

Challenges before DISCOMs' today and options to avoid the financial crisis of tomorrow.

The Fiscal Oversell of Power DISCOMs and the Reverberation of its Payment Default on Banks and Customers

The Energy Finance Conference-India
IGCS Hall, IIT Madras
16th August 2019

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Outline

- Emerging trends in the electricity sector
 - Chronic problems faced by DISCOMs and recent trends : An overview
 - Increasing cost and increasing tariffs and how efforts to curb them are ineffective
- The inevitable and changing role of the DISCOM
- Some ideas for the bumpy road ahead

Recent trends

- **Sustained surplus in base power**
 - High cost surplus due to aggressive capacity addition in the recent past
 - 15% to 35% of total fixed cost payments to generators is for backed down capacity in many states
- **Wind/solar PV and coal generation prices**
 - Rs 2.5-3/kWh for wind/solar & fixed for 25 years, vs. Rs 4-5/kWh for new coal
- **Rising average cost of supply (ACOS) and Tariffs**
 - More than Rs. 7/unit and rising at 6% per annum
- **Competitiveness of alternative supply options, increasing sales migration**
 - Open Access, Captive, net-metering – accelerating, loss of CSS, planning difficult.
- **Relentless fall in Li-ion battery prices**
 - Can help further reduce dependence on DISCOM in the medium –term

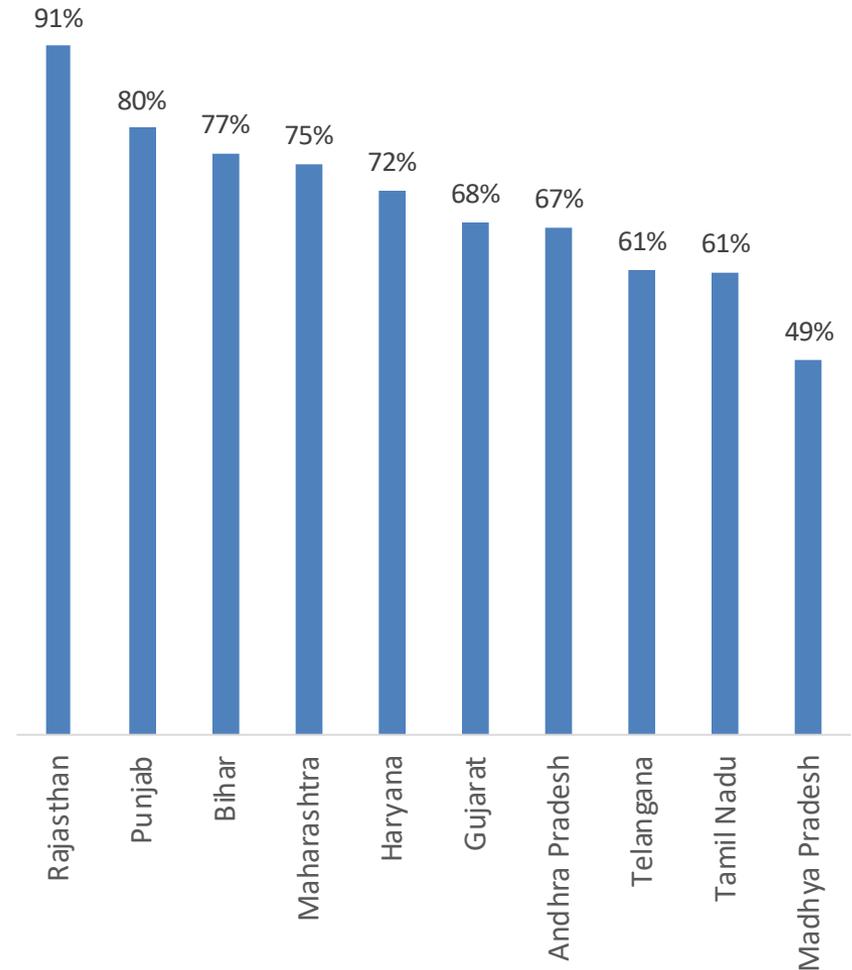
Increasing costs and rising tariffs

Tariffs

- Cross subsidy significant for HT,LT industrial, commercial consumers > **130-140% of ACoS**
- Average tariffs for cross-subsiding consumers ~ **Rs. 9/ unit**

