

RENEWABLE ENERGY

FINANCE RISK FACTORS AND DE-RISKING MECHANISMS



Overview

Bangladesh is one of the most climate-vulnerable countries globally, facing the adverse impacts of climate change such as sea-level rise, flooding, and extreme weather events. Despite contributing less than 1% of global carbon emissions, the country has seen a significant increase in greenhouse gas emissions, primarily from burning fossil fuels for energy. This situation has prompted the government of Bangladesh to revise its Intended Nationally Determined Contribution and submit its Nationally Determined Contribution in 2021 to meet the requirements of the Paris Agreement.

To achieve its goals, the government has set a target to meet 40% of the country's electricity demand from renewable energy sources by 2041. Bangladesh has significant potential for renewable energy, particularly solar and wind energy, which could help to reduce its dependence on imported fossil fuels and mitigate the adverse impacts of climate change. Solar PV and wind energy costs have dropped by up to 80% in the last decade, making renewable energy increasingly affordable.

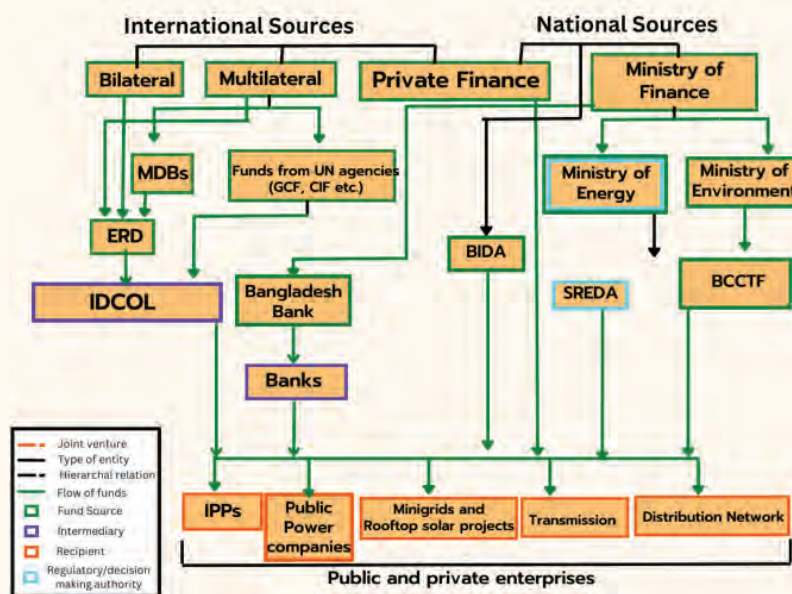
Despite the potential benefits of renewable energy, there are risks associated with renewable energy finance in Bangladesh. Some of the risks include policy and regulatory uncertainty, lack of access to financing, inadequate infrastructure, and technical and operational risks. To ensure that renewable energy enterprises can flourish in Bangladesh, it is essential to minimize risks and put in place de-risking mechanisms.

De-risking mechanisms can help to address some of the risks associated with renewable energy finance, such as providing long-term financing, improving access to financing, and offering policy and regulatory support. De-risking can also help to attract private investment in renewable energy projects, which could help to accelerate the transition to a low-carbon economy in Bangladesh.

Key Points

- To reduce its dependence on fossil fuels and mitigate climate change, the Bangladesh government has set a target to generate 40% of electricity from renewable energy sources by 2041.
- Risks associated with renewable energy finance in developing countries, such as Bangladesh, include policy and regulatory uncertainty, lack of access to financing, inadequate infrastructure, and technical and operational risks.
- De-risking mechanisms can help address these risks and attract private investment in renewable energy projects.
- The top 5 de-risking instruments identified in the survey are establishing an online one-stop-shop for renewable energy permits, streamlined customs procedures, government support for the early-stage industry, transparent and time-bound enforcement mechanisms, and reducing administrative steps.
- Other de-risking mechanisms identified include formulating a realistic and reliable renewable energy finance strategy, adopting a competitive bidding process, offering attractive incentives for investors, and establishing a long-term national renewable energy strategy and targets.

