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India's Power Distribution Sector: An assessment of financial and operational sustainability

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Introduction

The Indian power sector value chain can be broadly segmented into generation, transmission, and distribution sectors. At an all-India level, the total installed **generation capacity** was 3,56,100.19 MW as on March 31, 2019 (provisional). The peak load demand of 1,75,528 MW during FY 2018-19 was largely met, considering that the peak load supply shortfall was 1494 MW (0.8%).[1] This indicates that power deficits on account of generation capacity shortfall, which plagued the sector till recently, have been addressed. In the next five years, the Central Electricity Authority (CEA) estimates that existing generation capacity, augmented by power projects to be commissioned during this period, will be adequate to meet the energy demand growth.

In the **transmission sector,** India's regional grids (Northern, Eastern, Western, North-Eastern, and Southern) are currently integrated into one national grid. By the end of the 12th plan period (2012-2017), India had total inter-regional transmission capacity to transfer nearly 75,050 MW. This is expected to increase to about 1,18,050 MW by the end of the 13th Plan (2017-2022) and will be adequate to meet the energy flow requirements across the regions within India.[2]

The distribution sector consists of Power Distribution Companies (Discoms) responsible for the supply and distribution of energy to the consumers (industry, commercial, agriculture, domestic etc.). This sector is the weakest link in terms of financial and operational sustainability. It is worth noting that the total outstanding dues of Discoms payable to generators/creditors as of February 2019 stood at an alarming level of Rs. 418.81 billion, as per data from 58 Discoms reported by 17 participating GENCOs (Generation Companies). This included the overdue amount of Rs. 267.56 billion > 60 days payable to the generators.[3]

Discoms' efficiency and power sector sustainability

Power distribution companies collect payments from consumers against their energy supplies (purchased from generators) to provide necessary cash flows to the generation and transmission sectors to operate. Due to the perennial cash collection shortfall, often due to payment delays from consumers, Discoms are unable to make timely payments for their energy purchases from the generators. This gap/shortfall is met by borrowings (debt), government subsidies, and possibly, through reduced expenditure. This increases the Discoms' cost of borrowing (interest), which is inevitably borne by the consumer. This also undermines the ability of the Discoms to purchase and distribute power to fulfil their Universal Supply Obligation (USO) as defined in the Electricity Act 2003 or borrow for capital expenditure to meet load augmentation and growth requirements. Discoms must therefore, (a) buy cost-efficient power for consumers, (b) ensure supply reliability with quality by minimising losses/leakages (c) accurately meter, bill, and collect payments from the consumers, and (d) thereby, enable timely payments to the generators. These are key steps towards sustaining the entire energy value chain without power supply disruptions.

Since India gained independence in 1947, the central and state governments have launched a number of schemes and initiatives aimed at improving the operations and financial health of Discoms. Despite these steps, their success has been limited so far and the distribution sector continues to be a resource drain on the Indian economy. The power sector has seen multiple interventions by government – financial restructuring/ bailout (Ahluwalia Committee 2001, Central FRP Scheme 2012), operations, infrastructure, and technology improvements (APDRP 2001, R-APDRP/IPDS 2008, DDUGJY & SAUBHAGYA 2014/2017, Smart Grid Pilot project & NSGM 2012-15), and structural reform (Electricity Act 2003). UDAY (Ujwal Discom Assurance Yojana) scheme, launched in November 2015, is the latest attempt to address the severe financial stress due to accumulation of debt by the Discoms, with a focus on improving the overall efficiency and financial turnaround.[4]

As the data on distribution sector financials and operations shows, the power sector today faces the critical challenge of avoiding a financial crisis. In all likelihood, another scheme to address the shortfall of UDAY's targets, is on the horizon. The objective of this paper is to critically analyse the performance of Discoms in the context of UDAY, launched by the Government of India almost four years ago, for the operational and financial turnaround of the Discoms.

[1] Central Electricity Authority (CEA), Ministry of Power, Govt. of India. www.cea.nic.in
[2] Power Grid Corporation of India: www.powergridindia.com
[3] Ministry of Power website: www.praapti.in
[4] FRP (Financial Restructuring Program), APDRP/R-APDRP (Restructured-Accelerated Power Development Program), IPDS (Integrated Power Development Scheme), DDUGJY (Deen Dayal Upadhyay Gram Jyoti Yojana, SAUBHAGYA (Sahaj Bijli Har Ghar Yojana), NSGM (National Smart Grid Mission).

