



Green Bonds and Urban Transportation

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Presentation Agenda

World Outlook

India's Scenario

Relevance for Indian Urban Transportation Sector

Questions

Motivating Factors for Green Bonds



Goal 6: Clean Water and Sanitation

Goal 7: Affordable and Clean Energy for All

Goal 9: Resilient Infrastructure and Sustainable Industrialization

Goal 11: Sustainable Cities and Communities

Goal 13: Climate Action



To keep increase in avg. temp. to well below 2° C above pre-industrial

Combat climate change & accelerate and intensify actions & investments

NDC is to reduce emission intensity by 35% by 2030 compared from 2005 levels

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Green Bond Market

- ❑ Green Bond is a refinancing product / debt instrument which is subset of the Corporate bond.
- ❑ Proceeds of a Green Bond are 'earmarked' for financing 'green' projects.
- ❑ 7 Major Types of Green bonds -
 - ❑ **Corporate Bond:** “Use of proceed” bond issued by corporate entity
 - ❑ **Financial sector Bond:** Bond issued by a FI to raise capital to finance “on-balance sheet lending”
 - ❑ **Project Bond:** Bond backed by single or multiple project, investor has direct risk exposure of project
 - ❑ **Asset-based security (ABS):** Bond collateralised by one or more specific projects
 - ❑ **Supranational, Sub-sovereign and Agency (SSA) Bond:** Bonds issued by IFIs like WB, EIB
 - ❑ **Municipal Bond:** Bonds issued by municipal government
 - ❑ **Sovereign Bond:** Bonds issued by national governments
- ❑ Issuers comes from 3 Categories – Corporates, Governments & Municipalities, Development FI
- ❑ Currency of the Bond is US Dollar, Chinese Renmimbi, Euro and UK Pound Sterling
- ❑ Bond tenure typically range from 2 years to 30 years

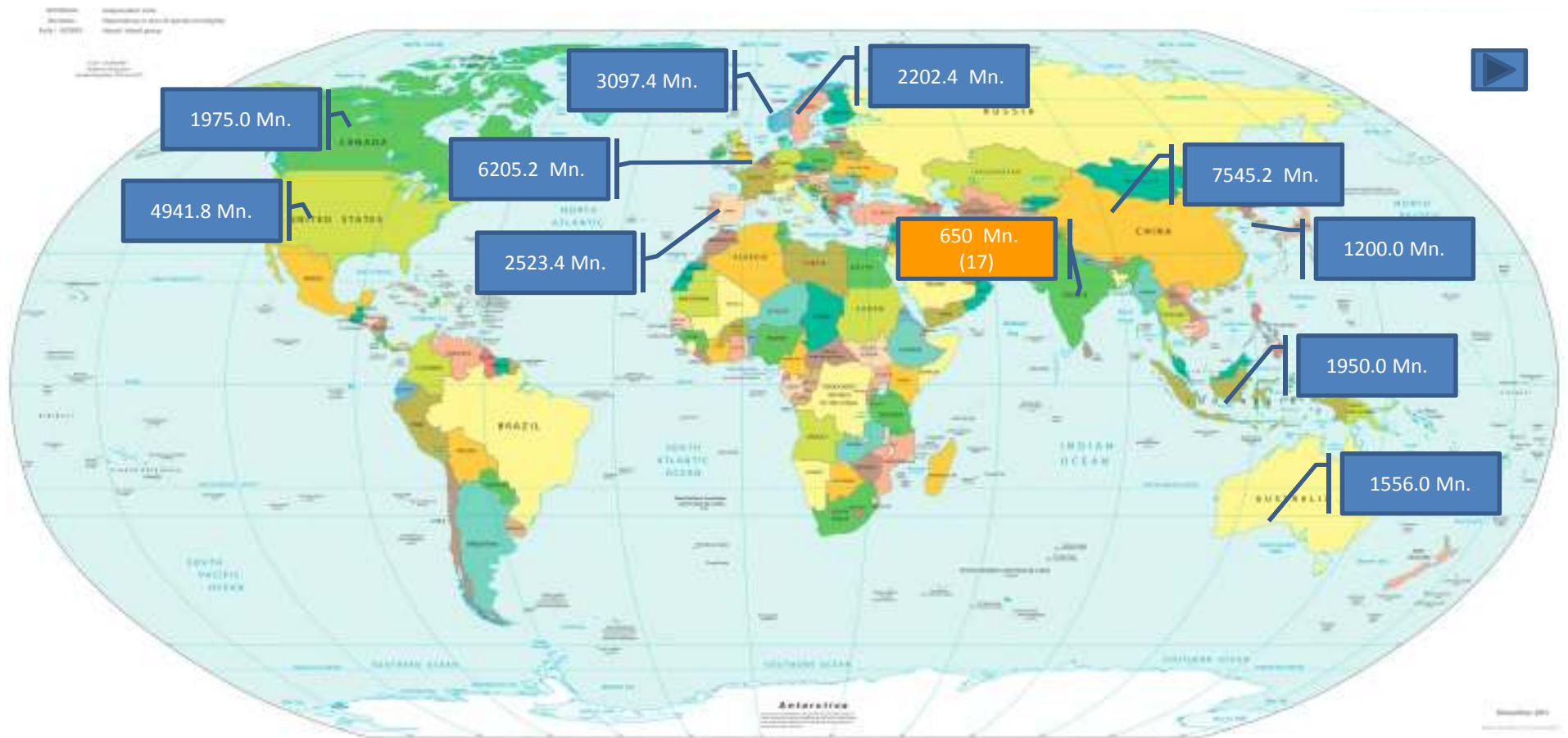
Why the need for Green Bonds?

