ICLEI Local Governments for Sustainability

100% RENEWABLES CITIES & REGIONS ROADMAP

Supported by:

Federal Ministry for Economic Affairs and Climate Action

IKI

on the basis of a decision by the German Bundestag

Capacity Building Module: Renewable Energy Project Finance

INTRODUCTION

UNDERSTANDING THE BIG PICTURE

KEY FINANCE AND RISK TERMS

CAPEX COST OVERRUNS

Risk that the costs budgeted for buying equipment and constructing infrastructure ends up being much higher than budgeted

DESIGN RISK

Risk that a plant's design does not meet building standards or legal and environmental requirements; risk that faulty design results in operational issues

CONSTRUCTION RISK

Risk that construction time exceeds time projected resulting in additional costs or loss of income

DEBT

An obligation that needs to be repaid to the lender (normally a bank) with interest over several years

EQUITY

The private sector's own money that it uses together with debt to fund projects

KEY FINANCE AND RISK TERMS

SERVICE LEVEL AGREEMENT (SLA)
Contract between a LG and private sector service provider to operate & maintain a public owned RE asset

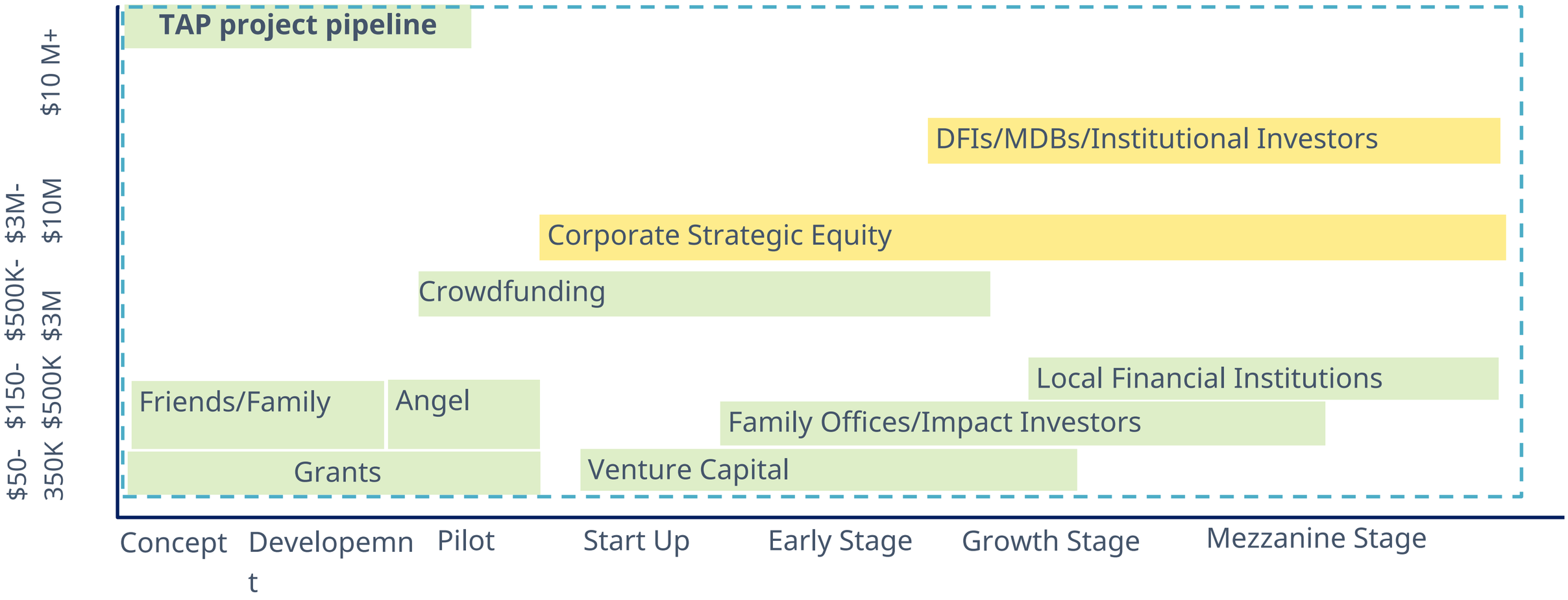
PUBLIC PRIVATE PARTNERSHIP (PPP)
Long term contract (~ 20 years) between a LG and private sector partner that requires the private sector to design, build, finance and operate an RE asset

CAPITAL EXPENDITURE (CAPEX)
Money spent acquiring fixed assets, such as land, buildings, and equipment

CAPEX FUNDING
Money that needs to be raised for CAPEX by either the LG via a loan, grants, own sources of funds or the private sector (if a PPP)

UNDERSTANDING CAPITAL MARKETS

FILLING IN THE FINANCIAL GAP



Source: LEDS GP & bettervest GmbH

FINANCING CHALLENGES

Securing finance for developing and constructing **RE/EE/climate projects** is often **difficult**, as many projects do **not** generate sufficient revenue to achieve **“bankability”.**

Many RE/EE Projects **do not generate** enough **income** to maintain their **operation**, so additional funding is required for financial sustainability.

The **lack of capacity** in LGs and the **lack of knowledge** of **financial instruments** can seriously handicap the effective development and implementation of their RE/EE Projects.

The ability to develop viable successful financing proposals for RE/EE Projects is limited by LG’s **lack of technical capacity** and **ability to secure credible project developers**.

Financing sources for RE/EE/Climate Projects are diverse, with the largest financing sources being **private sector developers and national governments.**

KEY RISKS AND REVENUE FACTORS

ACCEPTANCE OF TECHNOLOGY RISKS

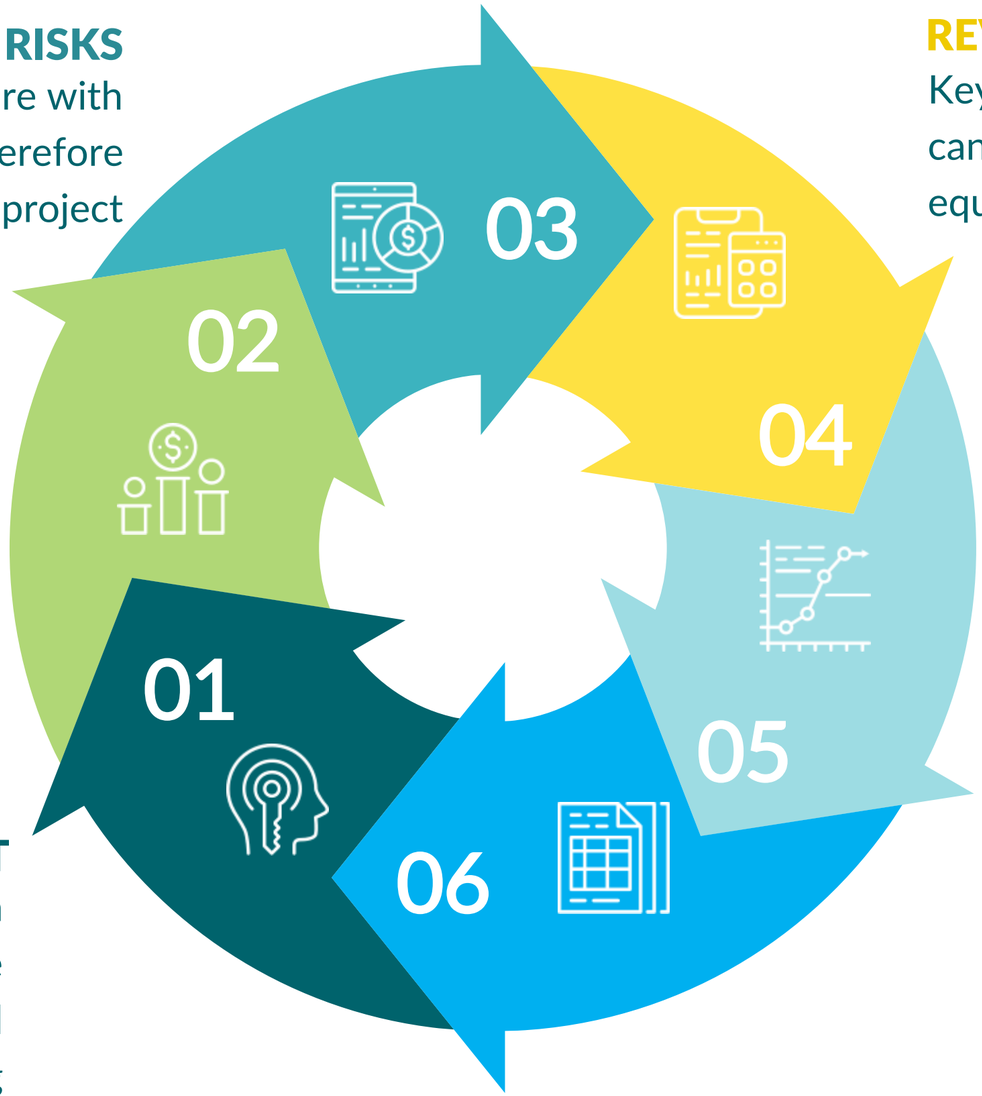
Considers how familiar lenders are with the technology and therefore willingness to finance the project

ABILITY TO MANAGE ENVIRONMENTAL/SOCIAL RISKS

Funders, especially DFIs, will want to ensure that environmental and social risks have been minimized

ACCESS TO CREDIT ENHANCEMENT

Credit enhancement can increase a project's revenue certainty, allowing the project to access more commercial sources of funding



REVENUE CERTAINTY

Key to understanding whether a project can support debt and private sector equity

