



CE F I M
CLEAN ENERGY FINANCE &
INVESTMENT MOBILISATION



OECD WORK ON ENERGY EFFICIENCY FINANCING UNDER THE CLEAN ENERGY FINANCE AND INVESTMENT MOBILISATION (CEFIM) PROGRAMME

Mission Efficiency Charrette 2024: Double Efficiency, Double the Impact

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Lisbon

This deck presents recent and on-going work on energy efficiency financing, conducted by the OECD Clean Energy Finance and Investment Mobilisation (CEFIM) Programme, including:

- Overview of the CEFIM Programme and its work on energy efficiency financing
- Selected examples from CEFIM countries:
 - Thailand (energy efficiency for buildings, with a focus on cooling)
 - The Philippines (energy efficiency for public buildings)
 - Indonesia (energy efficiency financing and Energy Saving Insurance)
 - India (energy efficiency of MSMEs and Energy Saving Insurance)

Overview of CEFIM and its work on energy efficiency financing


OECD programme funded by Australia, Canada, Denmark, Egypt, and Germany

Aim: to help accelerate clean energy finance and investment by strengthening domestic enabling conditions

Scope: renewable energy, energy efficiency, clean hydrogen and industry decarbonisation

Activities:

Clean energy finance and investment review / roadmap 

Regional peer learning 

Robust clean energy finance and investment environment

Implementation support activities 

Investor dialogues 



CEFIM country partners: Colombia, Egypt, India, Indonesia, Philippines, South Africa, Thailand and Viet Nam

Building on OECD experience, CEFI Roadmaps:

- leverage OECD convening power and aims to develop **an implementable strategy** to scale clean energy finance and investment
- set **actions and time-bound milestones** for actors
- provide recommendations for **new financing mechanisms and innovative business models** based on international experience
- identify **near-term investment opportunities**

The Roadmap also outlines **opportunities to tailor market and policy interventions** and evaluates the need to **develop additional investment vehicles** able to attract institutional capital at scales.



- Demand-driven, tailored activities based on needs and priorities of countries
- Provide **analytical support** for development of policies to attract private capital, including assessing financial instruments to maximise use of limited public and development funds
- Develop **tool kits to track clean energy finance and investment** flows
- **Strengthen capacity** through trainings, workshops and policy dialogues

Actionable recommendations

For implementation of findings from the Clean Energy Finance and Investment Review and Roadmap

Analysis and capacity building

Through targeted analysis, workshops, policy dialogues and training events

Operationalisation

Of policy, financial instruments, tools or projects that support clean energy development

Examples of implementation support activities

Indonesia

Operationalisation

Clean energy finance database and behavioural analysis of FIs
Sustainable finance taxonomy

Capacity building

Clean energy finance and investment training week

Analysis & policy dialogues

Insurance products to support renewable energy finance
ETS design for power sector

India

Analysis & policy dialogues

De-risking instruments for RE development
Support to BEE on EE finance platforms/protocols

Viet Nam

Analysis

Study on discount rates for Viet Nam Energy Outlook 2021

Actionable recommendations

CEFI roadmap in collaboration with Vietnam Energy Partnership Group (tbc)



Thailand

- Roadmap for Energy efficiency financing for buildings, with a focus on cooling (as part of the [Clean Energy Finance and Investment Roadmap of Thailand](#))

The Philippines

- Roadmap for Financing energy efficiency in public buildings (as part of the [Clean Energy Finance and Investment Roadmap of the Philippines](#))

Indonesia

- Energy Efficiency Financing Guidebook (with OJK) [on-going]
- Energy Saving Insurance (ESI): Needs Assessment [on-going]

India

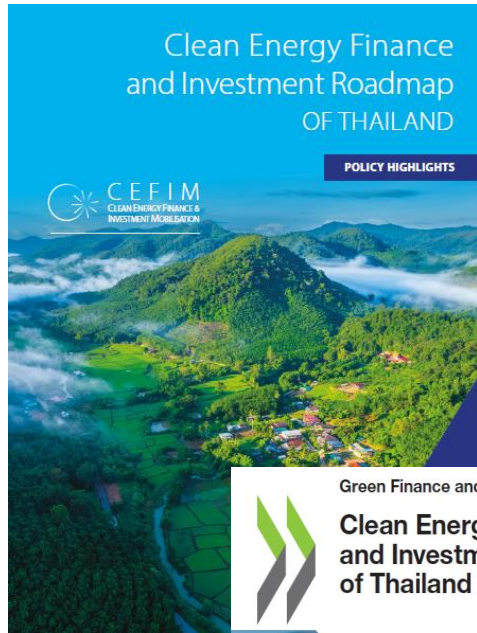
- Roadmap for Financing energy efficiency, with a focus on MSMEs (as part of the [Clean Energy Finance and Investment Roadmap of India](#))
- Energy Saving Insurance (ESI): [Preliminary Needs Assessment](#)

Clean Energy Finance and Investment Roadmap of Thailand – Focus on energy efficiency for buildings, with a focus on cooling

Clean Energy Finance and Investment Roadmap of Thailand: Scope



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OECD

[Read the Roadmap and Policy Highlights](#)

1

Key trends and policies on clean energy financing in Thailand

- Overview on clean energy policy and finance landscape
- The Thai sustainable finance ecosystem

2

Estimates of financing needs to operationalise Thailand's energy plans

- Estimates for the financing needs to implement the Alternative Energy Development Plan (AEDP) 2018 and the Energy Efficiency Plan (EEP) 2022

3

Deep dive 1: small-scale renewable power

- Case studies and action plan on innovative financing models:
- Credit guarantee schemes for SME RE projects
 - Aggregation and securitisation models for small-scale renewables
 - Pay-as-you-go model

4

Deep-dive 2: energy efficient cooling in buildings

- Case studies and action plan on innovative financing models:
- Energy saving insurance (ESI)
 - Green bonds for green buildings
 - On-bill financing
 - Bulk procurement and demand aggregation

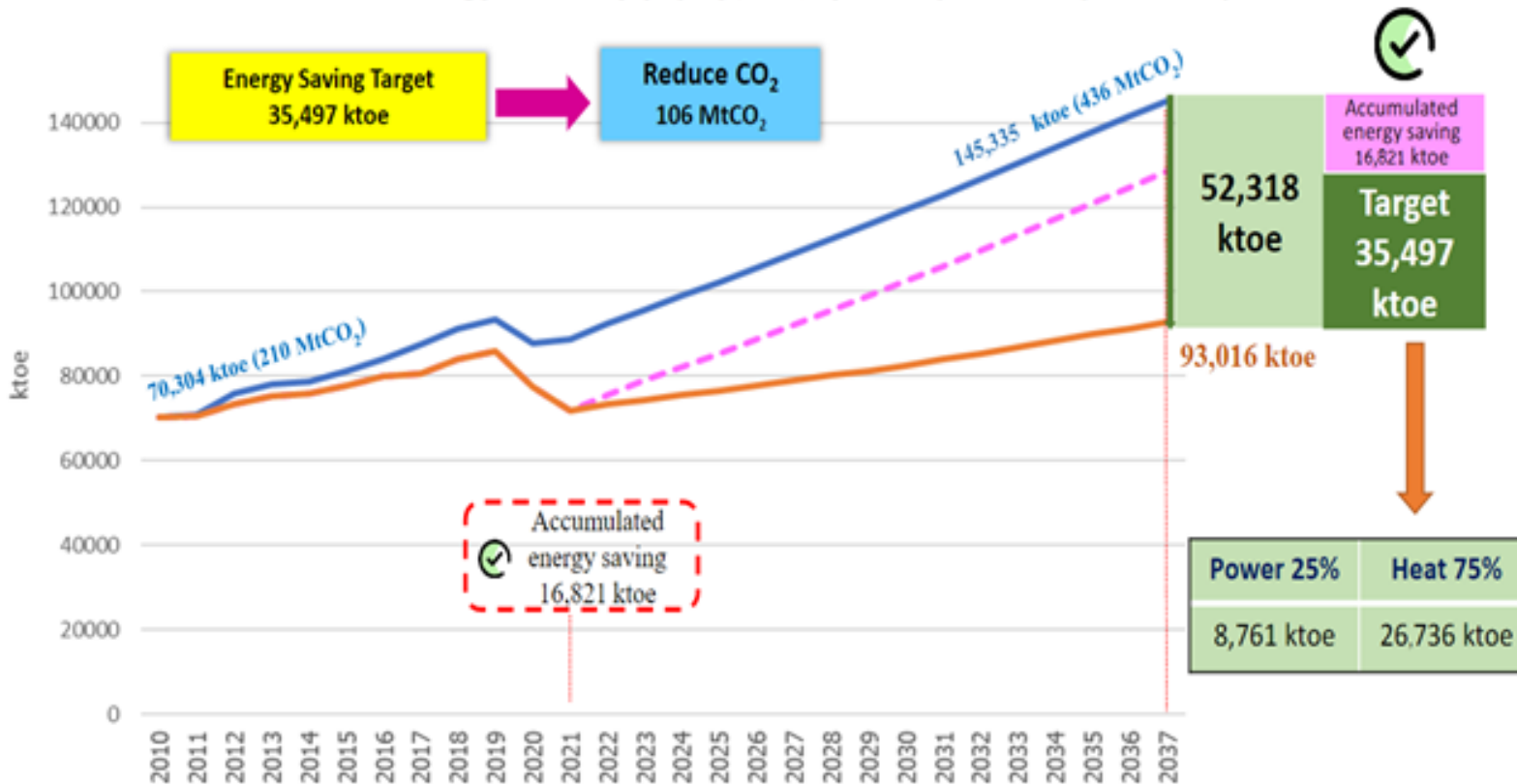
Energy efficiency financing: Key recommendations

