Renewable Energy Finance in Bangladesh: Potential Reform & De-risk Mechanisms

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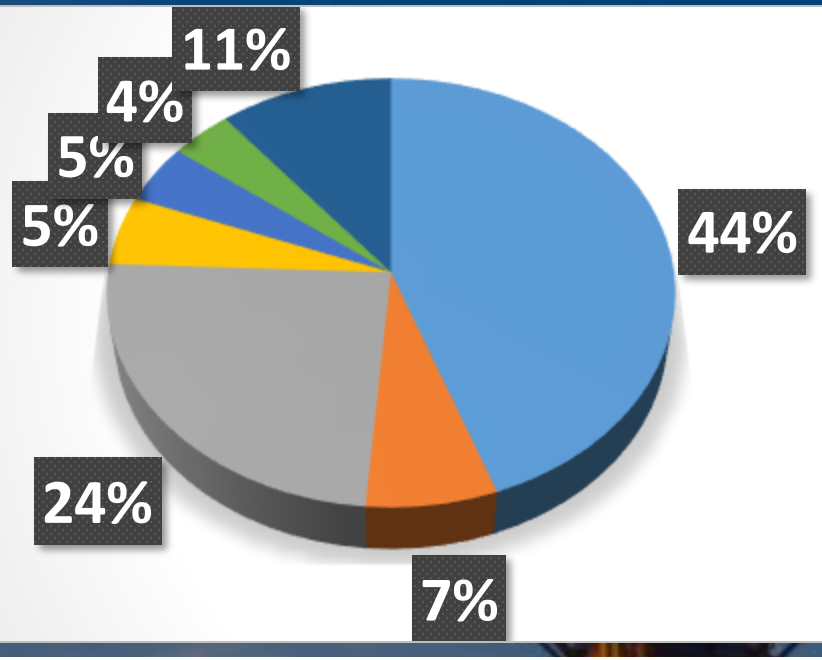
Background

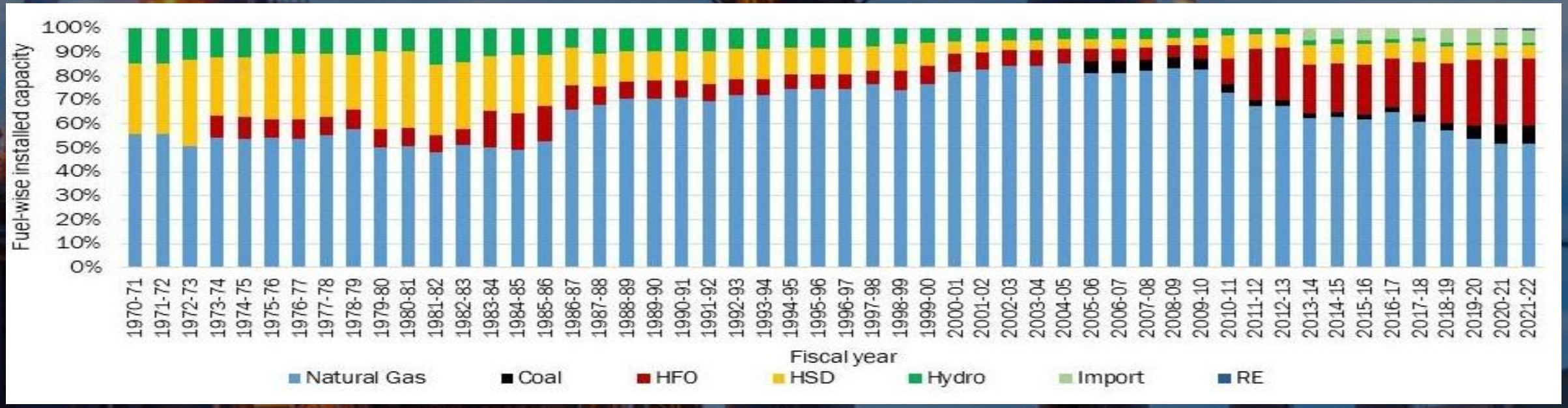
- Bangladesh was ranked 7th place in the global climate risk index in 2021.
- The combined impact of climate change and carbon-intensive loss may raise average annual mortality by 150,000 by 2030, and 55 million people may be affected by climate change by 2030.
- Fossil fuels are the biggest contributors to climate change, with two-thirds of global greenhouse gas emissions linked to burning them for energy.
- The emission in Bangladesh rose 59% from 1990 to 2012, with a rate of 2% increase per year.
- Bangladesh's 8FYP highlights that renewable energy supply has not grown, and reliance on imported fossil fuel is not commensurate with global trajectories.
- The Mujib Climate Prosperity Plan (MCCP) 2021 mentions that renewable energy has, “an investment opportunity of at least USD 10 billion over the next decade in generation alone.”
- The Delta Plan 2100 and Mujib Climate Prosperity Plan set ambitious private sector finance targets for the Renewable energy transition, but the flow of REF is currently much below the required amount.

Area of mitigation action	Estimated investment required (million $, 2021-2030)	
	Unconditional	Conditional
Energy	30,877	137,458

Current Energy Mix and Overall Trend in in Bangladesh



- Gas
- Coal
- HFO
- HSD
- Imported
- Reenwable
- Captive Generator



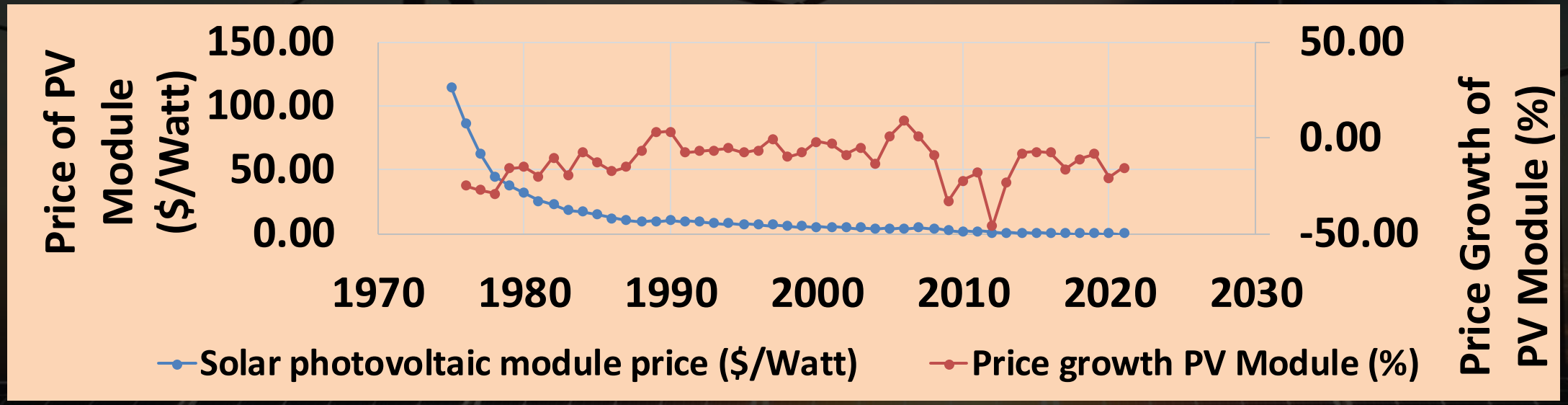
Situational Analysis of Renewable Energy Finance and its Need

- A 2018 paper in the journal of Bangladesh Development Studies found that complete removal of fossil fuel subsidy would increase household welfare by 1.89%.
- Bangladesh spent $8.9 billion on import of petroleum products in financial year 2021-22.
- As per International Trade Administration, Bangladesh's demand for power will be 50,000 MW in 2041 compared to the 8000 MW demand in 2015 . According to a CPD study this growth would need up to USD 37.2 billion in investments.
- Bangladesh Bank launched a green bond policy in 2022 - launched the Green-Sukuk Al Istisna'a bond worth BDT 30 billion to raise capital for the 200 MW Solar PV Plant.
- Cost of power generation to BPDB has gone up by 2716% over the last decade. The same report lists the 21 power plants that, instead of contributing to the national grid, are either not producing any power or consuming it (BWGED, 2022).
- BPDB paid capacity charges to 37 private power producers, equivalent of $1.35 billion for the 2020-21 fiscal year (BPDB report, 2022) – equivalent to cost of around 1800 MW RE generation.

Continuous fall of RE price and potential of RE finance

According to IEEFA, as of 2022,

- **China avoided $21 billion in additional coal and gas imports by using solar.**
- **Japan avoided $5.6 billion and India avoided $4.2 billion in cost of fossil fuel.**

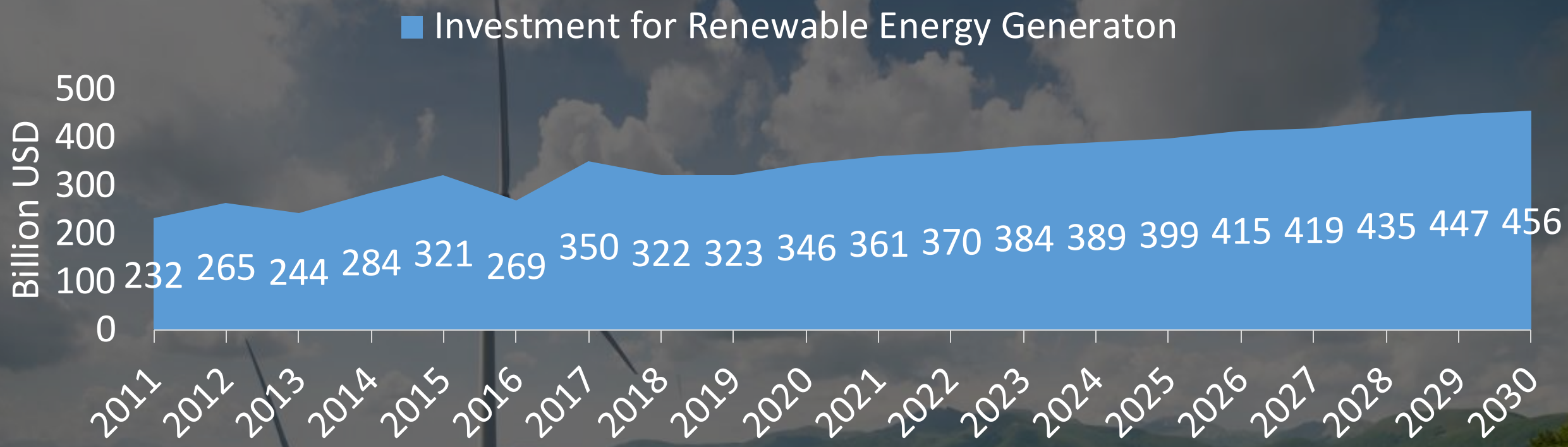


- **The Paris Agreement was signed in 2015 and the 9th article stipulates that "developed country Parties shall provide financial resources to assist developing country Parties with respect to both mitigation and adaptation."**
- **Developed nations were USD 17 billion short of the 2020 climate finance commitment made in the Cancun agreements (which led to the creation of GCF). Most of the funds that have been provided so far were given as loans and not grants.**

