ANNEXURE

TO
THE REPORT OF
FORUM OF REGULATORS
ON
"ANALYSIS OF FACTORS AFFECTING VIABILITY OF DISCOMS AND ITS RECOMMENDATIONS FOR IMPROVEMENT"

January 2025

MINUTES OF THE 88TH MEETING OF THE FORUM OF REGULATORS (FOR)

Venue: Mussoorie, Uttarakhand

Date: 13th October, 2023 (Friday)

Time: 10:00 hrs

List of participants: Annexure-I

Chairperson, Uttarakhand ERC (UERC) welcomed the Chairperson, FOR/CERC and the Chairpersons / Members of all the State and Joint Commissions for joining the 88th FOR meeting being hosted by UERC. In his welcome remarks, the Chairperson, Uttarakhand ERC appreciated the role being played by the Forum of Regulators as a crucial platform for power sector regulators to converge, collaborate, and enhance the sustainability and regulation of the power industry. Giving a brief overview of the Uttarakhand power sector, he informed that the Uttarakhand power sector comprises predominantly hydro generators with State-owned generating companies having installed hydro capacity of 1420 MW and private gas-based power plants supplying 321 MW. Besides, around 600 MW of solar power plants have been installed in the State. During different seasons, the State faces varying power demands, with reliance on state generating stations, allocations from the central sector generating stations, and short-term purchases including through traders, power exchange, market, etc. to meet these demands. During winter, due to reduced hydro generation in the State, there is greater dependence on short-term purchases to meet the deficit. He added that the transmission system in the State is managed by PTCUL, while distribution and retail supply are handled by UPCL, the sole distribution licensee serving approx. 28.5 lacs consumers in the State. On the consumer empowerment front, there are a total of 9 CGRFs spanning across the State.

2. Thereafter, the Chairperson, FOR/ CERC extended a warm welcome to all the members and thanked the Chairperson, Uttarakhand ERC (UERC) for hosting the meeting. He highlighted the past accomplishments of the Forum in addressing challenges within the power sector and its role in the harmonious and holistic development of the power sector. Reflecting on the 87th FOR meeting in Tripura held in August 2023, he referred to the deliberations held and lauded the active participation and efforts of the members on the way forward for meeting the challenges faced by the Commissions and the power sector as a whole.

3. The Chairperson FOR / CERC also informed the Forum that Uttarakhand is blessed with huge hydro potential. Notedly, the State does not have any coal, diesel or nuclear-based

generation. Uttarakhand also holds significant untapped potential for small hydropower generation. He applauded UERC's commendable effort towards the development of the sector. He also took the opportunity to acknowledge the role and contribution of Shri R.K. Pachnanda, Chairperson, HERC, who will be demitting office soon, for his contribution to the functioning of the Forum and wished him every luck in all his future endeavours. He also thanked the Chairperson, UERC for his enthusiasm and tireless effort along with his team for hosting the event.

Subsequently, the agenda items were taken up for discussion.

AGENDA ITEM. NO. 1: CONFIRMATION OF THE MINUTES OF THE 87TH FOR MEETING HELD ON 25th AUGUST 2023

4. Dy Chief (RA), CERC apprised the Forum of the discussions of the 87th FOR meeting and action taken points of the said minutes. After deliberations, the Forum unanimously approved the minutes of the 87th FOR meeting.

AGENDA ITEM NO. 2: REFRENCES FROM HPERC

A) FIXATION OF TRAJECTORY BY THE STATE ELECTRICITY REGULATORY COMMISSION (SERCS) OF THE DISCOMS FOR LOSSES REDUCTION ON THE BASIS OF AT&C AND AS AGREED BY DISCOMS WITH GOI AS PRESCRIBED IN THE ELECTRICITY (SECOND AMENDMENT) RULES, 2023.

5. The Forum was apprised of the reference from Himachal Pradesh ERC about the implementation of the rules issued by the Ministry of Power (MOP) regarding the approval of Aggregate Technical and Commercial (AT&C) losses. According to the Rules, State Commissions are supposed to approve AT&C loss figures based on agreements between State and central governments in national schemes. However, HPERC has stated that there are some implementation issues in this context.

6. Chairperson, HPERC informed that MOP's rules mandate the use of AT&C loss figures for fixing loss reduction trajectory, but since these figures are as suggested by the Discoms,

often ignore the efficiency improvement target set by the regulations. Also, with the introduction of the Revamped Distribution Strengthening Scheme (RDSS), AT&C losses have been reported to be increasing in Himachal Pradesh which earlier had a decreasing trend. The trajectory given by the Government of India was already achieved by the State. Further, in Himachal Pradesh, AT&C losses are low due to nearly 100% metering and efficient bill collection, with exceptions like delayed payments by government bodies. Hence, the government's direction to SERCs to follow the Discom-provided trajectory for AT&C losses may need to be reviewed.

7. Chairpersons of JERC (Goa & UTs), Madhya Pradesh, Uttarakhand and Uttar Pradesh ERC also expressed similar concerns.

8. After detailed deliberation, the Forum decided that SERCs may provide data related to AT&C losses (in a format) to the FOR Secretariat, which will compile, analyse and send the information to the Ministry of Power for reconsideration.

B) LONG TERM SUSTAINABILITY OF THE DISCOMS —COMMITTEE TO FORMULATE GUIDELINES FOR REDUCING EMPLOYEE COST OF THE DISCOMS.

9. Chairperson, HPERC apprised the Forum that the sustainability of the Discoms is a matter of concern as they continue to operate at a loss. The focus seems to be on addressing losses rather than improving efficiency. In Himachal Pradesh, the employee cost is exceptionally high, accounting for about 33% to 35% of expenses. The Commission's approval is required for new recruitments, except for technical positions, which has created friction between Discoms and the Commission. Additionally, there is a trend of creating numerous divisions and subdivisions near residences, which adds to the inefficiencies and further leads to an increase in tariffs. Discoms also blame SERCs for not allowing their prudent costs.

10. After detailed deliberation, the Forum decided that a Working Group may be constituted to study the viability of Discoms with a special focus on loss reduction, employee and other issues affecting the viability of the Discoms. A benchmarking may be done for employee related costs and losses depending on the topographical structure of the State. The composition of the said WG will be as follows:

i.	Chairperson, MPERC	-	Chairman of the Working Group
ii.	Chairperson, HPERC	-	Member
iii.	Chairperson, CSERC	-	Member
iv.	Chairperson, PSERC	-	Member
v.	Chairperson, APSERC	-	Member
vi.	Chairperson, TERC	-	Member
vii.	Chairperson, RERC	-	Member
viii.	Chairperson, JERC (Goa & UTs)	-	Member
ix.	Member (Finance), CERC	-	Member

AGENDA ITEM NO. 3: SELF-SUSTAINING MODEL FOR SMART METER IMPLEMENTATION UNDER RDSS- REFRENCES FROM MINISTRY OF POWER

11. Dy Chief (RA), CERC apprised the Forum about a reference from the Ministry of Power regarding smart meter implementation under RDSS which was a self-financing model. The MoP letter mentioned, inter-alia about APDCL of Assam having installed smart meters for 15 feeders resulting in a gain of around Rs. 40 per meter per month. Thereafter, the representatives of APDCL made a presentation on their experience **(Annexure-II).**

12. The representatives of APDCL explained the context of Smart Metering with Advanced Metering Infrastructure (AMI), the smart meter ecosystem, its associated benefits and the status of smart meters in APDCL. The representatives of APDCL informed that the attendees that they have conducted a comparative analysis to study the behavioural change of consumers after installing smart meters. They found that consumers have become more aware of their electricity usage leading to a trend of decreased consumption. Smart meter installations have also helped them increase billing and collection efficiency and reduction of technical and commercial losses of the Discoms resulting in financial gains. They also informed that they had conducted a performance analysis post-installation of smart meters for a sample set of consumers which indicated significant savings per consumer with an increasing trend in savings. Finally, they presented various consumer engagement initiatives that APDCL had undertaken.

13. After detailed deliberation, members of the Forum requested APDCL to conduct a counter-factual analysis for the previous years and establish a correlation between the increase in revenue and installation of smart meters, which would in turn reflect the revenue increase solely attributable to smart meters installation. The report may be forwarded to the FOR secretariat which could then be circulated to the other SERCs.

AGENDA ITEM NO. 4: IMPLEMENTATION OF CERC REGULATIONS ON IEGC, GNA AND SHARING OF TRANSMISSION CHARGES AND LOSSES - PRESENTATION BY REPRESENTATIVE OF CERC

14. The Forum was informed of the recent CERC notifications on IEGC, GNA, and the Sharing of Transmission Charges and Losses. Chief (RA), CERC mentioned that as per the Electricity Act, 2003, the State Grid Codes have to be in accordance with the Grid Code notified by CERC. As such, the new Grid Code issued by CERC and made effective from the 1st October 2023 assumes importance. States' Regulations to align in concordance with the notifications issued in compliance with the Electricity Act 2003. Thereafter, Jt Chief (Engineering), CERC made a presentation on the above-mentioned CERC Regulations **(Annexure-III).**

15. Jt. Chief (Engg.), CERC stated that IEGC is the mother code for the Indian Power Sector that defines the roles of various organizations, optimal power systems operations, power market support, planning, connection, commissioning, reactive power compensation and various other verticals. During the presentation, she elaborated on the ideation behind the Resource Planning Code, Connection Code, Protection Code, Commissioning and Commercial Operating Code, Scheduling and Dispatch Code which included SCED and SCUC, and Cyber Security Code. Chief (RA), CERC drew attention to the important provisions of Resource Adequacy and reserves, which are a must for the safe and secure operation of the grid and for meeting the consumer demand in all time horizons optimally. He also emphasized upon the concept of obligation to supply by the Gencos even if they opt for Unit Shut Down (USD). Jt. Chief (Engg.), CERC further briefed the Forum about provisions of the GNA Regulations, specifically on the enhanced flexibility and improved power dispatch capabilities under the new GNA regime.

16. Chairperson, TNERC requested the Forum to develop a Model GNA framework so that the same can be adopted by the SERCs.

17. The Forum noted the same and decided that the same may be referred to the Standing Technical Committee for a suitable recommendation for consideration by the Forum.

ANEGDA ITEM NO. 5: REPORT OF THE FOR SECRETARIAT ON DATA CAPTURED ON REGULATORY WEBTOOL MAINTAINED BY IITK - REFERENCE FROM FOR SECRETARIAT

18. Dy Chief (RA), CERC apprised the Forum about a report prepared by the FOR Secretariat on data captured in the Regulatory Webtool maintained by IITK, on two topics viz. timelines of Tariff and ACoS-ABR ratio. It was highlighted that some States have not updated the data, resulting in gaps. Furthermore, it was informed that the nodal officers of the ERCs are expected to provide the data into the tool, which would be verified by IIT Kanpur.

19. Chairpersons of TNERC, HERC and BERC informed that data with regard to their States were either missing or not correct. Chairperson, HPERC raised concerns about this process and suggested the need for software development that can extract the data automatically from the Commission website, without requiring direct intervention from nominated officials. Members also sought the list of nodal officers available with the FOR Secretariat for their information.

20. After discussion, the Forum agreed on the need for better engagement with the nodal officers on the issue and also endorsed the idea of exploring the development of software solutions that can automate the process of capturing and populating the Regulatory Tool website.

ANY OTHER AGENDA ITEM AND CONCLUSION

22. VENUE OF NEXT FOR MEETING

Chairperson, OERC offered to host the next meeting of the Forum in Konark, Orissa in January, which was accepted by the Forum.

23. ADDRESS BY OUTGOING CHAIRPERSON, HERC

Chairperson, HERC, in his address, stated that it was a great privilege and honour for him to be part of the Forum. He added that the Forum has been executing its functions with great firmness be it conducting meetings, forming sub-committees, research work and generating ideas. He stated that being part of FOR was extremely enriching. He wished FOR for its further glory and success.

24. VOTE OF THANKS

Delivering the vote of thanks Secretary, FOR/CERC extended his heartfelt gratitude to all the members of the Forum for their valuable contribution and active participation in enriching the discussion. He extended his special thanks to the Chairperson, FOR / CERC for his guidance and inspiration. He also took the opportunity to express special thanks to the Chairperson, UERC and his team who have made wonderful arrangements to ensure that the event is a success and also for a very hospitable stay. He also appreciated the efforts of the FOR secretariat for the efforts they have put for conducting the meetings and making them a success.

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Annexure-II

विनियामक मंच
(विद्युत अधिनियम 2003 की धारा 166 (2) के तहत)

FORUM OF REGULATORS
(Under Section 166 (2) of The Electricity Act, 2003)

No. FOR-11011/1/2023-CERC/8821 Dated:07-12.2023

Subject: Constitution of FOR Working Group on " Viability of Discoms ".

The Forum of Regulators, in its 88th meeting held on 13th October, 2023 deliberated on the issue of sustainability of the Discoms which has become a matter of concern as they are consistently operating at a loss and reduced operational efficiency, which ultimately leads to an increase in tariffs.

2. After detailed deliberation, the Forum decided that a Working Group may be constituted to study the viability of Discoms with a special focus on reduction of losses , employee costs and other issues affecting the viability of the Discoms.

3. In view of the above, Competent Authority has constituted a Working Group with the following composition:

Chairman, MPERC -	Chairman of the WG
Chairman, HPERC -	Member
Chairman, CSERC -	Member
Chairman, PSERC -	Member
Chairman, APSER -	Member
Chairman, TERC -	Member
Chairman, RERC -	Member
Chairman, JERC (Goa & UTs) -	Member
Member (Finance), CERC -	Member

4 The scope of the Working Group is as under:

a. Identify and analyse the factors impacting the sustainability of Discoms.
b. Examine the existing measures and suggest strategies for minimizing operational losses and enhancing efficiency.
c. Analyze employee cost structures and make recommendations for optimization of employee cost .
d. Suggest guidelines to reduce O&M and A &G costs of Discoms.
e. Any other matter related and incidental to the above.

5. The Working Group may co-opt Chairperson / Member of any other SERC and/or any other expert as deemed fit. The Working Group may also avail the services of a consultant/ consulting-firm/ research organisation in the process of examining the issues related to the subject matter.

6. The Secretariat of the Forum of Regulators would provide secretariat services to this Working Group.

(Harpreet Singh Pruthi)
Secretary

Copy to:

Members of the Working Group

Copy for information to:

i. Sr. PPS to Chairperson, CERC / FOR.
ii. PPS to Secretary, CERC.
iii. Sr. Executive to Chief (RA), CERC.
iv. PS to Deputy Chief (RA), CERC

MINUTES OF FIRST MEETING OF THE FOR WORKING GROUP ON "VIABILITY OF DISCOM".

DATE/DAY	**21st June, 2024; Friday**
TIMINGS:	**14.00 Hrs**
VENUE	**CERC Conference Hall, 7th Floor, Tower-B, World Trade Center, Nauroji Nagar, New Delhi**
List of Participants:	**Appendix-I**

At the outset, Chairperson, MPERC and Chairperson of the WG welcomed the members and highlighted the mandate of the WG wrt analyzing the aspects and recommending measures for viability of discoms .

2. Thereafter, the agendaitems were taken up for discussion.

AGENDA NO 1: TERMS AND REFERENCE OF THE WORKING GROUP

3. JC(RA), CERC apprised the members that the objectives of the WG, as envisaged by the Forum,are as follows:-

- Identify and analyze the factors impacting the sustainability of DISCOMs.
- Examine the existing measures and suggest strategies for minimizing operationallosses and enhancing efficiency.
- Analyze employee cost structures and make recommendations for optimization of employee cost.
- Suggest guidelines to reduce O&M and A &G costs of DISCOMs.

4. The members noted the TOR and the background note circulated by the FOR Secretariat.

AGENDA NO 2: SUSTAINABILITY OF DISCOMs

5. The FORSecretariat presentedthe background note and highlighted the major factors, which impact the viability of Discomincluding, ACS-ARR gap, AT&C Losses, Regulatory Assets, O & M Expenses including employee costs, the Cross-Subsidy Surcharge, and timely issue of tariff orders.

a) ACS-ARR gap:

The WG noted that the ACS-ARR gap is a core indicator of the commercial viability and sustainability of the DISCOMs and thus should be brought down to zero. However, there are

many factors which impact the cost of supply and thus in order to make the Discomviable, a balanced approach needs to be explored.

The WG also advised that each component of the ACS-ARR needs to be analysed. It also advised the FOR Secretariat to study few progressive discomslike Torrent, Tata, MSEDCL to understand their best practices which have helped improve their performance. It was also discussed that the WG may consider recommending norms for each parameter/component and also arrive at certain benchmark principles . To this effect, a template is to be prepared and data collected from all SERCs

b) AT&C Losses:

Fundamental to Discoms' profitability is the efficiency of the activities of metering, billing, and collection. It was noted from the data that some of the Discoms have made impressive progress towards reducing the AT&C losses. The members informed that the franchisee model in Agra has led to reduction in losses from 70% to 17%.

After discussion, the members felt that it would be useful if some Public owned and Private owned Discoms, for instance, from Gujarat, Maharashtra, M.P. (Indore), U.P. (Agra) and Karnataka (who have made good progress in decreasing their AT&C losses) may be asked to present their success stories and their learnings before the Working Group .

c) Regulatory Assets

The members noted that the Regulatory Assets of a few Statesare very high. For example, the Regulatory assets of Tamil Nadu stood at Rs 89375 Cr for the FY2022-23, while that of Rajasthan was Rs47832 Cr during the same period. It was felt that the there is a need to evolve an innovative mechanism for amortization of Regulatory Assets at the earliest.

d) O&M Expenses

The members noted that O&M Expenses have majorly three components namely R&M Expenses, A&G Expenses and Employee costs.The members also discussed the possibility of linking the employee cost and A&G cost to per lakhs of consumer basis and R&M to the ckm of Distribution network. Possibility of linking the components of O&M cost to MW of power or energy handled may also be explored. Factors like hilly terrains, urban and rural areas etc. also need to be factored into.

During deliberations, themembers opined that the possibility of determination of O&M

expenses on normative basis may be explored. Any gain accrued by the Discoms on this aspect may be shared between the Discoms and the consumers on pre-determined ratio. It was also noted that for the determination of O&M expenses on normative terms it may be necessary to benchmark various components of O&M. Hence, it was decided that O & M should be benchmarked either on number of consumers served or per MW basis.

e) Cross Subsidy Surcharge

The members noted that the tariff policy requires the regulators to determine cross-subsidy surcharge in such a way as not to defeat open access while at the same time ensuring recovery of reasonable costs for discoms. In this matter, it was decided to obtain data in this regard, from discoms(public& private) and analyse the methodology of determination of cross subsidy surcharge and its impact on the viability of discoms.

f) **Timely issuance of Tariff Order**:

The WG was apprised that as per REC Report of June 2023, the average delay in filing tariff petitions by the States/UTs is 58 days and the average delay in issuance of tariff orders by the SERCs is 19 days. The members noted the need for timely issuance of tariff orders. The use of IT tools for data collection and analysis may be explored.

g) Trading margin:

The members also expressed concern regarding the trading margin of 7 paisa per unit of energy and suggested CERC could review this. Chairperson, RERC mentioned that, in one of its Order, RERC did not approve the 7 paisa trading margin being provided to SECI and directed the Discomsto renegotiate with SECI or the Bid Process Coordinator and assess the possibility of lowering the trading margin and report back to the Commission. Chief(RA), CERC informed the members that 7 paisa is the ceiling that a trader can charge and that the Discoms are free to negotiate and decide on a lower trading margin. He informed that the traders are currently charging a trading margin in the range of 3 to 3.4 paise per Unit.

6. Recommendations :

Based on the discussions, the WG decided that

1. Each cost parameter of the ACS-ARR needs to be analysed. FOR Secretariat to study a few progressive discoms like Torrent, Tata, MSEDCL to understand their best practices

2. The WG can explore fixing norms for each parameter and also arrive at benchmark principles. To this effect, a template is to be prepared and data to be collected from all SERCs.

3. Some Public owned and Private owned Discoms from Gujarat, Maharashtra, M.P. (Indore), U.P. (Agra) and Karnataka (who have made good progress in decreasing their AT&C losses) may be asked to present their success storiesbefore the Working Group.

4. The O & M should be benchmarked either on number of consumers served or per MW basis. In this regard, data to be sought from discoms(public& private).

5. Obtain data from discoms (public & private) and analyse the methodology of determination of cross-subsidy surcharge and its impact on the viability of discoms.

6. The use of IT tools for data collection and analysis for tariff orders may be explored.

7. As viability of Discoms is critical to overall performance of power sector, therefore it may be useful to invite comments from other WGS of FOR as well to ensure wider consultation on the subject.

On conclusion, the meeting ended with a vote of thanks to the Chair.

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APPENDIX-I

FIRST MEETING OF THE FOR WORKING GROUP ON "VIABILITY OF DISCOM".
DATE:21st June, 2024, Friday

Sl. No.	Name and Designation	ERC
1.	Sh. S.P.S. Parihar Chairperson	MPERC- In Chair
2.	Sh. D. Radhakrishna Chairperson	TERC
3.	Sh. Viswajeet Khanna Chairperson	PSERC
4.	Dr. B.N. Sharma Chairperson	RERC
5.	Sh. Hemant Verma Chairperson	CSERC
6.	Sh. Shashikant Joshi, Member	HPERC
	CERC/FOR	
7.	Sh. H.S. Pruthi, Secretary	CERC
8.	Dr. S.K. Chatterjee Chief (RA)	CERC
9.	Smt. Rashmi Somasekharan Nair, Joint Chief (RA)	CERC
10.	Smt. Sukanya Mandal Assistant Chief (RA)	CERC
11.	Sh. Debasish Roy, Assistant Chief (RA)	CERC
12.	Sh. Pankaj Rana Assistant Secretary, FOR	CERC
13.	Sh. Saurabh Derhgaven PRO	CERC
14.	Smt.Jijnasa Behera Research Officer	FOR
15.	Ms. Medhavi Research Associate	CERC
16.	Mr. Aman Raj Research Associate	FOIR

MINUTES OF THE SECOND MEETING OF THE WORKING GROUP OF THE FORUM OF REGULATORS (FOR) ON "VIABILITY OF DISCOMS"

Venue: CERC, New Delhi
Date: 9th August, 2024
List of participants: Appendix-I

At the outset, Chairperson of the Working Group & Chairperson, MPERC warmly welcomed the members to the second meeting on the viability of Discoms. He also welcomed representatives from GUVNL and Tata Power to share their best practises and experiences through their presentations which would provide valuable insights into the issue for viability of Discoms. Thereafter, the FOIR Secretariat took up the agenda for discussion.

AGENDA ITEM 1: CONFIRMATION OF MINUTES OF THE 1ST MEETING OF THE WG HELD ON 21ST JUNE 2024.

1. JC(RA), CERC apprised the members of the action taken based on the minutes of the first meeting. It was also informed that while GERC, CSERC and MERC had shared inputs on issues and possible resolutions for viability of Discom , other WG members were requested to share their inputs. Thereafter, the compilation of such inputs would be presented in the next meeting of the WG .

2. After discussion, the WG confirmed the minutes.

AGENDA ITEM 2: SUSTAINABILITY OF DISCOMS

A) PRESENTATION BY GUVNL

3. The representatives of GUVNL, in their presentation (**Annexure-I**), gave a brief background of the power sector reforms of 2003 in Gujarat, which led to unbundling of the Gujarat Electricity Board. Some important learnings from the GUVNL experience are as under :
   a) The policy of 'No Freebies' of the State Government is central to the viability of discoms.
   b) The supportive role provided by GERC especially wrt timely approval for the FPPA charges with prudence check on a quarterly basis due to logistical and billing cycle issues.

c) Receipt of subsidies in advance.

d) Focus on maintenance and faster fault detection and resolution.

e) Timely resolution of RoW issues in Transmission/Distribution through disbursement of compensation

f) The implementation of smart metering systems is also helping the system tremendously.

g) Deployment of dedicated police force accompanying departmental officers for theft detection and disconnection related issues

h) The management of funds for all its seven entities is done at the central level, i.e., GUVNL.

4. At the end of the presentation, the WG requested GUVNL to provide

   a) Details of the Operation & Maintenance costs including the employee costs as percentage of O&M cost.

   b) Investments made/planned in improving distribution network

   c) A note on their Employee Policies including Incentive structure & training aspects.

B) PRESENTATION BY TATA POWER DDL (TPDDL)

5. The representative of Tata Power presented case studies of Tata Power operations in Delhi, Odisha and Ajmer **(Annexure- II)** . Some of the important learnings are as under :

   a) The AT&C losses in the three operational areas have been brought down substantially due to

      i) extensive use of IT interventions and smart meters

      ii) continuous monitoring and acting on the results of analysis based on IT interventions

      iii) using CSR funds for involvement of people in areas with very low income and for generation of awareness.

   b) A strong Enforcement Group and in-house Analytical Team has developed software to identify abnormal behaviours and ensure checks to minimise losses on suspected cases in distribution areas.

   c) Faulty meters to the tune of approximately 35 lakh meters were replaced .

   d) For consumers using more than 200 units, smart metering is being used.

   e) Regulatory surplus is used to liquidated losses in the form of reduced tariffs.

   f) Establishment of customer care and call centres.

g) The implementation of SAP ISC systems and various technological interventions, such as GIS modeling, helps track all processes efficiently

h) Staffs are given extra incentives for reduction in AT & C losses beyond the target , meeting other parameters such as SAIDI, Capitalization, Safety, etc.

i) In the Ajmer distribution franchisee model, Tata Power's initiatives in metering have helped reduce AT&C losses.

i) In the Mumbai licensee model underground cabling has improved service capability, reliability with reduced O&M costs which has led to minimal or no outages during severe weather conditions.

6. At the end of the presentation, the WG requested TPDL to provide a report on the cost-benefit analysis of underground cabling in urban vis-à-vis rural areas .

7. The WG also decided to invite Torrent Power Distribution and MP Discom – Indore to the next meeting for presentation of their experience on viability of Discom.

8. The meeting ended with a vote of thanks to the Chair.

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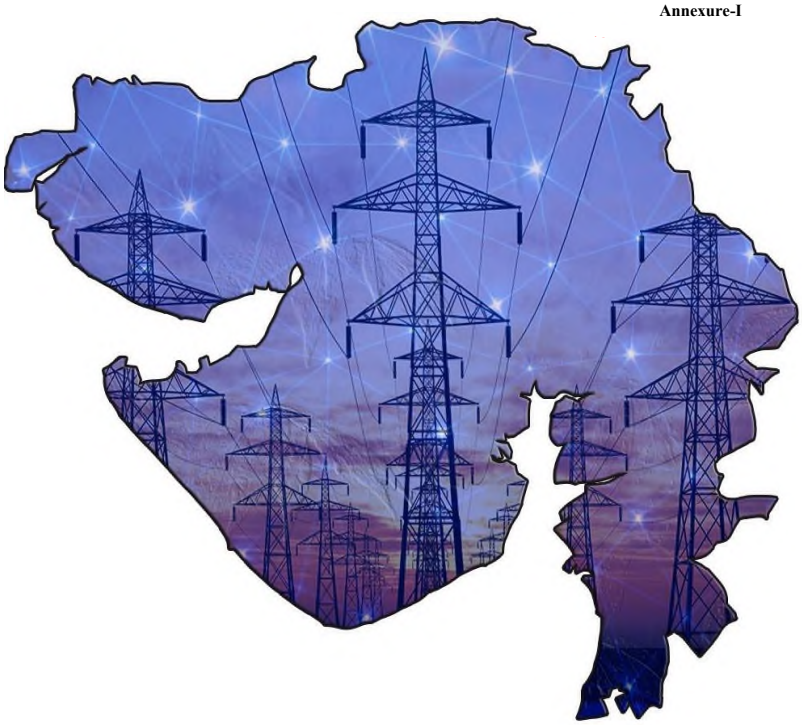
Appendix-I

LIST OF PARTICIPANTS

Sl. No.	Name and Designation	ERC
1.	Sh. S.P.S. Parihar Chairperson	MPERC- In Chair
2.	Sh. Viswajeet Khanna Chairperson	PSERC
3.	Sh. Alok Tandan Chairperson	JERC(Goa & UTs)
4.	Sh. Hemant Verma Chairperson	CSERC
5.	Sh. D K Sharma Member	HPERC
6.	Sh. H.S. Pruthi, Secretary	CERC
7.	Dr. S.K. Chatterjee Chief (RA)	Convener
	CERC/FOR	
8.	Smt. Rashmi Somasekharan Nair, Joint Chief (RA)	CERC
9.	Sh. Debasish Roy, Assistant Chief (RA)	CERC
10.	Sh. Saurabh , PRO	CERC
11.	Smt.Jijnasa Behera, Research Officer	FOR
12.	Ms. Medhavi, Research Associate	CERC
	SPECIAL INVITEES	
13.	Sh Jai Prakash Shivahare, MD	GUVNL
14.	Sh Yogesh Chaudhary, MD	DGVCL, Gujarat
15.	Sh Sanjay Mathur, GM(Commerce)	GUVNL
16.	Sh Sourav Nandy, CFM	GUVNL
17.	Sh Ujit Shukla, ETA-MD	GUVNL
18.	Sh Sumit Hanwami	GUVNL
19.	Sh Sanjeev Gupta, CEO	TPDDL
20.	Sh Sanjay Banga, President(T&D)	TPC
21.	Sh Suresh Gehani, Director,	ABPS
22.	Sh Sanjeev Singh, VP	ABPS

GUVNL

Vibrant Discoms of Gujarat



Power Sector Reforms in Gujarat - 2003

GUVNL

GEB making losses till 2003

AT&C Losses: 32.6 %

Gujarat Electricity Industry Re-organization Act 2003

Unbundling of GEB

Legal-Administratively framework and structure

Electricity Act 2003

Politically saleable

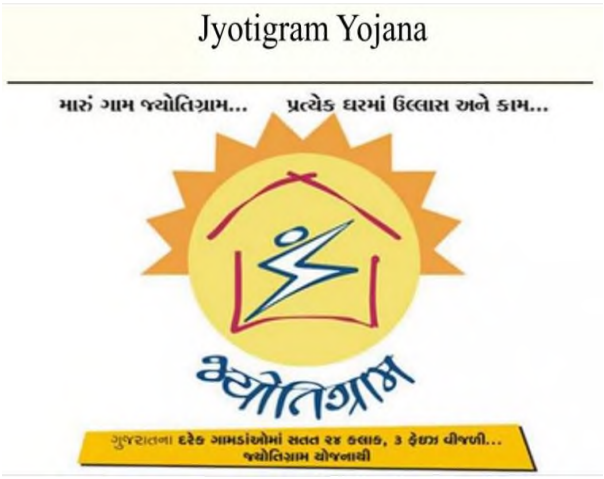
Socially acceptable

Economically viable

Legal- Administratively workable

Technically feasible

Jyotigam Yojana



Why has it started?

During elections women demanded electricity in the evening

What Scheme Promised?

24*7 (3 Phase)

uninterrupted, reliable, quality power for all

8 Hours Supply to Agriculture

How it would be done?

Separation of feeders

90% - Grant by Government of Gujarat

10% contribution by Villagers

Jyotigam Yojana

The beginning

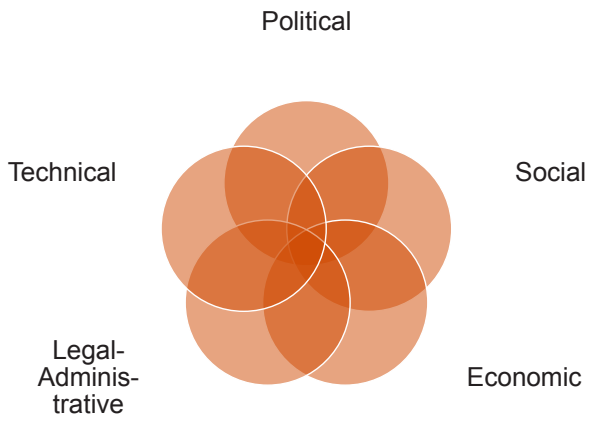
Unjha – a prosperous village having a vibrant APMC paid 10% contribution to become 1st Jyotigam

What happened next?

