



Bangladesh-China Renewable Energy Forum

Overseas Investment in the Renewable Energy Sector *How to Attract Chinese Investment under the New Regime?*

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17 October 2024



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- Bangladesh has entered a new political phase with the starting of the operation of an interim government on 8 August 2024
 - The Interim Government has been formed under the leadership of Professor Muhammad Yunus, renowned Noble Laureate
- **Professor Yunus's vision** of creating a **world of three zeros** by unleashing entrepreneurship in all
 - Zero net carbon emission
 - Zero wealth concentration for ending poverty, and
 - Zero unemployment
- Professor Yunus is the founding chair of the company called Grameen Shakti (in bangla, Rural Energy)
 - Grameen Shakti is one of the leading social enterprises in the world with an aim of improving "Access to Energy" for the rural people of Bangladesh
 - Providing **Sustainable Renewable Energy solutions** with an objective of socio-economic development, empowering women, creating green Jobs, alleviating poverty, **reducing GHG emission** and building up healthy community



https://uplbooks.com/shop/9789845062534-a-world-of-threezeros-the-new-economics-of-zero-poverty-zero-unemploymentand-zero-net-carbon-emissions-12085#attr=21241

- Overall, the Chief Advisor is **expected to take a bolder step** towards progressing renewable energybased power generation as part of his global commitment for GHG emission
 - **His decarbonisation effort** is expected to further extend to other important GHG emitting economic activities including agriculture, transport, industry and household
- The interim government is formed with the **fair share and participation of pro-environmentalists and renewable energy advocates**
- The **Advisor for Power and Energy**, who just took office, has prior experience working as Power Secretary as well as founding executive **director of IDCOL**
 - The Advisor designed and implemented the most successful solar home systems (SHS) program in the world under which more than 4 million SHSs have been installed in rural Bangladesh
- Chief Adviser Prof Muhammad Yunus has urged **HE Yao Wen**, the ambassador of the People's Republic of China to Bangladesh to relocate some of its **solar panel factories** to Bangladesh (25 August 2024)
 - China and Bangladesh have recently **upgraded their relationship** to a **"comprehensive strategic cooperative partnership"** and both nations will celebrate the 50th year of diplomatic ties next year
- During the visit of Chief Adviser to the UNGA (25 September 2024), the Chinese foreign minister Wang Yi indicated that China wants to invest in solar panels in Bangladesh and deepen trade and economic ties

- To achieve the targeted **40% of renewable energy-based** power generation by 2041, Bangladesh needs **USD 1.5 to 1.7 billion** annually, according to IEEFA
 - Overseas investment is considered a major source of financing
- Despite having specific instruments and facilities, **overseas investors** has confronted major challenges
 - Additionally, **financial markets** in Bangladesh are **still maturing**, leading to higher capital costs and risk premiums for investors
- It is evident that Bangladesh's **traditional fiscal and financial instruments** are likely to attract overseas investment **at limited scale**
- China, on the other hand, is the largest overseas investor in the renewable energy sector
 - It has invested about \$676 billion in clean energy in 2023, accounting for about 38 per cent of the global total
- Against this backdrop, **China's practices** of various fiscal and financial instruments in attracting investment at domestic and overseas markets, **could be good lessons** for Bangladesh
- This presentation highlights three specific issues:
 - To review the **political stance of the Interim government** and the **decision** taken on the power and energy sector and its **implications** on Chinese investment in the renewable energy sector
 - To analyse the **current fiscal and financial instruments** related to Bangladesh's renewable energy sector, identifying the opportunities, challenges, and gaps
 - To identify **best practices and lessons** learned from other countries, particularly from China, in fiscal and financial measurements in the renewable energy sector

2. Interim Government: Decisions Taken on the Power and Energy Sector

2.1 Interim Government: Decisions Taken on Power and Energy Sector

- Government has suspended the Quick Enhancement of Electricity and Energy Supply Act 2010 (Special Provision)
 - All negotiations, selections, and purchasing processes of all power-and energy projects halt (19 Aug 2024)
- Issued a gazette to abolish the Section 34(a) of "Bangladesh Energy Regulatory Commission (Amendment) Ordinance-2024"
 - The Interim Government has **bestowed BERC to determine the power to determine electricity price** (19 Aug 2024)
 - The Bangladesh Energy Regulatory Commission (**BERC**) will assume responsibility for setting jet fuel prices, a role previously managed by the Bangladesh Petroleum Corporation (BPC) (19 Sep 2024)
- The interim government also **intends to review the contract terms of some 100 power plants**, two FSRUs, and six long-term LNG import deals
 - The deals that were inked over the past 14 years under the special law (3 Sep 2024)
- The **data and documents** on the power plants will be **accessible to public** not only to project directors (18 Sep 2024)
- MoPEMR has **decided to cancel a total of 42 power plant projects** including 37 renewable based power plants (27 Aug 2024)

2.2 Recent Decision on Cancellation of Power Plants: Implications on Overseas Chinese Investment

- On August 27, 2024, the MoPEMR has **decided to cancel a total of 42 power plant projects** including 37 renewable based power plants
 - Among those projects, a total of 30 of projects were to be set up under joint ventures or under build-own-operate (BOO) initiatives by the investors of 15 different countries including the Chinese investors
- The decision of cancellation apparently provided a **mixed signal** to the investors about the interim government's long-term goal on clean energy
- The cancelled LoIs had been signed or were in the tendering process under the "Speedy Enhancement of Power and Energy Supply (Special) Act, 2010" during the immediate-past government
 - The Act allowed the previous regime to go for **unsolicited contractual arrangements** which were criticized in number of accounts including **higher contracted price** and **provision of capacity payment**
- To reduce the prevailing fiscal and financial burden, the interim government has **justifiably repealed** the Special Act for future public procurements of the MoPEMR as well as **contracts which are yet to enter** the construction phase
- It is decided that the public procurement in the coming days will be carried out under the **Public Procurement Act (PPA) 2006** and **PPA Rules 2008**
 - Procurement under this Act will allow open, transparent and **competitive purchase** for the power and energy sector

