



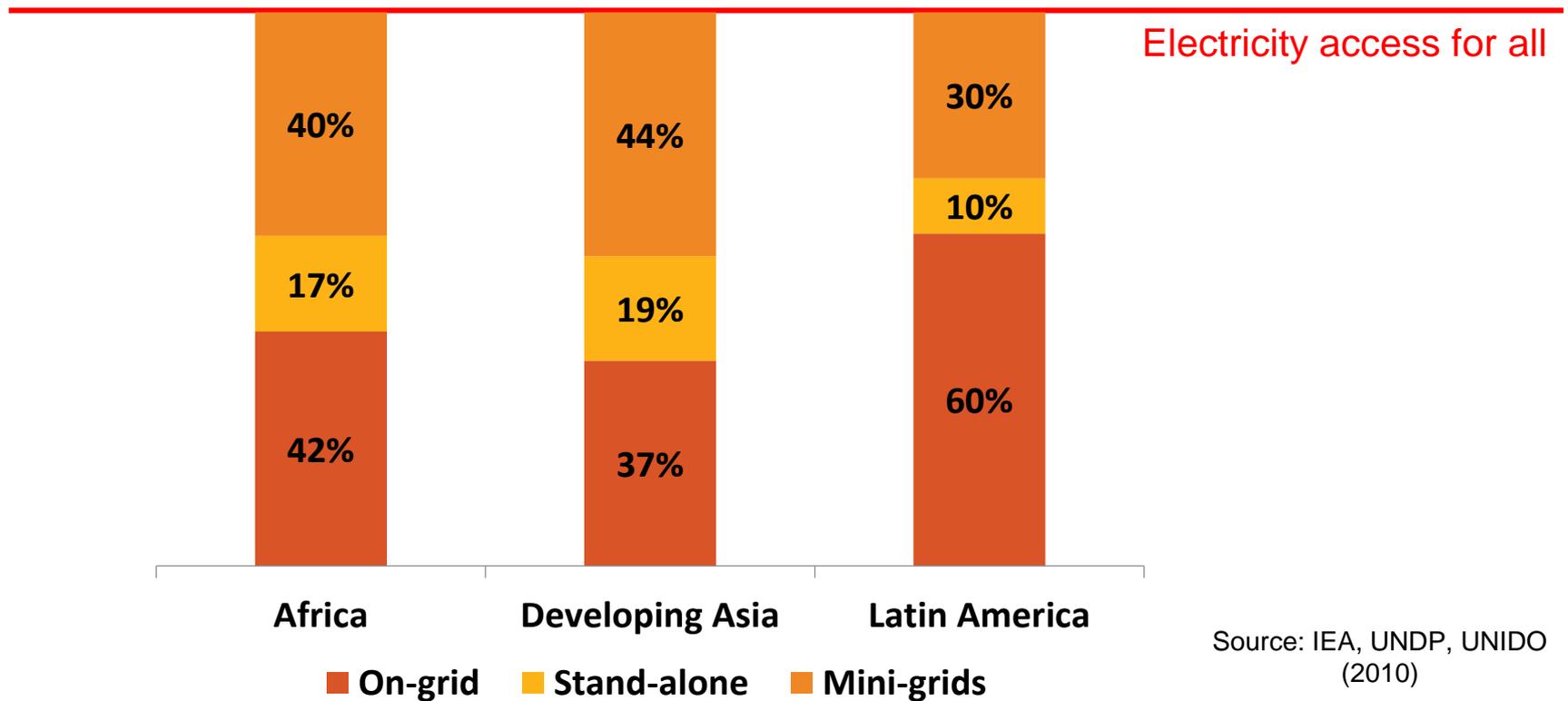
**Policies and regulations for private
sector renewable energy mini-grids**



Abu Dhabi, 3 November 2016

Off-grid renewable energy: Key to universal access to electricity

Nearly 60% of additional generation required to achieve universal electricity access by 2030 is estimated to come from off-grid installations (stand-alone and mini-grids)