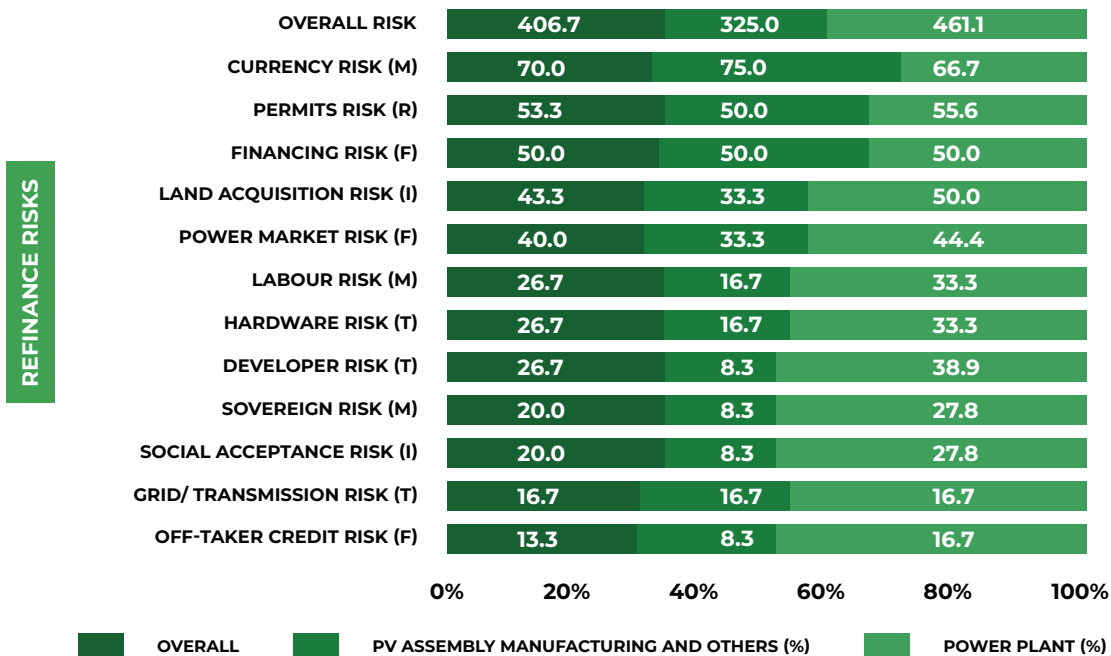
Flow Chart 1: Mapping of RE Finance Actors in Bangladesh



Source: Developed by authors of the study, 2023

The top 5 risks are as follows: Currency Risk, Permit Risk, Financing Risk, Land Acquisition Risk, Power Market Risk.

Figure 1: Factors Influencing Cost of Capital by Types of RE Enterprise



Source: Author's Calculation from Change Initiative Renewable Energy Enterprise Survey, 2022; P-value: significance ** at 1%; *at 5% level. Note: M= market risk; R= regulatory concern; F= financial risk; I=implementation challenges; T=technical/technological risk

The survey identified market access and price uncertainty, bureaucracy, transparency, and land constraints, lack of awareness among end-users, and resistance as the riskiest factors in the context of power market, permit risk, and social acceptance risk, and hardware risk, respectively. Enabling environment for RE finance, challenges remain.

The following barriers to RE Finance were also identified:

Policy and Institution

- Adhocism and utmost reliance on the foreign aids for sector planning led to undermine the RE
- Absence of evidence or survey based RE mapping or zoning across the country to specify the potential locations for solar and wind energy generations es
- Absence of renewable energy finance strategy to meet the 2041 targets
- Requirement of incentives (e.g. leasing Khash land in reduced rate, transmission supports, tax rebates on both imports of inputs and corporate incomes etc.) requirements for foreign investment, BOOT push up costs
- Inadequate resources (financial and human resources) of the BPDBs, PGCB and utilities
- Inadequate technical supports for climate-proof investment in cyclone and flood prone regions
- Inadequate grid management practices and lack of attention to grid flexibility; organizing RoW for construction of transmission infrastructure for power evacuation
- Not to adopt the different tariff mechanism e.g. Feed-in-tariff, auction price,
- Inadequate capacity of Load dispatch center, grid outage happens at 33 kV level etc.

