

# **Renewable Energy and Multilateral Development Banks: India Case- Study**

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# India's Energy Challenge

- 25% of India's population, or 300 million people, do not have access to electricity
- In 2013-14, India's per capita electricity consumption, stood at a mere 957 kilowatt-hours (kWh) – in 2011, average per capita electricity consumption in the United States was at 13,240 kWh.
- In its Intended Nationally Determined Contributions (INDCs), India recognizes that its electricity demand is set to increase from 776 TWh in 2012, to 2499 TWh in 2030.
- India's Challenge - "Grow Coal", while at the same time "Go Green"

# Barriers to Renewable Energy Development in India

- **International Barriers**

- **International Trade**

- Since the renewable energy sector is still nascent significant government support has been provided to domestic manufacturers.
    - Political leaders need to justify the economic benefits of investment in renewable energy i.e. creating jobs and profits.
    - This need to create a domestic economic ecosystem around renewable energy is in direct conflict with the international trading regime as enshrined under the WTO.

## – International Financial Norms

- The Basel III Accords are designed to create a more resilient and robust international banking system with a suite of capital adequacy, leverage, and liquidity requirements.
- Have led to financing renewable projects has become difficult.
- Liquidity Coverage Ratio - to promote short-term resilience to liquidity disruptions.
- Stock of high quality liquidity assets/Net cash outflows over a 30 day period  $\geq 60\%$
- For banks it will become increasingly difficult to fund capital intensive renewable energy projects.
- Holding such assets will not help improve its stock of high quality liquid assets.
- Renewable energy projects financed through project finance and special purpose vehicles, worsen the bank's liquidity ratio as liquidity facilities are made available.
- Strengthens the denominator while leaving the numerator untouched.

## – Technology Flows

- Michele Boldrin and David K. Levine (Washington University, St. Louis) - current patent/copyright system discourages inventions from actually entering the market.
- Bali Action Plan in 2008- a number of developing nations stressed the need to address the IPR challenge – India argued that technology transfer should be aided through a suitable IPR regime.
- Watal1998 highlighted through two cases the effect of IPR on technology transfer in India in the context of the Montreal Protocol to protect the Earth's ozone layer.
- Ockwell et. al. in 2007 - “Another barrier relates to the IPR issue associated with LED manufacturing. It is a highly protected technology. As there are various processes involved in manufacturing LED chips, each process is patented and requires huge investment. At present, the cost of investing in both chip manufacturing and resolving IPR issues is substantially high compared to importing the chips”.

# Domestic Barriers

- **Institutional Capability**

- **Institutional Capacity:** The World Bank's Ease of Doing Business study ranked India 155 out of 189 countries in 2016. Land Acquisition in particular is problematic.
- **Knowledge and Skill Set:** The state of Tamil Nadu, which has 40% of India's wind resource, has been unable to scale down electricity generation as it has often faced grid congestion.
- **Data Availability:** Ministry of New and Renewable Energy, set up the Biomass Resource Atlas to identify the resource potential of biomass, particularly for power generation. The website is blank and has no data.

## – Non-Compliance with Regulation

- State Electricity Regulatory Commissions (SERCs) are required to implement Renewable Purchase Obligations (RPOs).
- RPO is a mechanism under which electricity distributors can either generate a minimum percentage of renewable energy or purchase Renewable Energy Certificates (RECs) to make up for shortfalls.
- As per a study by the Indian Energy Exchange, as many as 16 states have reported compliance of less than 70% - 9 states reported compliance of less than 50%.

- **Financial Constraints**

- **High Interest Rate:** India needs to manage infrastructure deficit along with inflationary pressures. As opposed to much of the developed countries, interest rates in India continue to remain high in light of increased borrowings for infrastructure and other government needs.
- **Lack of Long-Term Debt Instruments:** (i) Banks are unable to fund long term projects such as those required in the infrastructure as the majority of deposits in Indian banks are for a short duration; (ii) India has a very weak bond market – as of 2013, Government and Corporate bonds stood at 54.5% of India's GDP, with corporate bonds accounting for only 5.4%.
- **Limited Fixed Interest Rates:** Due to the asset-liability asymmetry and a weak bond market, loans are commonly sanctioned on variable, rather than fixed, interest rates.
- **Availability of Debt:** banks have sector limits to specific markets and as the renewable sector picks up pace, many banks are close to reaching their sector limits; renewable energy falls under the power/energy sector and this requires heavy borrowing



# MDBs and Energy Finance in India

- **World Bank**

- India has been the largest recipient of its loans (USD 102.1 billion) ever since the Bank's inception in 1945 (till July 2015).
- The Bank's loans have primarily focused on rural and urban development projects pertaining to transport, water and irrigation, health, power, and agriculture.