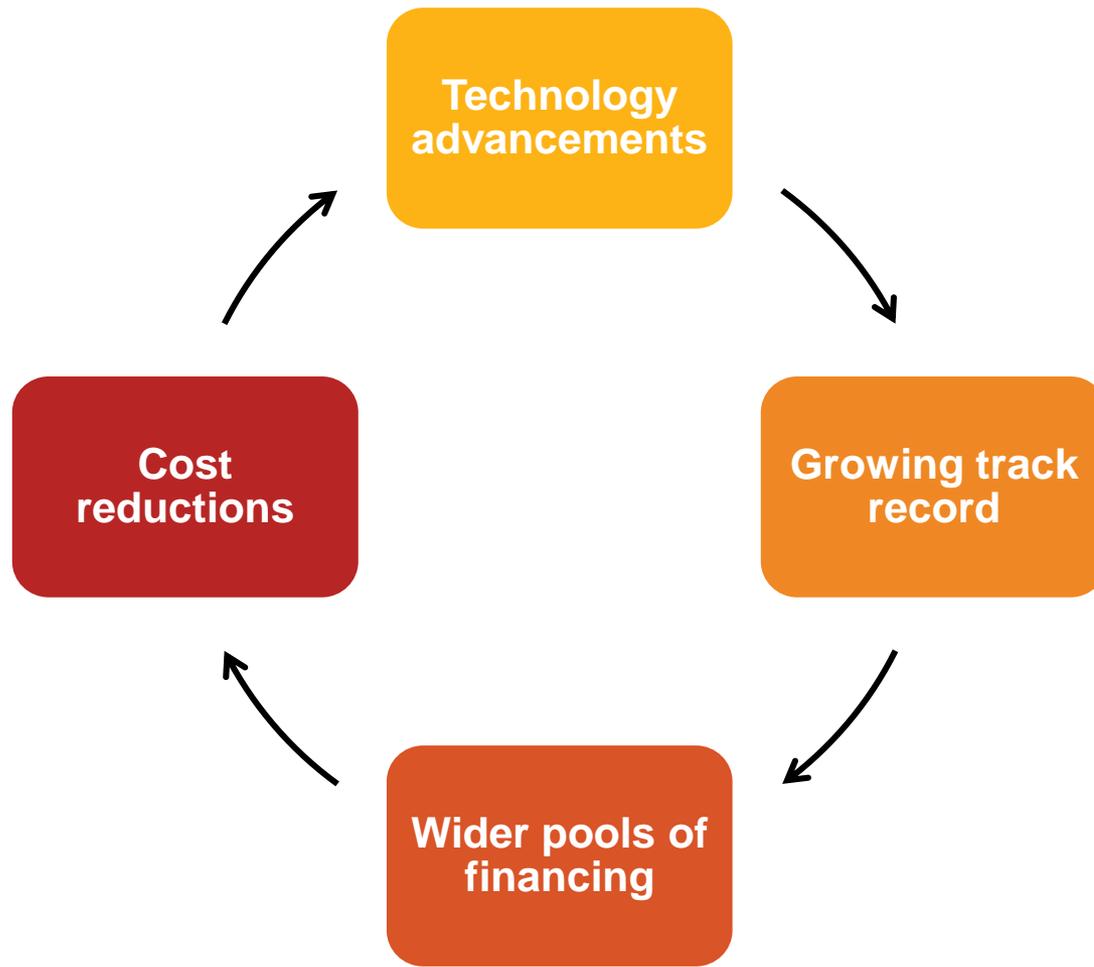
Renewable energy mini-grids are expected to account for the majority share of off-grid generation

Renewable energy mini-grids: A proven track record



Traditional deployment models are being complemented by private sector models as interest in the sector grows

Renewable energy mini-grids: The strengthening business case



**How do we accelerate the pace
of renewable energy mini-grid deployment?**



Objective

- Identify key barriers and drivers for stand-alone and mini-grid RE system deployment
- Platform to share experiences, lessons learned and best practices

