



# U4E Sustainable Public Procurement (SPP)

Workshop on New SPP Toolkit Asia Pacific

03 June 2021

09:00-10:30 Paris, France (UTC+2)

# Learning Objectives

## General

- Understand how the newly-developed **UNEP SPP Toolkit** can help you to procure sustainable lighting and cooling products.
- Comprehend the **main features** of the UNEP SPP Toolkit, its **integrated purchasing process approach** and how it **feeds into** the existing UNEP SPP Implementation Guidelines.

## Specific

- Understand the **key sustainability aspects** of cooling and lighting products from a procurement perspective.
- Become familiar with the main **challenges and opportunities of SPP cooling and lighting** projects to facilitate SPP decision-making and implementation.
- Understand the criteria to assess the **ESG risks** of vendors, and how these can be incorporated into the standard set of vendor criteria.
- Become familiar with **technical specifications** and award criteria for SPP cooling and lighting products.
- Become aware of existing and planned **SPP resources**, including SPP Procurement Guidelines, and Green Public Procurement Technical Guidelines and Specifications.

# AGENDA

15:00 - 15:15

**Welcome and introductory survey**

15:15 - 15:30

**Key Sustainability Aspects, Barriers**

15:30 - 15:50

**Open Discussion – Procurement Models**

15:50 - 16:10

**The Different Delivery Models**

16:10 - 16:25

**Proposed Technical Specifications & Approaches, and ESG**

16:25 - 16:30

**Conclusions & wrap-up**

1

# Welcome

# U4E Partner Organizations

## Manufacturers & Industry Associations



## Technical Organizations & Initiatives



## Funders & Financiers



# Meet the U4E team



## Management and Core Team



**Miriam HINOSTROZA**  
*Senior Programme  
Management Officer*



**Paul KELLETT**  
*Programme  
Management Officer*



**Brian HOLUJ**  
*Programme  
Management Officer*



**Patrick BLAKE**  
*Programme  
Management Officer*



**Roberto BORJABAD**  
*Programme  
Management Officer*



**Madeleine EDL**  
*Energy Efficiency  
Specialist*



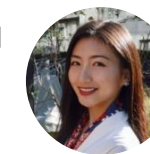
**Marco DURAN**  
*Energy Efficiency  
Specialist*



**Soledad GARCIA**  
*Energy Efficiency  
Specialist*



**Souhir HAMMAMI**  
*Energy Efficiency  
Specialist*



**Hao WU**  
*Energy Efficiency  
Specialist*



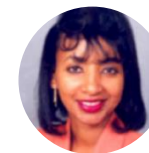
**Saikiran KASAMSETTY**  
*Energy Efficiency  
Specialist*



**Sophie LORAN**  
*Branch  
Communications  
Officer*



**Moira MATHERS**  
*Communication  
Specialist*



**Meseret ZEMEDKUN**  
*Programme Manager,  
Energy, UNEP Africa*



**Angele LUH-SY**  
*Head,  
UNEP West Africa*



**Alexandra KAREKAHO**  
*Programme  
Management Officer,  
UNEP Caribbean*



## Regional Office Collaboration



**Sudhir SHARMA**  
*Programme  
Management Officer,  
UNEP Asia Pacific*



**Mohammed ANGAWI**  
*Programme  
Management Officer,  
UNEP West Asia*



**Dolores BARRIENTOS**  
*Representative Officer,  
UNEP Mexico*





## National/Regional Experts



**Loreto DUFFY-MAYERS**

*Cooling Policies, Caribbean*



**LaToya JOHNSON**

*Cooling Policies, Bahamas*



**Ivan RELOVA**

*Cooling Policies, Dominican Republic*



**Sylvester CLAUZEL**

*Cooling Policies, Saint Lucia*



**David Barret**

*Cooling Policies, Jamaica*



**Morris KAYITARE**

*Cooling Policies, Rwanda & East Africa Community*



**Ousmane SY**

*Cooling Policies, Senegal*



**Edem KNIGHT-TAY**

*Marketing and Communications, Ghana*



**Mouhamed Moudjtaba KANE**

*Marketing and Communications, Senegal*



**Eric ANTWI-AGYEI**

*Cooling Policies, Ghana*



**Issa Nkurunziza**

*Africa Centre of Exc. in Sustainable Cooling & Cold Chain*



**Mzwandile THWALA**

*Cooling Policies, Southern African Development Community*



**David WELLINGTON**

*Market Analysis and Modelling*



**Ekkarin BOSAKORNANUT**

*Lao PDR Project Coordinator*



## International Experts



**Won Young PARK**

*Cooling Technologies and Policies*



**Jose Ramon CARBAJOSA**

*Waste Management*



**Steve COYNE**

*Lighting Expert*



**Bruno LAFITTE**

*Lighting Expert*



**Heidi SUMSER**

*Sustainable Public Procurement Expert*



**Miquel Pitarch MOCHOLI**

*Cooling Technologies and Policies*



**Victor MINGUEZ**

*Finance & Market Monitoring*



**Ray GLUCKMAN**

*Refrigerants, Efficiency and GHG Modelling*



**Frederick BASS**

*Lighting Expert*



## Contracts with

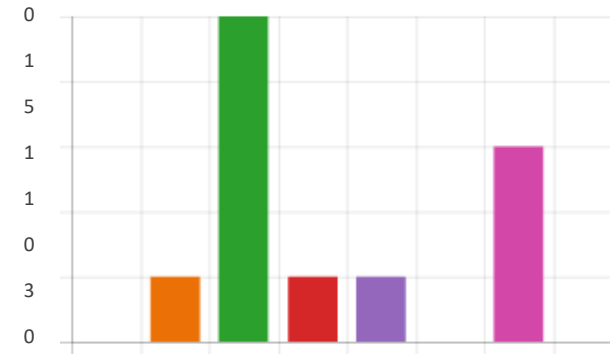


# Survey Result

1. Which procurement activities are you currently working on or recently completed? Indicate all that apply

[More Details](#)

- Street lighting
- Indoor lighting
- Air conditioning - single units (split type)
- Air conditioning - centralised system
- Refrigerators
- Vehicles
- Computers
- Other



2. Which procurement processes are you anticipating in the next year or so?

[More Details](#)

7  
Responses

Latest Responses

"Expansion on green specifications so people may procure more green it..."

"shopping"

"unsure"

3. Which capacity constraints do you face? Indicate all that apply

[More Details](#)

- No time to organize SPP process.
- Unfamiliar with the development of Life Cycle Cost assessments
- Unfamiliar with the technical characteristics of sustainable products
- Lack of legal and financial experience on alternative procurement options (beyond budget allocations).
- Other

0  
5  
5  
4  
2





# Public Procurement



## Relevance

## Transforming appliances market

23%

GDP

Government expenditure in ASEAN countries



Retailers favor import of low-cost (outdated) technologies

2-3

years

Payback for extra cost of an efficient AC



SPP can build upon existing legislation:  
MEPS & Labels  
Kigali amendment  
NDCs, etc.