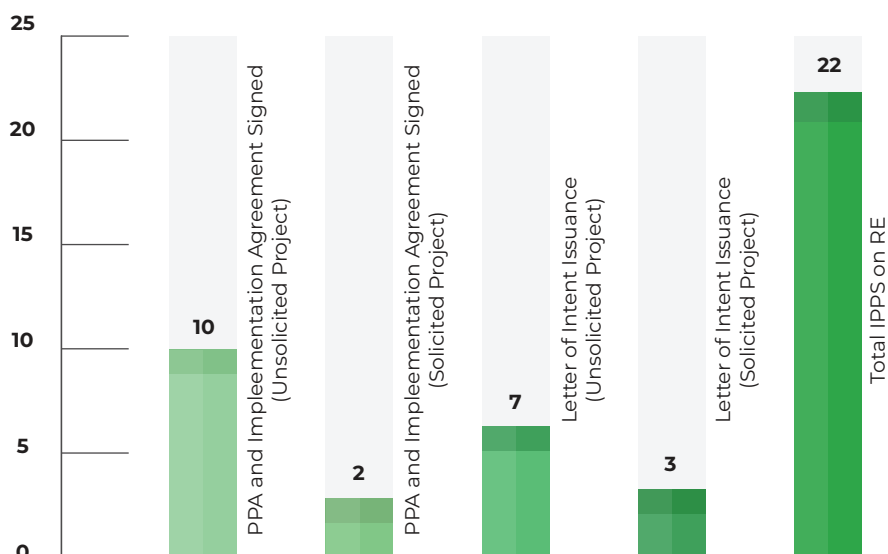
Economic

- 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
- Undermine social costs and economic benefits of RE, prioritize financial benefit of fossil fuel-based energy generation
- Unavailability of low-cost capital from local banks and inadequate sovereign guarantees, limited disbursement of sustainable finance e.g. SFU-B.Bank
- Except IPPs, 27% and 38% import duties applicable for solar PV panel and solar PV inverters respectively.

Governance and Political Economy

- In-consistency in setting RE Targets e.g. non-coherence in NDC, MCCP, RE Policy etc.
- Not-to-focus on environmental sustainability rather focus on vested interests e.g. approval of the draft RE Roadmap
- Potential conflicts of interest in BPDB's roles as planner, operator and generator.
- Less empowerment of SREDA and inadequate role of MoPEM in promoting RE and REF
- Speedy Supply of Power and Energy (Special Provision) (Amendment) Act 2010 have distorted the competitive RE power generation for both national and reputed foreign providers.
- Lengthy approval process (a long list of different permits) led to higher costs for both CAPEX and OPEX model of RE generation.
- Absence of a standard PPA for RE leading to non-transparent and unpredictable selection.
- Business-as-usual process of the local authority, land ownership complexity, land types and undue intervention of local brokers cause unusual delay in land acquisition and development
- Lack of oversight and consultation with stakeholders in the planning and implementation
- Inequitable qualification criteria for the RE project developments e.g. operating experience of 2 years, lock-in period is 6 years (for both lead and operating partners).

