ENERGY TRANSITION PARTNERSHIP

REPORT D3:

INTERNATIONAL EXPERIENCE IN MOBILISING PRIVATE CAPITAL TO SUPPORT ENERGY TRANSITION AND FINANCE STRUCTURES FOR THE ENERGY SECTOR

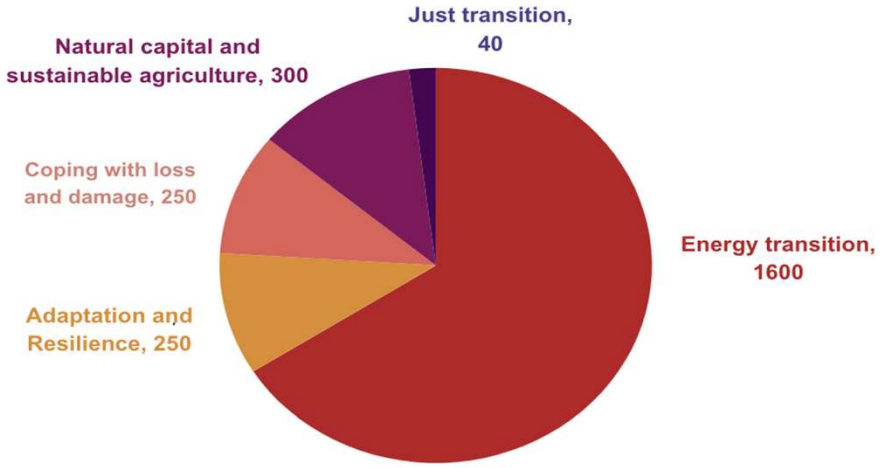
UNOPS
AFD AGENCE FRANÇAISE DE DEVELOPPEMENT
Federal Ministry for Economic Affairs and Climate Action
Department for Energy Security & Net Zero
Environment and Climate Change Canada
Environnement et Changement climatique Canada
Australian Government
Department of Climate Change, Energy, the Environment and Water
CIFF CHILDREN'S INVESTMENT FUND FOUNDATION
SEQUOIA CLIMATE FOUNDATION

EMDCs central to scaling up climate action & energy transition

Emerging Market and Developing Countries (EMDCs) outside China (like Vietnam) need:

- approximately $2.3–2.5 trillion annually by 2030 for climate action
- 50% of the additional clean energy investments required by 2035 to meet global climate goals

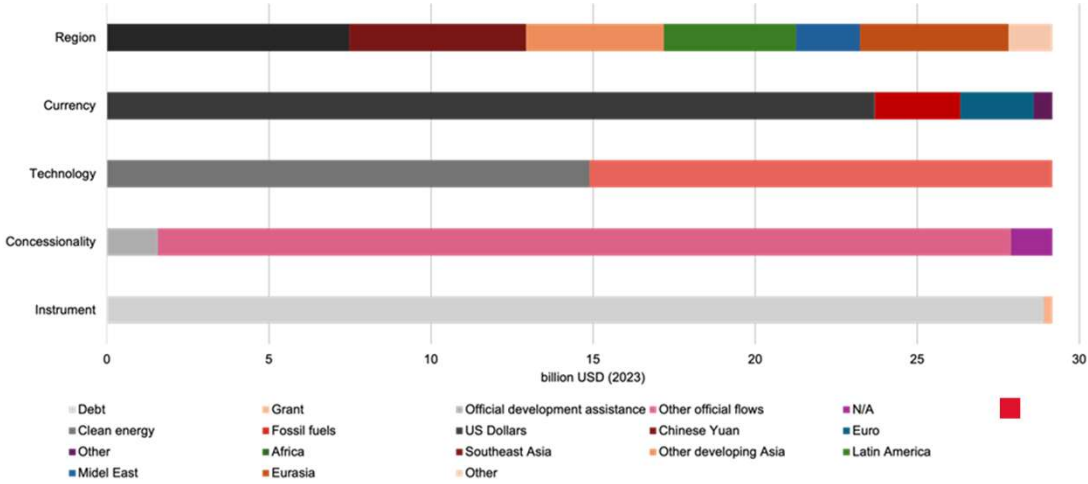
Figure: Climate and nature-related investment requirements in EMDCs other than China (US$ billion per year by 2030)



The rising role of China in Global Finance:

- China is shifting from fossil fuels to clean energy (but has reversed recently), pledging to stop funding new coal projects abroad.
- It is increasing clean energy investments, particularly in Africa and Asia.
- This shift presents both opportunities and risks for other EMDCs.

Figure: DFI financing by instrument, concessionality, technology, currency and region, annual average in China, 2013-2021



COP 29: Mobilizing Private Capital for Climate Action

Agreement on a new climate finance goal of at least **$300 billion per year** from **developed** countries by 2035.

- The outcome was a compromise, with some developing countries expressing frustration and disappointment.
- Recognition of the **much greater scale** of overall finance needed, calling for at least **$1.3 trillion per year** by 2035.
- The problem is worsened by the US's recent decision to **leave the Paris Agreement** and similar considerations from countries like Indonesia, which cites fairness and high transition costs.
- Shift to formally recognizing the wider mobilization required, emphasizing urgent need for **a mix of domestic, external, public, and private finance** to support climate action in EMDCs

Vietnam requires large investment for energy transition

Rising energy demand:

- GDP per capita tripled in two decades, reaching $4,282 in 2023.
- Projected 8%+ GDP growth in 2025 and double-digit growth from 2026–2030
- Energy demand is expected to rise, requiring 10.3%–12.5% annual power expansion.