Villagers started demanding the scheme

Political boon for ruling party

Economically viable



Demand for 24*7 Power was the beginning

Legal- Administratively framework

Technically feasible solution

Social acceptance

Political support

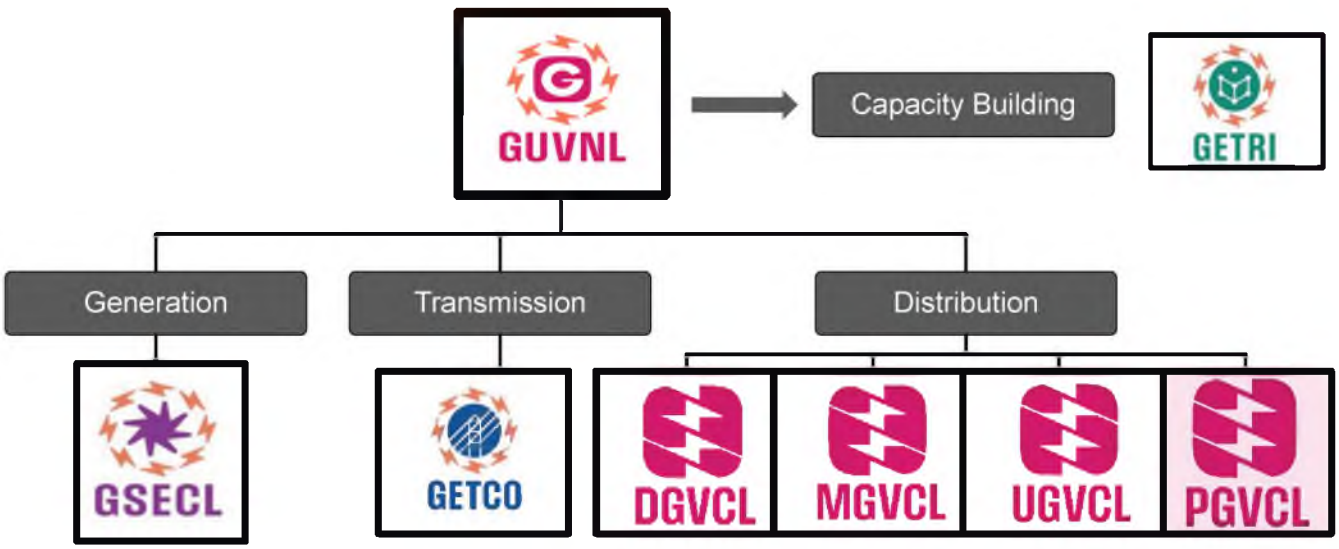
Economic viability for government, society and Discoms is the outcome

No Freebies is at the core of viability of Discoms

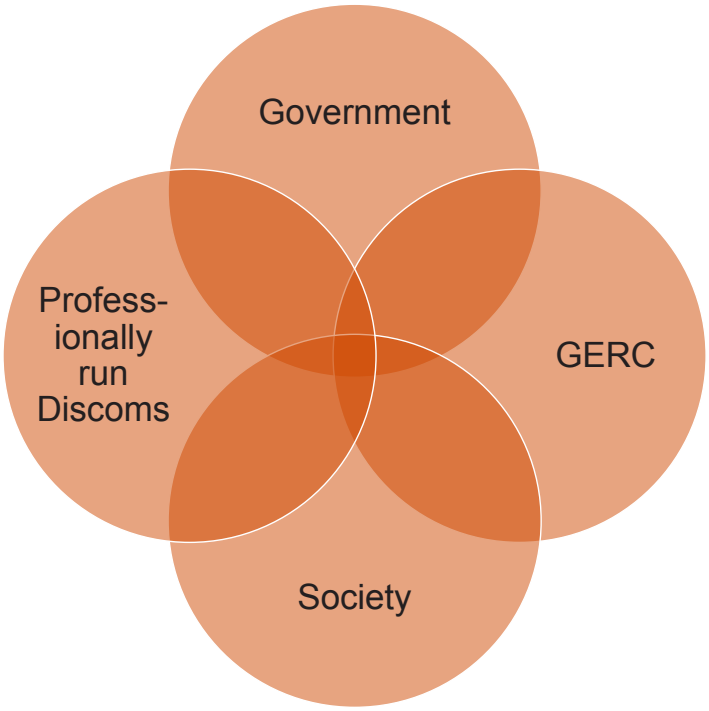
VISION

24x7 Reliable & Affordable Power to All

Corporate Governance



Eco system for viable Discoms



Government of Gujarat

- Clarity in policies
- No freebies
- Timely release of subsidy
- Budgetary support for infrastructure works
- Political support for reforms and progressive policies

सत्यमेव जयते
GOVERNMENT OF GUJARAT

GERC

Regulatory support

Timely approvals

Progressive regulations

Clarity in regulations

FPPPA approvals

Balancing the growth and consumer interests

GUVNL

Centralized power purchase

Centralized fund management

Common policies and monitoring

Discoms

Consumer Services

- Connections
- Complaints
- Billing & collection

Network expansion and maintenance

Discoms

Consumer Services

- Connections - CPC
- Complaints - CCC
- Billing & collection – smart meters

Network expansion and maintenance

- EPC

Society

Society values:

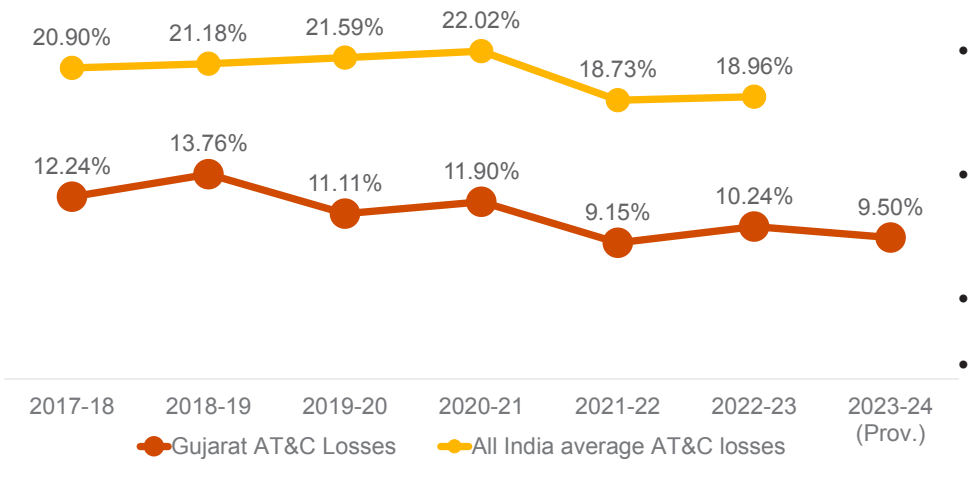
- Quality of Life
- Economic benefits of 24*7 power
- Willingness to pay for electricity
- Cultural change

Demands:

- Uninterrupted 24*7 reliable, quality power
- Political leadership responds to it

AT&C Losses

Gujarat average AT&C losses ~55% lesser than India average AT&C losses

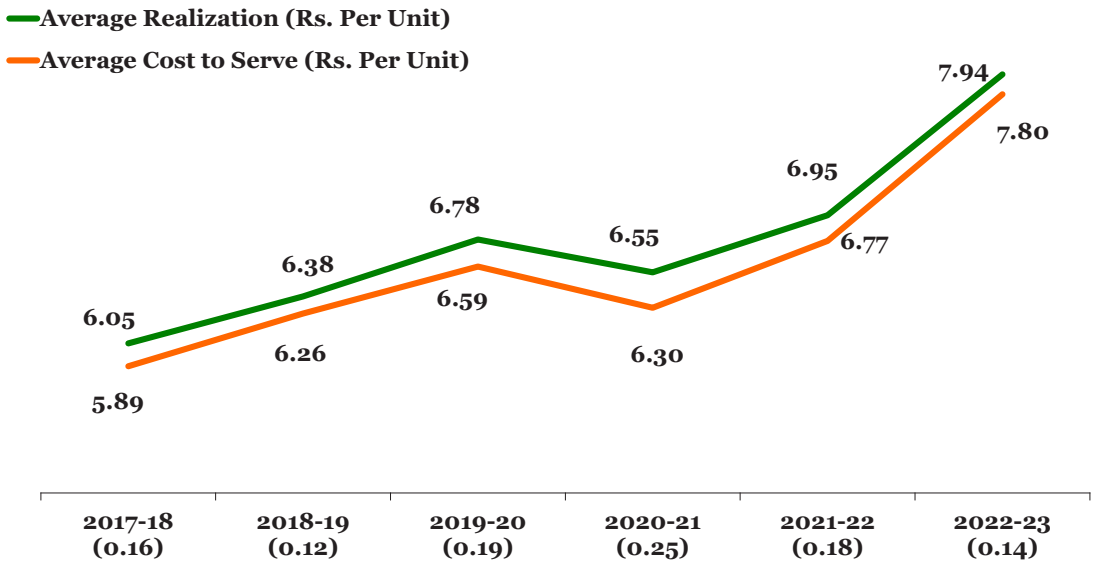


Source: India Climate & Energy Dashboard

Vigilance

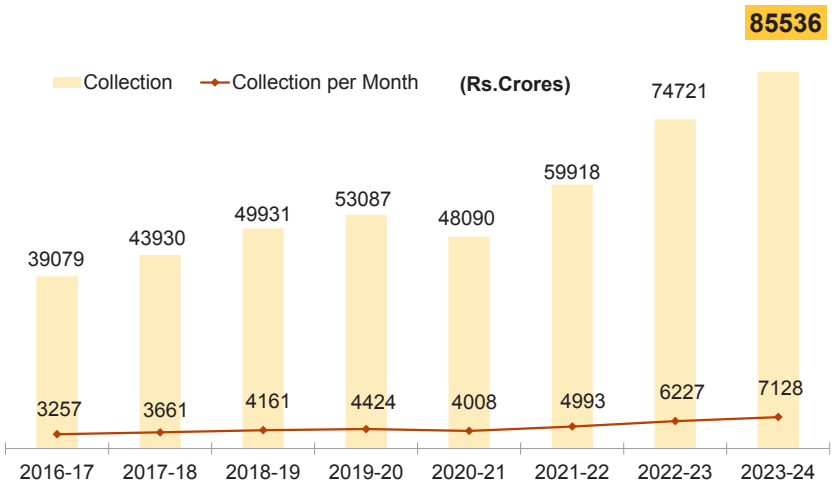
- 16 No Dedicated Police Station
- Squads – Checking Drives
- Disconnection Drives
- Special courts – Trail of cases
- HVDS

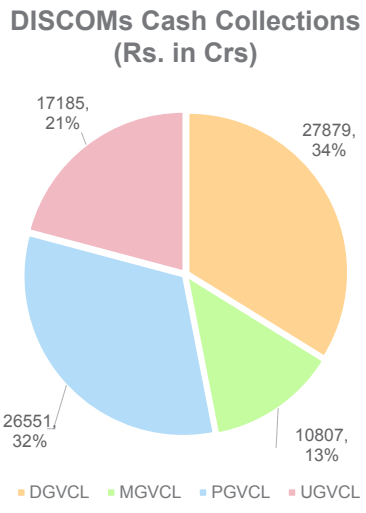
Avg. Cost of Supply & Avg. Revenue Realisation



–Per Unit Surplus has been mentioned in brackets above

GUVNL cash collection

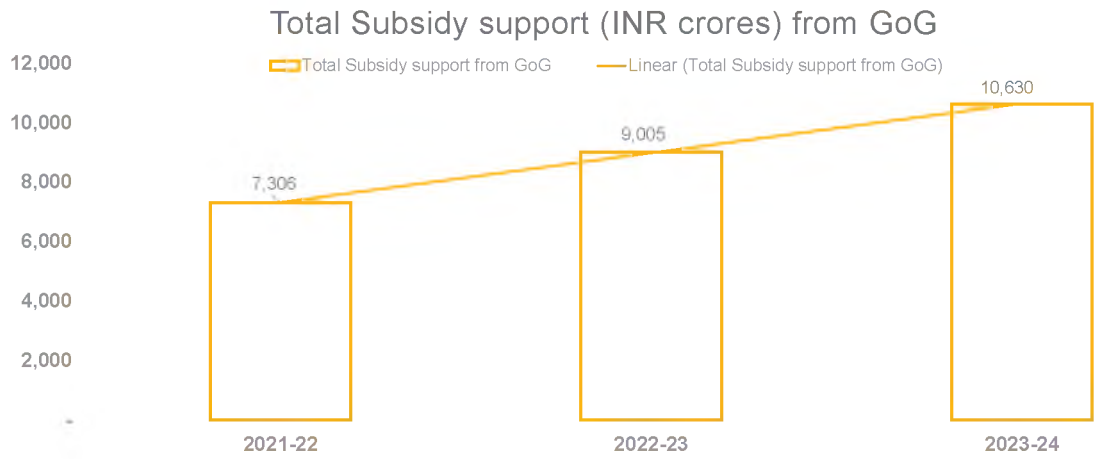




Financial Management

- Centralized Financial Management – Optimum credit facilities of Bank
- GUVNL – Management of Entire Working Capital
- DISCOM Collection – Routed through GUVNL
- GUVNL – Payment to Power Supplier - Rebates

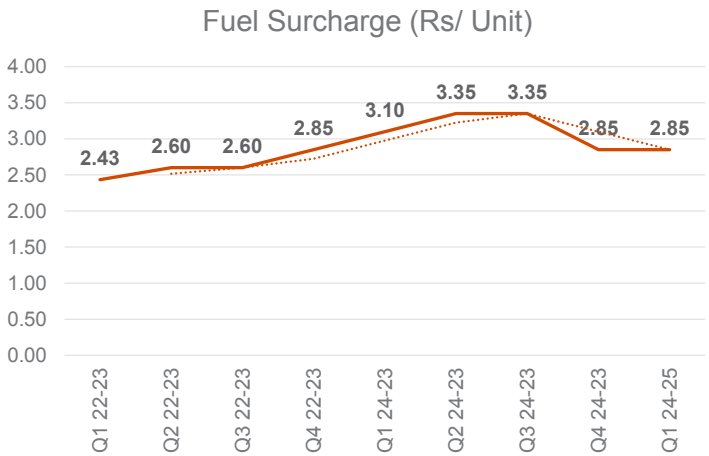
Subsidy Support from GoG



FPPPA

Lower Fuel surcharge

- Adjustments aligning consumer tariff
- Prompt pass-through of surplus
- Established Cost Recovery Mechanism



GETRI - CNET

- Capacity building
- Research and analysis
- International tie-ups and partnerships:
- Academic institutions
- Research organizations
- Institutions working in the field of net-zero emissions
- Consultancy Services
- Workshops, Seminars, Events

Resource Adequacy

GUVNL

GUVNL RE Planning - 2030

GUVNL

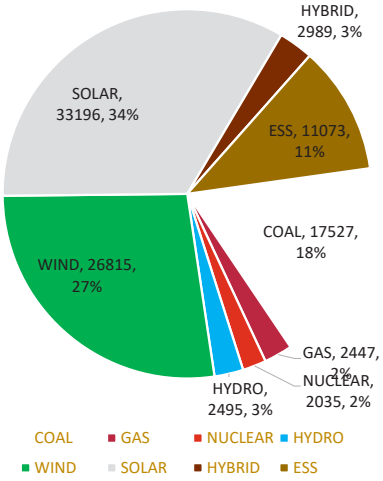
Net Zero Roadmap for Gujarat

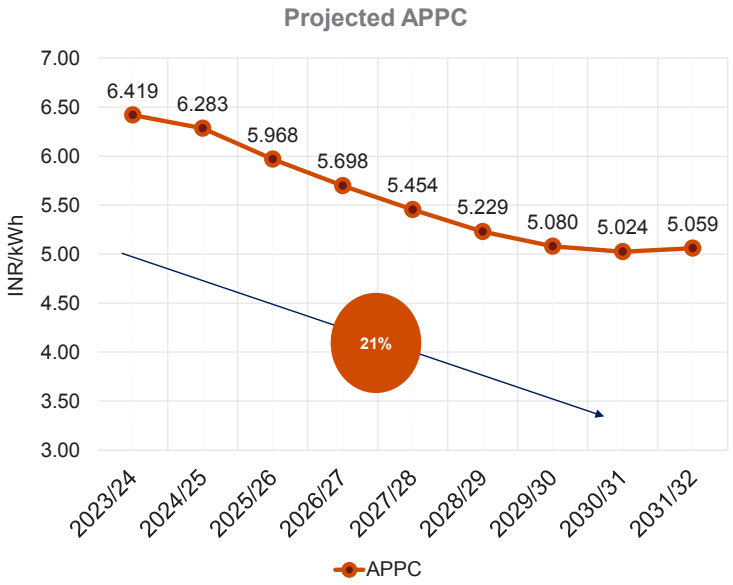
Fin Year	Wind	Solar	Hybrid / RE RTC	Total	Energy Storage (Battery / PSP)
2023-24	3000	7400	1000	11400	0
2024-25	2000	4100	3900	10000	12
2025-26	2000	3000	1000	6000	3849
2026-27	2000	3000	1000	6000	2012
2027-28	2000	3000	1000	6000	2000
2028-29	1000	2600	1000	4600	293 + 2642
Total	**12000**	**23100**	**8900**	**44000**	**10808**
GUVNL RE Planning					CEA , RA study

55,000 MWh
(11000 MWH X 5 Hrs.)

Energy Storage Requirement by 2030

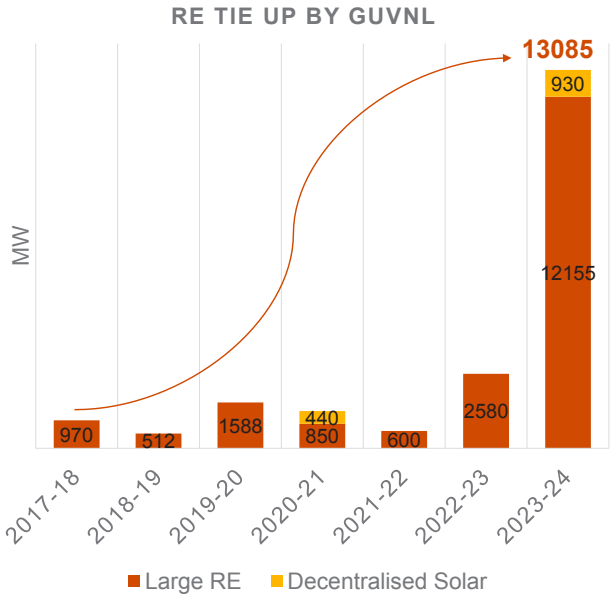
Resource Adequacy Plan – Installed capacity in 2030

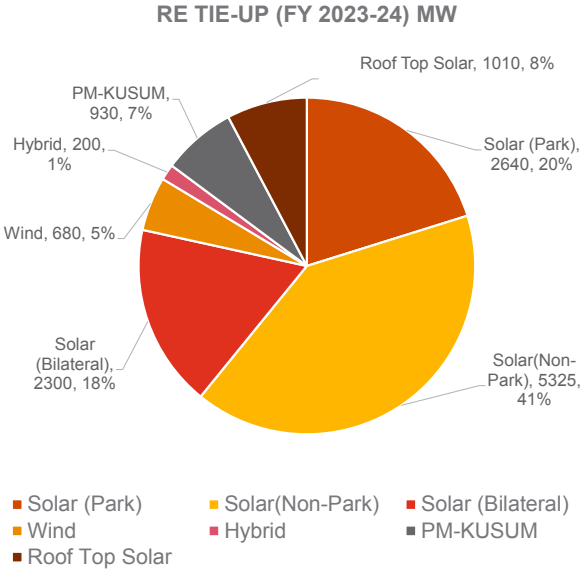




Source: CEA RA study

Growth in RE Tie-Ups by GUVNL over the Years

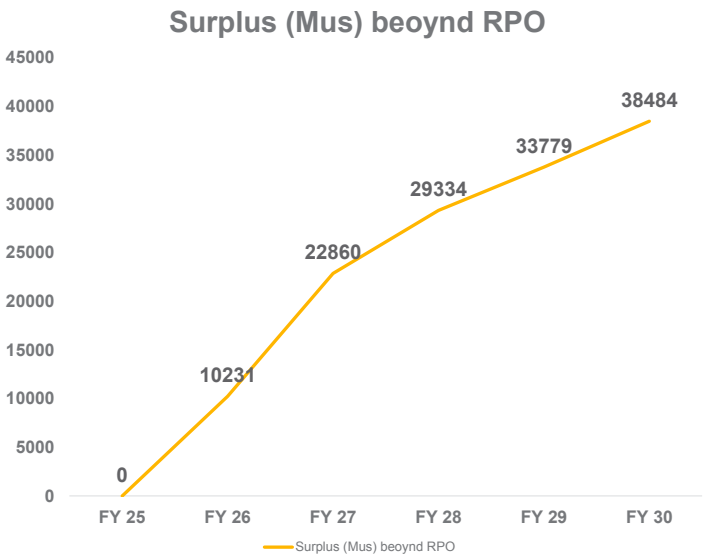




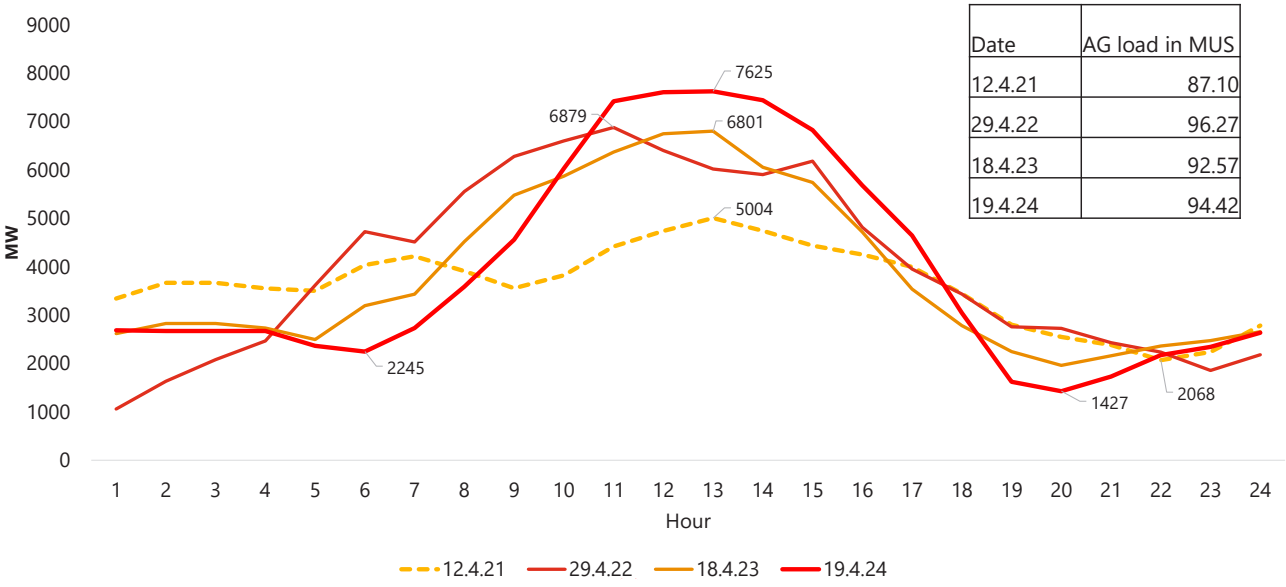
RPO and expected RE generation

- FY 26 - RE generation exceeds RPO
- Carbon Credit revenue potential

  USD 7.61 cr - INR 646 Cr.



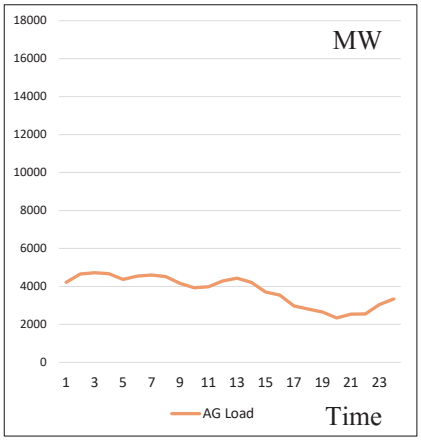
AG Load Shifting Year Wise



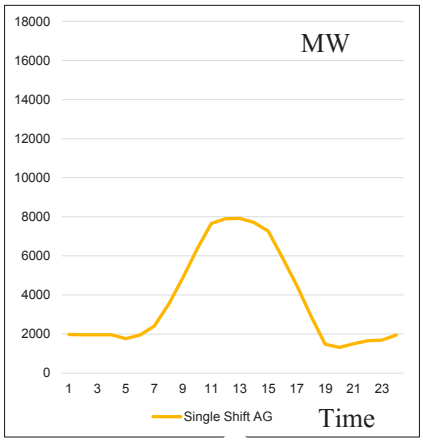
Date	AG load in MUS
12.4.21	87.10
29.4.22	96.27
18.4.23	92.57
19.4.24	94.42

AG Demand Shifting

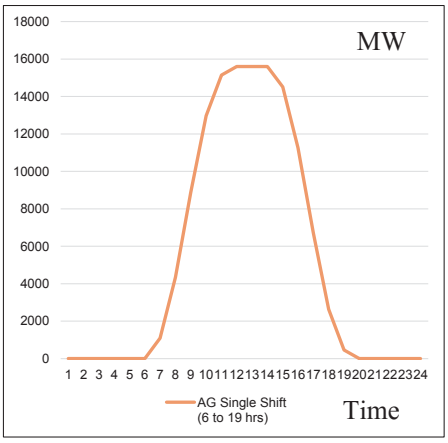
3 Shifts – April 2020

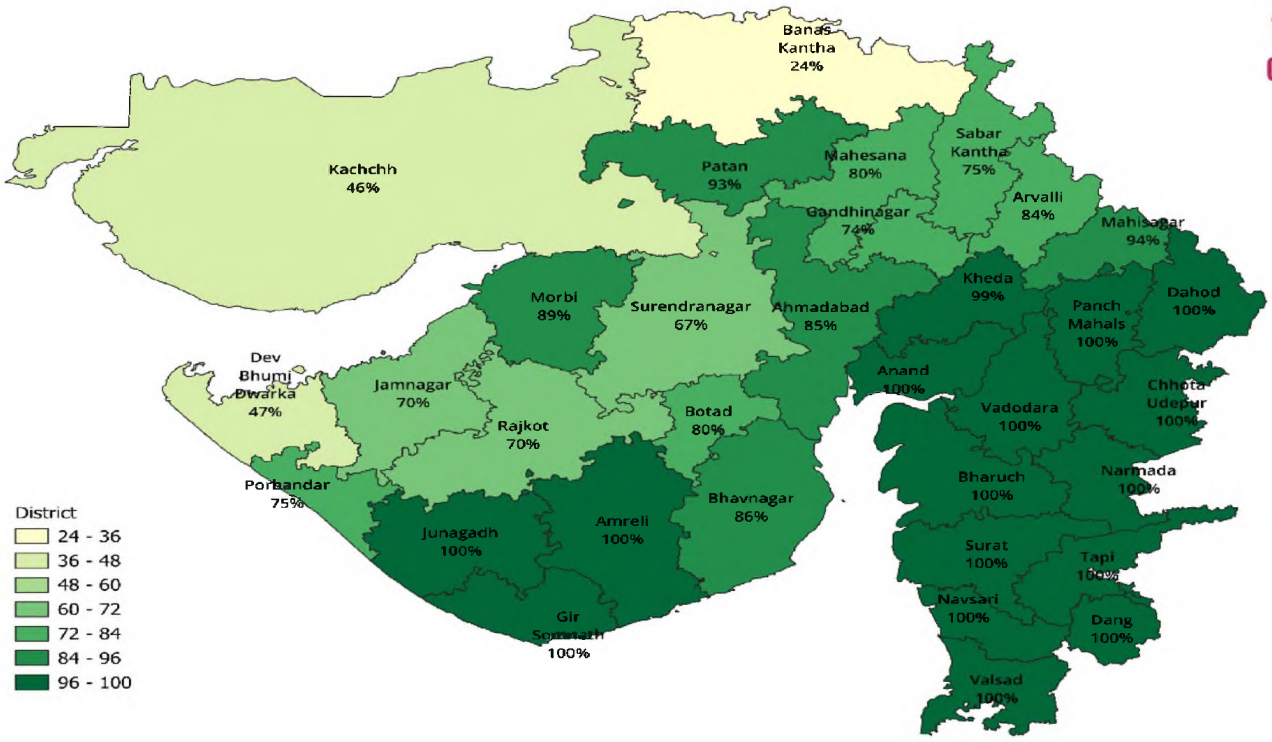


Single Shift – May 2024



Entire Ag Single shift March -25





Energy Storage

GUVNL

BESS

- tie-ups: 1648 MWh
- Short-term priority: Battery storage
- Long-term: Pumped Hydro Storage
- 23 PHSPs: 18,372 MW potential

Planning for Pump Storage

- 23 Nos. Reserved - PSU
- 7 Sites - Nomination - 4162 MW
- 16 Sites - competitive bidding - 14210 MW

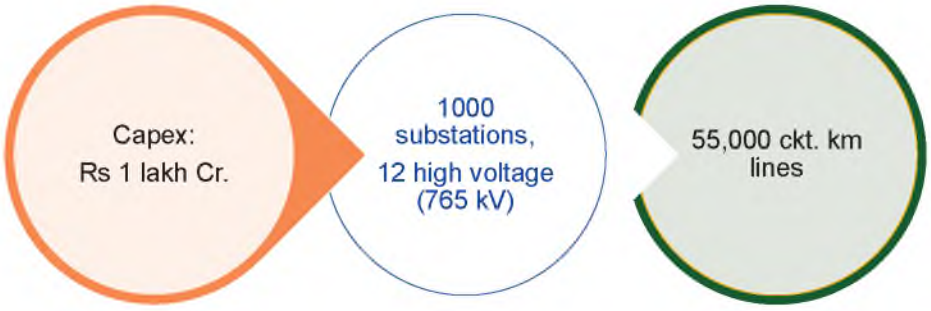
"Empowering Tomorrow's Grids"

Connectivity For ALL

Transmission Strengthening - Network

GUVNL

- Expansion - Transmission
- Investment
- Technological Advancements



Reforms in Connectivity

GUVNL

Connectivity

- Assured Connectivity
- No Denial

Process

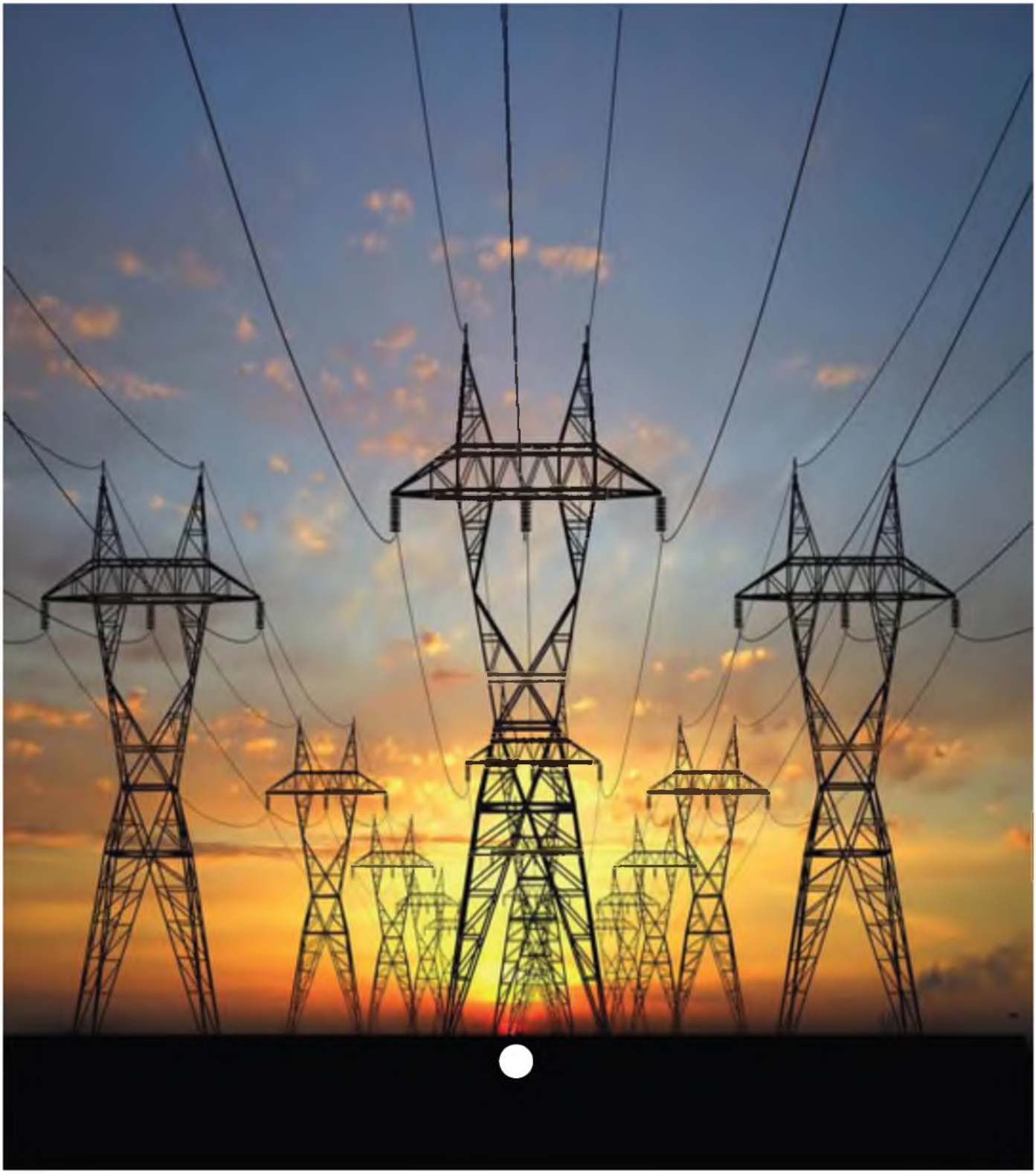
- Transmission line by GETCO
- Optimized Asset

New Development

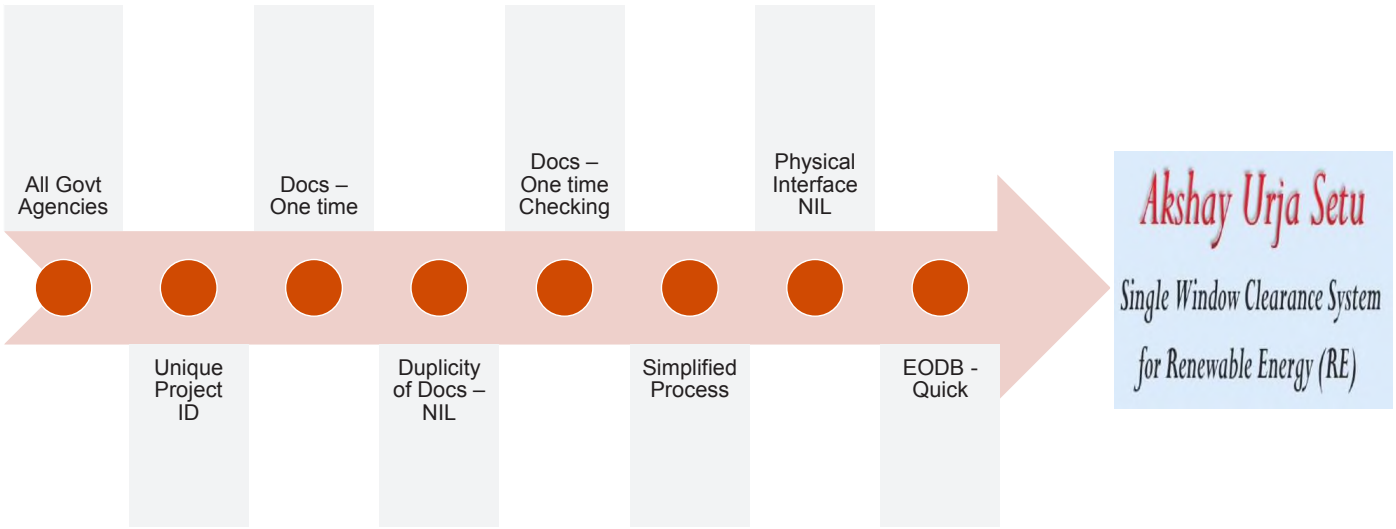
- 33/11 KV
- Decentralized Generation

Akshay Urja Setu

- Single window Clearance
- Geo-coordinates of S/s

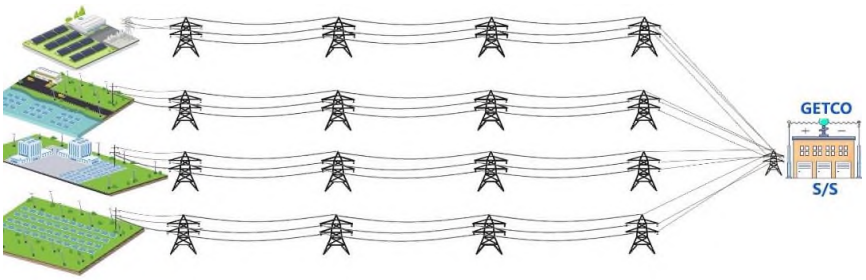


RE Projects - Single Window Portal



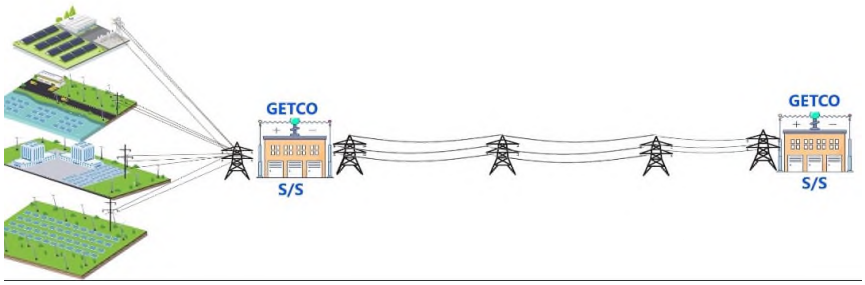
Present & Proposed Methodology for RE connectivity

Existing Practice



- Under-utilized Network
- Delay in RE Power offtake
- Unviable Projects

Reform



- Plug & Play
- Shared NETWORK - Optimum Use – Faster Implementation – RE project
- No harassment – Developers
- Cost – Overall reduction
- RoW – Eased Out
- No Discretion