This paper also aims to offer an analysis of Discoms' performance, and establish the key areas of focus going forward, with strategies proposed for each focus area.

The UDAY scheme envisages the financial and performance turnaround of India's Discoms. 27 states and five Union Territories have signed up for participation. The scheme's objectives are:

a) Financial turnaround.
b) Operational improvement.
c) Development of renewable energy.
d) Reducing the cost of generating power.
e) Energy efficiency and conservation with the ultimate objective of availability of 24x7 power for all at an affordable price.

Financial losses of Discoms: Current and future perspectives[5]

1. As per the UDAY scheme, for financial turnaround, states will take over 75% of the Discom debt as on September 30, 2015, split as 50% in FY 2015-16 and 25% in FY 2016-17. The states are supposed to issue non-SLR (Statutory Liquidity Ratio) including SDL (State Development Loan) bonds, to take over debt and transfer the proceeds to Discoms in a mix of grant, loan, and equity. Maturity period of bonds would be 10-15 years, and the moratorium period would be up to five years. Rate - G-sec plus 0.5% spread plus 0.25% spread for non-SLR. Borrowing is not to be included for calculating fiscal deficit of the state. The remaining 25% of debt would stay with Discoms in the following manner: issued as state-backed Discom bonds, or re-priced by banks/financial institutions at interest rate not more than bank base rate + 0.10%. States would take over future losses of Discoms as per trajectory in a graded manner. [0% of loss of 2014-15 & 2015-16; 5% of 2016-17; 10% of 2017-18; 25% of 2018-19 & 50% of 2019-20]. Balance losses are to be financed through state bonds or Discom bonds backed by state government guarantee, to the extent of loss trajectory finalised with Ministry of Power. Jharkhand and Jammu & Kashmir to be given special dispensation for takeover of outstanding CPSU dues.[6]

2. This financial restructuring of the debt burden of the state Discoms is 75%-100% complete for individual states, with the overall issue of 86.29% of bonds worth Rs. 2321.63 billion as of December 2018. The aim is to reduce the Discoms' debt by Rs. 3 trillion, resulting in substantial interest burden savings amounting to Rs. 250 billion-300 billion. This is subject to limitation of the markets to absorb these bonds.

3. **Financial losses as of FY 2018:** The scheme aims to substantially reduce the overall Discom losses from Rs. 514.80 billion in FY 2015-16 to Rs. 200 billion by 2018 (as projected by the Ministry of Power). Target reduction of the annual operating losses to Rs. 100-150 billion. The book losses have reduced to Rs. 150.49 billion in FY 2018 from Rs. 514.80 billion in FY 2016.[7]

4. **Future projection of financial losses:** Assuming future energy demand growth at 5%, AT&C reducing by 1% every year from level of 22% in FY 2018, the financial losses of Discoms (overall) will fall to Rs. 180 billion in 2021, from an estimated Rs. 260 billion in FY 2018 (Department Of Power estimate at Rs. 200 billion). Per estimates, the subsidy level will increase to Rs. 955 billion in 2021 from current level of Rs. 800 billion in FY 2018.[8]

[5] ICRA presentation, Discom Finances, Power Distribution In India, Nov. 20, 2018
[6] UDAY website www.uday.gov.in
[7] January 2019 Newsletter: UDAY website. www.uday.gov.in
[8] ICRA presentation, Discom Finances, Power Distribution In India, Nov. 20, 2018

A snapshot of UDAY: National targets

Table 1. UDAY National Dashboard: Overall Target vs Current Achievement Status[9]

Key UDAY Parameter	Target value No./million[10]	Target Date	Achievement March 2018	Achievement Dec. 2018
1. AT&C losses	15%	FY 2019	18.7%	20.00%
2. ACS-ARR Gap	Zero	FY 2019	0.17 Re/kwh	0.33 Re/kwh
3. Feeder metering	100% (98164 no. Rural, 42103 no. Urban)	30thJune 2016	100% completed	100% completed
4. DT Metering	100% (1.536 million – Urban, 4.156 million Rural)	30th June 2017	64% - Urban 61% - Rural	80% - Urban 59% - Rural
5. Consumer indexing/GIS	100%	30th Sept 2018	In progress	In progress
6. Upgradation of DT, meters	100%	31st Dec 2017	In progress	In progress
7. Smart Meters Installation	100% (5.73 million) 100% (18.43 million)	>500-kwh Dec 2017. >200<500 kwh Dec 2019	In progress In progress	4% - Dec 2018 2% - Dec 2018