Topic area	Recommendations	Timing
Financial support	Piloting on-bill financing and Energy savings insurance (ESI)	S-T
	Establishing a bulk procurement model for energy-efficient cooling appliances	S-T
	Conducting ex-post evaluations of the Energy Efficiency Revolving Fund and the ESCO Fund	S-T
	Maintaining consistent public support to promote the ESCO market	M-T
	Fostering the uptake of green bonds in the building sector	M-T
Policy, regulation and governance	Incrementally increasing stringency of minimum energy performance standards and expanding AC labelling to large commercial buildings.	S-T
	Setting up an institutional co-ordination scheme and revising roles and responsibilities of energy efficiency standards implementing agencies	S-T
	Strengthening the regulatory framework for district cooling	M-T
	Developing an Energy Efficient Technology List (EETL) and collaborating with financial institutions to provide financial incentives to the listed technologies and providers	M-T
Capacity building, data collection and awareness	Establishing capacity building and training programmes on energy efficiency for the building sector	M-T
	Increasing consumer awareness campaigns for efficient buildings and cooling	M-T
	Fostering data collection on energy savings of energy-efficient buildings and cooling systems	M-T

Energy Efficiency Target as per the draft Energy Efficiency Plan (2022 – 2037)

- The goal of the draft EEP 2022 is to reduce the energy intensity (EI) by 36% by 2037, compared to the base year of 2010. To achieve this goal, it is estimated that around 35 497 ktoe of energy from five sectors, including industrial, commercial, residential, agricultural and transportation sectors, needs to be saved from the business as usual (BAU) scenario.

To reduce Energy Intensity (EI) by 36% by 2037 (the base year 2010)

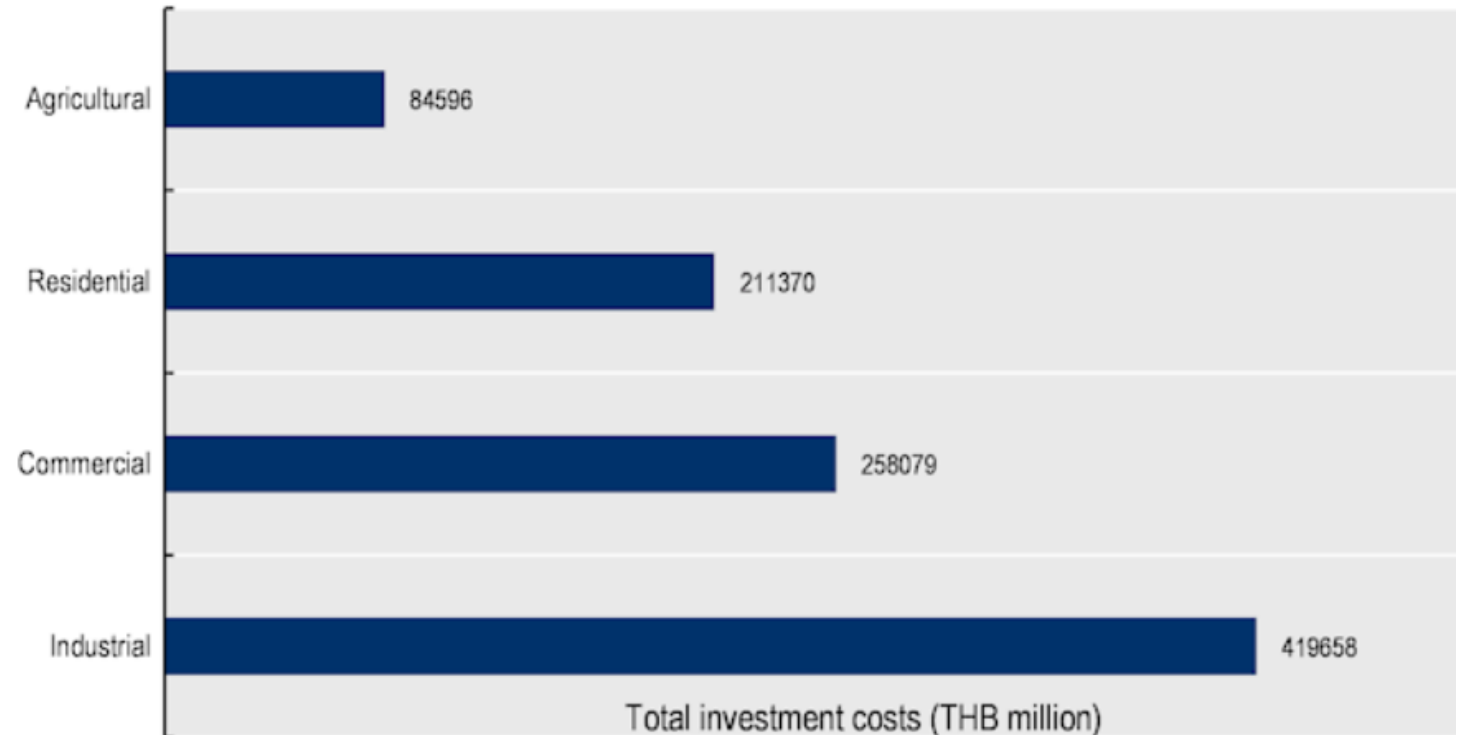
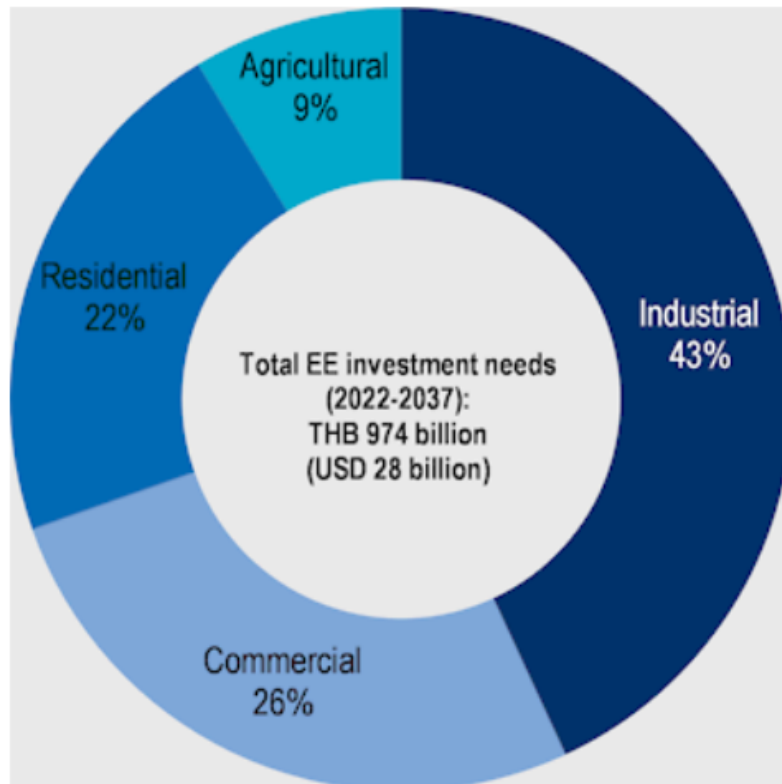