# SPP Toolkit



## Approach

## Integrated purchasing process



### Legislation framework

International: NDC, Kigali, ILO, etc.  
National: Public finances & procurement



### Financing models

“Regular” capex procurement  
Alternative delivery models



### Sustainability requirements

Product: primarily environmental  
Supplier: primarily social & governance



### Soft factors

Additional community benefits  
Political buy-in



Toolkit includes:

Assessment document & Excel worksheet

2

# Key Sustainability Aspects, and Barriers

# Three Sustainability Aspects



## Overview of considerations

"Green"



		Assessment areas				
<b>Environmental</b>	Ozone depletion	Direct GHG emissions	Indirect GHG emissions	Hazardous substances	Waste minimisation	Light pollution
<b>Social</b>	Effect of lighting and cooling on quality of life			Worker rights		
<b>Economic</b>	Budget implications			Local job creation		

GPP Technical guidelines and specifications

[Toolkit & GPP Technical guidelines and specifications](#)

Toolkit






		Influencers		
		Product	Vendor/Manufacturer	Delivery model
<b>Environmental</b>	High	Medium	Low	
<b>Social</b>	Low	High	Medium	
<b>Economic</b>	High	Low	High	

# Three Sustainability Aspects



## International conventions

	Convention / Agreement	Focus
 Environmental	<b>Montreal Protocol – Kigali amendment</b>	HFC phasedown – Sets targets & timelines for reducing the consumption and production of hydrofluorocarbons (HFCs)
	<b>UNFCCC - Paris agreement</b>	Nationally Determined Contributions - Individual national targets on Greenhouse Gas emissions reduction.
	<b>Stockholm convention</b>	Prohibit and/or eliminate the production and use, as well as the import and export, of the intentionally produced Persistent Organic Pollutants.
	<b>Minamata convention</b>	Phase out and phase down of mercury in a number of products and processes, amongst other measures.
 Social	<b>International Labour Organization</b>	189 conventions and treaties promoting decent work.
 Economic	<b>UNCITRAL model law on public procurement</b>	Model law on public procurement aimed at assisting states in formulating modern procurement regulations.
	<b>International Financial Reporting Standards</b>	Standard way of describing the institution's financial performance and position

\*This list does not mean to be exhaustive. It covers most relevant examples

# Barriers to SPP



## The Problem

### Financial Barriers



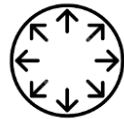
- Higher initial cost ←
- Competing projects
- Limited revenue-generating capability

### Awareness barriers



- Business as usual momentum
- Lack of reliable data and comparability between products
- Inadequately informed of sustainable technologies and pros / cons

### Capacity barriers



- Public entities:
  - Lack of personnel
  - Lack of knowledge / training
- Vendors:
  - Limited experience with newer technologies (e.g. hydrocarbon refrigerants) ←
  - Unadapted business models

### Regulatory barriers



- For all delivery models:
  - Rigid procurement regulations ←
  - Lack of standards
- For alternative delivery models:
  - Limited financial commitments
  - Accounting regulations

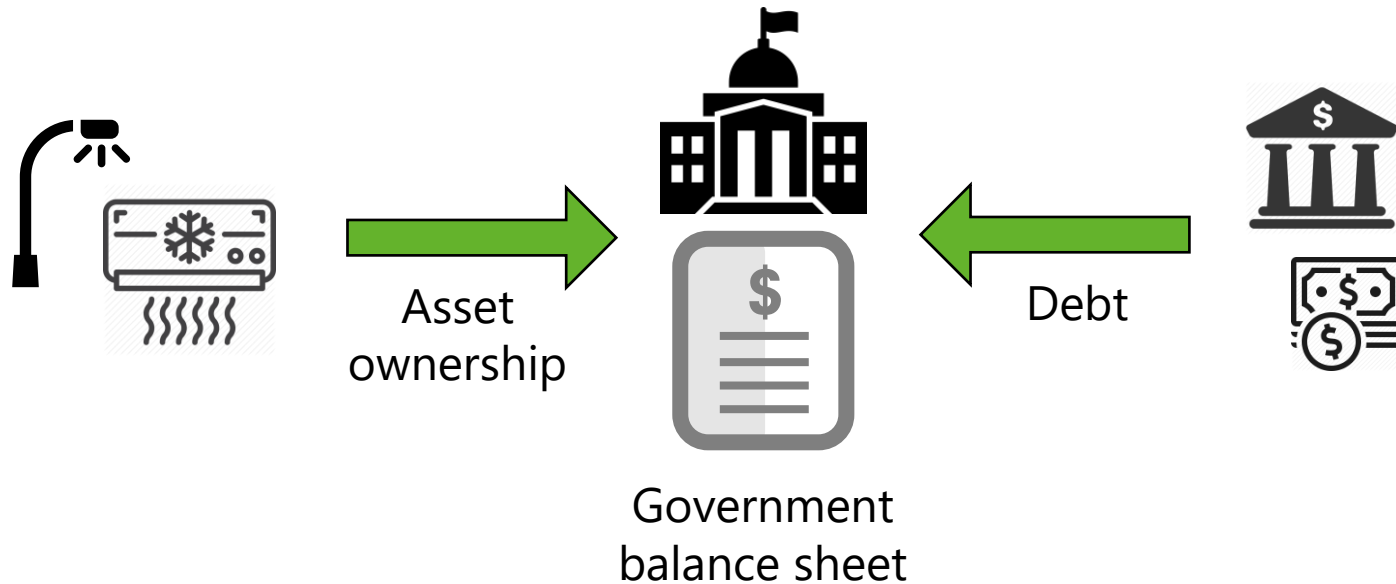
3

# Delivery Models

# From the Standard Project Development Model...



## Overview



## Characteristics

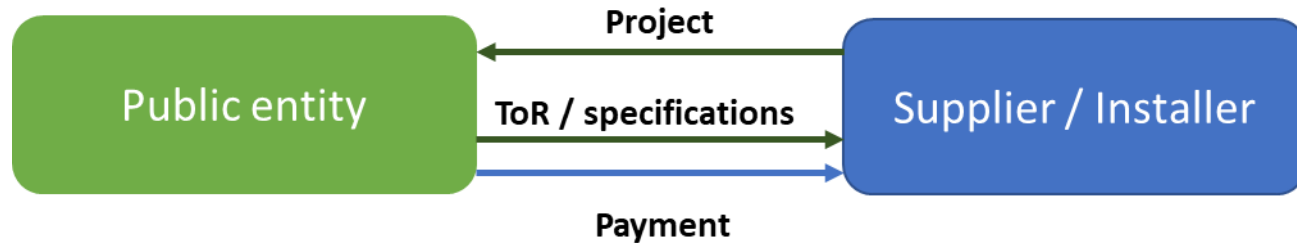
- Separates the technical process from the funding process
- Public institution's funding availability and debt limitations are among the constraints