Power from Alternate Sources

- Cost of RE power < **Rs. 4/unit**
- **> 70% of non-agri. sales** with energy charges > Rs. 5/unit
- Short/medium term power < **Rs. 4 unit**
- **Short term rather than long term**



■ Share of non-agriculture sales with energy charge greater than Rs.5/kWh



Challenges before the DISCOM in near future

Aggressive High Cost Capacity Addition in the past decade

ACOS at Rs.7/kWh and growing

Increased RE Capacity Addition and Need for Peaking Power in recent past

Alternate supply options @ < Rs.5/unit, strategies to retain consumers ineffective

Sustained Surplus base load capacity

Rapid anticipated increase in sale migration

Uncertainty in demand and power procurement strategies needed

Fast eroding scope for reliance on cross subsidy

- Increase in tariffs or revenue subsidy or financial losses → more bailouts
- Could result in poor supply quality for small consumers
- High risk of more stranded assets in the future

Limited scope of current strategies in tackling these challenges

- **Improving efficiency → reduce ACoS, tariff**
 - ↑ due to need for additional capex, loan repayments and wage increase
 - Heroic efforts to ↑ efficiency will ↓ rate of growth of ACoS but not stall it
 - Efforts to surrender capacity and terminate PPAs have been ineffective
 - *Cost of supply and tariffs will continue rising.*
- **Increasing fixed charges, for same ABR**
 - For e.g. - fixed charges doubled to reduce energy charges to retain consumers
 - Energy charges may reduce by 10-20% but will remain > Rs. 5/unit
 - High incidence of fixed charges will make shift to solar PV captive more lucrative.
 - *Counter-intuitively, this strategy can encourage sales migration.*
- **Reduction in tariff to retain migrating consumers**
 - Tariff rebates and ToD rebates provided in many states but with limited success
 - Maharashtra examples
 - *Despite 16% tariff ↓ due to industrial subsidy, open access increase by 29% in FY16*
 - *Even with ToD rebate of Rs. 1.50/kWh, open access is same in peak and off-peak hours*
 - Could increase subsidy burden / DISCOM losses (Punjab @ Rs. 4.99, MP incremental consumption rebate)

(Inevitable) Changing role of the DISCOM

Trends raise fundamental questions about viability of current business model

- 'Cost-plus' method for tariffs, revenue recovery; little incentive for improving efficiency.
- Cross – subsidy based tariff design unsustainable
- Base load power procurement in the face of demand uncertainty