Energy saving target of 4 selected sectors:
18,458 ktoe

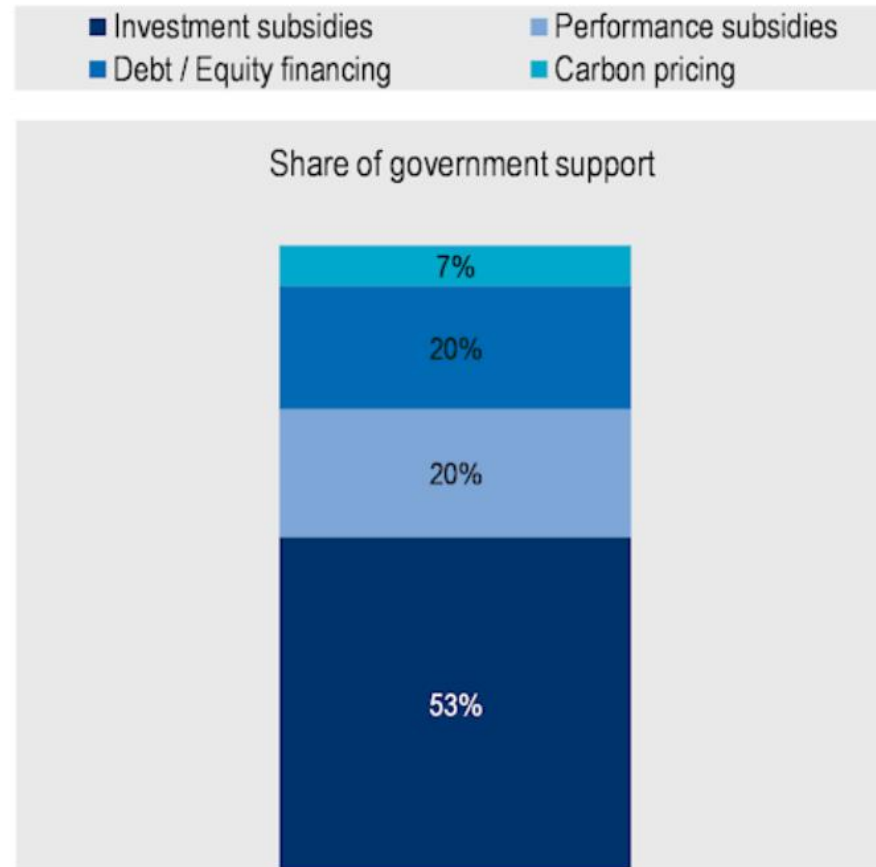
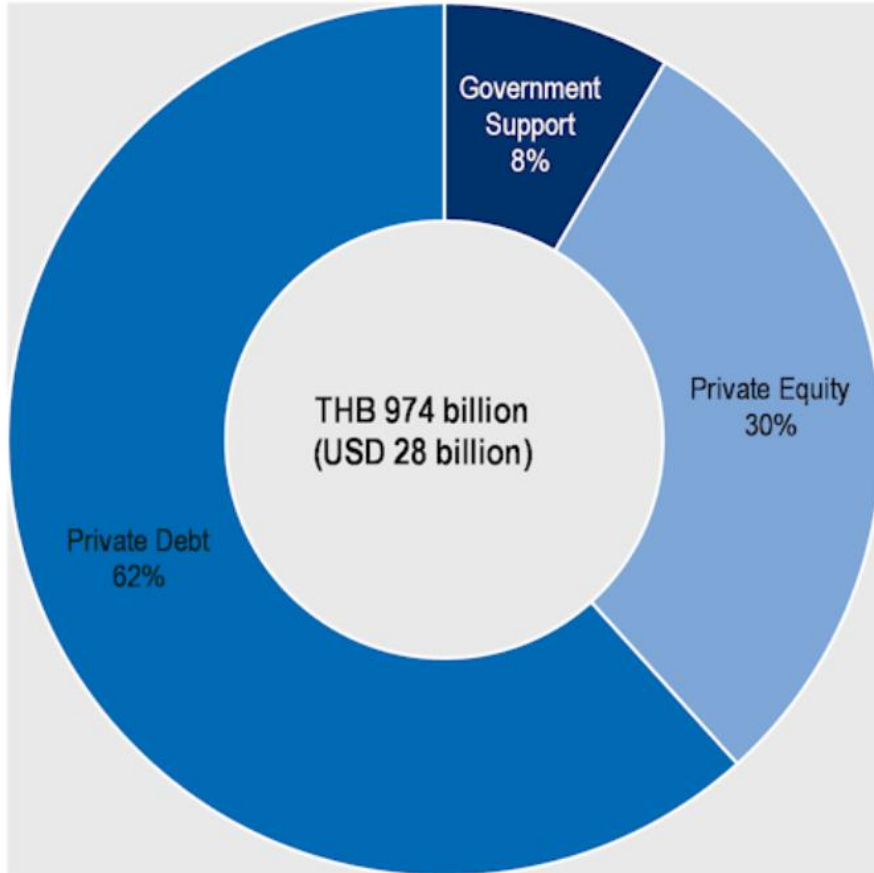
Sector	Total (ktoe)	Percentage
1. Industrial	12,432	35
2. Commercial	3,542	10
3. Residential	1,774	5
4. Agricultural	710	2
5. Transportation	17,039	48
Total	35,497	

Estimates of total energy efficiency investment needs in four economic sectors, as per the draft EEP 2022 (2022 – 2037)

- The total energy efficiency investment required in the four economic sectors between 2022 and 2037 will amount to THB 974 billion (USD 28 billion). The industrial sector needs the largest investment of THB 420 billion (USD 12 billion), or 43% of the total energy efficiency investment.



Estimates of needed government support, private equity and private debt for energy efficiency investment, as per the draft EEP 2022 (2022 – 2037)

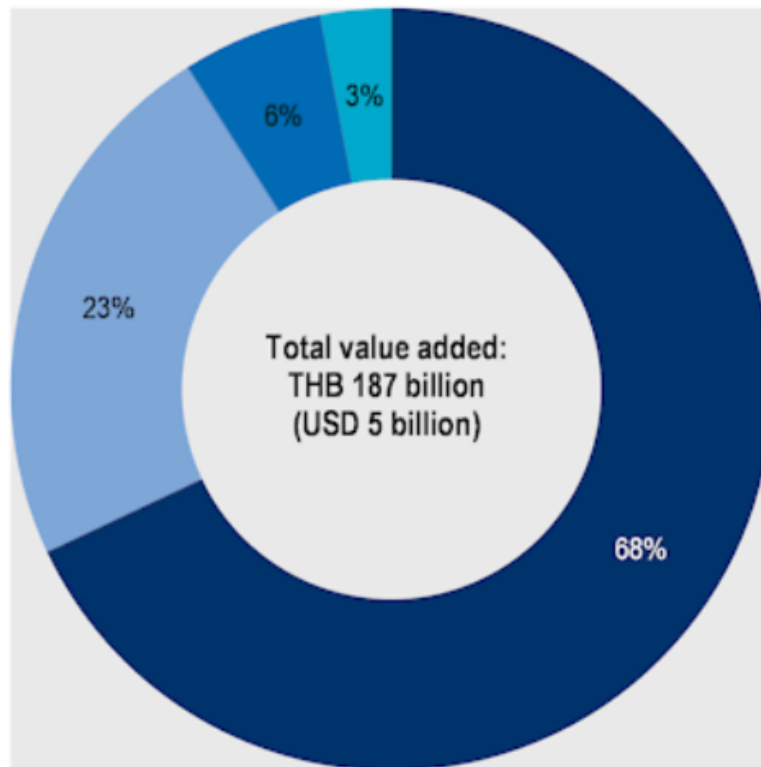


- The extent of government support, private equity and private debt for energy efficiency investment in the four economic sectors during 2022 – 2037 are 9%, 30%, and 61%, respectively. To implement the draft EEP 2022, government support of THB 92 billion (USD 3 billion) is needed. The support could be provided through four financial instruments.

