Distribution Reforms and Energy Transition – Changing Paradigms

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Presented by:
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MD & CEO – Adani Transmission Ltd.
MD – Adani Power
CBO – Adani Hydro
Distribution Reforms and Changing Paradigms
India’s power sector has seen major developments in last few years

- Installed Capacity has doubled over last 10 years and has positioned India among top 3 global power producers
- With ambitious targets set, the capacity is expected to further grow 2.3x in next decade, largely led by renewables
- Electricity demand has historically shown positive correlation with GDP growth and has been growing at over 5% in last decade. However, our per capita consumption is still ~1200 much below global average
- Over the next few years, demand to grow at a CAGR of 6-7% primarily led by Manufacturing and Residential segments
- Almost every household now has access to grid electricity with aggressive pursuit of rural electrification
- The transmission grid has been unified into a “national grid” which has helped improve transmission, increase availability & facilitate better management of electricity demand

Source: CEA, MoP website, Niti Aayog, IEA
However, Distribution sector continues to be hit with huge Fiscal losses, Payables & Debt; with Covid & recent Power crisis fueling further deterioration

While discoms enjoyed the reduction in debt burden, structural reforms have been slow to come which is increasing the debt levels again to pre-UDAY levels. This may undo the attempt to clean the balance sheets.

Debt restructuring under UDAY improved the balance sheet but the relief was temporary as losses are growing again.

Reforms have had little impact on discom dues which continue to rise, further driven by Covid effect.

AT&G losses have reduced but still significantly above Govt targets.

Discom losses (Rs. Bn)

<table>
<thead>
<tr>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
<th>FY16</th>
<th>FY17</th>
<th>FY18</th>
<th>FY19</th>
<th>FY20</th>
</tr>
</thead>
<tbody>
<tr>
<td>-716</td>
<td>-682</td>
<td>-569</td>
<td>-657</td>
<td>-380</td>
<td>-151</td>
<td>-281</td>
<td>-380</td>
</tr>
</tbody>
</table>

AT&G losses (%)

<table>
<thead>
<tr>
<th>FY15</th>
<th>FY16</th>
<th>FY17</th>
<th>FY18</th>
<th>FY19</th>
<th>FY20</th>
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<tbody>
<tr>
<td>25.7</td>
<td>24.0</td>
<td>23.5</td>
<td>22.3</td>
<td>21.7</td>
<td>20.9</td>
</tr>
</tbody>
</table>

Discom debt (Rs. Bn)

<table>
<thead>
<tr>
<th>UDAY launch (2015)</th>
<th>FY16</th>
<th>FY17</th>
<th>FY18</th>
<th>FY19</th>
<th>FY20</th>
</tr>
</thead>
<tbody>
<tr>
<td>-275</td>
<td>-194</td>
<td>-156</td>
<td>-185</td>
<td>-228</td>
<td>-346</td>
</tr>
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Discom dues to gencos (Rs '000 Cr)

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</thead>
<tbody>
<tr>
<td>-32</td>
<td>-55</td>
<td>-106</td>
<td>-138</td>
<td>-94</td>
<td>-105</td>
</tr>
</tbody>
</table>

Source: IEEFA, Eqmagpro, Economic times/Crisil, Bloomberg

Source: UDAY, Powerline, Brookings, IEEFA, Praapti
Government has continuously pursued several reforms/initiatives for improving financial and operational efficiencies, however Discom issues haven’t got resolved