ABILITY TO MITIGATE OPERATIONAL RISKS

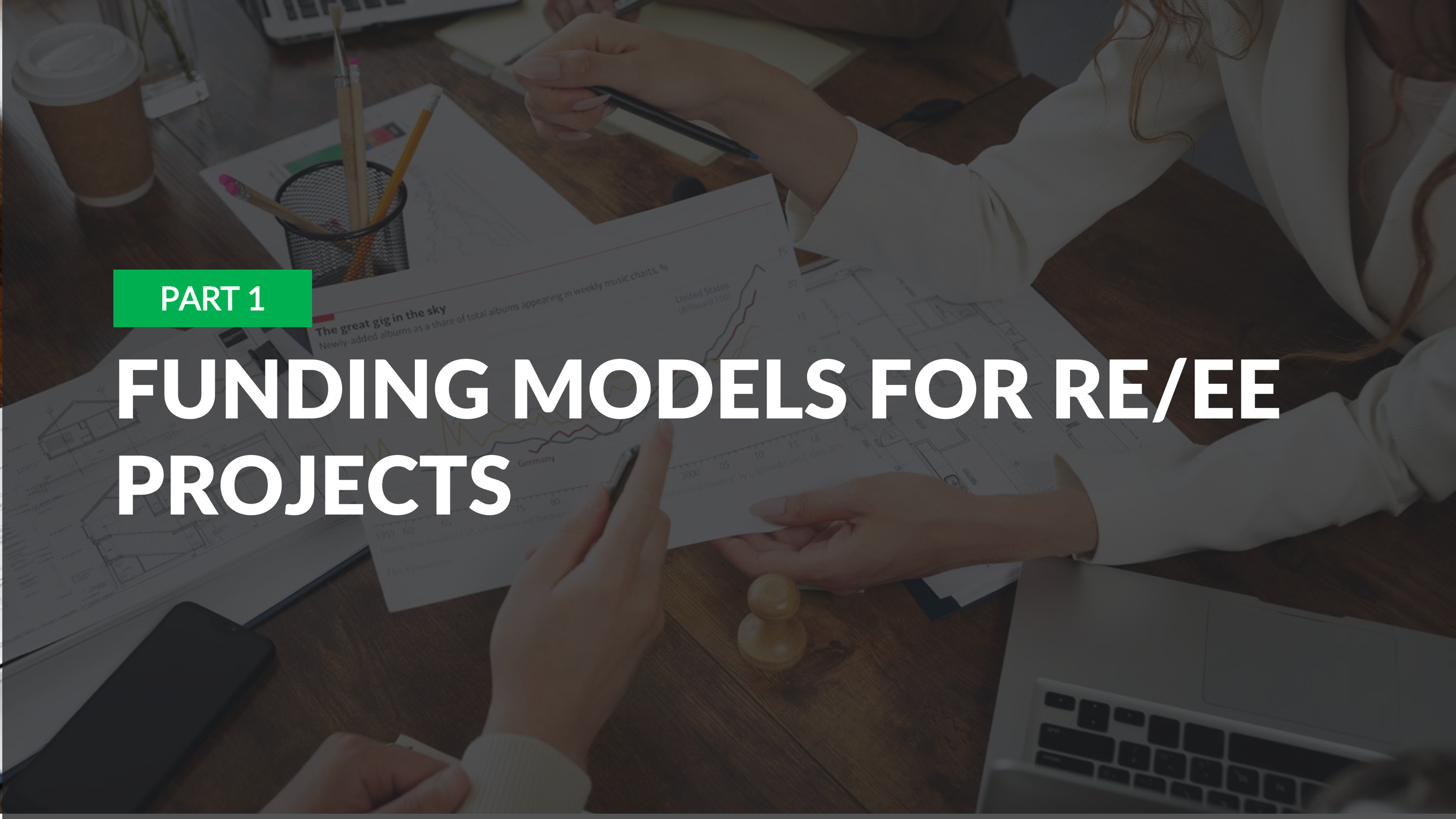
Considers the project's operational risk and how they can be mitigated to reduce risk for the LG, private sector and lenders

ABILITY TO MANAGE CAPEX RISKS

Considers whether construction risk (and therefore cost overruns) have been mitigated and whether revenues will be enough to repay the upfront investment

CLIMATE FINANCE MECHANISMS

- **Support for policy development** - Grants to help countries develop and implement policies that will invest in target areas attractive to the private sector. target areas attractive to the private sector.
  - e.g. technical assistance funding was made available to South Africa by various bilateral donor agencies, including those representing Denmark, Germany, Spain, and the UK to develop the country's renewable energy IPP programme (REIPPP).
- **Green credit lines - F**inance is provided to local financial institutions to on-lend to 'green' projects and programs that otherwise would struggle to get finance**.**
  - e.g. France's SUNREF program has made EUR45 million available to 3 local banks to on-lend to the private sector via Namibia's Environmental Investment Fund.
- **Blended finance -** Addresses lack of bankability by mitigating risks for private-sector investors and or improving returns. Blended finance can take various forms, including:
  - Interest rate subsidies or concessional loans
  - Risk mitigation measures such as partial credit and political risk guarantees
  - First-loss facilities and subordinated financing



PART 1

FUNDING MODELS FOR RE/EE PROJECTS

FUNDING MODELS FOR RE/EE/CLIMATE PROJECTS

Private Sector Company

Public Sector
(without Private Sector
Service Provider)

Public Sector with Private
Sector Service Provider
(Service Level Agreement;
SLA)

Public Private Partnership
(PPP)

COMPARISON OF FUNDING MODELS

KEY ADVANTAGES & DISADVANTAGES

100% RENEWABLES CITIES & REGIONS ROADMAP

DESCRIPTIONS	KEY ADVANTAGES	KEY DISADVANTAGES
Public owned & operated	· Procurement process is well known · LG controls asset	· LG retains all risks and has to raise 100% of funding · LG may not have required skills (O&M, marketing, sales)
Public owned & private sector operated (SLA)	· Project benefits from private sector skills (O&M, marketing, sales) · Procurement process is well known	· LG retains construction risks (capex overruns, design risk) · LG has to raise 100% of funding
ESCO funded	· No funding required from LG · Project benefits from private sector skills (O&M, M&V) and performance risk is transferred to private sector	· Needs well developed ESCO market and banks that are willing to lend to ESCOs
PPP (100% private)	· Private sector brings technical know how · Private sector can raise funding for the project	· Prescribed PPP processes can be onerous and time consuming · Private sector capital can be expensive
PPP (minority LG ownership)	· Private sector brings technical know-how · Private sector can raise majority of funding	· Prescribed PPP processes can be onerous and time consuming · LG must raise own share of funding · Private sector capital can be expensive
Private sector owned & operated	· No funding required from LG · LG could generate income/ achieve savings through feedstock agreement	· LG has no control over the project or timelines
PAYG	· Private sector raises all funding · LG can play facilitation role (accreditation of PAYG suppliers, awareness campaigns, etc.)	· LG is reliant on private sector's ability to roll out interventions and structure affordable solutions to households