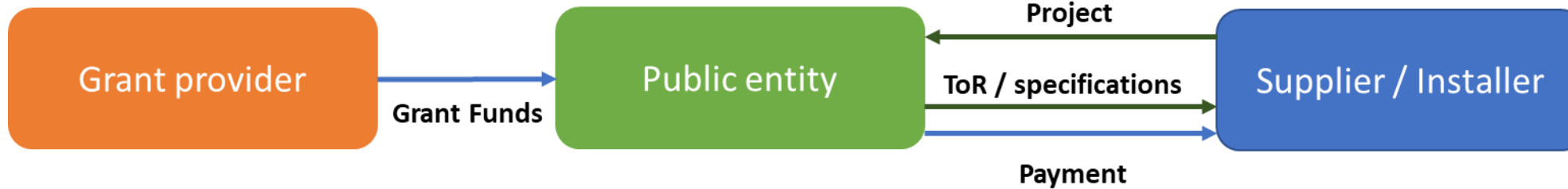
# Delivery Models

A

## Standard Project development – own resources/grant funding



*Own resources*



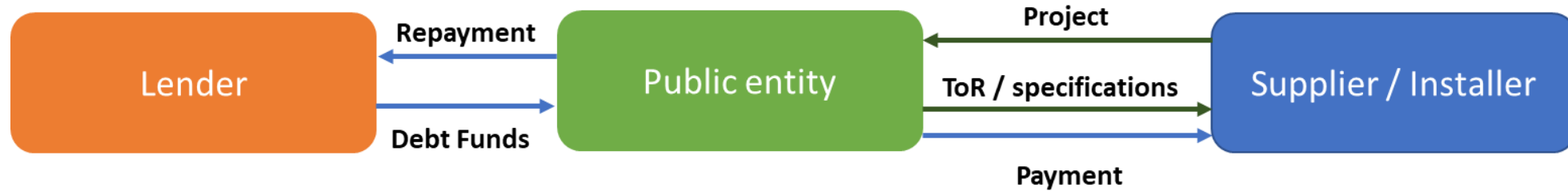
*Grant Funding*

# Delivery Models

B

Standard Project development – financing the end-client

*Debt financing model*



# Delivery Models



## ESCO model: performance guarantee – financing the end-client

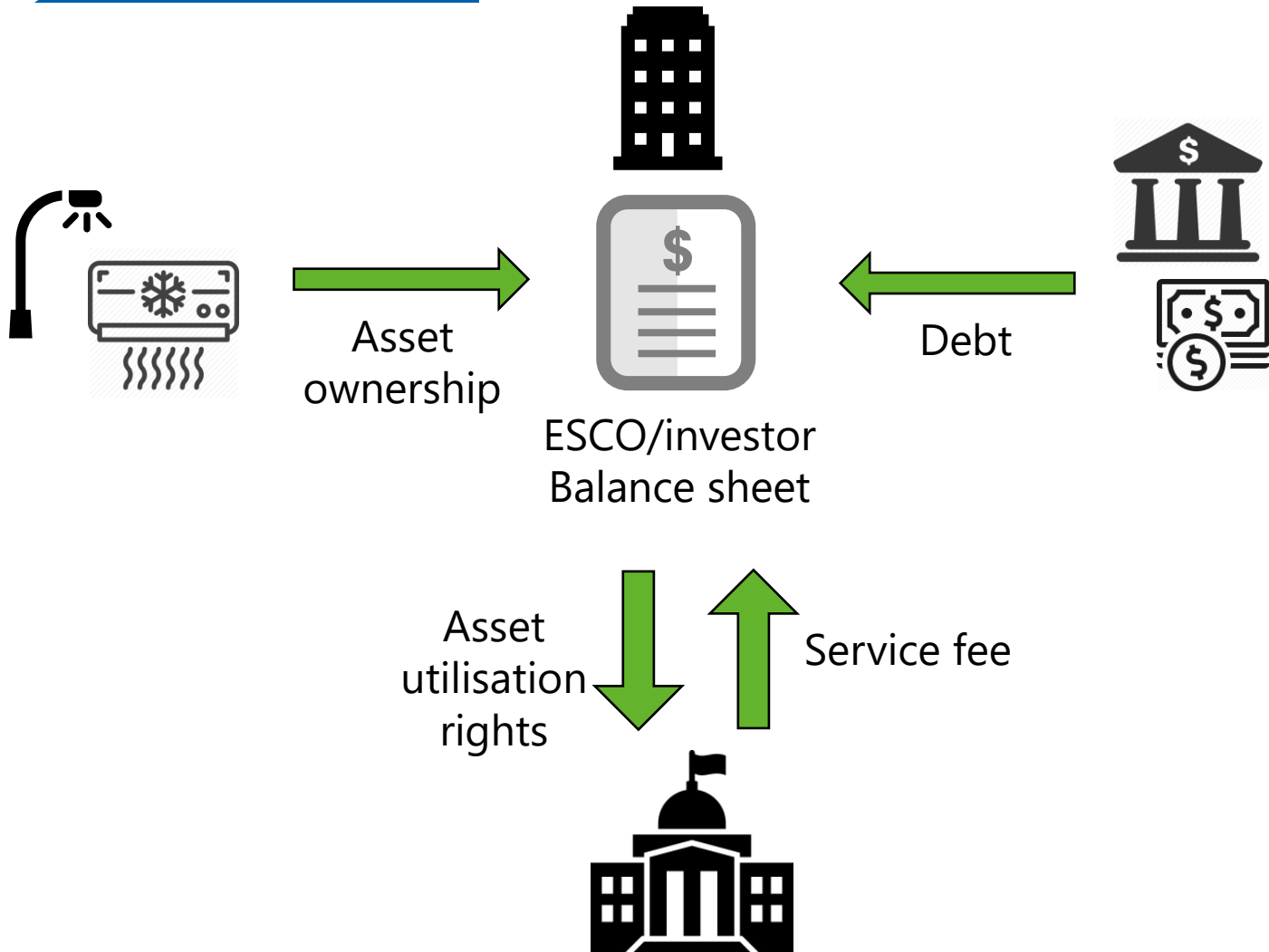
*Performance guarantee model*



# ...to the Asset Servitisation Model



## Overview

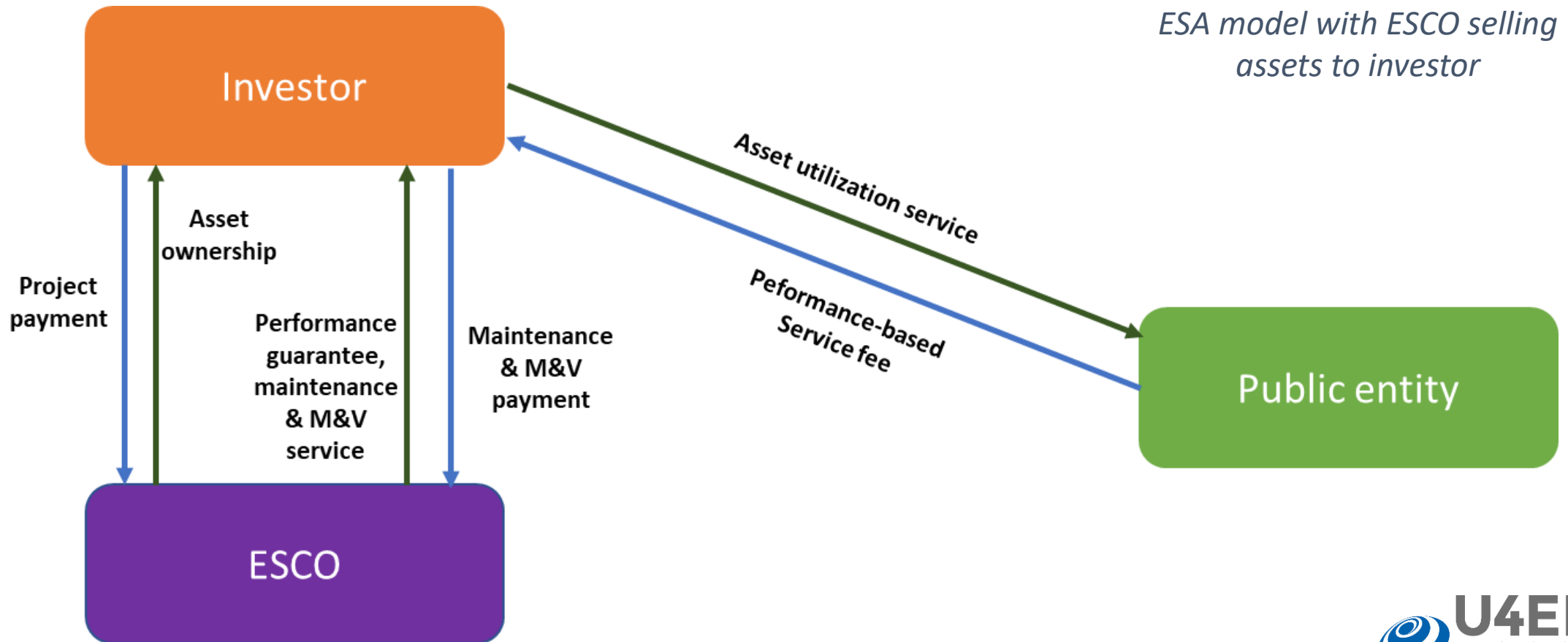