2.2 Recent Decision on Cancellation of Power Plants: Implications on Overseas Chinese Investment

Features of the Cancelled Power Plant Projects

- The cancelled projects have a proposed electricity generation capacity of **5,322.6 MW**
 - Of which **3,102.6 MW was** allocated to 37 renewable energy projects
- The 35 cancelled LOI based power plants offered 4,585 MW while the other 7 power plants under the tendering process have an offering of 737.6 MW of electricity
 - These projects were mostly offered overseas investment and finance from as many as 19 countries including China (Table 1)
- The cancelled **four China-financed power plants** could contribute to a total of 450 MW of electricity
 - All the plants are owned by Independent Power Producers (IPPs)

Table 1: Overview of the Cancelled Power Plants

Country of	Number	Cancellation Status		
Partnership	of Projects	Cancellation of LOI	Cancelled at the stage of requesting tender/piloting phase	
ADB	1	0	1	
China	4	4	0	
France & Norway	1	1	0	
Germany	1	1	0	
Hong Kong	2	1	1	
India	1	1	0	
Japan	1	1	0	
Malaysia	2*	2	0	
Saudi Arabia	2	1	1	
Singapore	7	7	0	
South Korea	2	2	0	
UK	2	2	0	
USA	2*	1	1	
Vietnam	1	1	0	
Bangladesh	13*	10	3	

Note: * indicates few fossil-fuel-based power plants in country's cancelled power plants. For example, Malaysia has 2, USA has 1 and Bangladesh had 2 fossil fuel-based power plants.

Source: BPDB Advancement of Power Sector, BWGED 1and Energy Transition Bangladesh

2.2 Recent Decision on Cancellation of Power Plants: Implications on Overseas Chinese Investment

- The financing structures for the plants differ: the Madarganj plant has a **70% ownership stake**, the Lama plant operates under joint venture, and the Ghoradhap and Gauripur plants have 100% ownership stakes (Table 2)
- The cancellation of these power plant projects is likely to have **different financial implications** for the Chinese investors and financiers

Power Plants	Fuel	Capacity (MW)	Ownership	Financing Stake
Madarganj, Jamalpur 100	Solar	100	IPP	70% ownership
MW Solar Power Plant				
Lama, Bandarban 70 MW	Solar	70	IPP	Joint Venture
Solar Power Plant				
Ghoradhap, Jamalpur	Solar	180	IPP	100% ownership
180 MW Solar Power				
Plant				
Gauripur, Mymensingh	Solar	100	IPP	100% ownership
100 MW Solar Power				
Plant				

Table 2: Overview of the Cancelled China-financed Power Plants

Source: BWGED and Energy Transition Bangladesh

Possible Future Options for Chinese Investors and Financers in the Renewable Energy Sector

- Since the interim government has decided to go for **open and competitive tendering process** for new power plants, this would give number of **opportunities for the Chinese investors** and financiers
 - At the same time, the MoPEMR is expected to get better deal vis-à-vis those cancelled deals
- First, the BPDB is now preparing to issue tenders for the development of **10 grid-connected solar power plants** in the private sector, each with a capacity of 50 MW, totaling 500 MW
 - Chinese investors now have a particularly **good opportunity to invest**, as they are known to offer more competitive prices than other foreign/local investors
- Second, the government may **float tenders** for new power plant projects under **'reverse auction'** method.
 - The 37 renewable energy-based power plant projects including the four Chinese investment-based power plant projects could submit their proposal for 'reverse auction'

3. Overview of Investment and Financing in the Renewable Energy

3. Investment and Financing in the Renewable Energy Sector

3.1 Ownership Structure of Powerplants in Operation

- Bangladesh's overall power generation based on renewable energy is 1374MWp
 - About **39.1 per cent of this power** is generated by solar-based on-grid power plants (537 MWp)
 - 4.4 per cent is generated by wind-based power plants (60.9 MWp)
 - 14.6 per cent by hydropower (200MWp)
 - The remaining 41.9 per cent is generated by off-grid solar home system (576 MWp)
- **Private sector** generates the highest share of this renewable energy base power (**61.6 per cent**), followed by the **public sector (21.2 per cent**) and by the **joint venture** (**17.1 per cent**)

that are Completed and Running Total generation Ownership No. of plants capacity (MWp) Public 91 4 Private 6 211 Joint venture 2 235 Total 12 537

Table 3: Solar based On-grid Power Plants

Table 4: Wind based On-grid Power Plants that are Completed
and Running

Ownership	No. of plants	Total generation capacity (MWp)	Completed and running plants
Public	4	112.9	0.9
Private	3	215	60
Joint venture	1	30	n.a.
Not classified	4	275	n.a.
Total	12	632.9	60.9

Source: Based on the database available at: www.changeinitiaitves.bd

3. Investment and Financing in the Renewable Energy Sector

3.2 Renewable Energy Financing

- A total of **USD 9.5 billion worth** of investment/financing has been made in **11 solar energy-based** power plants to generate 537 MWp of electricity
 - The largest share of finance is loans (91.7 per cent) followed by bridge loan (0.27 per cent), concessional loan (0.16 per cent), equity (1.62 per cent), green bond (3.12 per cent), non-concessional loan (1.1 per cent) and syndicated term loan (2.04 per cent)
- **Public entities receive more** investment than private ones, even though private companies own more solar plants
 - Public entities typically benefit from significant government prioritisation, access to international aid, and concessional loans
- Public sector projects often **attract more investment**
 - Due to the perceived **lower risk** associated with government guarantees, and economies of scale that make large-scale projects more financially viable
 - Additionally, private entities mostly focus on **smallerscale projects** with more limited access to capital and higher perceived risks

Table 5: Finance in Solar-based On-Grid Power
Plants Currently Running (mil. USD)

Sources	Public (mil. USD)	Private (mil. USD)	Joint Venture (mil. USD)	Total (mil. USD)
Government funded	n.a.	n.a.	n.a.	n.a.
Bridge loan	n.a.	25.8	n.a.	25.8
Concessional loan	15	n.a.	n.a.	15
Equity	n.a.	155.5	n.a.	155.5
Green Bond	n.a.	n.a.	300	300
Loan	8,766	31.5	n.a.	8797.5
Non-concessional loan	103	n.a.	n.a.	103
Syndicated term loan	n.a.	196	n.a.	196
Total (mil. USD)	8884	408.8	300	9592.8