<table>
<thead>
<tr>
<th>Description</th>
<th>Outcome</th>
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</table>
| **Shunglu committee report** | ▪ Stop bankrolling of revenue gap of DISCOMS  
▪ Changes to governance, Board  
▪ Identified 255 towns as DF candidates  
▪ Shunglu committee report |
| **Financial Restructuring Plan** | ▪ Banks are once again financing unbankable DISCOMs to ensure electricity supply  
▪ However only a few DF candidates have taken off  
▪ Financial Restructuring Plan |
| **RAPDRP (Rs 65K Cr outlay)** | ▪ Discoms to issue bonds with state Gov Guarantee  
▪ Debt restructuring: Rs 51K liabilities restructured  
▪ 8 states that together accounted for more than 80% of losses failed  
▪ RAPDRP (Rs 65K Cr outlay) |
| **UDAY** | ▪ Loss financing only as per trajectory finalised with MoP & only through Discom bonds backed by State  
▪ Quarterly tariff revision envisaged  
▪ Debt at pre-UDAY levels  
▪ PB, JK, MN, GA widened ACS-ARR gap  
▪ Only few states have performed well  
▪ UDAY |
| **DDUGJY (Rs 43K Cr outlay)** | ▪ Separation of agriculture and non-agriculture feeders  
▪ Strengthening of sub-transmission & distribution  
▪ Rural Electrification  
▪ Considerable progress in intensive electrification: has been completed in around 80% of villages 1  
▪ DDUGJY (Rs 43K Cr outlay) |
| **Saubhagya (Rs 16K Cr outlay)** | ▪ 100% household electrification  
▪ 99.93% of households electrified with only about 0.07% remaining in Chhattisgarh  
▪ But scheme increased distribution costs, losses & very low % of such households use >30 units/month  
▪ Saubhagya (Rs 16K Cr outlay) |

Note: 1. A village is considered electrified if at least 10% of its households are electrified. Intensive electrification, on the other hand, refers to deepening the electricity infrastructure to provide access to the remaining un-electrified houses.
Impact of recent crises (COVID & Fuel Price) will need both Central and State absorption along with fuel pass-through arrangement & regulatory asset management for sector survival

<table>
<thead>
<tr>
<th>Impact of COVID</th>
<th>Impact of high bulk cost</th>
<th>Regulatory assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated cumulative Tariff Impact at National Level –INR 30-40 paisa per Unit*</td>
<td>Estimated impact 5.0% rise in the cost of supply and a 4.5% average tariff increase*</td>
<td>Above 1 Lakh Cr Regulatory Assets*</td>
</tr>
<tr>
<td>• The lockdown due to Covid-19 has significantly reduced energy demand and overall revenue of Discom</td>
<td>• Increased coal prices triggered Govt. to allow 4% import fuel usage</td>
<td>• Estimated INR 30K-40K Cr additional regulatory assets on account of COVID</td>
</tr>
<tr>
<td>• Considering simulation of 2-3 Discom on likely impact on ARR estimated for all India level with comparison from pre-COVID level</td>
<td>• Which will result increased levels of coal imports (from 4% to 12-13% in FY2023)</td>
<td>• Existing INR 66K Cr regulatory Assets (FY 19 ICRA)</td>
</tr>
<tr>
<td></td>
<td>• Considering same trend of imported coal price variable cost from imported fuel, DAM, Short term market price likely to remain above FY 21 level</td>
<td>• Additional Regulatory asset on account of fuel cost rise that’s not passed through FAC</td>
</tr>
</tbody>
</table>

Global fuel crises along with disruptions triggered by Russia's war will have multiple economic impact and triggers requirement of self-reliance in energy security and achieving net zero supply will be critical.
Several Distribution Reforms are already underway...