DIFFERENT FUNDING MODELS & ALLOCATION OF ROLES

RESPONSIBILITIES OF LG & PRIVATE SECTOR

<table>
<tr><th>FUNDING MODELS
Role/responsibility</th><th>Public owned & operated</th><th>Public owned & private sector operated (sla)</th><th>ESCO funded</th><th>PPP (100% private)</th><th>PPP (minority LG ownership)</th><th>Private owned & operated</th><th>PAYG</th></tr>
<tr><td>Design risk</td><td colspan="2" rowspan="3">LG</td><td colspan="5" rowspan="3">Private sector</td></tr>
<tr><td>Construction risk & CAPEX cost overruns</td></tr>
<tr><td>Performance risk</td></tr>
<tr><td>Funding of CAPEX</td><td colspan="2">LG raises grants and debt</td><td colspan="2">Private sector raises debt & equity</td><td>LG funds its share of equity. Private sector raises rest of funds</td><td>Private sector mobilises equity and debt</td><td rowspan="2">Private sector raises debt & equity (and possibly DFI grants)</td></tr>
<tr><td>Grants</td><td colspan="5">LG can raise grants to make funding model more affordable</td><td>Private sector may be able to secure grants</td></tr>
<tr><td>Operation</td><td rowspan="3">LG</td><td colspan="6" rowspan="3">Private sector</td></tr>
<tr><td>Maintenance</td></tr>
<tr><td>Sales & Marketing</td></tr>
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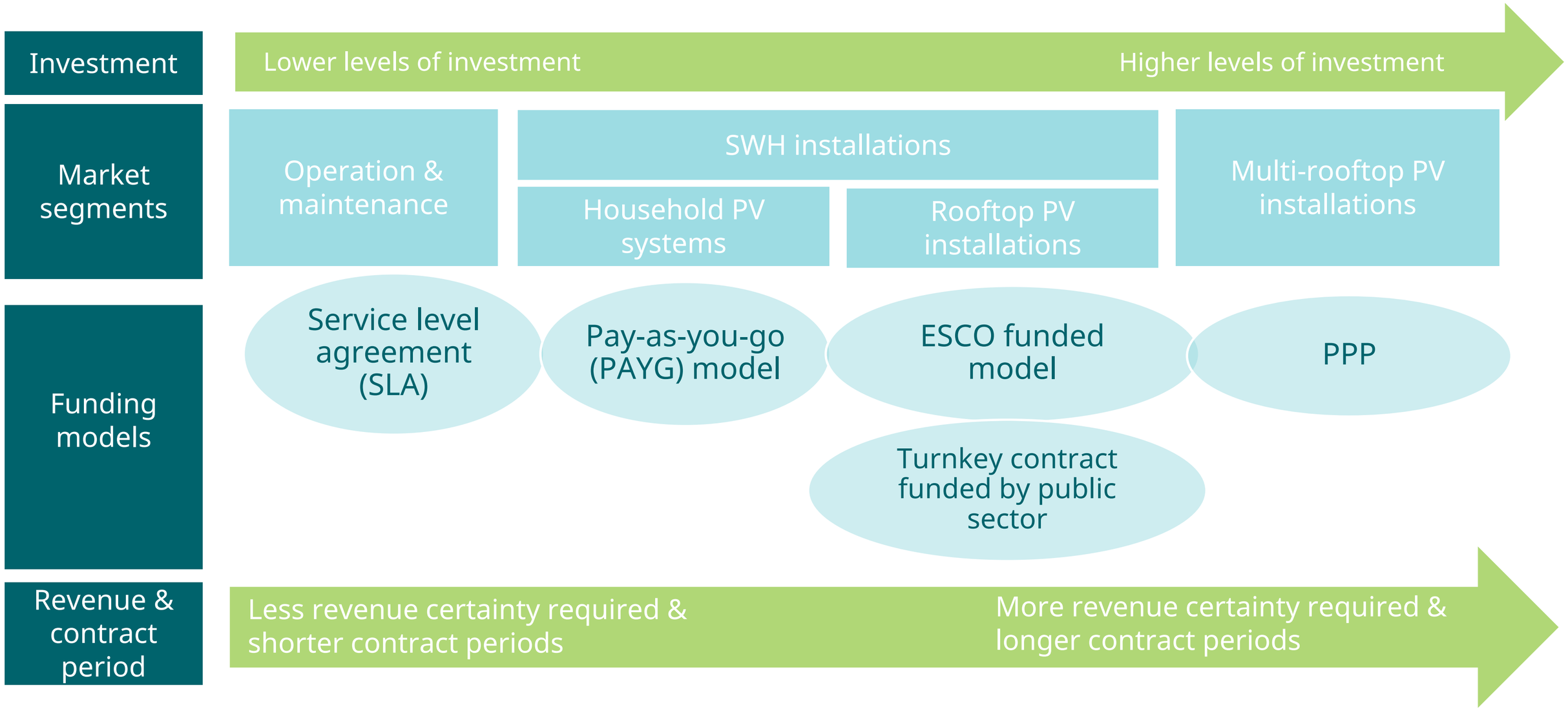
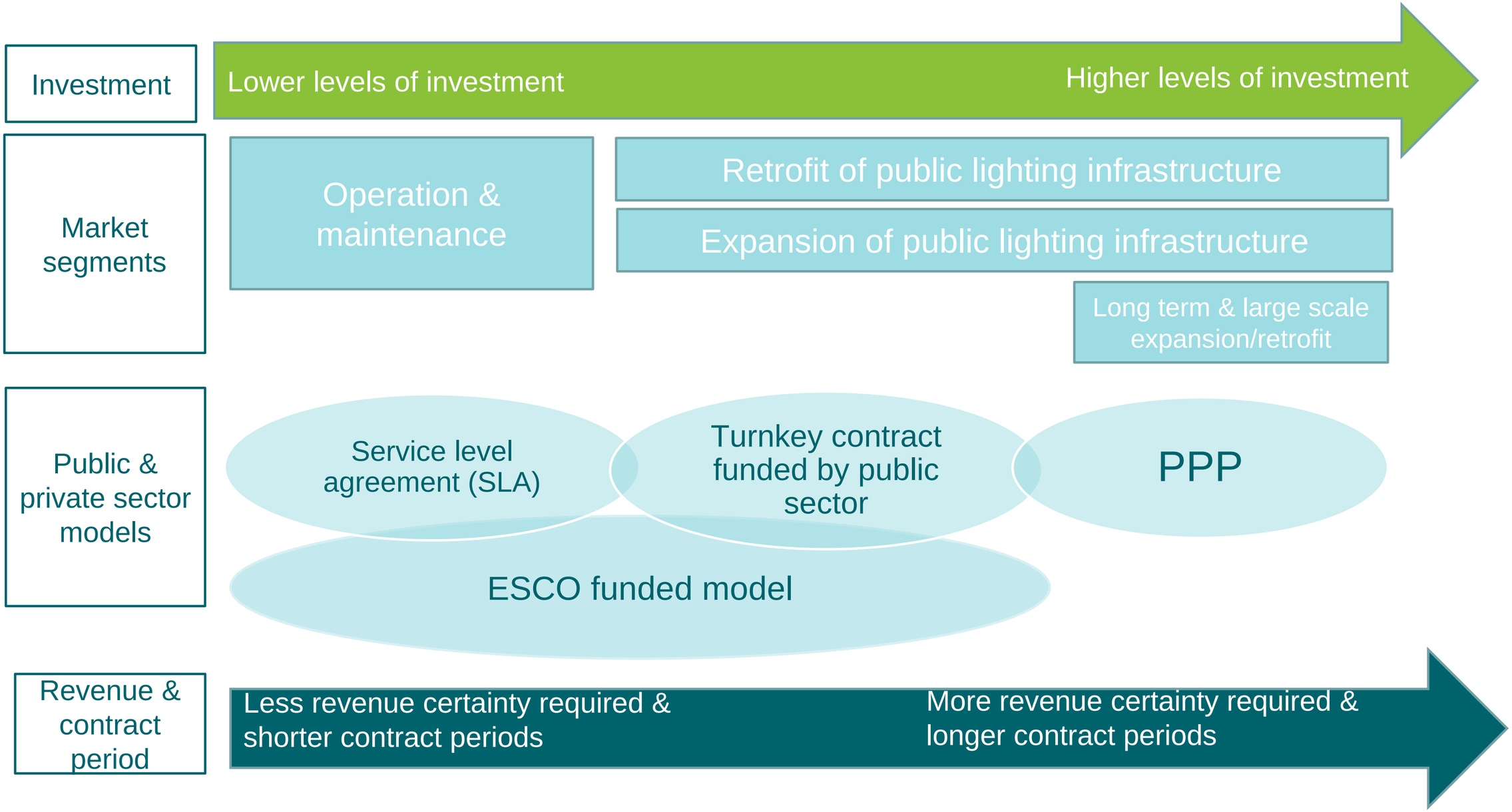
TYPICAL FUNDING MODELS FOR SOLAR PROJECTS



TYPICAL PUBLIC STREET LIGHTING FUNDING MODELS



PART 2

PUBLIC SECTOR FUNDING MODELS AND PARTNERSHIPS

PUBLIC SECTOR FUNDING MODELS

For LGs to employ a public sector funded model to finance a RE/EE/Climate Project, **an assessment will need to be made of the LG's own funding capacity to cover total costs:**

Does the LG (or a related LG utility) have **sufficient funding in its capital investment budget** to cover the costs of the design and installation of the Project?

Does the LG (or a related LG utility) have the **ability to source grant and/or concessionary funding** to cover costs from other public sources, such as the NG, development partners, climate funds, or other sources?

Does the LG (or a related LG utility) have the ability based on national regulations, NG support, and/or its own credit standing to **use its own balance sheet to borrow debt** from commercial banks, Development Finance Institutions (DFIs), or other private sector institutions?

Does the LG have the **capacity to manage the funds required** for development and operation of the Project?

PUBLIC-PRIVATE PARTNERSHIPS (PPP)

A long-term contract between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance (World Bank)

Typical PPP models

- The most typical PPP model used by LGs is known as a Build Operate and Transfer (BOT) PPP. Under this model the asset is transferred back to the LG at the end of the contract period.
- Another approach is the Design Build Operate (DBO) PPP. In this case, the asset is not transferred back to LG as the private sector retains ownership of the asset at the end of the contract period.
- A concession gives a concessionaire the long-term right to use specified LG owned asset(s) and operate the asset(s) over the contract period. The concessionaire is also responsible for making specific investments over the contract period

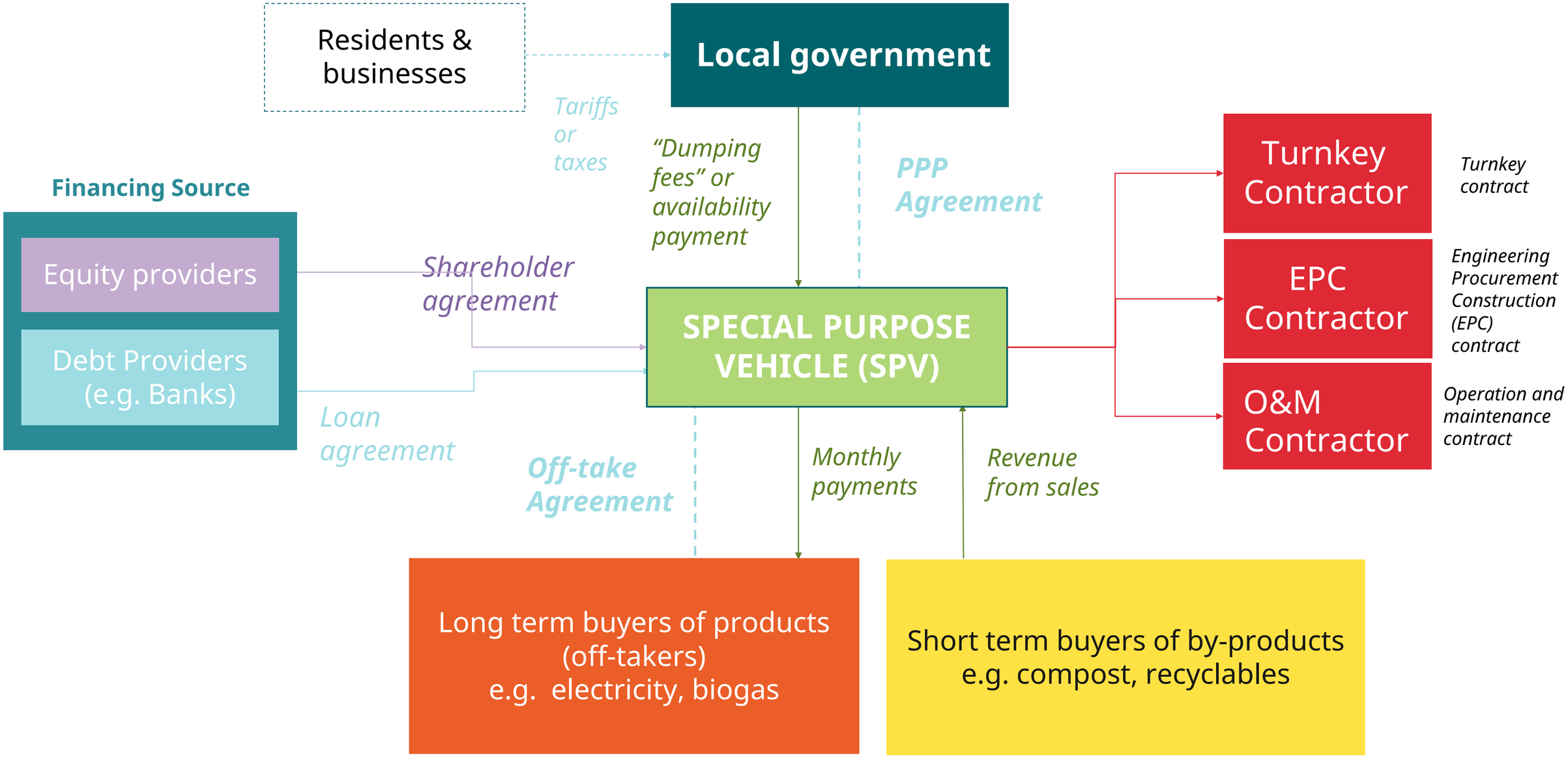
Special Purpose Vehicle (SPV)