Source: Based on the database available at: <u>www.changeinitiaitves.bd</u>

3. Investment and Financing in the Renewable Energy Sector

3.3 Overseas Investment in the Renewable Energy

- The cumulative investment in Bangladesh's energy sector from 2010 to 2022 totaled about **USD 39 billion**
 - Out of which about **USD 1 billion** was invested in renewable energy projects between 2016 and 2021
- According to data from the American Enterprise Institute (2024), from 2010 to 2023, Bangladesh received USD 12.3 billion in investment from China in its power and energy sector
 - Of these, 51.7% were invested in coal-based projects, 9.4 % in gas-based projects, 8.1 % in oil-based power plants, and 4.8% in alternative sources projects
- **SoEs** of China were found to be the leading investors for Bangladesh's energy sector over the years
 - Only 6.8% of the investment came from private investors
 - Bangladesh must find a way to attract more private company-led investments alongwith receiving investments from Chinese SoEs



Cate	gory	Bangladesh's Energy Sector		
		Sum (USD mil)	Share (%)	
	Machinery	3200	26.0	
Subsector	Alternative (RE)	590	4.8	
wise	Coal	6360	51.7	
	Gas	1150	9.4	
	Oil	990	8.1	
Ownership	Both (Joint investment)	1500	12.2	
wise	Private	830	6.8	
	SoE	9960	81.0	

Source: Based on the database available at: <u>www.changeinitiaitves.bd</u>

4.1 Bangladesh Bank Refinancing Schemes

There are 3 primary schemes of Bangladesh Bank

A. Green Transformation Fund (GTF)

- Initially launched at **\$200 million**, the fund has recently been expanded to **€200 million-** this brings ٠ the total allocation to approximately \$418.7 million
 - To finance green and sustainable projects across various sectors, including manufacturing and exportoriented industries
 - The GTF provides long-term financing options, ranging from 5 to 10 years, for importing green and energy-efficient machinery, including those related to renewable energy
 - The fund offers loans at favourable terms, such as the Euro Interbank Offered Rate (EURIBOR) plus 1% for loans denominated in euros

B. Technology Development Fund (TDF)

- The fund is valued at Tk 1,000 crore (approximately \$118 million), established in line with the • Export Policy 2018-2021
 - The TDF's primary aim is to enhance these industries' competitive capacity and sustainability ٠ by providing **refinance** schemes for technological upgrades
 - The fund offers loans at competitive interest rates ranging from 5% to 6%, with terms of 3 to 10 ٠ years
 - The loans can be used to **modernize and upgrade technologies** and improve workplace • environments 18

4.1 Bangladesh Bank Refinancing Schemes (Contd.)

C. Financing in Green Products and Initiatives

- As of the latest data, the total amount allocated to green finance during the fiscal year 2023 was BDT 126.41 billion by banks and BDT 23.58 billion by non-bank financial institutions (NBFIs), accounting for **5.84%** of the total term loan disbursements
 - By June 30, 2023, Bangladesh Bank has **disbursed USD 140.9 million** and EUR 71.2 million across several projects, alongside BDT 1778 million to local currency projects

Interest Rate and Loan Mandates

- Under Bangladesh Bank's guidance, commercial banks provide loans and bonds for green and sustainable projects at an interest rate of **5%**, with repayment terms ranging from **5 to 7 years**
 - It mandates that each commercial bank allocates 15% of its total annual outstanding loans to sustainable projects and **2% to green projects**

Green Loans

- Bangladesh Bank has made it mandatory for banks and other financial institutions to dedicate 2% of all loans to renewable energy facilities and green projects
 - These loans must be exclusively used for projects that meet green criteria, contributing to environmental objectives such as reducing greenhouse gas emissions, conserving biodiversity, or improving energy efficiency
 - Loan agreements must include provisions for **monitoring and reporting** on the use of funds
 - Projects must demonstrate a positive **environmental impact** and avoid causing harm to the environment

4.1 Bangladesh Bank Refinancing Schemes (Contd.) Green Bonds

- Green bonds are fixed-income instruments earmarked for climate and environmental projects
 - **Issued by corporations**, financial institutions, municipalities, or governments, these bonds support sustainability initiatives
 - The funds raised must finance or refinance eligible **green projects**, contributing to objectives such as climate change mitigation, adaptation, sustainable water and marine resource protection, circular economy transition, waste prevention and recycling, pollution control, and biodiversity restoration
 - Green bonds require **certification or verification** from accredited third-party organisations to ensure adherence to environmental standards, providing transparency and credibility
 - Issuers must **regularly report** on the use of proceeds and the environmental impact of funded projects, allowing investors and stakeholders to assess their effectiveness
 - Green bonds should comply with recognised standards, such as the **Climate Bonds Initiative (CBI) standard**, ensuring they meet international best practices
 - Issuers are required to monitor and **assess the environmental impact** of projects over time, evaluating their contribution to sustainability goals and compliance with standards

4.2 Development Loans and Grants

- The International Development Association (**IDA**) has committed around **\$40 billion**, including \$524 million for renewable energy
 - Key global and regional financial institutions like the **ADB**, **World Bank**, and others are involved in a collaborative **\$320 million climate finance initiative**
- European Investment Bank (EIB) and the European Union have committed €395 million to support the installation of approximately 750 MW of renewable energy capacity in Bangladesh
 - This funding includes a **€350 million framework loan** and a **€**45 million grant for technical assistance and concessional lending tools
- In addition, the International Finance Corporation (**IFC**) is investing \$15 million in the Southeast Asia Clean Energy Fund II, which focuses on early-stage and growth-stage investments in renewable energy projects across Southeast Asia, including Bangladesh
 - This fund combines **public, private, and philanthropic capital** to support utilityscale solar, wind, and energy storage projects
- Under the **Bangladesh-German** Development Cooperation Negotiations 2024, Germany has offered €232.5 million (equivalent to over Tk2,700 crore) in assistance, according to Economic Relations Division (ERD) officials