<table>
<thead>
<tr>
<th>Key Detail</th>
<th>Current Status</th>
</tr>
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<tbody>
<tr>
<td><strong>Draft Amendment to EA</strong></td>
<td>• Proposes multiple distribution licensees, with the new licensees being able to use the incumbent licensee's network. This significantly lowers the barrier to entry in the distribution sector</td>
</tr>
<tr>
<td><strong>Privatization</strong></td>
<td>• Currently on hold due to revision after stakeholder consultation. Due for clearance from Standing committee and parliaments</td>
</tr>
<tr>
<td>• Odisha Privatization</td>
<td>• Tata started operation in Odisha Discoms</td>
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<tr>
<td>• UT privatization</td>
<td>• Bids concluded for Chandigarh. DNH, Daman &amp; Diu UT</td>
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<tr>
<td>• 2nd License</td>
<td></td>
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<tr>
<td><strong>RDSS Scheme</strong></td>
<td></td>
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<tr>
<td>• Revamped Distribution Sector Reforms-Base and Result-Linked Scheme</td>
<td>• Total outlay of INR 3 Trillion</td>
</tr>
<tr>
<td>• Reduce AT&amp;C of 12-15% &amp; ACS-ARR Gap to zero by 2024-25</td>
<td>• Govt approve Rs 1.62 lakh Cr proposals from 13 states</td>
</tr>
<tr>
<td><strong>Infrastructure reforms</strong></td>
<td></td>
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<tr>
<td>• IPDS: investing funds in network infrastructure</td>
<td>• Utilities infused capex funded from IPDS however it is not sufficient to bring down losses to desired level</td>
</tr>
<tr>
<td>• National Smart Grid Mission: address key issues of Smart Grid Initiatives</td>
<td>• Many smart grid projects under implementation across four states/UT</td>
</tr>
<tr>
<td>• Smart Meter implementation by Discoms</td>
<td></td>
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<tr>
<td><strong>Increased Service Delivery Expectation</strong></td>
<td></td>
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<tr>
<td>• Discom to focus on consumer centric model rather than earlier approach</td>
<td>• Govt, facilitating the service delivery through Electricity (Rights of Consumers) Rules, 2020</td>
</tr>
<tr>
<td>of infra development and power procurement management</td>
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</table>
...there are other initiatives that need to also taken forward

| Power purchase cost | • Stricter enforcement of RPO  
|                     | • Innovative schemes like RTC to better utilize existing thermal capacity  
|                     | • Implementation of national MOD to incentivize efficient generation  
| Technology disruptions | • EV charging infrastructure  
|                       | • Innovation in rooftop solar/ smart appliances with storage  
|                       | • Virtual power plant  
|                       | • Mandating application of analytical tools and lower forecasting deviation  
|                       | • Mandating 100% digital billing, online payment to improve billing/collection efficiency  
| Metering for Accounting and audit | • Metering agriculture/rural & urban feeder  
|                                   | • Completion of consumer indexing, GIS, DT & meter upgrades  
| Regulatory | • Quality in financial reporting  
|             | • Regularly revise tariffs  
|             | • Timely payment of subsidy  
|             | • Financial, operational independence with third-party monitoring  
| Financial health | • Utilize innovative ways to liquidate regulatory assets in a time-bound manner  
|                  | • Promoting schemes to incentivize debt and interest cost reduction  
| Demand response | • Mandate discoms to include DR as a resource to meet their peak power deficit  
|                  | • Promote financial tools to fund the growth of needed technological infrastructure  

Broadly two business models emerge to be lucrative to industry players

<table>
<thead>
<tr>
<th>Resistance from Employees &amp; local communities</th>
<th>Justification for need of privatization</th>
<th>Political mileage for the government</th>
<th>OVERALL ATTRACTIVENESS</th>
<th>Risk from wrong Baseline data</th>
<th>Contractual Risk</th>
<th>Demand Risk</th>
<th>OVERALL ATTRACTIVENESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 1: Subject wise Efficiency Challenge (MR, Billing, Collection)</td>
<td>Low</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
<td>Medium</td>
</tr>
<tr>
<td>Model 2: PPP / Privatisation</td>
<td>High</td>
<td>High</td>
<td>Mixed</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Model 3: VGF based transition support</td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Model 4: Multiple Supplier Franchisee</td>
<td>Low</td>
<td>Medium</td>
<td>Low</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Model 5: Discom Turnaround Challenge</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
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Private participation in the distribution sector has been very limited mainly dominated by two models - licensee model and franchisee model.