Massive investments required: Estimated at $153.7 billion by 2030 and up to $786.7 billion between 2031–2050

Net-zero by 2050: aims for 50% renewable energy by 2030 and 83% by 2050 (including hydropower).

Coal still dominates: Despite progress, continued investment in renewables, storage, and grid infrastructure is critical.

Economic growth & energy transition: Balancing industrial expansion with 'green growth' presents an opportunity for sustainable jobs and development.

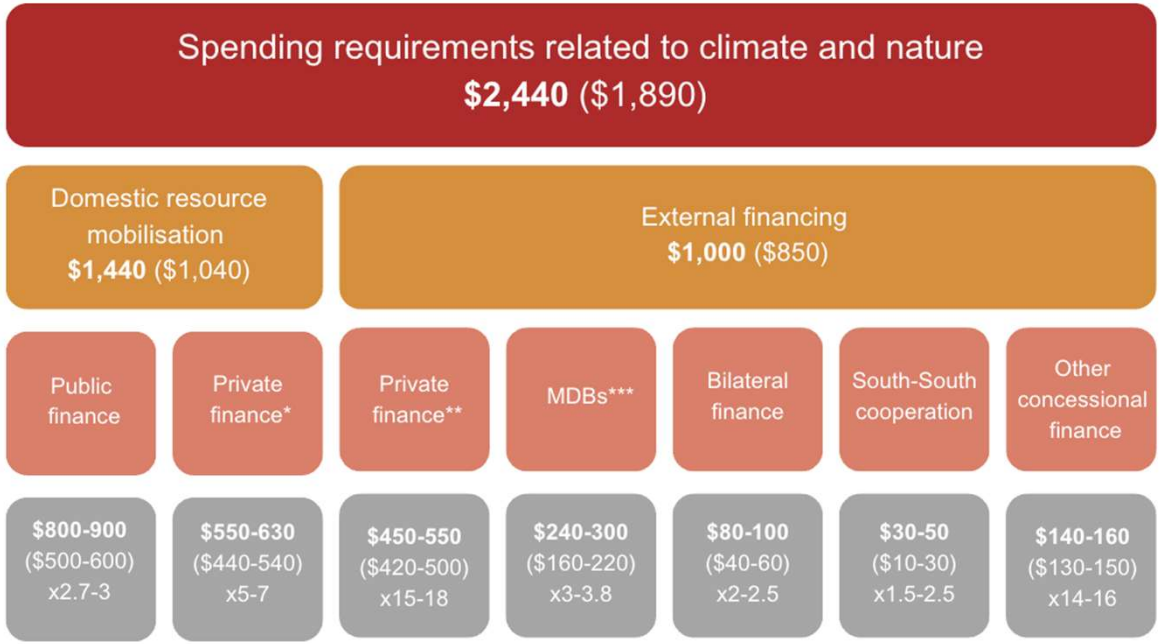
Public Funding Constraints: Gross debt = 33.5% GDP (2024), fiscal deficit = -2.4% GDP (2024), inflation =3.7% (2024), private debt = 128.68 % GDP (2023)

JETP funding gap: The Just Energy Transition Partnership (JETP) pledged $15.5 billion, but this falls far short of the $650 billion needed and relies heavily on commercial loans.

=> Vietnam must strategically deploy initial funds to unlock further private investment amid economic constraints.

Finance Structure for Climate Action in EMDCs

Figure: Mobilising the necessary financing for EMDCs other than China *(US$ per year by 2030, increment from current in parentheses with x indicating growth rate in times from current)*



Source: Adapted from Bhattacharya, Songwe, Soubeyran, and Stern (2024). Notes: *Includes household savings. **A significant proportion of this private finance would be directly and indirectly catalysed by MDBs, other development finance institutions and bilateral finance. ***Includes multilateral climate funds.

Challenges for Private Sector Capital Mobilisation

Vietnam's Country-Specific Challenges for Private Sector Capital Mobilisation in Energy Transition

- **Policy and regulatory framework:** Inconsistent policies and lack of long-term regulatory frameworks deter private investment.
- **High capital costs and financing risks:** High upfront costs and long payback periods are significant barriers to renewable energy investment in Vietnam
- **Complicated and cumbersome permitting procedures:** Regulatory and procedural hurdles, including licensing, permitting, and PPA negotiations, cause delays and increase costs for investors.
- **Bankability of PPAs:** Concerns about the bankability of PPAs, including issues like no "take or pay" obligation, no sovereign guarantee for EVN, inflation or exchange risks, lack of statutory obligations for tariff adjustments, and the absence of remedies for law changes, pose significant risks for investors.
- **Limited green finance market**: Vietnam's green finance market remains limited. In 2023, state-owned bank BIDV was the only green bond issuer, with a volume of VND 2.5 trillion ($102 million), designed to finance green, energy-saving, and environmental protection projects.
- **Revenue risk**: The expiration of attractive FIT schemes for solar and wind power and the lack of a new mechanism for renewable energy create significant revenue risks and investor uncertainty.

Public Sector's Role in Overcoming Barriers to Private Sector Climate Financing (IMF, 2022)

- Implement regulations, tax incentives, guarantees, subsidies, and disclosure requirements to align incentives with climate goals and foster collective action.
- Provide public equity capital alongside private debt to reduce borrowing costs while maintaining control over investment decisions.
- **Use public-private partnerships** to leverage public expertise in project selection and monitoring, reducing risks for private investors.
- Improve information sharing to enhance private sector project evaluation and reduce monitoring costs.
- **Underwrite specific risks** (e.g., project completion or political instability) to lower risk premiums for investors.
- **Offer multi-sovereign guarantees** to increase leverage and attract more capital.
- **Implement public investment policies** to reduce risks and support climate finance, as seen in the development of wind and solar technologies.