IOREC 2012
Accra, Ghana



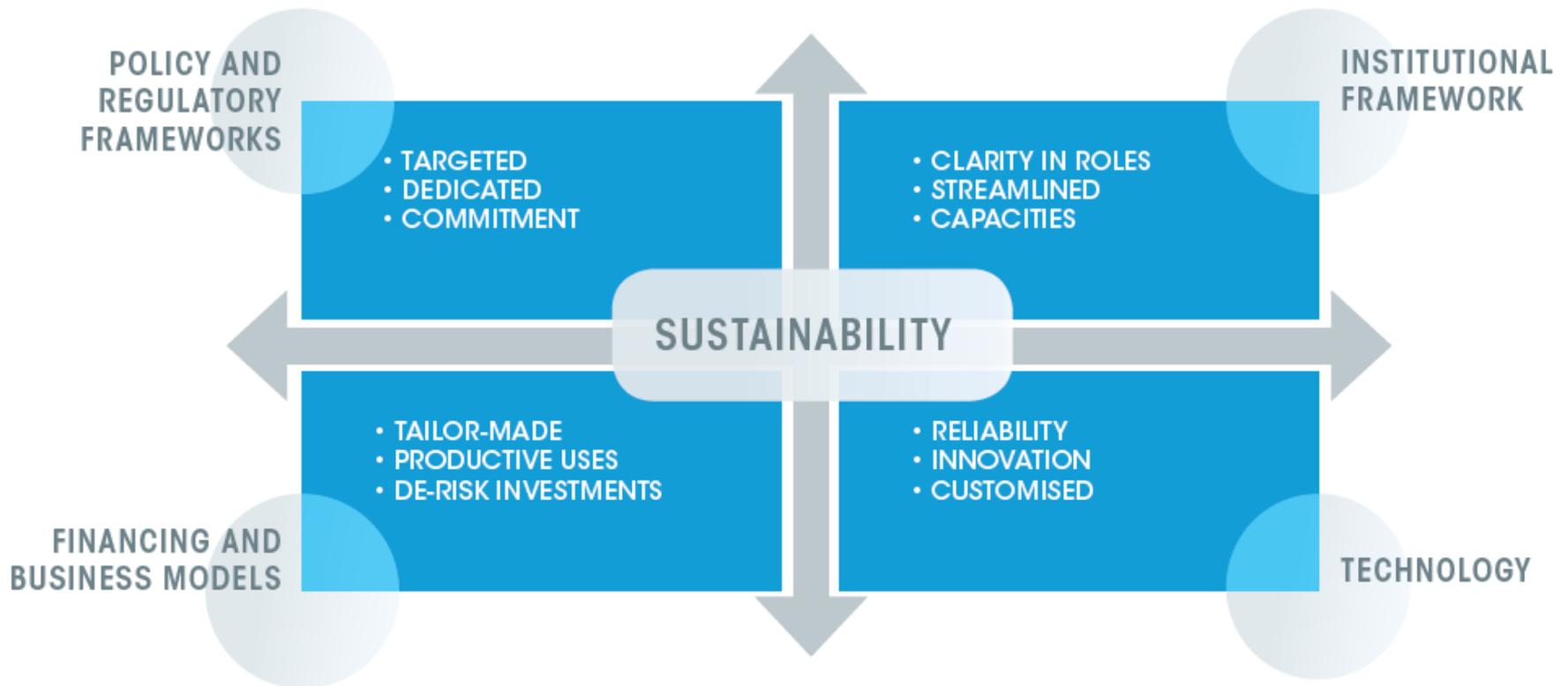
IOREC 2014
Manila, Philippines

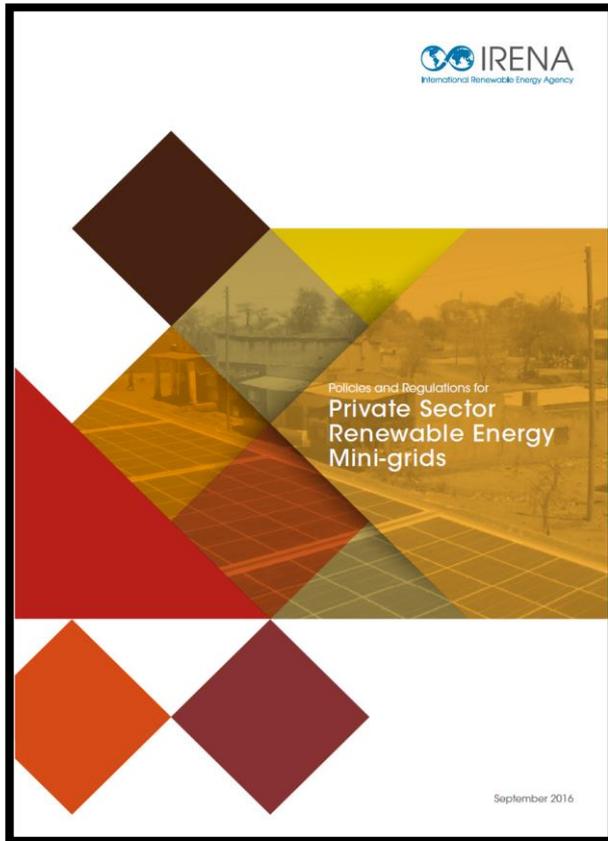


IOREC 2016
Nairobi, Kenya



Key Elements of an Enabling Environment



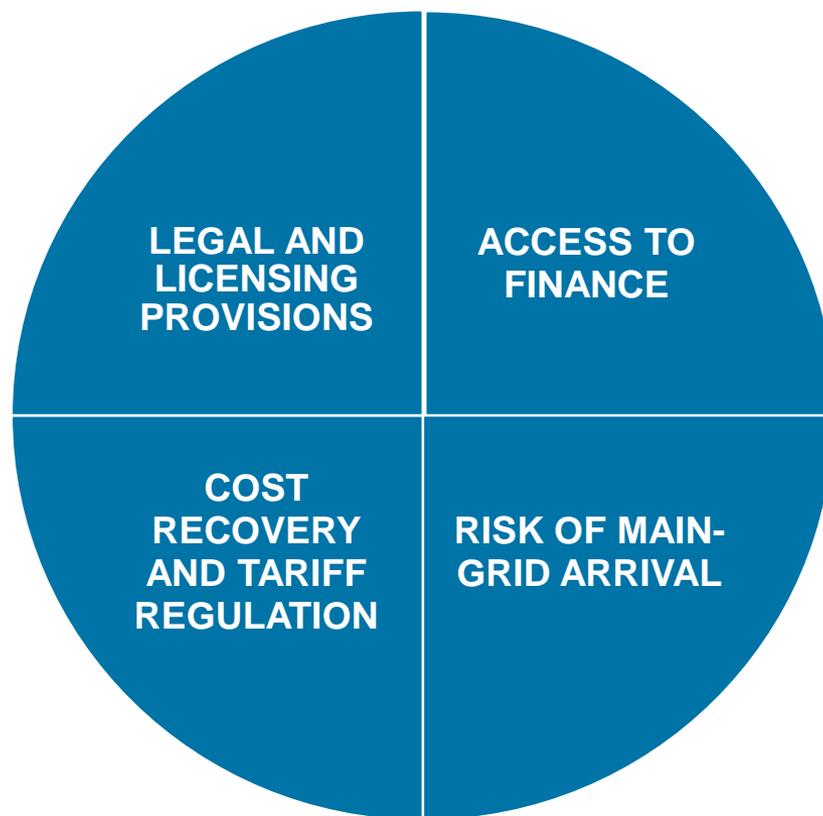


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OBJECTIVES

- Maps out the role of renewable energy mini-grids in rural electrification strategies
- Analyses the current landscape of policy and regulations for the mini-grid sector
- Identifies key policy and regulatory conditions for attracting private sector
- Defines technology-specific policy and regulatory requirements

Key policy and regulatory conditions



Key policy and regulatory conditions:

Legal and licensing provisions

Legal provisions

- The generation, distribution, and sale of electricity by private firms must be legal.

LEGAL AND
LICENSING
PROVISIONS

Clear processes and procedures

- Single-window clearance facility hosted at a rural electrification agency or similar body.
- Information on processes and procedures.

Streamlined regulatory requirements

- Segmented approach to designing mini-grid regulatory requirements – limit licensing/permitting costs to 1-2% of project cost.
- Non-energy requirements (e.g., ESIA) simplified and standardized.