Investment in RE, not option rather Obligation

- Bangladesh has ambitious goals for renewable power generation but currently only 3% of the power generated is from renewable sources, indicating a gap between objectives and policies.
- The energy crisis triggered by the Ukraine-Russia conflict, economic slowdown due to the COVID-19 pandemic, and foreign reserve crisis have given rise to energy security concerns. Energy sovereignty is a priority.
- Fossil-fuel based power generation has put BPDB into huge financial risks, with growing losses
- Financing renewable energy projects can reduce dependence on non-renewable energy sources subject to increasing fiscal burden and dollar dependence, price fluctuations and geopolitical tensions.
- Bangladesh falls below the global average for the growth of the financial system development indicator for Emerging Markets and Developing Economics (EMDEs).
- Lack of access to financing and fossil fuel subsidies and enabling policies hinder the deployment of renewable energy projects.
- Enabling policies and investment injection into renewable energy have the potential to trigger a positive effect on the economy of Bangladesh

Potential of Global Investment on RE Energy

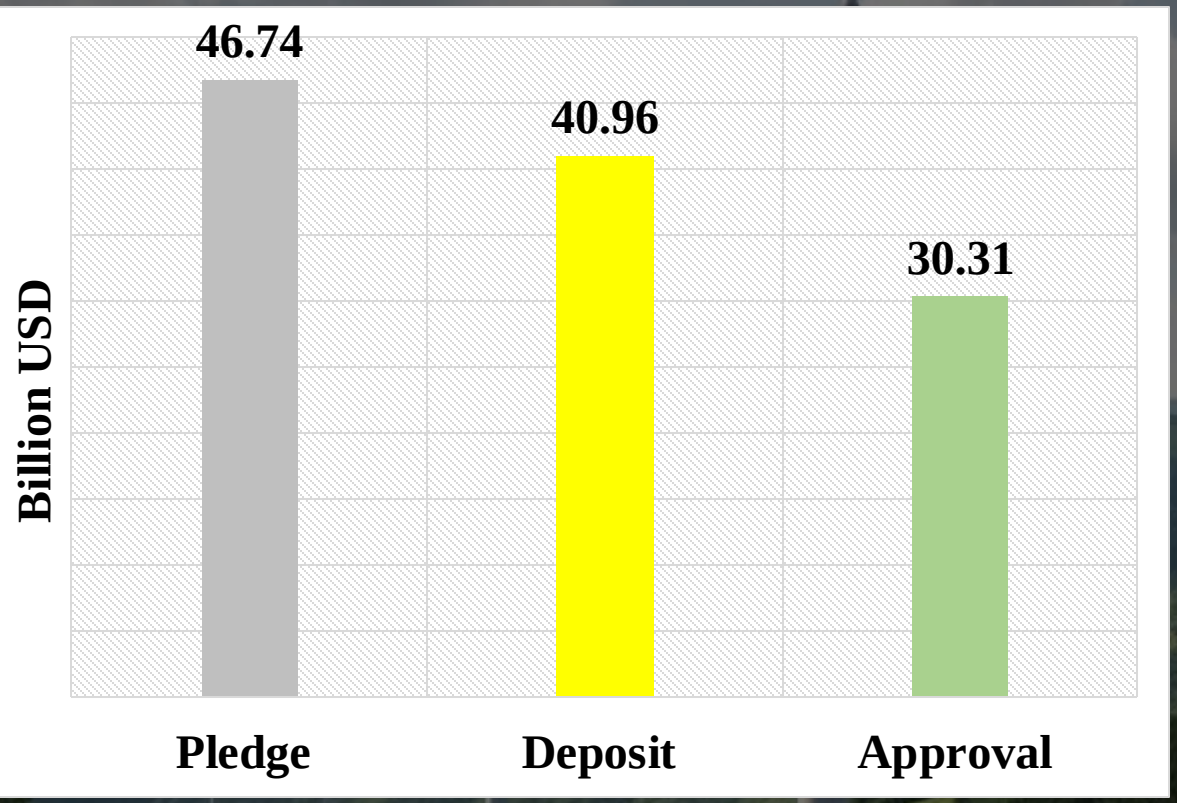


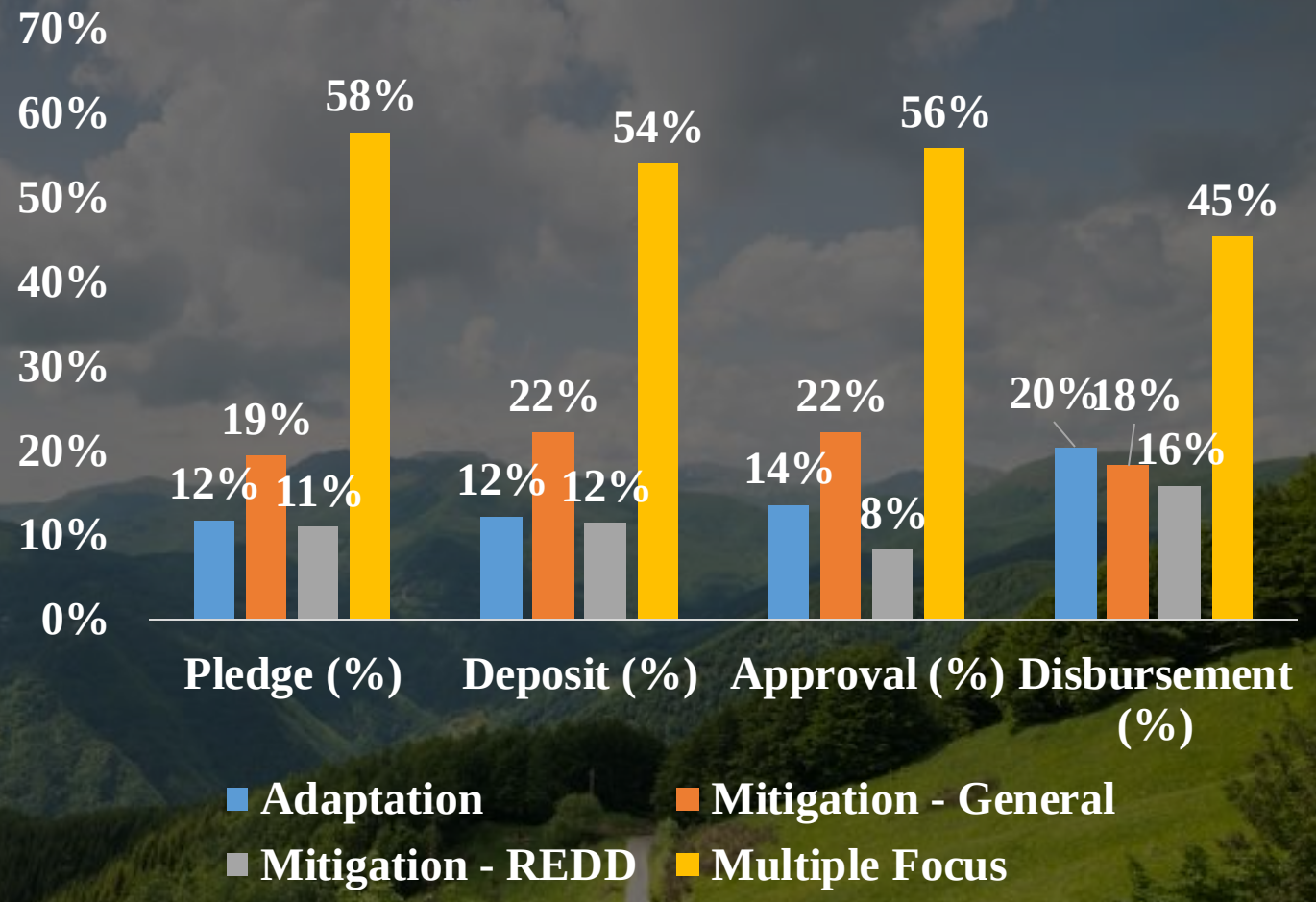
Source: Authors predicted the potential investment based on the data from 2011-2022

- Global Landscape Study on RE Finance has revealed that compound annual growth rate of RE finance from 2013-2022 was around 8.5%.
- Investment in solar PV is increasing and share of investment of onshore wind is around 30%
- Bangladesh could raise up to $12.5 billion in additional financing in the medium-term for climate action.
- Financing options include budget prioritization, carbon taxation, external financing, and private investment.