Discoms 2.0

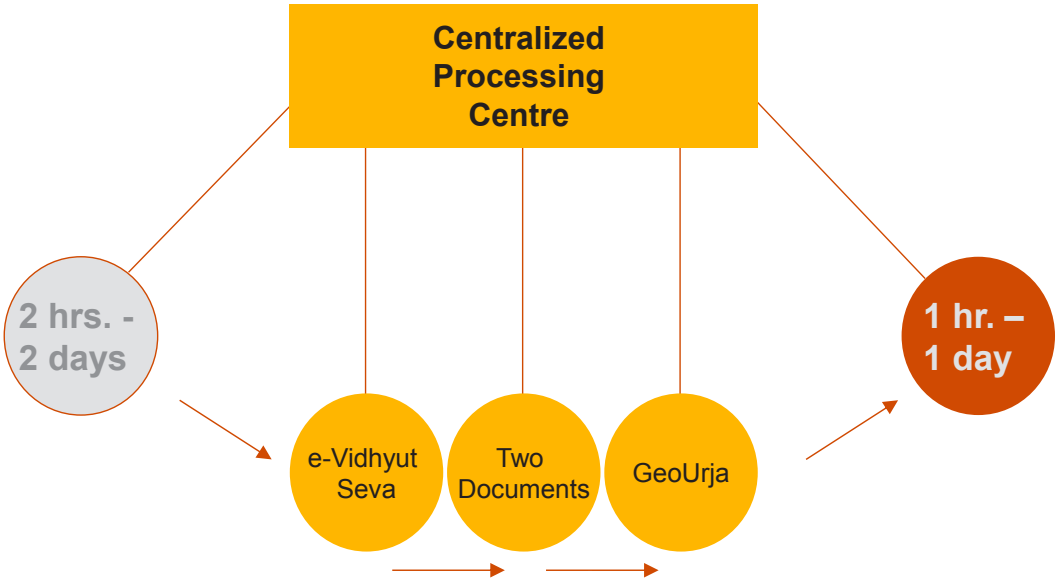
Consumer Centric

Ease of Living

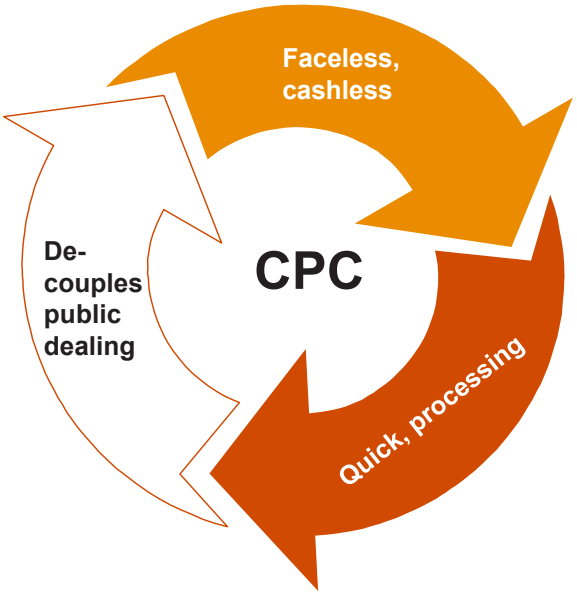
System Improvement

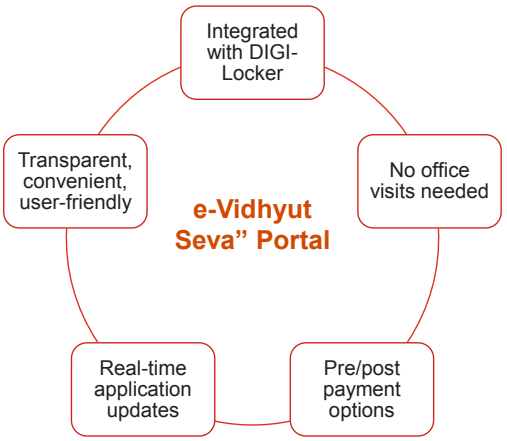
Future Ready

Efforts to Promote Ease of Living



Centralized Processing Center (CPC)





Process	Before CPC	After CPC
Avg days from Payment to SR	9.26	1.01
Avg days for Work completion	22.31	5.39
Avg days from TR to Release	2.36	1.73

Promoting Ease of Doing Business

1. Single Window Clearance (RE Projects)
2. Fixed service connection charge
3. Two documents for LT registration
4. Dedicated consumer feedback cell
5. Village-wise awareness programs
6. Revision of DISCOM DoP
7. Power supply from non-JGY feeders

NETWORK upgradation planning

System Strengthening

INR 7200 Cr - ARR

- Disaster Resilient
- Undergrounding of Cables
- Watch dog Devices
- Redundancy

				
Urban: AMRUT cities: underground network (RDSS)	Coastal: Underground or MVCC	Industrial: Underground for reliability	Redundancy planning: multiple power sources	Network strengthening: GIDC and own funds

Revamped Distribution Sector Scheme (RDSS)

- TOTEX mode
- 1.65 Cr Smart prepaid
  - Phase - 1 - 59.87 Lakh
  - Phase - 2 - 105.00 Lakh
- Distribution Transformers Metering -3 Lakh
  - DTR Capacity >25 KVA

Modernisation of Network

O/H Bare HT Line → O/H XLPE Cable

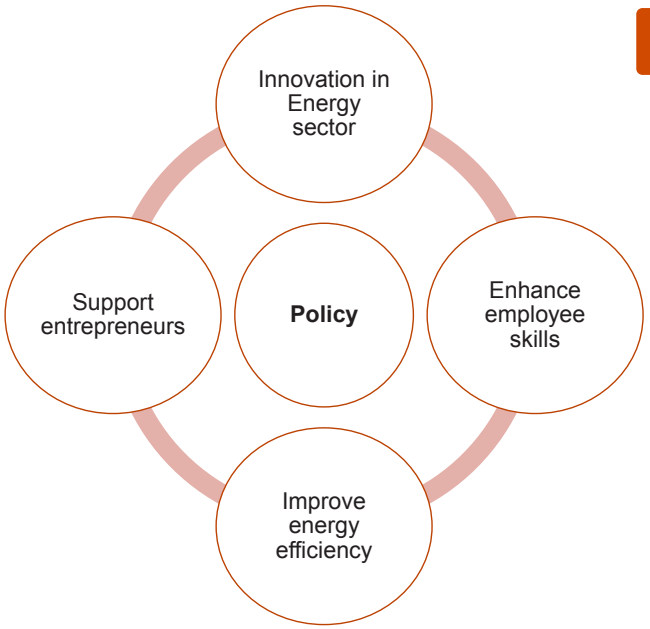
O/H Bare HT Line → U/G XLPE Cable

Booting of Transformer-To avoid animal/Bird Fault

Ease of living & Doing Business

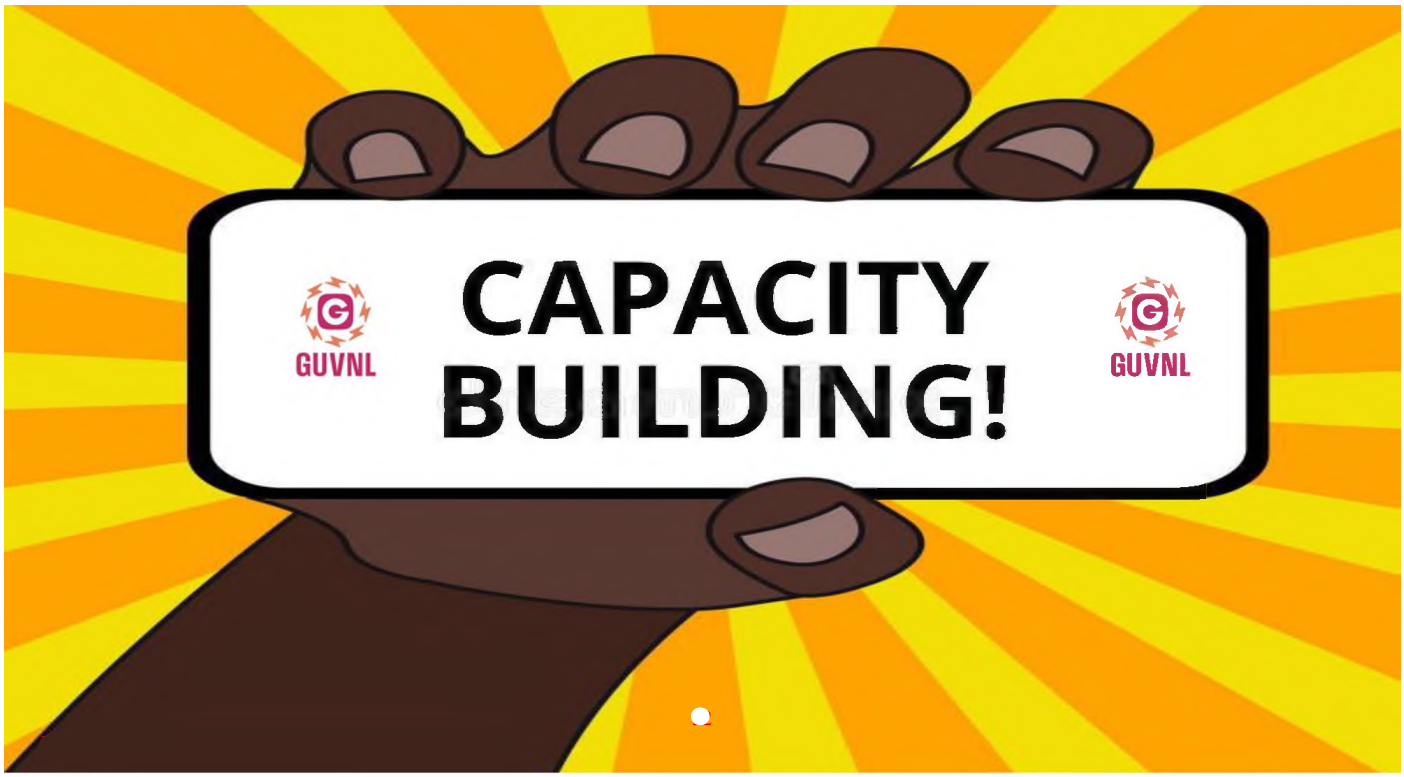
GUVNL Start-up Policy

Collaboration with i-Hub: Nurturing and supporting startups and innovations.

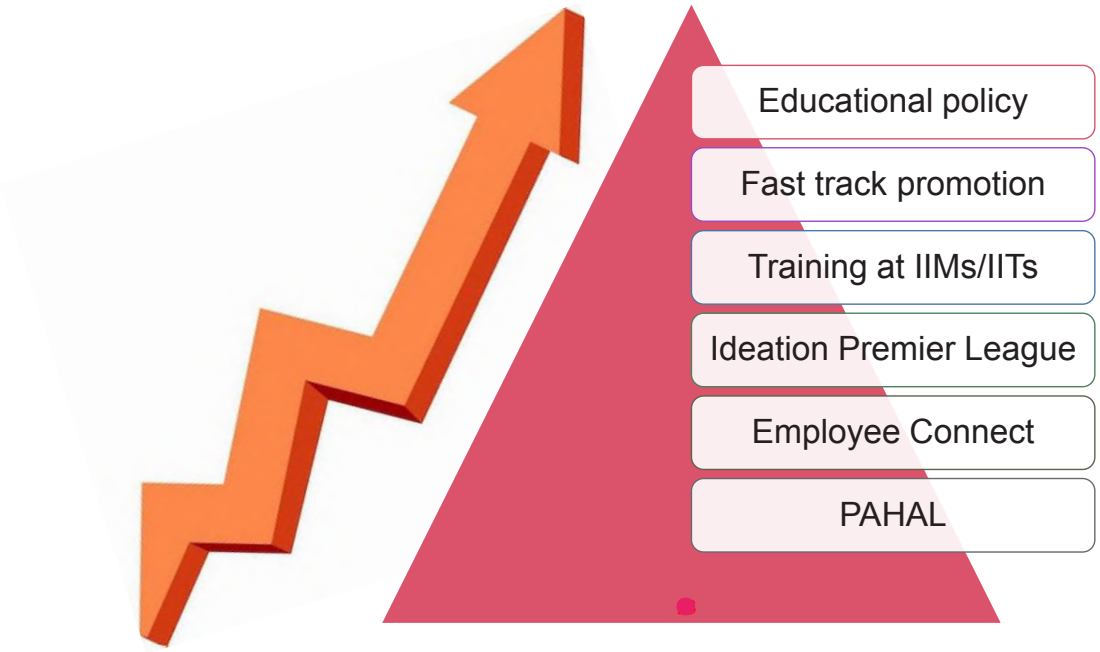


- GUVNL financial support
  - Institutional
  - Regulatory
  - Incubation support
  - Seed funding support
  - Venture funding support
  - Easing Public Procurement

GUVNL provides work orders up to **Rs. 25 lakhs** without tender for I-Hub recommended start-ups and innovative projects.



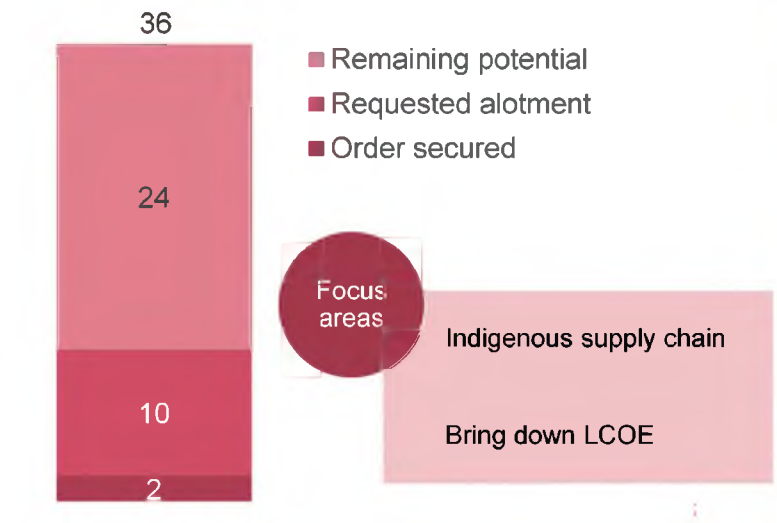
Leadership Development Program



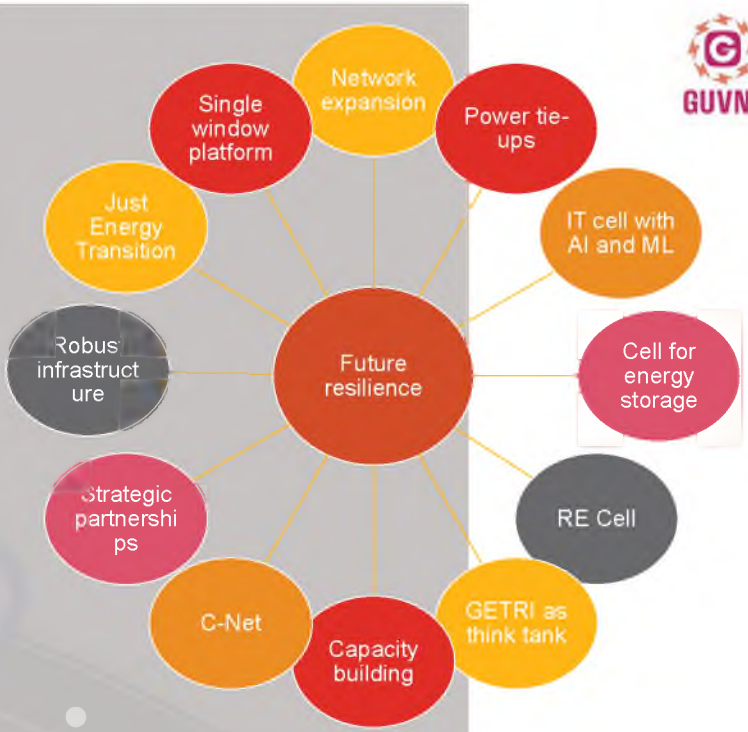
Advancing Skills : Changing Energy Landscape

- Smart Meters & Digital Transformation
- Thermal Power Plants – FGD, Digitalisation
- Emerging Technologies
- Climate Literacy for LiFE Movement
- AI, IT-OT Integration in Power Sector
- RE – Grid Code Requirements, Seamless Integration

Embracing Emerging Technologies



Change Management



Embracing Innovation: New Logos & New Horizons

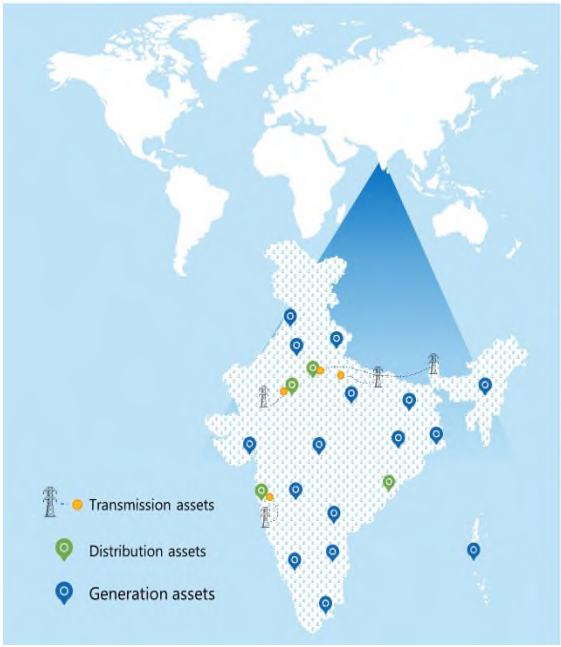
GUVNL

GSECL GETCO GETRI

DGVCL MGVCL PGVCL UGVCL

Thank You

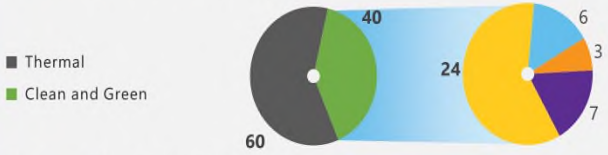
TATA POWER COMPANY LIMITED



Capacity Mix (Domestic + International)

8,860 MW Thermal	1,034 MW Wind	880 MW Hydro	
14,707 MW Total	443 MW Waste Heat Recovery /BFG	3,490 MW Solar	5,506 MW Renewable capacity under construction

Distribution of installed capacity (Domestic & International) (%)



Transmission and Distribution

12.5 Mn Customers in Distribution	4,626 Ckm Operational Transmission	2,057* Ckm Transmission pipeline under construction

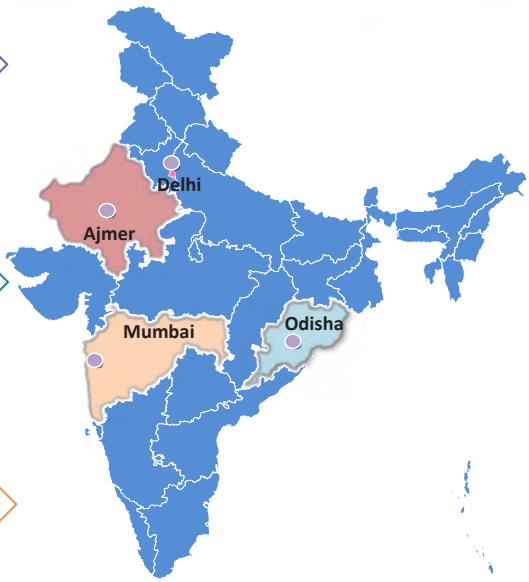
* Including Paradeep-Angul new project

Tata Power- Presence in all forms of Distribution Models

TATA POWER DELHI DISTRIBUTION LIMITED
20 lakh customers
Licensee I 2002

TP AJMER DISTRIBUTION LIMITED
2 lakh customers
Franchisee I 2017

THE TATA POWER COMPANY LIMITED, Mumbai
8 lakh customers
Licensee I 1915



TP CENTRAL ODISHA DISTRIBUTION LIMITED
29.2 lakh customers
Licensee I 2020

TP SOUTHERN ODISHA DISTRIBUTION LIMITED
21.7 lakh customers
Licensee I 2021

TP WESTERN ODISHA DISTRIBUTION LIMITED
20.4 lakh customers
Licensee I 2021

TP NORTHERN ODISHA DISTRIBUTION LIMITED
19.7 lakh customers
Licensee I 2021

Public Private Partnership - Distribution Franchisee – Competition

Tata Power -Distribution Overview

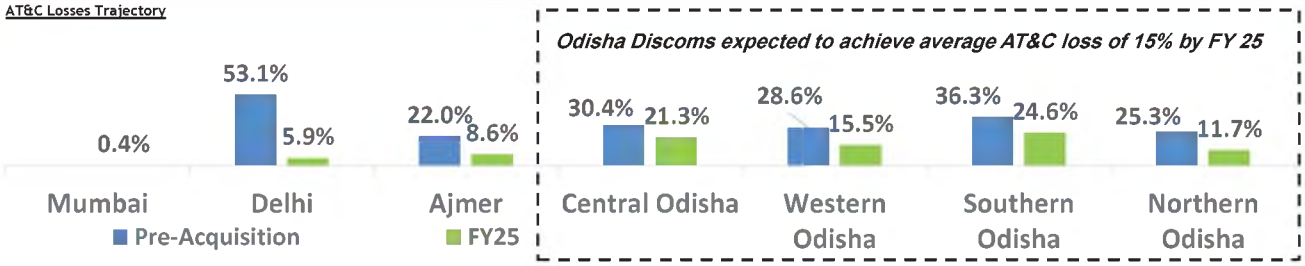
TATA POWER

Largest Distribution Player in the Country - Total Consumers equivalent to next 3 Peers

Market Share based on No. of Consumers - FY 24 (#mn)

With Proven Track Record in Managing and Turning Around Loss-making DISCOMs

AT&C Losses Trajectory



TATA Power- Delhi

TATA POWER

Chronology of Events
1990s Delhi power system shows signs of deterioration
1999 Privatization & Restructuring Approved
2001 Enactment of DERA RFQ issued
2002 Submission of Bids, Signing of Share Acquisition Agreement
1st July 2002 Effective Date of Transfer to Tata Power

Initial challenges
AT&C Loss at **53%** - rampant theft
Dilapidated Network – on the verge of collapse
Unreliable Power Situation (**11%** Transformer failure Rate, **48%** Streetlight functional, **8-10 hrs** of Power cut)
Erroneous Consumer Database (**50%** of consumers had some form of an error)
> 1,00,000 Billing Complaints & **> 20,000** applications pending for New connection
No Computerization/Automation/Tracking & Monitoring
Absence of Consumer Relationship approaches

Parameter	Unit	July 2002	March 2024
OPERATIONAL PERFORMANCE			
AT&C Loss	%	53.1	5.9
System Reliability – ASAI Availability Index	%	70	99.9
Transformer Failure Rate	%	11	0.68
Peak Load served	MW	930	2218
Length of Network	Ckt km	6750	14108
Street Light Functionality	%	40	99.6
Smart Meters Installed	Lakh	0	4.33
CONSUMER RELATED PERFORMANCE			
New Connection Energisation Time	Days	51.8	5.57
Meter Replacement Time	Days	25	3
Mean Time to Repair Faults	Hours	11	.9
Consumer Satisfaction Index	%	-	97

A benchmark in Industry …Case study in Management schools

Technology

Process

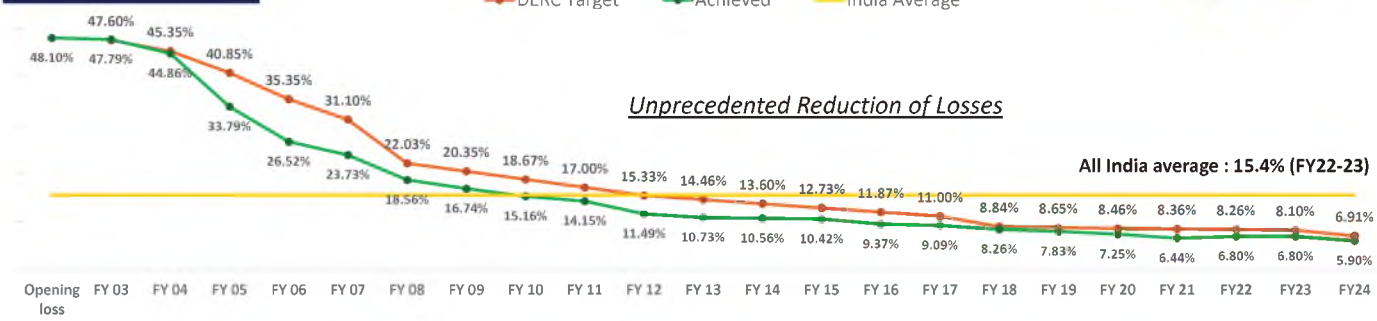
People

TPDDL : AT&C LOSS Reduction

TATA POWER

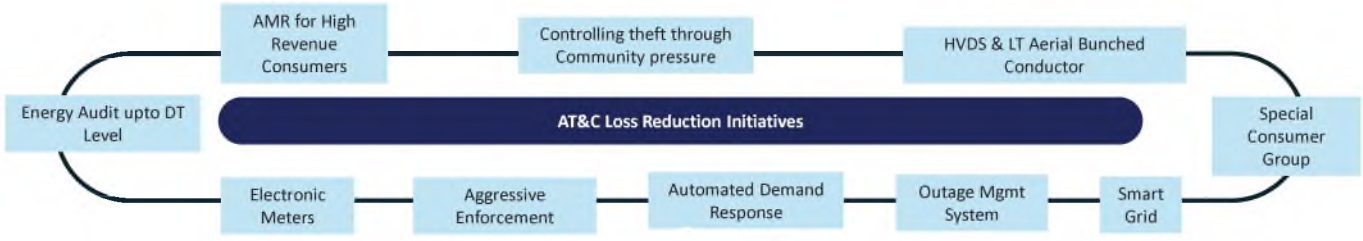
TATA

AT&C Loss(%) Trajectory



Unprecedented Reduction of Losses

All India average : 15.4% (FY22-23)



Special consumer group

Handholding Customers in slum areas for new connection, query resolution and facilitating collection of energy dues through customer outreach and counselling

Serving ~1 Mn Population (bottom of pyramid of Society)	218 Slum Clusters	0.26 Mn Customers	Rs. 246.46 Cr Annual Billed Demand	Rs. 246.46 Cr Annual revenue collected

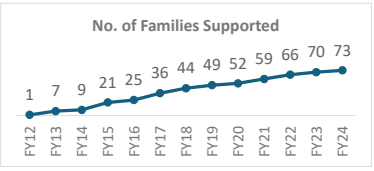
Key Challenges

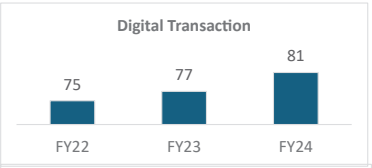
- No Property Ownership Record/Document
- High Theft & High Hooking Practices
- Low Paying/Missing Payment Culture

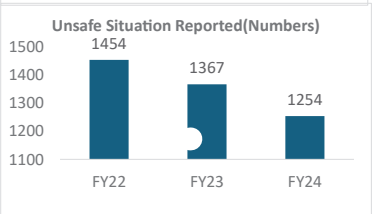
Uniqueness

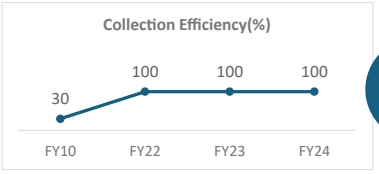
- Unique Model aligning CSR with Commercial gains
- Reduced losses in critical areas without coercion
- Slum ladies becoming TPDDL Brand Ambassadors

TPDDL is the only utility to develop such model

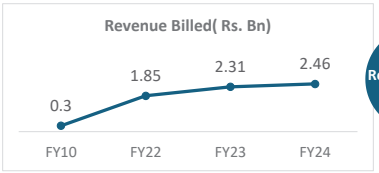




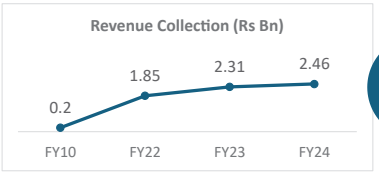




2002 Collection efficiency < 10%



2002 Revenue billed < 2 Crores)

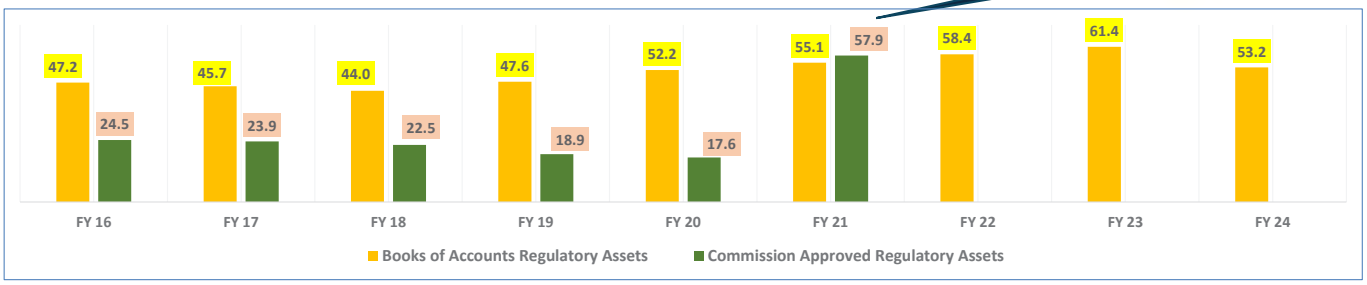


2002 Revenue Collection < 1 Cr.

Regulatory Assets

Regulatory Asset (in Rs. Bn)

DERC approved RA post True-up of FY21



Non Approval of Power Purchase Costs lead to the creation and accumulation of Regulatory Asset

Key Policy Advocacy Initiatives

Introduction of Power Purchase Adjustment Charges

- *to prevent further accumulation*

-Now can be charged upto certain limit suo moto on a quarterly basis

Introduction of Regulatory Deficit Surcharge

- For liquidation of Regulatory Assets

Recognition of RA by DERC

- After Due Audits and Prudence Checks

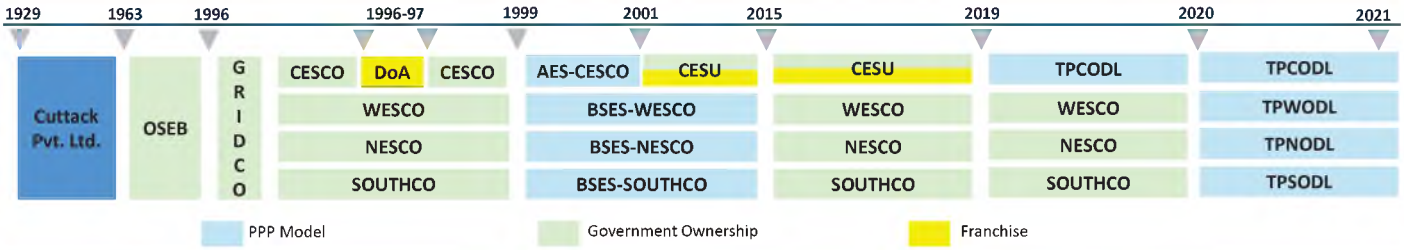
Tata Power- Odisha Discoms

ODISHA

TATA POWER

TATA

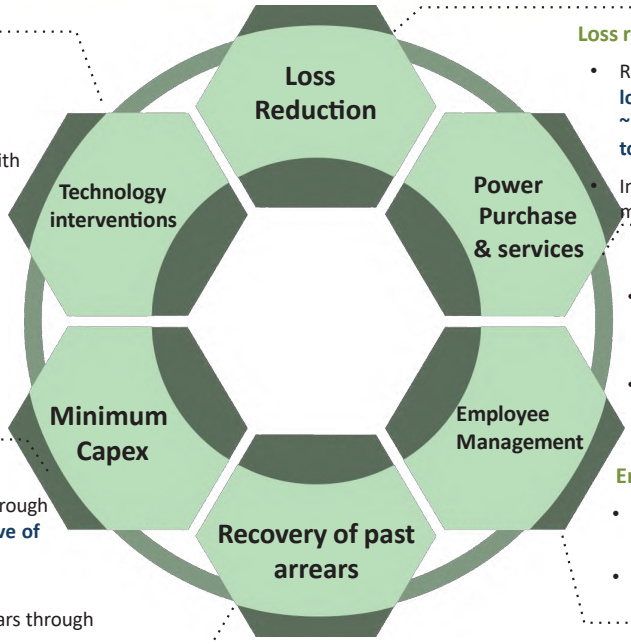
Electricity Distribution Sector of ODISHA(1929-now)



Major Challenges that Led Privatization in 2020

- High AT&C losses : ~ 30 %
- Poor performance of DFs in CESU licensing area
- Unreliable and overloaded system
- High financial losses, due to non-cost reflective tariff and cash flow issues
- Inadequate capital investment by private player due to conflict on regulatory issues
- In adequate Technological adoption

Bidding conditions….*Learning from Past*



Technology interventions

- Leverage technology in the MBC procedures
- GIS mapping, Consumer indexing with robust energy accounting & audit

Minimum Capex

- Mobilize private investment required for modernization of network
- Strengthen distribution system to support future demand growth
- **TPCL Committed for 5600+ Cr capex in 5 years**

Recovery of past arrears

- Clearing past dues of GRIDCO through recovery of past arrears. **Incentive of 10% & 20% for Live & PD cases respectively.**
- Eliminate further pile-up of arrears through timely collections

Loss reduction

- Reduce AT&C losses. **Expected loss reduction level to 10% from ~ 30% after 10 years – certainty to investors**
- Improve collection efficiency to effectively manage cash flow across the sector chain

Power Purchase & services

- GRDICO shall manage power procurement process and shall be state designated entity for PPA.
- Provide 24x7 reliable and affordable power supply

Employee Management

- Employees shall be absorbed on same terms & conditions.
- Any past liability shall be under purview of GRIDCO.

ODISHA Discoms – Overview

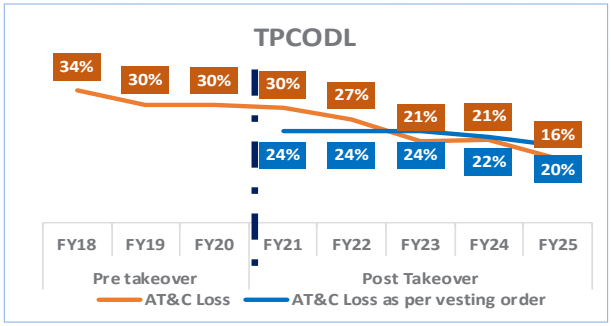
TPWODL	As Taken Over	FY24
Area (Sq. km)	48,373	
Consumers (lakhs)	21.00	20.36
AT&C (%)	26.8	15.5
Provisional Billing (%)	25	3.89
SAIDI (Hours)	N/a	309

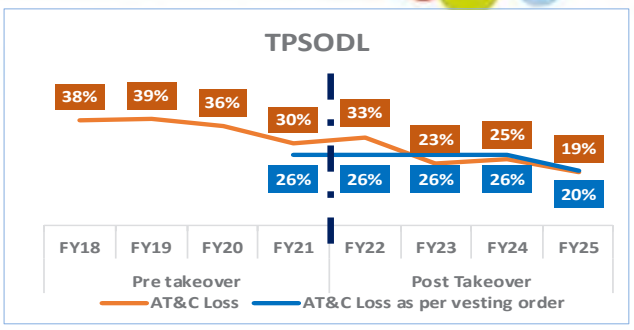
TPSODL	As Taken Over	FY24
Area (Sq. km)	48,751	
Consumers (lakhs)	23.69	21.70
AT&C (%)	32	24.4
Provisional Billing (%)	26	2.99
SAIDI (Hours)	N/a	267.41

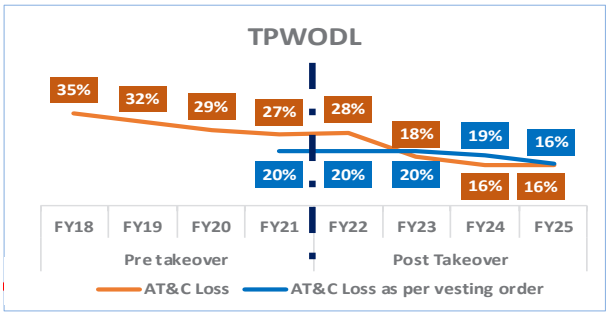
TPNODL	As Taken Over	FY24
Area (Sq. km)	27,920	
Consumers (lakhs)	20.54	19.73
AT&C (%)	25.2	11.7
Provisional Billing (%)	18.6	1.27
SAIDI (Hours)	N/a	359

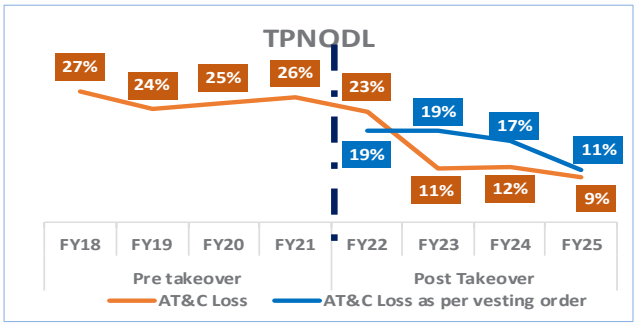
TPCODL	As Taken Over	FY24
Area (Sq. km)	29,354	
Consumers (lakhs)	27.54	29.21
AT&C (%)	30.4	21.2
Provisional Billing (%)	28.8	3.45
SAIDI (Hours)	N/a	230

AT&C Loss

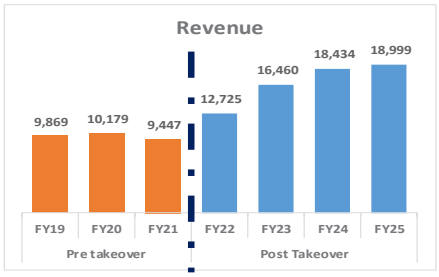


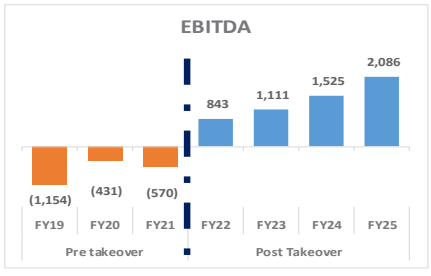


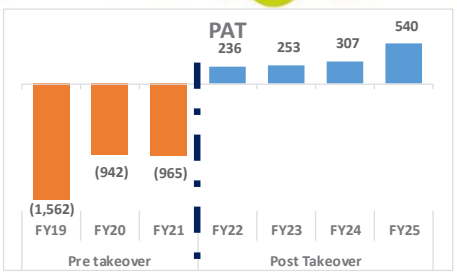


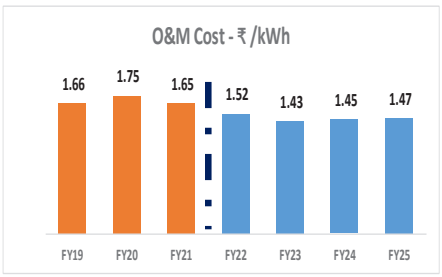


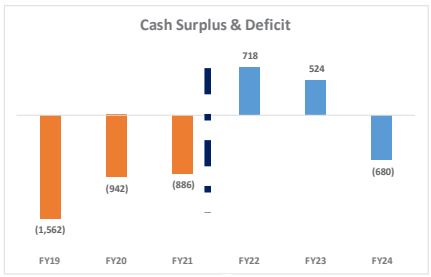
Pre & Post Takeover : Odisha DISCOMs

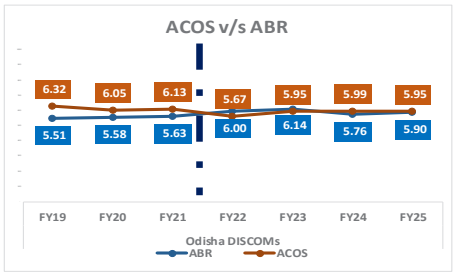








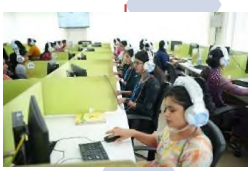




Tariff reduction of FY 23-24 without impacting Regulatory Assets.