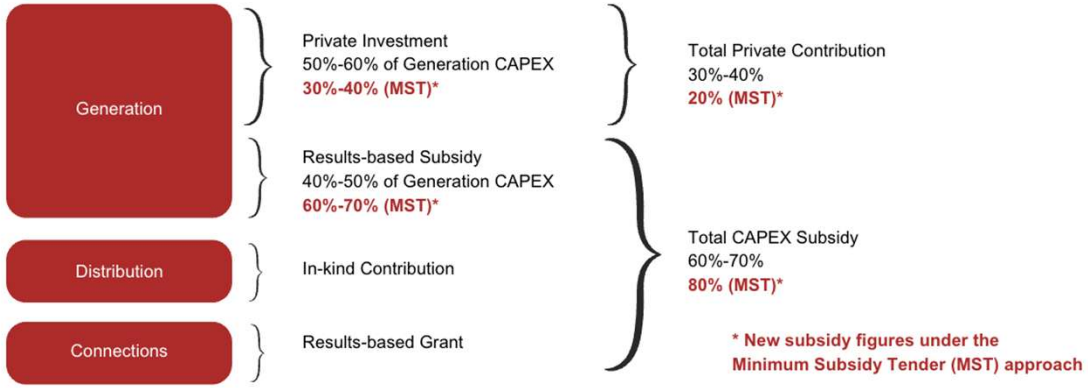
Case study and best practices

Global Lessons for Financing Vietnam's Energy Transition

- **International case studies** provide key insights into transmission, utilities, energy efficiency, and just transition.
- **Models that work** at multiple levels:
  - Project level: Uganda and Egypt (best practices for common challenges to EMDCs projects)
  - Regional level: London (forward-looking perspective attracting private capital and funding and energy efficiency fund management)
  - Country level: India (fast-growing Asian country with a huge need of capital for energy transition)
- Key takeaway: Regardless of the economic development stage, **mobilizing private capital** is essential to overcoming **market failures** in the low-carbon sector and achieving **climate goals**
  - risk-mitigation strategies
  - blended finance
  - innovative financial instruments.

Case study 1: Pro Mini-Grids programme in Uganda (2017)

Overview: The Pro Mini-Grids programme, launched in Uganda in 2017, was a pilot project funded by the **Ugandan Government**, **BMZ**, and the **E**U (OECD, 2022). Implemented by national and international agencies like the **Ministry of Energy** and **GIZ**, it aimed to electrify 40 villages using an **integrated procurement model**. The programme **bundled mini-grid projects** into **larger tenders** to **attract investors**, **improve procurement capacity**, and **streamline project development** with **pre-prepared contracts** and **partial subsidie**s. Two procurement rounds under **Build-Own-Operate-Transfer (BOOT)** (10-year concession) were issued, with Winch Energy winning both tenders in 2017 and 2021 (GIZ, 2020).



Source: OECD (2022).

Figure: CAPEX financing structure of the Pro Mini-Grids programme

Table: Main strategies to address key challenges to commercial investment

Challenges	Strategies
Projects' small scale and disaggregated nature	• Bundling projects into two multi-site tenders with single contracts • Enabling larger developers to enter the market • Facilitating equity and debt raising for larger-scale projects • Leveraging economies of scale to reduce project costs
Transaction costs	• Pre-drafted developer contracts and agreements • Determined financing mechanisms (both grant- and results-based) in advance • Eliminated the need for individual site tendering
Development Risks	• Involving the regulator in tender document preparation • Reducing risks associated with licensing, approvals, and unrecoverable planning costs
Grid Connection Risks	• Involved the regulator and electrification authority in site selection • Aligned choices with the national grid extension planning
Cost recovery	• Asked developers to calculate necessary capital cost subsidies under a fixed tariff of 0.29 USD/kWh based on customers' ability to pay