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<tbody>
<tr>
<td>CESC, TPC, BSES, AECL, SECL, DPSCL</td>
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Private Utilities existed even before the reforms

- Odisha was the **First State** to privatize its utilities in post reform era
- Delhi privatized its utilities in 2002

- Bhiwandi was first DF to be awarded in Jan 2007. Nagpur DF bid was scrapped
- Both awarded to Torrent Power. However, Operation started only in Agra & Kanpur couldn't take off
- Spanco, GTL & CGL declared as winner for Nagpur, Aurangabad & Jhaglaon respectively. Operation started
- Smart Wireless (Essel) - declared winner for Sagar, Ujjain & Gwalior. TPC & CESC declared winner for Jamshedpur & Ranchi
- CESC Signed DFA in June, 2016
- Tata Power signed DFA in April 2017 and CESC started commercial operation in May, 2017
- Tata received LoI in Dec '19 for CESU and took over in June '20
- Tata took over Mumba-Shil-Kalwa DF on Mar '20. CESC took over Malegaon Mar '20. FEDCO took over 4 regions in ML. Sai Computer took over Dalu, Kailashahar
- Tata took over Odisha Discoms

Bids concluded for Chandigarh, DNH, Daman & Diu UT and currently under handover process

Notes: ¹ Mawkyrawat-Mawsynram-Nongtalibra-Phulbari
Adani Group is uniquely placed with experience of managing both large urban and small power distribution areas - AEML (Mumbai) & MUL (Mundra SEZ)

Largest Integrated utility in India's Commercial Capital - Mumbai

About Mumbai
- ~11.0% Real GDP CAGR (FY12 – 18)
- ~6.0% of India's real GDP
- 4th Most Populous City in World
- 24th Richest City in world based on GDP (US$)

Mumbai Consumers
- 2.2x Per capita income of India
- $ 4,630 Per capita income of Mumbai
- ~ $ 31 Average Electricity Bill of AEML Consumer for FY21
- ~1% Average electricity bill as % of per capita income

Consumer Centricity
- CSAT survey for 12 critical processes (Supply restoration, Call Centre, Billing, etc.) to gauge & ensure high consumer satisfaction
- Advanced Metering for 7 lakh consumers in phase 1

Experience of managing Industrial distribution licensee area

Acquisition of MPSEZ Utilities Limited (MUL)

About MPSEZ Utilities Limited (MUL)
- Area: 8,481 hectares
- Distribution Network: 100 km
- Energy Sale: 371 Mus
- Standalone Revenue: INR 216 Cr
- Distribution Loss: 3.21%
- License Period: 11 years
- No. of consumers: 76

Growth Plan
- Key customers: Railways, Adani Port, Mundra Solar, GSPC
- Scalability potential: MUL’s operations are expected to grow multifold with demand offtake from Mundra Industrial cluster (Copper, Coal-to-PVC, etc.) and nearby areas

Notes:
* Others include BEST, MSEDCL & Tata Power, AMI – Advanced Metering Infrastructure; BKC – Bandra Kurla Complex, MW – Mega Watt, GDP, RAB - Gross Domestic Product, PU- per unit, ABR- Average billing rate. Source – Population Of Mumbai 2020 (Demographic, Facts, etc.) – India Population 2020. CAGR: Compound Annual Growth Rate, IG : investment Grade
Energy Transition and Adani Group’s Positioning
Energy Basket – India Story

Energy Security: Import dependence in energy

<table>
<thead>
<tr>
<th>MTOE</th>
<th>Primary Energy Supply</th>
<th>Final Energy consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Import</td>
<td>0.5%</td>
<td>53%</td>
</tr>
<tr>
<td>Coal</td>
<td>37</td>
<td>106</td>
</tr>
<tr>
<td>Gas</td>
<td>57</td>
<td>30</td>
</tr>
<tr>
<td>Crude/Oil Products</td>
<td>218</td>
<td>198</td>
</tr>
<tr>
<td>Other (Nuclear, RE, Hydro)</td>
<td>577</td>
<td>221</td>
</tr>
</tbody>
</table>

Green H2 is a green and 100% domestic solution which can address the entire energy basket including hard to abate sectors.