## Some of the Benefits of "Asset-as-a-service:"

- With transfer of asset ownership, the government receives the rights and benefits of use without having to own and maintain the equipment.
- Allows the government or government-owned entities to have a reduced debt burden and tax liability.
- Facilitates project investment since there is no competition with CAPEX in the budgeting process.

# Delivery Models

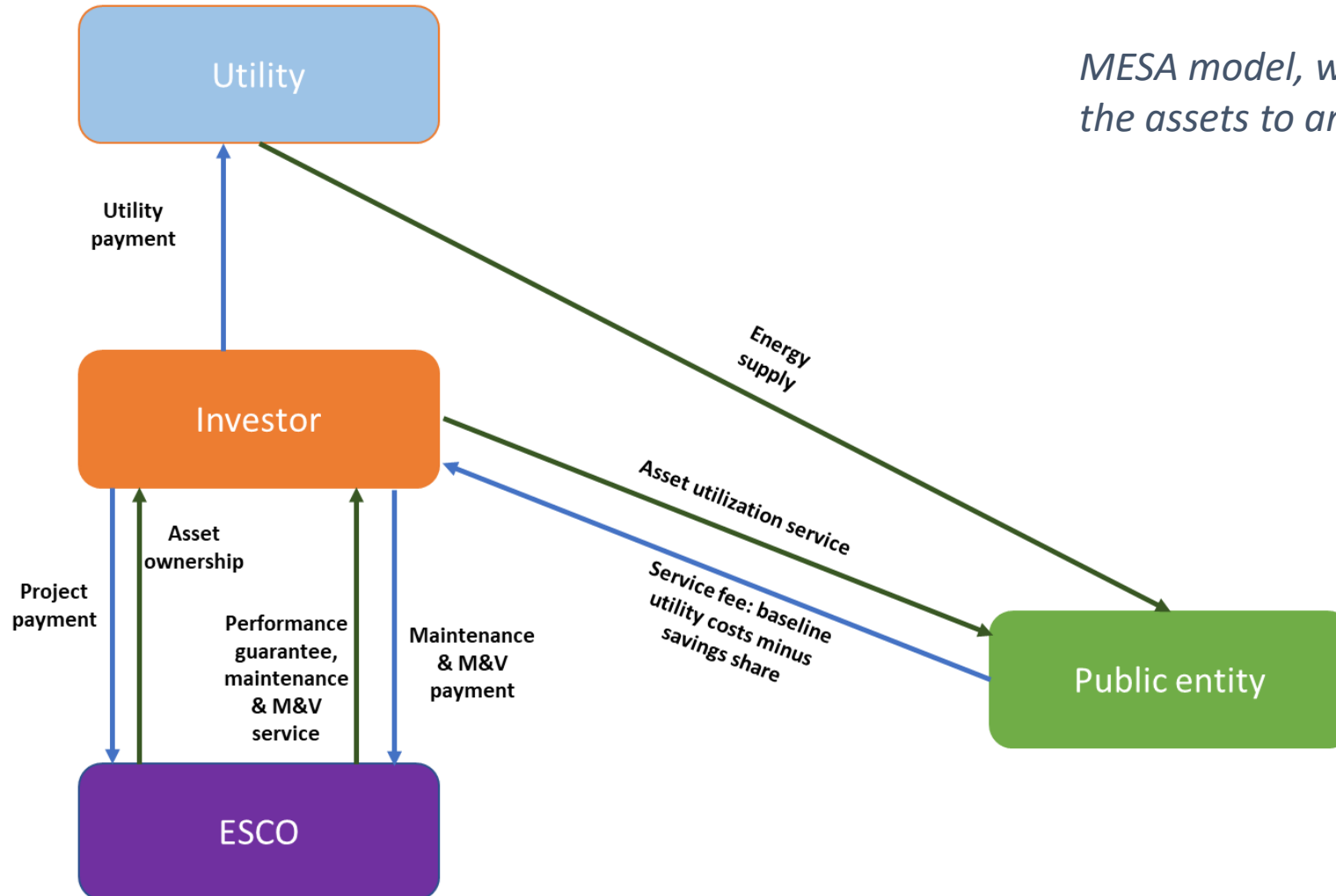
## D ESCO model: Energy Services Agreement (ESA) / shared-savings