Case study 2: Benban Solar Park project in Egypt

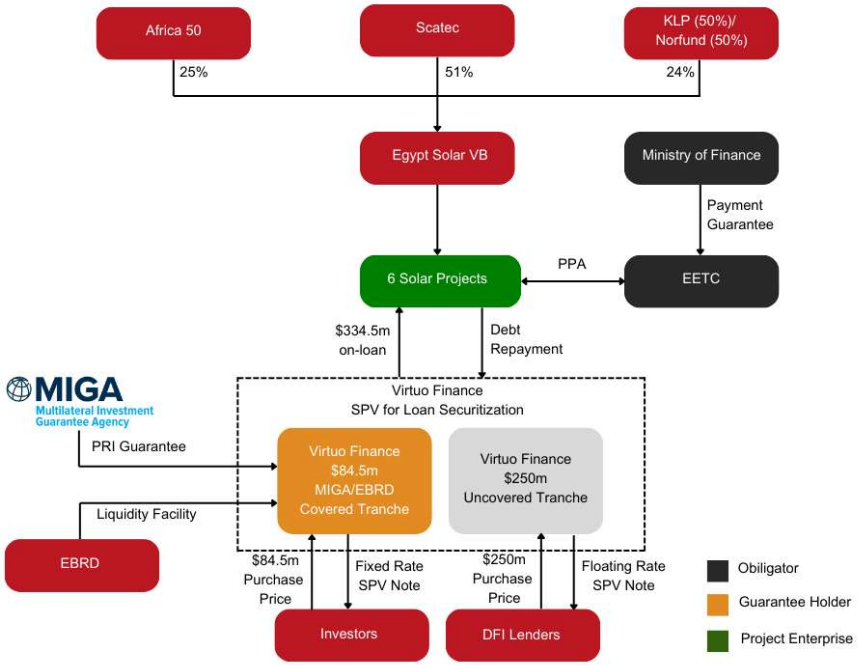
Background and Objectives

- **Project Focus**: Refinancing debt of six solar plants at Benban Solar Park, Egypt, among the largest solar complexes globally (1,465 MW capacity) and vital to Egypt's Sustainable Energy Strategy.
- **Refinancing:** Achieved through a 19-year, USD 334.5 million non-recourse Green Project Bond, backed by a 25-year power purchase agreement (PPA) with the government, ensuring a stable and reliable revenue stream.
- **Environmental Impact**: Plants generate 930 GWh annually, powering 420,000 households and avoiding 423,000 tonnes of CO2 emissions per year.

Strategies for Mobilising Private Capital

- **Challenge**: Limited interest from global institutional investors due to political instability and credit risks in emerging markets.
- **Solution**: Combined risk mitigation tools from MIGA and EBRD to enhance credit rating and attract private capital.
    - **Bond Structure**: **Tranche A**: Fixed-rate note for institutional investors, with MIGA's political risk insurance and EBRD's liquidity support. **Tranche B**: Floating-rate note for DFIs, with higher risk and no MIGA or liquidity support.
    - **Credit Enhancement**: Measures led to an investment-grade BBB+ rating (6 notches above Egypt's sovereign rating).
- **Outcome**: Attracted private commercial financing and set a replicable model for future projects in emerging markets.

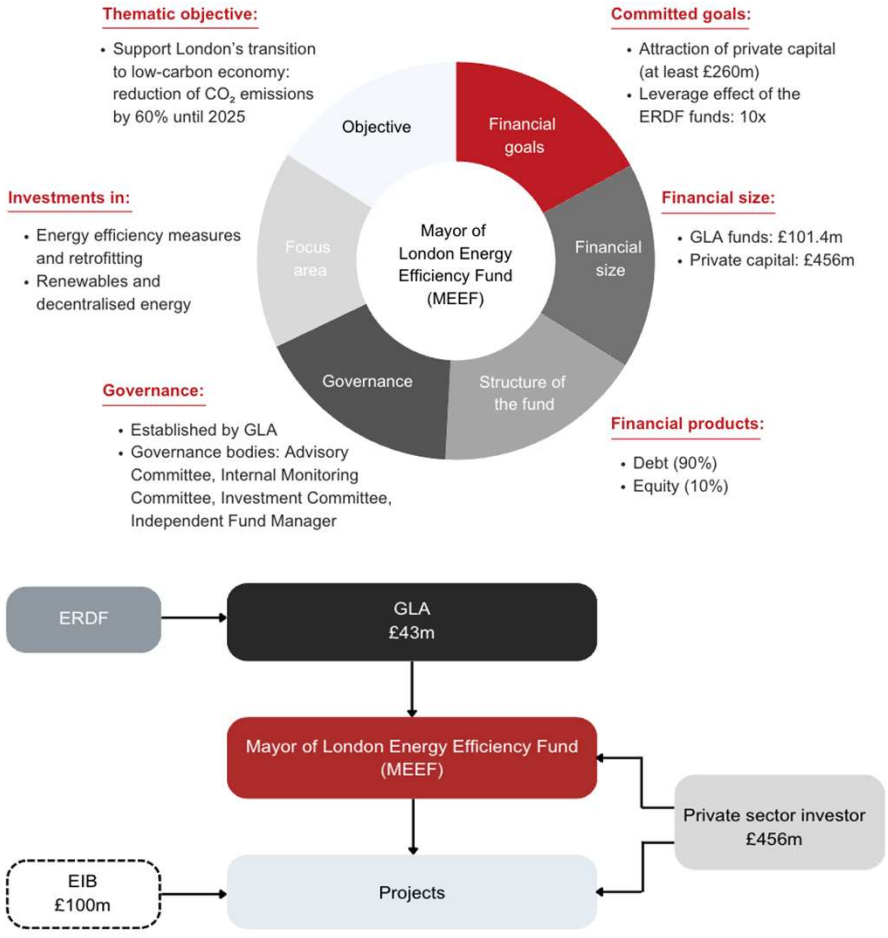
Figure: Scatec, MIGA, and EBRD Green Project Bond – project structure



Case study 3: The Mayor of London's Energy Efficiency Fund

Overview

- London aims to achieve **net-zero carbon** emissions by 2050, later brought forward to **2030.**
- **Historical funding** for low-carbon infrastructure in London has **been fragmented** and **insufficient** for **a rapid transition** to a fossil fuel-free city (Gordon, 2023).
- The **Mayor of London's Energy Efficiency Fund (MEEF)** is designed to tackle these challenges by offering **flexible, competitive financing** to enable, accelerate, and improve the viability of low-carbon projects in the city.
- The **Greater London Authority (GLA)** established MEEF in 2018, building on the experience of its predecessor, the London Energy Efficiency Fund (LEEF), part of the London Green Fund (LGF).
- GLA contributed **£43 million** from the **European Regional Development Fund (ERDF)** to MEEF.
- **Amber Infrastructure Group** (Amber) was appointed as the **independent Fund Manager**.
- Amber secured an **additional £456 million from private investors** and **£100 million** from the **European Investment Bank (EIB**).
- This model achieved a **leverage** of **11 times** the **initial ERDF contribution**, maximizing public financing by attracting private capital.