First thing First …*Better Customer Experience*

Call Centre
- 4 Nos. 24 X 7 Call Centre



Customer Care Centre
- 56 Nos. Customer Care Centers (7 All Women)

Customer Connectivity
- 2900+ Fuse Call Centers
- Gaon Chala Camps & Meetings with RWA, IWA
- SMS based communication for Outages

Social Media Complaint Handling
- 24 X 7 Digital Command Centre

Digital Journey
- 35% Digital bill payments
- QR based Payment system on Spot Bill

Customer Satisfaction
- CSI Index > 90%
- Bill Pay & Win

Reliability improvement and well planned network

PTR Augmentation

RMU Installation

Replacement of VCBs

Fencing of Substation

LT Protection

Trolley Mounted Substation

74

Odisha government supported with a grant of around 3000+ Cr towards capex

Commercial Excellence

TATA POWER

Metering

- New Connections Addition
- Replacement of Defective Meters
- **100%** compliance with statutory meter testing
- Conversion of Unmetered to metered
- Smart Metering

Billing

- Addressing Provisional Billing and Unbilled cases scenario
- Technology infusion to reduce Suppressed reading and Tabletop Reading
- Implementation of OCR for Meter Reading
- Spot Billing

Structural Reforms (Accountability & Reach)

Collection

- QR Code based payment
- Arrear collection Drives through Ex-Servicemen, Bike Squads & DC Squads
- 100% Online Cash Collection through "**Sangrah**" Mobile App
- Focused Recovery from Rural Areas through Gram Panchayat Level collection Teams
- Operation "**Clean Slate**" - liquidate the arrears in urban areas
- m-POS for Spot Collection deployed –

Rural Electrification

- **Gaon Chalo Camps** & Establishment of **Bidyut Seva Kendra** to increase outreach for rural consumers
- **Mission Cheetah** to bring unbilled consumers to billing net

De-hooking activities at various areas

Head-RCM monitoring OCR activities on field

HoD-CMG monitoring progress of Mission Cheetah with nodal officers of Various Divisions

HoD/HoG-Comm introduced → Circle

CSM,TL-MSC,CRE,MMG & ENF. introduced → Division

JM-Comm. & CCE introduced → Section

Technology Adoption

TATA POWER

Using State of the Art Systems in Operations to Deliver Value Services

SCADA & Automation

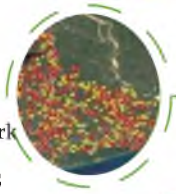
- Central Power System control
- Automation of sub-stations
- Real time remote monitoring and operations
- Eliminating Human intervention

ERP System

- Finance, MM, HR integration – PMS, BAMS
- Billing system integration, mapping of 100% consumers for CRM and Billing

Geographical Information System

- Consumer indexing
- Asset mapping including network trail, MRU, Energy Audit
- Network planning based on GIS
- New connection based on GIS



Technology Led Operations

Advanced Distribution Management System

- Integrated distribution planning for growth, operations
- Predictive operations
- Optimized Grid Operations.

Smart Metering

- Transparency of usage
- Remote monitoring and controlling for energy management
- Drone based meter reading of Bluetooth meter

Remote & Online Monitoring

- Use of Thermovision scanners for online inspection
- Drones for tower and feeder maintenance
- Field Force Applications – OCR, MMG, ENF, DO, Suraksha Kavach.

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Employee Welfare Initiatives

TATA

1	2	3	4
Priority to recruitment from State	**Stagnation Promotion Policy**	**Recruitment Policy for spouse & ward**	**Conducive working environment**
Campus recruitment only from Colleges of State Preference to State based candidates	1086 out of 1844 OSCR employees promoted under Stagnation Promotion Policy	Introduced recruitment policy for spouse and ward	Renovation of more than 80% offices , 100% Executives provided laptops, Training & Development
5	**6**	**7**	**8**
Group Health Insurance Policy	**Annual Health Check Up**	**Enhanced Fuel Allowance**	**Inclusivity**
Policy for employees and family : ₹ 5 Lakhs/ ₹ 7 Lakhs, Top up upto ₹ 15 Lakhs	Annual Health Check up for all employees	Enhanced fuel allowance for Executive Employees	Onboarded • Ex-servicemen • Women Self Help Groups

TATA POWER

Societal Engagement

TATA

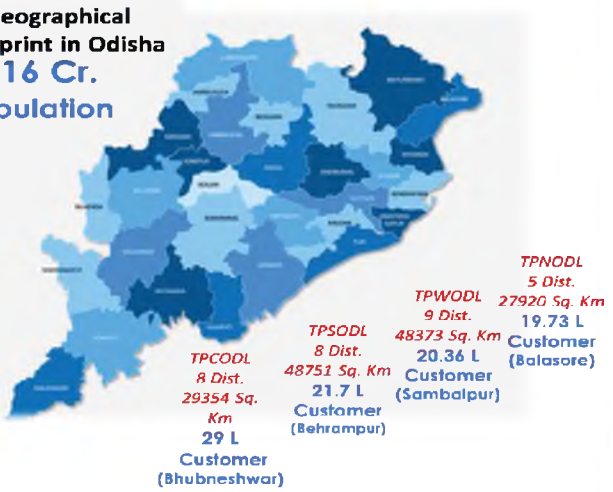
Powering Transformation in Odisha

Touched **23+ lakh** lives across **Odisha**

Geographical Footprint in Odisha

4.16 Cr.

Population



30
Districts including 9 aspirational districts

34+
Institutional Synergies

Beneficiary Action
23+ Lakhs

31,000+ Hrs.
Employee volunteering performance

Women Empowerment
1421
Urja Sakhi

3 Lakhs+
Touched through Essential Enablers

51000+
Villages

Key Flagships – Adhikaar, Abha Shakti, Roshni, Club Enerji, Essential Enablers - MHU

Odisha Discoms…Speed matters

Loss Reduction	Reduced AT&C Loss from 29.45% in FY21 to 18.79% in FY24
Provisional Billing Reduction	Provisional Billing reduced from 39.6% during takeover to 6.5% upto FY24
Meter Replacement	35 Lakhs Meters Replaced
Smart Meter Installation	7 Lakhs Smart Meter installed in last one and half year
Past Arrears Collection	₹ 1762 Cr past arrears collected upto FY24 and paid to Gridco, exceeding initial 5 Years commitment of ₹ 1000 Cr

- **Gridco has made profits of ₹ 260 Cr in FY24, against a loss of ₹ 1352 Cr in FY20.**
- **3 Discoms awarded A+ Rating in 12th Annual Integrated Rating**

Delhi and odisha Model.. A glance on transfer order

Description	Delhi	Odisha (Reform 2.0)
Legal Provision for Sale of Equity	• Delhi Electricity Reforms Act, 2000	• Section 20,21 Electricity Act, 2003,
Opening Balance Sheet	• Clean Balance Sheet without accumulated losses • Past Receivables / Laibilities	• Clean Balance Sheet without accumulated losses • Past Receivables / Liabilities (Only Current Liabilities passed on in BS)
Servicing of Past Liabilities	• To the extent not passed on in Op.BS, not the liability of Discom and need to be serviced by HoldCo/ Govt.	• To the extent not reflected in Op. BS but serviceable by Discom, to be allowed recovery to Discom as Additional Serviceable Liability (ASL)
Equity Sale Price	• Fixed; as per Opening Balance Sheet	• Premium over the Reserve Price; Reserve Price as per Opening Balance Sheet
Successful Bidder	• Highest PV of Bid AT&C Loss Reduction	• Highest composite Technical and Financial Score
Performance Bank Guarantee	• Nil	• Rs. 150 Cr. to be furnished by Successful Bidder for 15 years • Based on performance and satisfaction of Commission, to be halved every five years
Penalties for under-achievement of Commitments	• No additional penalty beyond the loss due to under-achievement	• AT&C Loss Under-Achievement orm Committed Levels: Rs. 50 Cr./ 30 Cr. for every 1% under-achievement at end of 3rd and 5th year; • Past Arrears Collection Under Achievement : 10% of Under-Achievement at end of 5 years • Penalty to be borne by Successful Bidder; to be encashed from PBG, to be recouped by Successful Bidder within seven days of encashment
Power Arrangement Responsibility	• Government owned Transco in whom all PPAs were vested on corporatization of Delhi Vidyut Board. Transferred to Discoms in 2007	• GRIDCO, Designated Nodal Agency for procurement of Power for Discoms. • Only in case GRIDCO unable to procure power, can the Discoms procure power independently
Governance	• Chairman of the Board to be nominee of Successful Bidder	• Chairman of the Board to be Chief Secretary/ Power Secretary / Nominee of Government of Odisha

Tata Power Ajmer

Tata Power- Ajmer

TATA POWER

Business Model : Distribution Franchisee

- Input plus investment-based Model
- Period of DF agreement : 20 years
- Capex invested since FY 18 : 119 Crs.
- Employees had option to join /not to join

started operation on **1 July 2017**

Serves Distribution area of **200 sq km**

Consumer base of **0.16 million**

AT&C Loss **8.6%**

Peak Demand of **128 MW**

High AT&C Losses

Poor Condition of Distribution Network

No Automation in Power Supply process

Non-Integration of Business Processes

Less availability of skilled manpower

Unethical practices

No public & Employed safety

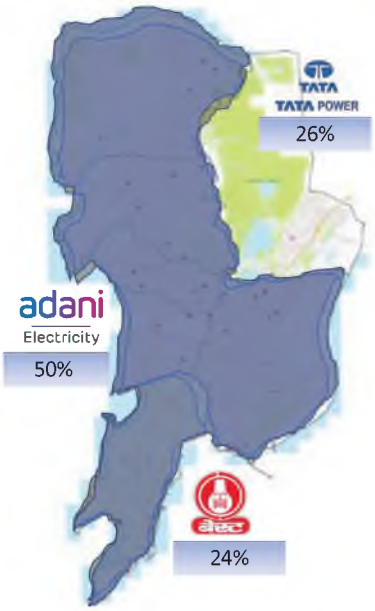
KPI Performance

Description	Unit	FY 18	FY24
Input Energy	MUs	355.91	605.02
AT&C	%	21.92	8.63
T&D Loss	%	14.7	8.27
SAIDI	Hrs	125.2	19.43
SAIFI	Nos	115.9	41.6
SCADA	%	32	100
CSAT	%	>80	94.04
Digital Payment	%	14	77
Provisional Billing	%	7.17	0.49
Average billing Complaints/k	/k	8	7.06
Average Customer grievance redressal time	Days	8	5.7
New Connection lead time	Days	<13	11.7

TATA POWER MUMBAI DISTRIBUTION

TATA POWER

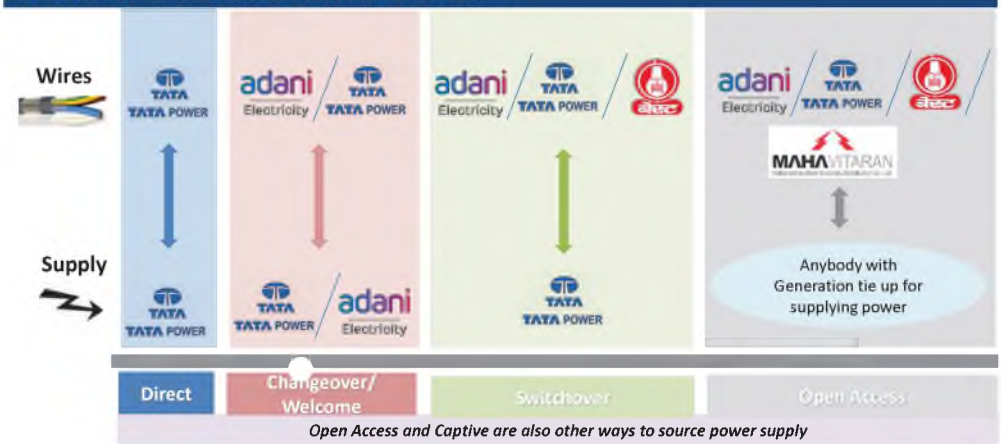
MUMBAI: Parallel Licenses



TATA POWER MUMBAI DISTRIBUTION DETAILS

Total Distribution Area	Total Consumers	Annual Sales	Peak Demand
485 sq km	7,73,296	5,680 MUs	1,029 MW

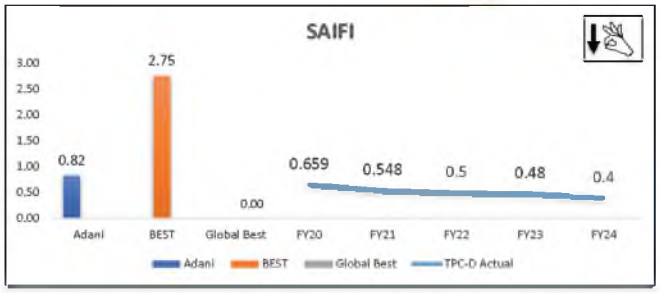
CONSUMER TYPES – DRIVEN BY PARALLEL LICENSEES

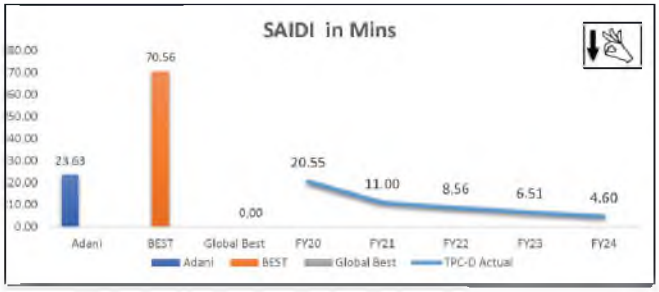


Open Access and Captive are also other ways to source power supply

TATA POWER

Industry benchmark parameters





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TATA POWER

Distribution Reforms – Fundamental Principles

Excellent customer experiance

Maximize Adoption & Utilization of Technology

Rapid Improvements in Network Reliability

Aggressive Reduction of AT&C Losses

Capacity &Capability Building : Ownership in Employees

Giving back to the Society as per TATA Group Ethos

Thank You!

MINUTES OF THE THIRD MEETING OF THE WORKING GROUP OF THE FORUM OF REGULATORS (FOR) ON "VIABILITY OF DISCOMS"

Venue: CERC, New Delhi
Date: 3rd October, 2024
List of participants: Appendix-I

At the outset, Chairperson of the Working Group & Chairperson, MPERC welcomed the members to the third meeting on the viability of Discoms. He also welcomed representatives from MP Paschim Kshetra Vidyut Vitran Co Ltd. and Torrent Power to share their best practices and experiences regarding viability of Discoms. Thereafter, the Working Group took up the agenda for discussion.

AGENDA ITEM 1: CONFIRMATION OF MINUTES OF THE 2ND MEETING OF THE WG HELD ON 9TH AUGUST 2024.

1. Asst Chief (RA), CERC apprised the members of the action taken based on the minutes of the second meeting. It was also informed that while GUVNL and TPDDL had shared inputs on the issues and possible resolutions for viability of Discom, other WG members were requested to share their inputs. Thereafter, the compilation of such inputs would be presented in the next meeting of the WG.

2. After discussion, the WG confirmed the minutes.

AGENDA ITEM 2: SUSTAINABILITY OF DISCOMS

A) PRESENTATION BY MP PASCHIM KSHETRA V V CO LTD.

3. The representatives of MPPKVVCL, in their presentation (**Annexure-I**) provided an overviewof the distribution and retail supply of electricity in Indore and Ujjain Commissionerate.

4. Some of the learnings included:

i) Introduction of New in-house developed flexible and agile Billing System has helped in smooth and seamless updation of the Billing System which has led to a

cumulative saving of approximately Rs 150 Cr against licensee fee and module up-dation costs. It has also helped in reducing the carbon footprints due to 100 percent paper less bill generation, bill distribution and collection.

ii) The billing system, with instant bill generation feature and remote disconnection system, has assisted the Discom in increasing the billing efficiency by 10-15%.

iii) The installation of smart meters in urban areas and integration of smart meter data with the billing software has led to a saving of Rs 250/ month/ connection which has also helped to reduce the leakage associated with the subsidised consumer category.

iv) Installation of only lab tested smart meters has led to reduction in complaints associated with meter reading/ correction.

v) The centralised clearance mechanism for Government Department related electricity bills has also eased the issue of delay in receipt of payment from Government Departments.

vi) The generation and analysis of 63 types of reports based on data being collected through smart meters has helped in detecting cases of theft and leakages. In addition, there are no dedicated police stations in MP continuous monitoring of temporary connections and that of consumers with above 10 MW load have helped in reducing losses.

vii) Smart metering system along with prompt action on consumer complaints has helped in reducing the complaints substantially.

viii) The Discom has involved 5 service providers for installation and maintenance of smart meters. Monthly payment of Rs 96 per meter is being made to the service providers.

ix) Implementation of *Sona chandi scheme*, wherein employees at Distribution centres achieving 100% recovery in 6 months are being rewarded with Gold and Silver coins, has helped in motivating the employees.

x) Timely disbursal of subsidies associated with agriculture and domestic consumers has strengthened financial health of the Discom.

5. The WG appreciated the presentation made by MPPKVVCL and requested them to provide inputs on the questionnaire sent by FOR Secretariat on the said subject.

B) PRESENTATION BY TORRENT POWER

6. Representatives of Torrent Power, in their presentation (**Annexure-II**) informed the

members that their company is operating as a Discom in some places and as Input based Franchisee in other places.

7. Some of the learnings included :

(i) The AT&C loss of the operations is approximately 2.69% with billing efficiency being at 97% and collection efficiency being 100%. This extremely low AT&C loss has been achieved due to development of underground distribution infrastructure, 100% consumer indexing and installation of only electronic meters at consumer end.

(ii) Proper and load balancing on transformers, increased density of transformers and preventive maintenance using fully computerised Operation Management System (OMS) have led to extremely high reliability of 99%. The SAIFI of the system is at 1 per year and SAIDI is at 0.26 hrs.

(iii) Some suggestions to make the Discoms viable is as follows:

- Certainty of Regulatory Framework and Cost reflective tariff
- Timely liquidation of accumulated gap/ Regulatory Asset
- Setting Performance Targets
- Additional surcharge to be recovered towards cost of stranded power purchase
- Banking charges to be determined on actual basis of cost of marginal power
- Capping of Net Metering to 5kW for Roof Top Solar to avoid socialization of cost and privatization of saving
- Licensee needs to have flexibility to tie up power prudently else DISCOMs will lock PPAs and end up with committed cost for long term power purchase.
- Prepaid metering to be optional instead of mandatory as per the provisions of the Act
- Meters should be technology agnostic and integrated with NIC
- Responsibility of Metering & Billing should be with DISCOMs instead of transferring it to third party (Meter Suppliers)
- Initiate privatization in a phased manner i.e. identify areas having higher AT&C losses and poor reliability
- Allow full autonomy to private players instead of retaining control on operations as licensee is a regulated entity
- Specify criteria for private player participation such as technical and

financial parameters to ensure serious participation

- Provide administrative and other support for successful turn around
- Support of Central Govt Schemes to be extended to private DISCOMs
- Uniformity in applicability of Charges levied by State/ Central sector entities towards ROWs

8. The Working Group appreciated the presentation and requested Torrent Power to provide more details on Input-Rate Franchise Model. It was decided that the learnings from the best practices shared by different distribution companies at meetings of working group be compiled by the FOR Secretariat, along with analysis of issues around the terms of reference of the Working Group to enable finalisation of the recommendations at the next meeting of the group.

9. The meeting ended with a vote of thanks to the Chair.

****

Appendix-I

LIST OF PARTICIPANTS

Sl. No.	Name and Designation	ERC
1.	Sh. S.P.S. Parihar Chairperson	MPERC- In Chair
2.	Sh. Viswajeet Khanna Chairperson	PSERC
3.	Sh. Alok Tandon Chairperson	JERC (Goa & UTs)
4.	Sh. R. K. Joshi Chairperson	APSERC
5.	Sh. Hemant Verma Chairperson	CSERC
6.	Sh. H.S. Pruthi, Secretary	CERC
7.	Dr. S.K. Chatterjee Chief (RA)	CERC
SPECIAL INVITEES		
8.	Sh. Ashish Kumar Tiwari, Managing Director	MPWZ
9.	Sh. Vibhor Patidar, Managing Director (MIT)	MPWZ
10.	Sh. Chetan Bundela, Executive Director	TPL
11.	Sh. Jignesh Langalia, Vice President	TPL
12.	Sh. Sanjeev Singh, VP	ABPS
13.	Sh. Ravi Mishra, Representative	MPPKVVCL
14.	Sh. Naveen Gupta, Representative	MPPKVVCL
15.	Sh. Sunil Patodi, Representative	MPWZ
16.	Sh. Harsh Mohan, Representative	ABPS
FOR SECRETARIAT		
17.	Smt. Sukanya Mandal, Assistant Chief (RA)	CERC
18.	Sh. Debasish Roy, Assistant Chief (RA)	CERC
19.	Sh. Saurabh, PRO	CERC
20.	Smt. Jijnasa Behera, Research Officer	FOR
21.	Ms. Medhavi, Research Associate	CERC

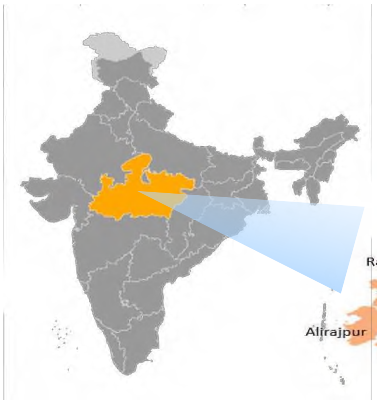
Madhya Pradesh Paschim Kshetra Vidyut Vitaran Company Limited, Indore

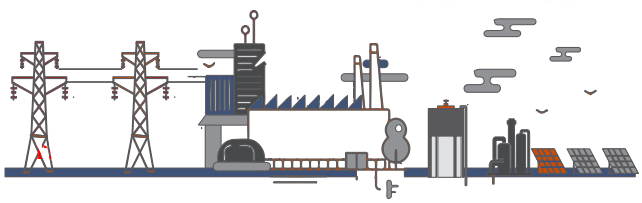
Annexure-I

Presentation Before the Working Group of Forum of Regulators
Dated 03.10.2024

Introduction

MPPaKVVCL is a distribution Licensee, engaged in the functions of distribution and retail supply of electricity in the Western part of the Madhya Pradesh State. Operating Area is Indore and Ujjain Commissionerate.





Parameters

Total Consumers
60.64 Lakhs

Circles :15
Divisions: 55

33/11 kV Sub-stations
1490 Nos

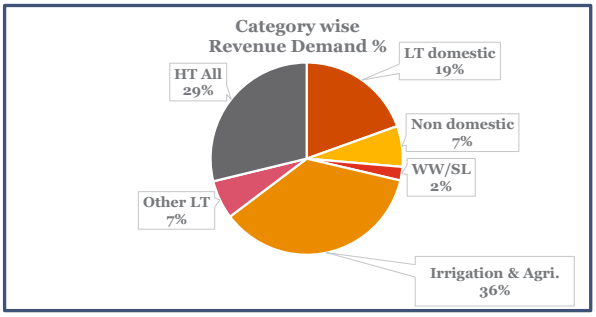
33 kV Line
19,964 Kms

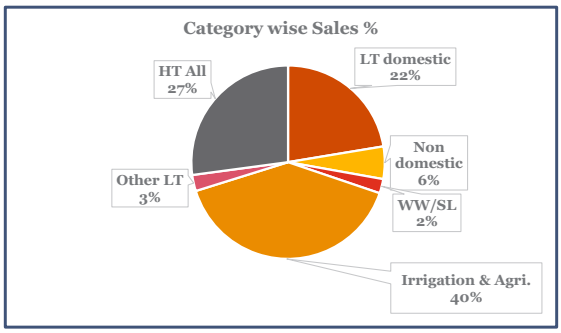
11 kV Line
1,38,103 Kms

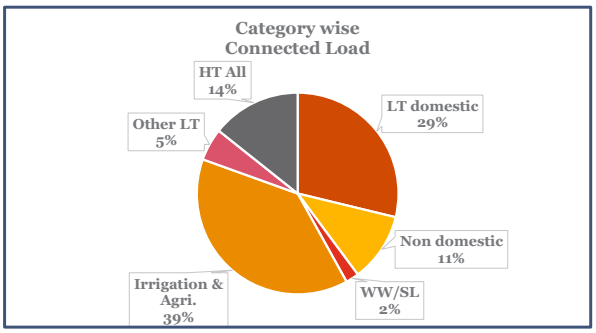
DTRs
3.15 Lakhs

Consumer Profile

Consumer Category	No. of Consumers (In Lakhs)
LT Domestic	40.53
Non-Domestic	4.90
WW/SL	0.37
Irrigation & Agri.	14.29
Other LT	0.49
HT All	0.04
Total	**60.64**

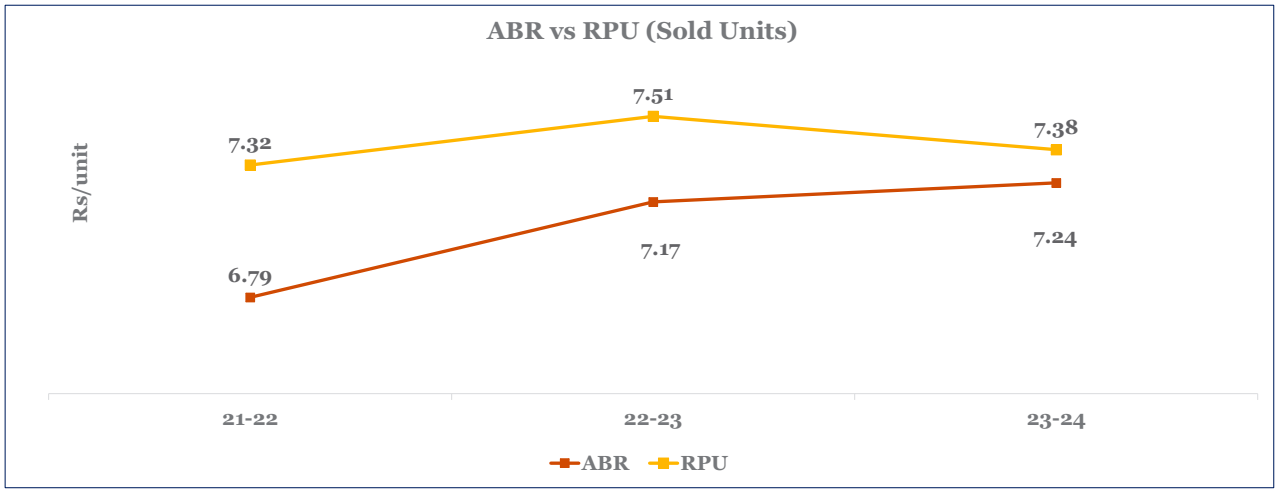






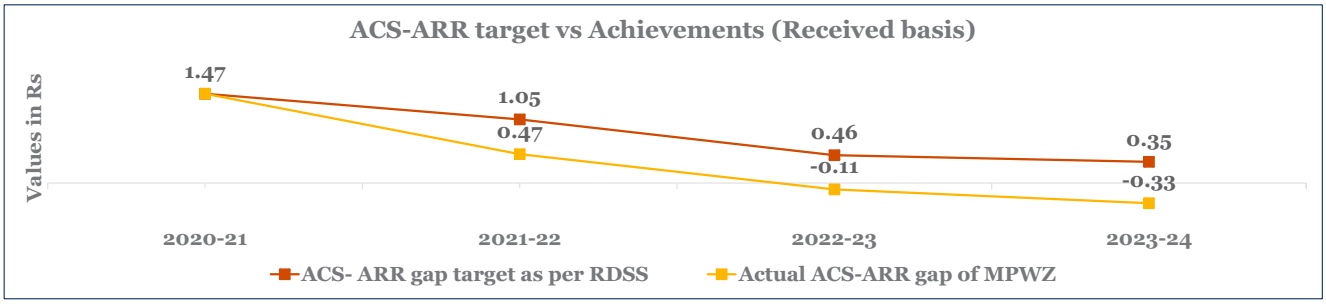
3

Commercial Parameters

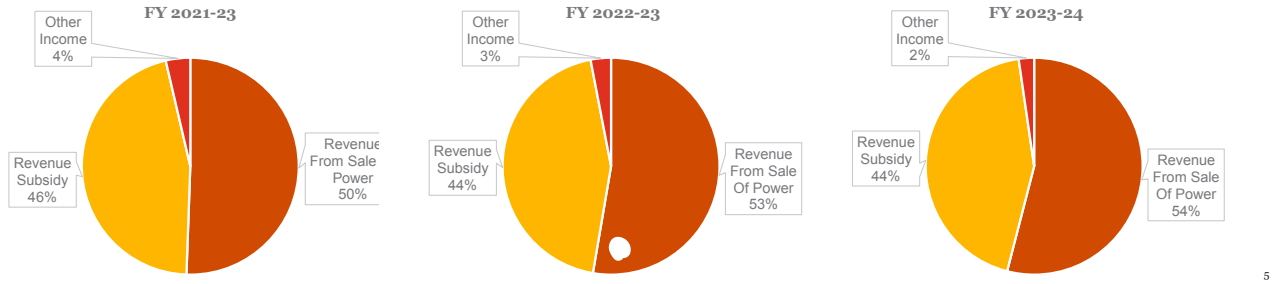


AT&C loss of West Discom is 10.88% against the RDSS target of 16.09% in FY 2023-24.

Financial Parameter



Percentage Income Share



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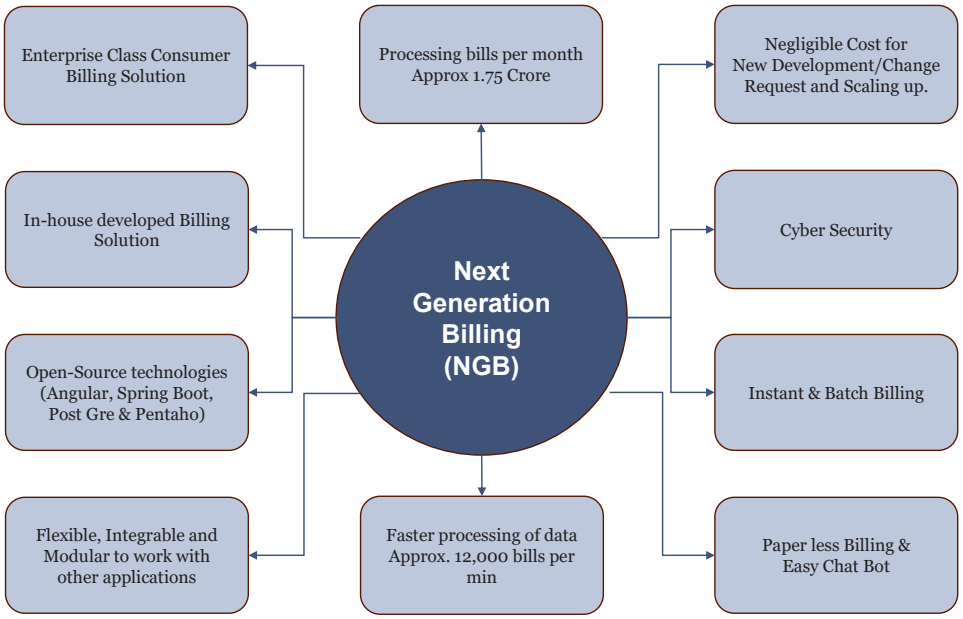
Commercial Process - Metering

Smart Meter	• Total **7.54 lakh smart meters** are installed.
Automated Meter Reading (AMR)	• Total **approx. 39 thousand AMR meters** are installed.
Photo Meter Reading (PMR)	• Total **approx. 38 lakh consumer's reading** is done through Photo Meter Reading mode.

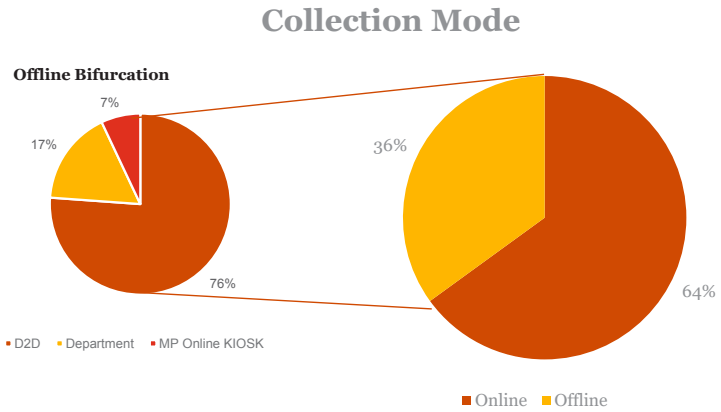
In addition, **Self-meter reading through PMR** was also introduced for carrying out effective meter reading resulted in increase in accuracy of meter reading.

Commercial Process - Billing



Approximate Rs. 150 crore cost is saved by all the Discoms in last 3 years which includes ATS, AMC and Change Request.

Commercial Process - Collection



- Online channels, Pre-Paid channels and third-party channels are being promoted for the energy bill payment.
- Payment mode for HT consumers has been mandated to be in online mode only.