- Meeting the target of 175 GW (this is revised to 227 GW) of renewable energy capacity by 2022 will require \$100 billion
 - New metro networks in 10 cities with a population of more than two million: \$ 7.7 billion
 - Development of electric vehicles by 2030: \$667 billion
 - 2.5 million green homes by 2020: \$ 1 trillion
 - Municipal waste management projects by 2030: approx. \$ 11 billion
 - Urban wastewater management: \$128 billion
- According to International Energy Agency, India's absolute energy demand by 2040 is likely to be 25% of the global energy demand- the growth fuelled by new infrastructure, an expanding middle class, and 600 million new electricity consumers.

HENCE, THE URGENCY FOR GREEN FINANCING

IFC pegs India's Green financing market at \$ 3 trillion and green financing is a big opportunity.

Green Bonds Market Overview – Top 10 Markets - In USD



33 Nations along with Corporates and DFI's Issued 145 Green Bonds so far in 2018 - Raised USD 42.57 Billion

Issuer Stats. Of 2018 – Corporates, Governments & DFIs

| # | Country | Corporate | | | | Governments | | | DFI | Grand Total | |
|----|---------------------|-----------|---------------------|-------------------------|----------|-------------|--------------|-------------|-----------|-------------|------------|
| | | ABS | Financial Corporate | Non Financial Corporate | Loan | Sovereign | Govt. Backed | Local Govt. | Dev. Bank | | |
| 1 | China | 3 | 13 | 16 | | | 2 | | | 34 | |
| 2 | Belgium | | 1 | 1 | | 1 | | | | 3 | |
| 3 | USA | 6 | 1 | 4 | | | 1 | 8 | | 20 | |
| 4 | Norway | | 2 | | | | 2 | | | 4 | |
| 5 | Spain | | 1 | 1 | 2 | | | | | 4 | |
| 6 | Sweden | | 2 | 6 | | | 1 | 4 | | 13 | |
| 7 | Canada | | 1 | 1 | | | 1 | 1 | | 4 | |
| 8 | Indonesia | | | 2 | | 1 | 1 | | | 4 | |
| 9 | Australia | 1 | 3 | | 1 | | | | | 5 | |
| 10 | South Korea | | | 1 | | | 2 | | | 3 | |
| 17 | India | | | | | | 1 | | | 1 | |
| | Grand Total | 10 | 39 | 52 | 8 | 3 | 17 | 15 | 1 | 145 | |
| | Transactions | | 109 | | | | 35 | | | 1 | 145 |