- An SPV is the legal entity that is normally set up to own a project that is delivered through a PPP.
- The project's debt is secured against the revenue and collateral of the project and the lender does not have recourse to the private sector sponsor.
- Both the private sector and public sector can potentially be shareholders in the SPV, depending on the public/private models selected. However, the private sector usually prefers a 100% privately owned model.

RE/EE/Climate Projects usually require PPPs with a blended finance approach, mixing finance from public and private sector sources.

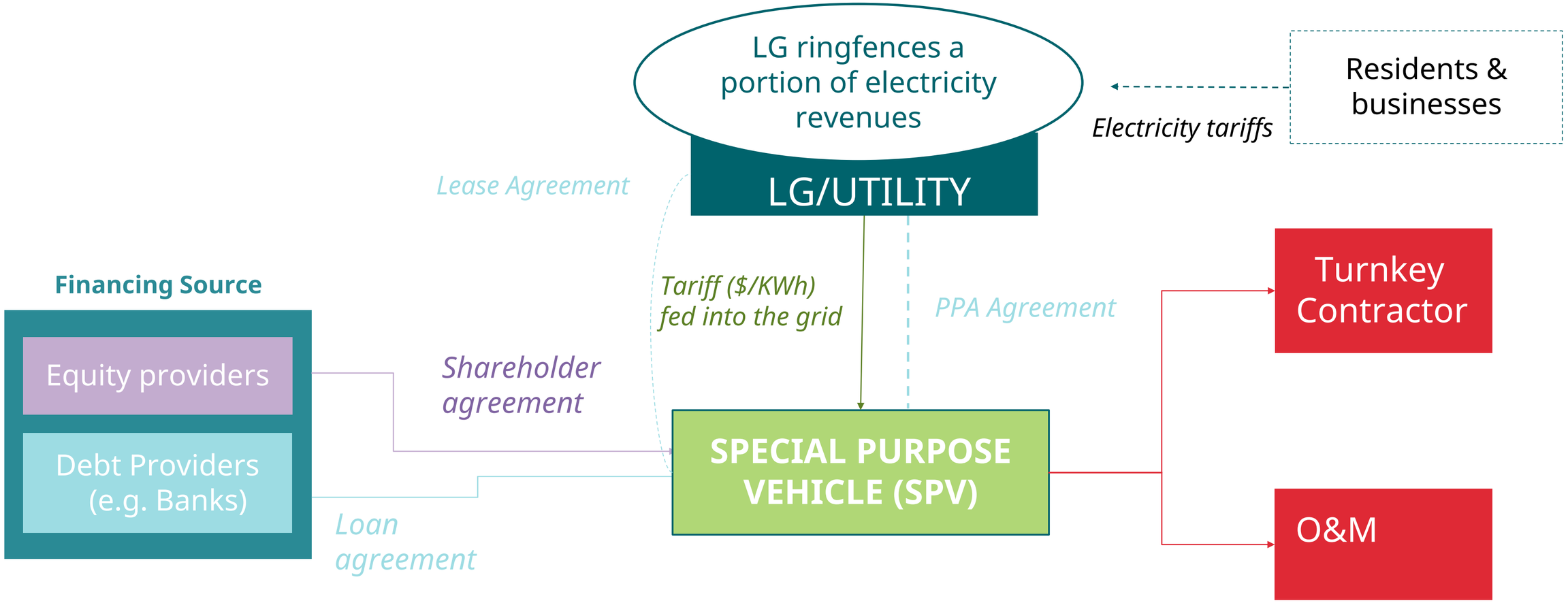
PPP STRUCTURE

GENERIC EXAMPLE



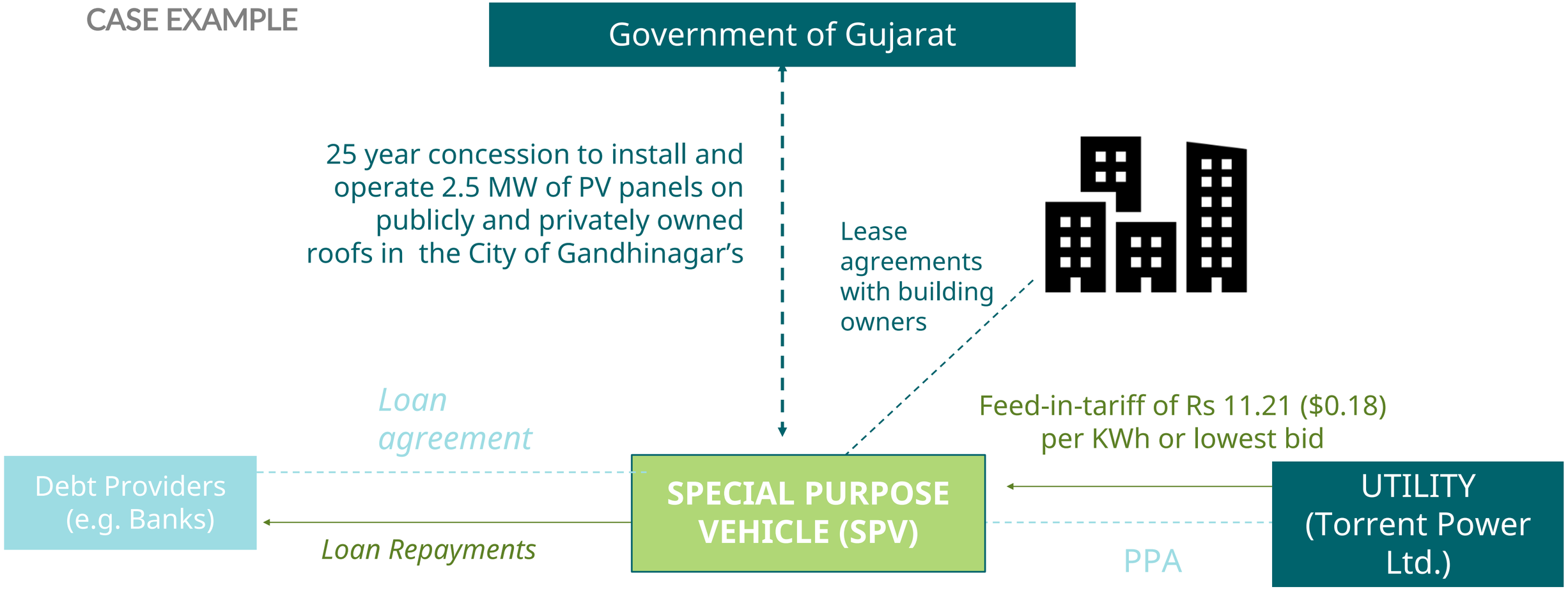
TYPICAL PPP STRUCTURE FOR A PV SOLAR ROOFTOP PROJECT

GENERIC EXAMPLE



GANDHINAGAR, GUJARAT (ROOFTOP PPP IN INDIA)

CASE EXAMPLE



Insight: The Government of Gujarat implemented solar rooftop PPPs at 2 of its cities (Gandhinagar and Vadodara). Gandhinagar served as a pilot in 2010 when 5MW of generation capacity was procured from two private firms (Azure Power and SunEdison), unlocking US$ 12 million in private financing. 80% of panels were installed on public buildings and 20% on private buildings.

CONTRACTS-BASED FUNDING MODELS

LGs must consider the full range of contracts needed to develop and operate RE/EE/climate projects, leveraging private sector expertise and capital:

Service Level Agreements (SLAs)

- In some cases, the LG may contract a private sector company to deliver the service.
- This approach does not require the establishment of a separate legal entity.
- In some cases, the private company uses its own balance sheet to raise debt to fund the project.

Engineering Procurement Construction (EPC) contracts

- To construct complex infrastructure used by a RE/EE/climate project (such as Waste-to-Energy Projects), an EPC Contract between the LG and the contractor pays the contractor to deliver a complete contract for a fixed price by a fixed date, reducing the risk of cost overruns and non-performing technology.