Vigilance Enforcement Activity → Number of cases booked in FY 2023-24: **23,303** → Theft Units Realized: **52.72 MUs** → Revenue Realized: **29.06 Crore**

Smart Meter Implementation

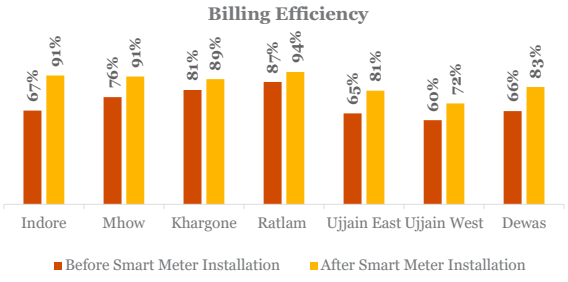
FY	Smart Meters Installed
2018-19	58,195
2019-20	52,522
2020-21	30,196
2021-22	1,16,990
2022-23	98,414
2023-24	2,37,387
2024-25	1,66,594
Total	**7,60,298**

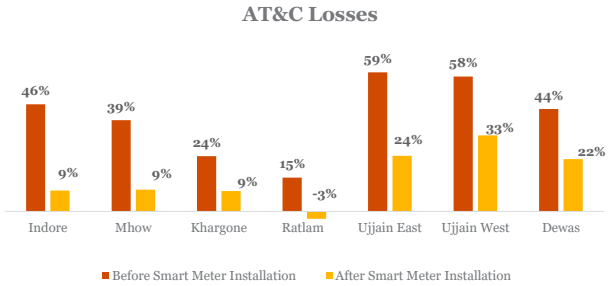
Smart Meter Project Benefits

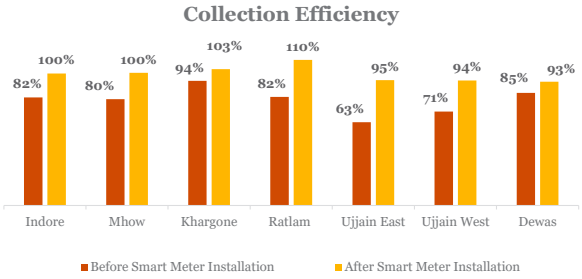
Data Analytics Engine → [63 types of Analytical Reports] | [Marking system to identify aberrations severity]

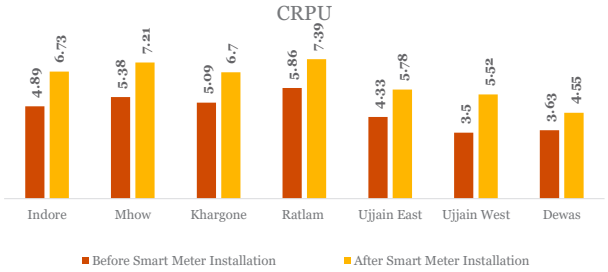
Improvement in Sales and Revenue Billed	Average Monthly Units Billed improved by 13.63% and, Average Monthly Per Consumer current bill improved by 21.46%.
Aberrations Reported	Total 18196 cases identified leading to additional billing of Rs 21.96 Crores
Recovery against MD> SL for <10kW consumers	More than Rs. 8.39 Crores recovered accurate recording of MD
PF Penalty and Incentive	**PF Penalty** imposed to 2.43 Lakh bills amounting to Rs. 7.46 Crores **PF Incentive** to 4.89 Lakhs bills amounting Rs 25.68 Cr.
Remote Reconnections and Disconnections	6.57 Lacs successful remote RC/DC of around Rs 308.63 Cr on arrear.
Smart Meter to Net Meter	3707 Smart Meter converted into Net meter with connected load 25.9 MW

Impact of Smart Metering - Before & After Smart Meter Installation

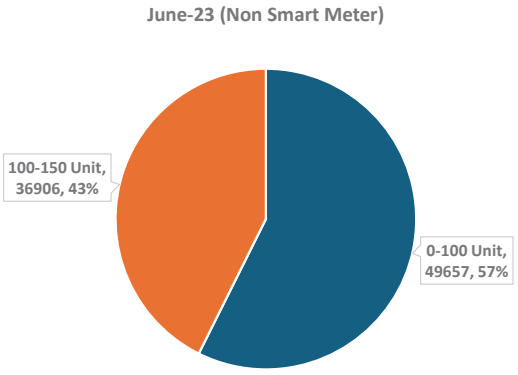


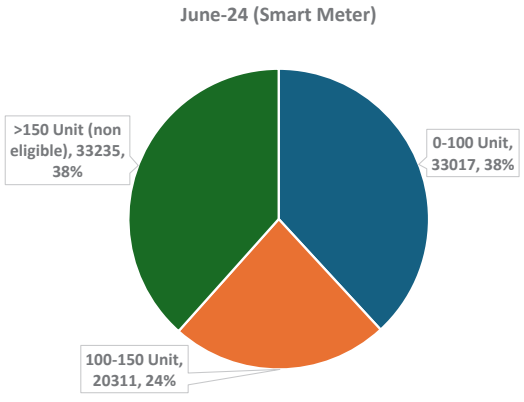






Impact of Smart Metering on Subsidy





Total expenditure in the smart meter project envisaging installation of 7.54 lakhs meters is Rs. 282.01 Crore, as on date, resulting in an additional revenue collection of Rs. 372.12 Crore due to effective implementation and outcome of the analytical reports.

Achievements under various projects

Feeder Separation

- Supply of electricity to agricultural and non-agricultural consumers are separated through dedicated feeders.
- Resulted in shifting of demand from peak hours to off-peak hours.
- Additionally, resulted in saving of Power Purchase Cost and reduction of AT&C loss.
- Average supply Hours of Non-Agriculture Feeders: 23:39 Hrs.
- Average supply Hours of Agriculture Feeders: 09:34 Hrs.

Saubhagya

- Identified **404,284 unelectrified households** in the western region.
- MPPKVVCL, Indore became the first Discom in country to achieve 100% household electrification target, 5 months before the target date.
- This includes commissioning and installation of 5714 ckm 11kV lines, 5,138 DTRs and 10,737 ckm LT lines.
- Discom was awarded with the first prize of 100 crore by Ministry of Power, Government of India in the year 2019.

IPDS

- Objective of scheme was to ensure Reduction of AT&C losses.
- Total 111 town were covered under IPDS Scheme
- AT&C loss was reduced to 16.31% by the end of FY 2020-21.

RDSS

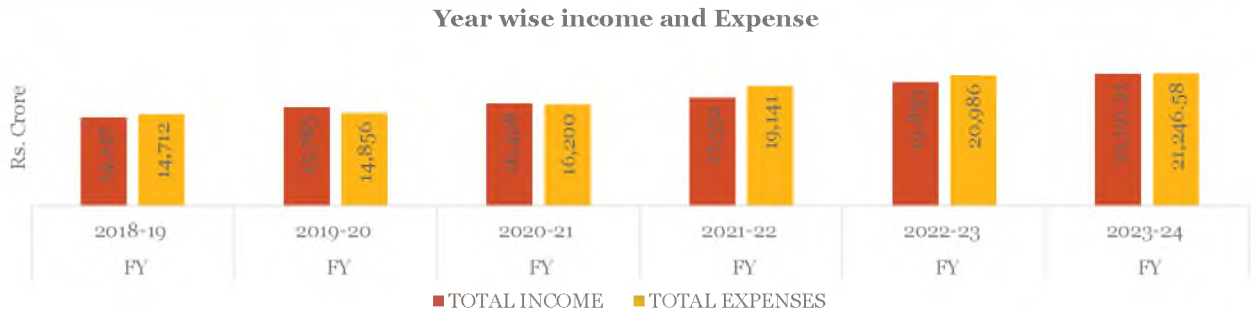
- **First 33/11kV sub-station in India** was commissioned and charged on 25.07.2023 by MPPKVVCL under RDSS
- Total 3.65 lakhs smart meters under RDSS project out of 9.88 lakhs smart meters.
- Total 38 grids are commissioned and charged out of 97 grids covered under RDSS.
- Total 432 capacitor banks are installed out of 741 covered inder RDSS
- **Complete RDSS work is digitalized** as survey of RDSS work is through GIS portal, Sampling and inspection is through QCC portal and billing on CIS portal and measurement is through GIS mobile app

Ranking and Rating - Annual Integrated Rating Report

	Integrated Score	Grade	Rank
12th Annual Integrated Rating Report	73.8	A	15
11th Annual Integrated Rating Report	49.98	B-	27
10th Annual Integrated Rating Report	31.5	C	24

14

Highlights on last 6-year Financial performance of company



S.NO	PARTICULAR	Rs. In Crores					
		2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
1	TOTAL INCOME	14,147	15,785	16,428	17,352	19,855	21,121.21
2	TOTAL EXPENSES	14,712	14,856	16,200	19,141	20,986	21,246.58
3	**NET PROFIT/ (LOSS)**	**-565**	**929**	**228**	**-1789**	**-1130**	**-125.37**

Despite having higher Power Purchase Cost due to higher allocation of the cost, West Discom is reducing its loss in last three years.

Better Consumer Experience

Call Centre:

- 24 x 7 availability of call centres
- Call to consumer from call centre representative for verification and closer of complain

Social media Complaint handing:

- SMS based communication for outage
- Sharing of bills on WhatsApp

Consumer Awareness:

- 2467 consumer awareness companies were conducted on different subjects

Digital Journey & Self PMR:

- Temporary connection which were previously provided via paper tokens are fully on spot digitised.
- Apart from Agri. FRT **100%** consumer bills are fully digitised.

Technology Adoption & Innovations

Customer Connectivity:

- SMS based communication for outage
- Sharing of bills on WhatsApp

NGB (New generation billing**):**

- WZ Discom has developed in house generation system, which have resulted in saving of **Rs 50 Cr Rs. Yearly.**

Automatic compensation mechanism:

- Payment to consumer in case of default to guarantied performance standards

NVIS: New Vigilance information System

- Development of inhouse vigilance system

SPEC (survey planning execution and cross verification):

- Survey before maintenance and for material, DTR, 11kv, 33kv

Online/digitisation of shut down permission :

- Automatic compensation of

NABL accredited testing lab :

- WZ has NABL accredited testing Lab


जर्मनी के प्रतिनिधि मंडल ने देखी इंदौर की स्मार्ट मीटरिंग

Visit from foreign delegations:

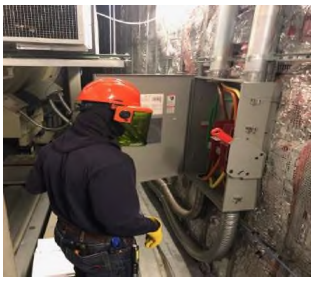
- WZ officials did knowledge sharing regarding smart metering implementation.

17

Employee Initiatives

Free Health Checkup:

- Under the umbrella of AROH, West Discom conducted a comprehensive health initiative – the 'Health Check-Up Camp



Safety Training:

- West Discom have nominated 100 technical staff for imparting refresher training program at the Central Training Institute in Jabalpur.

Training & Employee recognition:

- West Discom have nominated 100 technical staff for imparting refresher training program at the Central Training Institute in Jabalpur.
- West Discom motivates its employees under its appreciation schemes like Sona Chandi scheme under which (SE, EE, AE, JE) received certificates, gold and silver coins, for highest revenue collection

Gym & music room:

- To promote overall employee growth, facilities of gymnasium and music room was also provided with latest equipment's and instruments

Loss Reduction Strategies

Improvement in Sales and Revenue through effective implementation of Smart Metering	Constant persuasion with Govt. department at state level as well as district level	Effective Vigilance Enforcement Activity through NVIS
Door to Door Revenue Collection with on-the-spot receipts through Mobile App	Identification of irrigation DTR having zero temporary connection considering exposure to unauthorized pump uses	System strengthening work carried out through various projects and SSTD scheme
Monitoring of feeder wise RPU and area specific strategy for RPU improvement	Providing irrigation power supply during off-peak period as a DSM measure.	Augmentation of overloaded PTRs/DTRs and shifting of DTRs at load center
Special drive for old arrear recovery through Japti/Kurki and seizer of bank accounts	Effective preventive maintenance through SPEC module	Implementation of rental DTRs scheme for Temporary Agricultural consumer

Customer Satisfaction & Employee's Motivation

Consumer Satisfaction

1. **Customer Connectivity:** SMS based communication for outage & Sharing of bills on WhatsApp.
2. **Automatic compensation mechanism:** Payment to consumer in case of default to guarantied performance standards.
3. **Consumer Awareness:** 2467 consumer awareness campaign were conducted on different subjects in FY 23-24
4. **Multiple mode of payments:** UPI/UPI automatic mandate, Netbanking, RTGS, Check/DD, offline counters.
5. **Incentive on Online & Prompt Payment :** Consumer are offered incentives on prompt as well as online payment.
6. **Toll free 24/7 call centre 1912 :** Centralised call centre for redressal of various consumer complaints. Further the complains of each consumers are verified by CCR (call centre representative) via a voice call before closing of complains.
7. **Self PMR :** Option of self meter reading is available to consumer through Self PMR App.

Employee Motivation

1. **Free Health Checkup :** Under the umbrella of AROH, West Discom conducted a comprehensive health initiative – the 'Health Check-Up Camp.
2. **Sona Chandi scheme** : West Discom motivates its employees under its appreciation schemes like Sona Chandi scheme under which (SE, EE, AE, JE) received certificates, gold and silver coins, for highest revenue collection, AT&C loss reduction, CRPU improvement and FRT bill collection.
3. **Safety Training:** West Discom have nominated 100 technical staff for imparting refresher training program at the Central Training Institute in Jabalpur.
4. **Training & Employee recognition**:West Discom have nominated 100 technical staff for imparting refresher training program at the Central Training Institute in Jabalpur.

Thank You

Sharing of Experience - Torrent Power Limited as DISCOM

3rd October, 2024

Torrent Power: Overview

Group overview	Unit	Torrent Power
Turnover	INR	27,183 Crores
Enterprise value*	INR	75,520 Crores
Market capitalization	INR	65,265 Crores
Employee strength	No.	8,200+

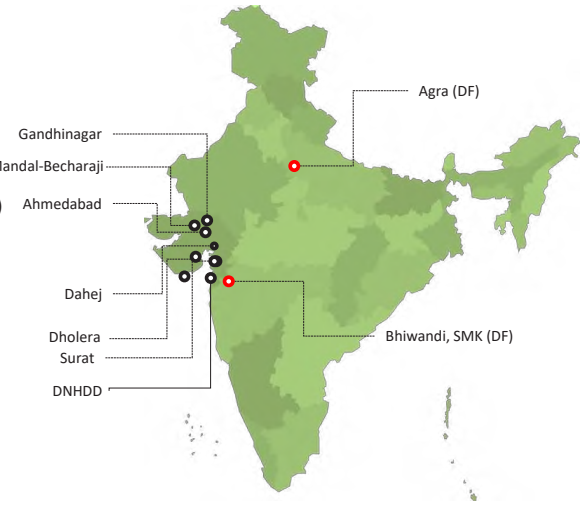
*EV = Mkt cap + Net debt as on 31st March '24

Torrent Power – At a Glance

Best-in-class reliability 99 %

Dist. Loss (23-24) 2.69%*

Value added Services for customers



Customer Base	4.1 Million
Sales	30 BU
Revenue	Rs 27K+ Cr
Trans/ EHV Network	482+104* Km
Thermal Power Gen	3000 + MW
RE Power Gen	1236 +3040*MW
Employees	8206

**Under development*

Torrent Power: Distribution

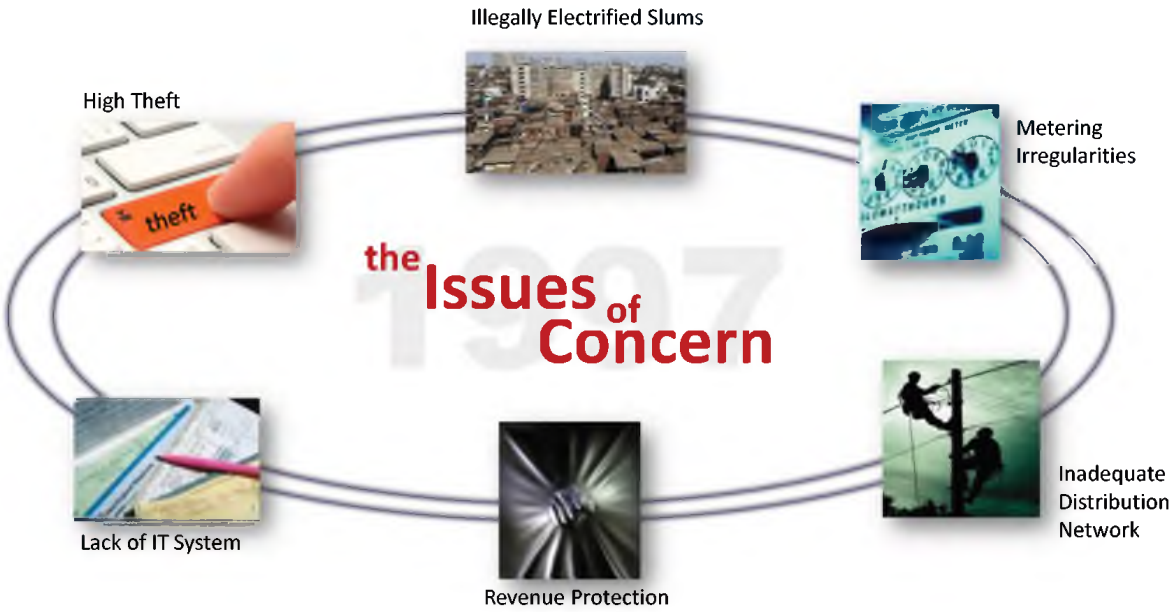
Distribution licensee in the cities of Gujarat: Ahmedabad, Gandhinagar, Surat, Dahej SEZ, Dholera SIR, MBSIR & Dadra & Nagar Haveli and Daman & Diu

- Customer base : ~2.9 Mn
- Area : ~2,050 sq. km.
- 2.69% Distribution loss, amongst the lowest in the country in 2023-24
- Supplied 23.3 Bn units in 2023-24
- Power reliability over 99% in 2023-24
- Innovative customer service initiatives

Distribution franchise in the cities of Bhiwandi, SMK (Maharashtra) & Agra (Uttar Pradesh)

- Customer base: 1.22 Mn
- Area: 1007 sq. km.
- Distributed 6.26 Bn units in 2023-24
- Bhiwandi being the first franchise model in the country is a role model for distribution reforms
- Significant reduction in AT&C losses - a testimony of Company's operational efficiency

Ahmedabad Distribution: Successful Turnaround



Distribution Business Turnaround Strategy and KPIs

Reliability & Quality of Supply	Customer Services	System Efficiency
• Mitigate the power shortages • Capacity addition • Revamping distribution network • Better load monitoring and Management • Conversion of overhead networks by underground network • Condition Monitoring System	• Customer Relationship Management System • Outage Management • 24 x 7 Call Center • Customer Convenience Center • Transparent and Customer-friendly procedures • Extended working hours	• Identifying areas of leakages • Robust Meter-to-Cash System • Accurate Metering and Defective Meter Replacement • Revenue Protection and Assurance system • Expediting legal connections / load extensions
• Reliability Indices / Parameters • Redundancy at 33KV & 11KV • Repeated failure of UG networks • Repeated Fuse-off Complaint	• No of metering complaints • Performance targets • Extent of IT Implementation • Customer Perception Index	• Accuracy of meters • No of DTs with high losses • DOE Cases • Network loading

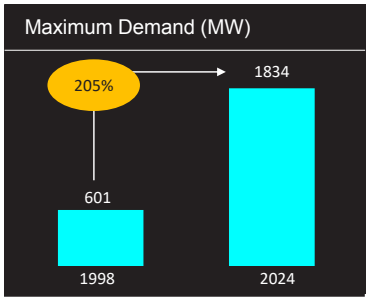
IT Solutions – Backbone of Distribution Business

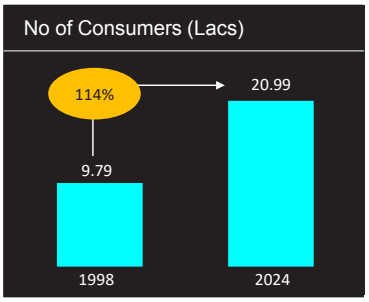
EHV Network


MOTERA
NARODA
NARANPURA
VASNA
AMRAIWADI
ODHAV
VINZOL
NAROL

torrent POWER

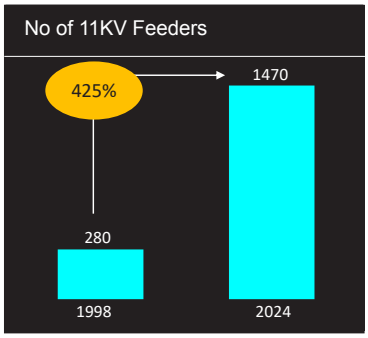
EHV Network





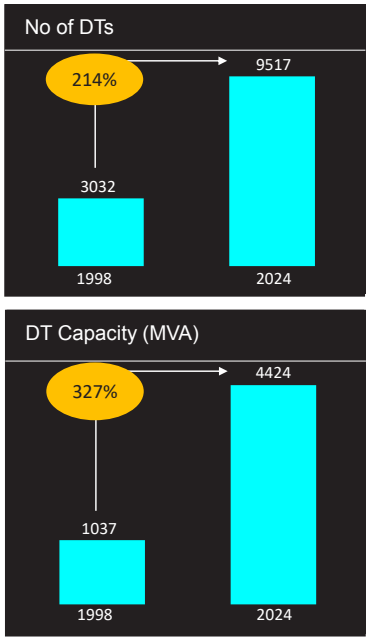
EHV Network

400/220/132/33/ 11KV Substations		State of the Art Substations at load centers Additional 11 KV feeders Reduced length of 11KV Feeders
132/33/11 KV Transformation Capacity		Identify bottlenecks in transformation capacity at EHV S/S, Systematic plan for capacity enhancement, facilitate efficient distribution
Load Management		Fully integrated system in place for System Control, Call Center, O&M Offices & Local Complaint Centres

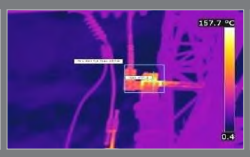


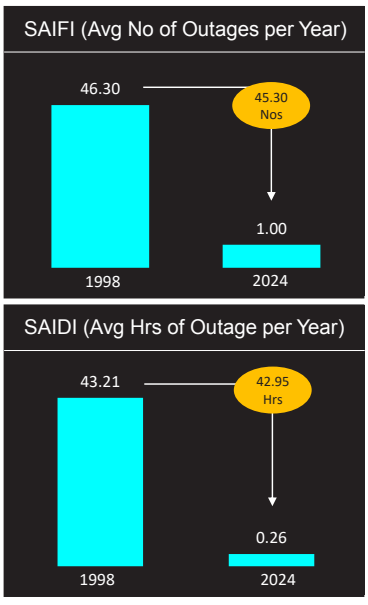
Distribution Transformers

Adding more number of DTRs		Increase in DTR Density Reduced number of customer per DTCs Energy Efficient DTs
Revamping of DTRs		Load balancing among DTRs Load Balancing across phases Condition Monitoring of DTs
Creating Redundancy in LV Networks		More number of LT Distributors Reduced loading on LT Distributors

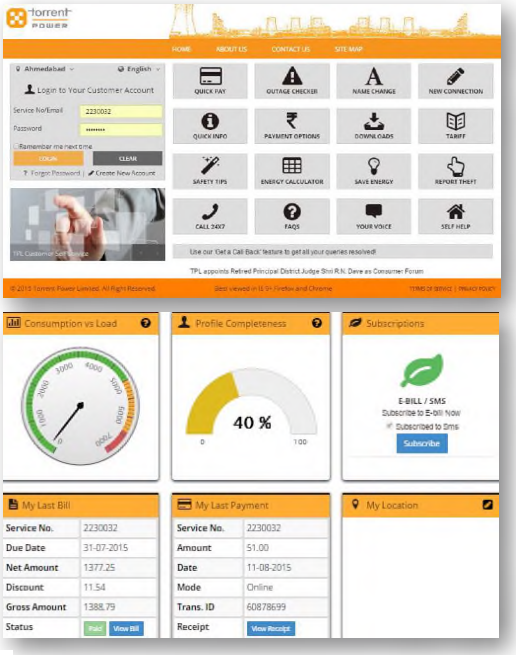


System Reliability

System Upgrade		Enhancement in Transformation capacity, Additional 11V feeders / DT for new loads and load optimization
Preventive Maintenance		Revamping of DT centres Condition Monitoring Bringing value added technology and systems
Outage Management		Fully computerized OMS 24 x 7 Fault Management and Control Centre Mobile field force to rapidly respond to outages



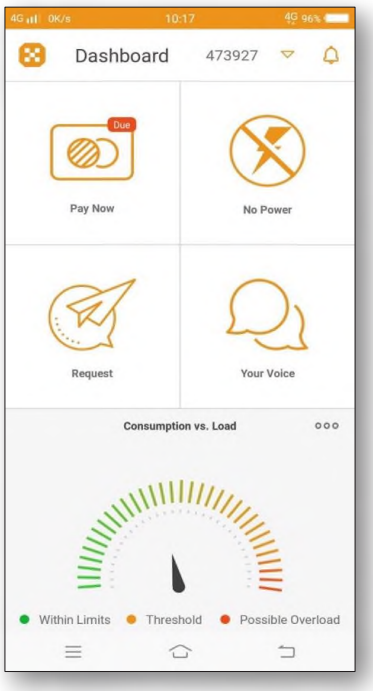
Comprehensive Web Portal (https://connect.torrentpower.com)



- End to End Solution – from Application to Execution
- Account Information at customer fingertips
- Call back assistance

- Over 6 lac+ accounts created.
- ~ 78% of customers pay online.
- Attractive discounts through strategic tie-ups with payment platforms.
- Digital interactions processed online for various services.

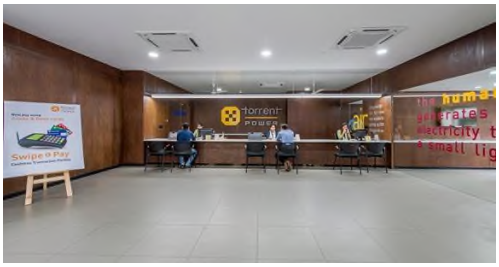
Mobile App (for Android and iOS)



- Simple, Easy fingertip operation.
- Easy & Attractive Payment Options.
- Register No Power complaints instantly.
- Book Appointments for plugpoint visit.
- Verify TPL employee who visit your premise &
- Share Employee Feedback.
- Consumption Graphs
- & much more….

16

Plugpoints (Walk-in service centers)



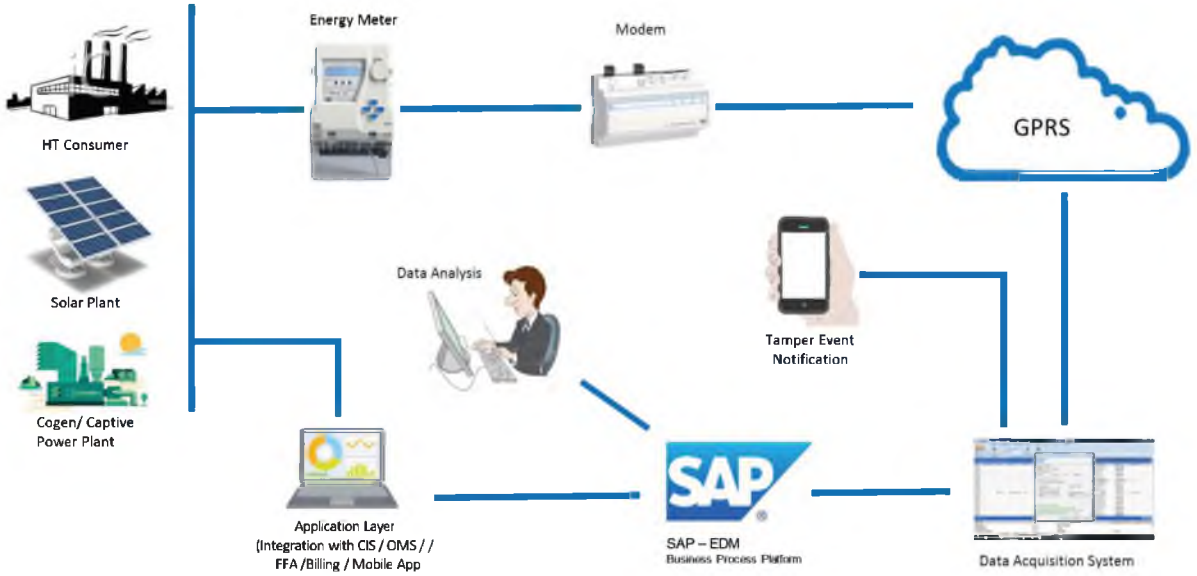
- State of the Art, a Full Service, walk-in Service centre.
- Offering complete bouquet of services and query handling.
- Dedicated payment collection counters for convenience, where all modes of payments would be accepted incl Credit/Debit Cards, Cheques & Cash.
- Manned by well qualified, Trained and Empowered Executives.
- Special discussion rooms to host Key accounts & Industrial consumers.
- To encourage Online, Digital Self Service, TPL proposes to limit Plugpoint availability.

Monitored through Mystery Audits & Quality Scores

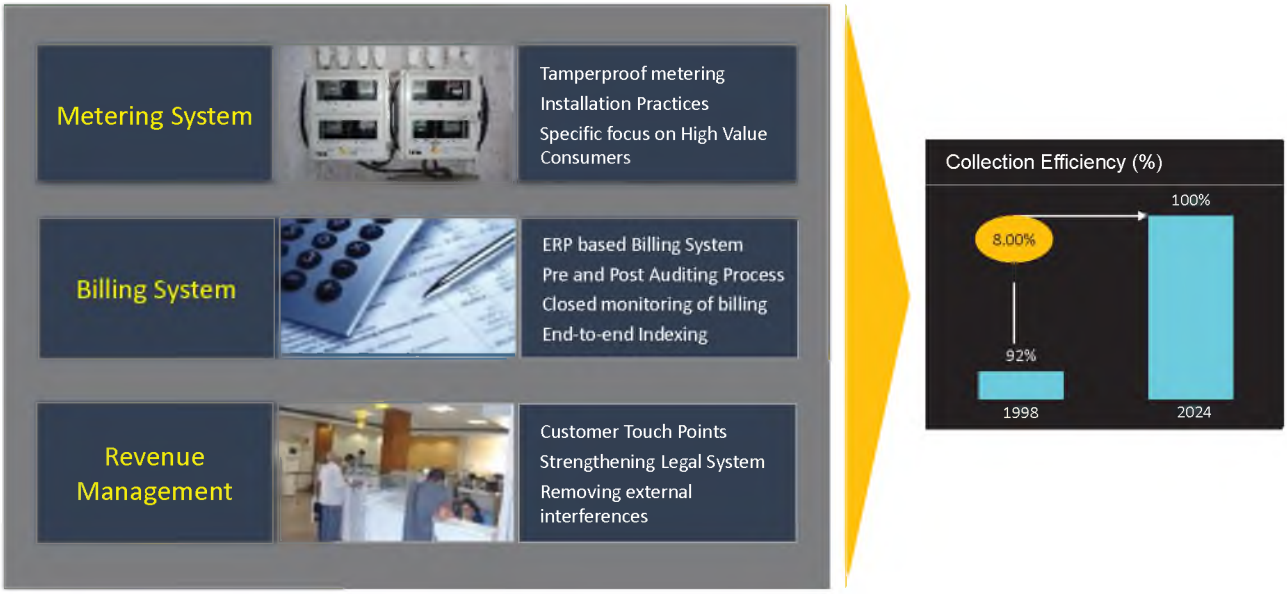
Energy Meters for Retail Consumers

Redefining the Energy Meters Specification to counter the emerging tampering techniques

AMR Implementation for HT Consumers



Meter-to-Cash System



Distribution Efficiency

System Upgrade		Relieving overloaded feeders; Reactive Power Compensation; Additional feeders and DT capacity, reinforcement of network
Commercial Systems and Processes		Accurate metering; meter reading and billing; Exceptional reporting; effective Disconnection on non-payment of bills
Vigilance and Enforcement		Non-discriminatory enforcement; energy audit and intelligence gathering; Removal of illegal connections and wires

Interventions Required for Long Term Viability of DISCOMs

Regulatory Interventions – Policy level

- **Certainty of Regulatory Framework**
  - Electricity Rules mandate SERC to align the ROE with that specified by CERC for generation and transmission & factor necessary risk premium for distribution.
- **Tariff should be cost reflective**
  - Overall tariff is reduced by suppressing costs/ ARR – Results in under-recovery of legitimate cost.
  - Bifurcation of Fixed charges and Variable charge reflective of fixed and variable costs
- **Timely liquidation of accumulated gap/ Regulatory Asset**
- **Setting up Performance Targets**
  - Realistic target setting with appropriate mechanism of incentive/ penalty for not achieving target
  - Performing entity should be incentivized for achieving and maintaining better performance

Regulatory Interventions - Issues of GEOA / RTS

- **Additional Surcharge** –
  - Additional surcharge to be recovered towards cost of stranded power purchase. Act does not envisage any waiver on additional surcharge to Captive or Open Access consumers connected through the grid.
  - SERC amends the Regulations due to SC judgement in MSEDCL vs JSW though MOP Rules which is subsequent to SC Judgement, do not provide for the waiver of additional surcharge. SC Judgment requires review.
- **Banking Charges** –
  - Banking charges have been restricted for promotion of RE power.
  - RE Technologies - especially wind and solar, have attained maturity and competing with conventional power.
  - Banking facility provided has commercial implication on the Discom as Discom has to purchase costlier power from market during non-RE hours. Hence, **banking charges should be determined on actual basis of cost of marginal power**.
- **Capping of Net Metering to 5kW for Roof Top Solar** –
  - Fixed charges determined for Discom are not reflective of Fixed cost due to anomaly in tariff structure.
  - Net Metering is availed by affluent consumers who are escaping from paying full fixed cost by availing Net Metering upto 1 MW.
  - No restriction of solar capacity being set up resulting in socialization of cost and privatization of saving.