Note: For field/site operational parameters like Feeder, DT metering, consumer indexing/GIS, smart meters, etc. these are moving targets due to increasing numbers of consumers/energy consumption load being added since UDAY scheme started in November 2015).

Performance analysis:

Table 1 above compares targets set out under with the actual achievement as of March 2018 and December 2018.

1. Aggregate Technical & Commercial Loss (AT&C).

The AT&C loss reduction from 26% (2015-16) to 15% overall (Target for March 2019) was projected to contribute around Rs. 550 billion in four years. The AT&C loss at all-India level was 18.7% in FY 2018 and projected to reduce to around 18% in FY 2019. This value falls far short of the 15% overall loss level target set by UDAY for FY 2019.

At state-level, in March 2018, 14 Discoms reported loss reduction below the target level of 15% AT&C, eight of which are in the states of Gujarat, Karnataka, and Andhra Pradesh. This trend continued in December 2018. However, Discoms in the the states of Uttar Pradesh (33.08% in March 2018 to 31.24% in December 2018), Haryana (23.11% in March 2018 to 18.99% in December 2018) Madhya Pradesh (29.74% in March 2018 to 31.41% in December 2018), Punjab (29.67% in March 2018 to 20.02% in December 2018), and Rajasthan (26.01% in March 2018 to 24.08% in December 2018) either recorded increase or maintained significantly high AT&C losses.[11]

[9] UDAY website. www.uday.gov.in. (State Health Cards) Site accessed on April 29, 2019

[10] Amandeep Kaur and Lekha Chakraborty. Conference on Power Distribution in India, 'Opportunities Among Challenges', Key trends, Outlook, Nov.19-20, 2018. Table A16 Aggregate operational indicators under UDAY, October 2018.

[11] UDAY website. www.uday.gov.in. (State Health Cards) Site accessed on April 29, 2019.

2. ACS (average cost of supply per unit of power) and ARR (average revenue realised per unit) i.e. ACS-ARR gap:

On an overall basis, the January 2019 newsletter on UDAY website shows that the ACS-ARR gap of Re. 0.58/unit in 2015-16 came down to Re. 0.17/unit in 2017-18, with estimated reduction of Rs. 360 billion in book losses. A trend reversal (deterioration) is indicated as the national dashboard of UDAY website depicts the ACS-ARR gap to be Re 0.33/unit as on December 2018 after tariff revisions for 25 out of 27 states.[12] (These are the tariff revisions by respective state regulators that resulted in 0.33/unit ACS-ARR gap – timing of regulatory orders is during the year up to December 2018, as per data on the UDAY website).

3. Feeder metering, DT metering, Consumer indexing, GIS (geographical information system), Upgradation of DT (distribution transformer), metering, & smart meters.

Feeder & DT metering, consumer indexing, and GIS are essential enablers for a Discom to do energy accounting of its distribution, to precisely identify pockets of high-energy losses like theft etc., and take enforcement action measures. While metering at 11 KV feeder level is 100% the downstream elements of DT metering, consumer indexing is lagging with respect to completion dates.

As the way forward on AT&C loss reduction, the Ministry of Power had requested states to focus in FY 2018 on loss reduction in 189 divisions in eight states with AT&C losses>40%. By identifying specific areas (divisions) representing high losses to focus on, it is estimated that Rs. 85 billion/annum savings will accrue if losses are reduced by 50% (40,000 Mus to 20,000 Mus) in these 189 divisions.[13]

The installation of Smart Meters will provide new services and automated integration with IT backend of Discoms, but is not an essential prerequisite for AT&C loss reduction. Discoms from Delhi, Mumbai, Ahmedabad, Kolkata, and Gujarat operating with present generation of ordinary electronic meters, have achieved AT&C loss reduction level below 15%.