PRIVATE SECTOR MODELS

Examples of models/contracts used to unlock private sector funding and expertise:

The term **Public Private Partnership (PPP)** is often used to describe a range of models where the private sector delivers a service/function that serves a public function. A PPP is defined by legislation at a country level; not all private sector participation models qualify as PPPs

SERVICE LEVEL AGREEMENTS

Private sector operates/maintains a LG asset, such as a composting facility located at a landfill site over a period of 1 to 9 years. The private sector may also fund some equipment

ESCO FUNDED

Private sector installs, funds, operates/maintains energy efficiency equipment installed in LG buildings or along LG owned roads over a period of 3 to 7 years

PRIVATE SECTOR OWNED

Private sector designs, builds, finances, and operates/maintains (for example, a recycling plant that makes use of municipal waste as feedstock)

PRIVATE SECTOR MODELS

Examples of models/contracts used to unlock private sector funding and expertise:

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INDEPENDENT POWER PRODUCER

Private sector designs, builds, finances and operates/maintains a renewable energy power plant and sells electricity under a power purchase agreement (PPA) over 20+ year period. At the end of the PPA, the asset does not transfer to the public sector

BUILD OPERATE TRANSFER (BOT)

Private sector designs, builds, finances, operates/maintains a public sector asset (e.g. wastewater treatment plant), but is required to transfer it to the public sector at the end of the contract

PART 3

PRIVATE SECTOR FUNDING

SOURCES OF PRIVATE SECTOR FINANCE

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The private sector can access or provide various sources of funding to implement projects, including:

PROJECT FINANCE DEBT

Debt raised for a specific project and that is secured against the cashflows of the project. Due to the risks involved for lenders, the due diligence process is expensive and not justified for smaller projects and loans

BLENDED FINANCE FROM DEVELOPMENT FINANCE INSTITUTIONS

This could include a combination of grants, concessionary loans, guarantees and other risk mitigation measures structured to reduce the cost of funding

EQUITY AND SHAREHOLDER LOANS

Financing provided by a company's shareholders or parent company

DEBT RAISED VIA PRIVATE SECTOR ENTITIES' OWN BALANCE SHEET

This is known as corporate finance as the company that raises the debt remains liable to repay the debt. Unless a company has a strong balance sheet and credit rating it may not be able to raise significant amounts of debt in this way

CAPEX GRANTS

Funds to reduce the capital expenditure (CAPEX) of the project provided by the public sector to make a project more affordable by reducing the amount that the private sector needs to borrow

PRIVATE SECTOR FUNDING MODELS

Key considerations

Private sector projects must minimize risks for investors and lenders. LG must consider **key success factors** for assessing private sector funding.

High levels of revenue certainty as a result of **payment guarantees** by the LG or offtake agreements with third parties

Guaranteed minimum levels of inputs such as feedstocks for waste projects (if required for the project)

A **commercialized** (known and tested) **technological solution**

Predictable development and operational costs not subject to **unacceptable foreign exchange risk**

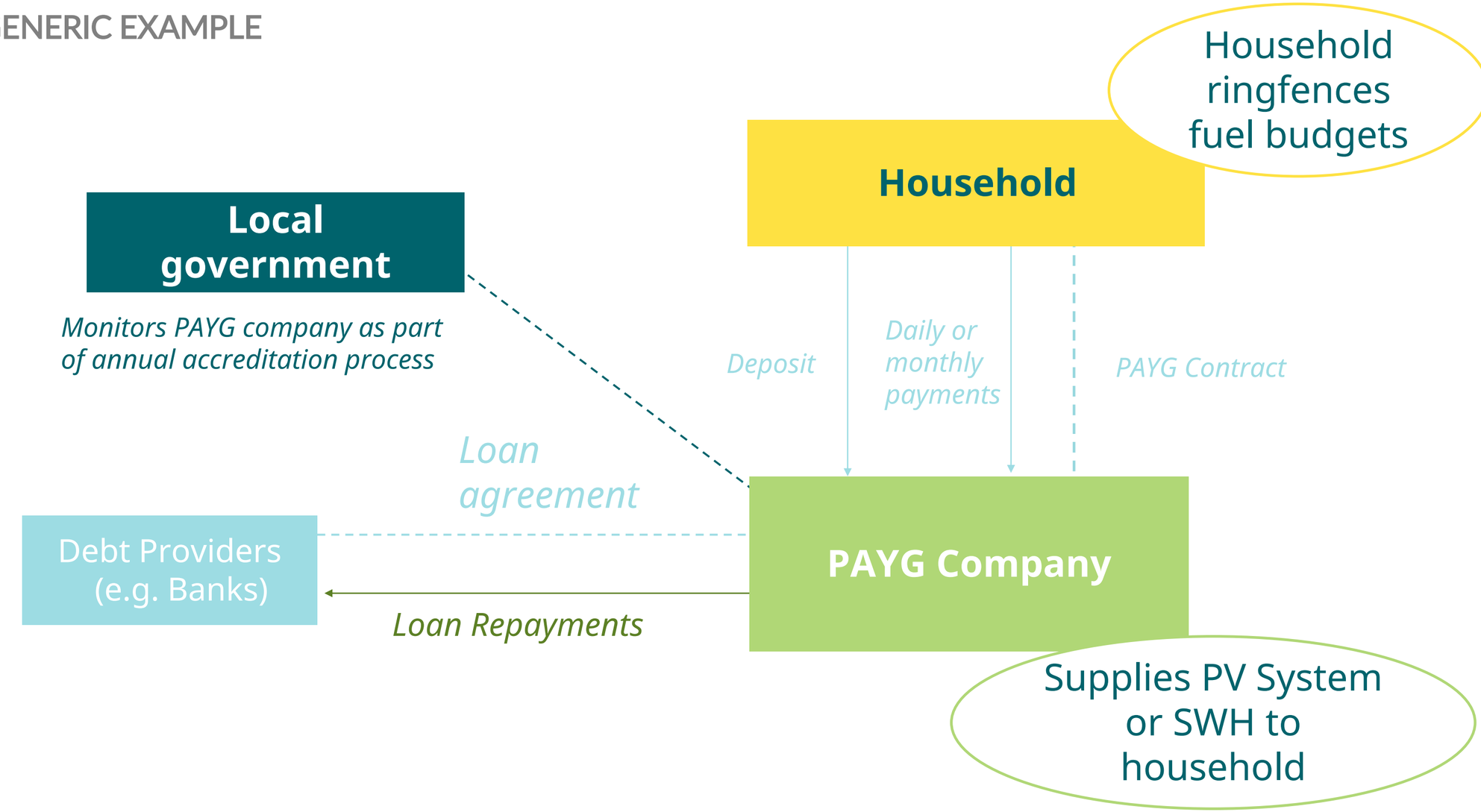
A **creditworthy LG** that will pay the private sector in full and on time for services

Capital expenditure costs that can be **minimized** by making use of **LG's** land, other in-kind contributions, and/or grants to buy down the cost of equipment and services

Significant third-party revenues (such as electricity or biogas sales) under long term offtake agreements

PAY-AS-YOU-GO (PAYG) STRUCTURE

GENERIC EXAMPLE



PART 4

BLENDED FINANCE

WHAT IS BLENDED FINANCE?

Blended finance addresses market failures by mitigating risks for private-sector investors and/or improving returns. Blended finance can take various forms, including:

Concessional loans and/or grants - Can reduce interest costs and offer longer maturities than those offered by private banks, allowing annual repayments to be reduced and spread over a longer period

An interest rate subsidy - Makes use of public grants to reduce a project's debt service payments.

First loss equity - Shields investors from a pre-defined amount of financial losses, making it more attractive for the private sector to fund the project's remaining equity

Guarantees can mitigate various types of investment risks, including political, policy, regulatory, credit and technology risk

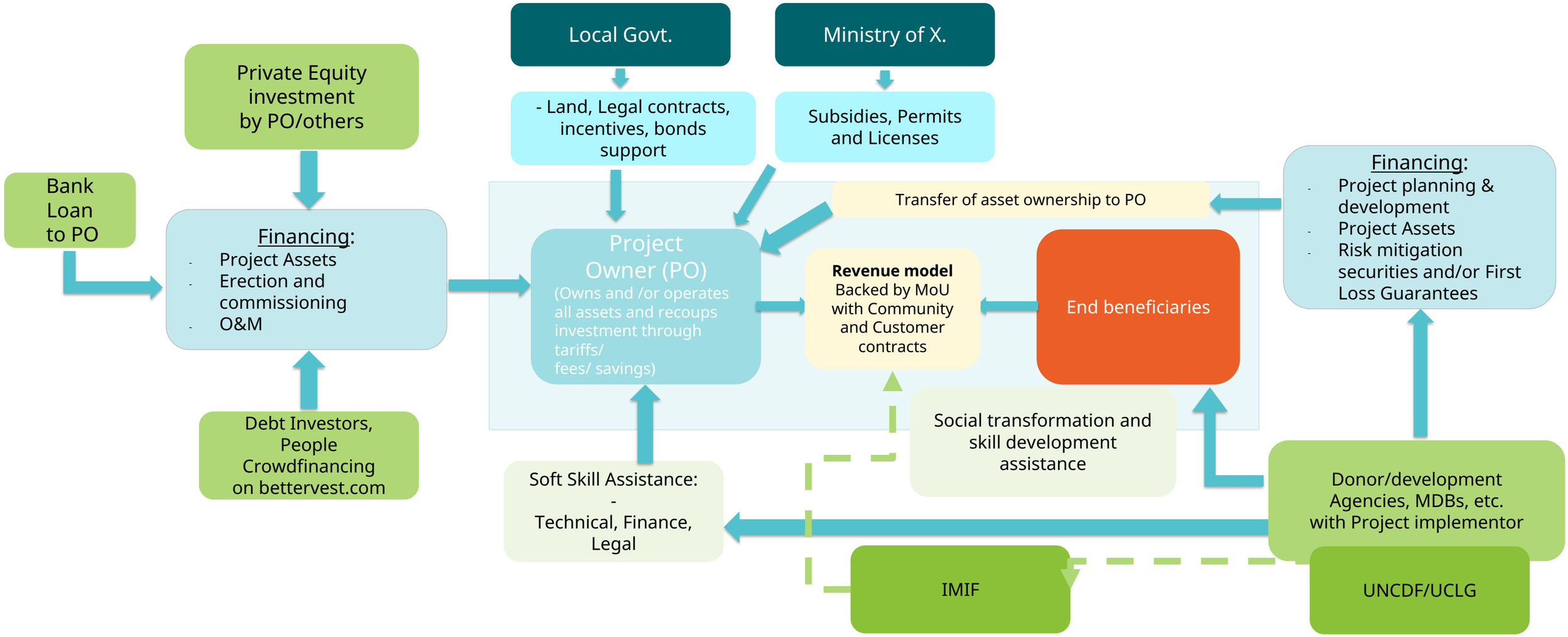
Concessional loans and/or grants - Can reduce interest costs and offer longer maturities than those offered by private banks, allowing annual repayments to be reduced and spread over a longer period