Case study 3: The Mayor of London's Energy Efficiency Fund (cont)

Structure and Operation

- MEEF involves investors with varying risk profiles and investment horizons .
- Public funds take higher risks to attract private investors, enabling financing for long-term or high-risk projects.
- Junior capital comes from project promoters, with potential public authority support.
- Public funds bridge gaps, unlocking private and EIB capital
- Private investors are invited based on project appraisals by Amber Infrastructure Group.
- Investment is made through a single agreement, with rights managed via inter-creditor agreements.
- MEEF supports at least 30 projects, with investments ranging from £1 million to £10 million, and loan tenors up to 20 years.
    - Fund Manager (Amber): Sources projects, ensures they are investment-ready, and aligns them with MEEF's strategic objectives.
    - Internal Monitoring Committee (IMC): Identifies potential projects, supports business case development, and connects projects to GLA's TA programmes, such as RE:FIT (energy efficiency retrofits), RE:NEW (home energy retrofits), and DEEP (decentralised energy projects). The IMC also monitors fund performance and advises on portfolio evolution.
    - Investment Committee: Makes final investment decisions, ensuring selected projects align with the fund's goals and are fully prepared for capital investment.
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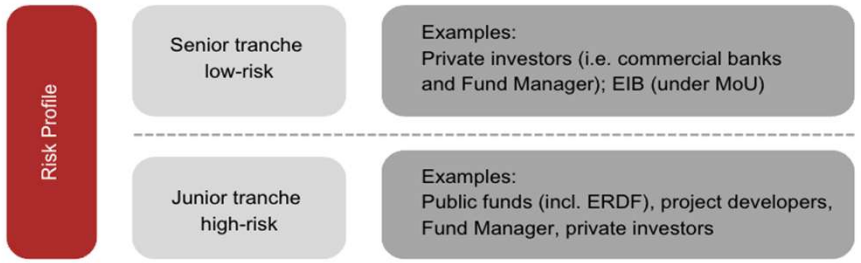
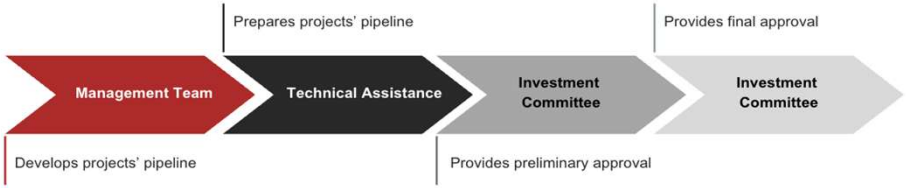
Stratification of investors for the MEEF



Investment decisions by MEEF



Case study 4: Just transition India

Overview

- India, as one of the fastest-growing economies, is balancing climate action with socioeconomic development.
- Aims for net-zero emissions by 2070 but faces a $3.5 trillion investment gap. => require large-scale investment in energy transition while ensuring social equity
- Face the challenge of phasing out carbon-intensive industries while maintaining economic growth.
- The "just transition" approach ensures inclusivity for workers in carbon-intensive sectors
- Strong reliance on external financing, policy frameworks, and institutional mechanisms to attract private capital.

Key Strategies

1. Embedding Just Transition into Policies and Regulations
2. Incorporating Just Transition in Corporate India's Net Zero Plans and Mobilising CSR Funds
3. Scaling up investor action through business investment and capital allocation
4. Promoting sustainable financial innovation for the just transition
5. Attracting foreign investment through the International Financial Services Centre
6. Leveraging global and domestic partnerships
7. Empowering Entrepreneurs and Micro, Small, and Medium Enterprises

Strategies, Mechanisms, Finance Structure and Public-Private Partnership Model

Strategies and mechanisms used to enhance the risk-adjusted return

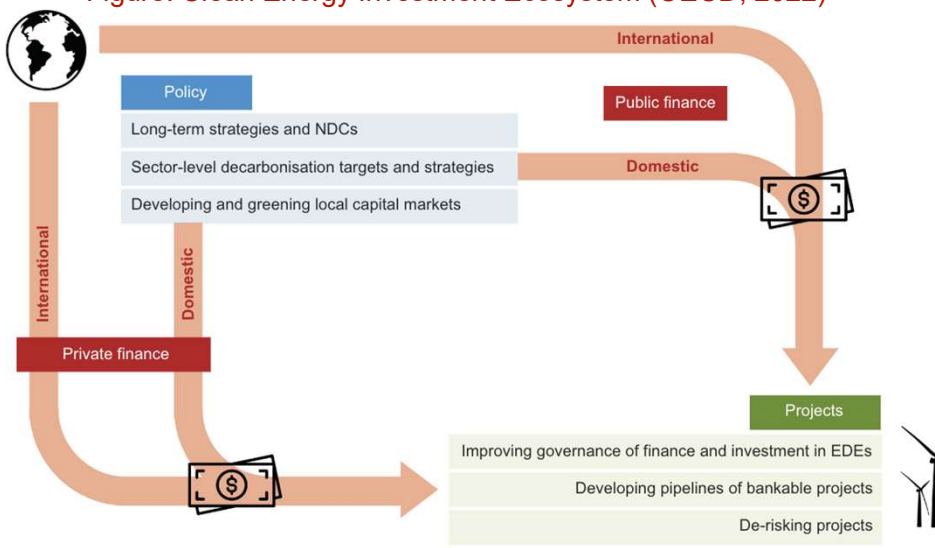
Integrated Approach to Clean Energy Transition

- Requires coordination across electricity, industry, transport, and social infrastructure.
- Strong public-private collaboration ensures policy alignment and investment coherence.
- Government oversight is crucial for maximizing synergies and reducing investment risks.

