the use** of financing methods such as PPPs and ESCOs for EE in public sector and **to target higher energy savings by these methods?**



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Thank you and see you soon!