Potential of Global Investment on RE Energy

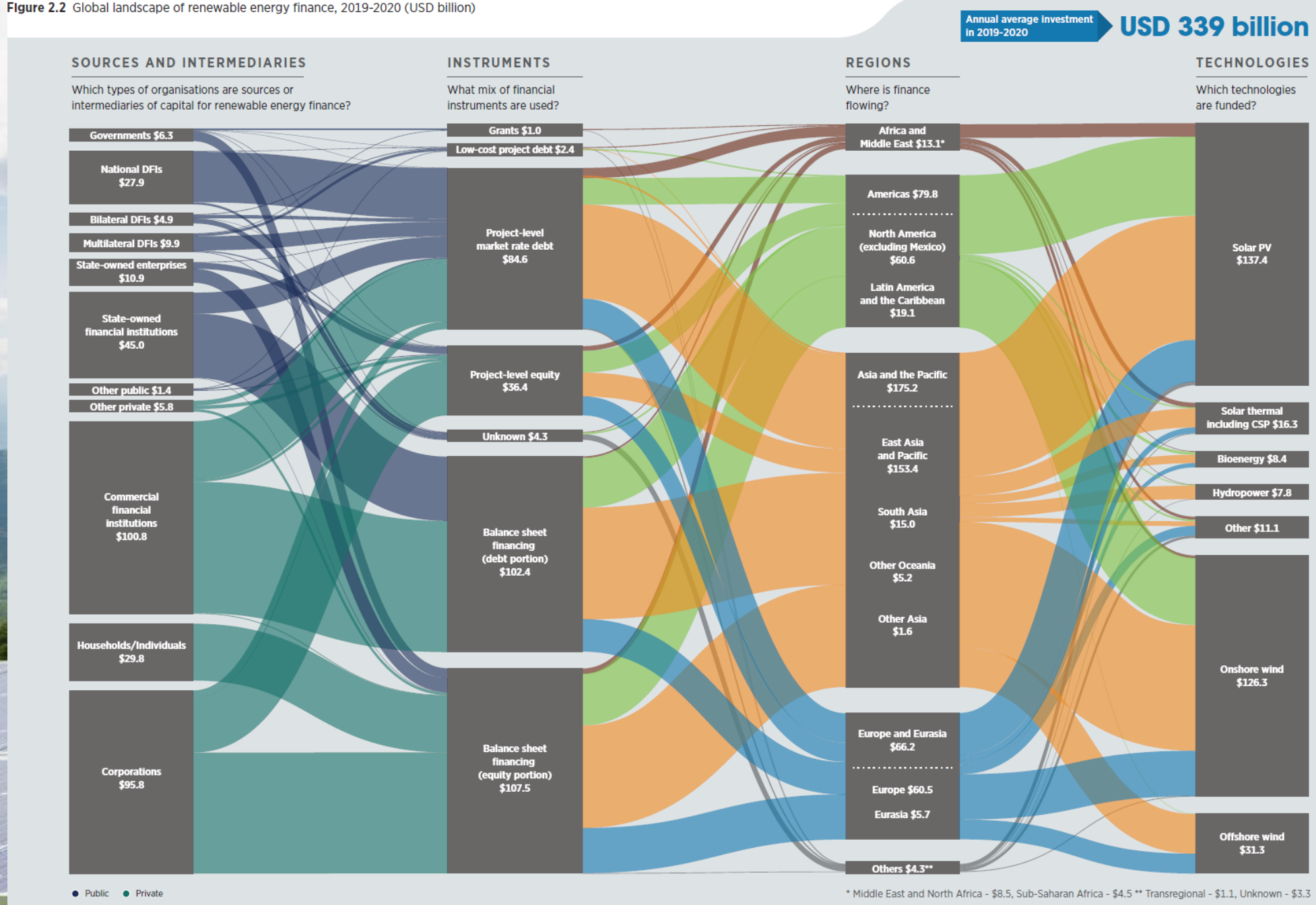
Current Status of Global Climate Finance (in billion USD)





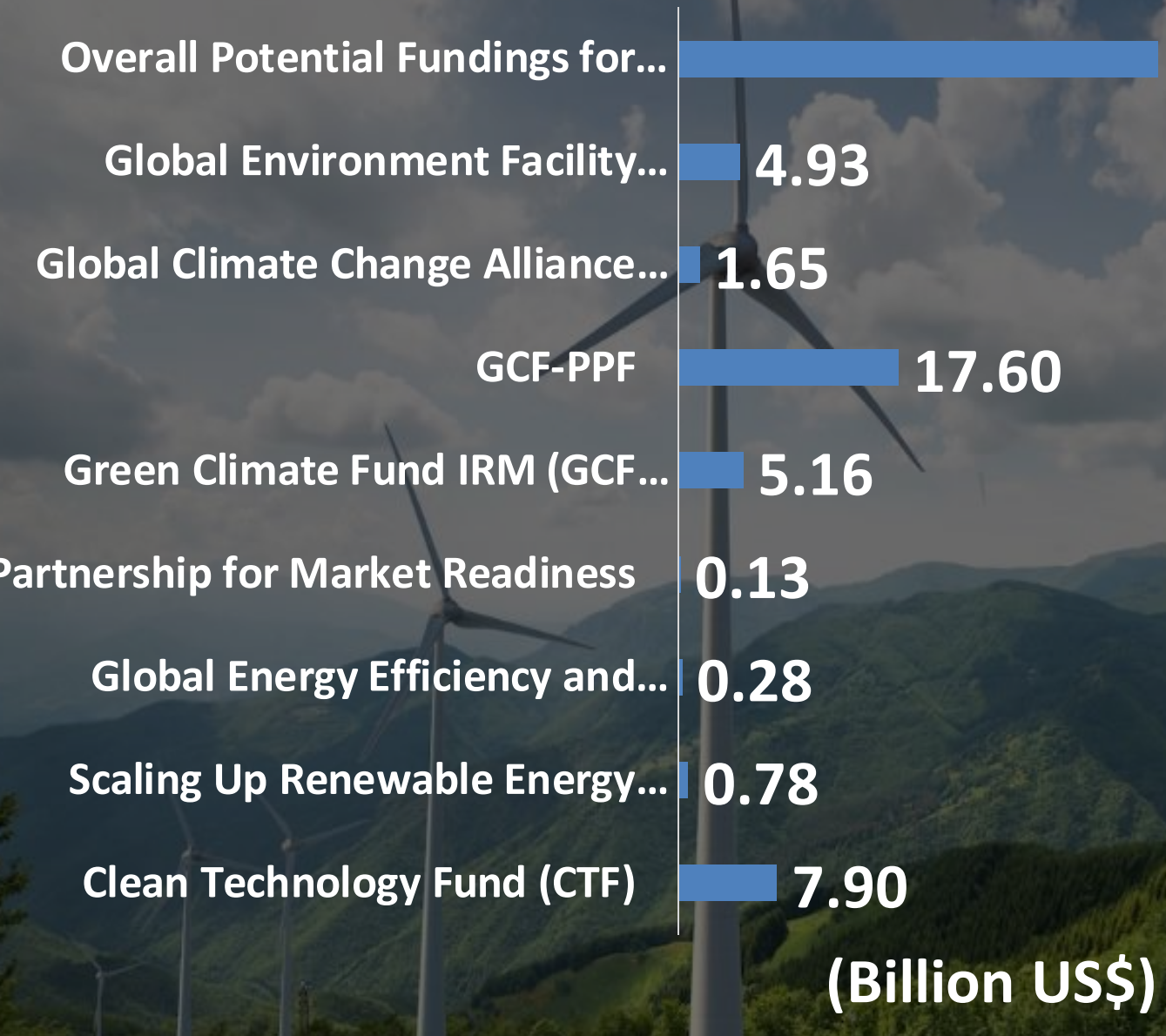
Source: Climate Funds Update (2023)

Figure 2.2 Global landscape of renewable energy finance, 2019-2020 (USD billion)



Note: CSP = concentrated solar power; DFI = development finance institution; PV = photovoltaic, $ = USD.

List of Potential Sources of Global Funds for RE projects



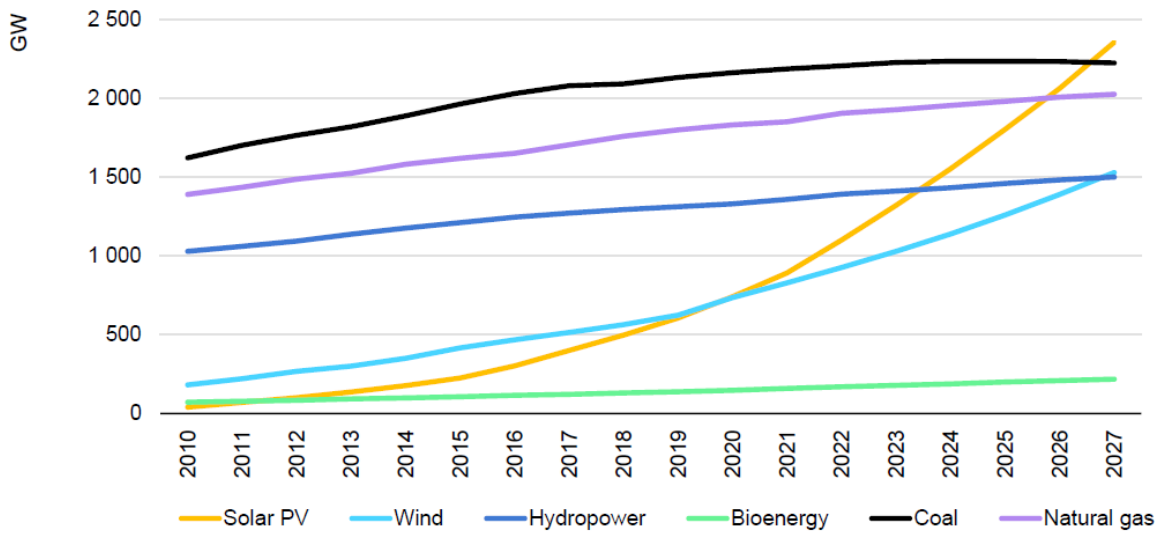
Carbon Tax @25% on $8.9 billion on import of fossil fuels (FY2021-22) could mobilize capital of generating additional around **3000 MW RE/year**

- In 2020 around US$11.855 billion was spent for RE from MDBs
- US$0.7 billion of RSF-IMF should be utilized for RE projects