Regulatory Interventions - Power Purchase Planning

- More than 80% of component of Tariff is attributable to Power Purchase Cost
- MOP Rule and CEA – Resource Adequacy mandates DISCOMs to tie up power on long term basis
- OA and GEOA provides for relaxation to Captive Consumers and OA Consumers
    - Relaxation in terms of CSS and Additional Surcharge
    - USO for such customers without recovery of commensurate Cost
- Increasing RE Shares through multiple routes – issues of intermittency of RE and cost thereof without allowing recovery of cost
- **Implications**– Cost of any relaxation will be borne by other retail consumers
- **Suggestions:**
    - Licensee needs to have flexibility to tie up power prudently else DISCOMs will lock PPAs and end up with committed cost for long term

MOP Rules - Issues in Smart Meters implementation

- Prepaid should be optional instead of making it mandatory as per the provisions of the Act
- Need to ascertain interoperability and inter-changeability of meters.
    - Meters should be technology agnostic and should be integrated with NIC – (i) Standardization of NIC Cards with specific Form Factor (Size and Dimensions) (ii) Regulation to implement unified scalable Head End System
    - Extending use of RF Mess to other operating technology i.e. Distribution automation
    - Need to enhance current bandwidth of RF from 3 MHz to 10 MHz
- Responsibility of Metering & Billing should be with DISCOMs instead of transferring to third party (Meter Suppliers)

Suggestions – To turn around ailing DISCOMs

- **Issues being observed in Discom**
  - Due to old & aged network and lack of O&M - Low reliability and quality of supply
  - Lack of consumer-centric approach - Issues in Services
  - Poor Billing & Metering Systems & Interference resulting into higher AT&C losses
  - Govt is pouring fund to DISCOMs including allocation of cheaper power – However, end consumers do not get benefitted
  - Consumers required to incur additional expenditure for back up / stand by supply arrangements
- **Way forward..**
  - Central Govt has initiated privatization of Distribution Business of Union Territories.
  - Experience of same will pave the way for other States to replicate the Model adopted by UTs.
- **Suggestions**
  - Initiate privatization in a phased manner i.e. identify areas having higher AT&C losses and poor reliability
  - Allow full autonomy to private player instead of retaining control on operations as licensee is regulated entity
  - Specify criteria for private player participation such as technical and financial parameters to ensure serious participation
  - Provide administrative and other support for successful turnaround

Support required from Central Govt

- Central Govt Schemes to support should also be extended to private DISCOMs .
  - RDSS support not available to Private DISCOMs
  - Central Sector Cheaper generation is not made available to Private DISCOMs
- Uniformity in applicability of Charges levied by State/ Central sector entities towards ROWs
  - Railway, National/ State highway authorities, etc
  - Charges are different for entities owned by State and Private

THANK YOU

Market Clearing Price (Hourly Average)

Month	00 - 01	01 - 02	02 - 03	03 - 04	04 - 05	05 - 06	06 - 07	07 - 08	08 - 09	09 - 10	10 - 11	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 - 19	19 - 20	20 - 21	21 - 22	22 - 23	23 - 24
Jan-22	1.96	1.87	1.79	1.78	1.86	2.38	3.46	4.34	5.02	5.12	4.74	4.11	3.47	2.82	2.61	2.87	3.25	4.32	6.31	5.24	3.81	3.26	2.67	2.19
Feb-22	2.53	2.42	2.32	2.25	2.37	3.10	6.15	9.72	7.78	5.95	5.67	5.13	4.22	3.19	2.91	3.15	3.97	5.53	7.29	6.71	4.62	3.80	3.16	2.70
Mar-22	8.40	7.66	6.67	5.88	5.97	8.13	12.31	13.34	7.77	6.84	7.20	6.77	6.36	5.26	6.14	7.23	8.88	8.71	11.01	12.27	9.39	8.67	8.28	8.49
Apr-22	11.82	11.52	11.22	10.93	10.74	11.11	11.26	10.05	8.59	8.35	8.45	8.20	7.46	6.83	8.14	9.31	9.99	10.30	10.86	11.27	10.90	11.22	11.25	11.78
May-22	9.13	8.06	7.29	6.77	6.66	6.72	6.39	5.15	4.17	4.14	4.44	4.86	4.84	5.05	6.17	7.14	6.95	6.68	6.88	8.26	8.23	9.15	9.55	9.49
Jun-22	10.51	8.90	7.61	6.68	7.17	6.78	6.03	4.23	3.19	2.93	3.27	3.59	3.84	4.01	5.09	6.18	5.46	4.77	5.31	9.29	9.34	10.42	10.72	10.52
Jul-22	7.04	5.56	4.57	4.11	3.99	4.76	5.46	5.14	3.79	3.34	3.14	3.01	2.93	2.79	3.06	3.69	3.90	4.08	6.52	9.88	10.18	10.12	9.85	8.91
Aug-22	5.26	4.43	3.91	3.69	3.87	5.40	6.14	5.28	4.00	3.62	3.34	3.29	3.05	2.82	3.22	3.81	4.34	4.38	6.62	9.63	9.39	9.12	8.43	6.96
Sep-22	6.03	5.11	4.58	4.18	4.32	5.43	7.05	5.52	4.00	3.51	3.34	3.36	3.37	3.13	3.71	4.54	5.01	5.78	9.00	11.23	9.33	8.49	7.91	7.22
Oct-22	3.42	3.22	3.02	2.87	3.02	3.51	4.11	3.99	3.35	3.07	2.94	2.79	2.63	2.52	2.73	3.03	3.43	4.55	8.71	8.45	5.00	4.18	3.83	3.49
Nov-22	3.56	3.36	3.23	3.14	3.32	4.02	4.79	5.61	5.22	5.01	4.66	4.43	4.02	3.81	4.03	4.37	4.79	6.58	8.70	6.04	4.85	4.49	4.50	3.82
Dec-22	2.86	2.68	2.55	2.54	2.78	3.58	5.52	8.55	8.09	7.71	6.97	5.81	4.82	4.01	4.30	4.96	6.78	8.01	9.28	7.82	5.10	4.30	3.57	3.12
Jan-23	2.96	2.77	2.65	2.62	2.78	3.64	6.35	9.35	9.97	10.28	9.39	7.46	6.11	4.58	4.53	5.69	7.24	8.43	10.40	10.38	7.52	5.74	4.13	3.33
Feb-23	5.16	4.42	4.07	3.89	4.49	6.53	9.59	10.39	9.86	9.31	7.93	6.34	5.08	4.00	4.04	4.89	6.88	8.00	10.56	10.93	7.32	5.96	5.50	5.20
Mar-23	5.77	4.93	4.36	4.21	4.78	5.77	6.85	7.10	5.65	5.56	4.80	4.26	3.58	3.19	3.51	4.21	5.29	5.07	6.90	8.72	7.03	6.33	6.31	6.05
Apr-23	7.58	7.15	6.72	6.33	6.64	7.30	6.03	4.12	3.70	3.52	3.25	3.09	2.95	2.77	3.11	3.42	3.79	4.10	6.32	7.68	7.33	7.57	7.91	7.63
May-23	7.59	6.36	5.07	4.34	4.14	4.38	3.88	3.23	2.92	2.91	2.93	3.00	2.98	2.86	3.28	3.76	3.85	3.88	4.52	7.24	6.94	7.64	8.00	7.99
Jun-23	8.90	8.05	6.67	5.27	4.82	4.85	3.94	3.16	2.67	2.77	2.89	3.07	3.16	3.17	3.77	4.32	4.29	3.97	4.52	7.82	8.48	9.25	9.61	9.46
Jul-23	6.55	4.94	3.99	3.60	3.42	3.50	4.06	3.21	2.79	2.86	2.75	2.75	2.73	2.70	2.90	3.10	3.12	3.15	4.10	7.62	8.44	8.99	9.14	8.73
Aug-23	8.73	8.16	7.38	6.57	6.74	7.55	8.39	7.38	5.22	4.83	4.35	4.09	4.07	3.94	4.90	5.58	6.20	6.49	7.92	9.28	9.32	9.58	9.54	9.27
Sep-23	7.38	6.48	5.70	5.30	5.13	5.74	6.89	6.21	4.80	4.72	4.40	4.27	4.16	4.17	4.82	5.51	5.80	6.03	7.83	9.31	8.93	8.85	8.67	8.48
Oct-23	7.04	6.67	6.28	5.87	5.84	6.82	7.15	6.48	5.46	5.13	4.72	4.58	4.50	4.32	5.16	6.12	7.31	8.55	9.00	8.37	7.48	7.46	7.27	7.28
Nov-23	3.35	3.16	3.03	2.92	3.11	3.71	3.88	4.07	3.92	3.87	3.52	3.34	3.14	2.99	3.23	3.57	4.73	8.03	8.19	5.12	4.20	3.78	3.52	3.32
Dec-23	2.92	2.79	2.69	2.63	2.77	3.16	4.28	7.05	7.58	6.75	5.32	4.21	3.44	3.14	3.28	3.53	5.60	8.85	8.86	6.34	4.36	3.49	3.08	3.00

MINUTES OF THE FOURTH MEETING OF THE WORKING GROUP OF FOR ON "VIABILITY OF DISCOMS"

Venue : **Bhopal, Madhya Pradesh**
Date/Day :**25.11.2024, Monday**
List of Participants : **Appendix-I**

At the outset, Chairperson of the Working Group and Chairperson, MPERC warmly welcomed the Members to the fourth meeting on the viability of Discoms. He also welcomed Representative from MP Central Discoms and stated that on behalf of all the Distribution Companies of the State of Madhya Pradesh, Mr. Sudhir Srivastav, Director (Commercial) Madhya Pradesh Madhya Kshetra Vidyut Vitaran Co. Ltd. (MP Central Discom) has been invited to present the view point of the State distribution utilities.

AGENDA ITEM 1 : DISCOM EXPERIENCE IN THE STATE OF MADHYA PRADESH

1. Mr. Sudhir Srivastav of MP Central Discom, in his presentation (**Annexure-I**) highlighted the key issues being faced by the Distribution utilities of the State of Madhya Pradesh. The Representative also shared the learnings and suggested areas of focus for consideration to the Working Group. Some pertinent points raised and discussed are as under:
    a) Gaining consumer trust through regular consumer engagement and timely grievance redressal can increase operational efficiency of any DISCOMs.
    b) Frequent Bill/Surcharge Waiver Schemes of the State Governments discourage timely payment of bills and hence may be reconsidered.
    c) Changing mix of sales due to abnormal seasonal change, e.g. below par rainfall leads to increase in actual agricultural sales whereas normative consumption is fixed. This further results in higher AT&C losses and as short-term power demand increases, the average power purchase cost also increases.
    d) On the issue of agricultural feeder segregation, the representative of Discom confirmed that the work of feeder segregation is almost complete especially in the areas with higher agricultural consumption.
    e) Due to changing annual cropping pattern from two crops per year to three crops per year, the assessment formula to compute agricultural sales requires to be reviewed as the same directly affect the loss levels. A Study by M.P. Electricity

Regulatory Commission is already under progress to re-estimate the assessment formula.

f) The current subsidy pattern encourages use of unfair means to remain within the consumption bracket of 150 kWh per month. Subsidy design plays crucial role in changing consumer behaviour.

g) No motivation is there to shift to Roof Top due to highly subsidised domestic tariff and such subsidy may be reconsidered, as increase in Roof Top Solar will result in reduction in line loss, reduced subsidies.

h) All agricultural load may be shifted to solar generation hours and necessary infrastructure support may be funded by the State Government.

i) Input based Franchisee Option may also be explored.

j) For effective disconnection of Supply in case of nonpayment of dues; employee wise accountability should be fixed for timely disconnection of connections.

k) Higher consumption by cross subsidising consumers may be promoted, by way of load factor incentive, if such consumption is within the sanctioned load. – To encourages/incentivise economic expansion.

l) Planned maintenance may be undertaken when market rates are higher. Ways to ensure such visibility of market rates to employees of DISCOMs needs to be explored.

m) Incentivise economic activity by targeted subsidy by the State Governments to industrial and commercial consumers – State Government gets compensated in terms of higher tax receipts due to increased economic activity.

n) Taking over of high cost debt by State Government – Reducing cost of Debt. – Refinancing of Debt by utilities .

o) Due to farm policies such as MSP in favour of Paddy (a water intensive crop requiring higher pumping requirement) agricultural consumption is rising severely affecting both loss levels and water table.

p) Reduction in Cross subsidy is vital for continued growth in commercial and industrial activities.

q) Recovery of Fixed Charge Obligation through Fixed Tariffs. – Rationalisation of Fixed Charges is required across DISCOMs for increased sustainability.

r) Appropriate penalty should be there in tariffs to discourage consumption at lower power factor.

s) Overdrawl by Domestic consumption beyond contracted demand may be penalised.

t) Frequency based Dynamic Pricing may be implemented for better demand response.

u) Manpower Benchmarking Norms may be specified for DISCOM which shall act as a reference point for Distribution Companies.

2. After detailed discussion, the Working Group observed as follows:

a) MP Central Discom to compute and share the impact of implementation of solar Roof Top on Tariffs And ABR .

b) Instead of opting for outsourced manpower, Distribution utilities should focus on outsourcing activities.

c) Manpower segmentation across functions of some of the Distribution Utilities, such as Gujarat Discoms may be looked into.

d) Bifurcation of employees between executives and non-executives be made after seeking such data from the Discoms.

AGENDA ITEM 2 : CONFIRMATION OF MINUTES OF THE 3rd MEETING OF THE WG HELD ON 25TH NOVEMBER 2024.

3. JC (RA), CERC apprised the WG that as part of the ATR, compilation of the inputs received from SERCs and Distribution utilities will be presented before Working Group for discussion and final recommendation in today's meeting.

The WG confirmed the minutes

AGENDA ITEM 3: ANALYSIS AND RECOMMENDATION ON THE FOR WG REPORT ON "SUSTAINABILITY OF DISCOMS"

4. Chief (RA) suggested that based on the today's presentation and recommendations made by the Members, an Interim Report shall be presented in the next meeting of the Working Group.

5. Representative of the Consultant to FOR made a detailed presentation (**Annexure-II**) on the inputs received from Discoms and SERCs and the activities carried out against the terms of Reference decided by the Working group.

6. During the discussion, the following suggestions were made by the members of the Working Group.

a) Analysis of Capex investment in case of Odisha Discom .

b) Improving Billing Efficiency is key to Discom Sustainability. Reasons for reduced Billing Efficiency and higher Technical Losses, reasons behind higher billing losses and where there has been improvement in Billing efficiency, the initiatives that led to improvement may be further analysed in detail.

c) Technological interventions and IT enabled systems may be applied to improve financial and operational performance of the Discoms.

d) Use of Smart Metering and Pre-Paid Metering in high loss areas can increase billing efficiency.

e) Training Programs as in Gujarat Discoms be analysed.

f) To factor in contractual employee expenses while specifying benchmarking norms, both Employee Expenses and A&G Expenses may be considered.

g) While specifying the benchmarking, special norms for hilly States and Islands should be factored in.

h) Benchmarking of Employee/A&G Expenses may be specified in terms of Rs. /kWh and or in terms of percentage of ACOS and should also account for terminal benefits and legal expenses.

i) Centralised automation of network may result in reduced O&M expenses. This may be explored.

j) For increased employee accountability, ERCs to stipulate organisation or division wise KPIs and KRAs which may further be developed by the Distribution Utilities to improve employee accountability.

k) KPI/KRAs based incentives sharing to be passed on from the gains accrued and hence should be self-financing and allowed only if minimum threshold of 85% is achieved. Further, the incentives should be allowed only if some critical performance parameters are met completely.

l) Performance Matrix may also include safety related objectives.

7. Chair of the WG also suggested that a platform may be made available to Discoms to facilitate interaction among them on issues of common interest and for knowledge sharing. This may be a Forum of Discoms with its own Secretariat to be served by organisations such as REC/ PFC.

8. With above inputs and suggestions, Working Group broadly agreed to the recommendations presented. Further, it was suggested that the Draft Interim Report may be circulated to members for their inputs before presenting the same before FOR in its next meeting.

ANY OTHER AGENDA:

A. DEMAND SIDE MANAGEMENT:

9. Chief (RA) updated the Working Group (WG) on the progress of revising the Model Regulation on Demand Side Management to which the WG decided to take this up suitably in its future meetings .

B. DECENTRALISED RE PROJECTS:

10. The Additional Chief Secretary of Power, Government of Madhya Pradesh, proposed innovative strategies under the KUSUM A and C schemes**(Annexure III)** for decentralised renewable energy (RE) projects. Key points include:

a) **Shifting Injection Points**: Moving the power injection from high-voltage to low-voltage sites to enhance efficiency and transformer lifespan.

b) **Ideal Project Locations**:

- Substations overloaded by 80% or more, prioritizing 11 kV side injection to improve distribution.
- Substations at the end of long 33 kV lines facing chronic low-voltage issues.

c) **Concurrent Supply for Farmers**: Ensuring uninterrupted power supply to all farmers by integrating low-cost solar power.

d) **Project Capacity**: Project sizes are typically capped at maximum transformer capacity, with reverse operation during no-load conditions.

e) **Reactive Power Compensation**:

- Dynamic reactive power management for better voltage regulation.
- Incentivizing RE generators with ₹0.05 per kVArh, escalating by ₹0.005 per kVArh, as per the CERC IEGC Regulation 2023.
- FOR Secretariat to provide data on required investment for reactive power management.

f) **Reactive Power at Night**:

- Utilizing solar inverters to supply or absorb reactive power at night for grid stability.
- When voltage is low, reactive power is injected, and when high, it is absorbed, with active power drawn from the grid at no cost.

11. Representative of Government of MP apprised the WG that such measures aim to optimize efficiency, improve voltage stability, and provide sufficient incentives for RE generators to enhance grid integration.

12. At the end of the presentation , the WG appreciated the innovative approach of Govt of MP.

The meeting ended with a Vote of thanks to the Chair.

****

Appendix-I

LIST OF PARTICIPANTS OF THE 4th MEETING OF FOR WORKING GROUP ON 'VIABILITY OF DISCOMS'

Date: 25th November, 2024; Bhopal, M.P.

Sl. No.	Name and Designation	ERC/Organization
1.	Shri S.P.S. Parihar Chairperson	MPERC – In Chair
2.	Shri Viswajeet Khanna Chairperson	PSERC
3.	Shri Hemant Verma Chairperson	CSERC
4.	Shri Devendra Kumar Sharma Chairperson	HPERC
5.	Shri R.K. Joshi Chairperson	APSERC (Virtual)
6.	Smt. Jyoti Prasad Member	JERC (Goa and UTs)
7.	Shri Hemant Kumar Jain Member	RERC
8.	Shri H.S. Pruthi Secretary	CERC
9.	Dr. S.K. Chatterjee Chief (RA)	CERC
SPECIAL INVITEES / OTHERS		
10.	Shri Gopal Srivastava Member	MPERC
11.	Shri Prashant Chaturvedi Member	MPERC

12.	Shri Manu Srivastava Additional Chief Secretary	Govt. of Madhya Pradesh
13.	Smt. Rashmi Somasekharan Nair Joint Chief(RA)	CERC
14.	Dr. Umakanta Panda Secretary	MPERC
15.	Shri Sudhir Kumar Srivastava Director (Commercial)	MPMKVVCL
16.	Shri Suresh Gehani Director	ABPS
17.	Shri Sanjiv Singh SVP	ABPS
18.	Shri Saibal Chowdhry Manager	ABPS
19.	Shri Nirmal Dubey Assistant Director	Deloitte

Viability of Distribution Companies

By: Sudhir Kumar Srivastav,
Director-Commercial, MPMKVVCL

Introduction to Financial viability

Introduction

Financial viability of Discoms is crucial for the stability and growth of the power sector, as revenue realization of power sector is from DISCOMs only.

Financially healthy and operationally efficient Discoms:
1. Can meet the growing demand for electricity,
2. Integrate renewable energy sources,
3. Comply with regulatory requirements, and
4. Provide reliable & affordable service to consumers.

As the growth of any society is dependent of electricity, financial viability of Discoms are of utmost importance to meet the demand of growing economy.

Financial Health of a DISCOM depends on

Tariff Structure

- Tariffs should reflect the cost of supply.
- Subsidy mechanisms, should be transparent with payment security.
- Subsidy should be provided to payee consumers only.
- Cross subsidy burden should be minimized on industrial and commercial consumers.
- Fixed cost to consumers should be commensurate with fixed cost paid by DISCOMs to GENCOs & TRANSCo.

Revenue Collection & Operational Efficiency

- Effective revenue realisation mechanisms.
- Disconnection of non-payee consumers as per regulation.
- SD should be of 90 days in case of default in payment.
- Administrative support from police for recoveries in difficult areas.
- Dedicated police stations for DISCOMs.
- Adoption of New technologies and IT/OT for better control on Techno-commercial loss.

Debt Management

- Handsome amount of Financial resource of DISCOMs are spent for debt servicing.
- High-cost debt should be absorbed by Govt.
- CAPEX should be done on pure technical reason.
- Timely capitalization of assets on CAPEX and proper accounting of depreciation.
- DISCOMs should not rely on high-cost debt funding from Govt.

Power Purchase

- Optimise power purchase cost with effective long-term PPAs.
- To reap the benefit of low-cost power available in the market , scheduled maintenance and shutdowns should be planned according to Day Ahead Market price & Real Time Market prices of power exchanges,.

Operational Efficiency

Technical Losses

High technical losses are due to:

- Poor infrastructure.
- Unbalance loading.
- Overloading.
- Harmonics.
- Poor power factor.
- Poor maintenance.

Commercial Losses

High Commercial Losses are due to

- Direct hooking.
- Meter tampering, Faulty metering.
- Non-payment by consumers.
- Unauthorized uses.
- Over drawl by Ag unmetered consumers.

Consumers' Trust

As on date consumers don't trust on DISCOM.
Satisfied consumers are more willing to pay the electricity dues.
Discoms should focus on trust building with:

- Consumer engagement.
- Awareness drive for policies and regulations.
- Timely redressal of grievances

Challenges being faced by MPMKVVCL

- **High AT&C Losses**: High technical losses due to outdated infrastructure & poor planning. High commercial loss due to theft and poor realization from Difficult Areas.
- **NPA**: Significant outstanding dues from various consumers and surcharges thereon.
- **Subsidy Dependence**: Over-reliance on government subsidies affects autonomy and financial health.
- **Waiver Schemes:** Repeated waiver schemes inculcate the behavior of nonpayment amongst consumers.
- **Infrastructure Upgradation**: High capital expenditure required for infrastructure modernization and expansion.
- **High Agri Load**: About 40% of the load is shared by agri consumers, which are billed on normative rate. Consumption patterns of these consumers are highly dependent on rainfall. Any drought abruptly increases input whereas the realization is fix.

Challenges being faced by MPMKVVCL

- **Increase in area of cultivation**: Most of the areas have started 03 crops cultivation in a year. Also, paddy cultivation area increased. This resulted increase in energy input whereas realization is fixed at normative rate.
- **High Domestic Load & Subsidy Mechanism**: About 36% of the load is shared by Domestic consumers. Their subsidy mechanism is like that the net bill increased drastically above 150 units. Due to this, consumers are trying to control their consumption within 150 units per month by unfair means.
- **Very Low Industrial & Commercial Load**: Load of High yield consumers i.e. industrial & commercial consumers are very low.
- **Paying capacity**: Paying capacity of Consumers is very low. Approx 60% of consumers are rural consumers.
- **No motivation towards Roof Top Solar**: Due to subsidy mechanism, billing to majority of consumers are in the range of Rs.100/- to Rs.500/- p.m.. So, There is no motivation to consumers for Roof top Solar.

Action to be taken by DISCOMs

Shifting to Agri Load to solar hours:

- *All agriculture feeders should be segregated and powered through solar energy.*
- *100% agriculture load should be shifted during solar hours. Govt should support for expenditure required to enhance infrastructure to shift all agriculture load on solar hours.*

Outsourcing of servise:

- *SLA based outsourcing for O&M can be adopted to mitigate the shortage of manpower and to optimise O&M cost.*
- *Input based Commercial outsourcing can also be adopted.*

Strict Vigilance & effective disconnection:

- *Vigilance activities should be enhanced.*
- *Effective disconnection should be done without any interference.*

Reliable power to High Yield Consumers:

- *Reliable power to high yield consumers increases the revenue and also increases industrial and commercial activities.*

Action to be taken by DISCOMs

Incentive to HT consumers on over drawl:

- *Average Billing Rate of HT consumers are in the range of Rs. 10 p.u..*
- *There is commercial benefit to Discoms if they consume more, provided exchange rate is normal and their maximum demand is within range.*
- *So, tariff incentive can be given to cross subsidy consumers on over drawl.*

Continuous watch on day ahead market price and real time market price:

- *Schedule maintenance and shutdowns should be avoided during low market price.*
- *Consumption should be increased during low market price, and it should be controlled during high market price.*

Other measures like:

- *Regular feeder combing.*
- *Load balancing, load shifting, conductor augmentation.*
- *Installation of capacitors on agri feeders.*
- *Regular maintenance of transformers and lines.*

Support from Government

Incentive to promote industrial & commercial consumers:

- *Per unit incentive should be provided by Govt to industrial & commercial consumers.*
- *It can be recovered from increase in GST collection due to increased industrial and commercial activities.*
- *This will also promote employment and reduce migration.*

Takeover inefficient debt:

- *Govt should takeover inefficient debt of DISCOMs.*

Rationale subsidy mechanism and its gradual reduction:

- *Subsidy should be given to payee consumers only.*
- *Subsidy should not motivate consumers for unfair means.*
- *Subsidy should be gradually reduced.*

Autonomy to DISCOM:

- *Interference towards capital investment, loss reduction activities etc should be controlled.*

Support from Government

Financial support for infrastructure required to shift agri load in solar hours.:

- *Grant on feeder separation & feeder sloarisation.*
- *Grant on infra required for shifting of 100% agri load in solar hours.*
- *Subsidy to solar vendor for feeder solarization at 11 KV side, so that power transformer augmentation can be avoided.*

Promote roof top solar:

- *ABR of prosumers are much high as compared to normal consumers, as fix charge to consumers are on total import.*
- *Discoms are on commercial advantage with increase of solar roof top.*

Restrict Paddy cultivation in low water table areas:

- *Paddy cultivation in increasing day by day, even in areas where water table is low.*
- *In these areas power consumption per unit of yield is very high and also it is creating ecological imbalances.*
- *So Govt should restrict paddy cultivation in low water table area.*

Tariff subsidy for EV charging:

- *To promote EV, there should be tariff subsidy for EV charging.*

Support from Regulations

Reduction of cross subsidy:

- *To improve industrial and commercial activities, cross subsidy should be reduced gradually.*

Fix charges to consumers inline with fix charges paid to GENCO & TRANSCO:

- Discoms are paying about 60% of total cost as fixed charge to GENCO and TRANSCO.
- Whereas fix charge component of recovery from consumers are 15% of total cost.
- Due to this disparity, there is chances of under recovery.
- Fix charge to consumers should be commensurate with the charges paid to GENCOs and Transco.

KVAH Billing:

- To mitigate the difficulties of under recovery due to poor power factor, KVAH billing should be started for all consumers

Demand based tariff to all consumers:

- Here fix charge will be calculated based on Maximum Demand.
- With this, over drawl will be minimized, DSM will be controlled, and fair billing will be ensured.

Support from Regulations

Incentive to DISCOM on agri tariff during low rainfall:

- When ever there is less rain, input toagri consumers increased whereas realization is same.
- DISCOMs should be compensated with increase in normativeagri consumption during less rain fall. For e.g. if rainfall is 80% than normal, normative consumption should be increased to 100/80 i.e 125%.

Incentive to HT consumers on over drawl:

- *ABR of HT consumers are in the range of Rs. 10 p.u..*
- *There is commercial benefit to Discoms if these consumers draw more, provided exchange rate is normal and their maximum demand is within range.*

Net metering up to 10 KW:

- Net meteringshouldbe allowed up to 10 KW only. Gross meteringabove 10 KW.

Time of money loading to PDC consumers when they want to re-connect:

- *PDC consumer pays outstanding dues without interest, if they want re-connection.*
- *Interest should be charged on outstanding dues in line with interest paid by DISCOM on working capital*

Support from Regulations

Frequency based billing in place of ToD billing:

- *Consumers are getting benefit of ToD tariff even when exchange rate is high.*
- *Whenever frequency is high exchange rate is low and vice versa.*
- *Frequency based billing should be started to consumers.*
- *There should be a display unit at consumer premise to show real time energy charges, so that the consumer can cut their non-essential loads during high rate on low frequency & vice versa.*
- *With this, grid disturbance will be minimized, and fair billing will be ensured to consumers.*

Fixing Norms for manpower strenth: *There should be a fix norm of manpower for DISCOMs on following parameter:*

- *Load and energy handling.*
- *Consumers served.*
- *Area covered.*
- *Terrain difficulty / area difficulty*

Generators should not be allowed to declare capacities more than rated capacity:

- *To improve fix cost realization, generators are declaring capacities @105% of rated capacities*

Best Practices of MPMKVVCL appreciated at national level

Vigilance Application: Received PSU IT award in 2023.

- *End to end digitized solution for vigilance activities.*
- *Format approved by judiciary.*
- *Use of AI/ML for priority push.*

Saral Sanyojan for new connection: Received PSU IT award in 2024.

- *Only 02 documents and single demand note with application.*
- *Total online process. Consumer need not to visit DISCOM office.*
- *For consumers who couldn't apply online, facility at DISCOM office to take offline application.*
- *Contractors' name and mobile no provided at website for test certificate,*

Project execution and Project monitoring: Received PSU IT award in 2024.

- *RDSS project from concept to commissioning is made online.*
- *Standard MQP and FQP were finalised and monitored through quality portal*

Innovation with Impact: Received 1st price under "Innovation with Impact – Challenged states" category in 18th India Energy Summit by ICC.

Other Best Practices of MPMKVVCL

- **Deposit & Supervision Portal (DSP)**
- **Individual VAN for multi-connection users.**
- **Facilities to govt department for correct tagging and payment through portal.**
- **Disconnection and reconnection App.**
- **eKYC through Samagra ID and PAN.**
- **Digitisation of testing process of contested meter in testing Lab.**
- **Outbound call to non-payee consumers through voice bot.**
- **Informer scheme portal.**
- **Dues recovery act portal**
- **Action on gun license.**
- **Incentive to revenue officer on realization of dues through DRA.**

Thanks

Annexure-II

Presentation to Forum of Regulators

on

Viability of DISCOM

November 25, 2024

Bhopal

In this Presentation

- Background
- Terms of Reference
- Approach and Methodology
- Case Studies Learning from Discoms
- Identify and Analyze Factors impacting Discom
- Measures and Strategies for minimizing Operational loss
- Analysis of Employee Structure and Guidelines
- Recommendations for Discussion

Background…..

- The Forum of Regulators, in its 88th meeting held on 13th October 2023 deliberated on the issue of long-term sustainability of the DISCOMs
- After detailed deliberation, the Forum constituted a Working Group to study the viability of DISCOMs
- Terms of Reference for the Working Group is as follows :

  "

  a) *Identify and analyse the factors impacting the sustainability of DISCOMs.*
  b) *Examine the existing measures and suggest strategies for minimizing operational losses and enhancing efficiency.*
  c) *Analyze employee cost structures and make recommendations for optimization of employee cost.*
  d) *Suggest guidelines to reduce O&M and A &G costs of DISCOMs.*
  e) *Any other matter related and incidental to the above."*

- The First Meeting of the FOR Working Group was held on 21st June, 2024 where five paraments regarding DISCOMs sustainability were discussed which were **ACS-ARR gap, AT&C losses, Regulatory Assets, O&M cost (including employee cost), Cross Subsidies and the level of reduction in cross subsidies over the years and Timely Issuance of tariff orders and pass through of increased cost of procurement of power**.

Action Plan

- Based on discussion held during the first meeting following analysis was decided to be carried out :
  1) *Each cost parameter of the ACS-ARR needs to be analysed. FOR Secretariat to study a few progressive discoms like Torrent, Tata, MSEDCL to understand their best practices.*
  2) *The WG can explore fixing norms for each parameter and also arrive at benchmark principles. To this effect, a template is to be prepared and data to be collected from all SERCs.*
  3) *Some Public owned and Private owned Discoms from Gujarat, Maharashtra, M.P. (Indore), U.P. (Agra) and Karnataka (who have made good progress in decreasing their AT&C losses) may be asked to present their success stories before the Working Group.*
  4) *The O & M should be benchmarked either on number of consumers served or per MW basis. In this regard, data to be sought from discoms(public& private).*
  5) *Obtain data from discoms (public & private) and analyse the methodology of determination of cross-subsidy surcharge and its impact on the viability of discoms.*
  6) *The use of IT tools for data collection and analysis for tariff orders may be explored.*
  7) *As viability of Discoms is critical to overall performance of power sector, therefore it may be useful to invite comments from other WGS of FOR as well to ensure wider consultation on the subject.*
- *Based on the recommendation of the Working Group, in the Second and Third Meeting Tata Power, GUVNL, MPPaKVVCL and Torrent Power presented before the Working group on the best practices followed by their DISCOMs.*
- *Further, some of the SERCs provided their comments on five paraments regarding DISCOMs sustainability.*

Approach and Methodology - Study

Approach and Methodology

Case Study - Gujarat Discoms – Summary of Inputs received from Discoms and GERC

Government and Stakeholder Support System – Gujarat Discoms

Government of Gujarat

Clarity in policies
No freebies
Timely release of subsidy
Budgetary support for Infrastructure works
Political support for reforms and
Progressive policies

GERC

Regulatory support
Timely approvals
Progressive regulations
Clarity in regulations
FPPPA approvals
Balancing the growth and Consumer interests

GUVNL

Centralized power purchase
Centralized fund management
Common policies and monitoring

DISCOMs

Consumer Services
- Connections
- Complaints
- Billing & collection
- Network expansion and maintenance
- Effective HR Policy
- Technological adoption

Consumer Services

Connections - CPC
Complaints - CCC
Billing & collection – smart meters

Network expansion and maintenance

EPC

Society

Society Values:
- Quality of Life
- Economic benefits of 24*7 power
- Willingness to pay for electricity
- Cultural change
- Consumer Engagement

Demands:
- Uninterrupted 24*7 reliable,
- quality power
- Political leadership responds to it

Case Study – Major Factors behind success of Gujarat Discoms……1/3

The factors that contributed to achieving viability and sustainability of Gujarat's Discoms:

Structural Reforms: Early Unbundling of SEBs and Corporatization – **Front runner to Un-bundle**

Financial Reforms

- **Financial Restructuring:** Significant efforts were made to **clear past debts and improve financial health – Clean Balance sheet for Discoms – Loss taken over by GUVNL**.
- **Cost-Reflective Tariffs:** Tariffs were restructured to better reflect the cost of supply, for ensuring sustainable operations.

Operational Efficiency

- **Reduction of AT&C Losses**: Gujarat successfully reduced Aggregate Technical and Commercial (AT&C) losses through **better metering, theft prevention measures, and upgrading of infrastructure**. This included:
  - Implementation of **high voltage distribution systems (HVDS)** to reduce technical losses.
  - Strengthening the **enforcement against power theft through strict measures and the use of advanced technologies**.
  - Improved **metering and billing systems – Replacement of Mechanical Meters with Electronic meters**
  - Promotion of **Distributed Energy System**/**Rooftop solar**. (Distributed Generation – Reduces LT Losses)
  - Separation / bifurcation of agricultural feeders.
  - 24x7 Power Supply: Achieving a reliable and continuous power supply helped in improving revenue collections and consumer satisfaction.

Case Study – Major Factors behind success of Gujarat Discoms ……2/3

Renewable Energy Integration

- **Promotion of Renewable Energy**
  - Enabling Policy Support towards Net Metering and Incentivizing Rooftop Solar

Regulatory Support

- **Effective Regulatory Framework:** Ensuring transparent, consistent regulatory oversight, regular tariff revisions and enforcement of performance standards.
- **Consumer-Friendly Policies:** Implementation of consumer-friendly policies and grievance redressal mechanisms improved consumer satisfaction and trust in the Discoms.

Government Initiatives

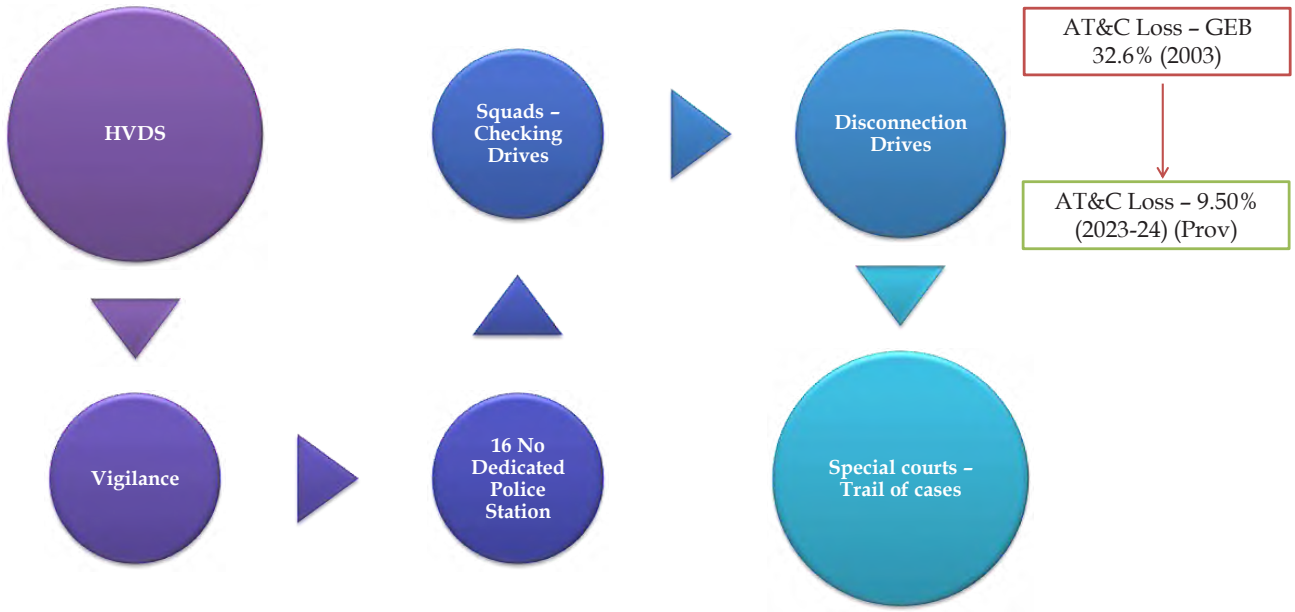
- **Jyotigram Yojana:** This scheme **separated agricultural feeders from residential and industrial feeders**, ensuring continuous power supply to households and industries while providing scheduled power supply to agricultural consumers. **Innovative Funding – 90% from State and 10% by Village** - This initiative **helped in reducing power theft and losses – Instilled Sense of Responsibility – joint ownership**.
- **Infrastructure Development:** Significant investments were made in upgrading and modernizing the distribution infrastructure, including the installation of **advanced distribution management systems (ADMS) and smart grid technologies**.