Figure 2: Prioritizing unsolicited/non-competitive bidding of approval of RE related IPPs

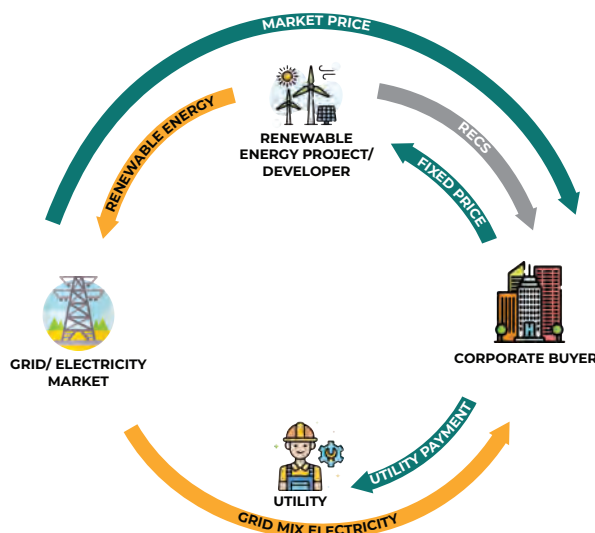


The figure above illustrates how unsolicited projects are taking priority over solicited projects, this is also a risk worth mitigating.

Policy Recommendations Virtual Power Purchase Agreement (VPPA)

A Virtual Power Purchase Agreement (VPPA) is a 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. The contract does not include dispatch charges because power stations are not directly connected to the customer's power provider, but it still offers the benefit of obtaining Energy Attribute Certificates (EACs). For instance, under the VPPA, the electricity producer sells its electricity at the market price on the power exchange (such as corporate firms, factories etc.). In exchange for a predetermined VPPA contract price known as the strike price, the consumer only receives the EACs (green energy credits) connected with the traded electricity. The real pricing agreement between the consumer and the power producer, however, is based on the difference between the strike price and the wholesale market rate (Figure 6). The power producer pays the consumer the difference when the market rate is higher than the strike price. The consumer pays the difference when the market price is lower. Contracts-for-difference are a type of settlement arrangement. The accompanying green credits are subsequently transferred from the RE generator to its client. This process allows number of businesses globally to meet their renewable energy targets while operating their business.

Figure 3: Complete Picture of VPPA Mechanism



In Bangladesh the provision of VPPA is missing currently. Although many may argue Bangladesh market is not yet ready to develop VPPA market mechanism but keeping its provision will allow Bangladesh to accelerate to meet 40% electricity generation target from RE sources by 2041. This arrangement once ready may attract private investors to invest in the energy market to meet their commitment to produce sustainable products. It may also allow a number of industries to transform its 10% to 15% electricity demand from RE sources with relatively lower investment as it don't require any physical land preparation cost at individual level.

The following de-risking mechanisms, which have been categorized into: policy and legal; economic and commercial; institution and technical capacity; and governance and integrity were identified in the course of this study :

RISK AREAS	DE-RISK MECHANISM			
	Policy and Legal	Economic and Commercial	Institution and Technical Capacity	Governance and Integrity
OVERALL	<ul style="list-style-type: none"> - Realistic, Reliable and Reform (3R) towards RE Finance in Bangladesh - Abandon Speedy Power Generation and Supply Act 2010 and promote competitive bidding process - Consistent RE targets, such as coherence in the NDCs, MCCP, RE Policy, IPEMP - Allowing land lease-based loan facilities to RE entrepreneurs 	<ul style="list-style-type: none"> - VPPA - Attractive incentives for investors e.g. 10 years' tax holiday for early-stage RE entrepreneurs, provision of non-agriculture khash lands, land lease consideration as collateral for financing, proactive development of offshore power grids, smart grid etc. 	<ul style="list-style-type: none"> - 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. 	
POWER MARKET RISK	<ul style="list-style-type: none"> - Establish transparent, long-term national renewable energy strategy and targets 	<ul style="list-style-type: none"> - Establish a harmonized, well-regulated energy market to address price and market-access risk 	<ul style="list-style-type: none"> - Develop and regularly update a long-term national transmission/grid plan to include intermittent RE 	
LAND ACQUISITION	<ul style="list-style-type: none"> - Establish transparent, long-term national renewable energy strategy and targets 		<ul style="list-style-type: none"> - Nation-wide Mapping on RE Potential and designated areas for RE generation 	
PERMITS RISK	<ul style="list-style-type: none"> - Legislative reform to implement well-designed and harmonized policies 		<ul style="list-style-type: none"> - Establish an online one-stop-shop for RE permits with a timeline tracker (Automated approval process) 	<ul style="list-style-type: none"> - Ensure transparent and fraudulence free time-bound mechanism
SOCIAL ACCEPTANCE RISK			<ul style="list-style-type: none"> - Promote awareness of policymakers and experts about the potential of RE on nature, economy, public health and productivity 	
HARDWARE RISK			<ul style="list-style-type: none"> - Harmonized approach to local content and industrial policy 	
DEVELOPER RISK LABOUR RISK			<ul style="list-style-type: none"> - Programmes to develop competitive, skilled labour market in utility-scale renewable energy (all roles) 	