Key Strategies & Mechanisms

- Streamlining Administrative Procedures → Simplifying approval processes to accelerate project implementation.
- Lowering Transaction Costs → Reducing barriers for investors accessing risk mitigation instruments.
- Setting Internal Incentives → Encouraging financial institutions to prioritize renewable energy projects.
- Expanding Financial Toolkits → Developing tailored financial solutions for clean energy investments.

Figure: Clean Energy Investment Ecosystem (OECD, 2022)



Strategies and mechanisms used to enhance the risk-adjusted return

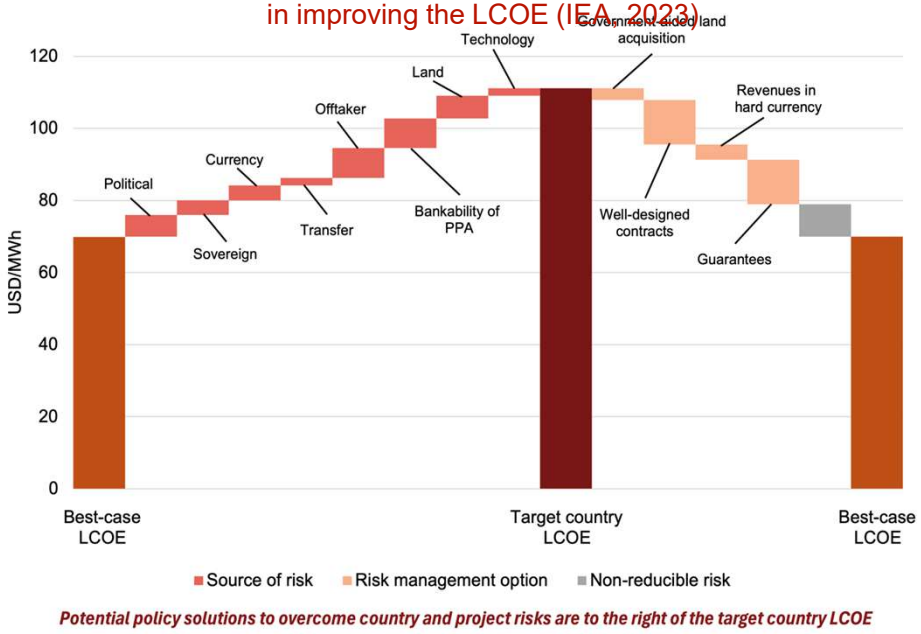
Key Investment Barriers in EMDCs

- High upfront costs, long payback periods
- Political and regulatory instability
- Lack of local expertise, grid infrastructure, or market liquidity

Risk-Mitigation Strategies (IEA, 2023)

- Blended and concessional finance to reduce cost of capital
- Guarantees and political risk insurance to protect against defaults and policy changes
- Capacity-building and early-stage project support to improve project readiness
- Financial innovation, like green bonds, climate funds, and synthetic PPAs

Figure: Risks affecting variations in the LCOE and the role of risk management options in improving the LCOE (IEA, 2023)

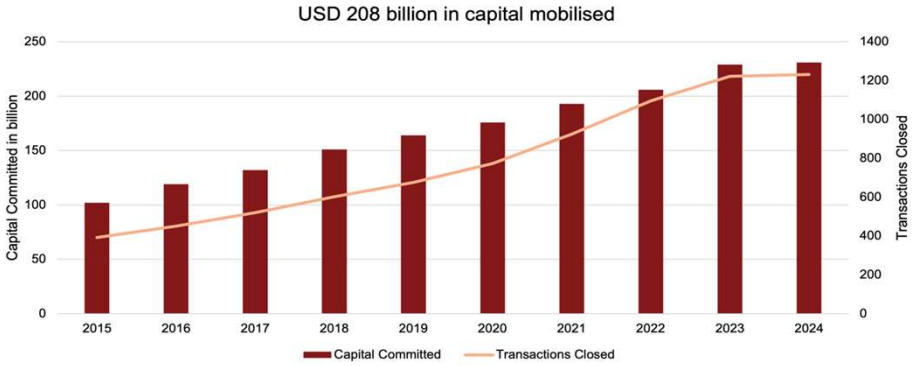


Notes: LCOE = levelised cost of electricity; PPA = power purchase agreement.

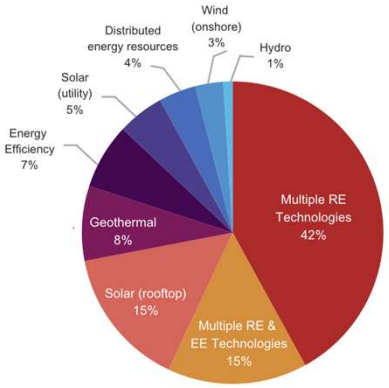
Scaling Clean Energy with Blended Finance