Current scenario

Wires and supply

Universal supply obligation (USO)
for all consumers

Dominant grid user

State demand \cong DISCOM demand

Cross-subsidy-based model

Future scenario

Mainly, wires licensee

Provider of last resort

Grid balancing

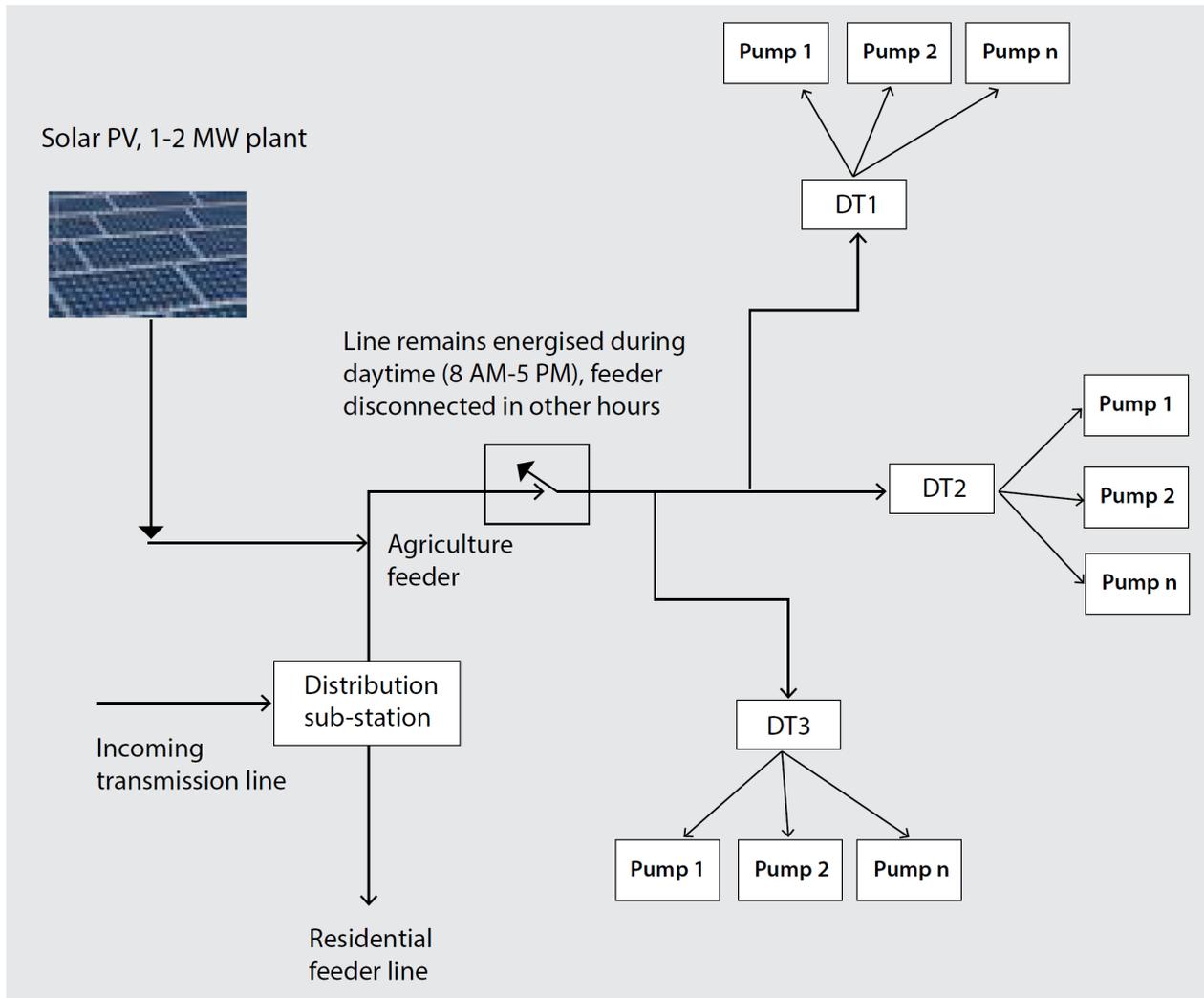
USO only for small consumers

New revenue models

Some ideas for discussion...1

- **Avoid long-term, base load power purchase contracts**
 - Reevaluate need for 25 year base load PPAs, given RE addition, uncertain demand
 - New PPAs after rigorous analysis of demand, supply alternatives
 - Use analytical tools - load forecasting models, power sector models for exercise
 - Capacity addition planning through a public process with regular re-evaluation
- **Encourage Long-term sales migration of large consumers**
 - OA consumers to procure from DISCOMs only via 'non-regulated' tariffs, contracts
 - Minimum duration of Open Access : 1 year, short-term only for contingencies
 - Fixing sales migration charges (CSS & AS) for a 5 year period to provide certainty
- **Agricultural demand met through solar feeders, where possible**
 - Deploy 2-10 MW scale solar PV plants at the sub-station on separated feeders
 - Capacity procurement through competitive bidding , 25 yr. PPAs @ fixed rate
 - Significant ↓ in subsidy with fixed solar tariff of ~ Rs 3/kWh , rising APPC
 - Approach already part of KUSUM scheme of GoI

Solar Agriculture feeders - Maharashtra status



- 'Chief Ministers solar feeder policy'.
- 1.5-2 GW tendering underway
- Discovered price – Rs 3.1/kWh, much lower than present APPC of Rs 4/kWh.
- Plans to further scale it across state.