Green Bond Investment Landscape

Energy



- Solar
- Wind
- Geo-thermal
- Waste to Energy
- Bio-mass
- Bagasse
- Ocean
- Transmission
- Energy Distribution

Transportation



- MRTS
- BRTS
- Shipping
- Passenger Trains
- Bicycle
- Freight Corridor
- Alternative Fuel Infrastructure
- EV & EV Infra

Energy Efficient Buildings



- Residential
- Commercial
- Retrofit
- Building Efficiency

Nature



- Adaptation & Resilience
- Land Use
- Agriculture
- Degraded lands
- Waste Management
- Forests
- Coastal Infrastructure
- Fisheries & Aquaculture

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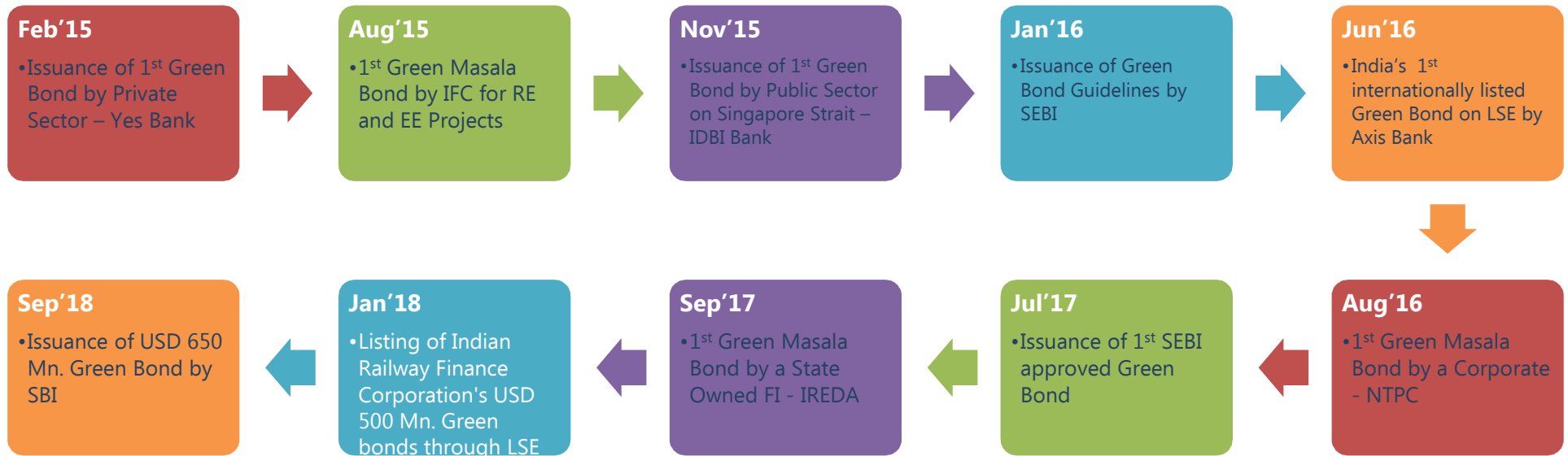
Questions

Green Bond Guidelines by SEBI Covers

- ❑ Renewable & Sustainable energy including wind, solar, bioenergy, other sources of clean energy
- ❑ **Clean transportation including mass/public transportation, etc.**
- ❑ Sustainable water management including clean and/or drinking water, water recycling, etc.
- ❑ **Climate change adaptation**
- ❑ Energy efficiency including efficient and green buildings.
- ❑ Sustainable waste management including recycling, waste-to-energy, efficient disposal of waste
- ❑ Sustainable land use including sustainable forestry and agriculture, afforestation, etc.
- ❑ **Biodiversity conservation**

