Thoughts on distribution sector reforms

Prayas (Energy Group), Pune

NITI Aayog
New Delhi, 19th April 2017
Decades old challenges and diagnosis still relevant

- Financial viability of DISCOMs
- High cost of supply
- Inadequate access and poor supply quality
- Non-competitive tariffs for large consumers

**Causes**

- **Issues with power procurement**
  - 80% costs due to power purchase
  - High cost of generation
  - Flawed planning

- **Operational Efficiency**
  - Persistent AT&C losses
  - High O & M expenses
  - High cost for little benefit in capex projects.

- **Skewed Tariffs**
  - Subsidy to agriculture, other consumers
  - Excessive cross subsidy
Distribution Sector – New challenges → new approach

- Increasing sales migration due to high tariffs
  - Open Access and Captive options
    - HT sales growth rate in Punjab, Maharashtra and Madhya Pradesh has been negative in the recent past.
    - Most of the open access is on short-term basis (day ahead)
    - 40% increase in captive consumption in Gujarat (29,000 MU) and Rajasthan (11,300 MU) between FY11 and FY15
  - Falling prices of renewable energy
    - Latest discovered tariffs < Rs.4/kWh
- Growing surplus power and its financial impact

<table>
<thead>
<tr>
<th>State DISCOM (2015-16)</th>
<th>Backing Down Reported (MW)</th>
<th>% of Contracted Capacity (%)</th>
<th>Fixed Cost Payments to due to Backing Down (Rs. Cr)</th>
<th>% of total fixed cost payments to generators</th>
<th>Fixed cost payments for backing down as compared to agricultural subsidies (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rajasthan</td>
<td>1,798</td>
<td>14%</td>
<td>1,051</td>
<td>16%</td>
<td>59%</td>
</tr>
<tr>
<td>Punjab</td>
<td>3,457</td>
<td>27%</td>
<td>3,006</td>
<td>33%</td>
<td>51%</td>
</tr>
<tr>
<td>Maharashtra*</td>
<td>4,231</td>
<td>19%</td>
<td>2,828</td>
<td>21%</td>
<td>59%</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>2,444</td>
<td>17%</td>
<td>2,177</td>
<td>28%</td>
<td>40%</td>
</tr>
<tr>
<td>Gujarat</td>
<td>5,525</td>
<td>30%</td>
<td>3,823</td>
<td>36%</td>
<td>348%</td>
</tr>
</tbody>
</table>

Source: Various regulatory submissions and tariff orders
*Maharashtra data for the year 2016-17
Renewable energy: A feasible and lucrative option.

Gujarat
55% of sales have energy charge above solar price
Indicative rooftop solar price of Rs. 5/kWh

Andhra Pradesh
53% of sales have energy charge above solar price
Indicative rooftop solar price of Rs. 5/kWh

Maharashtra
52% of sales have energy charge above solar price
Indicative rooftop solar price of Rs. 5/kWh
Solar generation profiles and customer loads

- Solar power generated (kW)
  - without tracking
  - with single axis tracking
- Load (kW), constant 50 kW for 8 hours

Oversized solar + battery ~ 6 Rs. / kWh
Emerging scenario

- Non-discom supply options will be more economical and technically feasible for ‘paying consumers’
  - Demand uncertainty for Discoms
  - Power purchase planning will become more complex
  - Increasingly limited scope for cross-subsidy based tariff design

Role of DISCOM is changing:

- Current scenario
  - Responsible for wires and supply
  - Universal supply obligation
  - Dominant grid user
  - State demand ≅ discom demand

- Future scenario
  - Provider of wires
  - Supplier of last resort
  - Grid balancing
  - Meeting energy needs of small LT, rural and agri. consumers
PEG perspective...1

• Transition inevitable, but can be used as an opportunity to bring about meaningful long term changes

• Political economy of the sector is changing
  – Levers of tariff and cross-subsidy will be ineffective
  – Many new players will enter the scene
  – Hitherto neglected, small and rural consumers will become the key constituency of discoms
    • Supply and service quality issues will become as political as tariff