# Delivery Models

E

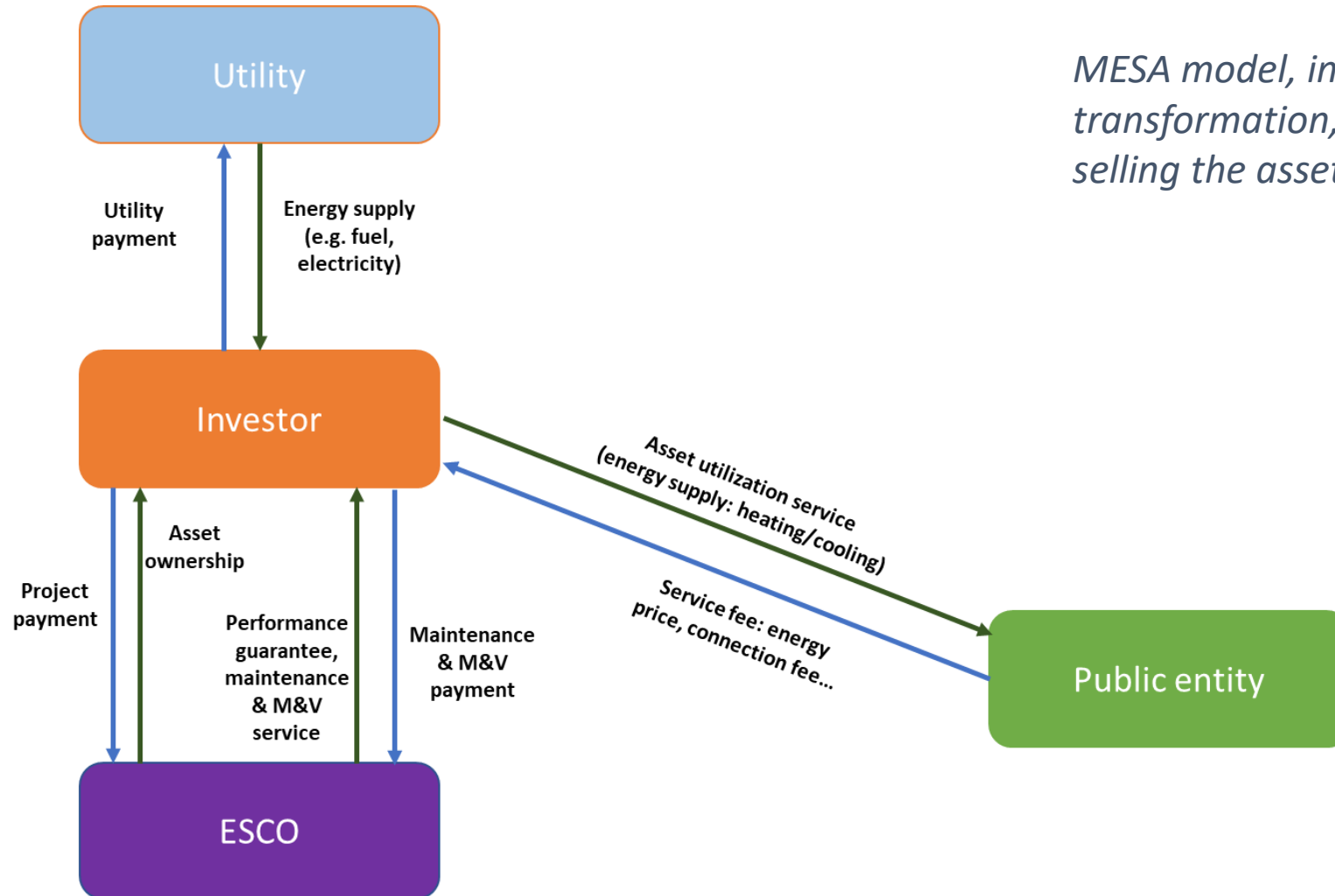
## ESCO model: Managed Energy Services Agreement (MESA) – financing the ESCO



# Delivery Models

E

## ESCO model: Managed Energy Services Agreement (MESA) – financing the ESCO



*MESA model, including energy transformation, with ESCO selling the assets to an investor.*

# Survey & Open discussion

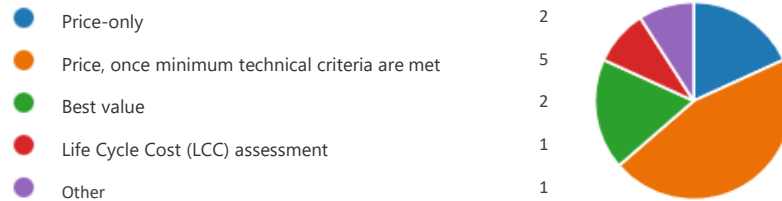
1. Which delivery models are available in your regulations? Indicate all that apply.

[More Details](#)



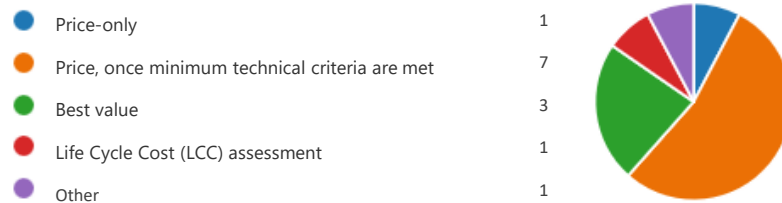
2. Which assessment models have you used in the past? Indicate all that apply.

[More Details](#)



3. Which assessment models are available in your regulations? Indicate all that apply.

[More Details](#)





# Delivery Models



## Advantages

Model	Keeps public entity in control of infrastructure.	Lowest lifetime cost	Lower upfront cost	Easy-to-understand model	Less limited by the technical capability of the public entity	Performance risk transferred to ESCO	No upfront cost.	Potential OpEx funding – Off-balance sheet and reduces tax liability	Bundles projects into a single funding recipient – scalable and attractive for financial institutions
Standard project development – own resources / grant funding	X	X		X					
Standard project development - debt funding	X		X	X					
ESCO model, performance guarantee - financing the end-client					X	X			
ESCO model shared savings - financing the ESCO					X	X	X	X	X
ESCO model, ESA/MESA – financing the ESCO				X	X	X	X	X	X