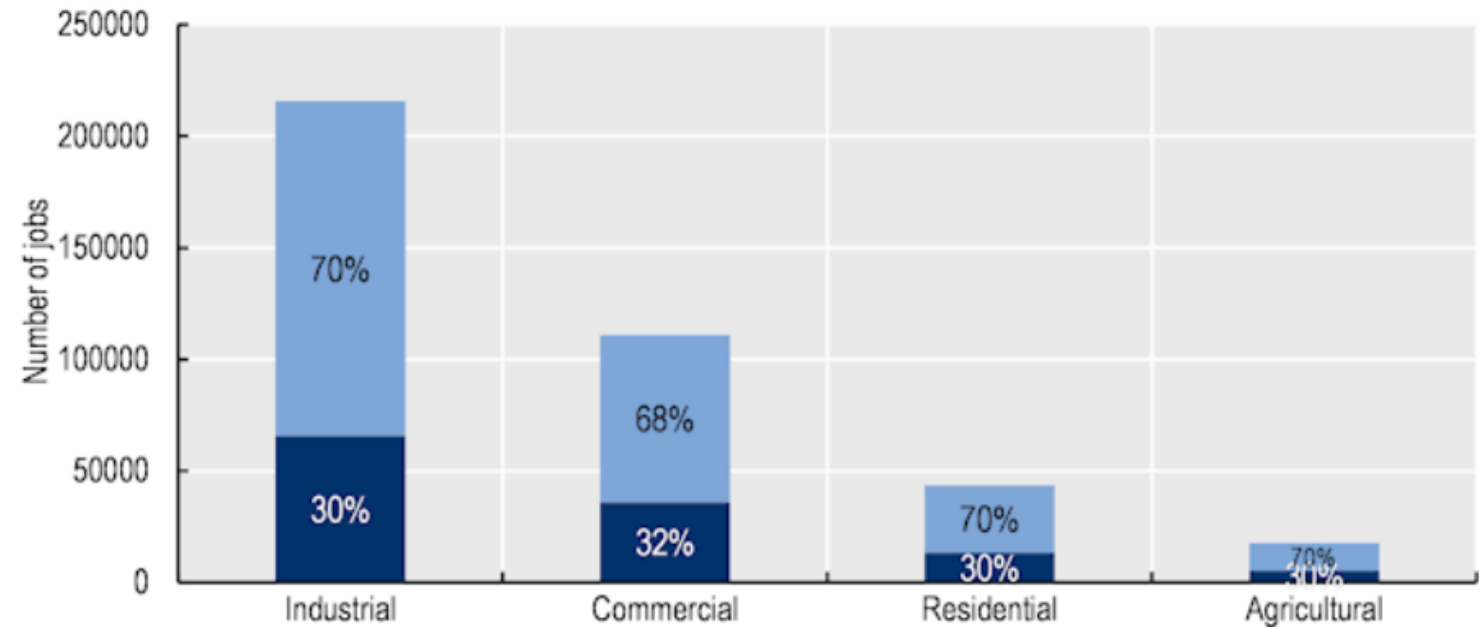
Estimated value added and employment created as a result of the implementation of the AEDP 2018

- Total investment of energy efficiency during 2022-2037 amounting to THB 974 billion (USD 28 billion) is expected to create value added of THB 187 billion (USD 5 billion) or about 19%.
- This investment is expected to create 387 thousand jobs during the same period, out of which on average 119 thousand (31%) are direct jobs and 268 thousand (69%) are indirect jobs.

■ Industrial ■ Commercial ■ Residential ■ Agricultural



■ Direct ■ Indirect



Financial support

- Small ticket size
- Low credit worthiness and commercial return expectations
- Low bankability (high perceived risks and lack of trust on energy savings verification)
- ESCO lending limited to few large projects
- Limited investment confidence on promised monetary benefits of EE investments

Policy and regulation

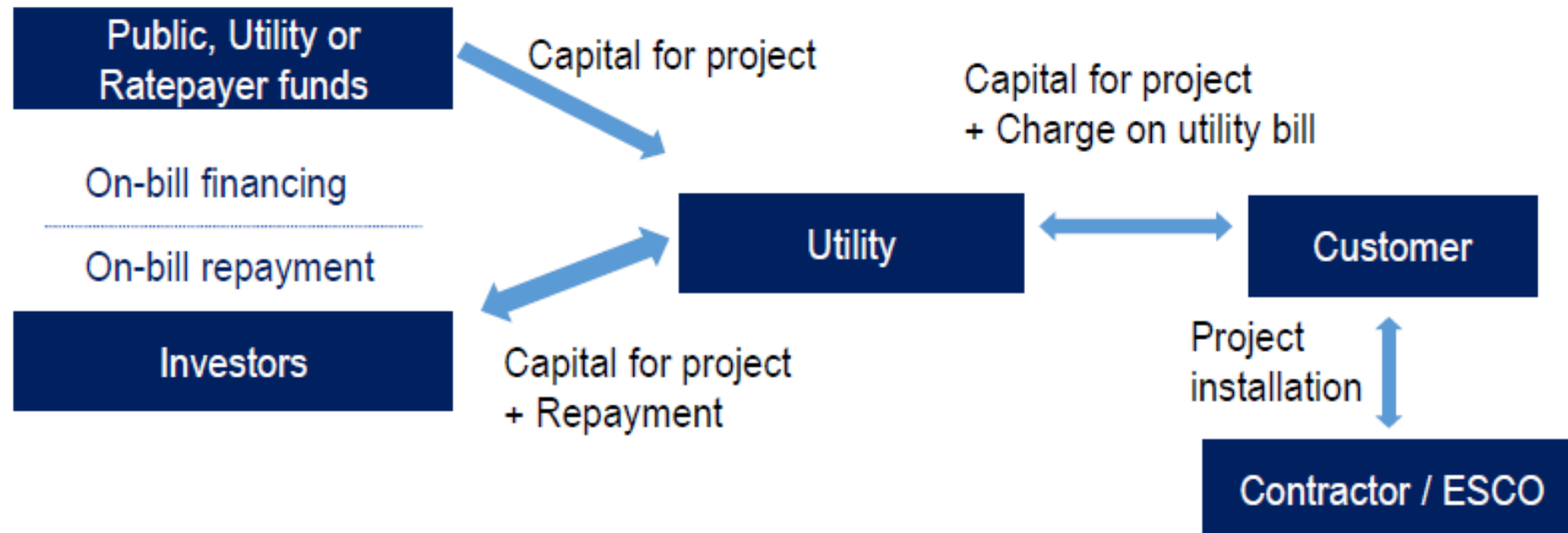
- AC labelling is voluntary and does not apply to commercial buildings
- AC standards and MEPS have low stringency
- Misaligned incentives of building developers and owners
- Limited and delayed enforcement of the BEC

Governance and capacity

- Limited consumers' information
- Lack of coordination between responsible public agencies
- Lack of training for engineers
- Limited M&V capacity