Decarbonization: “Panchamrit” strategy (COP26)

1. 500 GW non-fossil energy capacity by 2030
2. 50% of India's energy requirements from RE by 2030
3. Reduction in total projected carbon emissions by 1 Bn Tons between 2022 & 2030
4. Reduction in carbon intensity of the economy by 45% by 2030, over 2005 levels
5. Target of net zero emissions by 2070

Source: MOSPI (Ministry of Statistics and Program Implementation) report on Energy Statistic – FY21 (P)

Green H2 is central to delivering dual objectives of Energy Security and Decarbonization and can build on existing advantages of Scale and Globally competitive RE cost

MTOE: Million Tonnes of Oil Equivalent; 1 MTOE is equivalent to 0.35 Million tonnes of Hydrogen on Lower Heating Value (LHV) basis | RE: Renewable Energy
The Indian Power sector is undergoing tremendous transition

**Rise of renewables**
- Increasing RPOs
- Increased open access
- Increasing intermittency, cheaper RE and RTC replacing thermal

**Smart Grid and Battery Storage**
- Advanced, intelligent electric grid for real-time insights for demand prediction and control for the distribution grid

**Digitalization & demand response**
- Shifting load profile
- Greater reliability, lower cost, more green power
- New infrastructure & capabilities to enable demand response

**Electric mobility**
- Increase in energy consumption
- Unpredictable change to load pattern
- Charging infrastructure
- New pricing policies

**Consumers to prosumers**
- Distributed generation sources
- Metering & billing system
- Smart meters needed to solve outstanding issues

**New demand centers**
- New demand centers (e.g. data centers, cooling, water, recycling)
- Open access
- Uninterrupted green power

**Emergence of hydrogen based fuels/inputs**
- Decarbonization of Industrial Energy & Mobility
- Green hydrogen substitution for Ammonia, CGD, Fertilizers, Refinery demand
Energy Transition in Charts...

**Figure 1: Share of technologies in installed capacity mix in India %**

![Graph showing the share of technologies in the installed capacity mix in India from 2012 to 2050.](image)

Source: Bloomberg BNEF (BNEF estimates)

**Figure 2: Electricity generation from various technologies (TWh)**

![Graph showing electricity generation from various technologies (TWh) from 2012 to 2050.](image)

**Figure 3: Electricity generation from various technologies %**

![Graph showing the share of electricity generation from various technologies from 2012 to 2050.](image)

**Figure 4: Final electricity demand (TWh)**

![Graph showing final electricity demand (TWh) from 2012 to 2050.](image)
Adani Green’s Renewable Portfolio – A Case Study

Renewable capacity of 20.4 GW is fully funded and confirmed

Adani Family

60.5%

Adani Green

Renewables

19.7%

Public Shareholders

19.8%

20.4 GW

Large Renewable Portfolio

5,800 MW – Operational²

14,634 MW – Locked-in Under Execution

Locked-in Resource

~200,000 acres of resource rich sites in strategic locations

~40 GW of sites with geotechnical, resource analysis & design work done

Adani Family

60.5%

19.7%

Public Shareholders

19.8%

AGE23L¹

2,353 MW

Other Operating

3,447 MW

Locked-in portfolio: 20,434 MW

Under Execution

11,401 MW

Near construction

3,233 MW

50%

100 %

50%

100 %

50%

100 %

100 %

Locked-in -in portfolio: 20,434 MW

89% Sovereign Counterparties

12 resource-rich states

18 different counterparties

89% sovereign counterparties³

Resource and Counterparty Diversification

Fully Contracted Portfolio

100% contracted portfolio⁴

25-year fixed tariff PPAs⁴

Avg. Portfolio tariff: INR 2.99/unit⁵

Notes: ¹ Includes RG 1 (Restricted Group 1) and RG 2 (Restricted Group 2) SPVs, ² Declared operational capacity as of 30-Jun-2022, ³ Includes 5% sovereign equivalent rated counterparties - Gujarat Urja Vikas Nigam Limited (GUVNL) and Adani Electricity Mumbai Limited (AEML), ⁴ Excluding a small merchant solar capacity of 50 MW, ⁵ Average tariff for locked-in growth of 20.4 GW, Capacity in MWac, ¹ Under Execution projects include capacity where PPA is signed, Near Construction projects include capacity awarded and is pending for PPA execution
Adani New Industries Limited (ANIL): The Vision