5.1 Tax Holiday

- In Bangladesh, power generation companies, except those using coal, that reach their Commercial Operation Date (COD) between **January 1**, **2023**, **and June 30**, **2024**, will benefit from a **full income tax exemption** until **June 30**, **2036**
 - But only on income derived from their power generation activities
- Companies achieving their COD between July 1, 2024, and June 30, 2025, will receive a tax exemption of **100% for the first five years**, 50% for the next three years, and 25% for the following two years
 - Additionally, **foreign employees** of these companies are granted a three-year income tax exemption starting from their arrival in Bangladesh
 - There's also an investment requirement where **30% of the tax-exempt income** must be **reinvested** in the same or a new industry, with an additional obligation to invest 10% profit annually in purchasing shares of listed companies in Bangladesh
- However, the additional requirements to reinvest tax-exempt income and purchase shares in listed companies can **add complexity and potentially deter** foreign investors

5.2 VAT and Duty Exemptions

- Renewable **energy devices** such as solar cells, solar water heater kits, solar collectors, and photovoltaic solar panels (excluding solar inverters, which attract a **37% VAT**) benefit from an **18% VAT exemption**
- Solar power sets used by **EPZ industries** are exempt from import duty, whereas other equipment and panels incur a **25–26.20% duty**
 - Export-oriented industries outside the EPZs face a **minimal customs duty of 1%**
- Additionally, investors are **exempted from capital gains** tax when they transfer company shares
- In Bangladesh, **electricity supply** is exempt from VAT according to a Statutory Regulatory Order (SRO), eliminating the need for separate approval
- While Bangladesh provides VAT exemptions and import duty relief for renewable energy investments, these incentives are often accompanied by **complex eligibility criteria** and procedural requirements that can be burdensome for investors
- The **variability in VAT and duty rates**, particularly the lack of exemption for critical components like solar inverters, also **presents a gap** compared to China's more holistic and consistent approach
- Furthermore, the exemptions in Bangladesh are often **tied to specific conditions**, such as the requirement to operate within EPZs, which limits their applicability

5.3 Reduction on Custom Duties

- **Parts and machinery** related to power production from renewable energy sources are often exempted from **customs duties**; some even have zero duty
- **Photovoltaic cells and solar-powered** lanterns or lamps that do not require electrical power are entirely exempt from customs duties
 - Moreover, **complete photovoltaic systems** and wind power generators enjoy a highly favourable duty of **only 1 per cent**, significantly lower than typical rates
 - Solar water heaters with insulated storage tanks benefit from a lower duty rate of 10%
- The **inconsistency in duty rates** and the **selective nature** of exemptions can **create uncertainty** for Chinese investors who might prefer China's more comprehensive and predictable incentives

5.4 Net Metering Policy

- The **net metering policy** in Bangladesh is outlined in the Net Metering Guidelines 2018, which was **submitted to SREDA**
- This policy enables **residential users to install** up to 25 kWp solar systems and commercial users up to 300 kWp
- The policy stipulates **varied tariffs for excess solar energy** fed back into the grid by different distributors, ranging from 4.3679 to 6.4531 BDT/kWh
- This variation in tariff rates reflects the diverse operational and cost structures of the distribution companies within the country
- Currently, there are **1941 net metering systems** equivalent to **84.592 MW** (SREDA, 2024)
- However, while fostering self-sufficiency, the capacity limits set for residential and commercial users may not fully exploit the potential of larger-scale installations that could contribute more significantly to the national grid

5.5 Feed-in Tariff

- Solar projects are **incentivised at USD 0.10 per kWh** and the inaugural onshore windmill at **USD 0.12 per kWh**
- BPDB commits to purchasing power from these projects at these fixed rates for around 20 years
- In 2023, the **government-sanctioned FiTs for three solar projects** totalling 370 MW, including a notable 200 MW facility in Dinajpur, a 100 MW project in Feni, and a 70 MW plant in Bandarban, each with specified tariffs to ensure steady revenue for the project lifespan
- However, the government has **yet to offer long-term**, **competitive tariffs** that provide stable and predictable revenue streams for renewable energy producers irrespective of all the projects
- These tariffs are also **not periodically adjusted to reflect market** and technological changes, reducing financial risks for investors like the case of China

6. Challenges and Risks Confronted by Overseas Investors

6. Challenges and Risks for Overseas Investment

6.1 Risks for the Overseas Investors

Table 7: Risks of the investors and companies

Risk Category	Risks
Currency Risk	 Mismatches between foreign currency debt/equity and domestic revenues Local currency volatility
Permit Risk	 Bureaucratic hurdles Lack of transparency Land acquisition issues
Financing Risk	Difficulties in securing affordable and adequate funding for RE projects
Market Risk	 Risks related to land acquisition Power market risks Broader market, financial, and regulatory uncertainties
Social Acceptance Risk	• Lack of awareness and resistance to RE projects
Hardware Risk	 Quality and availability of utility-scale hardware Local content requirements Inefficient customs procedures
Labor Market Risk	 Shortage of skilled labour Non-competitive labour market structure
Developer-Related Risk	 Management and execution capabilities of Independent Power Producers Poor management concerns
Grid and Transmission Risk	• Limitations in grid management and infrastructure capacities

6. Challenges and Risks for Overseas Investment

6.2 Challenges faced by the Overseas Investors

 Table 8: Major Challenges from an Overseas Investment point of view

Category	Variable	Ch	allenges
Institutional	Administrative Delays	•	Lengthy authorisation procedures
Environment		•	Significant expenses for Environmental Impact
			Assessments (EIAs)
		•	Customs delays
	Corruption in Project	•	Lack of competitive bidding
	Allocation	•	Projects are often allocated through direct
			negotiations
		•	Risks and delays in project completion
	Inconsistency of Rules and	•	Regulatory framework inconsistency
	Processes	•	Multiple approvals are needed for EIA reports,
			causing extra costs and delays
	Lack of Priority Access to the	•	National grid's limited capability to absorb and
	Grid		dispatch renewable energy
		•	Peak power output access issues
	Development Plan and	•	Existing laws need revision and congruency
	Renewable Target	•	Demand for a unique policy for investors and
			companies

Source: Authors' compilation from KIIs

6. Challenges and Risks for Overseas Investment

6.2 Challenges faced by the Overseas Investors

Category	Variable	Challenges
Macroeconomic Environment	Absence of Fixed Exchange Rate	 Exposure to exchange rate fluctuations Financial viability concerns
	Access to Local Finance	 High costs of local finance Limited venture capital and bond market Bureaucratic hurdles and high financing costs
	Lack of Skilled Labor	 Inadequate sector knowledge among professionals High training costs and time lost
Natural Condition	Availability of Land	Prolonged negotiations with landowners