Case Study – Major Factors behind success of Gujarat Discoms……3/3

Capacity Building and Human Resources

- **Training and Development:** Continuous training programs for employees helped in building a skilled workforce capable of handling advanced technologies and improving operational efficiency.
- **Performance-Based Incentives:** Introducing performance-based incentives to encourage employees to be more accountable and perform better.

Initiatives for Reduction of AT&C Losses



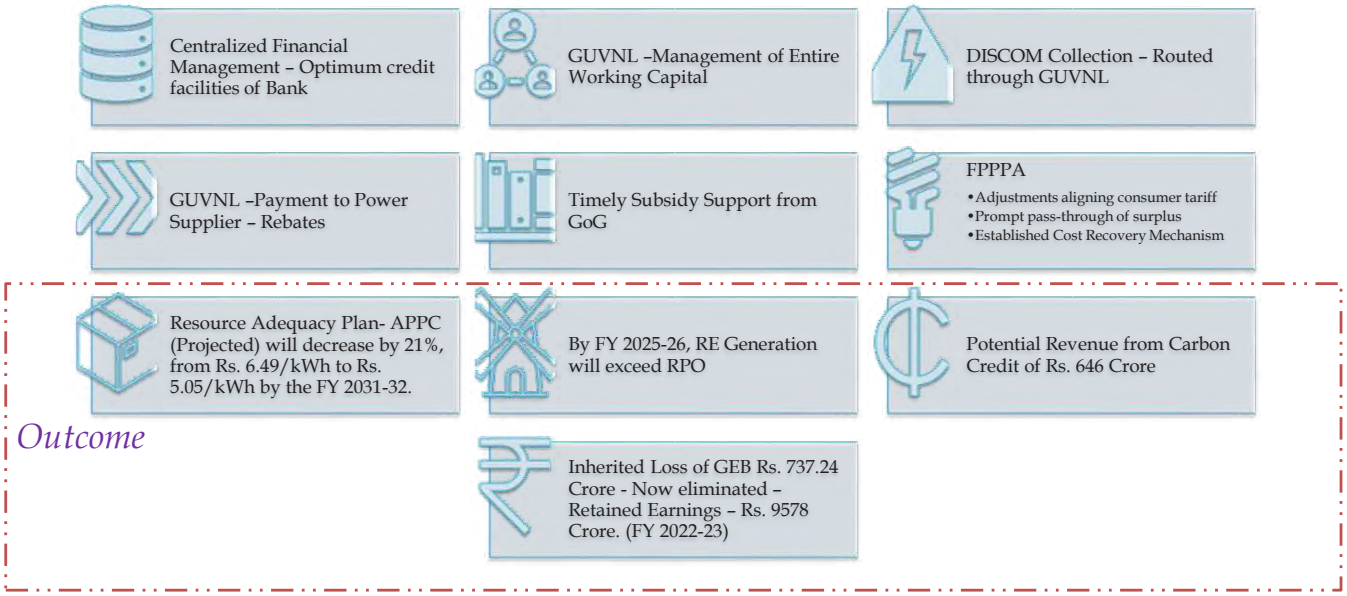
Effective HR Deployment – Training, Collaborations and Engagements

- Realised the importance of Upskilling/Re-Skilling of Employee Work Force – Instituted **GETRI** in 2006
- Even as early as FY 2005-06 – 620 different training programmes conducted – Focus Area – Technical, Behavioural Change towards Customers, Safety, Corporate Training.
- Benefitted from USAID & DRUM Project (Distribution Reform Upgrade and Management)

Effective HR Deployment – Training, Collaborations and Engagements

- **Ideation Premier League** – Created Strong Ecosystem for Employees to share ideas and Creativity with appropriate reward system for viable ideas.
- **PAHAL –** An initiative designed to recognise, celebrate, and motivate the exceptional team members, both as individuals and as a united force.
- Recognised the importance of maintaining Employee motivation through **Employee Welfare Activities**.
- Recognised Human Resource to be most valuable asset to the Company.
- Increased Employee Engagement through organising various social events.
- Carrying out Several Management Development Programme at **IITs/IIMs**

Financial Management



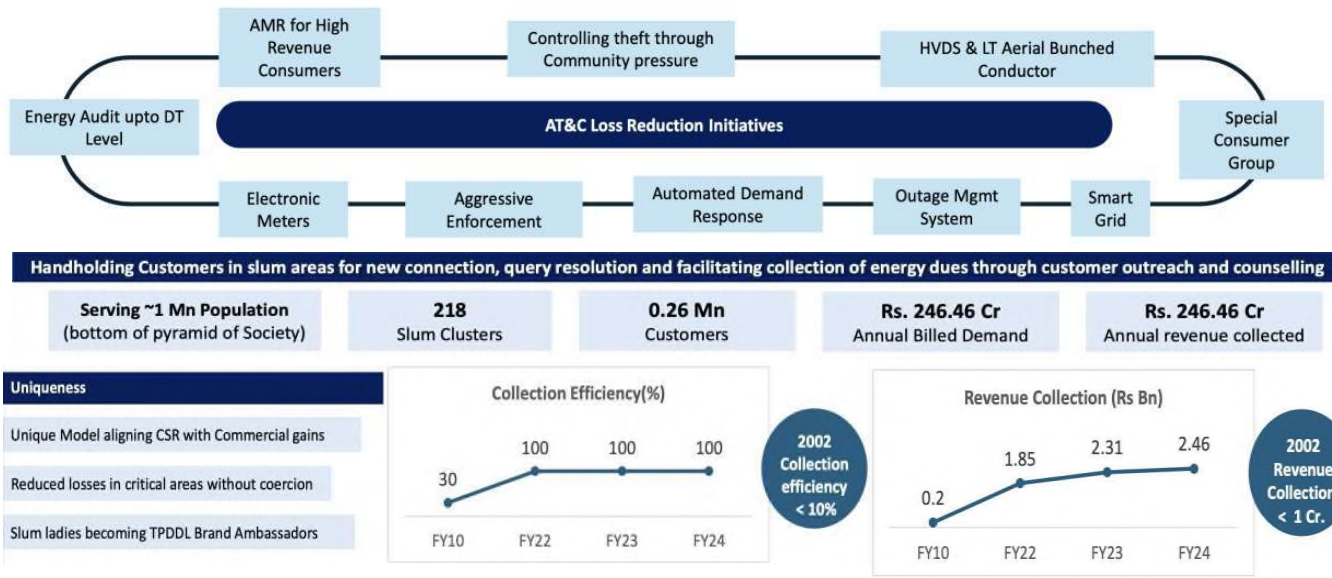
Case Study - Tata Power – Delhi (TPDDL)

Key Achievements

Initial challenges
AT&C Loss at **53%** - rampant theft
Dilapidated Network – on the verge of collapse
Unreliable Power Situation (**11%** Transformer failure Rate, **48%** Streetlight functional, **8-10 hrs** of Power cut)
Erroneous Consumer Database (**50%** of consumers had some form of an error)
> 1,00,000 Billing Complaints & **> 20,000** applications pending for New connection
No Computerization/Automation/Tracking & Monitoring
Absence of Consumer Relationship approaches

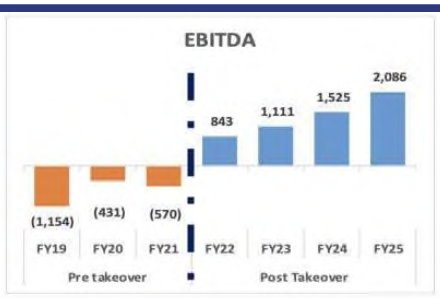
Parameter	Unit	July 2002	March 2024
OPERATIONAL PERFORMANCE			
AT&C Loss	%	53.1	5.9
System Reliability – ASAI Availability Index	%	70	99.9
Transformer Failure Rate	%	11	0.68
Peak Load served	MW	930	2218
Length of Network	Ckt km	6750	14108
Street Light Functionality	%	40	99.6
Smart Meters Installed	Lakh	0	4.33
CONSUMER RELATED PERFORMANCE			
New Connection Energisation Time	Days	51.8	5.57
Meter Replacement Time	Days	25	3
Mean Time to Repair Faults	Hours	11	.9
Consumer Satisfaction Index	%	-	97

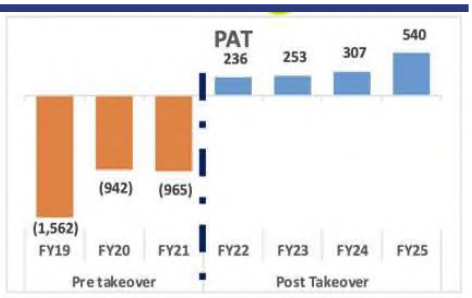
Initiatives for Reduction of AT&C Losses

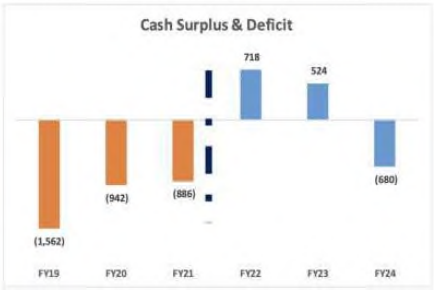


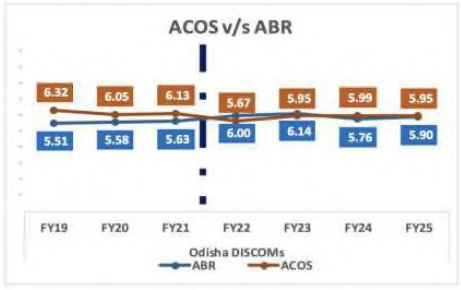
Case Study - Tata Power – Odisha

Key Achievements (1/2)

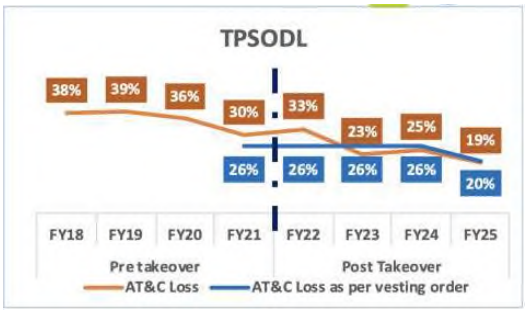


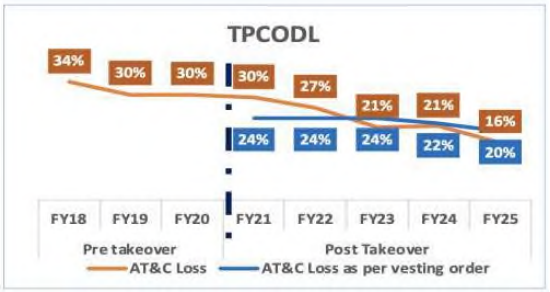


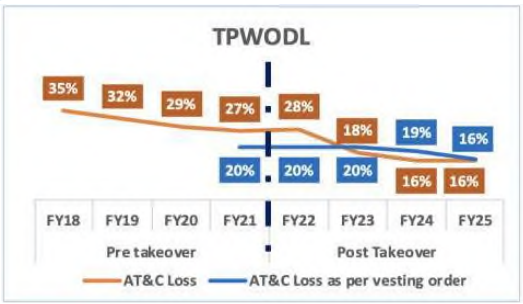


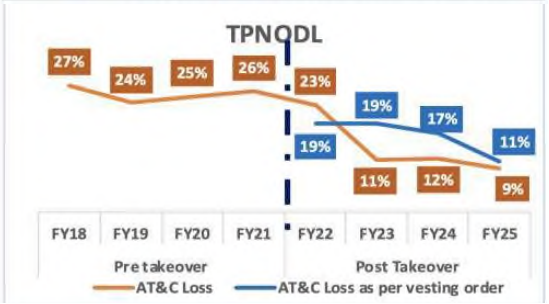


Key Achievements (2/2)









Commercial Turnaround – Initiatives & Enablers

Metering

New Connections Addition

Replacement of Defective Meters

100% compliance with statutory meter testing

Conversion of Unmetered to metered

Smart Metering

Billing

Addressing Provisional Billing and

Unbilled cases scenario

Technology infusion to reduce Suppressed reading and Tabletop Reading

Implementation of OCR for Meter Reading

Spot Billing

Collection

QR Code based payment

Arrear collection Drives through Ex-Servicemen, Bike Squads & DC Squads

100% Online Cash Collection through "Sangrah" Mobile App

Focused Recovery from Rural Areas through Gram Panchayat Level collection Teams

Operation "Clean Slate" - liquidate the arrears in urban areas

m-POS for Spot Collection deployed.

Rural Electrification

Gaon Chalo Camps & Establishment of Bidyut Seva Kendra to increase outreach for rural consumers

Mission Cheetah to bring unbilled consumers to billing net

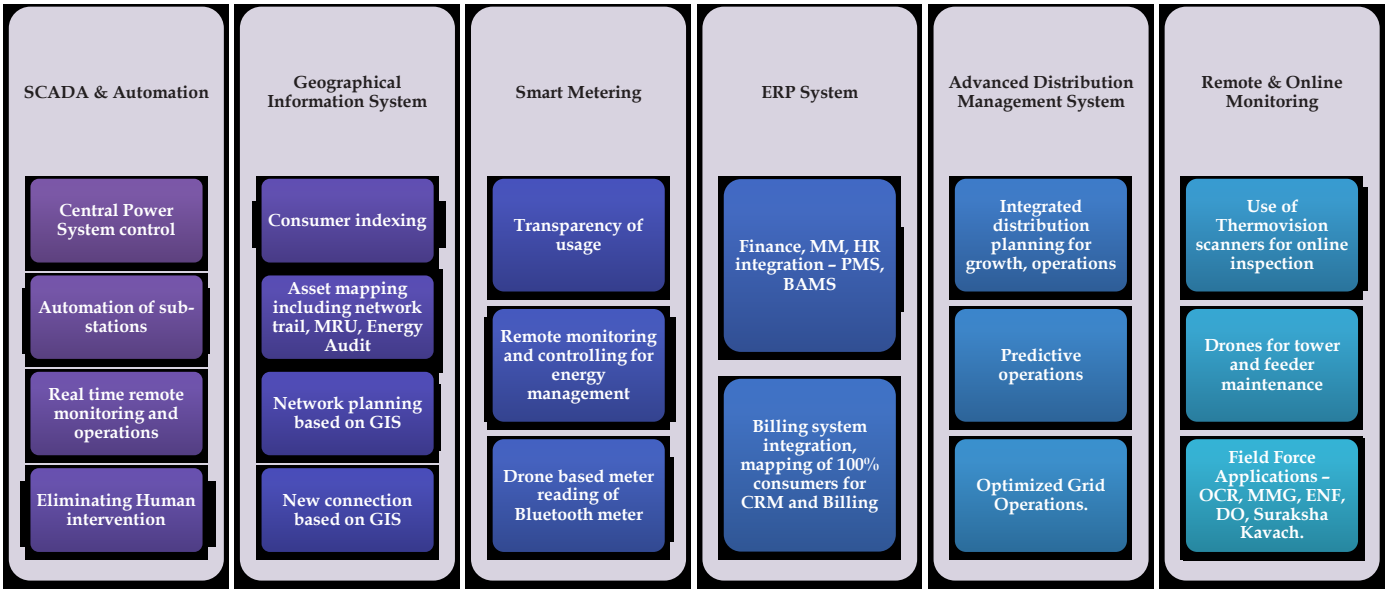
Structural Reforms (Accountability & Reach)

Circle- Introduction of HoD/HoG-Comm

Division - Introduction of CSM,TL-MBC,CRE,MMG & ENF

Section - Introduction of JM-Comm. & CCE.

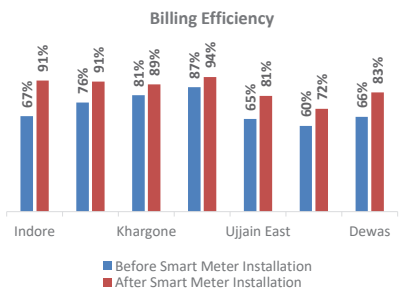
Technology Adoption – Network Expansion/Modernisation

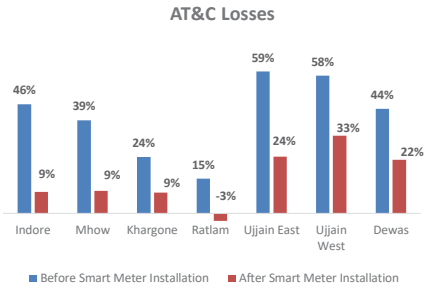


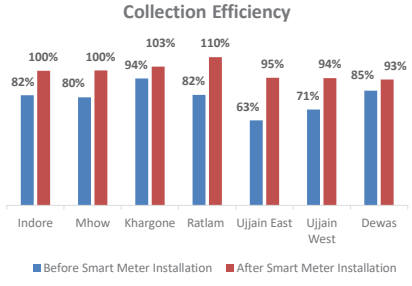
Effective HR Deployment

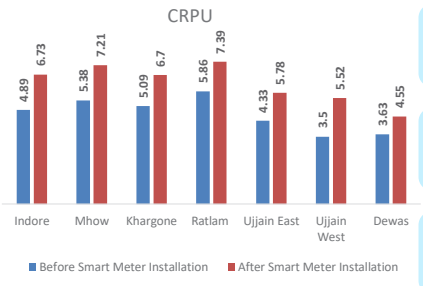
Madhya Pradesh Paschim Kshetra Vidyut Vitaran Company Limited

Key Achievements – Smart Metering Benefits









Improvement in Sales and Revenue Billed	Average Monthly Units Billed improved by 13.63% and, Average Monthly Per Consumer current bill improved by 21.46%.
Aberrations Reported	Total 18196 cases identified leading to additional billing of Rs 21.96 Crores
Recovery against MD> SL for <10kW consumers	More than Rs. 8.39 Crores recovered accurate recording of MD
PF Penalty and Incentive	**PF Penalty** imposed to 2.43 Lakh bills amounting to Rs. 7.46 Crores **PF Incentive** to 4.89 Lakhs bills amounting Rs 25.68 Cr.
Remote Reconnections and Disconnections	6.57 Lacs successful remote RC/DC of around Rs 308.63 Cr on arrear.
Smart Meter to Net Meter	3707 Smart Meter converted into Net meter with connected load 25.9 MW

Strategies – Initiatives – Performance Improvement

Improvement in Sales and Revenue through effective implementation of **Smart Metering**

Effective Vigilance Enforcement Activity through NVIS

Door to Door Revenue Collection with on-the-spot receipts through Mobile App

System strengthening work carried out through various projects and SSTD scheme

Monitoring of **feeder wise RPU and area specific strategy for RPU** improvement

Providing **irrigation power supply during off-peak period as a DSM measure**.

Special drive for old arrear recovery through Japti/Kurki and seizer of bank accounts

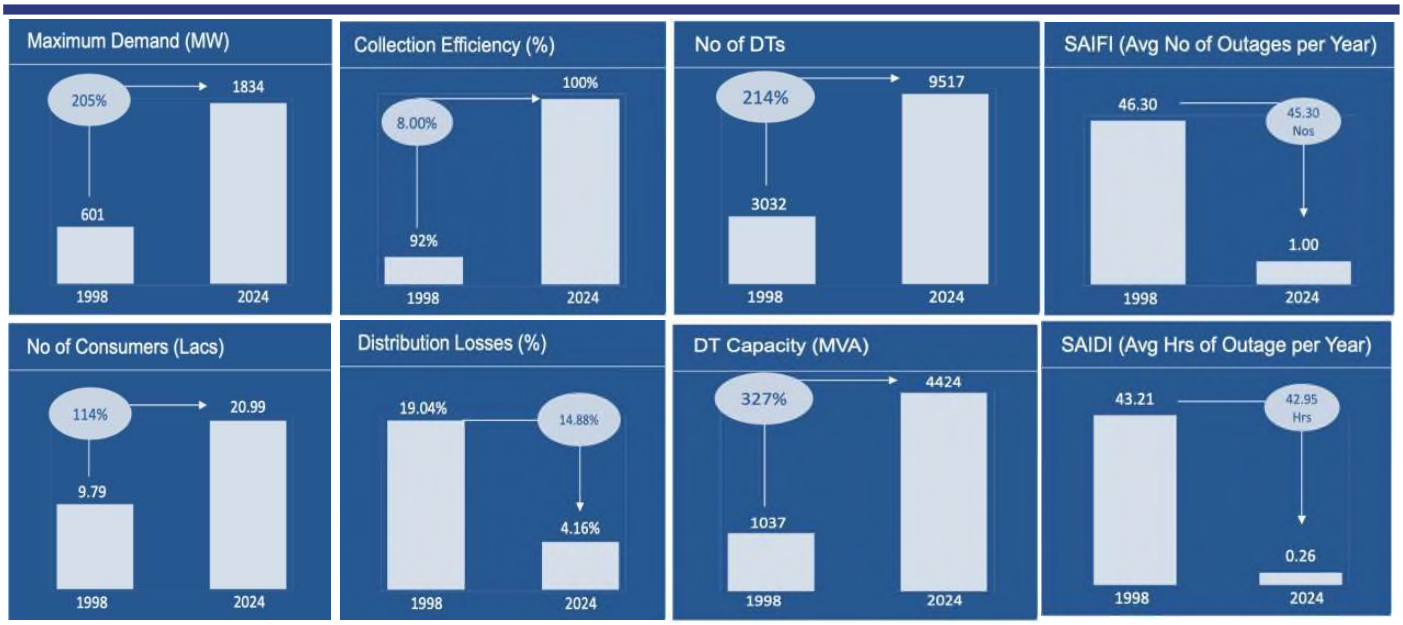
Augmentation of overloaded PTRs/DTRs and shifting of DTRs at load center

Employee Motivation

- **Free Health Checkup :** Under the umbrella of AROH, West Discom conducted a comprehensive health initiative – the 'Health Check-Up Camp.
- **Sona Chandi scheme :** West Discom motivates its employees under its appreciation schemes like Sona Chandi scheme under which (SE, EE, AE, JE) received certificates, gold and silver coins, for highest revenue collection, AT&C loss reduction, CRPU improvement and FRT bill collection.
- **Safety Training:** West Discom have nominated 100 technical staff for imparting refresher training program at the Central Training Institute in Jabalpur.
- **Training & Employee recognition:** West Discom have nominated 100 technical staff for imparting refresher training program at the Central Training Institute in Jabalpur.

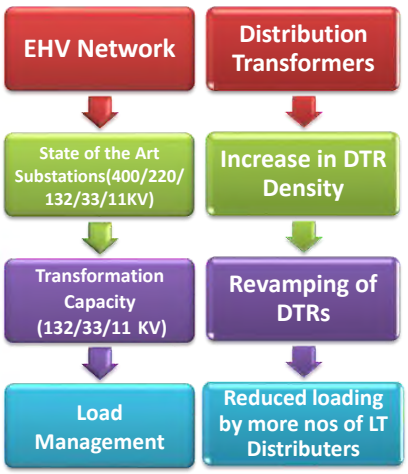
Torrent Power - Ahmedabad

Key Achievements

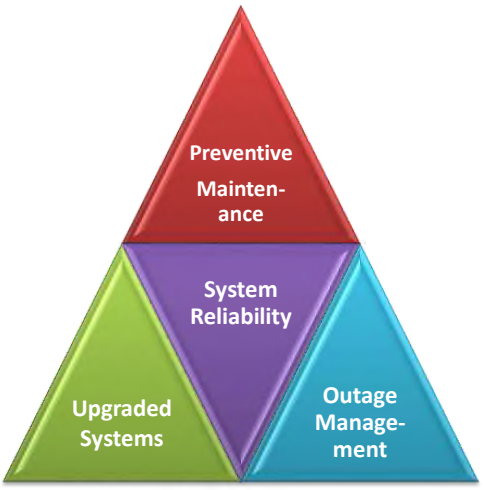


Key Measures (1/2)

IT Integration

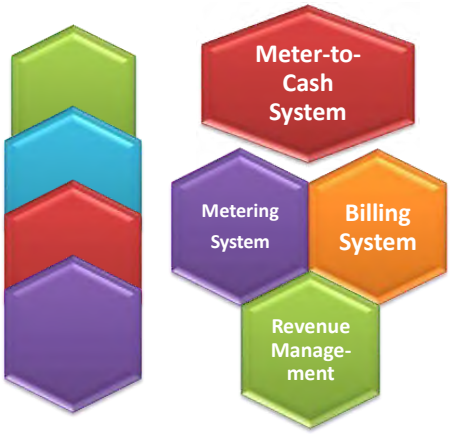


Network Augmentation

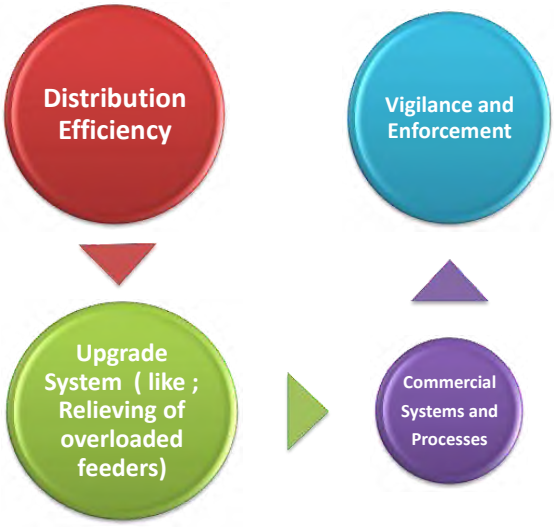


System Reliability

Key Measures (2/2)



Meter to Cash



Distribution Efficiency

Distribution Business Turnaround Strategy adopted by Torrent - Summary

Reliability & Quality of Supply	Customer Services	System Efficiency
• Mitigate the power shortages • Capacity addition • Revamping distribution network • Better load monitoring and Management • Conversion of overhead networks by underground network • Condition Monitoring System	• Customer Relationship Management System • Outage Management • 24 x 7 Call Center • Customer Convenience Center • Transparent and Customer-friendly procedures • Extended working hours	• Identifying areas of leakages • Robust Meter-to-Cash System • Accurate Metering and Defective Meter Replacement • Revenue Protection and Assurance system • Expediting legal connections / load extensions
• Reliability Indices / Parameters • Redundancy at 33KV & 11KV • Repeated failure of UG networks • Repeated Fuse-off Complaint	• No of metering complaints • Performance targets • Extent of IT Implementation • Customer Perception Index	• Accuracy of meters • No of DTs with high losses • DOE Cases • Network loading

Torrent Power - Bhiwandi

Key Achievements

Till Jan 2007	UoM	Parameters
1.30	Lacs	Customer base
48.60	%	T&D Loss
68.29	%	Collection Efficiency (incl. Subsidy)
64.90	%	AT&C Loss (incl. Subsidy)
75	%	Power Availability
383.30	Nos.	HT SAIFI
201.60	Hrs.	HT SAIDI
40.00	%	DT Failure Rate
46	Nos.	No. of Feeders
754	MVA	Distribution Tr. Capacity
10.23	Rs. Cr.	CAPEX - Cumulative
650	MVA	Power Tr. Capacity

Parameters	UoM	FY 2023-24	Variance (%) w.r.t takeover
Customer base	Lacs	3.95	↑ 203.85
T&D Loss	%	9.64	↓ 38.96
Collection Efficiency (incl. Subsidy)	%	100.41	↑ 32.12
AT&C Loss (incl. Subsidy)	%	9.27	↓ 55.63
Power Availability	%	99	↑ 25
HT SAIFI	Nos.	33.93	↓ 91.15
HT SAIDI	Hrs.	33.32	↓ 83.47
DT Failure Rate	%	0.74	↓ 39.22
No. of Feeders	Nos.	109	↑ 137
Distribution Tr. Capacity	MVA	1,355	↑ 80
CAPEX - Cumulative	Rs. Cr.	1,128.02	-
Power Tr. Capacity	MVA	1,085	↑ 67

Major Initiatives Taken

Strengthening Network Efficiency and Reliability	• Modernizing Infrastructure - Outdated, theft-prone networks were eliminated, and overhead lines were converted to underground systems. • Enhancing Network Protection - Cable safeguarding measures and the introduction of Medium Voltage Covered Conductors (MVCC) improved reliability and reduced faults. • Adopting Cutting-Edge Technology - Advanced systems like SCADA, RMUs, Auto-Reclosures, IoT-enabled Transformer Monitoring Units, and Fault Passage Indicators (FPI) were deployed to enhance network performance.
Transforming Metering, Billing, and Consumer Management	• Improved Metering Accuracy - Focused on metering upgrades and replacements to enhance billing efficiency. • Legalizing Unauthorized Connections - The Ujjwal Bhiwandi Abhiyan (UBA) successfully transitioned 1.25 lakh illegal connections into legal frameworks. • Data-Driven Monitoring - Feeder-level loss tracking, theft deterrence, and integrating illegal consumers into billing systems were prioritized.
Operational Excellence and Rural Outreach	• Streamlining Operations - Digital tools such as Field Force Applications (FFA) and digital mapping systems improved operational efficiency. • Expanding Rural Accessibility - Mobile energy bill collection vans were introduced to ensure service accessibility in rural areas. • Quality Assurance Measures - An NABL-accredited Meter Testing Laboratory was established to uphold precision and standards in metering equipment.

Terms of Reference

Terms of Reference

- Terms of Reference for the Working Group is as follows :

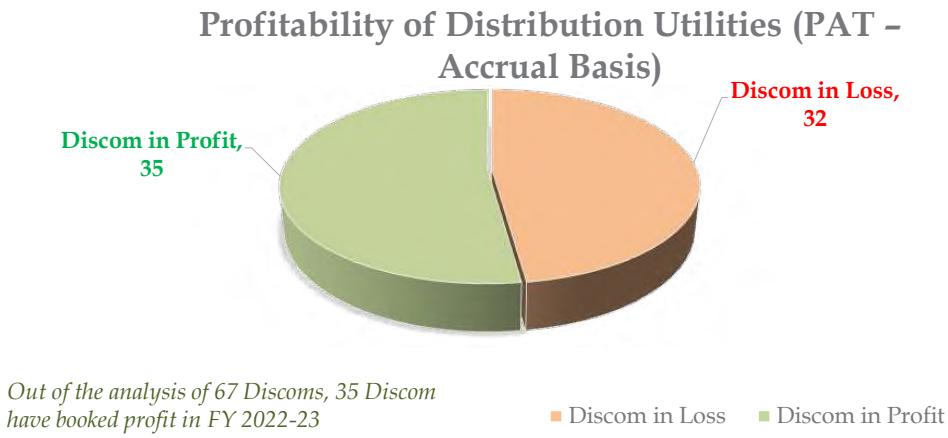
  "

  a) *Identify and analyse the factors impacting the sustainability of DISCOMs.*
  b) *Examine the existing measures and suggest strategies for minimizing operational losses and enhancing efficiency.*
  c) *Analyze employee cost structures and make recommendations for optimization of employee cost.*
  d) *Suggest guidelines to reduce O&M and A &G costs of DISCOMs.*
  e) *Any other matter related and incidental to the above."*

- The First Meeting of the FOR Working Group was held on 21st June, 2024 where five paraments regarding DISCOMs sustainability were discussed which were **ACS-ARR gap, AT&C losses, Regulatory Assets, O&M cost (including employee cost), Cross Subsidies and the level of reduction in cross subsidies over the years and Timely Issuance of tariff orders and pass through of increased cost of procurement of power**.

1. Identify and Analyze Factors Impacting the Sustainability of DISCOMs.

Distribution Utilities Profitability Analysis – FY 2022-23



Source: PFC Report on Performance of Power Utilities

Factors Impacting the Sustainability of DISCOMs…..1/3

- In reference to the parameters identified in the first WG meeting, and based on the discussion held, the factors affecting the sustainability of DISCOMs have been analyzed which is as follows:-

ACS-ARR Gap

- The ACS-ARR gap reflects the difference between the cost incurred to supply power and the revenue recovered from consumers.
- A persistent gap leads to revenue shortfalls, pushing DISCOMs into a cycle of financial distress, mounting Debt.
- Bridging the ACS-ARR gap through tariff revisions or cost reduction is critical for ensuring sustainable operations and maintaining the trust of investors and lenders.

- Impact on DISCOM Sustainability
  - Direct financial losses, leading to increased borrowing or government bailouts.
  - Lower ability to invest in infrastructure upgrades or modernization.
  - Inadequate revenue streams reduce DISCOM capacity to meet operational and capital expenditures.

AT&C Losses

- AT&C losses measure the inefficiency in both technical operations (e.g., energy loss during distribution) and commercial operations (e.g., billing inefficiencies and theft).
- Efforts to reduce these losses, such as infrastructure upgrades and better metering, are essential for enhancing DISCOM sustainability.

- Impact on DISCOM Sustainability
  - Significant revenue leakage that hampers DISCOMs' ability to break even.
  - Reduced cash flows affecting working capital and operational liquidity.
  - Increased cost of power procurement due to the need to over-supply to cover losses.
  - Billing Efficiency the weakest link.

Factors Impacting the Sustainability of DISCOMs…..2/3

O&M Cost

- Operational and maintenance (O&M) expenses, especially employee costs, significantly impact DISCOMs' cost structure.
- Inefficient or bloated O&M costs reduce profitability. Employee cost, being a fixed component, is less flexible.
- Well directed O&M Expenses with Accountability is the prime driver of any turn around.
- Strategic investments in technology, automation, and workforce training can lower these costs, improving operational efficiency.

- Impact on DISCOM Sustainability
  - Higher O&M costs reduce profitability and strain DISCOMs' financials.
  - Limits ability to invest in capital infrastructure or modernize systems.
  - Fixed costs like employee expenses offer limited flexibility during financial crises, exacerbating fiscal challenges.

Cross Subsidies and the Level of Reduction Over the Years

- Cross subsidies, where high-paying consumer categories (e.g., commercial or industrial users) subsidize lower-paying consumer categories (e.g., residential or agricultural users).
- Distorts tariffs and can discourage efficient consumption patterns.
- While cross subsidies provide short-term relief to certain segments, they create long-term inefficiencies.

- Impact on DISCOM Sustainability
  - Uneconomic tariffs lead to revenue imbalances and discourage high-paying consumer categories, which can shift to alternate energy sources.
  - Over-reliance on cross subsidies leads to inequitable cost recovery.

Timely Issuance of Tariff Orders and Pass-Through of Increased Power Procurement Costs

- Delays in issuing tariff orders –Delay in Recovery, leading to cash flow issues.
- Regular and timely tariff adjustments allow for dynamic cost recovery, helping DISCOMs maintain financial stability.

