Identifying and leveraging finance
Insights from India: 2030 Agenda & Paris Agreement objectives

UNCTAD – Intergovernmental Group of Experts on Financing for Development (Seventh Session)

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Impacting sustainable development at scale with **data**, **integrated analysis**, and **strategic outreach**

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<th><strong>TRANSFORMATIONS</strong></th>
<th><strong>QUALITY OF LIFE</strong></th>
<th><strong>ENABLERS</strong></th>
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<td>Clean Air</td>
<td>Sustainable Finance</td>
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<td>Energy Transitions</td>
<td>Sustainable Water</td>
<td>Technology Futures</td>
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<td>Industrial Sustainability</td>
<td>Sustainable Cooling</td>
<td>Climate Resilience</td>
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<tr>
<td>Sustainable Livelihoods</td>
<td>Sustainable Mobility</td>
<td>International Cooperation</td>
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- **250+** Multidisciplinary team
- **380+** Peer-reviewed publications
- **190+** Instances of increased data transparency
- **540+** Roundtables & conferences
- **20+** Indian states engaged
- **130+** Bilateral & multilateral initiatives promoted

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**SPECIAL INITIATIVES**

- CEEW Centre for Energy Finance
- Powering Livelihoods
- Emerging Economies
- UP State Office
Introduction

Between the 2030 Agenda & the Paris Agreement Objectives, this presentation particularly focusses on the latter – so among the 17 SDGs, Climate Action (SDG13), which lies at the heart of the Paris Agreement.

In the above context this presentation sets out high level views on three critical questions that follow.

1. What are India’s Paris Agreement objectives?

2. What sectors are central to achieving those objectives?

3. How does finance fit into the picture?
   - How much?
   - How?
### India’s commitments

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Previous NDC (COP21 Paris)</th>
<th>New Pledge (COP26 Glasgow)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share of energy requirements from renewable energy by 2030</td>
<td>40%</td>
<td>50%</td>
</tr>
<tr>
<td>Reduction in carbon intensity of economy by 2030 (vs 2005 level)</td>
<td>33-35%</td>
<td>45%</td>
</tr>
<tr>
<td>Non-fossil energy capacity by 2030</td>
<td>-</td>
<td>500 GW</td>
</tr>
<tr>
<td>Reduction in total projected carbon emissions till 2030</td>
<td>-</td>
<td>1 billion tons</td>
</tr>
<tr>
<td>Net-zero year</td>
<td>-</td>
<td>2070</td>
</tr>
</tbody>
</table>

Action on emissions is central to India’s commitments
Where do India’s emissions come from?

• **70% of India’s emissions** can be traced to **three sectors** which are **central** to its **energy transition**
  - Electricity generation (40% of gross GHG)
  - Industry (20%)
  - Road transport (10%)

• Relevant **sectoral 2030 targets/vision**
  - Power sector transition: 500GW of non-fossil based generating capacity (COP 26)
  - Industrial transition: 5 MMT pa green hydrogen production capacity (Green Hydrogen Mission)
  - Mobility transition: category-wise penetration levels (NITI Aayog “vision” for e-mobility)

• **Finance is one of several key levers** to achieve **targets/vision**
Finance as one key lever: power sector

Diversity of routes
To maximise RE target achievement potential → pace of utility scale auctions ~20 GW pa vs ~40 GW pa requirement for 500 GW target

Policy effectiveness
To ensure policies translate into results → poor RPO enforcement historically constrained the uptake of RE, will new 50GW/year bidding trajectory translate into actual auctions for capacity?