Table 8 (Contd.): Major Challenges from an Overseas Investment point of view

Source: Authors' compilation from KIIs

7. Financial-Fiscal Tools & Supportive Policy Environment: Bangladesh, China and Other Countries

7.1 Fiscal-Financial Initiatives of Selected Countries

- India provides tax incentives and subsidies for solar and wind energy projects
 - It offers viability gap funding and concessional loans for transmission infrastructure
 - Renewable Purchase Obligations (**RPO**), feed-in tariffs (**FiT**), and **performance-based incentives** support for distributed generation
- Vietnam grants tax exemptions and attractive feed-in tariffs for all the renewable energy projects
 - They have specific policies to **enhance grid stability** and provide incentives for rooftop solar installations
- The **UK** offers Contracts for Difference (**CfD**), **tax reliefs**, and grants for renewable energy generation
 - Investments are made in smart grid technologies and upgrading transmission networks, with financial support from The Office of Gas and Electricity Markets (**Ofgem**)
 - The UK supports community energy projects and offers subsidies for energy storage systems
- The **USA** provides federal tax incentives and state-level grants for renewable energy generation
 - Federal funding and Federal Energy Regulatory Commission (FERC) incentives support improvements in transmission infrastructure
 - State policies and financial incentives promote distributed energy resources like rooftop solar and energy storage
- Africa provides tax holidays, duty exemptions, and feed-in tariffs for renewable energy generation
- In **China**, along with from **FiTs and subsidies**, **Preferential tax** policies and **green bonds** fund large-scale renewable energy developments
 - Government funds support transmission infrastructure and **smart grid technologies** for renewable energy integration
 - Financial assistance and incentives are provided for **rooftop solar**, **small-scale wind projects**, and energy storage integration

7.1 Fiscal-Financial Initiatives of Selected Countries

Table 9: Fiscal and Financial Initiatives of Some Successful Regions

Region	Category	Initiatives
India	Generation	Tax incentives (accelerated depreciation, reduced corporate tax rates); Subsidies for solar and wind energy projects
	Transmission	Viability gap funding for transmission infrastructure; Concessional loans for grid connectivity
	Distribution	Renewable Purchase Obligations (RPOs); Feed-in tariffs; Performance-based incentives for distributed generation
Vietnam	Generation	Tax exemptions and reductions; Preferential import duties on renewable energy equipment; Attractive feed-in tariffs (FiTs) for solar and wind projects
	Transmission	Grid expansion and modernisation support; Financial support from international development banks; Concessional financing
	Distribution	Policies to improve grid stability and reliability; Incentives for rooftop solar installations
UK	Generation	Contracts for Difference (CfD); Tax reliefs and grants
	Transmission	Investment in smart grid technologies; Upgrading transmission networks; Financial incentives from Ofgem for grid enhancements
	Distribution	Support for community energy projects; Subsidies for energy storage systems

Source: Authors' findings

7.1 Fiscal-Financial Initiatives of Selected Countries

Table 9 (Contd.): Fiscal and Financial Initiatives of Some Successful Regions

Region	Category	Initiatives
USA	Generation	Federal tax incentives (Investment Tax Credit, Production Tax Credit); State-level incentives and grants
	Transmission	Federal funding for transmission infrastructure improvements; FERC incentives for transmission projects
	Distribution	State policies (net metering, renewable portfolio standards); Financial incentives for distributed energy resources (rooftop solar, energy storage)
Africa	Generation	Tax holidays and import duty exemptions; Feed-in tariffs; Grants and concessional loans from international financial institutions
	Transmission	Support from multilateral development banks and international donors; African Development Bank's New Deal on Energy for Africa initiative
	Distribution	Financial assistance programs for expanding electricity access; Local incentives for mini-grids and off-grid renewable energy solutions in rural areas
China	Generation	• FiT; National subsidies for wind, solar, and biomass energy projects; Preferential tax policies for renewable energy companies; Green bonds to fund large-scale renewable energy developments
	Transmission	Central and local government funding for the expansion of transmission infrastructure to support renewable energy; National investments in smart grid technologies to integrate renewable energy sources; Financial support for grid upgrades
	Distribution	Incentives for rooftop solar and small-scale wind projects; Policies to promote energy storage integration; Differential pricing mechanisms to support distributed renewable energy generation

7.2.1 Tax Incentives

- China's tax incentives are more **stable and long-term**, providing greater security for investors
- China offers extensive **tax exemptions and reductions** not only for renewable energy projects but also for the entire supply chain, including the production and sale of renewable energy
- These measures are complemented by **subsidies**, such as feed-in tariffs, which guarantee a fixed return on investment over a prolonged period, thereby reducing financial risks for investors

Feature	Bangladesh	China
Income Tax Exemptions	Time-bound, progressively decreasing	Long-term, stable
VAT Exemptions	Selected renewable energy devices	Comprehensive, across supply chain
Additional Requirements	Reinvestment in industry, purchase of shares	No additional requirements
Subsidies	Limited, project-specific	Extensive, including FiTs

Table 10: Comparison between the features of tax incentives

Source: Authors' findings

7.2.2 Financial Tools of National Bank

- In recent years, China has made substantial strides in renewable energy development. By 2023, the country saw an 85% increase in solar PV and a 60% increase in wind energy capacity
- The National Development Bank (NDB) has been crucial in financing this expansion
- The bank plans to **increase its loan book** by approximately \$1.2 billion annually, focusing on sustainable projects that support the **BRICS nations' renewable energy goals**
- As of recent reports, the **NDB** has allocated \$911 million specifically for clean energy initiatives
 - This financial support is pivotal as China aims to account for nearly 60% of the new renewable capacity expected globally by 2028

Tool	Bangladesh	China							
Green Financing	GTF, TDF, limited scope	Extensive use of PPPs, green							
		bonds, NDB loans							
Interest Rates and	Varying, mandatory	Low-interest, stable long-							
Mandates	allocation for green projects	term financing							
Accessibility	Complex eligibility, limited	Broad access, including for							
	foreign access	foreign investors							