In Table 2 below, we look at the factors that led to increase of revenue of the Discoms and reduction of book loss in FY 2017-18.

Table 2. Factors contributing to revenue increase in FY 2017-18.[14]

Parameter	Rs. (In billion)	%
FY 17 total income	4840.81	-
FY 18 Increase including subsidy booked:	-	-
1. Billing efficiency	54.03	8
2. Tariff hike	225.30	34
3. Energy supply	280.53	42
4. Other income	105.07	16
TOTAL INCREASE FY 18	664.94	100
FY 18 total income	5505.75	-

[12] January 2019 Newsletter and Consolidated All India Data accessed on April 29, 2019: UDAY website. www.uday.gov.in
[13] January 2019 Newsletter: UDAY website. www.uday.gov.in
[14] January 2019 Newsletter: UDAY website. www.uday.gov.in

Analysis of revenue increase:

1. **An improvement of 1% in the billing efficiency** resulted in an increase of Rs. 54.03 billion in revenue (including subsidised consumers) at national-level. This is a gain from the improvement of the internal operations of the Discoms. However, this gain contributes a meager 8% to the total revenue increase in FY 2017-18.

2. **Tariff hikes contributed Rs. 225.30 billion — a 34% revenue increase in FY 2018,** i.e., a higher billing rate for the same amount of input energy. This is a regulatory benefit which can be attributed to pro-active actions of both regulators and Discoms across states, enabled by the tariff order notifications issued by 25 out of 27 states. However, this is not a direct parameter reflecting the improved operations efficiency of the Discoms.

3. **Energy supply: The revenue increase due to higher energy consumption was Rs. 280.53 billion – 42% of the total revenue increase in FY 2017-18.** The billed energy increased from 694 billion units in FY 2016 to 824 billion units in FY 2018, a trend that is reflected here.[15] This benefit to the Discoms came from improving reliability of power supply, making power available for longer duration (lesser power cuts), and higher energy consumption from both existing and new consumers during the same period. However, the cost of higher sales was not fully recovered due to tariffs being below cost reflective level (ACS-ARR gap widening).

The larger question is whether Discoms will be able to make timely payments to generators and suppliers. To assess this, we must evaluate indicators of financial performance, which are:

a) Outstanding dues of power charges payable to yearly power purchase expense and ratio. (Table 3).
b) Receivables outstanding from consumers (payables to Discoms), yearly turnover, ratio. (Table 4).
c) Outstanding dues of Discoms.[16]

Ten states which contribute more than 80% of the cumulative input of energy among UDAY, are used for this comparison – Uttar Pradesh (UP), Madhya Pradesh (MP), Maharashtra, Rajasthan, Punjab, Haryana, Gujarat, Karnataka, Andhra Pradesh (AP), and Tamil Nadu (TN).

Table 3. State Discoms: Outstanding dues of power charges payable to yearly power purchase expenditure as on December 31, 2018[17] (Rs/billion)

State	Power charges payable (Rs/billion)	Yearly Power purchase exp (Rs/billion)	Payables to yearly purchase (in days)
Gujarat	0	383.4485	-
Karnataka	115.6684	319.5380	132
Andhra Pradesh	105.1241	297.0783	129
Maharashtra	59.3591	618.1363	35
Tamil Nadu	62.9894	500.3873	46
Uttar Pradesh	223.7457	551.2321	148
Haryana	0	282.1210	-
Madhya Pradesh	28.6005	297.0831	35
Punjab	21.2090	212.9179	36
Rajasthan	110.1498	358.9709	112

[15] The PFC (Power Finance Corporation Ltd) report on "Integrated Ratings For State Power Distribution Utilities", July 2018
[16] Data from Ministry of Power website: www.praapti.in, ICRA Research, external studies
[17] UDAY website. www.uday.gov.in. (State health cards). Site accessed on April 29, 2019

From Table 3 above, among states, Karnataka, Andhra Pradesh, Uttar Pradesh, and Rajasthan have very high levels of power charges payable (in no. of days of yearly purchase expenses) ranging from 112 days to 148 days. Madhya Pradesh, Maharashtra, Tamil Nadu, and Punjab have much lower payable levels. Gujarat and Haryana have indicated zero amounts under this head in their respective state dashboards.