Some ideas for discussion...2

- **Rationalising tariff design**
 - *Move away from cost-plus regulation; explore price cap/benchmarking*
 - CERC MYT regulations, MERC Draft MYT Regulations
 - *Introduce a general tariff for small consumers*
 - Same tariff slabs for all industrial, commercial ,domestic consumers using <300 units
 - High intra-category cross subsidy to ensure revenue neutrality
 - *Link tariff increase of < 300 units to inflation*
- **Steps to encourage market participation**
 - Innovations in power procurement and contract design
 - Flexible market instruments
 - Increased market monitoring (incl. open access and captive consumption)
- **Increasing accountability for supply and service quality**
 - Harnessing technology to monitor actual hours of supply, ensure real time reporting
 - Third party audits for metering and billing and public hearings for quality of supply and service

Unless guided by conscious policy decisions, these changes will unfold chaotically, leaving the distribution companies stranded with excess capacity and huge losses.

The sufferers of such a fallout will be mostly small and rural consumers with serious implications for state level politics.

To avoid such consequences, it is extremely important to intervene at the earliest.

The impending changes can be turned into opportunities only if distribution companies, regulators, and policymakers begin acting at the earliest.

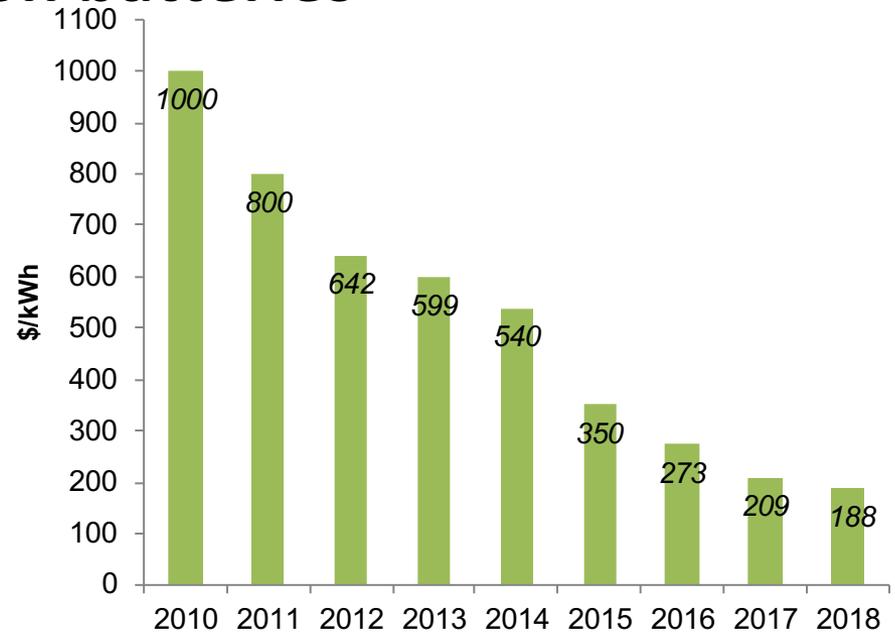
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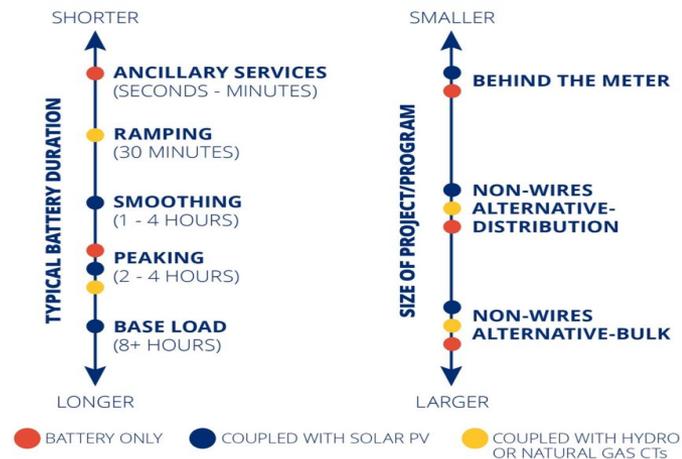
Electric Storage, esp. Li-ion batteries

- \$ 1000 - 209/kWh (2010-17), 80% reduction, @ 25% annual avg. reduction
- Expected at \$ 100/kWh by 2025 or even earlier. Even a lower 10% CAGR from 2017-2 would result in \$ 90/kWh.
- 2019 industry estimates for cost reduction at 18%
- Extremely modular, low gestation period and multiple applications

Can fundamentally change the sector planning, operation and business model of utilities.