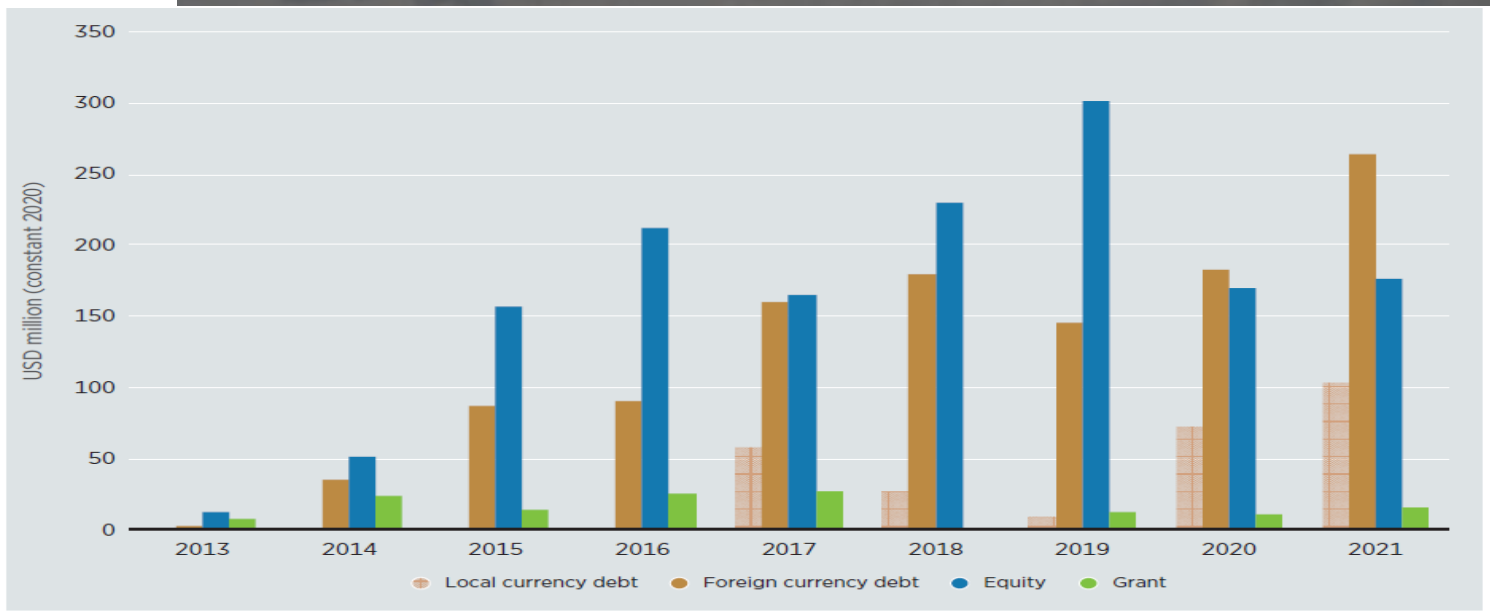
- US$2.9 billion (60 RE projects) approved from the GCF
- 10,000 MW RE Projects could generate revenue of US$30 million/year from the Carbon Market

Renewable Energy is future-oriented smart move

Figure 1.8 Cumulative power capacity by technology, 2010-2027

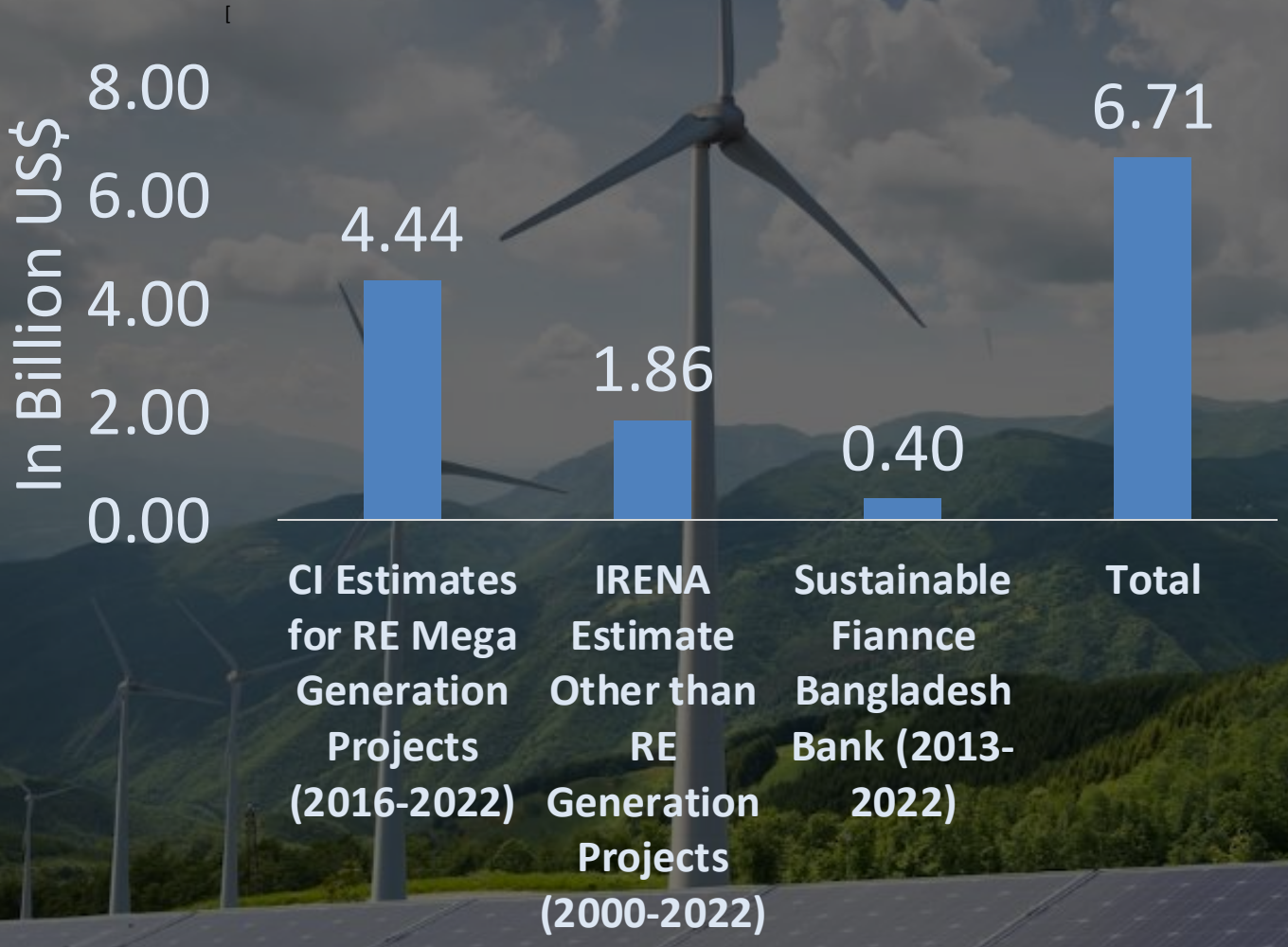


Source: IEA analysis based on World Energy Outlook 2022. (2022), Fossil fuel capacity.



Based on: Wood Mackenzie (2022a).

Flow of RE Finance in Bangladesh



Source: Author's compilation from different sources, 2023

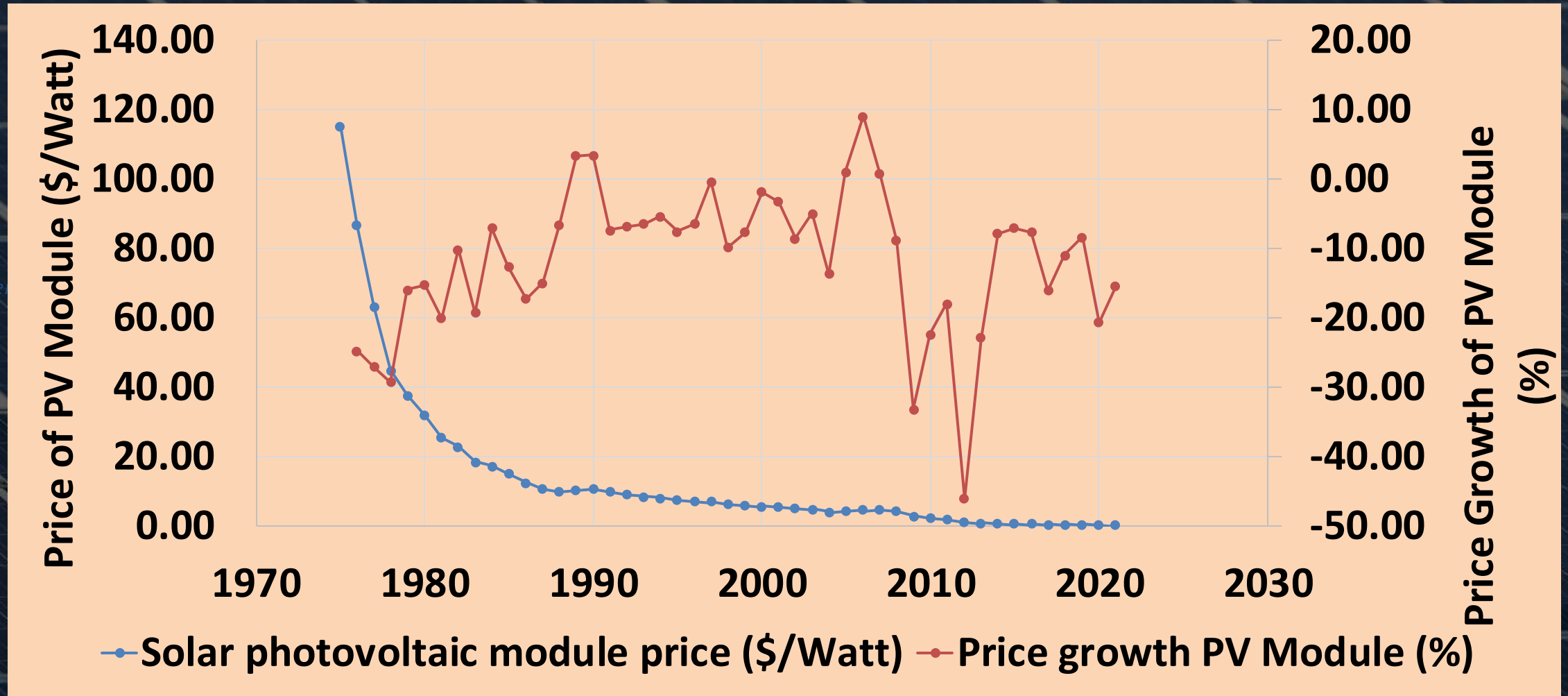
The 2021-22 Climate Budget of Bangladesh states the following RE funded projects in Bangladesh