BLENDED FINANCE

Types of guarantees and the risks that blended finance mitigates					
Guarantee	Political Risk	Policy & Regulatory Risk	Counterparty Risk	Technology Risk	Currency Risk
Political risk insurance	×	×			Convertibility risk only
Partial risk/credit guarantee	×	×	×		
Export credit guarantee	×	×	×	×	
Currency risk mitigation (e.g., swaps, TCX)					×

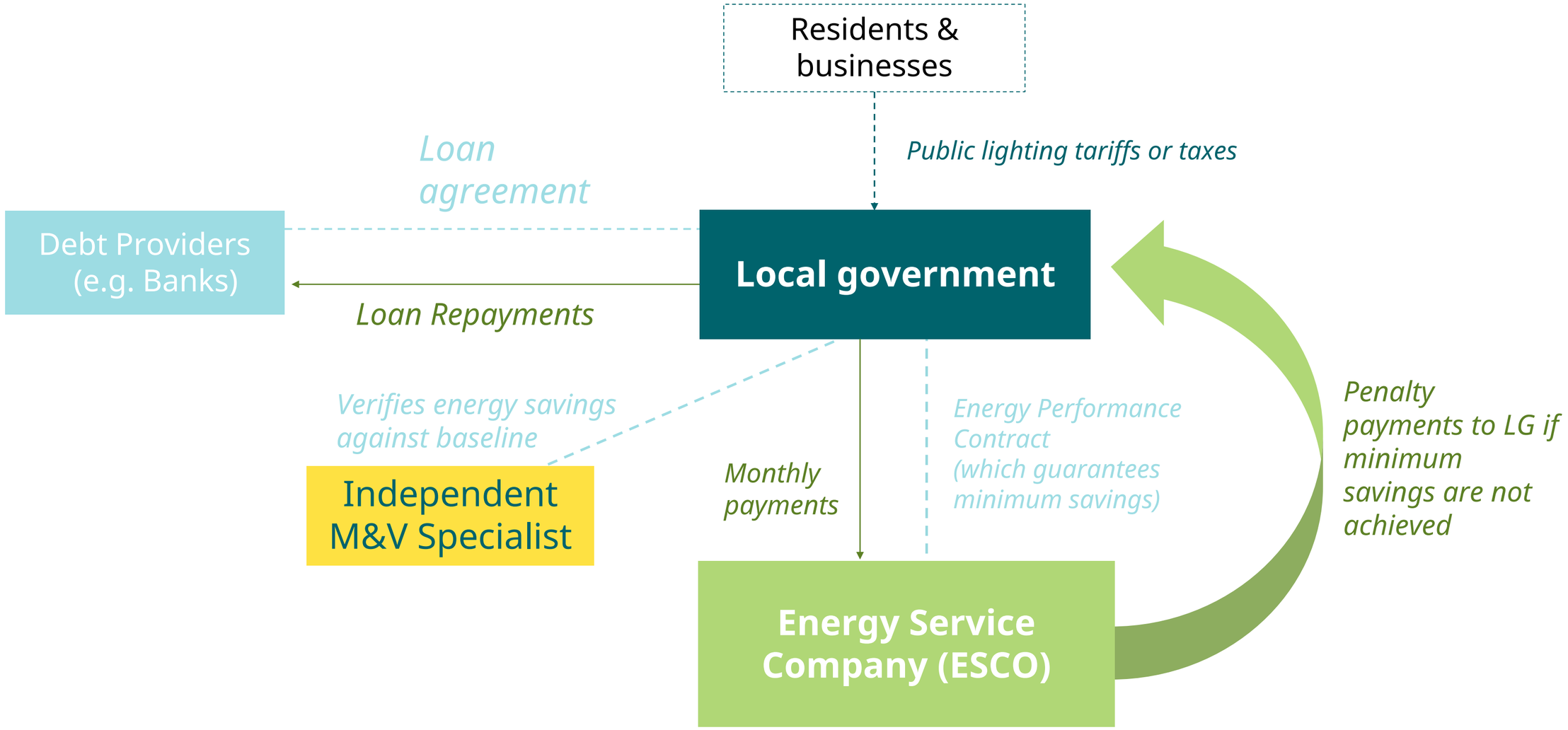
BLENDED FINANCE

Synergies with 2 TAP partners on Blended Finance
GENERIC EXAMPLE



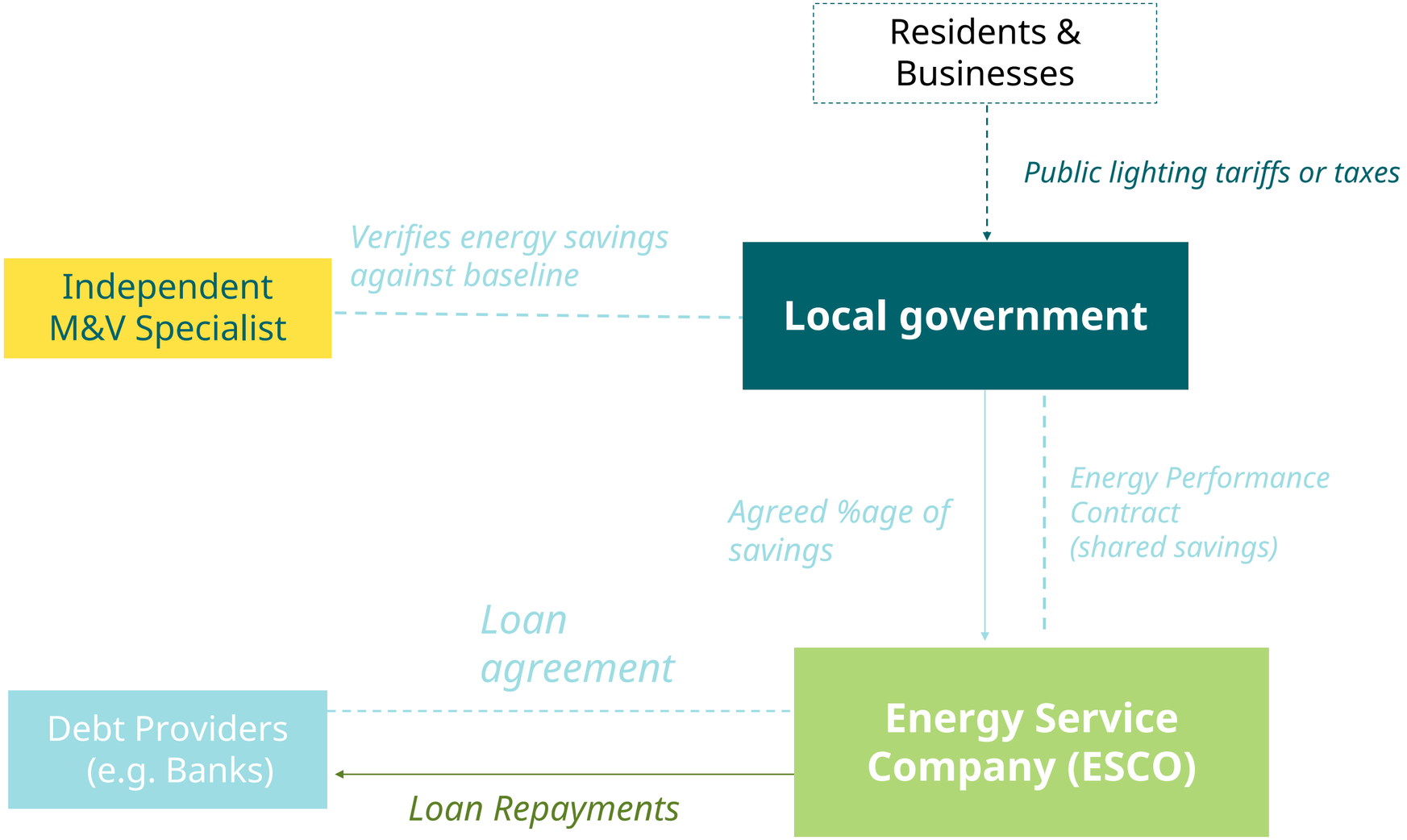
ESCO FUNDED STRUCTURE (GUARANTEED SAVINGS)