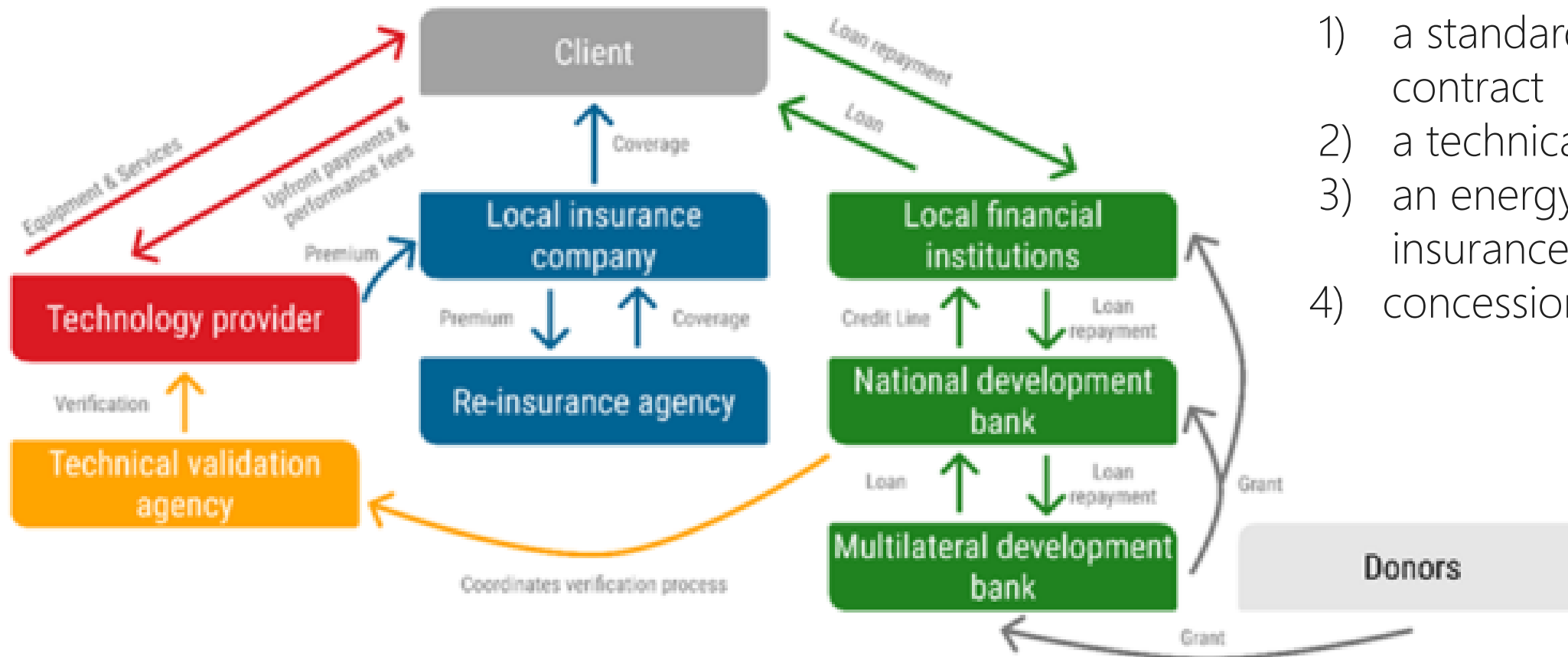
Case study: On-bill Financing (OBF)

- **On-bill financing (OBF)** is a mechanism where utilities or private lenders provide customers with capital for clean energy projects (typically small-scale EE project)
- OBF programmes rely on the willingness of the utility to invest and/or collect repayments from their customers via the monthly utility bills.
- On-bill programmes may require customers to select technologies and/or suppliers from a pre-approved list.



Case study: Energy Savings Insurance

- **Energy Savings Insurance (ESI)** is a de-risking package providing certainty to energy users that the projected energy savings from efficiency projects will be achieved.

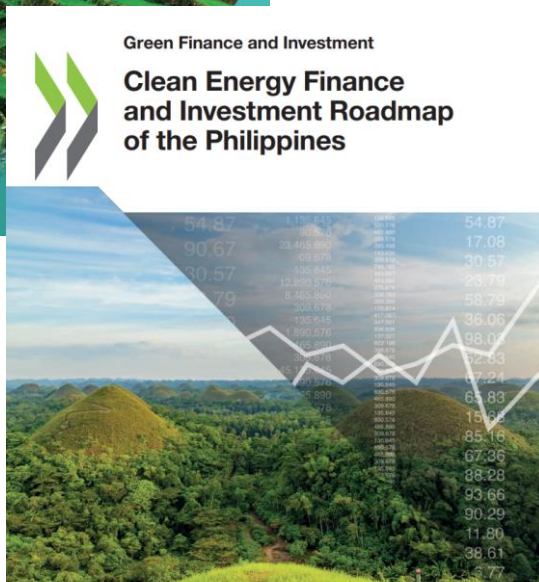
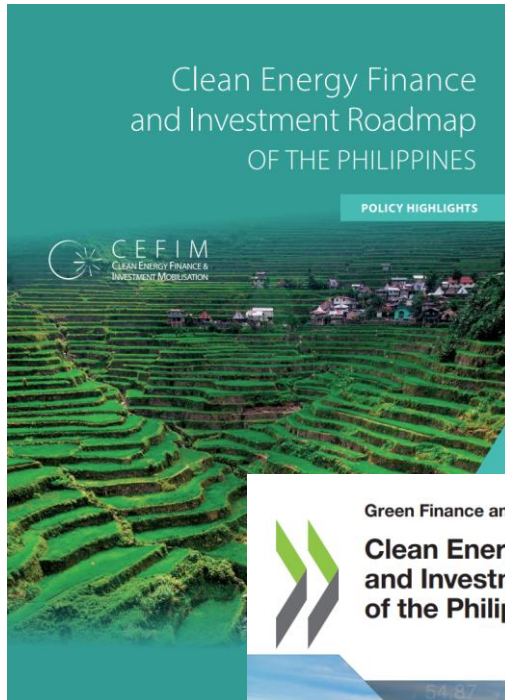


ESI combines 4 main elements:

- 1) a standard performance contract
- 2) a technical validation
- 3) an energy savings insurance product
- 4) concessional financing

Clean Energy Finance and Investment Roadmap of the Philippines – Focus on energy efficiency for public buildings

Clean Energy Finance and Investment Roadmap of the Philippines: Scope



1 Key trends and policies on clean energy financing in the Philippines

- Overview on clean energy policy and finance landscape

2 Deep dive 1: Mobilising finance and investment for off-shore wind

- Offshore wind growth potential, investment needs, market and policy developments
- Challenges and market development barriers
- Financing solutions

3 Deep dive 2: Financing energy efficiency in public buildings

- Energy efficiency market developments and trends, growth potential and investment needs
- Development challenges
- Financing options and development assistance

Clean Energy Finance and Investment Roadmap of the Philippines: Priority areas



In close collaboration with the Department of Energy (DOE) of the Philippines, offshore wind and energy efficiency in public buildings were selected as priority areas for this Roadmap.

1. Offshore wind

50% RE

in the power generation mix by 2040

+10x RE

investments needed vs. today's annual average

178 GW

technical offshore wind potential

+60 GW

Wind energy service contracts awarded

2. Energy Efficiency in public buildings

24% economy wide energy savings by 2040

2% annual reductions in energy consumption in buildings

+36x investments needed vs. today's average

LGUs as principal target adopters to kick-start an energy efficiency market

Key recommendations to unlock finance and investments for energy efficiency in public buildings in the Philippines (part 1/2)

1. Harmonised implementation plans



Clear **timelines** and **pathways** between national **agencies**, **local** government, **central** government

2. Public budget allocation for LGUs



Assessing the **budget allocation** of **LGUs** and the needed **resources** against the time-bound targets under **NEECP 2023-2050**

3. Regulatory reforms



Procurement rules for energy efficiency projects **exceeding one calendar year**, as well as **bundled** contracts



Key recommendations to unlock finance and investments for energy efficiency in public buildings in the Philippines (part 2/2)

4. Data collection and transparency



Improve the **trust** in the business model by addressing perceived risks through data analytics on **savings, performance, payback period**

5. Improved access to finance



Diversified funding through **project aggregation** to facilitate **private sector engagement**, especially equity finance

6. Capacity building for local impact



Public **awareness** campaigns
Sharing of **best practices**
Training and development