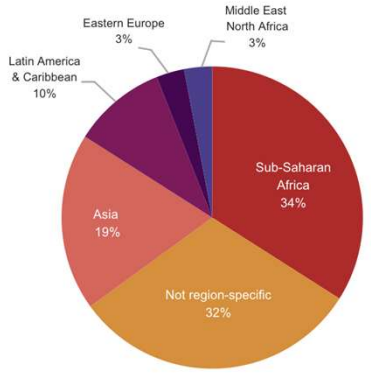
- **Blended finance** is a **combination** of **concessional funds** from donors and **commercial funds** from private investors and development finance institutions.
- It is used to **enable investment** in projects that have **high development impact** but are **not yet commercially viable**, with high upfront costs and involving the adoption of new technologies that have not yet scaled up.
- **Concessional funds** are deployed to provide partial guarantees, subordinated debt or equity, cover some project development costs, and create performance-based incentives for project sponsors to meet targets.
- **Its long-term objective** is to achieve **commercial sustainability** with **concessional support reducing** over time.
- The **crowd-in effect** of blended finance is best illustrated by its "**leverage**", defined as the ratio of commercial financing to the amount of concessional funds. Based on IFC's experience, **$1 of concessional donor funding** has leveraged on average, nearly **$7 of additional finance**. For **climate transactions**, the ratio tends to be higher **($1 to $10**)

Growth of Annual Blended Finance Activities (Convergence Blended Finance, 2024)



Clean energy blended finance initiatives by sectoral (left) and geographic coverage (right). Source: Climate Policy Initiatives (2018)





Blended Finance Structures & Instruments

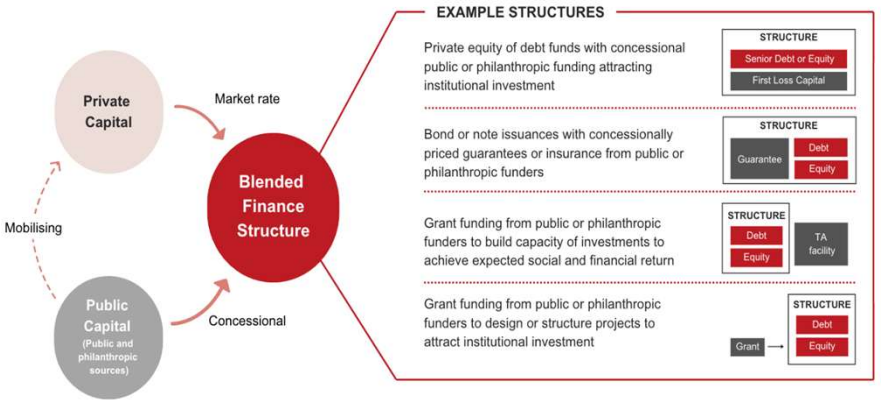
Financing evolves across phases:

- Development: High risk – need concessional equity & grants
- Construction: Use guarantees & first-loss capital
- Operation: Transition to commercial debt and equity

Blended Finance Toolbox (IEA, 2023):

- Loans & Guarantees: Below-market pricing or risk cover
- Grants: For viability gap & performance-based funding
- Equity: Lower-return or subordinated shares
- Local Currency Support: Currency hedging & subsidised spreads

Figure: Blended Finance Structure (Convergence Blended Finance, 2024).



Innovative financial instruments and platforms

- **Green, social, sustainable, and sustainability-linked (GSSS) bonds** offer the potential to attract private climate financing into EMDCs like Vietnam.
- **Project aggregation platforms and securitisation vehicles** can pool smaller energy transition projects into investment-grade portfolios, overcoming size mismatches and attracting institutional investors by reducing transaction costs and diversifying risks.
- **Voluntary carbon markets** can channel resources into clean energy projects by monetising carbon credits, but require stronger oversight, standards, and verification to ensure credibility.
- **Strengthening local capital markets**, such as bond, equity, and derivatives markets, can increase domestic private investment, as seen in China and India, especially when revenue streams are in local currencies.

Public-Private Partnerships (PPPs) for Green Energy

Key Features of PPPs:

- **Long-term contracts** between **private entities** & g**overnments** to develop energy infrastructure.
- **Risk-sharing & efficiency: Private** sector brings **innovation & capital**, while **public** sector ensures **oversight.**

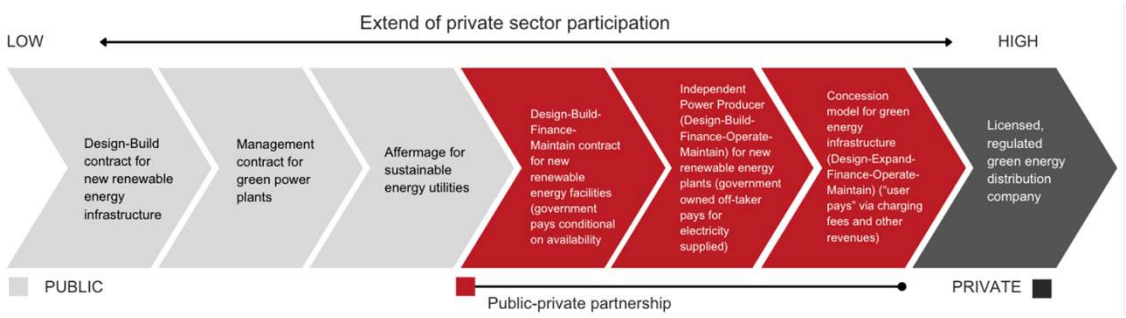
Successful Models:

- **BOOT (Build-Own-Operate-Transfer):** Used in Brazil, Peru, and India to reduce costs & diversify funding.
- **Concession Model:** Mixed results in some emerging markets due to regulatory challenges.

Impact & Challenges:

- Drives innovation & ensures project sustainability.
- Addresses funding constraints, poor planning, & maintenance issues.