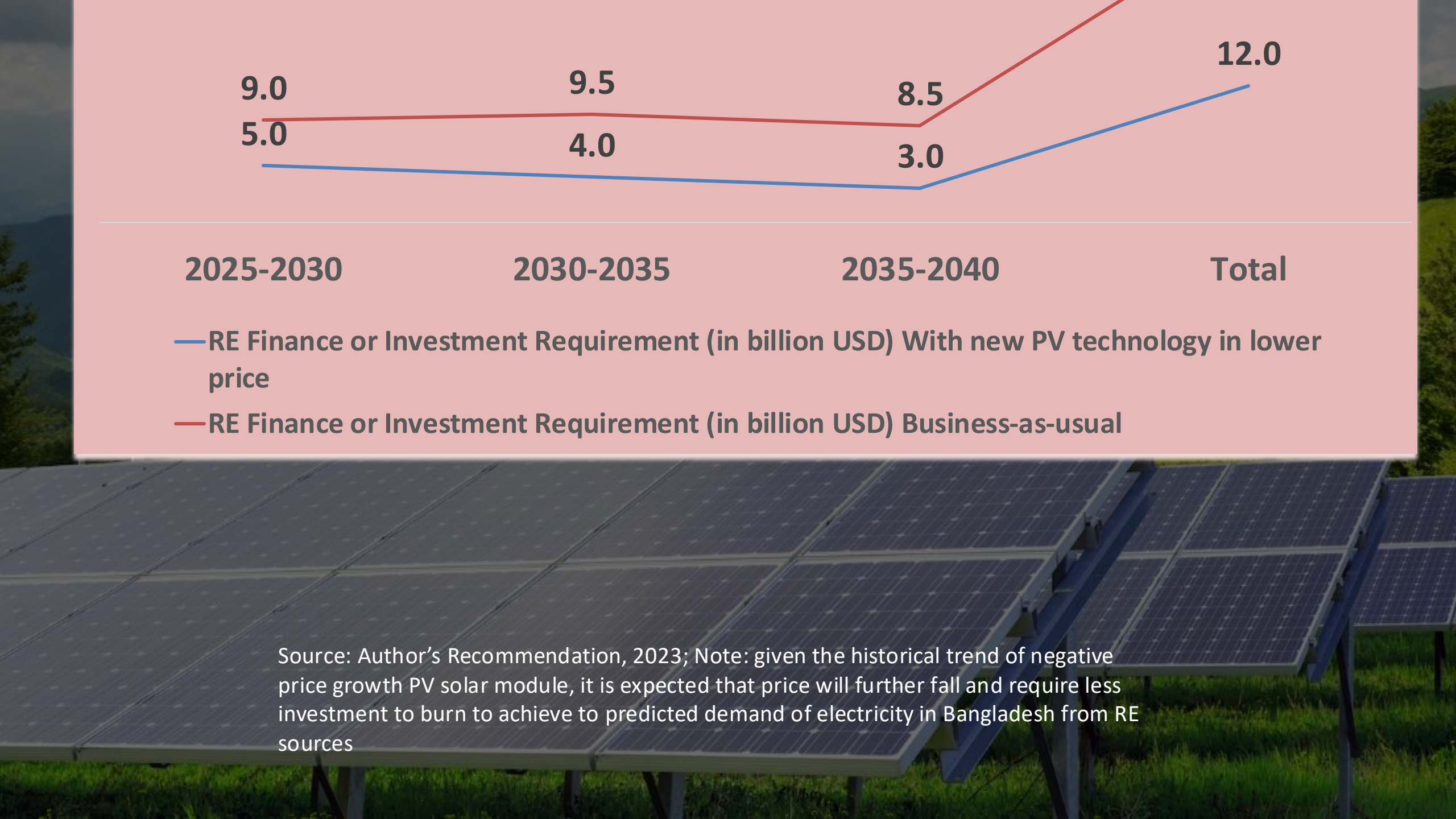
- **USD 75 million 9 Climate Investment Fund funded projects**
- **USD 114 million from grants and USD 109 million from co-financing from Green Climate Fund.**
- **USD 1 billion over 5 years for several key issues among which renewable energy and research was one, in 2022, the US committed to provide to Bangladesh**

RATIONALE

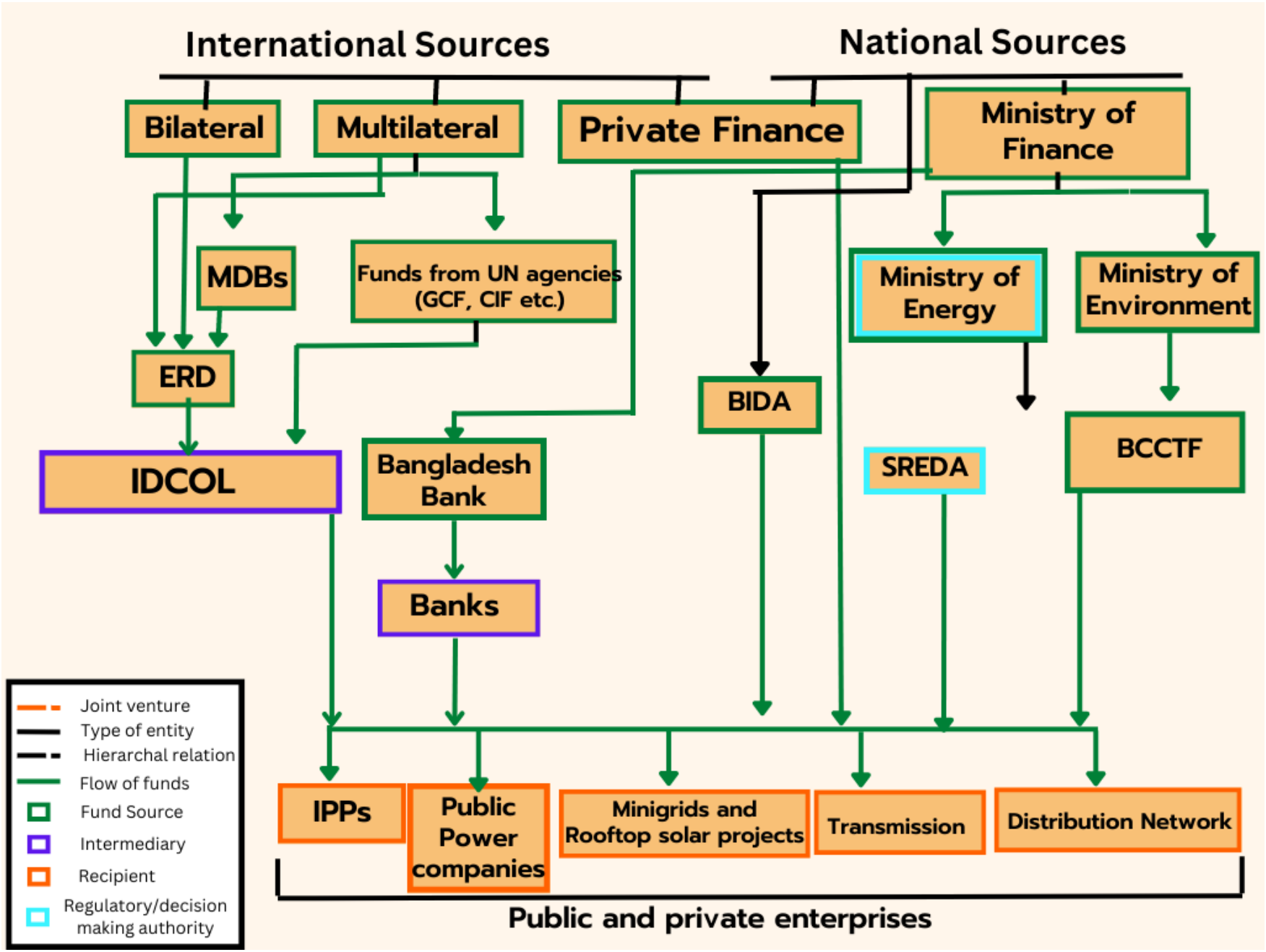
According to IEEFA, as of 2022,

- China avoided $21 billion in additional coal and gas imports by using solar.
- Japan avoided $5.6 billion and India avoided $4.2 billion in cost of fossil fuel.





Source: Author's Recommendation, 2023; Note: given the historical trend of negative price growth PV solar module, it is expected that price will further fall and require less investment to burn to achieve to predicted demand of electricity in Bangladesh from RE sources

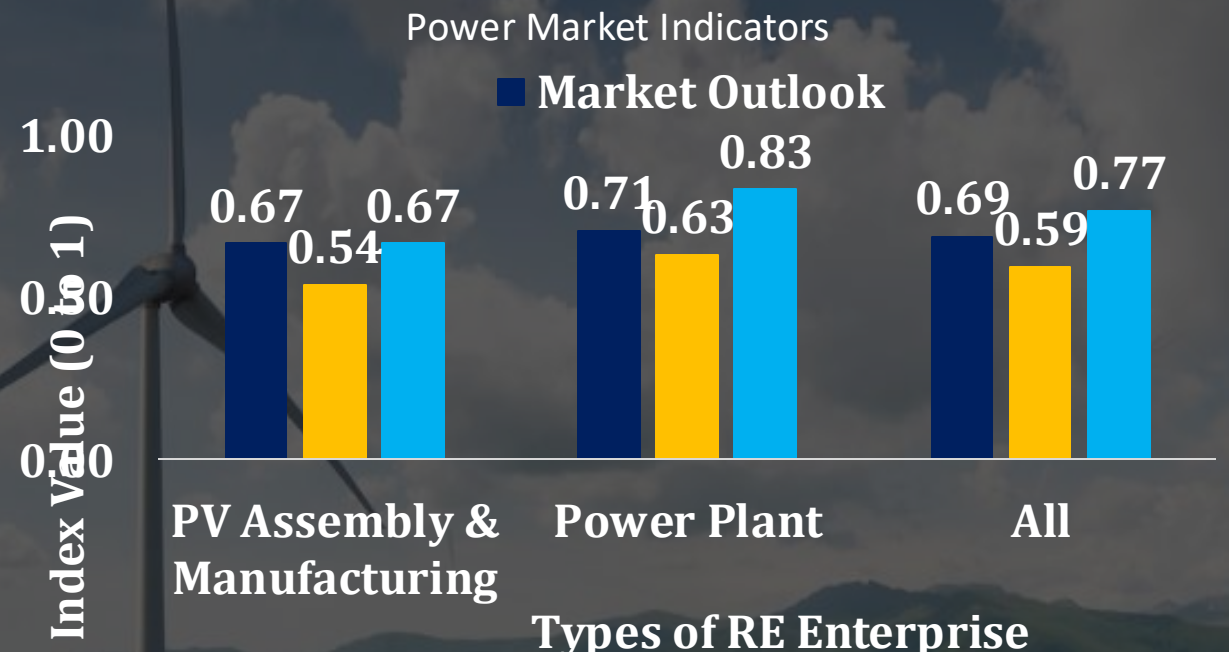

International Sources
National Sources
Bilateral
Multilateral
Private Finance
Ministry of Finance
MDBs
Funds from UN agencies (GCF, CIF etc.)
Ministry of Energy
Ministry of Environment
ERD
BIDA
IDCOL
Bangladesh Bank
SREDA
BCCTF
Banks
Joint venture
Type of entity
Hierarchal relation
Flow of funds
Fund Source
Intermediary
Recipient
Regulatory/decision making authority
IPPs
Public Power companies
Minigrids and Rooftop solar projects
Transmission
Distribution Network
Public and private enterprises