Innovative Source of Financing for growing economic needs (Both Domestic and Foreign)

Progress of Green Bonds In India



- ❑ Most Green Bonds Issued are Oversubscribed – at least by 2 times and as high as 5.1 time (IREDA Sep'2017)
- ❑ Coupon rates for Masala bonds ranges from 7% to 10%, and for other bonds, the range is 2.5% - 8%
- ❑ Issue size below \$100 Mn. ticket size is observed in India listing
- ❑ Issue Size > USD 500 Mn. Is often overseas listed

Initiatives by State Governments, Municipalities and Other Stakeholder's yet to catch-up with Trend

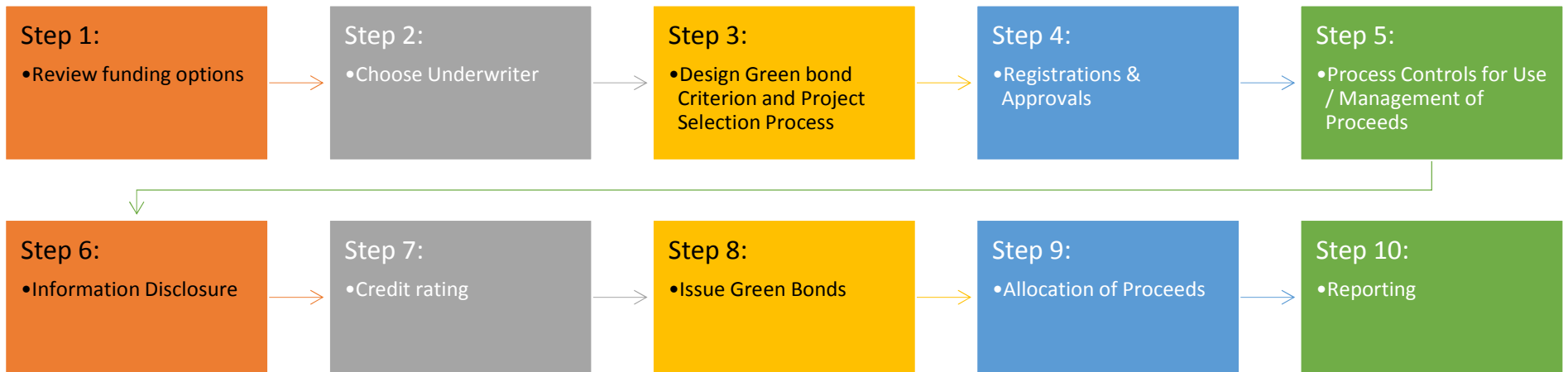
Green Bonds Issued by India

| # | Entity | Sector | Year | Amount | Tenure | Coupon |
|----|-----------------------------|---|-----------|------------|---------|--------|
| 1 | YES Bank | RE & EE | Feb 2015 | INR 10 bn | 10 | 8.85 |
| 2 | Export-Import Bank of India | Low Carbon Transport | Apr 2015 | USD 500 mn | 5 | 2.75 |
| 3 | CLP Wind Farms India | RE | Sept 2015 | INR 6 bn | 3,4 & 5 | 9.15 |
| 4 | IDBI | RE, low carbon transport and water management | Nov 2015 | USD 350 mn | 5 | 4.25 |
| 5 | Hero Futures Energies | RE | Feb 2016 | INR 3 bn | 3 & 6 | 10.75 |
| 6 | PNB Housing Finance | Low carbon buildings | Apr 2016 | INR 5 bn | n/a | n/a |
| 7 | Axis Bank | RE, Low carbon buildings and transport | Jun 2016 | USD 500 mn | 5 | 2.88 |
| 8 | ReNew Power | RE | Aug 2016 | INR 5 bn | n/a | n/a |
| 9 | NTPC | RE | Aug 2016 | INR 20 bn | 5 | 7.38 |
| 10 | Greenko | RE | Aug 2016 | USD 500 mn | 7 | 4.88 |
| 11 | YES Bank | RE | Dec 2016 | INR 3.3 bn | 7 | 7.62 |