1. Significant Green Hydrogen demand
   - Green H₂ market of ~6 MMTPA by 2030 and 20-30 MMTPA by 2050

2. Transform India’s Energy Ecosystem
   - Transitioning from imported fossil fuel energy to domestic green energy
   - Adani Group investment of USD 50 bn by 2030 in Green H₂ ecosystem

3. End-to-end supply chain and resource control
   - Execution Risk mitigated by full integration of supply chain
   - Tighter control on cost and resources

4. Integrated Green H₂ ecosystem
   - Green H₂ generation hub at Khavda, Gujarat
   - Green H₂ consumption hub at Mundra, Gujarat

5. Decarbonization of Industrial Energy & Mobility
   - Decarbonisation covering
     - Manufacturing ecosystem,
     - Green H₂ generation and
     - Downstream products like LH2, ammonia, methanol, urea and DAP

Notes: USD: INR 75; H₂: Hydrogen; MMTPA: Million Metric Tons Per Annum
### Green Hydrogen – Massive Potential to Decarbonize Industries

<table>
<thead>
<tr>
<th>End Use Sectors</th>
<th>Green Hydrogen Market (MMT)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refinery Demand</td>
<td>0.13</td>
<td>- Green H₂ consumption by existing refining capacity in line with expected policy from GoI (National Hydrogen Energy mission)</td>
</tr>
<tr>
<td></td>
<td>0.78</td>
<td>- New Refinery projects will further add to demand.</td>
</tr>
<tr>
<td></td>
<td>1.85</td>
<td>- Substitution of Ammonia imports</td>
</tr>
<tr>
<td>Green Ammonia</td>
<td>0.52</td>
<td>- Green H₂ blended with city gas distribution (15% blending expected in line with National Hydrogen Energy mission)</td>
</tr>
<tr>
<td></td>
<td>0.78</td>
<td>- India imports ~10 MT urea. Opportunity to substitute urea imports</td>
</tr>
<tr>
<td></td>
<td>0.46</td>
<td>- GHCO mandates as decided by MNRE</td>
</tr>
<tr>
<td>CGD Demand</td>
<td>0.06</td>
<td>- Green methanol production which can be blended with diesel for lower emissions</td>
</tr>
<tr>
<td></td>
<td>0.19</td>
<td>- Pilots are being conducted for 15% methanol blending with diesel</td>
</tr>
<tr>
<td></td>
<td>0.46</td>
<td>- Forecast in line with MNRE projections, additional demand from green shipping fuel</td>
</tr>
<tr>
<td>Green Fertilizer</td>
<td>0.26</td>
<td>-</td>
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<tr>
<td></td>
<td>0.67</td>
<td>-</td>
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<tr>
<td></td>
<td>1.51</td>
<td>-</td>
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<tr>
<td>Mobility - Methanol</td>
<td>0.18</td>
<td>-</td>
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<tr>
<td></td>
<td>1.35</td>
<td>-</td>
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<tr>
<td></td>
<td>8.66</td>
<td>-</td>
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<tr>
<td>Exports and Shipping fuel</td>
<td>0.30</td>
<td>-</td>
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<tr>
<td></td>
<td>2.50</td>
<td>-</td>
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<td></td>
<td>8.50</td>
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<tr>
<td>Total</td>
<td>0.9</td>
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<td>6.0</td>
<td>-</td>
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<td></td>
<td>21.8</td>
<td>-</td>
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</tbody>
</table>

Notes: GHCO: Green Hydrogen Consumption Obligation; CGD: City Gas Distribution; MMT: Million Metric Tons; MT: Metric Tons; MNRE: Ministry of New & Renewable Energy; H₂: Hydrogen; GoI: Government of India
ANIL: Green Hydrogen Ecosystem for First phase of 1.0 MMTPA