Table 11: Comparison between the financial tools

Source: Authors' findings

7.2.3 Tax Holidays and Exemptions

- China's tax incentives are straightforward with **fewer conditions attached**, making it easier for investors to benefit
- Exemptions and reductions apply to **various stages of renewable energy projects**, including production, sale, and even import of critical components in China

Feature	Bangladesh	China						
Duration	Time-bound, progressively decreasing	Long-term, stable						
Reinvestment	Mandatory reinvestment of tax-exempt	No additional reinvestment						
Requirements	income	requirements						
Scope	Limited to new projects	Comprehensive, covers entire supply chain						
Complexity	Complex conditions and procedures	Simplified, fewer conditions						

Table 12: Comparative Overview of Tax Holidays and Exemptions

7.2.4 VAT and Import Duty Exemptions

- In China, the approach to VAT and import duties is **more consistent and supportive**, with comprehensive exemptions that cover a broader range of renewable energy components, including critical items like solar inverters and wind turbines
- **Import duties** on these components are **minimized**, significantly reducing the cost of importing necessary technology
- Additionally, the criteria for receiving these **exemptions** are **simplified**, making them more accessible to a wider range of projects

Feature	Bangladesh	China						
VAT Exemptions	Limited, not covering all	Broad, including critical						
	components	components						
Import Duties	Varying rates, some high	Minimal, consistent across key						
		components						
Conditionality	Tied to specific conditions (e.g.,	Fewer conditions, more						
	EPZs)	straightforward						

Table 13: Comparative Overview of VAT and Import Duty Exemptions

Source: Authors' findings

7.2.5 Feed-in Tariffs (FiTs)

- In China, **FiTs** are designed to be **attractive**, with regular adjustments to reflect market conditions, ensuring ongoing competitiveness
- The long-term commitment to **purchase power at fixed rates** provides a secure and predictable revenue stream for investors

Feature	Bangladesh	China							
Coverage	Limited, mainly solar	Broad, including wind, solar, biomass							
Tariff Rates	Fixed but not always competitive	Competitive, regularly adjusted							
Long-Term Commitment	20 years, primarily for solar	Stable, long-term across various sources							

Table 14: Comparative Overview of Feed-in Tariffs

7.2.6 Green Bonds

- China has developed a robust regulatory framework for green bonds, with clear guidelines for issuance, certification, and monitoring
- The People's Bank of China (PBOC) and the National Development and Reform Commission (NDRC) play critical roles in regulating and promoting the market
- The Chinese government provides various incentives to encourage the **issuance and investment in green bonds**, including tax benefits, subsidies, and favorable regulatory conditions
- China has **aligned its green bond market with international standards**, such as the Green Bond Principles (GBP) issued by the International Capital Market Association (ICMA)
 - This alignment has attracted foreign investors and enhanced the credibility of Chinese green bonds

Table 15: Comparative Overview of Green Bond Market

Feature	Bangladesh	China						
Regulatory	Limited and	Comprehensive and						
Framework	underdeveloped	well-established						
Market	Low awareness,	High awareness,						
Awareness and	limited	broad participation						
Participation	participation							
Issuance Volume	Minimal, mostly	Large, significant						
	government-backed	public and private						
		sector involvement						
Incentives for	Few incentives	Strong incentives,						
Issuers and	available	including tax						
Investors		benefits and						
		subsidies						
Alignment with	Limited alignment	Aligned with global						
International		standards (e.g.,						
Standards		GBP)						
Government	Moderate support,	Strong support,						
Support	mainly through	including financial						
	policies	incentives						

Source: Authors' findings

7.2.7 Build-Operate-Own-Transfer (BOOT)

- The Build-Operate-Own-Transfer (**BOOT**) model is a form of **public-private partnership that** has been applied in various sectors globally, including infrastructure and energy
 - However, this **model does not exist** in any industrial or business sector of **Bangladesh**
- In the **BOOT model**, a private entity—a developer or a consortium—is granted the right to **finance**, **design**, **construct**, **and operate** a renewable energy facility for a predetermined period
 - During this period, the **private entity owns** the project and is responsible for all **operational risks** and costs
 - The revenue generated from the sale of electricity or other energy produced serves as the return on investment
 - After the agreed period, ownership of the project is transferred back to the public sector, typically at no cost
- It **effectively allocates operational risks** to the private sector while allowing the public sector to focus on providing stable regulatory environments
 - This **risk management** leads to enhanced efficiency and potential innovations due to the involvement of private entities that bring advanced technologies and professional management practices
- Moreover, the BOOT model is **financially advantageous** for public projects as it leverages private capital without immediate public expenditure, easing government fiscal burdens
 - These benefits contribute to **higher quality standards** and potentially faster deployment of renewable energy projects

7.2.8 Accelerated Depreciation

- Accelerated Depreciation is a tax incentive mechanism which is absent in Bangladesh
- It allows **businesses to depreciate** or deduct the cost of an asset faster than the standard schedule, thus providing immediate tax benefits by reducing taxable income in the early years of the asset's life
- Instead of spreading out **depreciation evenly over the lifespan** of a renewable energy asset, such as solar panels or wind turbines, **companies can front-load** these deductions in the initial years
- **By reducing the tax burden** in the early years, companies can free up capital for reinvestment or expansion, enhancing cash flow when projects are most capital-intensive
- In China, **accelerated depreciation** allows for the cost of wind and solar power assets to be deducted more quickly, typically over **a five-year period**, thus lowering the taxable base for these projects

7.2.9 Public-Private Partnerships (PPPs)

- The structure of PPPs typically **involves private companies** providing funding and technical expertise, while the government contributes by offering subsidies, tax incentives, and favourable regulatory treatments
- These partnerships are often structured **under long-term contracts** where risks and rewards are shared between the public sector and private investors
- One of the key benefits of PPPs in China's renewable energy sector is the **innovation potential** since private companies often bring cutting-edge technologies and efficient management practices to projects, which can lead to more sustainable and cost-effective renewable energy outputs
 - Moreover, PPPs can accelerate renewable energy projects' construction and operational phases
- **Policy certainty** is a key issue in financing clean energy PPPs
- The State Council's reform policy in 2013, which allowed the **electricity price to be set for 25 years**, improved policy certainty in China