a) **The total outstanding dues of Discoms as of February 2019 stood at Rs. 418.81 billion,** according to data from 58 Discoms as per 17 participating GENCOs. This includes Rs. 267.5577 billion overdue amounts > 60 days payable to generators in February 2019 as compared to 159.4225 billion – clear sign of deteriorating ability of the Discoms to make timely payments. Major overdues were to private generators (51.84%) and NTPC (38.71%) as of February 2019.[18]

b) Among the **states lagging in their payments**, the outstanding amounts due since (max) days/state's average amount payable, are the following Discoms: Uttar Pradesh (452 days/Rs 62.39 billion), Rajasthan (639 days/Rs 21.57 billion), Madhya Pradesh (624 days/Rs. 18.29 billion), Punjab (607days/Rs 9.93 billion), Haryana (637 days/Rs 10.04 billion), Karnataka (611 days/Rs. 42.90 billion), Andhra Pradesh (637 days/Rs. 38.00 billion), and Tamil Nadu (610 days/45.61 billion). **States making timely payments** are Gujarat, West Bengal, Jharkhand, Orissa, Chhattisgarh, and Himachal Pradesh.

c) Clearly, on an average, there are delayed payments of > 600 days. This represents liquidity crunch within Discoms, resulting in major delays of payments to generators. Data from Government of India websites PRAAPTI and UDAY corroborates and supports this conclusion.

Discom receivables

Table 4 shows that large amounts of power receivables are outstanding in terms of days of turnover for all the states except Gujarat.

Table 4. DISCOM receivables outstanding as on December 31, 2018

State	Power receivables outstanding (Rs/billion)	Yearly turnover (Rs/billion)	Receivables to yearly turnover (In days)
Gujarat	2.7652	429.1761	2
Karnataka	73.8406	284.4011	95
Andhra Pradesh	65.8993	280.4364	86
Maharashtra	173.03	704.3660	90
Tamil Nadu	84.5409	492.0107	63
Uttar Pradesh	316.7291	494.5907	234
Haryana	74.2521	252.9823	107
Madhya Pradesh	87.1720	208.6019	153
Punjab	20.6975	228.1405	33
Rajasthan	53.6470	415.9904	47

Table 4 suggests that large amounts of revenues of states are locked up (unrecovered from consumers) in the range of three to eight months of turnover for six states and one to two months for three states. Gujarat is a great example to follow. (The data in both the tables speaks – Gujarat has almost nil payables or receivables!)

[18] The Ministry of Power website www.praapti.in - (Payment Ratification and Analysis in Power Procurement for bringing Transparency in Invoicing of Generators). Site data accessed on May 1, 2019

Table 5: State Discoms – Comparison of customer receivables and power charges payable in Rs. (billion):

State	Power receivable Outstanding	Power procurement charges payable
Gujarat	2.7652	0
Karnataka	73.8406	115.6684
Andhra Pradesh	65.8993	105.1241
Maharashtra	173.03	59.3591
Tamil Nadu	84.5409	62.9894
Uttar Pradesh	316.7291	223.7457
Haryana	74.2521	0
Madhya Pradesh	87.1720	28.6005
Punjab	20.6975	21.2090
Rajasthan	53.6470	110.1498

From the data in Table 5, we can infer that Maharashtra, Tamil Nadu, Uttar Pradesh, Haryana, Madhya Pradesh, and Punjab can fully liquidate their power charges payables if they can recover the total power receivables outstanding from their consumers. At a ground-level, there will be amounts locked in issues like payment and receivable disputes, legal cases, etc. **Therefore, it is clear that if Discoms focus on the release of such amounts, revenue billing and collection areas, a significant amount of power purchase payables to generators can be liquidated.**

How are Discoms managing costs/cost recovery?

Cost coverage ratio:[19] In FY 2017-18, the cost coverage ratio for 25 of the 41 individual Discoms that were rated, remained below 90%. This was mainly due to the substantial increase in expenses of administrative costs, coal cost, and non-cost reflective tariffs. States of Gujarat, Andhra Pradesh, Rajasthan, and Maharashtra recorded major reduction of gap in their costs. However, the cost coverage gap widened or remained high for Uttar Pradesh, Haryana, Madhya Pradesh, Punjab, Tamil Nadu, Chhattisgarh, Mizoram, Meghalaya, and Jammu & Kashmir. Zero gap targets were achieved by Himachal Pradesh, Rajasthan, Maharashtra, and Gujarat.[20] Power purchase cost, after remaining steady for two years at Rs. 4.20/kwh increased to Rs. 4.25/kwh in the first quarter of FY 2019 due to hike in coal and freight prices, according to data available at the UDAY portal.