Green Bonds Issued by India

| # | Entity | Sector | Year | Amount | Tenure | Coupon |
|----|-------------|--------|-----------|------------|--------|-------------|
| 12 | ReNew Power | RE | Feb 2017 | USD 475 mn | 5 | 6 |
| 13 | IREDA (x2) | RE | Mar 2017 | INR 7 bn | 10 | 8,12 & 8.05 |
| 14 | SBI | RE | Sept 2018 | USD 650 mn | 5 | n/a |

Procedure for Issuance of a Green Bond



Complete process may take 8 – 12 Months

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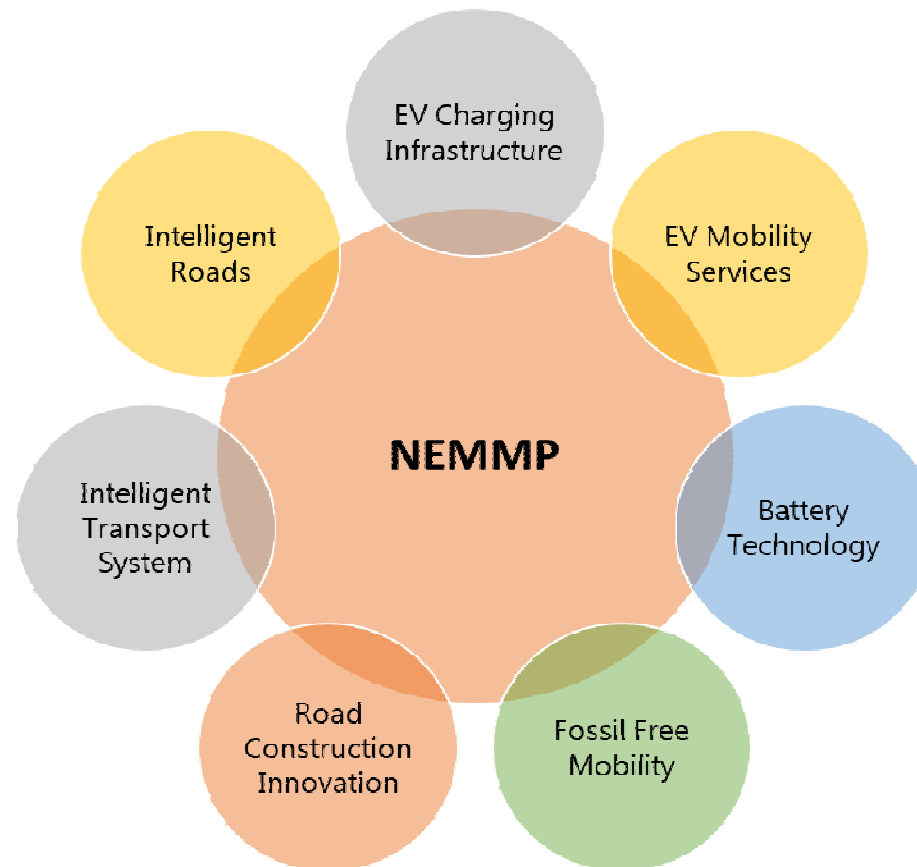
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Financing Urban Transportation

- ❑ **Economic Survey Jan'2018 discloses USD 4.5 Trillion in Urban Transportation the next 25 years.**
- ❑ SCM with an outlay of Rs. 50,000 Cr. from Central govt. and matching amount from states and cities. 
- ❑ Outlay inadequate - capital requirements and funds expected from sources such as PPP & Others
- ❑ ~ 20% of municipal bonds from Financial Years 1998 through 2017 are for Transport Sector
 - ❑ (Rs. 389 Cr. Out of Rs. 1,947 Cr.)
- ❑ Bottlenecks for Green Bonds in Urban Transportation
 - ❑ Poor financial condition.
 - ❑ Non-existent municipal bond market -Total bond market size of 27.4 lakh crores (CARE Ratings, June 18)
 - ❑ Poor credit rating of municipalities, SRTCs etc
 - ❑ Inability of municipalities to raise revenues on their own balance sheet strength
- ❑ ULB's and SRTC's with high dependence on State & Central Govt's for funding can explore Green bonds
- ❑ Opportunity where User Payment Charges are possible