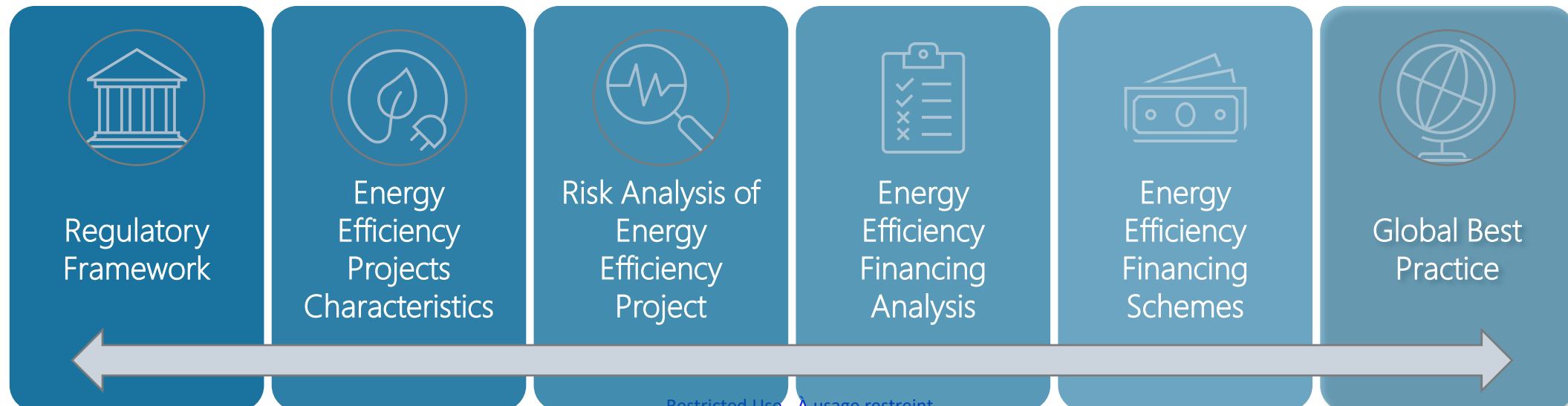


Energy Efficiency Financing Guidebook - Indonesia

- Energy efficiency is crucial for Indonesia to achieve NZE through its potential to mitigate climate change, reduce costs, and generate employment opportunities.
- However, several challenges remain, such as :
 - **Low level of understanding and awareness** of the benefits and potentials of energy efficiency measures and technologies.
 - **Limited energy efficiency performance data** due to the relatively new development of the energy efficiency market.
 - **Limited number of energy managers and auditors.**
 - Implementation of energy conservation initiatives is in **early stages of development.**
 - **Energy subsidies** resulting in market distortions due to excessive energy use, and may have a negative impact on investment.
 - The incentives provided thus far have **failed to attract energy efficiency business actors.**
 - **Limited technical capacity** to attain best practices of processes and technologies in delivering reliable energy saving solutions.

- Key energy efficiency financing barriers in Indonesia include:
 - Relatively small scale of EE projects
 - Complexity of M&V processes
 - Limited understanding and interest of financial institutions in energy efficiency projects, and high risk perception resulting in higher cost of finance.
 - **Strict underwriting requirements** that can be challenging for MSMEs and Energy Services Companies (ESCOs) to meet, resulting in limited access to funding.
 - **Energy saving cash flows are not acknowledged as loan collateral.**
- Therefore, energy efficiency financing needs to be supported through an enabling policy framework and additional mechanisms, such as:
 - **Capacity building** for stakeholders (including FIs, policy makers, project developers etc.),
 - **Awareness raising** on financing energy efficiency through a publication/guidebook, and
 - **Assessment of de-risking instruments** such as an Energy Savings Insurance model.

- OJK and CEFIM jointly developed an *“Energy Efficiency Financing Guidebook for Financial Institutions”* as part of series of financing guidebook, expected to launch in September 2024.
- The Guidebook aims to:
 1. Assist Financial Institutions in understanding the importance of energy efficiency, the existing regulatory framework in Indonesia; energy efficiency technologies, business models, risk analysis and due diligence aspects, as well as examples of financing schemes for energy efficiency projects.
 2. Encourage energy efficiency financing by Financial Institutions by enhancing their understanding of the financial considerations and opportunities in the energy efficiency sector.
- The guidebook will consist of the analysis and/or recommendations on the following area:



Energy Saving Insurance in Indonesia – Needs Assessment

Renewable Energy (RE)

- > Projects are visible
- > Energy production can easily be documented
- > RE is cash generating – top line of the Financials of the investor
- > Few projects, few investors, “one” offtaker
- > Financing: few borrowers, large amounts
- > Instant impact when production starts
- > One “installation”
- > Few technologies such as SolarPV, Wind, Hydro, Geothermal, Biomass, Biogas

Energy Efficiency (EE)

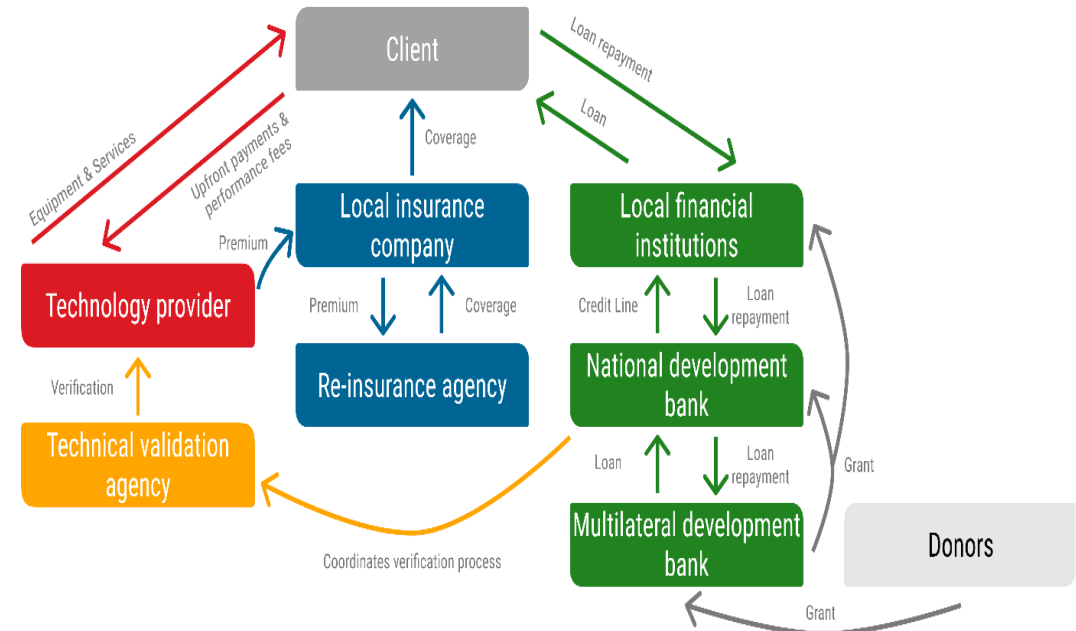
- > Projects are normally not visible
- > Savings are not easily to be documented
- > Savings are cost avoidance, bottom line impact of the investor
- > Thousands, millions of projects, millions of investors or beneficiaries
- > Thousands, millions of borrowers, often very small amounts
- > “creeping” success, no immediate impact visible
- > Multiple of measures add up to a project success, can be developed in stages, step by step
- > Thousands of manufacturers in thousands of applications

Source: GIZ

The Energy Savings Insurance (ESI) model

- De-risking instruments are essential for encouraging investment and removing barriers to energy efficiency. Guarantee and insurance are two widely known de-risking instruments.
- The Energy Savings Insurance (ESI) model was first developed by the Inter-American Development Bank (IDB) in 2014, with the support of the Basel Agency for Sustainable Energy (BASE), to drive investments in energy efficiency projects.
- An international [focus group discussion](#) was organized by MEMR), Indian BEE, and OECD CEFIM in March 2023 to share lessons learned in the development and implementation of the ESI programme in Colombia, El Salvador, Chile, and Mongolia.
- Key lessons include the importance of strategic partnerships, adapting the components of the ESI model to the local context, engaging in stakeholder discussions and/or workshops for local actors and offering technical assistance to develop the needed market capacity.