# World Bank – Sector-wise Break – 2011-2015

Sector	Number of Projects
Sub-national government administration	18
Other social services	17
Rural and Inter-Urban Roads and Highways	14
General agriculture, fishing and forestry sector	13
Central government administration	10
Agricultural extension and research	9
Agro-industry, marketing, and trade	9
General water, sanitation and flood protection sector	9
Health	9
Irrigation and drainage	9
Public administration- Transportation	9
Water supply	8
Public administration- Water, sanitation and flood protection	7
Animal production	6
Flood protection	6
Public administration- Agriculture, fishing and forestry	6
Sanitation	6

Over the past 5 years, only 9 projects in the energy sector have been commissioned by the Bank

- **Asian Development Bank**

- Country Partnership Strategy for the period 2013-2017 is guided by five principles
  - respond to client demands
  - expand and incorporate lessons from past work that was done well
  - take advantage of ADB's strengths and align with Strategy 2020 priorities,
  - avoid duplicating work done well by others
  - ensure innovation and value addition
- To help achieve these objectives, the CPS has identified five core areas
  - **Infrastructure development**
  - **Job creation and access to jobs**
  - **Regional connectivity**
  - **Environmental sustainability**
  - **Synergies (with government initiatives)**

# ADB – Sector Wise-Break Up – 2011-2015

Sector	Number of Projects
Energy	53
Transport	44
Water and other urban infrastructure services	36
Finance	14
Education	12
Agriculture, natural resources and rural development	8
Public Sector Management	7
Industry and Trade	4
Health	4
Multisector	1
Information and Technology	1
Total	184
Source: <a href="http://www.adb.org/projects/search/country/ind">http://www.adb.org/projects/search/country/ind</a>	

# Financing Mechanisms and Models used by MDBs

- The ADB has targeted two critical areas of the energy sector - (i) energy generation primarily through renewable sources, particularly solar energy; and (b) improving India's energy transmission and distribution
- The two most common modalities of assistance have been in the form of loans and technical assistance.
- The ADB has also provided financial assistance in equity investment.
- Of the 53 projects analysed, 50 had a loan component.
- Sub-national governments have been the primary recipients

# Financing Mechanisms and Models used by MDBs

- ADB's offers 6 month LIBOR + 0.60% less permanent credit of 0.20%;
- Many international agencies find the Indian government's interest rate cap at 6 month LIBOR + 3% for three to five year loans and six-month LIBOR + 5% for loans longer than five years, unfavourable as it is deemed too low.
- In 2014, the Bank extended a loan of USD 200 million to YES Bank.
- These funds helped YES Bank issue India's first ever Green Infrastructure Bonds, raising an amount of INR 1000 crore (approx USD 150 million).

# Financing Mechanisms and Models used by MDBs

- The biggest step to mobilize private finance - ADB's support to the Credit Enhancement Scheme of the India Infrastructure Finance Company Ltd. (IIFCL)
- IIFCL provides credit guarantee to the extent of 20% of the total project cost, and up to 40% with a backstop guarantor.
- In Sept. 2015, the first bond issues under this scheme were launched - ReNew Wind Energy issued Rs. 451 crore worth of bonds, and Hindustan Power issued bonds worth Rs 380 crore.
- For both these bond issues – IIFCL provides the first partial loss credit guarantee to the bondholders + an irrevocable backstop guarantee from the ADB

# Technical Assistance – Focus on Capacity Building

- ADB finances TA projects on a grant basis.
- The Himachal Pradesh Clean Energy Transmission Investment Program, for which the ADB provided a USD 350 million loan, brought with an additional USD 600,000.
- Capacity Building component - sought to benefit Himachal Pradesh Power Transmission Company Ltd. (HPPTCL), the state's transmission utility.
- The ADB financed the Madhya Pradesh Power Transmission and Distribution System Improvement Project, a USD 750,000 TA.
- Objective - provide adequate transmission and distribution capacity to supply growing power demand and reduce the system losses to ensure financial sustainability of the MP power distribution companies.



# Conclusion

- Two new entrants – New Development Bank, and the Asia Infrastructure Investment Bank.
- World Bank and ADB have focused on two aspects of India's Energy Challenge
  - Renewable Energy Generation
  - Transmission and Distribution
- Reluctance to invest in coal projects – a critical aspect of India's energy requirement
- Certain challenges, both at international and national level need to be addressed
  - Trade and Banking norms need to incorporate infrastructure development needs of developing nations.
  - Institutional capabilities need to be enhanced to provide for a robust ecosystem which allows renewable energy development.

# Policy Recommendations

- **Data Availability** Technical Assistance which specifically targets collecting and collating data using satellite modelling techniques, GIS, along with other latest technologies.
- **Research & Development**
  - Need for technological innovation in renewable energy
  - Technology transfer from the developed countries remains a challenge
  - R&D presents an opportunity for the MDBs to promote innovation in India for local and international solutions
- **Micro, Small and Medium Enterprises**
  - India is heavily reliant on Micro, Small and Medium Enterprises.
  - The rapid growth of the sector has been accompanied by its increasing share in the country's emissions- SMEs are responsible for 30% of India's pollution.
  - **Demand Side Constraint:** most SMEs are unaware of avenues of finance that can be leveraged for improved environmental performance.
  - **Supply Side Constraint:** financial institutions lack the expertise to quantify and administer risk profiles of SME financing needs regarding green projects.
  - MDBs can therefore specifically target capacity building programmes for both SME firms and India's financial sector to increase green lending to firms that have so far not had access to such finance.