Provisional licenses and concessions

- Avoid two or more developers carry out preparatory activities on the same site.
- Provisional licenses more suitable for bottom-up mini-grid development.

Key policy and regulatory conditions:

Cost recovery and tariff regulation



IRENA

International Renewable Energy Agency

Regulations need to allow viability and sustainability

- Private operators should be allowed to recover costs within a reasonable time and at margins commensurate with risks.

LEGAL AND
LICENSING
PROVISIONS

COST
RECOVERY
AND TARIFF
REGULATION

Cost-covering tariffs

- Cost-covering tariffs an option – growing case for differentiated tariffs for mini-grids.
- Mini-grid tariffs need to be high enough to cover costs and structured to reflect current spending on energy.

Tailored approach to tariff regulation

- Exemptions from tariff regulation under specific threshold.
- Operators can test flexible tariff structures in a light-handed regulatory space.

Tariff caps and standardised calculation methodologies

- Tariff caps can be set for local conditions.
- Tariff determination through standardised methodologies (e.g., a costplus approach) allows for systematic assessment, and provides the basis for brief negotiations.

Key policy and regulatory conditions:

Risk of main-grid arrival

Mitigating main grid arrival risk

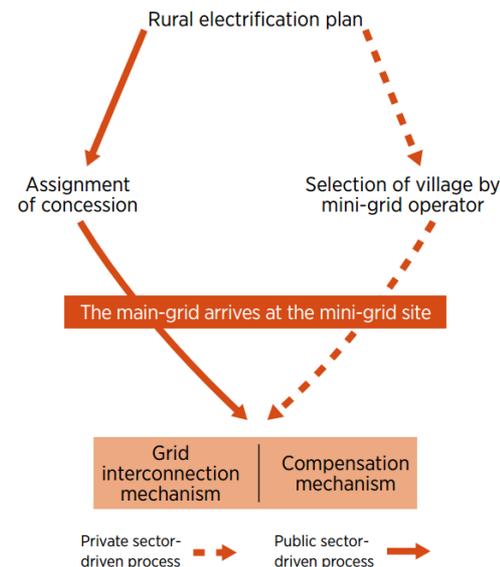
- Regulations must address the risk to mini-grids created by the arrival of the main grid.