7.2.10 Preferential Loans

- **China's policy banks**, such as the Export-Import Bank of China (Exim Bank), have been instrumental **in providing preferential loans** to renewable energy projects
- These loans often have **lower interest rates**, longer repayment periods, and more flexible terms compared to market-based loans, making it easier and **less costly for developers** to finance renewable energy projects
- In 2023, the **CDB** alone provided over **\$30 billion in preferential loans** specifically targeted at renewable energy projects
 - This funding supported a range of initiatives, from large-scale solar farms in desert areas to offshore wind projects along the coastal regions
- The Three Gorges New Energy project, one of the largest solar farms in the world, received substantial financing from the CDB which is expected to add 10 GW of solar capacity, significantly contributing to China's renewable energy goals
- Another example is the Longyuan **Wind Power Group**, which has received **preferential loans** to expand its wind energy capacity which has enabled the company to develop wind farms with a combined capacity of over 5 GW

7.2.11 Carbon Trading and Renewable Energy Certificates (RECs)

- Launched in July 2021, China's national **Emissions Trading System (ETS)** is the world's largest carbon market, covering approximately 2,200 power plants and accounting for about 4.5 billion tons of CO2 emissions annually
- This system **incentivizes reductions in greenhouse gas** emissions by putting a price on carbon, making renewable energy projects more economically attractive compared to fossil fuels
- By setting a carbon price, the ETS **encourages companies to invest in cleaner energy** alternatives like wind, solar, and hydroelectric power, helping to bridge the cost gap between renewables and traditional energy sources
 - As of 2023, the average carbon price in China's ETS was around 40 yuan (\$6.20) per ton of CO2, with trading volumes reaching over 179 million tons of CO2 and a market value exceeding 7.1 billion yuan (\$1.1 billion)
- Complementing the ETS, China launched its REC market in July 2017
- The **REC system allows** renewable energy generators **to sell certificates** representing the renewable electricity they produce, separate from the physical electricity
- This market-based mechanism has grown significantly, with over 20 million RECs issued by the end of 2023
- By 2023, REC revenues had supported the deployment of over 5 GW of solar PV projects and an additional 4 GW of wind energy capacity

- Approximately **\$39.74 billion in global funds** are available for renewable energy investment in Bangladesh
 - These funds can be accessed in the form of loans, equity, technical assistance, and **financial aid** (Table 16)
- Chinese investors prefer using funds from Chinese financial institutions, like the Belt and Road Initiative (BRI), due to better terms
 - Key Chinese financing sources include the China Development Bank (CDB), AIIB, Exim Bank of China and Silk Road Fund
- Chinese investors generally **do not engage in the planning phase** of renewable energy projects
 - They **prefer local private firms** or the government in Bangladesh to plan projects and then bid for investment and equipment supply
- If Chinese companies are involved, local Bangladeshi investors can apply for financing from **Chinese institutions**
- Chinese investors prefer quick ownership transfer, while the Bangladesh government favors long-term transfer, causing a mismatch in preferences
 - To attract Chinese investment, Bangladesh needs to improve its transmission system quickly
 - The short-term Build-Operate-Transfer (**BOT**) model could help improve transmission and • meet investor expectations 48

Potential Sources for Financing

- 1. ASEAN Infrastructure Fund
- 2. BioCarbon Fund
- 3. Canada Climate Change Program
- 4. Canadian Climate Fund for the Private Sector in Asia
- 5. Carbon Initiative for Development
- 6. Clean Technology Fund
- 7. Climate Catalyst Fund
- 8. Climate Finance Innovation Facility
- 9. Climate Public Private Partnership
- 10. Climate Technology Initiative Private Financing
- 11. ADB Carbon Market Initiative
- 12. Danish Climate Investment Fund
- 13. DEG Deutsche Investitions- Fund
- 14. EIB Climate Change Technical Assistance Facility
- 15. EIB-KfW Carbon Programme II
- 16. End-User Finance for Access to Clean Energy Technologies in South and South-East Asia
- 17. FMO Entrepreneurial Bank
- 18. ADB Clean Energy Financing Partnership Facility
- 19. Fund Solutions for Climate Finance
- 20. GEF Trust Fund Climate Change focal area
- 21. Global Climate Change Alliance+
- 22. Global Energy Efficiency and Renewable Energy Fund
- 23. Global Facility for Disaster Reduction and Recovery

- 24. ADB Climate Change Fund
- 25. Green Climate Fund
- 26. IFC Partial Credit Guarantees
- 27. IRENA / Abu Dhabi Fund for Development
- 28. Japan's Fast Start Finance
- 29. KfW Development & Climate Finance
- 30. Korea Green Growth Trust Fund
- 31. Least Developed Countries Fund
- 32. MDB Pilot Program for Climate Resilience
- 33. Multilateral Carbon Credit Fund
- 34. Nationally Appropriate Mitigation Action facility (UK and Germany)
- 35. Nordic Climate Facility
- 36. Pilot Program for Climate Resilience
- 37. Public-Private Infrastructure Advisory Facility
- 38. Renewable Energy and Energy Efficiency Partnership
- 39. Scaling-Up Renewable Energy Program for Low-Income Countries
- 40. Seed Capital Assistance Facility
- 41. Special Climate Change Fund
- 42. UNFCCC Adaptation Fund
- 43. World Bank Carbon Funds and Facilities
- 44. World Bank Group Catastrophic Risk Management

China-based Financing Institutes for Chinese Overseas Investment

- China Development Bank (CDB)
- Asian Infrastructure Investment Bank (AIIB)
- Export-Import Bank of China (Exim Bank of China)
- Agricultural Development Bank of China
- Industrial and Commercial Bank of China
- Bank of China
- Silk Road Fund
- China Construction Bank
- New Development Bank (NDB)
- China Export and Credit Insurance Corporation

Bangladesh-based Financing Opportunities for Investment

Bangladesh Bank Refinancing Schemes

- Green Transformation Fund (GTF)
- Technology Development Fund (TDF)
- Financing in Green Products and Initiatives
- Green Loans
- Green Bonds

Development Loans and Grants

- International Development Association (IDA)
- Asian Development Bank (ADB)
- World Bank
- European Investment Bank (EIB)
- European Union
- International Finance Corporation (IFC)
- German Development Cooperation