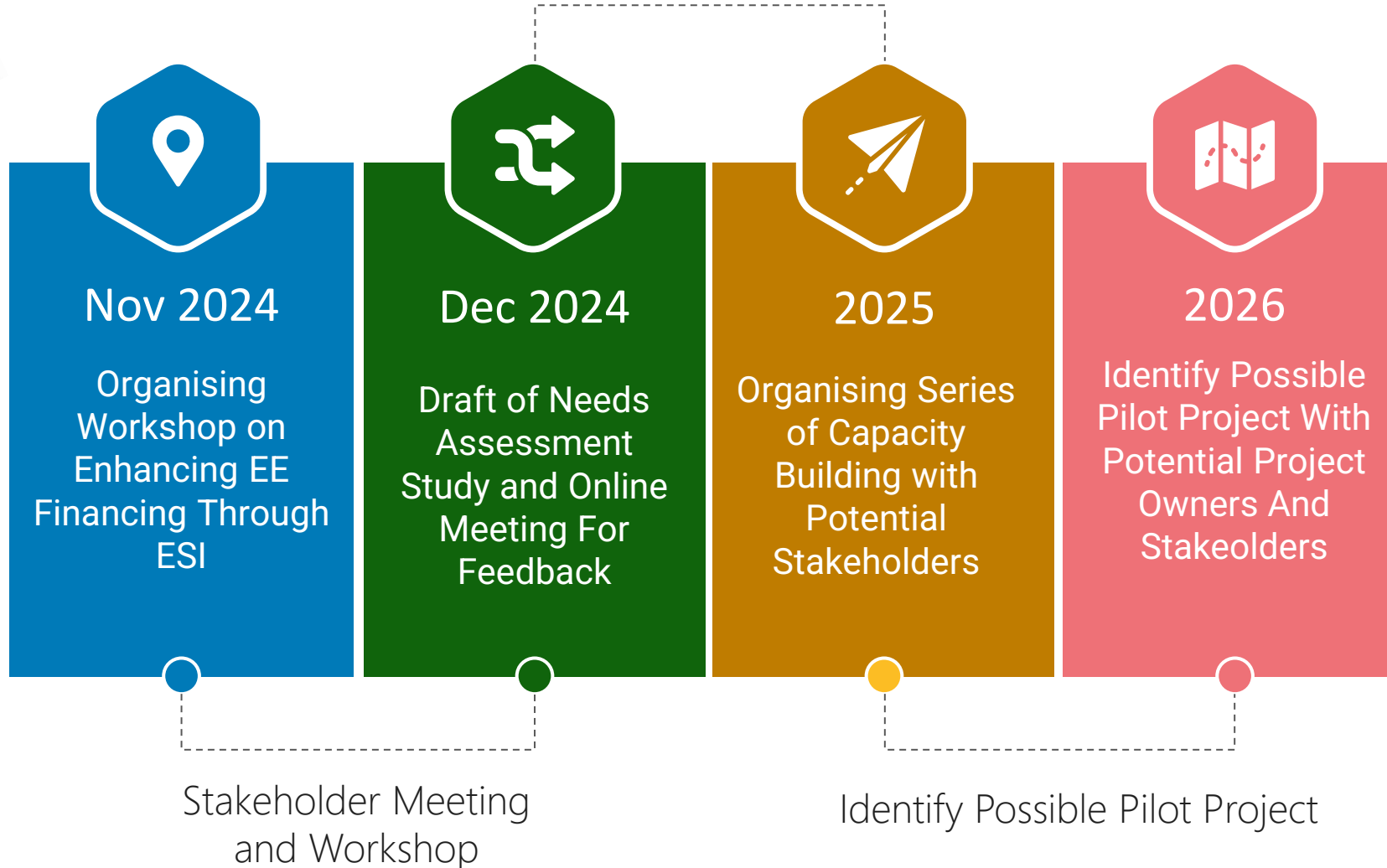
- The ESI model is a de-risking package consisting of both financial and non-financial elements designed to build investor confidence in energy efficiency projects. It has four building blocks :
 - ✓ Standard contract
 - ✓ Technical validation
 - ✓ Energy savings insurance
 - ✓ Concessional credit lines





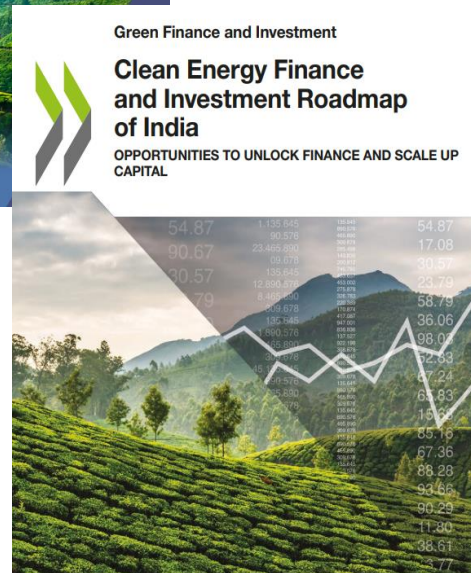


Needs Assessment Study and Capacity Building



Energy Saving Insurance in India

Clean Energy Finance and Investment Roadmap of India: Scope



1 Clean energy financing landscape in India

- Latest clean energy financing policies and trends in India

2 Deep-dive 1: Energy efficiency upgradation, with a focus on MSMEs

- Overview of MSME EE developments, trends and ambitions to 2030
- Investment needs and financial support for energy efficiency
- Roadmap to 2030

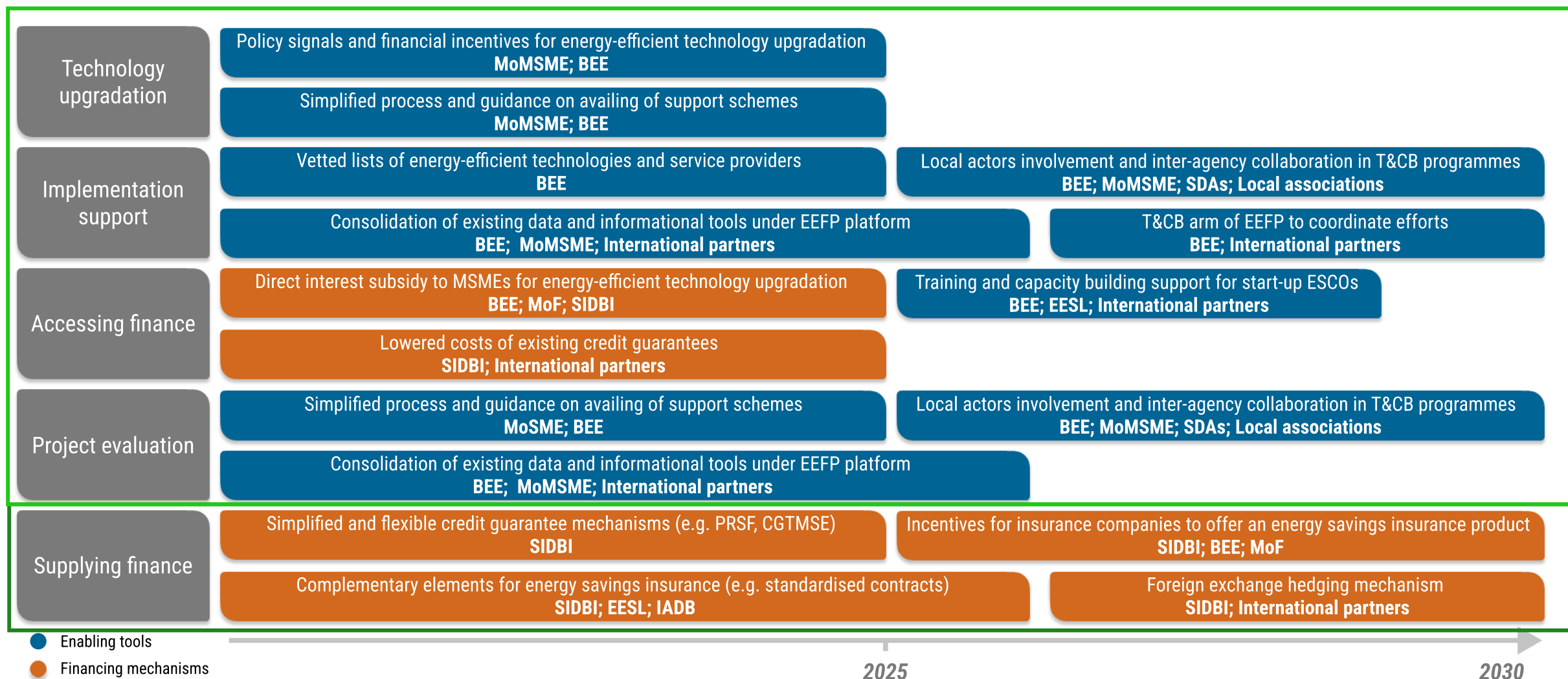
3 Deep-dive 2: Offshore wind

- Overview of offshore wind market developments, trends and ambitions to 2030
- Investment needs and financial support for offshore wind
- Roadmap to 2030