Figure: The spectrum of PPP Contract Types, Adapted from WB (2017)



Key PPP Area	Primary Consideration	Global Best Practices
Risk Allocation and Mitigation	Define a risk-sharing mechanism that allocates financial, operational, and regulatory risks to the most capable party.	South Africa's structured risk transfer approach enhances value-for-money; Chile and Australia integrate contingent liability assessments into project screening to manage fiscal risks.
Legal and Regulatory Framework	Establish a strong legal framework with clear government commitments, contract enforcement, and regulatory oversight.	South Africa and Chile align PPPs with national infrastructure plans while controlling fiscal risks; India and South Africa have dedicated PPP units to oversee project approvals.
Financial Structuring and Funding Mechanisms	Diversify financing sources, including government support, viability gap funding, blended finance, and guarantees, to enhance project feasibility.	India's Infrastructure Project Development Fund (IPDF) supports early-stage PPP development; Chile and South Africa have structured fiscal policies for managing contingent liabilities.
PPP Screening and Project Appraisal	Implement a rigorous multi-stage screening process to ensure only feasible, commercially viable, and fiscally responsible projects advance.	South Africa's framework includes structured screening factors; Korea, Chile, and Australia use a multi-stage appraisal process for value-for-money assessments.
Contract and Performance Management	Define clear performance metrics and contract enforcement mechanisms to ensure accountability in long-term PPP agreements.	Chile's Concessions Unit monitors PPP compliance through audits; South Africa incorporates structured approval stages for transparency.
Market Maturity and Private Sector Participation	Maintain a transparent PPP pipeline and competitive procurement processes to foster investor confidence.	Chile and Canada publicly disclose their PPP pipelines; the UK, and Australia use competitive dialogue and bidder conferences to refine procurement.

Figure: The Challenges with Infrastructure and How PPPs Can Help (WB, 2017)

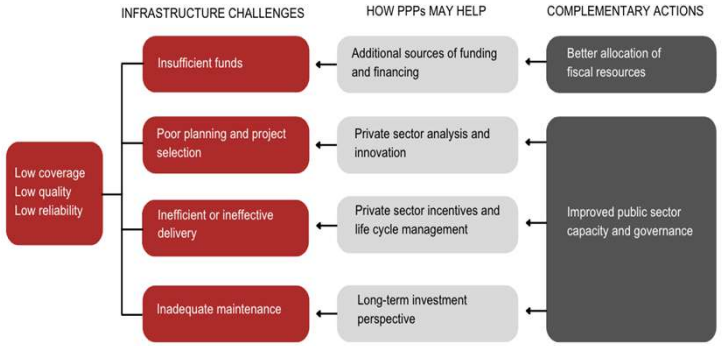
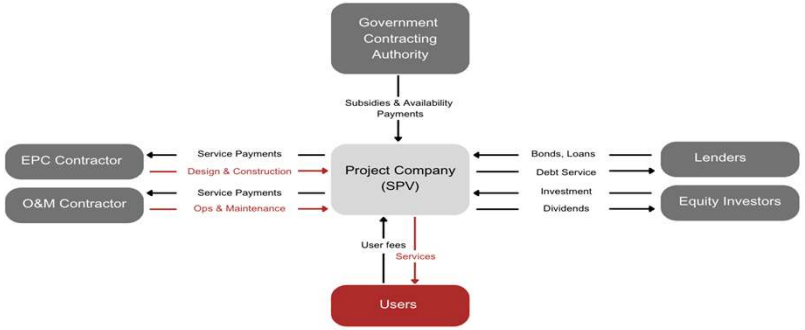


Figure: Flow of Funds in PPP Projects (WB, 2017)



Recommendations and Next Steps

Key Recommendations for Vietnam's Energy Transition

1. Strengthen **decarbonisation & just transition strategies.**
2. Establish a transparent & supportive **policy framework.**
3. Develop a robust legal framework **for diverse financing mechanisms**.
4. Leverage **International Financial Centers** to attract global capital.
5. Enhance cooperation with **international partners.**
6. Strategically deploy **public funds to crowd in private investment.**
7. Ensure **strong governance & transparency.**
8. Build **local market** capacity with international support.
9. Implement **place-based investments** for targeted impact.
10. Explore **regional or provincial fund** models for localised financing.

Next Steps

1. **Conduct an In-Depth Study of Vietnam's Context**: The next report within this project will assess Vietnam's financial landscape for energy transition, examining financial structures, instruments, and private capital mobilisation. It will analyse financing trends, debt management, and regulatory gaps while evaluating the effectiveness of investment mechanisms. In addition, it will provide strategic recommendations to enhance resource allocation, strengthen financial instruments, and improve the regulatory environment for scaling up private capital for the energy transition.

2. **Develop a Roadmap for Implementation**: A clear roadmap should be developed to outline the steps, timelines, and responsibilities for implementing the recommendations. This roadmap should prioritise high-impact initiatives and align with Vietnam's broader climate and development goals.

3. **Strengthen Stakeholder Engagement**: Ongoing engagement with stakeholders, including government agencies, private sector actors, international partners, and local communities, will be critical to ensure buy-in and collaboration. Regular consultations and feedback mechanisms should be established to address emerging challenges and opportunities.

4. **Monitor and Evaluate Progress:** A robust monitoring and evaluation framework should be established to track progress, measure outcomes, and ensure accountability. Lessons learned should be documented and used to refine strategies and improve future initiatives.

5. **Foster Knowledge Sharing and Capacity Building:** Vietnam should actively participate in global knowledge-sharing platforms and leverage international expertise to build local capacity. Training programs, workshops, and peer-learning exchanges can enhance the skills and knowledge of stakeholders involved in the energy transition.