TYPICAL APPLICATIONS OF ENERGY STORAGE



Source: Smart Electric Power Alliance, 2018

Resources regarding Solar Feeder

- **Government of Maharashtra, Industries, Energy and Labour Department GRs on solar feeder.**

- Govt. of Mah GR dated 14-06-2017- [Chief Minister's Solar Agriculture Feeder Scheme](#)
- Govt. of Mah GR dated 17-03-2018- [Amendment in Mukhyamantri Sour Krishi Vahini Yojana for effective implementation](#)

- **Maharashtra Electricity Regulatory Commission orders on solar feeder.**

[Case No. 164 of 2017](#), dated 9th Jan, 2018: MSEDCL seeking approval for procurement of 200 MW of solar to be set up in the premises of its existing substations.

[Case No. 131 or 2018](#), dated 12th June, 2018: MSEDCL seeking approval for deviation in SBGs for procurement of 1000 MW of Solar Power capacity under “Mukhyamantri Saour Krishi Vahini Yojana” with 2 to 10 MW size through reverse competitive bidding.

[Case No. 172 of 2017](#), dated 16th October, 2018: MSPGCL seeking removal of difficulties in implementing “Mukhyamantri Solar Agricultural Feeder Scheme”, approval of draft PPA & PSA.

[Case No. 178 of 2018](#), dated 19th July, 2018: MSEDCL seeking approval for supplying day-time power to Ag consumers connected to solar feeders.

[Case No. 270 of 2018](#), dated 16th October, 2018: MSEDCL seeking approval for deviation in SBGs for procurement of 1400 MW of Solar Power capacity under “Mukhyamantri Saour Krishi Vahini Yojana” with 2 to 10 MW size through reverse competitive bidding.

[Case No. 277 of 2018](#), dated 27th November, 2018: Petition of Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL) for seeking approval for long term procurement of 235MW Solar Power under ‘Mukhyamantri Saur Krishi Vahini Yojana’ with 2 to 10 MW Capacity projects connected to distribution network under section 63 of the Electricity Act, 2003 for meeting the Solar Renewable Purchase Obligations.

[Case No. 308 of 2018](#), dated 29th November, 2018: Case of Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL) seeking approval for adoption of Tariff of Long Term Procurement of 302 MW Solar Power through MSPGCL from the solar Projects to be set up under ‘Mukhyamantri Saur Krishi Vahini Yojana’ to meet its Solar Renewable Purchase Obligations.

[Case No. 7 of 2019](#), dated 15th February, 2019: Case of Maharashtra State Electricity Distribution Co. Ltd. seeking approval for adoption of tariff for long term procurement of 180 MW Solar Power under ‘Mukhyamantri Saur Krishi Vahini Yojana’ with 2 to 10 MW Capacity projects connected to distribution network under Section 63 of the Electricity Act, 2003 for meeting the Solar Renewable Purchase Obligations.

[Case No. 15 of 2019](#), dated 22nd February, 2019: Case of Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL) seeking approval for adoption of Tariff discovered through competitive bidding process conducted by MSPGCL for Long Term Procurement of 200 MW Solar Power, under Section 63 of the Electricity Act, 2003 from the solar Projects (Phase-I) to be set up under ‘Mukhyamantri Saur Krishi Vahini Yojana’ to meet its Solar Renewable Purchase Obligations.

[Case No. 64 of 2019 And MA No 7 of 2019](#), dated 7th June, 2019: Case of Maharashtra State Electricity Distribution Co. Ltd. seeking approval for adoption of Tariff discovered for Long Term Procurement of 1170 MW Solar Power under 'Mukhyamantri Saur Krishi Vahini Yojana' for meeting the Solar Renewable Purchase Obligations AND Intervention application of Shri. Nitin Shetty challenging the bidding process undertaken by MSEDCL under Section 63 of the Electricity Act 2003