Trends analysed earlier are further established from recent data accessed from the UDAY website on October 8, 2019 which shows deterioration in key parameters – for example, AT&C loss level at 22% for 20 states and the ACS-ARR gap at Rs 0.40 per unit for 19 states. While, urban DT metering has reached 86% and feeder segregation increased to 77%, other parameters indicate slow progress. Similarly, as of August 2019, for the 60 Discoms, (the overdue outstanding amount ballooned to Rs 595 billion (of which Rs 463 billion-77% is > 60 days overdue).[21]

Further, Discoms owed Rs 32 billion to renewable energy generators. As a measure to arrest this, the government has intervened and announced the new letter of credit (LC) mechanism effective from August 1, 2019. 'Regulatory assets' (or the past outstanding amounts of Discoms payable to generators, recognised by the regulators) reached Rs 770 billion.[22] Besides providing for interest cost, timely tariff revisions are required to limit increases to the regulatory assets while liquidation is another matter. The Vision 2024 policy document by Ministry of Power, National Electricity Policy (NEP) for Distribution by CEA (Central Electricity Authority), new tariff policy etc., are expected to outline future actions for the distribution sector. While results clearly have fallen short of targets, the impetus provided by UDAY for improving the distribution sector in terms of the financial and operational viability needs to be maintained.

[19] Cost coverage ratio= (Revenue realised from sale of power + Other income + Subsidy received) / (Total Expenditure booked)
[20] The PFC (Power Finance Corporation Ltd) report on "Integrated Ratings For State Power Distribution Utilities", July 2018
[21] www.praapti.in (accessed on October 8, 2019)
[22] Risks and mitigants for securitization of regulatory assets: India Ratings and Research Pvt Ltd., May 20, 2019

Key takeaways and areas of focus

While the Discom book losses have declined as an overall measure, severe financial stress in the distribution sector is evident from the analysis presented. Sub-optimal operational performance trajectory in parameters like AT&C loss reduction (projected) at 18% for FY 2019 against target of 15%, ACS-ARR gap increase, operational target slippages (feeder segregation, DT upgradation & metering, consumer indexing, GIS, etc.), have hindered Discoms from pinpointing the energy losses accurately. Similarly, financials have been impacted adversely due to the widening of ACS-ARR gap, as the energy costs increases on one side have not been matched by the cost reflective tariff increases from the regulatory end.

The steady deterioration in the ability of the Discoms to pay the generators, due to large amounts of receivables pending collection from consumers, has created "stressed assets", especially among the IPP's (Independent Power Producers). This is a major limitation in ensuring reliable 24x7 energy supply with quality service.

Areas of focus and future strategy:

1. The results trajectory of AT&C loss reduction efforts has been slow and erratic. At the macro-level, 189 divisions across eight states contribute losses of 40,000 million units of energy and annual revenues of Rs. 170 billion. While feeder metering is 100% complete, at the micro-level, the distribution transformer (DT) metering progress lags (as on December 2018) in both urban and rural segments, at 80% and 59% of the target achievement. Similarly, completion of consumer indexing, GIS, DT & meter upgrades are also behind target (Table 1). Additionally, precise accounting of subsidised energy supply to the agriculture sector by metering and segregation of agriculture/rural & urban feeders needs to be completed.

2. The key takeaway is that these enablers should be completed with minimum delay. This will ensure accurate energy accounting and audit for the identification of high-energy loss pockets (DT's and consumers), which represent low hanging fruits at the micro-level.