Rural electrification plans provide valuable guidance

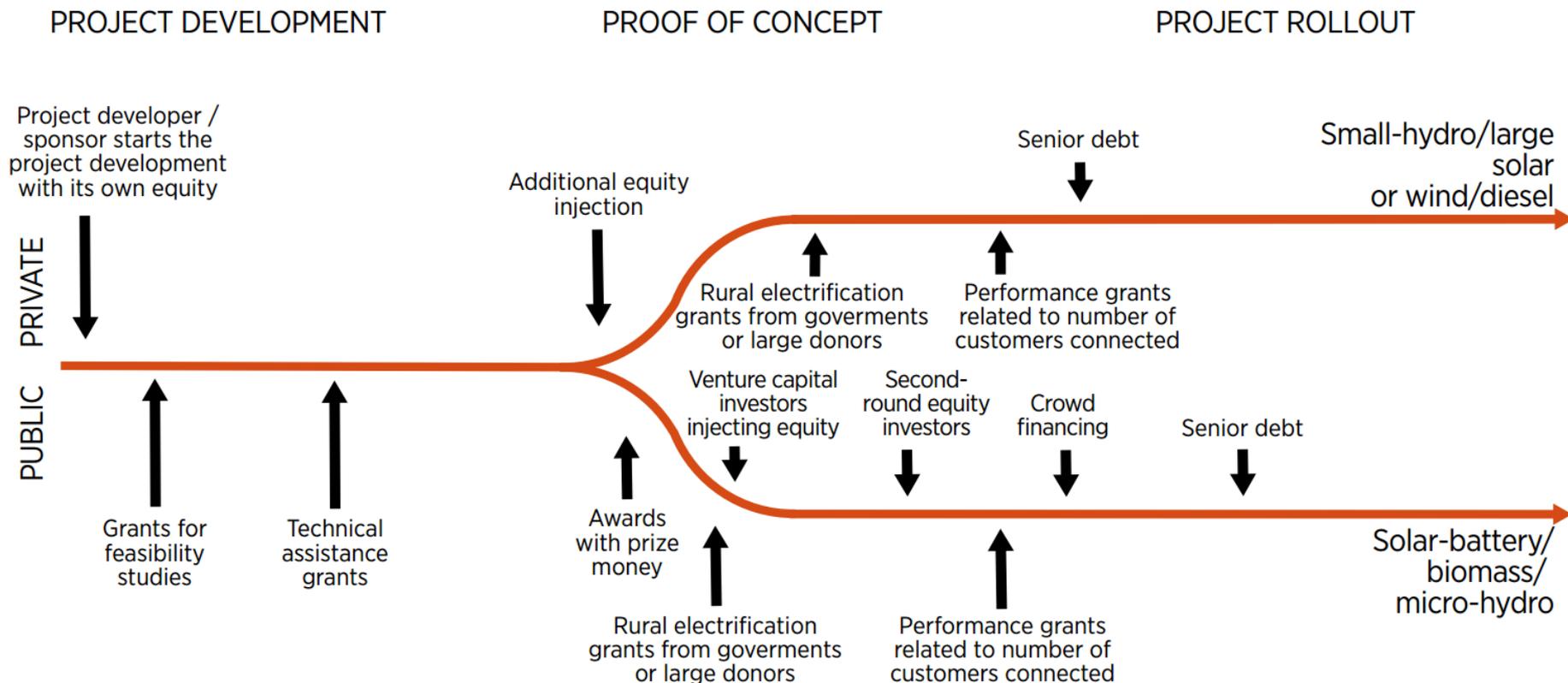
- Information on location and timeframe for grid extension, as well as population density, productive loads and existence of other licensees.
- Benefits for developers (in a bottom-up, market-driven approach) and public authorities (in a top-down concession scheme).

Interconnection/compensation mechanisms allay risks

- Several interconnection options exist – transition to small power producer, distributor, tail-end support.
- Most suitable approach largely depends on generation costs.
- Interconnection or compensation: full information about tariffs and depreciation scenario should be available in early stage.



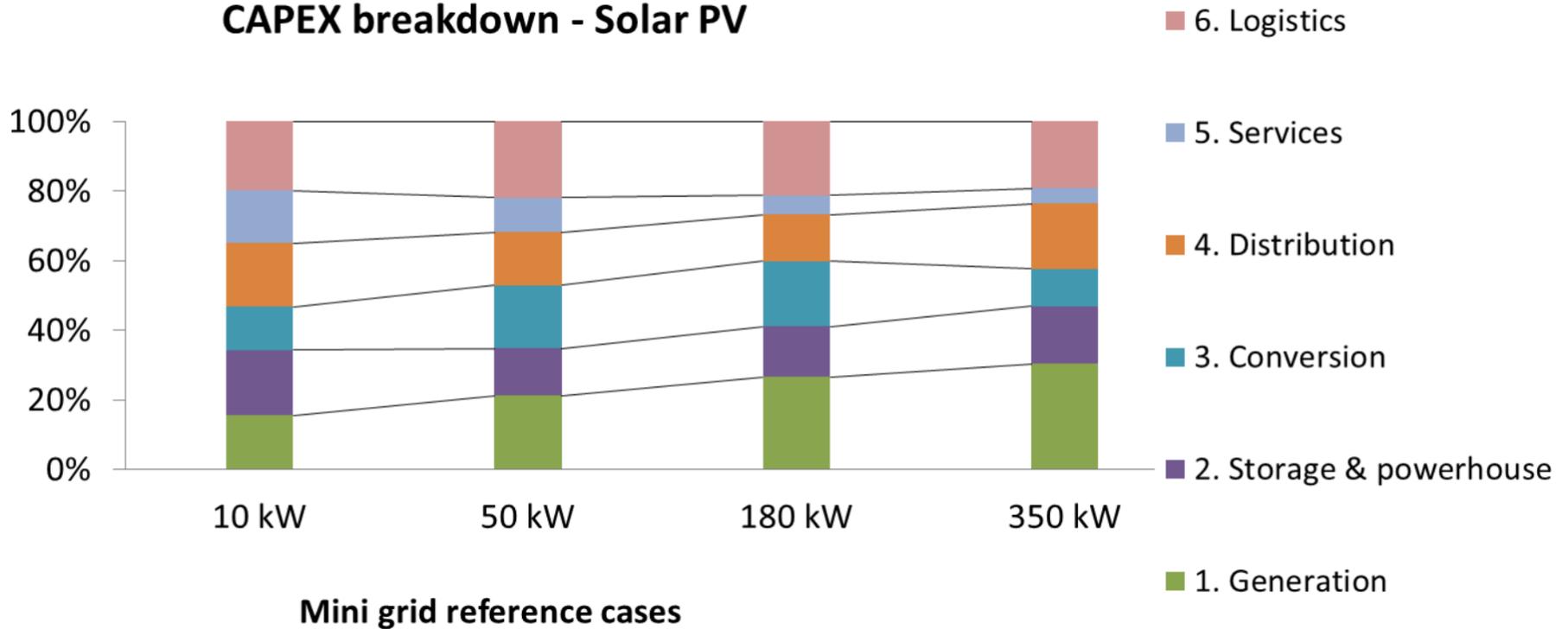
Key policy and regulatory conditions: Measures for access to finance