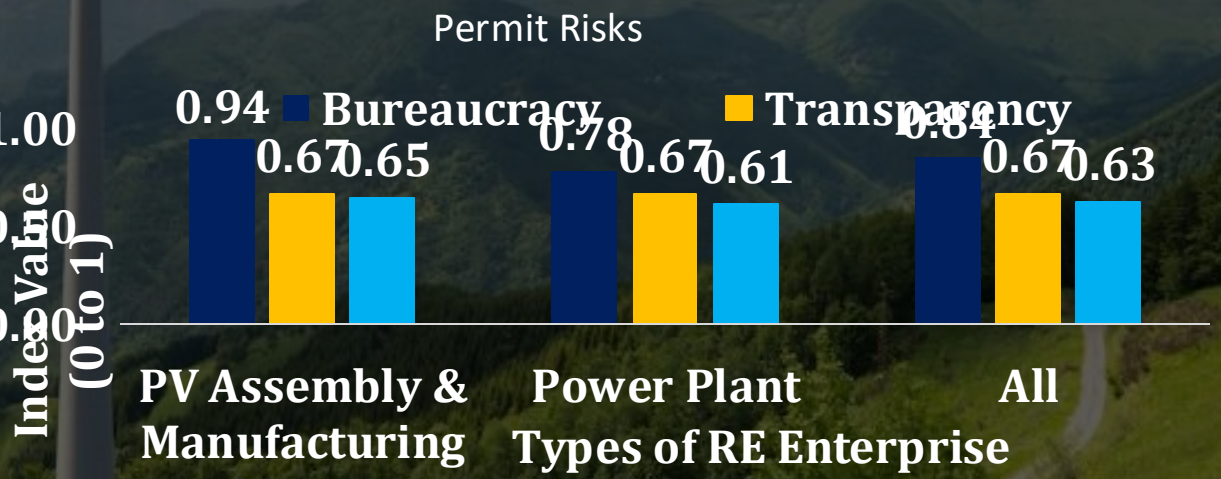
RE Entrepreneurs Survey findings

Risk Factors: Influence Cost of Capital of RE Enterprise

Risk Factors	PV Assembly , Manufacturing and others (%)	Power Plant (%)
Currency Risk (M)	75.00	66.67
Permits Risk (R)	50.00	55.56
Financing Risk (F)	50.00	50.00
Land Acquisition Risk (I)	33.33	50.00
Power Market Risk (F)	33.33	44.44
Labour Risk (M)	16.67	33.33*
Hardware Risk (T)	16.67	33.33
Developer Risk (T)	8.33	38.89**
Sovereign Risk (M)	8.33	27.78
Social Acceptance Risk (I)	8.33	27.78
Grid/ Transmission Risk (T)	16.67	16.67
Off-Taker Credit Risk (F)	8.33	16.67

Survey findings





Policy and Institution

- Adhocism and reliance on foreign resources for sector planning has led to vested interests in fossil fuels and undermined renewable energy (RE).
- Lack of evidence on RE potential mapping/zoning across the country.
- Absence of a renewable energy finance strategy and inadequate incentives, requirements for foreign investment, and inadequate resources (financial and human resources) and technical capacity of utilities.
- Inadequate technical support for climate-proof investment and failure to adopt different tariff mechanisms.

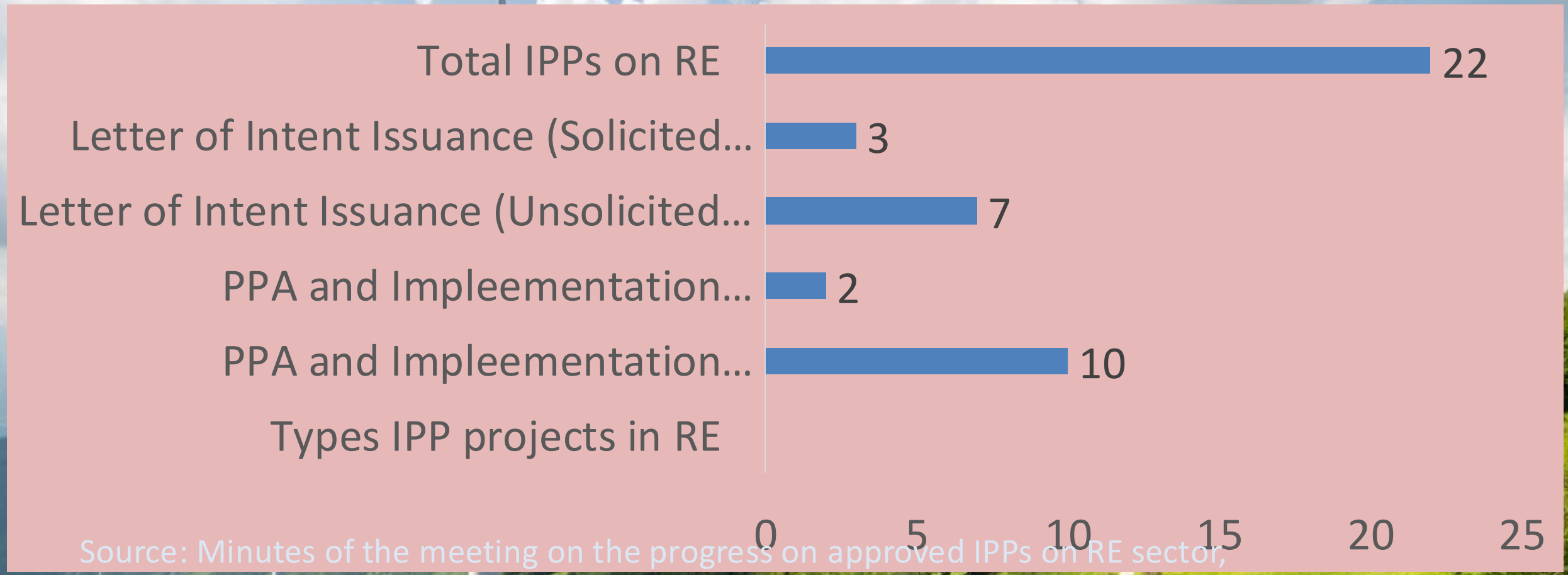
Economic

- Excessive dependency on fossil-fuel based power generation leading to immense fiscal burdens, subsidies in fuel import and excessive capacity charges linked to rent-seeking
- Undermining social costs and economic benefits of RE
- Unavailability of low-cost capital from local banks and inadequate sovereign guarantees
- Except IPPs, 27% and 38% import duties applicable for solar PV panel and solar PV inverters respectively.

Governance and Political Economy

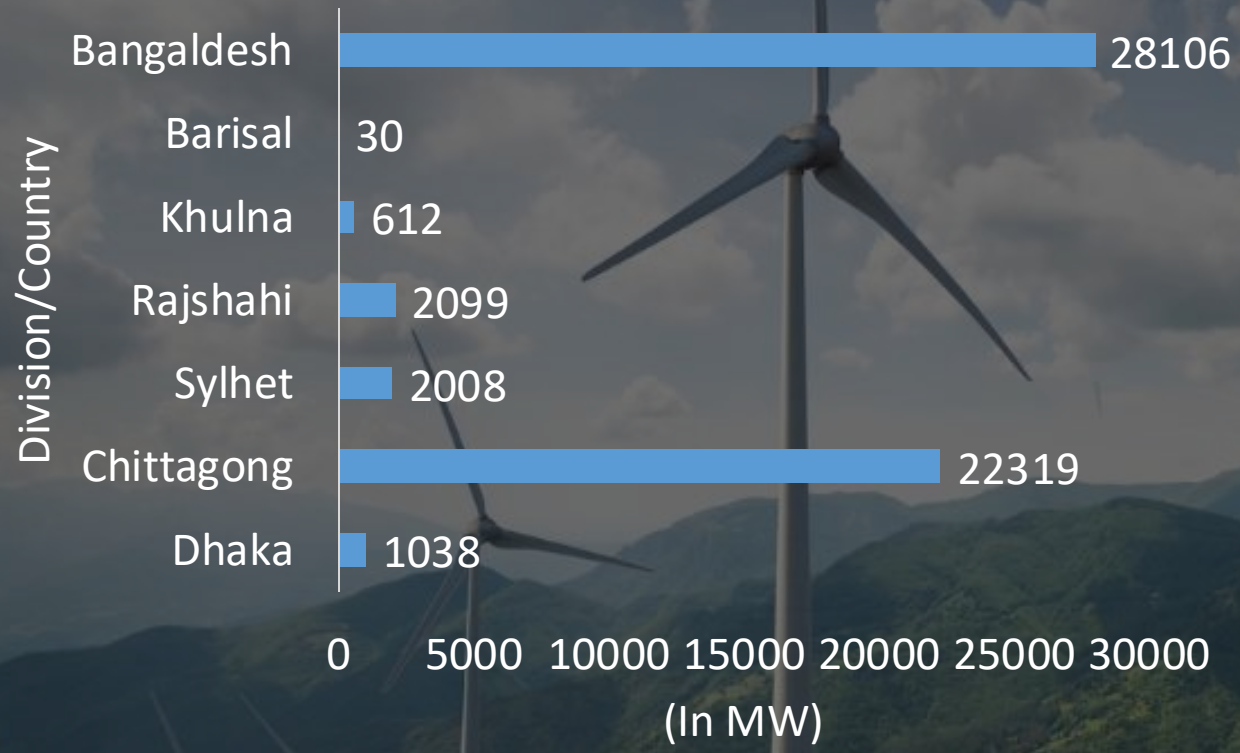
- Inconsistency in setting RE targets across different policies and plans.
- Prioritizing costs over environmental sustainability and delays in approving the draft RE roadmap.
- Potential conflicts of interest in BPDB's roles and inadequate empowerment of SREDA in promoting RE.
- Distortions in competitive RE power generation due to the Speedy Supply of Power and Energy (Special Provision) (Amendment) Act 2010.
- Lengthy approval processes, lack of a standard PPA for RE generation, and complexity in land acquisition and development leading to delays and higher costs.
- Lack of oversight and consultation with stakeholders in planning and implementation.
- Inequitable qualification criteria for RE project development, including operating experience and lock-in periods.