Grid adequacy
Per RPO trajectory, variable (non-hydro) RE share to grow 3x to 31.7% by FY 30 → BESS can become crucial for grid stability

Finance ✔️
To ensure finance is available on appropriate terms to fund the generating capacity required for the GW target (and associated T&D & storage)

Note: Per new bidding trajectory of March 2023, 50GW to be auctioned each year for five years
Finance as one key lever: green hydrogen

Phased approach
Blending green with grey/black for domestic fertilizer and refineries, replacing embedded grey/black in fertilizer imports, CNG blending → easier to achieve so should be immediate focus

Focus on manufacturing & supply chain localisation
India launched “Solar Mission” in 2010, made much progress in GW capacity deployment, but focus on manufacturing came much later → ensure control over green hydrogen value chain from outset

Export markets
Export markets can be targeted even as green hydrogen penetrates the domestic ecosystem → opens up prospects of lower cost finance for dedicated export focussed projects

Finance
To ensure finance is available on appropriate terms across the value chain, from electrolyser manufacturing to green hydrogen production
Finance as one key lever: electric mobility

<table>
<thead>
<tr>
<th>Encourage all states to embed consumer incentives in EV policies</th>
<th>Catalyse rollout of fast charging infrastructure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensure momentum behind e-2W and e-3W does not flag post sunset of national level FAME II policy → states with incentives seeing 2x better volumes</td>
<td>India’s mobility transition so far led by e-2W &amp; e-3W which don’t necessarily require dedicated infrastructure → but e-4W and e-Buses will</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Payment Security Mechanism (PSM)</th>
<th>Finance</th>
</tr>
</thead>
<tbody>
<tr>
<td>To allay concerns around credit risk of State Transport Corporations as they tender for e-Buses → electrification of public transport as vital as private transport</td>
<td>To ensure finance is available on appropriate terms across the value chain, from manufacturing to consumer</td>
</tr>
</tbody>
</table>
## Quantifying the financing opportunity: 2030 targets/vision

<table>
<thead>
<tr>
<th>2030 Target/Vision</th>
<th>Investment Requirement</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power sector</strong></td>
<td><strong>500GW non fossil (COP26)</strong></td>
<td><strong>USD 200 bn</strong></td>
</tr>
<tr>
<td><strong>Green hydrogen</strong></td>
<td><strong>5MMT production capacity (National Green Hydrogen Mission)</strong></td>
<td><strong>USD 100 bn</strong></td>
</tr>
</tbody>
</table>
| **Electric mobility** | **Differentiated penetration levels per category (NITI Aayog vision for e-mobility)** | **USD 12.3 bn** *(Battery)*  
**USD 2.9 bn** *(Charging)*  
**USD 206 bn** *(Consumer)* | • CEEW estimates\(^2\) (per NITI Aayog’s vision of various penetration levels) |

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1. Source: CEEW-CEF "RE-Financing India’s Energy Transition"
2. Source: CEEW-CEF "Financing India’s Transition to Electric Vehicles"
Quantifying the financing opportunity: 2070 net zero

<table>
<thead>
<tr>
<th>Sector</th>
<th>Select indicators</th>
<th>Status in 2070 ¹ (unless stated otherwise)</th>
<th>Investment requirement ² (USD bn)</th>
<th>Investment gap ² (USD bn)</th>
<th>Investment support ² (USD bn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>Coal</td>
<td>Peak by 2040, ~0% by 2060</td>
<td>8,412</td>
<td>3,098</td>
<td>1,239</td>
</tr>
<tr>
<td></td>
<td>Solar</td>
<td>5,630 GW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wind</td>
<td>1,792 GW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nuclear</td>
<td>225 GW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industry</td>
<td>Coal</td>
<td>Peak by 2040, ~0% by 2065</td>
<td>1,494</td>
<td>448</td>
<td>179</td>
</tr>
<tr>
<td></td>
<td>Hydrogen</td>
<td>19% share in industrial energy use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobility</td>
<td>EVs (% of car sales)</td>
<td>84%</td>
<td>198</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>EVs (% of freight truck sales)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>USD 10,103 bn</td>
<td>USD 3,546 bn</td>
<td>USD 1,419 bn</td>
</tr>
</tbody>
</table>

1. Source: CEEW “Implications of a Net-Zero Target for India’s Sectoral Energy Transitions and Climate Policy”
2. Source: CEEW-CEF “Investment Sizing India’s 2070 Net-Zero Target”
What does finance look like?