Available Financial Instruments

- Co-financing
- Technical assistance
- Loan
- Concessional loan
- Results based payments
- Financial Aid
- Equity
- Carbon finance
- Forward purchase or advance payment for the contract value of carbon certificates
- Results Sharing Facility
- Weather hedges Contingent financing (Cat DDO) Catastrophe bonds
- Mezzanine financing
- Financial Incentives
- Guarantee
- Mezzanine Debt
- Loan guarantee
- Structured financing
- Grant funding
- ODA

Table 16 Available global funds for which Bangladesh is eligible for investment in its renewable energy sector (1)

	Co- financ	Technic al assistan	Loan	Conce ssiona	Results based payment	Finan cial	Equity	Carbon finance	Forward purchase or advance payment for the contract value of	Results Sharing	Weather hedges Contingent financing (Cat DDO)	Mezzani ne financin	Financi al Incentiv	Guar antee	Mezza nine	Loan guaran	Structur ed financin	Gran t fundi	ODA
	ing	ce		Tioan	S	Aid			carbon certificates	Facility	Catastrophe bonds	g	es		Debt	tee	g	ng	
ASEAN Infrastructure	_	_																	
Fund											1								
BioCarbon Fund		\checkmark																	
Canada Climate Change		r	,				<i>r</i>												
Program																		7	
Canadian Climate Fund																		\checkmark	
for the Private Sector in				r															
Asia				\checkmark															
Carbon Initiative for					,														
Development			ſ		V													7	
Clean Technology Fund			V				[V	
Climate Catalyst Fund							V												
Unnavertien Escility		.[. [
Climato Public Privato		V						V										2	
Dartnorshin			1				1											v	
ADB Carbon Market			V				v												
Initiative																			
Danish Climate	v	v						v											
Investment Fund																			
DEG - Deutsche	•	•					•												
Investitions- Fund																			
Entwicklungsgesellschaft																			
mbH																			
EIB Climate Change																			
Technical Assistance																			
Facility																			

9. Recommendations for Attracting Chinese Overseas Investment

A. Opportunities for Chinese Investors in view of Cancellation of Power Plants *Immediate Actions*

- Since the interim government has **decided to go for open and competitive tendering** process for new power plants, this would give number of opportunities for the Chinese investors and financiers
 - BPDB's newly floated **10 grid-connected solar power** plants for the private sector could be a good test case

Long-term Actions

- Government may float tenders for new power plant projects under **'reverse auction'** method.
 - The **37 renewable energy-based power plant** projects including the Chinese investment-based power plant projects could submit their proposal for 'reverse auction'

B. Financial Strategies and Currency Risk Management *Immediate Actions*

- To address **currency risks**, the Bangladesh government should establish a fund offering hedging products, subsidized currency swaps, and **partial guarantees** for foreign exchange losses
 - This would immediately provide a **safety net for Chinese investors** concerned about currency fluctuations
 - Local banks should be encouraged to offer credit in Taka and incentivize foreign investors to use Taka-denominated bonds, reducing reliance on foreign currency debt

Long-term Actions

- Establishing **bilateral currency swap** agreements with key partners will help stabilize local currency liquidity and reduce foreign currency risks over time for Bangladesh
 - Bangladesh can develop a foreign exchange stabilization fund and promote local currency financing, following China's example of RMB-denominated investments
 - **State-backed institutions can offer hedging** instruments, such as forward contracts and swaps, to provide long-term exchange rate stability

C. Market Risk and Revenue Certainty

Immediate Actions

- To provide revenue certainty and reduce market risks, the government should offer long-term PPAs with fixed tariffs to ensure predictable returns for investors
 - A **stabilization fund** must be created to compensate investors for revenue losses due to unexpected regulatory changes or market fluctuations

Long-term Actions

• **Public-Private partnerships** with **government-backed financial guarantees** must be promoted to further enhance investor confidence in the long term

D. Labor Market Development *Immediate Actions*

• **Collaboration with Chinese educational institutions** to set up specialized training institutes and vocational programs to quickly upskill the local workforce can be made

Long-term Actions

• Implementation of **labor mobility programs** to distribute skilled labor where needed, and foreign companies could be incentivized to **establish local training centers** and partner with local firms to improve competitiveness over time

E. Access to Local Finance and Green Investment *Immediate Actions*

• Bangladesh Bank and **local private banks** should establish **state-backed green banks** or dedicated renewable energy funds to offer lower-cost financing and accelerate renewable energy projects

Long-term Actions

- **Tax incentives, subsidies**, and a favorable regulatory environment for **green bond markets** and venture capital investments must be provided
 - **Simplifying administrative processes** and reducing bureaucratic barriers to lower the cost of accessing finance will make the investment environment more attractive

F. Regulatory Framework and Investment Climate Immediate Actions

• To reduce corruption in project allocation, Bangladesh should **adopt a transparent competitive** bidding system, **similar to China's model**, ensuring fair opportunities for all investors

Long-term Actions

- A **"one-stop-shop"** system for managing all permits and approvals under a single agency to reduce delays and minimize regulatory burdens for investors should be established
 - Implementing a **consistent and clear regulatory framework**, modeled after China's Renewable Energy Law should be initiated to reduce investor uncertainty and foster long-term investment stability

G. Risk Mitigation for Foreign Investors

Immediate Actions

 Bangladesh Bank, in collaboration with global financial institutions such as the World Bank, ADB, and IFC, should enable partial risk guarantees to minimize investment risks and attract more foreign investment

Long-term Actions

• Bangladesh should adopt a **dispute resolution policy** aligned with international arbitration standards, allowing for neutral third-country venues in cross-border investment disputes

H. Currency Conversion Channels and Investor Assurance Immediate Actions

• In light of Bangladesh's **foreign reserve crisis**, Bangladesh Bank should establish a dedicated local currency conversion channel for renewable energy investors, **ensuring timely conversion of returns from BDT to USD**

Long-term Actions

• Bangladesh should continue pursuing **China's proposed loan assistance of USD 5 billion** in **Chinese currency to mitigate foreign** reserve pressures and further strengthen investor confidence

I. Global Climate Funding and Diversified Financing Immediate Actions

• Chinese investors should be encouraged **to diversify their funding sources** by tapping into global climate funding, particularly **non-Chinese resources**, to align with global efforts to support renewable energy in vulnerable regions

Thank You.