Dovetail with Central and State Government Programs

Opportunity - National Electric Mobility Mission Plan 2020



New thinking for Issuers

- ❑ New thinking Constrained by Challenges – Which one is better option given poor financial condition
- ❑ Biggest challenge to participate in Green Bond issuances
- ❑ In Foreign currencies is the high hedging cost and sovereign credit ratings – Baa3 by Moody's
 - ❑ Lack of awareness
 - ❑ Creditworthiness
 - ❑ Enormous domestic funding available vis-à-vis Masala / Domestic Green Bonds - LIBOR + (??) Hedging Cost
- ❑ In Masala Bond and Domestic Green Bonds,
 - ❑ Lack of awareness
 - ❑ Customer's credit rating

Answer is Case Specific

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Summary

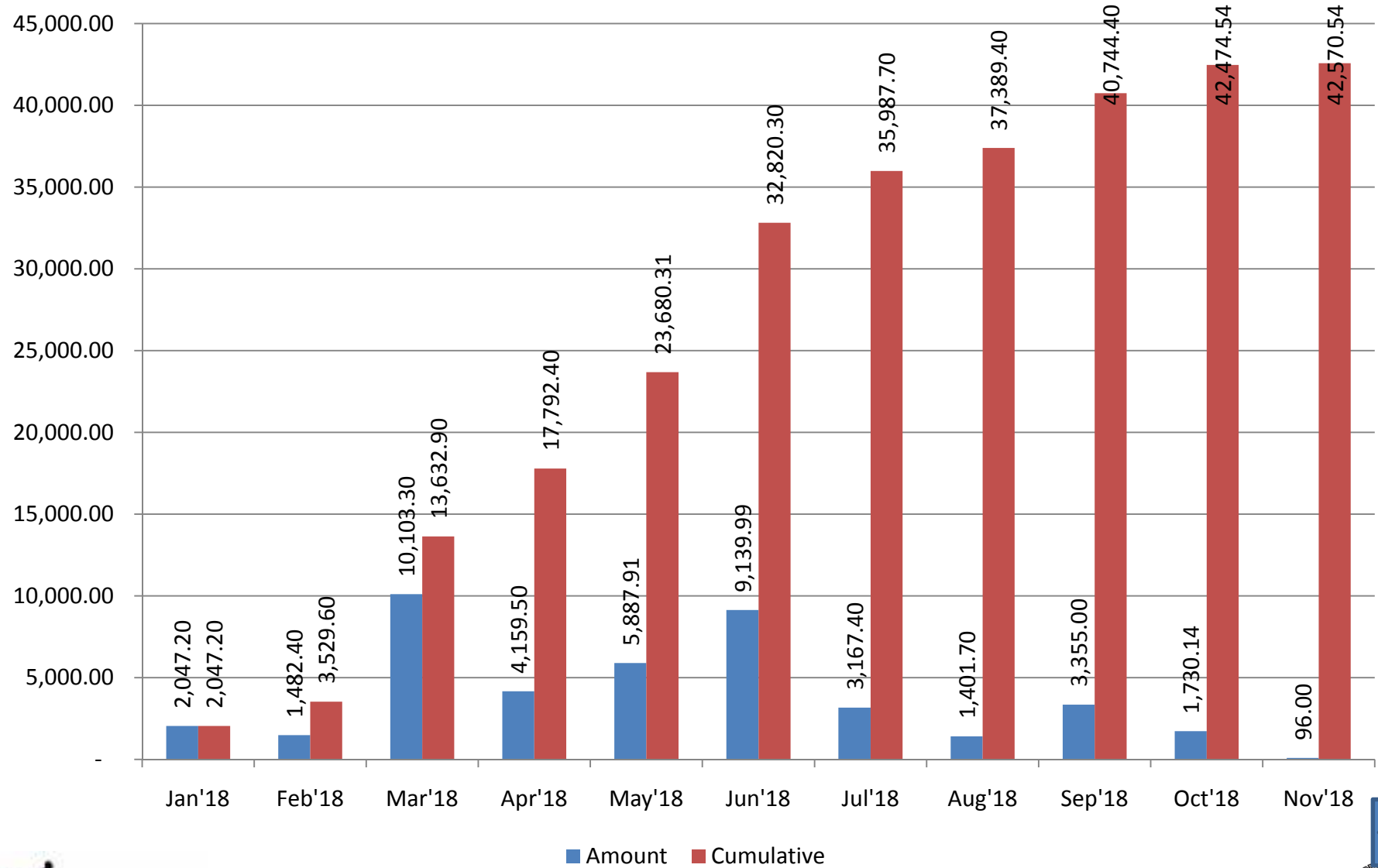
- ❑ Green Bonds are not devoid of risks
- ❑ Vulnerable to interest rate fluctuations, impact on the market value of debt, falling interest rate environment, among others.
- ❑ Political risks such as change in regulations and legislations that can adversely impact the project
- ❑ Repatriation and expropriation of profits
- ❑ Risk of obsolescence- a new technology overtaking the older one