# Delivery Models



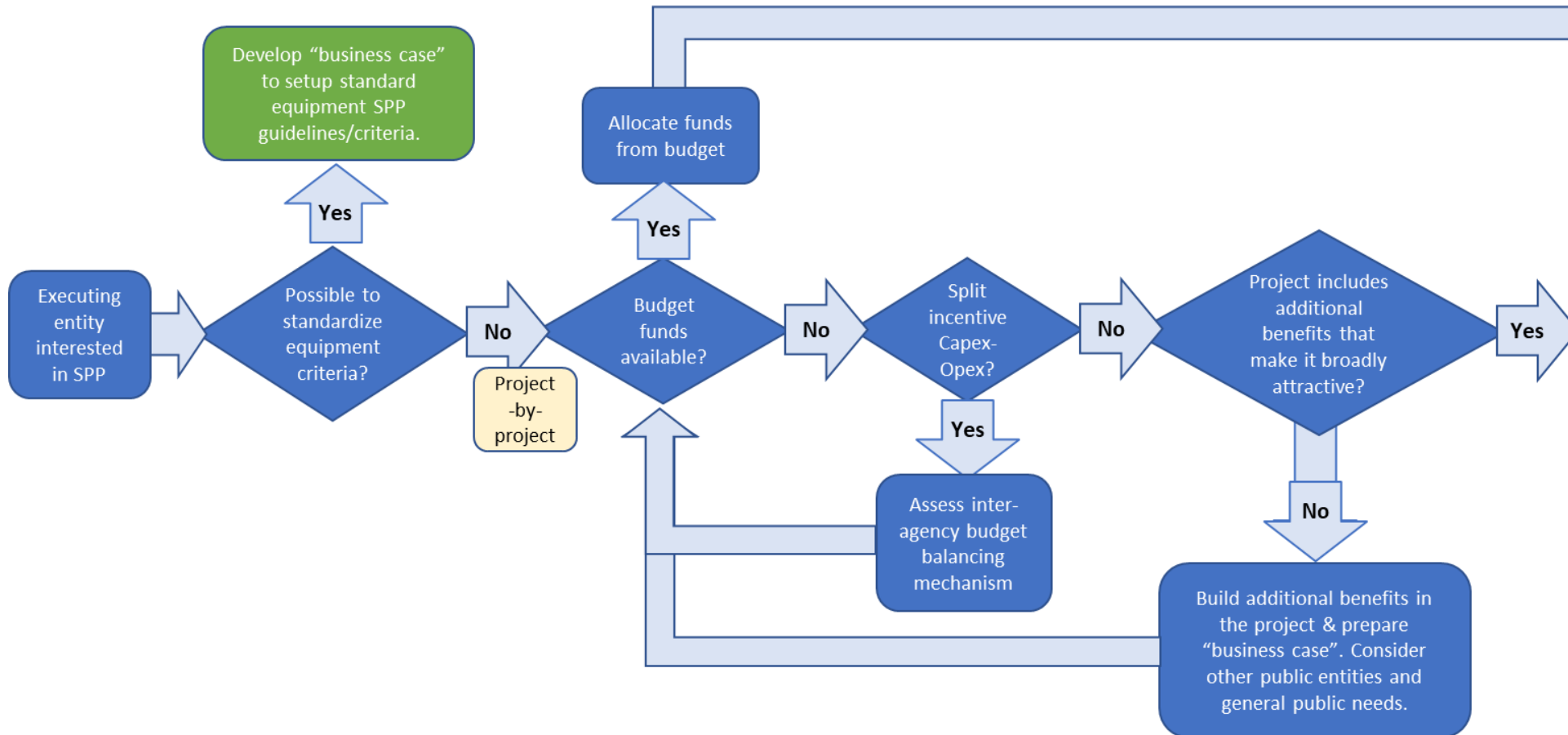
## Disadvantages

Model	Funding may be limited	Public entity keeps performance risk	Competition with other CapEx projects in annual budget	Requires technically competent project preparation	Requires a credit-worthy public entity that can raise debt.	On-balance sheet financing	Limited benefit for technically-competent entities	Higher costs due to continuous Monitoring & Verification	Requires presence of ESCOs in the market	Requires sophisticated financial institutions that understand ESCO models	Public entity willing to transfer the operation of critical infrastructure to a private company?	Negative perception of new models by the general public?
Standard project development – own resources	X	X	X									
Standard project development - debt funding		X	X	X	X	X						
ESCO model, performance guarantee					X	X	X	X	X			
ESCO model ESA/shared savings								X	X	X	X	X
ESCO model, MESA									X	X	X	X

# Proposed Approach for Implementation



## SPP Policy & Action Plan

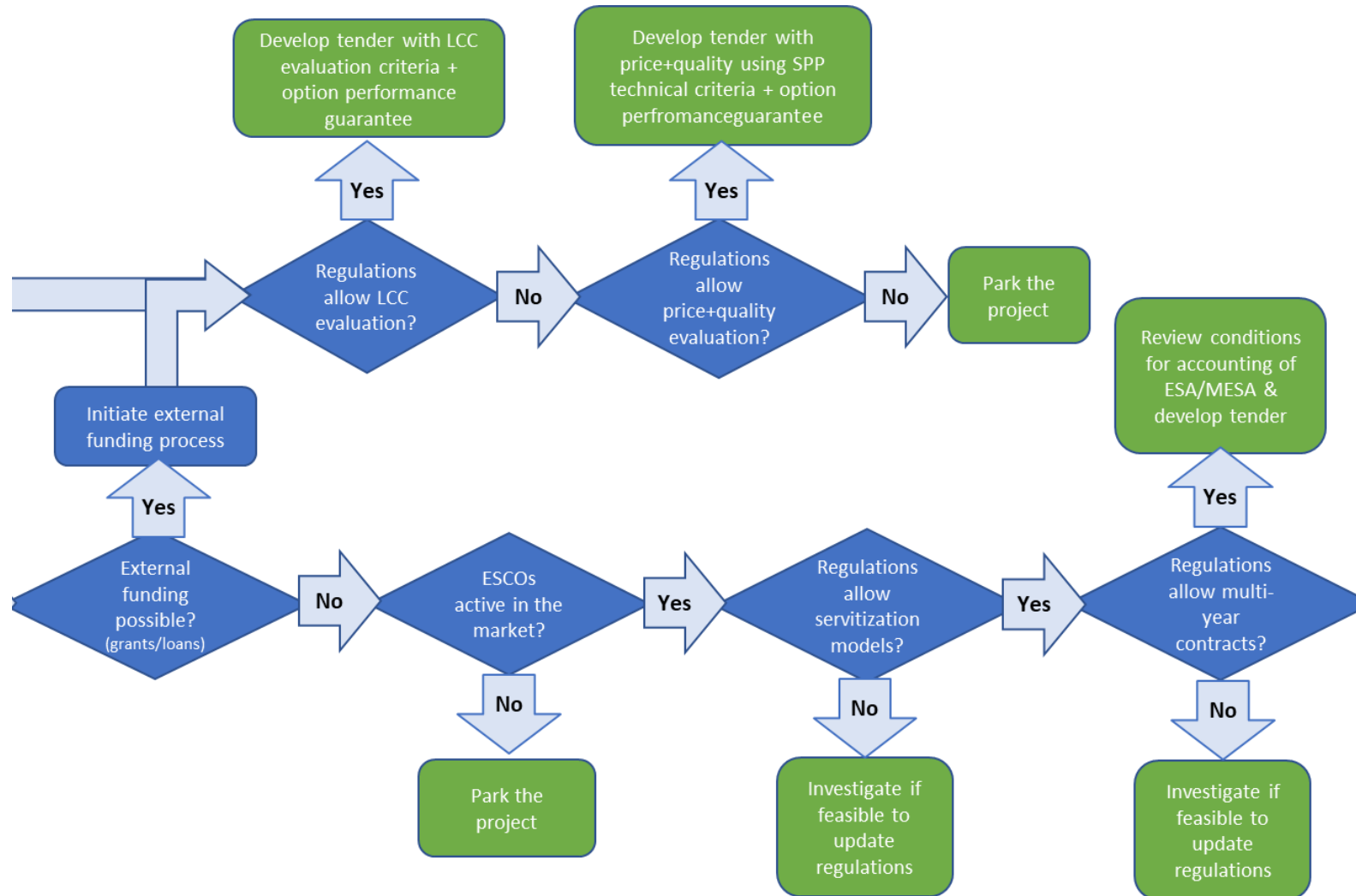


continues...