Private mini-grids pass through different phases with varying financing needs until they are finally installed and commissioned.

Key policy and regulatory conditions: Measures for access to finance

CAPEX breakdown - Solar PV



Source: ECA, TTA, Access Energy, 2014

Key policy and regulatory conditions: Measures for access to finance

Measures to facilitate access to finance

- Measures to facilitate access to finance should take into consideration the mini-grids specificities

Address targeted financing gaps in mini-grid phases

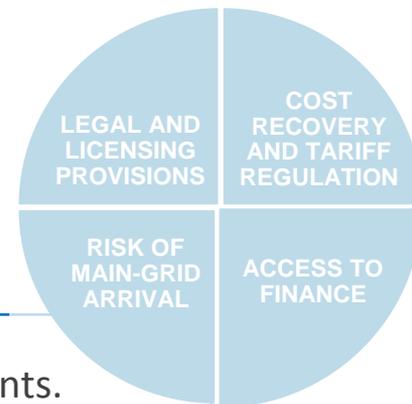
- Cooperation with regional/global funding facilities to attract early-stage grants.
- Dedicated funds to bridge financing gaps. Local commercial banks can be engaged to make available low-cost, local-currency loans.

Efficient design and delivery of public financial support

- Ongoing support perceived as risky, CAPEX grants preferred without impacting sustainability. Delivery on step-by-step or integrated basis.
- Financial support should be designed to leverage capital from commercial sources.

Financing instruments to catalyse investments

- Instruments (e.g., publicly backed guarantees, subordinated debt) could make it easier to attract private investors.
- Innovative PPP models to de-risk investments (e.g. split of assets)



Policies for various mini-grid technology solutions

- Mini-grid configurations have different policy and regulatory needs.
 - Solar DC mini-grids are highly modular, low-capacity systems and are less susceptible to main-grid arrival. Small-hydro most vulnerable with immovable assets.
 - Solar resource is better understood compared to wind or biomass which require detailed and cost intensive assessments.
 - Additional permits and licenses are demanded for small-hydro and biomass (*e.g.*, water rights, feedstock contracts).
 - Solar and biomass mini-grids provide the mini-grid sector a good point of access to local banks. Other technologies require greater support.
- Specificities should be considered to develop the right policy mix.
- Tailored mini-grid policies and regulations can allow investment streams to be directed into certain combinations of technology and tier

Final thoughts

- The renewable energy mini-grid sector is highly dynamic and policies evolve as they are introduced, applied and calibrated.
- To create enabling conditions, measures are needed in energy and non-energy sectors (e.g., financial, data and statistics, rural development).
- Potential for meeting both electrification and development goals.
- Critical importance of cooperation between public and private sectors as well as among institutions working in different sectors.



Thank you