Yet, for a capital-scarce country such as India that wants to take on the mantle of a responsible nation in the global struggle to save the world, green bonds—with new and long-term investors willing to provide low-interest loans for a just cause—could be a ready solution for its infrastructure deficit.

An opportunity India can ill afford to lose—and a market too big for investors to ignore.

Thank you

Green Bonds Market Overview in 2018 – In Billion USD



Procedure for Issuance of a Green Bond

- ❑ Compliances laid down in SEBI
 - ❑ SEBI (Issue And Listing Of Debt Securities) Regulations, 2008 (“ILDS Regulations”)
 - ❑ Green Bond Guidelines (“Circular”) issued by SEBI (“Board”) on 30th May 2017
 - ❑ SEBI (Debenture Trustees) Regulations, 1993
 - ❑ Schedule IV of the SEBI (Debenture Trustees) Regulations, 1993

- ❑ **Step 1:** Issuer to make an application to a stock exchange for listing of securities.
 - ❑ issuer to appoint merchant bankers registered with SEBI whom should be lead merchant banker.
 - ❑ Obtain In-principle approval for listing of green bonds on the stock exchange,
 - ❑ Obtain a credit rating from a credit rating agency.
 - ❑ Enter into an arrangement with a depository for dematerialization of the green bonds.
 - ❑ Appoint one or more debenture trustees in accordance with the Companies Act, 1956 (“Act”)
 - ❑ Issuer cannot issue green bonds for loans or acquisition of shares of anyone who are part of same group

Procedure for Issuance of a Green Bond

- ❑ **Step 2:** Publishing of offer document - all material disclosures needed by the subscribers to take an informed decision.
 - ❑ last three years annual report, undertaking from the issuer etc.
 - ❑ Objective of the green bond, eligibility of the projects, procedure for deployment of proceeds of the issue.
 - ❑ Details of the projects where the green bonds will be utilised,
 - ❑ Appointment of 3rd party reviewer for project evaluation, selection criteria, eligibility for financing
 - ❑ Draft and final offer document to be displayed on the websites of stock exchanges.
 - ❑ Advertising for public issues in national dailies.
 - ❑ Compliance of Stock Exchange with relevant requirements of SEBI.
 - ❑ Price determined by issuer and the lead merchant banker together or through the book building process
 - ❑ Issuer can decide minimum subscription which it seeks to raise by green bonds.