• Next 3-5 year period should be used to as ‘Transition Period’ to ‘FUTURE DISCOMS’
PEG perspective...2

• Key strategies needed
  – Shrinking the distribution / power purchase pie
    • Avoid need for long term PPAs by DISCOMs
  – Deepening and broadening power market
    • Scale-up ‘buyers’ and more effective market instruments
  – Re-thinking tariff design
    • Focus on ‘timely and automatic’ tariff increase for LT and moving away from ‘cost-plus’ to ‘performance and benchmarking’ based tariff
  – Harnessing technology to enhance transparency and accountability
    • AT&C losses, supply quality monitoring
Shrinking the pie ...1

• Mandating and facilitating sales migration on LONG TERM BASIS
  – Starting with 1 MW + and in subsequent phases 500 kW / 100 kW +
  – “Contestable consumers” opting to stay with Discom charged premium tariff
  – Fixed but tapering cross-subsidy surcharge (say Rs. 3 per unit) for the next 5 years
  – Strictly no ‘administrative’ hurdles for consumers moving away from DISCOMs
  – Consumers manage their supply from market sources, including surplus power of discoms

• No new power purchase contracts by discoms for the next few years
  – Increase in demand (e.g. LT segment) to be met by capacity relieved from OA consumers supply obligation
Shrinking the pie ...2

• Better market design
  – Seasonal and medium term market instruments for enabling transparent trading of power
  – Enable access to market and ancillary services for migrating consumers

• What this achieves?
  – Avoid ‘burden / opportunities’ for new PPAs
  – Existing / depreciated generation progressively dedicated to serve LT network and HT consumers participating in ‘market based pricing for generation’
  – With loss of cross-subsidising consumers, discoms will have no choice but to reduce inefficiencies
  – Deepening and broadening of power markets
  – Decisions for capacity addition to be made by players who are better suited to manage these risks
Re-thinking tariff design

• Cross subsidy surcharge
  – Fixed, but tapering, decided for long term (5 yr. +)
  – Applicable for captive and all non-DISCOM consumers

• LT general tariff category
  – Combine all small (up to 300 units per month) residential and non-residential consumers under one tariff category
  – Tariff increase to be automatic (similar to FAC) on annual basis and linked to inflation

• Better implementation of MYT
  – Moving to benchmarking rather than “cost plus” approach to decide distribution cost

→ What this can achieve?
  – Tariff certainty for small consumers
  – Assured tariff revision for discoms
  – ERC can focus more on wires business, loss reductions and supply quality monitoring
Harnessing technology to improve transparency, and public accountability

• With proliferation of players, regulatory challenges will also multiply

• Huge trust deficit between discom and small consumers regarding metering, billing and service quality issues needs to be addressed

• Technology can be used to effectively deal with some of these challenges
  – Use of sophisticated metering infrastructure for monitoring power transactions
  – Data based commercial settlements, e.g. agriculture feeder data to be used for agriculture sales estimation
  – Real time supply quality monitoring with data in public domain

➔ What this can achieve?
  ➔ Improve reliability and accuracy of regulatory decisions
  ➔ Stronger accountability mechanisms for both licensees and regulators, and higher transparency
  ➔ Better informed public debate on the sector issues
In summary

• Future DISCOMs to act as supplier for LT consumers and Wires Utility for HT and LT consumers

• Move away from ‘cost-plus’ approach to benchmarking based approach for distribution costs as well as retail tariff

• New generation largely based on ‘market principles’ to be contracted by large consumers directly (without DISCOMs as intermediary)

• Facilitating ‘public accountability’ through technology for improving ‘wires’ performance and ‘supply quality’

• Strengthening transparency, accountability and meaningful public participation for addressing ‘governance deficit’

• There will be need for transition financing / UDAY like mechanism (state governments taking over part of liability) in the transition period
THANK YOU

shantanu@prayaspune.org
ann@prayaspune.org
ashwini@prayaspune.org

www.prayaspune.org/peg