Grid /Transmission Risk	- Develop a grid code for new renewable energy technologies		- Subsidizing smart grid should be introduced by PGCB	
Off-taker Credit Risk	- Financial products by development banks to assist IPPs to gain access to capital/ funding			
Financing Risk	- Establishing an industrial policy for domestic manufacturing - Withdrawal of abrupt subsidy and undue incentives to fossil-fuel	- Balanced treatment across sectors - Reform of fossil fuel subsidy - Development banks 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	
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)	- Government support for long term development of liquid domestic FX derivative markets - Streamlined customs procedures - Reduction of customs administrative steps, including possible online functionality-Full cost-benefit economic assessment and benchmarking of tariffs; phase-out/down of punitive tariffs	
Sovereign Risk			- Provision of political risk insurance to equity holders covering political violence, currency restrictions & breach of contract	

Conclusion

In conclusion, the renewable energy sector in Bangladesh faces various risks that increase the cost of capital for investors. However, implementing de-risking mechanisms can mitigate these risks and promote the growth of the sector. The identified de-risking mechanisms include developing a realistic and reliable renewable energy finance strategy, implementing harmonized policies and regulations, establishing a transparent and well-regulated energy market, promoting awareness of the potential of renewable energy, and providing attractive incentives for investors. The government can also facilitate a supportive environment by reforming land administration, developing a skilled labor market, and providing financial products and political risk insurance to equity holders. By adopting these de-risking mechanisms, Bangladesh can attract more investment to the renewable energy sector and achieve its targets for sustainable development.

Annexure: **The Risks:**

30 entrepreneurs from the renewable energy industry were surveyed and the following risk factors were identified:

Figure 1: Risk Factors for Renewable Energy Financing

Power Market Risk	Risk arising from limitations and uncertainties in the energy market, and/or sub-optimal regulations to address these limitations and support energy markets
Permits Risk	Risk arising from the public sector's inability to efficiently and transparently administer renewable energy- related licensing and permits, including land acquisition
Social Acceptance Risk	Risks arising from lack of awareness and resistance to renewable energy from end-users, special interest groups
Hardware Risk	Risk arising from limitations in the quality and availability of utility-scale hardware; issues arising from inefficiencies in the customs process
Developer Risk	Risks arising from limitations in the IPP's management capability and ability to execute on financing and business plan
Labour Risk	Risks arising from the lack of skilled and qualified potential employees
Grid/ Transmission Risk	Risks arising from limitations in grid management and transmission infrastructure
Off-taker Credit Risk	Risks arising from the off-taker's poor credit quality and an IPP's reliance on payments
Financing Risk	Risks arising from general scarcity of investor capital (debt and equity) in the particular country, and investors' lack of information and track record in utility-scale renewable energy
Currency Risk	Risks arising from currency mismatch between hard currency debt/equity and domestic currency revenues
Sovereign Risk	Risk arising from a mix of cross-cutting political, economic, institutional and social characteristics in the particular country which are not specific to utility-scale RE

Policy Brief

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