Procedure for Issuance of a Green Bond

- ❑ **Step 3:** Trust deed will be executed by the issuer in favour of the debenture trustee in three months of Issue closure.
 - ❑ Trust to contain clauses prescribed under Sec. 117A of Act, and Sch. IV of SEBI (Debenture Trustees) Regulations, 1993.
 - ❑ Debenture redemption reserve will be created in accordance with the Act, and other relevant circulars issued.
 - ❑ Trust should not contain any limiting obligations and liabilities of issuer in connection with rights and interests of investor.
 - ❑ Proposal to create charge or security in respect to secured green bonds have to be disclosed in the offer document
 - ❑ issuer to give an undertaking about the assets on which charge is created are free from any burden.
 - ❑ Proceeds from issue will be kept in an escrow account till documents for creation of security are executed.

Municipal Bonds Issued – Part 1

| City | Issue Year | Issue size (Cr) | Purpose |
|-----------|------------|-----------------|---|
| Ahmedabad | 1998 | 100 | Water Supply and Sewerage |
| | 2002 | 100 | Water Supply and Sewerage |
| | 2004 | 58 | Water Supply, Storm water drainage, roads and bridges |
| | 2005 | 100 | Roads and water supply |
| Bengaluru | 1997 | 125 | City roads and drains |
| Chennai | 2003 | 42 | Chennai water supply augmentation project |
| | 2005 | 50 | Water Supply |
| | 2005 | 45.8 | Roads |
| Hyderabad | 2003 | 82.5 | Road construction and widening |
| | 2003 | 50 | Drinking water |
| Ludhiana | 1999 | 10 | Water Supply and Sewerage |
| Nashik | 1999 | 100 | Water Supply and Sewerage |
| | 2002 | 50 | Underground sewerage scheme and storm water drainage system |
| Indore | 2000 | 10 | Improvement of City roads |

Municipal Bonds Issued – Part 2

| City | Issue Year | Issue size (Cr) | State Guarantee | Purpose |
|----------------|------------|-----------------|-----------------|---|
| Nagpur | 2001 | 50 | No | Water supply |
| | 2007 | 21.2 | | Water Supply and Sewerage |
| Madurai | 2001 | 30 | No | City roads |
| Vishakhapatnam | 2004 | 20 | No | Water supply |
| | 2004 | 50 | | Water supply |
| | 2010 | 30 | | Water supply |
| Tamil Nadu | 2002 | 30.2 | USAID | Refinancing loans for water & sanitation projects of 13 ULBs. |
| | 2008 | 6.7 | | |
| | 2010 | 83.19 | | |
| | 2012 | 51 | | |
| | 2013 | 51 | | |
| Karnataka | 2005 | 100 | USAID | Lending to ULBs through Directorate of Municipal Administration |
| | 2010 | 300 | | |
| Pune | 2017 | 200 | No | Smart Metering of Water |

Municipal Bonds Issued – Part 3

| City | Issue Year | Issue size (Cr) | State Guarantee | Purpose |
|-----------|------------|-----------------|-----------------|---|
| Nagpur | 2001 | 50 | No | Water supply |
| Amaravati | 2018 | 2000 | Yes | Urban Infrastructure |
| Ahmedabad | 2018 | 200 | No | Waste Treatment |
| Hyderabad | 2018 | 200 | No | Strategic Road Development Project (SRDP) |

India's Green Bonds Market Actors

Regulator

- Securities Exchange Board of India (SEBI)

Ministries & State Institutions

- Reserve Bank of India (RBI)
- Ministry of Housing and Urban Affairs
- Ministry of Finance
- Ministry of New & Renewable Energy
- Insurance Regulatory and Development Authority (IREDA)
- Pension Fund Regulatory Development Authority (PFRDA)
- Indian Railway Finance,
- National Clean Environment Fund

Rating Agencies

- CRISIL, ICRA, D&B

Investors

- International Finance Corporation (IFC)

Banks

- Axis Bank, Yes Bank, ICICI Bank, Ex-Im Bank, IDBI Bank,

Utilities

- NTPC, ReNew Power Ventures, Hero Future Energies, CLP India, Greenko Group, Azure