# Proposed Approach for Implementation (continued)



## SPP Policy & Action Plan



...continued

# Delivery Models - Examples



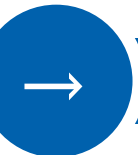
## Standard delivery model – own resources, sustainable AC policy

### Air conditioning

PROJECT SETTINGS			
Project type	New installation		
Remaining lifetime existing equipment	5 years (only replacement projects)		
Annual active time	4973 h (weather dependent)		
Equivalent Full Load Hours	2812 h (weather dependent)		
BASELINE		SPP PROJECT	
Model	Units	Model	Units
3.5 kW - Non-MEPS new equipment -	4000	3.5 kW - M.Reg. Intermediate E	4000
3.5 kW - Non-MEPS new equipment -	3000	3.5 kW - M.Reg. Intermediate E	3000
5.3 kW - Non-MEPS new equipment -	2000	5.3 kW - M.Reg. Intermediate E	2000
5.3 kW - Non-MEPS new equipment -	1000	5.3 kW - M.Reg. Intermediate E	1000

RESULTS	BASELINE	SPP PROJECT	
Project costs	\$3,440,000	\$7,300,000	
Initial investment	\$3,440,000	\$7,300,000	
Lifetime costs (excluding externalities)	\$115,692,895	\$77,217,344	
Lifetime externalities costs	\$11,467,712	\$6,137,323	
Average annual savings in first 10 years SPP PROJECT vs BASELINE		\$2,245,311	p.a.
IRR SPP PROJECT vs BASELINE		47.6%	
Simple payback (net positive cumulative cash flow)		2.4	years
Note			
BASELINE and SPP PROJECT financed with own resources			

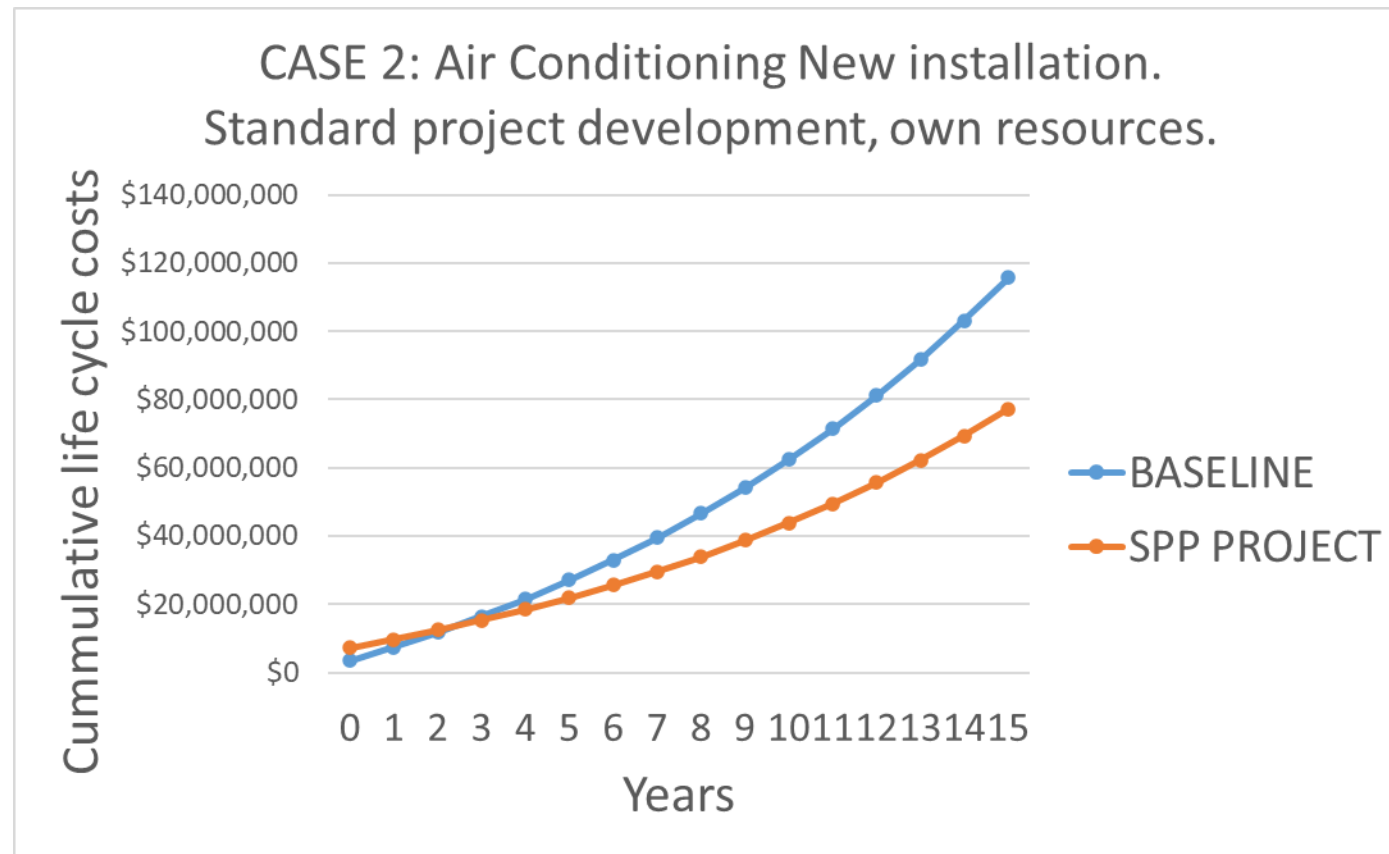
# Delivery Models - Examples



Standard delivery model – own resources, sustainable AC policy



Air conditioning



# Delivery Models - Examples

## → ESCO model: MESA – financing the ESCO

Street lighting replacement

“Lighting-as-a-service”

DELIVERY MODEL SETTINGS		
BASELINE Loan tenor	0	years
BASELINE Interest rate	0.0%	
BASELINE loan to project cost ratio	0.0%	
SPP PROJECT contract duration ESCO (same as loan tenor from FI)	7	years
SPP PROJECT interest rate (from FI to ESCO)	12.0%	
SPP PROJECT loan to project cost ratio (from FI to ESCO)	70%	
SPP PROJECT M&V annual costs (between 2-5% depending on project size, guarantee type, etc.)	5%	of savings
SPP PROJECT Safety margin on utility costs ESCO (between 5-15% depending on project & guarantee	5%	of O&M costs
SPP PROJECT Expected savings after performance period	90%	of theoretical savings
SPP PROJECT Expected ESCO extra costs on installation (due to monitoring equipment, audits,	10%	of standard costs
SPP PROJECT Expected ESCO return on its own equity (for non-100% financed projects)	20%	