Enabling Environment: Unabated Unsolicited RE Projects

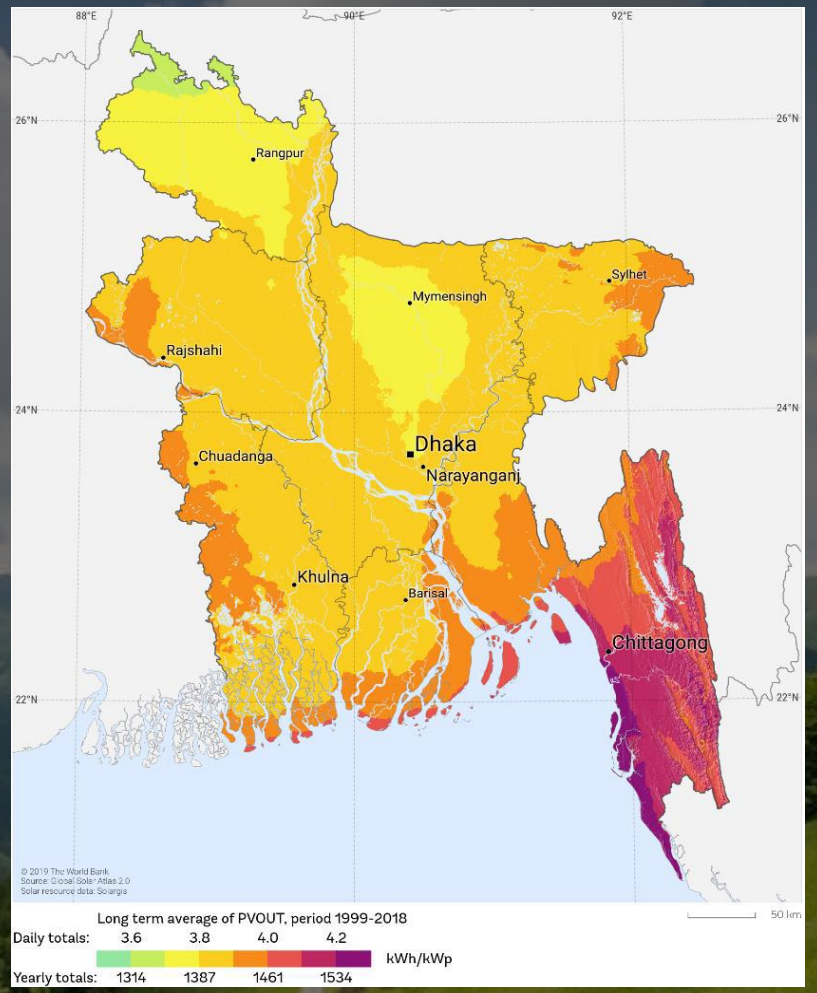


Source: Minutes of the meeting on the progress on approved IPPs on RE sector, 1st of January, 2023

Enabling Environment



If 5% of the non-agriculture khash-land used the Potential of RE in Bangladesh (MW) [Source: Section 4 of the Land Reforms Ordinance 1984]

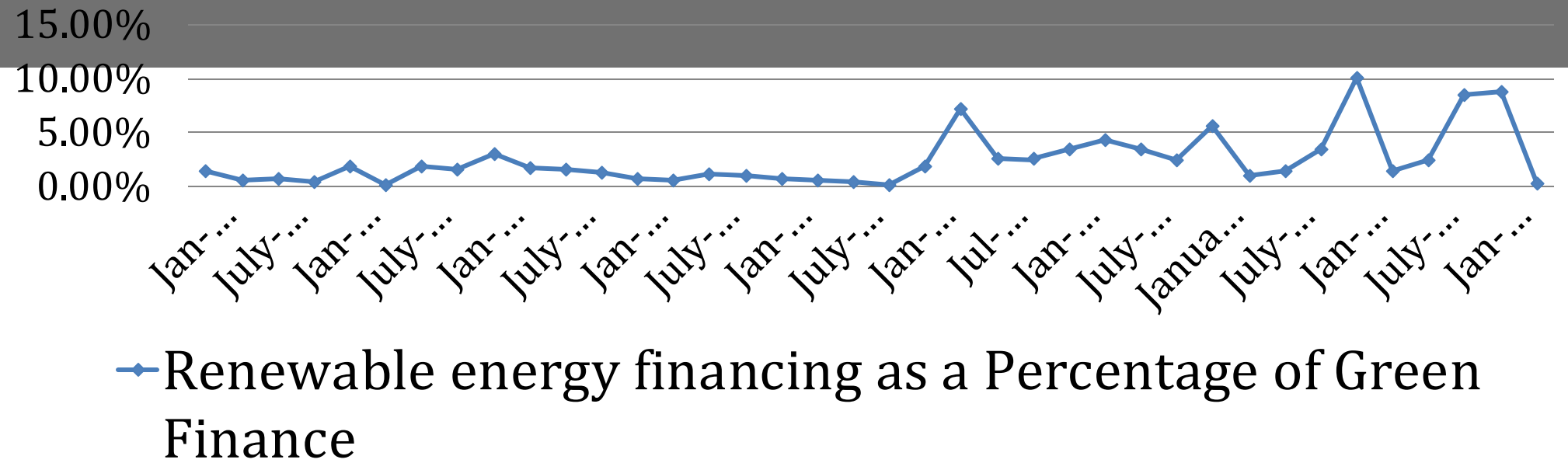


Potential of Solar-energy in Bangladesh, 2022

IDCOL-Room for Excellence

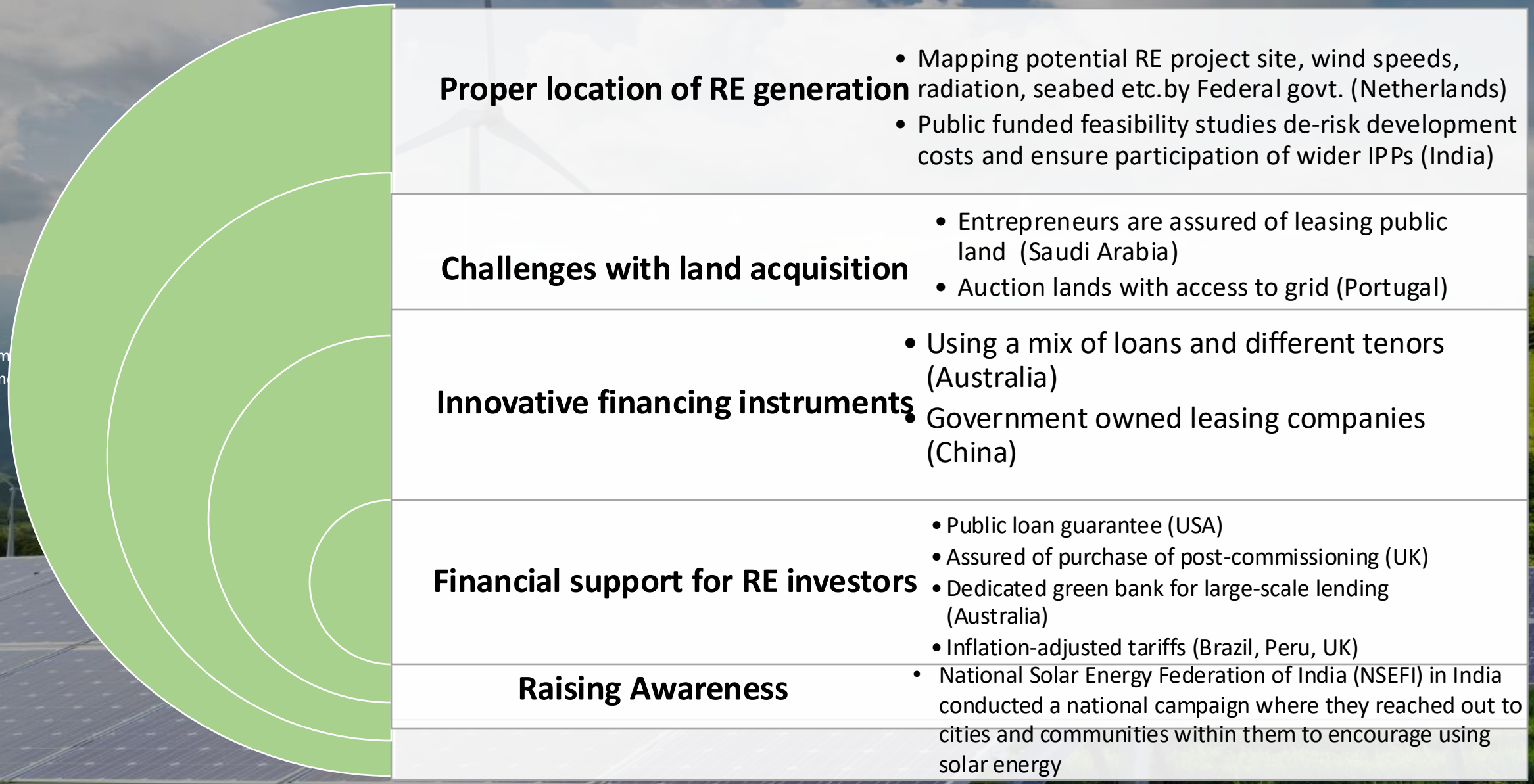
- Infrastructure Development Company Limited is a government owned specialized non-bank financial institution that finances renewable infrastructure projects in Bangladesh
- Recent financial performance of renewable energy projects in Bangladesh under IDCOL has declined, and the SHS program has collapsed due to default loans and weak institutional framework.
- IDCOL gets funds from various development partners and disburses them to Partner Organizations (POs) for expansion schemes. POs get refinancing from IDCOL only after SHSs are installed at households, and households make down payments and installments. POs receive credit from IDCOL at a 6% rate and pay back in 6-8 years, while households pay 12% interest and pay back in 3 years.
- Interest rates for consumers remained constant despite increasing costs associated with collecting debt, leading to higher lending rates and declining demand.
- A more effective allocation of REF institutions, transparent management teams, and leadership that are better knowledge-based and practice-oriented are required for successful RE initiatives.