3. The ACS-ARR Gap (Table 1) has widened from Re. 0.17/unit in 2017-18, to Re 0.33/unit as on December 2018 after tariff revisions for 25 out of 27 states. Tariff hikes contributed Rs. 225.30 billion — a 34% revenue increase, in FY 2018. However, there is limited upside available here for future revenue increase as bulk energy consumers (industry, commercial etc.) are already burdened with high tariffs. With alternatives available — such as cheaper power from renewable generation — power exchange (markets), Discoms are in danger of losing such high-tariff paying consumers who essentially subsidise other categories, thereby affecting their financial sustainability. Discoms need to optimise the power purchase cost as well as their own distribution costs to improve service and quality of power supply to consumers. However, cost reduction of power purchases locked in long-term PPAs (Power Purchase Agreements) with generators, accurate demand forecasting, and national merit order linked back-down of generation are the major management challenges ahead for Discoms.

4. Overall Discom revenue (Table 2) increased by Rs. 54.03 billion on improving the billing efficiency alone by just 1% in FY 2018. With AT&C loss level at 20% in December 2018 and 18% projected for March 2019, this area is clearly a low hanging fruit for improvement. This is corroborated by the revenue lost due to low billing and collection efficiencies ranging from 65% to 85% in FY 2018.[23] The strategy ahead is to focus on the accurate metering–billing-collection-audit cycle, based on actual energy consumption of consumers, using IT enabling for improving billing & collection efficiency.

5. Energy purchase payments outstanding for Discoms to generators reached a level of Rs. 418.81 billion in February 2019. This included Rs. 267.56 billion overdue amounts > 60 days payable to generators as compared to Rs.159.42 billion in February 2018 – a clear sign of the deteriorating ability of Discoms to make timely payments. Major overdues were to IPP's (Private Generators 51.84%) and National Thermal Power Corporation Ltd. (38.71%) as of February 2019.[24]

[23] Data from the "Integrated Ratings For State Power Distribution Utilities", July 2018

[24] The Ministry of Power website www.praapti.in - (Payment Ratification and Analysis in Power Procurement for bringing Transparency in Invoicing of Generators). Site data accessed on May 1, 2019

Tables 3 & 4 clearly suggest that by timely and efficient collection of energy payments overdue from consumers, delayed/outstanding payments of generators can be largely liquidated. Use of automated processes by Discoms for accurate billing and collection of payments due to Discoms aided by timely release of subsidy payments by state government is a solution.

6. The social objective to provide electricity access to all unconnected households across India (SAUBHAGYA) has largely been met by March 2019 with over 25 million new households being connected. Their aspiration of 24x7 and reliable power supply has to be met. These new consumers represent challenges of locations in far-flung areas, some with low literacy levels and paying capability and lack of knowledge in energy efficiency. Discoms will need to establish processes for consumer education, maintain energy equipment (transformers, conductors, meters etc.), deliver bills, establish payment/collection avenues, and address consumer grievances. These aspects will increase the cost to serve and a lowered revenue recovery-to-effort ratio and may result in revenue losses to the Discoms in this consumer segment in the short term. Timely and accurate billing with focused collection efforts of revenue, consumer communication, education, and complaint resolution by the Discoms is the way forward.

Conclusion

The Indian power sector is listed as a concurrent subject in the Constitution of India, where both center and states have control. Therefore, success of power sector policy and execution has to have a buy-in of both the stakeholders. This applies in particular to distribution reform policies where regional dynamics and priorities vary. All the stakeholders in the federal structure — Center & State, Political, Bureaucracy, Technocrats, Regulators, Consumers etc., the complete ecosystem has to contribute towards a common goal. Despite obvious challenges, success stories of states such as Gujarat, Karnataka, Andhra Pradesh, among others, and private Discoms operating out of Delhi, Mumbai, Kolkata, Ahmedabad, and others are available for emulation in terms of world-class performance, best practices, and benchmarks. It is more than likely that, a revised UDAY 2.0 with reworked targets enabled by technology enablement and interventions with adequate funding is on the anvil.

Hence, by focusing on key result areas, following a pragmatic strategy, and balancing diverse stakeholder interests, it is possible to achieve distribution sector financial sustainability on a pan-India basis.

Endnotes:

1. Central Electricity Authority (CEA), Ministry of Power, Govt. of India. www.cea.nic.in
2. Power Grid Corporation Of India: www.powergridindia.com
3. Ministry of Power website: www.praapti.in
4. ICRA presentation, Discom Finances, Power Distribution In India, Nov. 20, 2018
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9. The PFC (Power Finance Corporation Ltd) report on "Integrated Ratings For State Power Distribution Utilities", July 2018.
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