GENERIC EXAMPLE



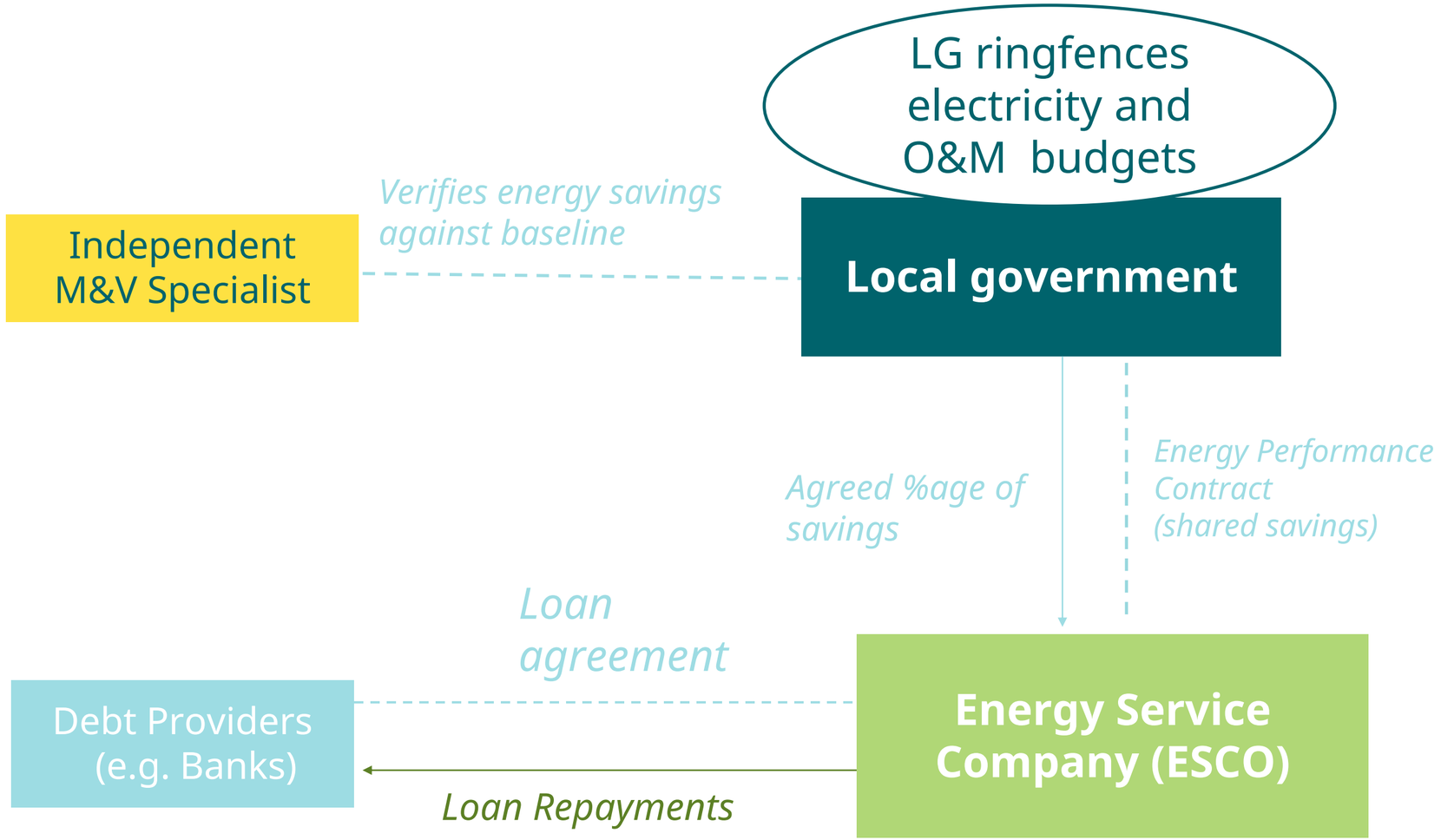
ESCO FUNDED STRUCTURE (SHARED SAVINGS)

GENERIC EXAMPLE



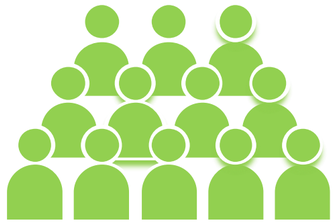
OFF-GRID SOLAR PV ESCP FUNDED STRUCTURE(SHARED SAVINGS)

GENERIC EXAMPLE

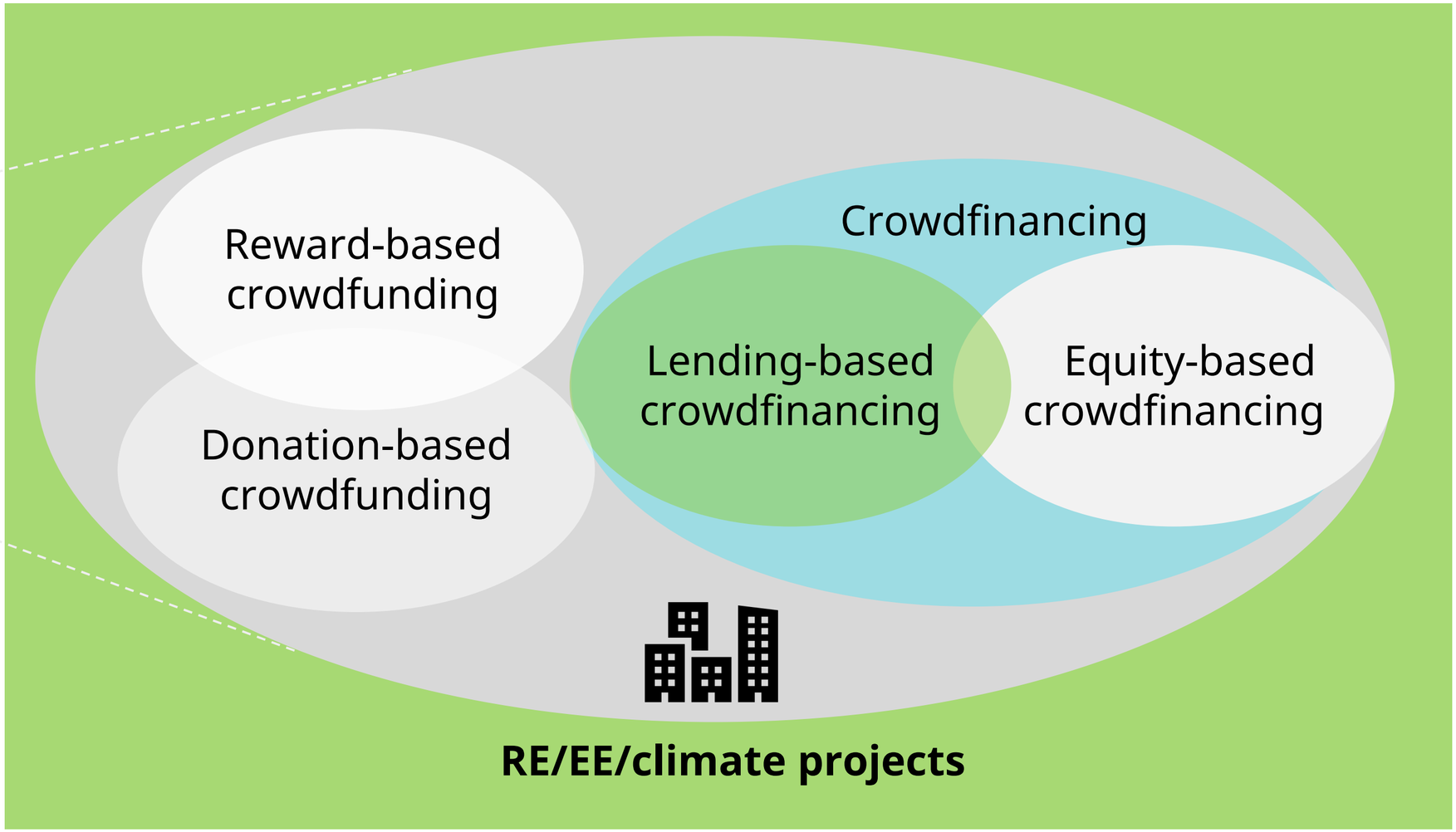


CROWDFUNDING

Many people/institutions get involved by making individual small investments in a joint project.