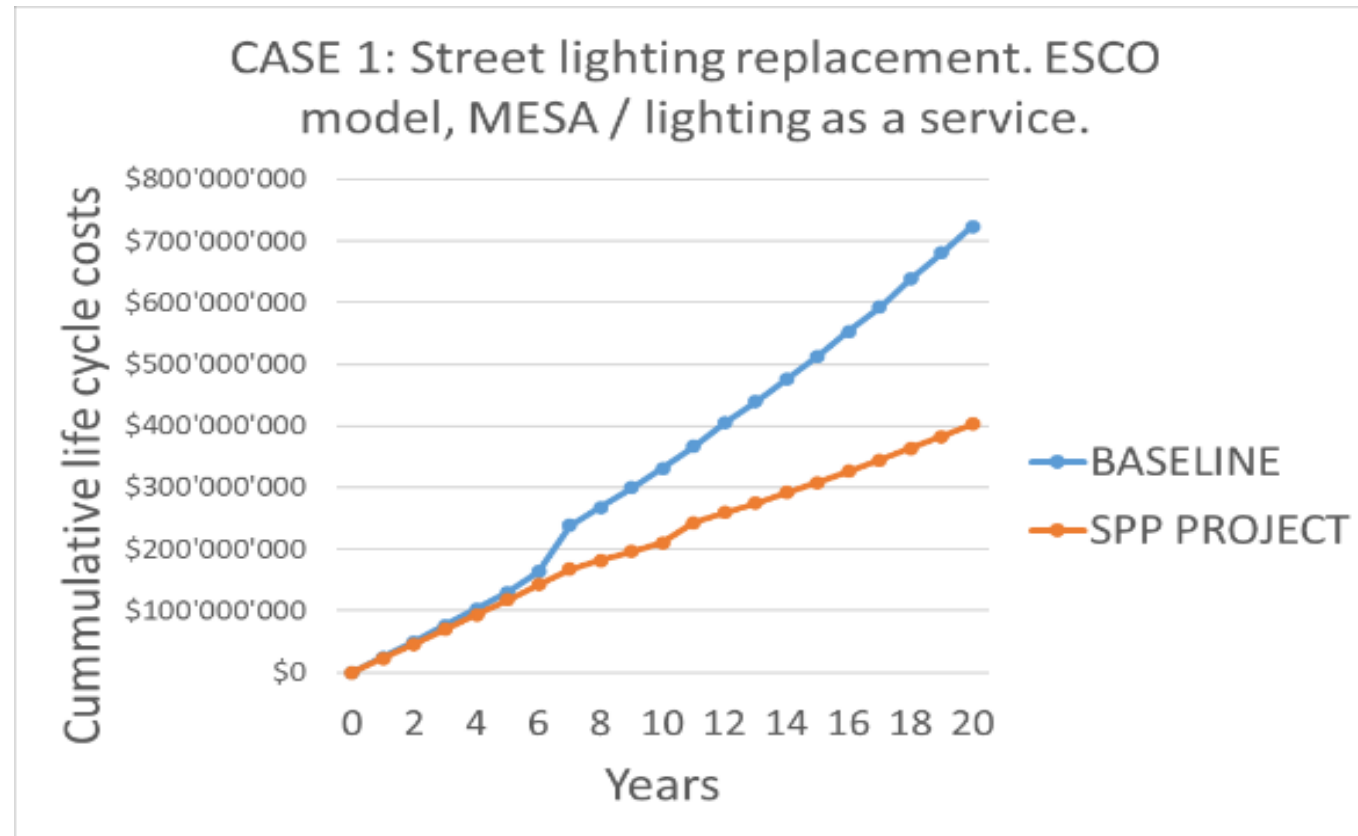
RESULTS	BASELINE	SPP PROJECT	
Project costs	\$0	\$52,250,000	
Initial investment	\$0	\$0	
Debt increase in balance sheet	\$0	\$0	
Lifetime costs (excluding externalities)	\$723,962,134	\$402,578,217	
Lifetime externalities costs			
IRR SPP PROJECT vs BASELINE		better cash flows SPP PROJECT since day 1	←
Simple payback (net positive cumulative cash flow)		0.0	years
Note			
<b>BASELINE case financed by external FI to public entity, ESCO MESA model financed by external FI to ESCO. Model includes Monitoring &amp; Verification, utility and maintenance costs in service fee</b>			

# Delivery Models - Examples

## → ESCO model: MESA – financing the ESCO

Street lighting replacement

“Lighting-as-a-service”





4

# Proposed Technical Specifications & Vendor/Manufacturer ESG risk assessment

# Proposed SPP Product Specifications

## Lighting – sample criteria

	Street Lighting	Indoor Lighting
Luminous Efficacy	For luminaires $\leq 90\text{W}$ $\rightarrow \geq 120 \text{ lm/W}$ For luminaires $> 90\text{W}$ $\rightarrow \geq 140 \text{ lm/W}$	$\geq 110 \text{ lm/W}$ for lamps
Equipment lifetime	$\geq 50,000\text{h}$	$\geq 20,000\text{h}$
Light spill ( <i>street</i> )/ Stroboscopic Effect Visibility (SVM) ( <i>indoor</i> )	97% must fall within a downward angel of $75.5^\circ$	$\leq 0.4$
Fundamental power factor	$\geq 0.9$	
Mercury content	No mercury	
Repairability	Feasible and practical to access components. Components must be accessible and removable.	

### Available resources:

- [SPP Toolkit \(includes proposed Award Criteria\)](#)
- GPP Technical Guidelines and Specifications
- [U4E Model Regulations](#)

# Proposed SPP Product Specifications



## Room Air Conditioners – sample criteria

	Room Air Conditioners
Cooling capacity	< 16kW
Refrigerant	GWP limit of 750 (ductless split) ODP limit of 0
Energy Efficiency	“Intermediate” efficiency grade according to the U4E model regulations.
Recycled Plastic Components	Designed to be recycled, with ≥ 80% recycled plastic components
Packaging	Made of recycled or biodegradable materials
Paint	No heavy metals nor their compounds (mercury, lead, cadmium, chromium)

### Available resources:

- [SPP Toolkit \(includes proposed Award Criteria\)](#)
- [GPP Technical Guidelines and Specifications](#)
- [U4E Model Regulations](#)

# Proposed SPP Product Specifications



## Refrigeration – sample criteria

	Refrigerating appliances
Refrigerant	GWP limit of 20 ODP limit of 0
Energy Efficiency	Target efficiency class corresponding to the ca. 20% most energy efficient models in the market
Spare parts	The manufacturer/supplier should ensure availability of spare parts, even when the model is no longer in the market.
Packaging	Minimum possible to facilitate handling the equipment and it should be recyclable.

### Available resources:

- [SPP Toolkit \(includes proposed Award Criteria\)](#)
- [GPP Technical Guidelines and Specifications](#)
- [U4E Model Regulations](#)

# ESG Risk Assessment

## Of Vendors and Equipment Manufacturers



	Vendors	Equipment Manufacturers
Environmental	Hazardous Substance Management	Hazardous Substance Management, Ozone Depletion, Pollution, Environmental Management Standard Certification.
Social	Labor Laws, Employee Health and Safety (including training), and non-discriminatory employment practices.	Labor Laws, Employee Health & Safety, and non-discriminatory employment practices.
Governance	Tax Compliance, Sanctions lists.	Sanctions lists.

Have a good  
SPP  
prospect?

*Opportunity for U4E Support*

**SPECIAL  
OFFER**

**LIMITED TIME!**



**Examples of remote technical assistance for a selected project could include:**

- ✓ Evaluation of possible delivery models.
- ✓ Preparation of business cases.
- ✓ Integration of sustainability criteria within existing procurement processes.
- ✓ Ad-hoc support on implementation of Toolkit.

5

# Conclusion and Wrap-up

Expect Follow-up Survey



# Thank you!

TRANSFORMING MARKETS TO ENERGY-EFFICIENT PRODUCTS



## Contact

Brian Holuj

Victor Minguez

Heidi Sumser



## PHONE

+1 81 58 06 58 75

+41 44 585 18 08

+226 64 63 49 64



## EMAIL

[Brian.holuj@un.org](mailto:Brian.holuj@un.org)

[victor.minguez@un.org](mailto:victor.minguez@un.org)

[heidi.sumser@un.org](mailto:heidi.sumser@un.org)