Bangladesh Bank and Sustainable Finance for RE projects (2013-2022)



- The size of the refinancing scheme BDT 400 crore BDT ($40 million), Green projects, including solar based projects are entitled to get loan from 5% to 6% depending on the tenor. Loan ranges from 10 crore BDT ($1 million) to 35 crore BDT ($3.5 million)
- When Bangladesh Bank official (he requested anonymity) was asked about why **renewable energy as a percentage of green finance is so low (2.45% on average)** they cited it to errors in reporting. They also said that they did not want to be too strict about these issues as they did not want to create a hostile situation.

Cross Country Experiences: De-risk Mechanism



Proper location of RE generation

- Mapping potential RE project site, wind speeds, radiation, seabed etc.by Federal govt. (Netherlands)
- Public funded feasibility studies de-risk development costs and ensure participation of wider IPPs (India)

Challenges with land acquisition

- Entrepreneurs are assured of leasing public land (Saudi Arabia)
- Auction lands with access to grid (Portugal)

Innovative financing instruments

- Using a mix of loans and different tenors (Australia)
- Government owned leasing companies (China)

Financial support for RE investors

- Public loan guarantee (USA)
- Assured of purchase of post-commissioning (UK)
- Dedicated green bank for large-scale lending (Australia)
- Inflation-adjusted tariffs (Brazil, Peru, UK)

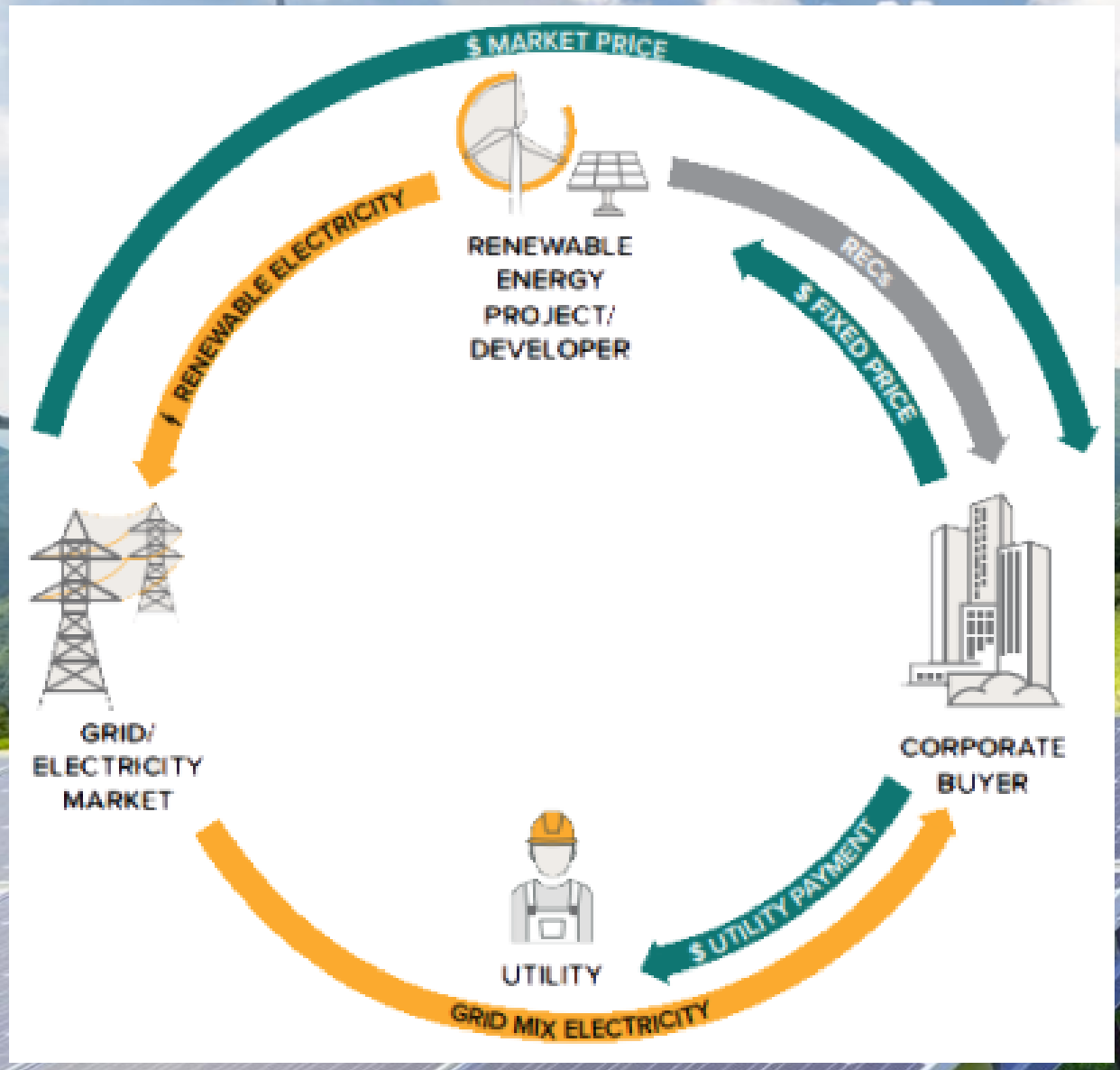
Raising Awareness

- National Solar Energy Federation of India (NSEFI) in India conducted a national campaign where they reached out to cities and communities within them to encourage using solar energy

Potential Reform on Policy and Legal regime

Risk Areas	De-risk Mechanism			
	Policy and Legal	**Economic and Commercial**	**Institution and Technical Capacity**	**Governance and Integrity**
Overall	• Realistic, Reliable and Reform (3R) towards RE Finance in Bangladesh • Abandon of the Speedy Power Generation and Supply Act 2010 and promote competitive bidding process • Consistent RE targets, such as coherence gaps in the NDCs, MCCP, BCCSAP, RE Policy, IPEMP • Allowing land lease-based loan facilities to RE entrepreneurs	• Attractive incentives for RE investors e.g. at least 10 years tax holiday for early-stage entrepreneurs, assurance on the provision of non-agriculture khash lands at a given time period, land lease consideration as collateral for financing, proactive development of offshore power grids, SMART Grid etc. • **Virtual Power Purchase Agreement (VPPA),** multi-year bilateral financial renewable energy agreement between consumers and power producers where the producer (vendor) does not physically deliver the energy to the consumers	• REF strategy to be formulated through transparent, long-term national targets and time-bound action plan that would include the sources, amounts and funding tools e.g. grant, FDI, concessional loan, bonds etc.	

VPPA Mechanism



Risk Areas	De-risk Mechanism			
	Policy and Legal	Economic and Commercial	Institution and Technical Capacity	Governance and Integrity
Power Market Risk	Establish transparent, long-term national renewable energy finance strategy and targets	Establish a harmonized, well-regulated energy market to address price and market-access risk for renewable energy projects	Develop and regularly update a long-term national transmission/grid plan to include intermittent renewable energy	
Land Acquisition	Reform of land administration		Nation-wide Mapping on RE Potential and designated areas for RE generation	
Permits Risk	Legislative reform to implement well-designed and harmonized policies		Establish an online one-stop-shop for renewable energy permits with a timeline tracker (Automated approval process)	Ensure transparent and fraudulence free time-bound enforcement mechanism
Grid/Transmission Risk	Develop a grid code for new renewable energy technologies		SMART Grid and Supports to RE as incentive	
Hardware Risk			Harmonized approach to local content and industrial policy	
Developer Risk			Programmes to develop competitive, skilled labour market in utility-scale renewable energy (all roles)	
Labour Risk				

Risk Areas	De-risk Mechanism			
	Policy and Legal	Economic and Commercial		Governance and Integrity
Social Acceptance Risk			Promote awareness of policymakers and experts about the real potential of RE on nature, economy, public health and productivity	
Currency Risk	Partial indexing of local currency tariffs in PPAs, so that IPPs are reimbursed for local currency depreciation of tariff	• Project Preparation Facility (PPF)	• Reduction of steps, including possible online functionality; public response timelines; effective and expedited recourse mechanisms • Government support for long term development of liquid domestic FX derivative markets • Streamlined, consistent & facilitated customs procedures • Full cost-benefit economic assessment and benchmarking of tariffs; phase-out/down of punitive tariffs; introduction of import tariff holidays and VAT exemptions	

Risk Areas	De-risk Mechanism			
	Policy and Legal	Economic and Commercial	Institution and Technical Capacity	Governance and Integrity
Financing Risk	• Establish an integrated financing entity for assessing scopes, innovation, supports for accessing funds – Fund Manager for SFU-Bangladesh Bank • Withdrawal of abrupt subsidy and undue incentives to fossil-fuel based energy generators:	• Balanced treatment across sectors and reform of fossil fuel subsidy • MDBs financing campaigns to raise awareness & community-based projects	• -Strengthen domestic investors' incentive for, familiarity with and capacity regarding on-grid rooftop PV and aggregative financing models •	
Sovereign Risk			Provision of political risk insurance to equity holders covering expropriation, political violence, currency restrictions & breach of contract	

Today’s Sessions

1. Mobilizing International Financing in Renewable Energy Financing: Prospects and Risks
2. Enabling environment for investment in RE projects: Challenges and way forward
3. Incentivizing RE: Investment: Cross-Country Experiences and Learnings for Bangladesh
4. Just Energy Transition and Role of Renewable Energy Financing
5. Effective mobilization of REF in Bangladesh: Potential reform in policy and institutions

There will be a Q/A Session for every panel discussion!


Thank you!