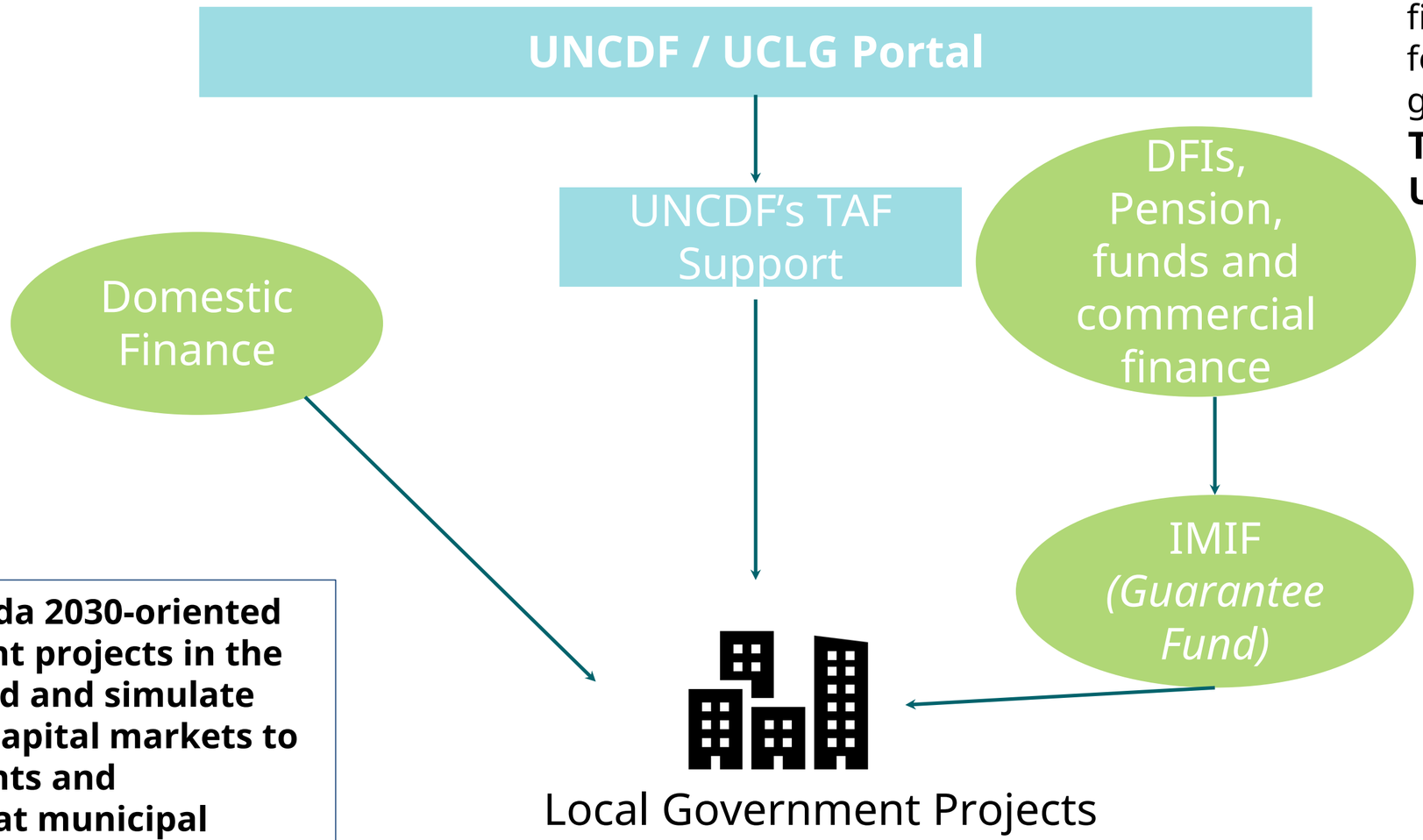
Crowdfunding



TAP partner - bettervest

INTERNATIONAL MUNICIPAL INVESTMENT FUND (IMIF)

UCLG and UNCDF coalition for a global finance ecosystem for cities and local governments
TAP partner - UNCDF

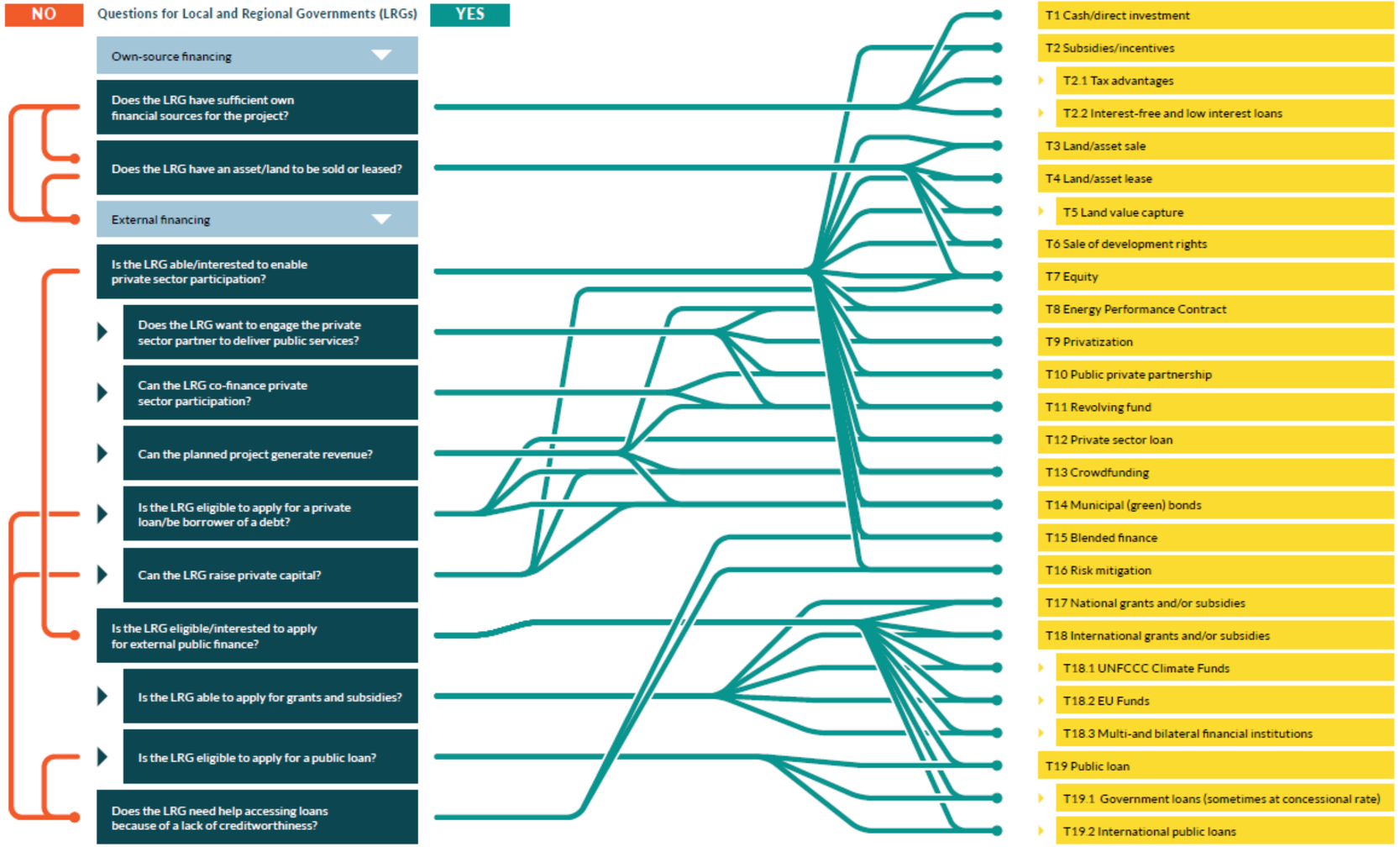


An independent investment fund

Objective: Agenda 2030-oriented local government projects in the developing world and simulate the opening of capital markets to local governments and demonstrate that municipal finance is part of the solution.

Source: UNCDF

RESOURCE: TAP CLIMATE FINANCE DECISION MAKING TREE



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Tap Resources (Main):

Bankability Checklist

Pitching And Fundraising

Financers

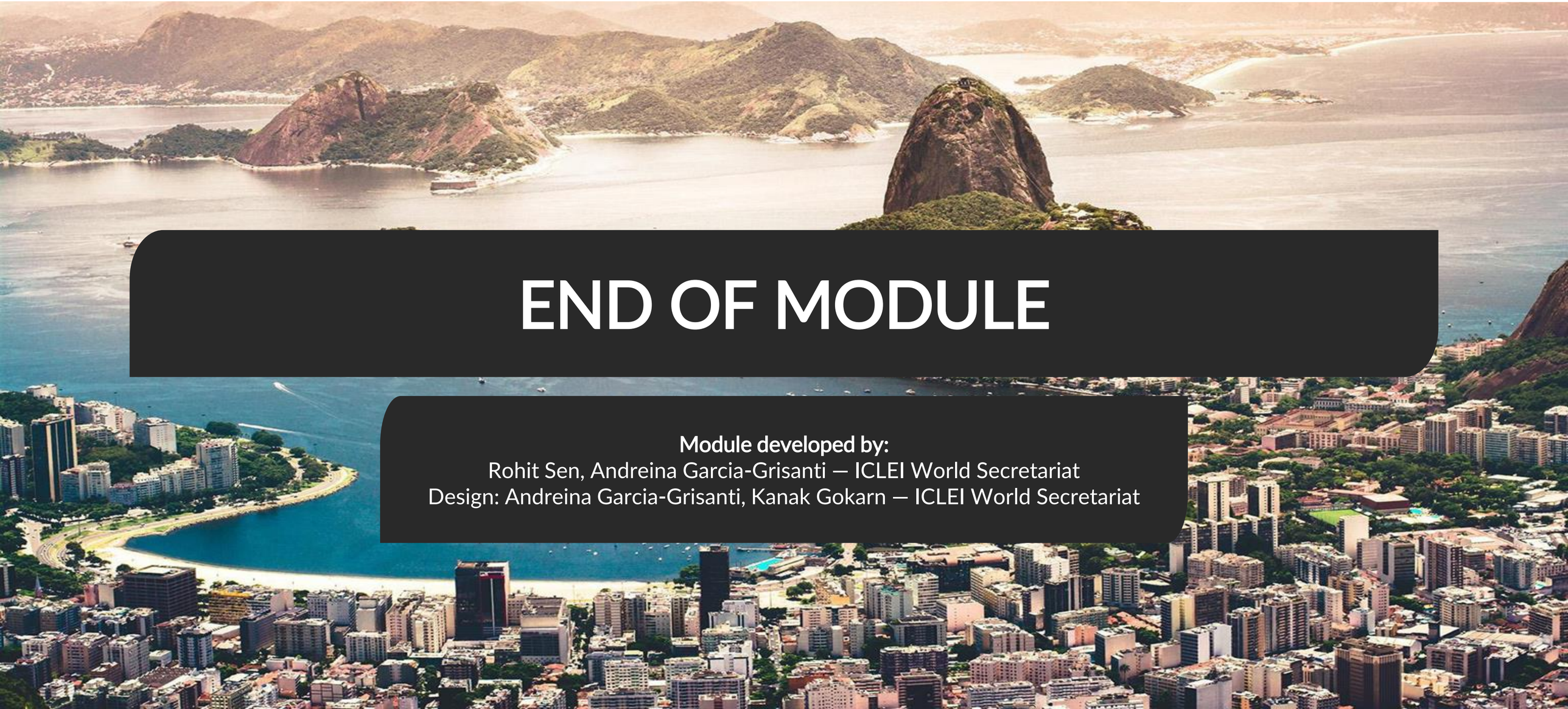
Glossary

Supported by:

Federal Ministry for Economic Affairs and Climate Action

IKI INTERNATIONAL CLIMATE INITIATIVE

on the basis of a decision by the German Bundestag



END OF MODULE

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