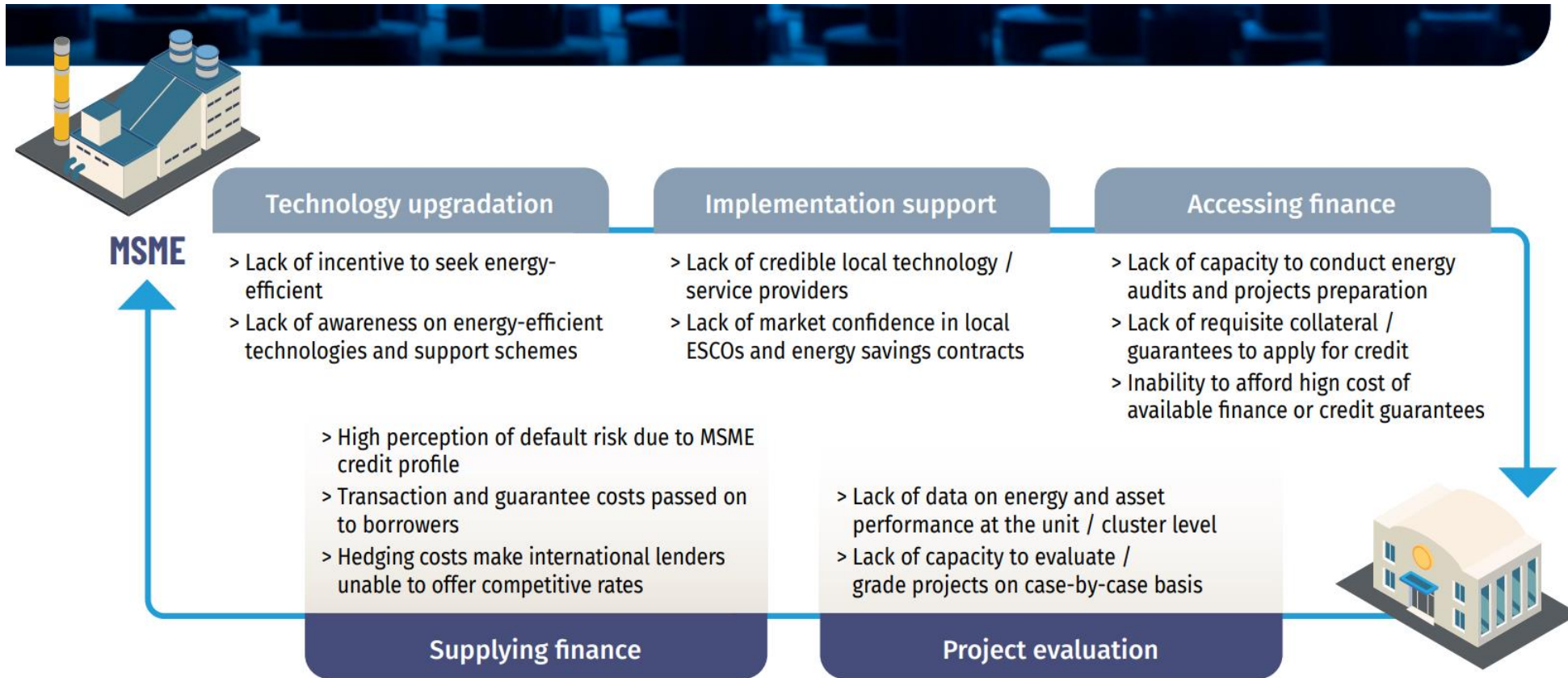
4 Deep-dive 3: Green hydrogen

- Overview of hydrogen market developments, trends and ambitions to 2030
- Investment needs and financial support for green hydrogen
- Roadmap to 2030

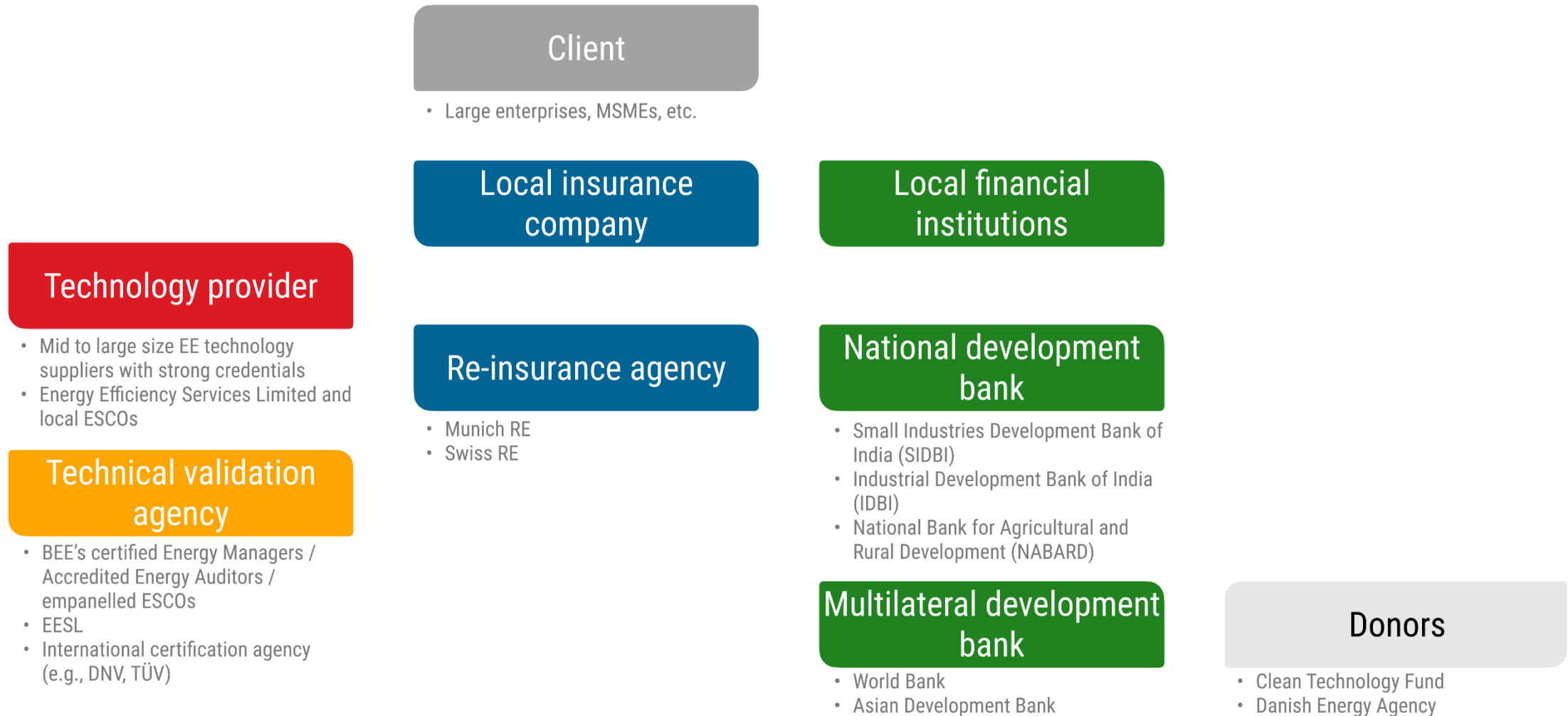
CEFI Roadmap recommendations for EE in India



Challenges in EE Financing for MSMEs



Demand for energy efficiency and appetite for investment are key bottlenecks, while MSMEs are challenged by difficulties in accessing energy efficiency finance. Better data and capacities, de-risking instruments and simple, replicable financing models are needed to scale-up lending and lower the cost of financing



Please visit our webpage:
www.oecd.org/cefim/

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About our work