• At the end of the money trail for each of the three sub-transitions are “hard assets”
  - Power sector sub-transition (eg. solar panels, wind turbines, transmission lines)
  - Industrial sub-transition (eg. electrolysers)
  - Mobility sub-transition (eg. electric vehicles, charging infrastructure)

• Hard assets, (which one can touch, feel and also repossess) are typically majority debt financed → equity often accounts for a smaller portion

<table>
<thead>
<tr>
<th>Debt</th>
<th>Equity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Project debt (banks &amp; NBFCs)</td>
<td>1. Sovereign wealth funds</td>
</tr>
<tr>
<td>2. Bonds</td>
<td>2. Pension funds</td>
</tr>
<tr>
<td>3. Consumer loans (banks/NBFCs)</td>
<td>3. Private equity</td>
</tr>
<tr>
<td>4. Infrastructure debt funds (IDF)</td>
<td>4. Public equity</td>
</tr>
<tr>
<td>5. Hybrid platforms (InvIT)</td>
<td>5. Venture capital</td>
</tr>
</tbody>
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### Cross-cutting levers

<table>
<thead>
<tr>
<th>BRSR</th>
<th>Shadow Carbon Markets</th>
<th>Emerging Carbon Markets</th>
</tr>
</thead>
</table>
| • Business Responsibility & Sustainability Reports (BRSR)  
  - Mandatory for top 1000 firms by market cap  
    - Top 150 (FY 24 onwards)  
    - All 1000 (by FY 27)  
  - Disclosure to be made under 9 “Principles” under two streams  
    - Essential  
    - Leadership  
  - Emissions falls under Principle 6 (*Businesses should respect and make efforts to protect and restore the environment*)  
    - Scope 1 & 2 (Essential)  
    - Scope 3 (Leadership) | • Energy Saving Certificates (ESCerts)  
  - Introduced 2011  
  - Exchange traded  
  - Represents MTOE energy savings achieved  
  - Facilitates trade among “Designated Consumers”  
  - Renewable Energy Certificates (RECs)  
  - Introduced 2010  
  - Represents green attribute of 1MWh  
  - Exchange traded  
  - Facilitates trade among “Obligated Entities”  
  - $1.29 billion worth of RECs traded between 2011 & 2021 | Domestic Carbon Market  
  - Carbon credit trading scheme (CCTS) notified in 2023  
  - Will set emissions intensity targets for obligated entities  
  - Sectors, targets and timelines for implementation yet to be determined  
  **Article 6**  
  - Article 6.2 – mutual agreement between countries, Article 6.4 – centralised market  
  - Countries have already started signing bilateral agreements for cooperation under 6.2  
  - India’s whitelist of eligible Article 6.2 activities published |
Role of MDBs/DFIs

- Role should not be so much to compete with the various sources of capital (both equity and debt) outlined earlier but rather to complement them by solving for financing challenges.

- Why?
  - Global pools of private capital are much deeper than public pools.
  - The existing aggregate exposures of MDBs to India pale in comparison to India’s climate finance needs (tens of $ billions vs hundreds of $ billions required).

- How can MDBs/DFIs complement? By addressing the three fundamental financing challenges.
  - Capital is just not flowing → get it to start flowing.
  - Capital is flowing but too expensive → lower its cost.
  - Capital is flowing, at pace and at reasonable cost but conventional sources are just not enough fund ambitions → open up new sources.
Re-imagining climate finance

(From a mitigation perspective) climate finance is not necessarily an entirely novel way of raising and deploying capital – it may be viewed as

1. Capital raised from sources that exist today
   - Banks
   - Debt capital markets
   - Equity capital markets

2. In the form of instruments that exist today
   - Loans
   - Bonds
   - Shares

3. Directed towards investment in technologies that exist today
   - Solar & wind
   - EVs
   - Electrolysers

- With sources of private capital forming the foundation of finance flows
- And MDBs/DFIs working collaboratively with those sources to address the three fundamental financing challenges
Thank you

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