Key components of the project which is to be executed for 1.0 MMTPA Green H2 ecosystem include:

1. Hybrid RE Generation
2. H2 Pipeline
3. Electrolyzer for Green H2 production
4. Green H2 Compression
5. Green Ammonia
6. Green Ammonia Offtake

- ~20 GW+ Renewable Energy
- Capacities to be optimized with further studies
- ~210 Km pipeline
- Up to ~14 GW Electrolyzer capacity
- 1 MMTPA Green Hydrogen (H2) production
- ~5.6 MMTPA Green Ammonia capacity or equivalent derivatives
- Development of derivative transport infrastructure at Mundra port
- Export to EU, Japan and Korea
- Domestic demand

1) ANIL to also explore Urea and/or methanol production or LH2 possibilities as per Carbon Dioxide (CO2) availability and market study
Mundra SEZ: The largest integrated Green Hydrogen Hub in the world

Full suite of Hydrogen offerings ...  ... For multiple end uses including substantial captive use in Adani Portfolio businesses ...  ... And backed by credible action on ground

1. RE capacity directly connected 1. Green Fertilizers 1. Only Hydrogen Hub developed by a player with
   • 48 GW
   • Green Hydrogen
   • Green Hydrogen
   • 7.54 MMTPA
   • Green Ammonia
   • 2.54 MMTPA
   • Green Methanol
   • Supports 1.5 MMTPA ecosystem
   • Hydrogen Compression & Storage
   • Available as required
   • Other technologies (LH₂, LOHC)

2. Up to 2.54 MMTPA 2. Exports as ammonia 2. Backed by ongoing investments

3. Up to 7.54 MMTPA 3. Marine Mobility (Ammonia, Methanol) 2. - Polysilicon capacity (30 KMTPA by FY25)

4. Up to ~1.7 MMTPA 4. Long haul & heavy Trucking (Methanol for diesel blending) 2. - MOU with POSCO for integrated Green Steel plant

5. Steel, Petrochemicals

6. Fuel cell mobility at Mundra & other ports

7. Polysilicon, CGD, Edible oil & other Small scale users of H₂

8. Power generation - Cofiring

Notes: RE: Renewable Energy; PVC: Polyvinyl chloride; MMTPA: Million Metric Tons Per Annum; LH₂: Liquid Hydrogen; LOHC: Liquid Organic Hydrogen Carrier; CGD: City Gas Distribution; KMTPA: Kilo Metric Tons Per Annum; GW: Gigawatt; MOU: Memorandum of Understanding; SEZ: Special Economic Zone
The Defining Decade for Indian Power Sector...

India's energy landscape has evolved very rapidly over the last decade...

...and as a country we had many achievements and strides to boast in areas like grid stability, demand growth, electrification...

...however next decade is extremely crucial in terms of clean energy transition, energy security and delivering net zero

Distribution is a very critical link which can make or break the vision...

...however, with right set of reforms and decisive actions sector is well poised to grow and achieve the desired goals
Annexure
**Convergence**: With the advent of Hydrogen the power and fuels space are coming together – Excess RE can be converted to Hydrogen which can replace liquid fossil fuels currently prevalent.

Source: BNEF

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Source: BloombergNEF, IEA, IPCC. Note: The IEA’s Current Policies Scenario is extrapolated using data from 2030 and 2040 to approximate final energy consumption in 2050. The 1.5°C compatible pathway is the median value for the 53 pathways analysed by the IPCC limiting global warming below 1.5°C, or 1.5°C with limited overshoot.
Innovation is the key factor in facilitating energy transition...

High RE is expected to be penetrated in the grid by 2030....

....resulting in higher variable generation and making it necessary to have a flexibility option

High variable generation in the grid causes system balancing issues to accommodate the supply side variability during various load conditions

India needs to build flexibility in the existing coal plants to address the variable RE challenge and to provide grid stability

Source: CEA optimal energy mix report, IEA
Thank You