- Impact on DISCOM Sustainability
  - Delays in tariff issuance lead to under-recovery of power procurement costs, impacting cash flow.
  - Untimely cost recovery erodes financial health, reducing the ability to make timely payments to generators and other creditors.
  - Unstable tariffs create uncertainty, affecting long-term planning and investment strategies.

Factors Impacting the Sustainability of DISCOMs…..3/3

Regulatory Asset

- While regulatory assets may provide temporary relief, they defer the financial burden, leading to higher future tariffs and increased financial strain on both consumers and DISCOMs. Excessive accumulation of regulatory assets increases the risk of non-recovery, which may lead to financial distress.

- Impact on DISCOM Sustainability
  - Build-up of deferred liabilities that burden future revenue streams.
  - Higher tariff shocks for consumers in the future, risking political backlash.
  - Long-term unsustainability due to delayed cost recovery.

Human Resource – Optimisation - Motivation

- Human Resource - Change starts here.
- Well motivated Workforce primary reason behind any turnaround.
- Case studies reveals, a motivated work force is the main driver. Vice-Versa also true. – Case of Odisha Discom

- Impact on DISCOM Sustainability
  - Workforce determine Organisation Success
  - Alignment of Organisation Goal and Employee KPI and KRAs – Key to turnaround.
  - Training and Development – Mandatory Aspect (May Require Policy Standardisation)

Performance Metrics: ACS-ARR, AT&C Loss, Billing Efficiency & Collection Efficiency

State	ACC-ARR Gap (Rs/kWh)		AT&C(%)		Billing Efficiency (%)		Collection Efficiency (%)	
	FY 2021-22	FY 2022-23	FY 2021-22	FY 2022-23	FY 2021-22	FY 2022-23	FY 2021-22	FY 2022-23
HPSEBL	0.09	0.8	12.9	10.59	87.25	89.41	99.82	100
JBVNL	1.61	2.47	30.85	30.28	72.51	69.72	95.37	100
MSEDCL	0.02	1.42	16.73	19.07	84.77	84.94	98.23	95.28
MePDCL	0.09	1.41	25.52	23.97	78.94	87.97	94.35	86.43
TANGEDCO	1.01	0.96	11.44	10.31	89.49	90.83	98.95	98.75
TSNPDCL	1.52	1.19	14.11	22.19	91.19	92.83	94.19	83.82
TSSPDCL	1.4.0	1.08	9.14	17.2	90.86	91.5	100	90.49
TSECL	0.53	1.00	31.17	28.15	75.26	75.3	91.46	95.41
DVVNL	1.63	2.08	31.04	24.04	74.36	78.41	92.74	96.87
MVVNL	2.51	2.39	35.63	24.22	82.64	84.94	77.89	89.22
PuVVNL	1.79	2.92	40.02	27.27	79.85	82.6	75.12	88.06
Andaman & Nicobar PD	2.83	0.51	19.8	19.81	80.74	81.86	99.33	97.96
Ladakh PD	0.39	1.99	48.29	30.33	59.48	69.67	86.94	100
BEST	1.60	2.06	7.89	4.18	95.37	95.82	96.59	100
Mizoram PD	1.32	2.07	36.23	26.27	70.55	73.73	90.39	100
TPSODL	0.38	0.74	34.26	31.32	76.64	75.04	85.77	91.53
IPCL	0.34	0.8	4.02	6.56	96.9	96.99	99.04	96.34

High Correlation Between ACS_ARR Gap and Low Billing Efficiency

Improving Billing Efficiency is Key to Reducing AT&C Losses.

Source: RPM Meeting of MoP 18 and 19th Jan 2024

2. Measures and Strategies for minimizing operational losses and enhancing efficiency.

Measures and strategies for minimizing operational losses and enhancing efficiency……1/3

- Based on the inputs received from the interaction with the Discoms, following Measures and Strategies can be useful in minimizing Operational losses and enhancing efficiency :

Reduction of Aggregate Technical and Commercial (AT&C) Losses:

- **Strengthening Distribution Network**: **Upgrade infrastructure**, overloaded transformers and distribution lines, Geographic Information System (GIS) Mapping, SCADA (Supervisory Control and Data Acquisition) **–[TPDDL/GUVNL/MP(W)] - Shift to Efficient Implementation Modes.**
- **Installation of Advanced Distribution Management Systems (ADMS)**: Implement **ADMS** for **real-time monitoring and automated control** of the network, **improving grid efficiency and outage management**. **[TPDDL/GUVNL]**
- **Smart Grid Technologies**: Adopt **smart grid solutions for better load management**, fault detection, and integration of renewable energy sources. **[TPDDL/GUVNL/TPL]**
- **HVDS & LT Aerial Bunched Conductors**: Implement **High Voltage Distribution Systems (HVDS) and use LT Aerial Bunched Conductors** to minimize theft, improve reliability, and reduce line losses. **[TPDDL/GUVNL/TPL]**
- **Energy Audits at Distribution Transformer (DT) Level**: Conduct **energy audits up to the DT** level to pinpoint losses and take corrective measures. **[MP(W)/GUVNL/TPDDL/TPL]**
- **Feeder Separation:** Implementation of **separated agricultural feeders' scheme where there is considerable agricultural load – Helps in Load Management [GUVNL/MP(W)]**

Modernization of Metering Systems:

- **Advanced Metering Infrastructure (AMI)**: **Deployment of smart meters starting with high loss areas and for high revenue consumers and Automated Meter Reading (AMR) systems**, to increase billing accuracy, reduce manual errors, and lower commercial losses. **–[TPDDL/MP(W)]**
- **Automated Demand Response**: Utilize **automated demand response systems to optimize energy consumption during peak load periods**, reducing stress on the grid. **– [TPDDL]**

Measures and strategies for minimizing operational losses and enhancing efficiency……2/3

Improving Revenue Collection and Controlling Theft:

- **Prepaid Metering**: Implement prepaid meters starting with areas with low billing efficiency. **(GUVNL/MP(W)).**
- **Community Pressure to Control Theft**: **Engage local communities** in areas with high theft, using peer influence and community pressure to reduce power theft **(TP-Odisha/GUVNL/Haryana).**
- **Special Consumer Groups and Slum Outreach**: Handhold consumers in slum areas, **creating awareness** about legal electricity usage. **(TPDDL/TP-Odisha/GUVNL).**
- **Aggressive Enforcement**: Implement stringent measures and inspections to **detect and prevent** theft – dedicated courts, police stations. **(TPDDL/GUVNL/TPL)**

Loss Reduction through Efficiency:

- **Facilitate Distributed Energy systems: Solar Roof Top/BESS etc. - (TPDDL/GUVNL/TPL)**
- **Energy Efficiency Programs**: Implement demand-side management (DSM) programs, promoting the use of energy-efficient appliances to reduce overall consumption.
- **Transformer Efficiency Improvement**: **Replace outdated or inefficient transformers** with high-efficiency models to cut energy losses.
- **Outage Management System (OMS)**: Deploy **OMS to reduce the frequency and duration of outages**, ensuring a more reliable supply.

Enhanced Employee Productivity:

- **Training and Capacity Building: Conduct regular training and development of employees for maintaining the distribution network efficiently. – Upskilling and Re-skilling – Cost may be allowed normative basis – Part of ARR. – (GUVNL)**
- **Performance-Based Incentives: Develop a performance-linked incentive system for employees to motivate them to achieve operational and financial targets. – [MP(W), GUVNL, TPDDL]**
- Setting up KPIs and KRAs – Aligned with Organisational Goals.

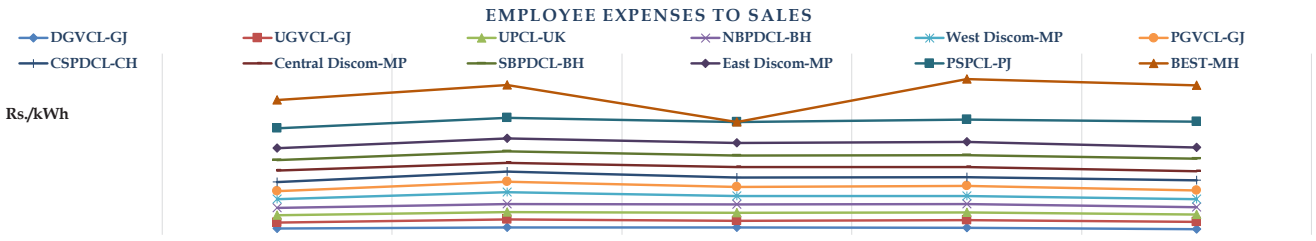
Measures and strategies for minimizing operational losses and enhancing efficiency……3/3

Corporate Social Responsibility (CSR) for Commercial Gains:	• **CSR Alignment with Loss Reduction**: **Develop a model where CSR initiatives focus on supporting areas with high losses**. – [TPDDL] • **Reduced Losses in Critical Areas without Coercion**: Leverage **CSR initiatives to build trust and community engagement**, reducing losses without the need for aggressive enforcement.- [TPDDL]
Regulatory and Tariff Reforms:	• **Timely Tariff Revisions**: Utilities to file tariff petitions on time to avoid accumulation of regulatory assets and ensure tariffs reflect actual costs. • **Cross-Subsidy Reduction**: Reduce cross-subsidies gradually, aligning tariffs with consumption patterns and reducing financial strain on DISCOMs.
Enhanced Consumer Relations:	• **DISCOM Brand Ambassadors**: In high loss divisions a **DISCOM ambassadors** from the community should be appointed for promoting legal electricity use and serving as liaisons between DISCOMs and the community. [TPDDL] • **Customer Relationship Management (CRM):** Enhance consumer service platforms to handle queries, complaints, and grievances more effectively, leading to **improved consumer satisfaction and reduced operational disruptions**. [MP(W)/GUVNL/TPDDL/TPL]
Reduction in Power Purchase Costs:	• **Power Purchase Optimization**: Implement strategies for cost-effective procurement of power –**Resource Adequacy Plan**. • **Renewable Energy Integration**: Integrate more distributed renewable energy sources (solar, wind) into the power purchase portfolio of DISCOMs, as they often come at a lower cost and are supported by government incentives. **Generally reduces LT consumption.**

3. Analyze employee cost structures and make recommendations for optimization of employee cost.

4. Guidelines to reduce O&M and A &G costs of DISCOMs.

Analysis of Employee Expenses to Sales



Discom	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
BEST-MH	1.09	1.27	-	1.56	1.40
PSPCL-PJ	0.77	0.80	0.81	0.86	1.00
East Discom-MP	0.45	0.50	0.49	0.51	0.57
Central Discom-MP	0.45	0.33	0.40	0.39	0.47
SBPDCL-BH	0.41	0.45	0.45	0.46	0.47
CSPDCL-CH	0.34	0.40	0.37	0.34	0.40
West Discom-MP	0.35	0.46	0.33	0.31	0.40
PGVCL-GJ	0.31	0.40	0.35	0.39	0.34
UPCL-UK	0.28	0.28	0.31	0.29	0.29
NBPDCL-BH	0.28	0.32	0.32	0.32	0.28

DISCOMs employee expenditure per unit sales reflects efficient workforce management and its contribution to ACOS.

Analysis Employee Expenses to GFA

	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
PSPCL-PJ	0.12	0.12	0.13	0.14	0.17
East Discom-MP	0.17	0.15	0.14	0.15	0.14
Central Discom-MP	0.12	0.09	0.12	0.12	0.11
AVVNL-Rj	0.07	0.08	0.12	0.08	0.11
JdVVNL-RJ	0.08	0.09	0.11	0.10	0.10
MGVCL-GJ	0.09	0.10	0.08	0.10	0.09
CSPDCL-CH	0.10	0.10	0.09	0.07	0.09
JVVN-RJ	0.07	0.08	0.09	0.10	0.09
UPCL-UK	0.12	0.11	0.09	0.09	0.08
UGVCL	0.08	0.09	0.07	0.08	0.08
DGVCL	0.07	0.08	0.06	0.08	0.06
PGVCL	0.05	0.06	0.05	0.06	0.05

DISCOMs employee expenditure relative to Gross Fixed Assets (GFA) reflects workforce cost efficiency with regards to infrastructure Upkeep.

Benchmarking of Employee Expenses

- Based on the analysis it is recommended to benchmark Employee Expenses as against Sales rather than GFA.
- The Table Below benchmarks the employee expenses as against ACOS.

Discom	FY 2018-19 (Rs./kWh)	FY 2019-20 (Rs./kWh)	FY 2020-21 (Rs./kWh)	FY 2021-22 (Rs./kWh)	FY 2022-23 (Rs./kWh)	ACOS (FY 2022-23) (Rs./kWh)	Employee Expenses as a Percentage of ACOS (FY 2022-23)	Action Points
BEST-MH	1.09	1.27	1.42	1.56	1.40	10.16	14%	
PSPCL-PJ	0.77	0.80	0.81	0.86	1.00	7.09	14%	
East Discom-MP	0.45	0.50	0.49	0.51	0.57	7.16	8%	Manpower Rationalisation – Above 6%
CSPDCL-CH	0.34	0.40	0.37	0.34	0.40	7.02	6%	
Central Discom-MP	0.45	0.33	0.40	0.39	0.47	7.16	6%	Acceptable Limit – 5-6%
West Discom-MP	0.35	0.46	0.33	0.31	0.40	7.12	6%	
SBPDCL-BH	0.41	0.45	0.45	0.46	0.47	9.94	5%	
PGVCL-GJ	0.31	0.40	0.35	0.39	0.34	7.64	4%	Desirable – Below 5%
UPCL-UK	0.28	0.28	0.31	0.29	0.29	6.90	4%	
NBPDCL-BH	0.28	0.32	0.32	0.32	0.28	7.10	4%	

Recommendation/Guidelines Employee/A&G/O&M Cost (1/4)

- Based on the inputs received from the DISCOMs the following strategic recommendations may be useful in streamlining the workforce management while maintaining service quality and ensuring operational resilience.

Workforce Rationalization and Skill Mapping

- **Conduct a Comprehensive Skill Audit**: Evaluate the current workforce to **identify redundant roles, skill gaps, and potential for upskilling**. Focus on **aligning workforce capabilities with the evolving needs of DISCOMs** in a modernized grid environment (e.g., smart grids, renewable integration).
- **Manpower Rationalization**: Conduct a **manpower audit to identify overstaffing and areas where workforce productivity can be improved**.
- **Automation & Digitization**: Implement **technology solutions for metering, billing, and collection (MBC) to reduce manual intervention and related costs**.
- **Role Consolidation and Automation**: **Identify opportunities to consolidate overlapping roles and automate routine tasks**, particularly in areas such as billing, customer service, and network monitoring. This can **reduce manpower requirements without compromising service quality**.
- **Training & Upskilling**: Provide employees with **regular training to improve efficiency, enhance technical skills**, and reduce human error.

Recommendation/Guidelines Employee/A&G/O&M Cost. (2/4)

Incentivize Performance-Based Pay Structures

- **Implement a Performance-Linked Incentive (PLI) Scheme**: Shift from a fixed pay structure to a performance-linked system to motivate employees to enhance productivity and efficiency. **KPI/KRA based Incentive sharing.**

Outsource Non-Core Activities

- **Outsource Routine and Non-Essential Services:** Functions such as customer service, and maintenance of non-core infrastructure can be outsourced to third-party vendors. This approach will allow DISCOMs to focus on core activities while reducing payroll and benefit-related costs.
- **Leverage Personnel with Special skill sets**: For tasks requiring specialized knowledge, consider leveraging personnel with special skill sets, reducing the need for permanent high-cost staff in these areas.

Workforce Reskilling and Cross-Training Programs

- **Upskill Employees for New Roles**: As DISCOMs transition to smart grids and digital systems, **reskilling programs should be introduced to train existing employees** in new technologies and operational models.
- **Cross-Train Employees**: Encourage the **cross-training of employees across different functions to improve workforce flexibility**. This will enable DISCOMs to handle staffing fluctuations efficiently without the need for hiring additional personnel.

Recommendation/Guidelines Employee/A&G/O&M Cost. (3/4)

Technology and Digital Transformation

- **Automation of A&G Functions**: Use Enterprise Resource Planning (ERP) systems for streamlining payroll, HR, procurement, and other administrative functions to reduce redundancy.
- **Smart Metering and Billing Systems**: Implement smart metering for accurate billing and timely collection, which helps lower administrative overheads related to meter reading and customer management.
- **Customer Service Digitalization**: Improve online services like bill payments, complaint resolution, and customer queries to reduce the need for physical offices and staff

Improving Maintenance Practices

- **Preventive Maintenance**: Shift focus from **reactive to preventive maintenance** by adopting smart tools and technologies like IoT, drones, and sensors for predictive maintenance.
- **Condition-Based Monitoring**: **Use advanced monitoring systems to track the health** of assets and conduct maintenance only when necessary, thus reducing downtime and unnecessary repair costs.

Recommendation/Guidelines Employee/A&G/O&M Cost. (4/4)

Administrative Cost Optimization

- **Paperless Operations**: Move towards **paperless operations** by **adopting digital document management systems** to reduce administrative costs.
- **Centralized Procurement**: Implement **centralized procurement strategies for common administrative** needs (e.g., office supplies, insurance, etc.) to leverage economies of scale.
- **Rent/Lease Optimization**: Rationalize and consolidate office space and other administrative infrastructure to **reduce rent and maintenance costs**.

Regulatory Reforms and Support

- **Performance-Based Incentives**: **Create a performance-linked cost-reduction model where the DISCOM staff and management are incentivized to achieve predefined KPI/KRAs – Supporting Regulations required**.
- **Tariff Rationalization**: Ensure timely issuance of tariffs to reduce regulatory delays and avoid the build-up of regulatory assets, which increase administrative costs over time.
- **Subsidy Reforms**: Close Monitoring of subsidy payment process to reduce working capital requirements and administrative efforts.

KPIs/KRAs Based Incentive Framework – For Discussion

Key Performance Indices (1/2)

- As discussed, if employees are provided direct visibility to incentives and personal development, a more serious effort can be expected. The following Matrix is proposed which is intended to provide an objective visibility to organizations and employees – (Weightages and Factors may differ from Discom to Discom) Similar matrix has been specified by CERC in RLDC Fees and Charges Regulations, 2024.

Assessment of Key Performance Indicators for Distribution Licensees					
Name of Distribution Licensees:				Year under Evaluation:	
Category	Overall Weightage	Sr. No.	Key Performance Indicators	Reference	Weightage
(A) Loss Reduction	40	(i)	Billing Efficiency should not be lower than 90% for the Financial Year		40
			Collection Efficiency (>99%)		10
			AT&C Loss (%)	State Tariff Regulations	10
		(ii)	Provisional Billing/Assessment Bills shall not be in excess of the limits specified by the respective Commission	<5% of total Bills	10
		(iii)	Compliance to directions - Loss Reduction	Regulations, Orders issued.	10
		(iv)	Complete Consumer Indexing and GIS mapping		10
		(v)	Annual Energy Audit at DT Level		10
(B) Reliability	20	(i)	SAIFI, SAIDI and MAIFI Reports	As per SOP Regulation	30
		(ii)	Transformer Failure Rate	Reduction YOY	20
		(iii)	No Planned Load Shedding/Roastering		20
		(iv)	Approved Resource Adequacy Plan to meet power demand	As approved by Commission	30

Key Performance Indices (2/2)

Category	Overall Weightage	Sr. No.	Key Performance Indicators	Reference	Weightage
(C) Capital Expenditure	20	(i)	Timely filing of Capex Plan for approval	As per Regulation	10
		(ii)	Timely completion of at least 80% of the planned capex		30
		(iii)	Non-Planned Capex not in excess of 10% of planned Capex		20
		(iv)	Nos. of Overloaded Transformer (>90% Rate capacity) should not be more than 10% of the total transformers.		10
		(v)	No unmetered Consumers		30
(D) Regulatory Compliance	10	(i)	Timely Filing of Tariff Petitions	Timelines specified under the Tariff Regulations	20
		(ii)	Timely submission of Compliance to Directives		20
		(iii)	Timely preparation of Audited Accounts		30
		(iv)	Regulatory Compliance with regard to Safety related issues.		10
		(v)	Compliance to Regulation 65(3) of EA - 03 - Subsidy		20
(E) Customer Satisfaction	10	(i)	Timely issuance of New Connections - Atleast 90% of the applications to be disposed off within the timelines specified under Supply Code.	Distribution Supply Code	30
		(ii)	Adherence to timelines specified for fault rectification and complaint addressal (90% complaints/request to be within the timelines specified under the SOP Regulation)	As per SOP Regulations	30
		(iii)	Online Portal for making Service Requests including application for new connections		20
		(iv)	Establishment of CGRF	As per CGRF Regulations	20
Total	100				

- A mechanism can be developed wherein on achievement of minimum score say 75% - **Additional Employee expenses (some percentage of Employee Expenses)** may be allowed in the form of **incentive** which should be **mandatorily be shared among the employees**.
- **The initiatives to be backed by Regulations.**
- While determining the percentage incentive, savings from the performance achievements to be kept in mind.
- Should be **self funding in nature i.e., Benefits outweighing the Costs**.

Recommendations – For Discussion

Recommendation Matrix – Cost – Effort – Impact Analysis

S. No.	Recommendations	Capital Intensity	Efforts	Impact
1	HVDS and Aerial Bunch Conductors coupled with Smart Meter (High Loss Areas)	Moderate	High	High
2	Initiating Smart Metering in high loss areas/ high value consumers	Low	High	High
3	DT Level Energy Audit	Moderate	Moderate	High
4	Prepaid Meters and Automated Meter Reading in ares with low billing efficiency	Moderate	Moderate	High
5	Faciliating Distributed Energy Systems	Low	Low	High
6	Feeder Segregation - (Wherever high agricultural Load/consumer)	Low	Low	High
7	Community Engagement - Consumer Awareness Campaign	Low	Moderate	High
8	CSR alignment with Loss Reduction Strategies - Building Synergy	Low	Low	High
9	Focus on Manpower Capacity Development	Low	Low	High
10	Manpower Skill Audit and Rationalisation/Re-deployment	Low	Low	High
11	KPI/KRA based Employee Accountability and Incentivisation	Low	Low	High
12	Tariff Revision - Cross Subsidy Reduction - Regulatory Support for KPI/KRA based Employee Benefit Scheme	Low	Low	High
13	Network Strengthening - Reducing Overloading of Lines and Transformers	High	High	High
14	Installation of Advanced Distribution Management Systems	High	High	High
15	Implementation of ERP, Exploring IT/AI enabled services/Digital Transformation	High	High	High

Based on the Need and the Status of each Discom, the priority of implementation may differ.

Thank You!

ABPS Infrastructure Advisory Private Limited

Practical Solutions to Real Life Problems

Annexure-III

New and Renewable Energy Department, Govt. of Madhya Pradesh

Presentation

on

KUSUM-C (feeder solarization)

Significant step in decentralized RE generation and decarbonization

before

FOR Working Group on Viability of Discoms

November 2024

Advantages of solar projects beyond RPO

- To prevent operation of expensive and polluting thermal power plants, thus optimizing power purchase cost of Discoms (~41,500 MUs, which is about 40% of total portfolio of Energy Dept.)

Sl no	Plant	Avg. VC (Rs./kWh)	% of scheduled energy w.r.t. to entitled energy
1	Solapur	4.82	51.84%
2	Khargone	4.41	68.40%
3	BLA Power	4.06	53.59%
4	Gadarawara	3.97	75.57%
5	Mouda II	3.55	75.79%
6	Mouda I	3.49	76.90%
7	DVC (DSTPS)	3.44	58.27%

Sl no	Plant	Avg. VC (Rs./kWh)	% of scheduled energy w.r.t. to entitled energy
8	SSTPS Khandwa	3.41	89.39%
9	JP BINA	3.38	76.25%
10	SSTPS Khandwa 3	3.18	93.46%
11	M.B. Power	3.13	90.28%
12	SGTPS Birsingpur	3.08	95.84%
13	Jhabua Power	3.06	89.75%
14	Kahalgaon II	3.04	89.92%

- Enable supply of the cheapest source of power (solar) concurrently to all farmers who consume 41% of state's energy and who would prefer to consume power during solar hours

Capacity requirement as per CEA's resource adequacy plan for MP

Year	Solar		Solar_CMPL	
	Planned contracts	Addl. Contracts	Planned contracts	Addl. Contracts
FY25	3817	0	0	0
FY26	0	3000	0	0
FY27	0	3047	0	0
FY28	0	1047	0	2000
FY29	0	1806	0	400
FY30	0	2172	0	400
FY31	0	2384	0	400
FY32	0	1957	0	400
FY33	0	1763	0	400
FY34	0	2073	0	500
FY35	0	1890	0	500
Cumulative	**3817**	**21139**	**0**	**5000**

Large solar parks vs decentralized solar generation

Limitations of large solar parks

- **Land:** Availability of encumbrance free large chunk of contiguous land parcels is a challenge
- **Evacuation:** Development of a solar park may take 2-2.5 years, while development of transmission infrastructure (EHV) may take 3-3.5 years, thus delaying the benefit of solar power
- **Dependencies:** Associated challenges of inter-departmental coordination, clearances and compliances are more cumbersome

Additional advantages of decentralized solar generation

- **Loss reduction:** Injection of power into distribution network nearer to load centers, thus preventing T&D losses
- **Avoids expenditure** on addition or upgradation of transmission infrastructure

KUSUM-A vs KUSUM-C (feeder solarization)

	KUSUM-A	KUSUM-C (feeder solarization)
Plant size	• 0.5 - 2 MW	• Up to peak agricultural load of 33/11 kV PTR/capacity of PTR
Tariff	• ₹ 3.25/ unit	• Competitively bid out tariff
GoI subsidy	None	• ₹ 1.05 crore/ MW
Incentive to Discom	• Procurement based incentive (PBI) for 5 years	• No PBI

Progress in Madhya Pradesh

KUSUM-A

- Multiple rounds of online process conducted to select developers
- LoA issued for 595 MW;
- PPA executed for approx. 200 MW
- Projects commissioned approx. 30 MW
  - 1 MW first agri-PV at Tikamgarh sets example for multi-purpose land use

KUSUM-C (FLS)

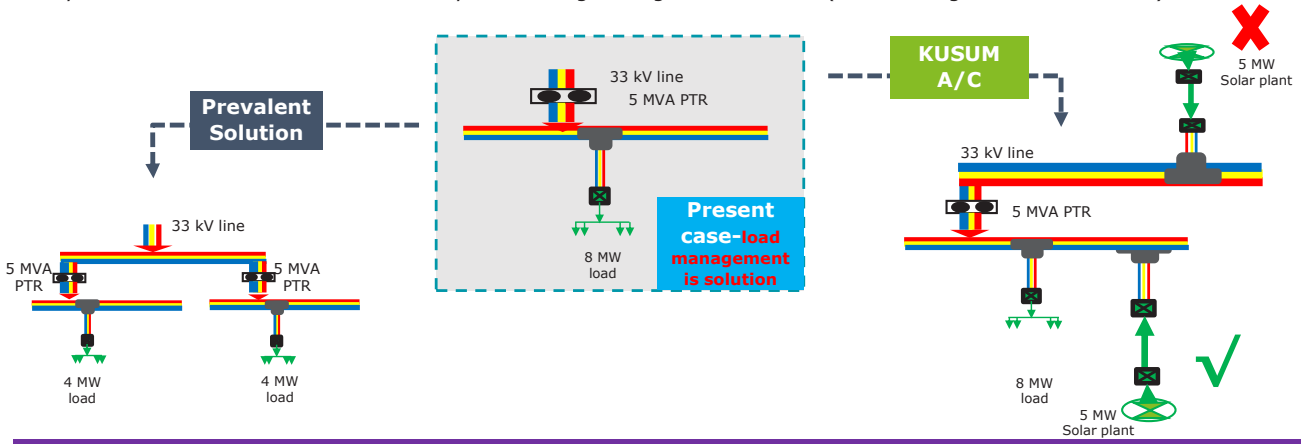
- Multiple rounds of bid conducted for selection of developers
- LoA issued for 529 MW;
- PPA executed for approx. 187 MW
- Projects commissioned approx. 40 MW
  - 8 MW project commissioned at Sanchi, as a part of Sanchi Solar City
  - Another ~ 32 MW projects commissioned

Scale of operation

- KUSUM-C has been in launched by MNRE in 2019, but its implementation planned in a fundamentally different manner
  - ✓ Scale of ~2000 MW initially, but envisaged up to 8 GW in phases
  - ✓ Multiple innovations to benefit Discoms in multiple ways
  - ✓ MNRE has directed that KUSUM A & C injection should take place in distribution substation. Most implementation in India at HV side of distribution substation or even higher voltages.
  - ✓ Implementation all across the State, especially in rural areas
  - ✓ New class of entrepreneurs
  - ✓ Permanent local employment generation to the tune of 1-2 persons per MW

Innovation-1: Shifting point of injection

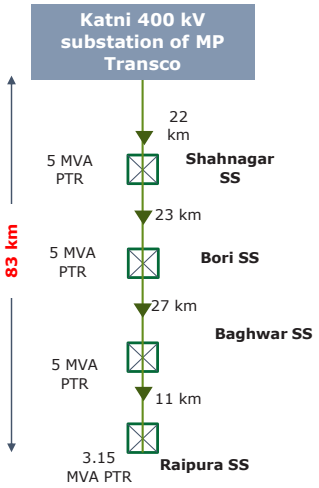
- Out of total 7860 PTRs at 33/11kV substations, over 1100 more than 80% overloaded; requires upgradation (~ INR 1 crore per PTR)
- Only scheme available with Discoms for system strengthening is under SSTD (annual budget ~ INR 500 crore)



Added advantages: alleviating thermal stress, improving PTR efficiency & extending operational lifespan

Ideal location for KUSUM A&C projects

- All substations that are 80% or more overloaded, with objective to simultaneously provide power to all feeders.
  - ✓ Injection should be invariably on 11 kV side of overloaded PTR
- Substations at fag end of a long 33 kV line, where chronic low voltage situation prevails
  - ✓ Injection preferably on 11 kV side, subject to availability of bay or space for bay construction
  - ✓ Injection on 33 kV side of Discom substations may be considered, where it helps in improvement of voltage profile



Schematic diagram of a typical system element in the State

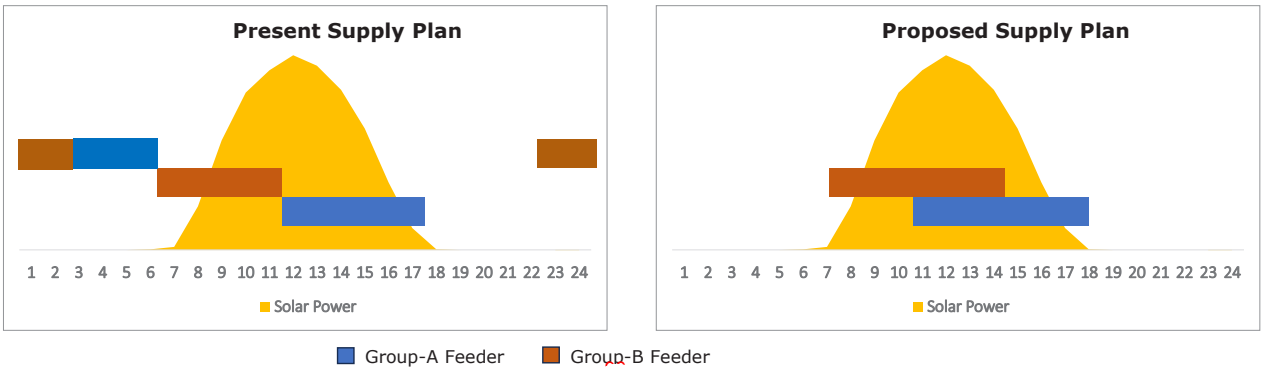
Line losses for 11 kV injection

Conductor	Line length (km)	Percentage loss (%) for different project capacities		
		1 MW	2 MW	5 MW
Rabbit	1	1.38	1.41	
	3	2.03	2.67	
	5	2.68	3.78	
Racoon	1	1.27	1.21	
	3	1.73	2.10	
	5	2.18	2.97	
Dog	1	1.20	1.09	1.30
	3	1.53	1.70	2.73
	5	1.84	2.30	4.13

Courtesy: MANIT study supported by World Bank-TA

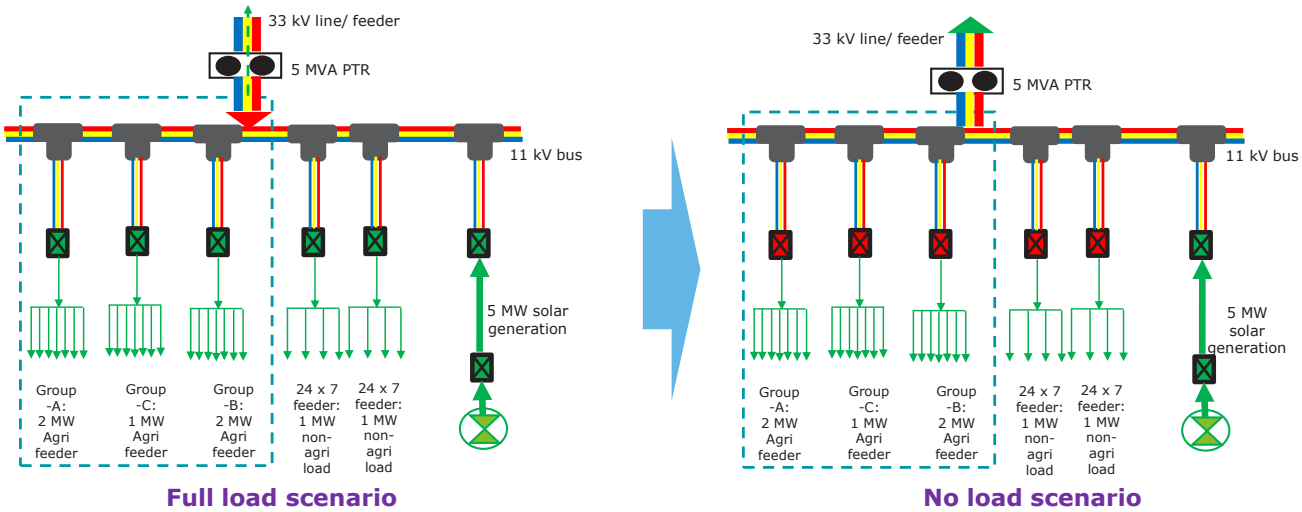
Innovation-2: Enabling concurrent supply without rostering

- Enable supply of the cheapest source of power (solar) concurrently to all farmers.
  - ✓ Presently, about 6000 MW equivalent agricultural consumers can not be supplied power concurrently, because of constraints of transmission & distribution infrastructure.
  - ✓ These are supplied expensive night-time power.
  - ✓ This compromises lifestyle of farmers.



Innovation-3: Project capacity (1/2)

- Maximum project capacity is determined on the basis of PTR capacity



Decision is relevant for rooftop projects all over country

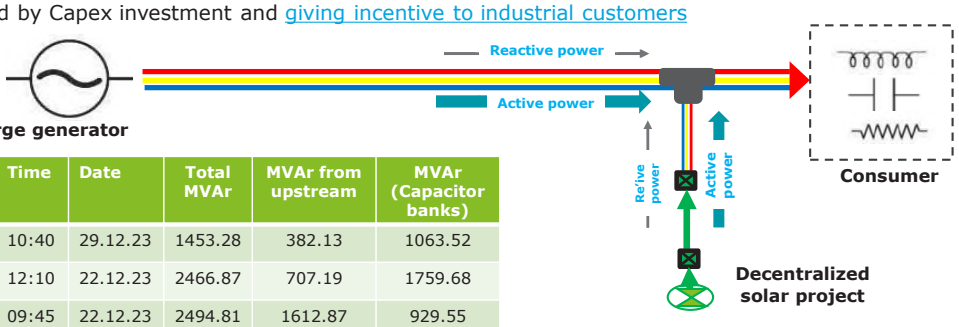
Innovation-3: Project capacity (2/2)

- Originally, solar plant capacity under KUSUM-C limited by **total annual energy** for agricultural consumption in connected feeders
- MP requested vide letter dt 14.10.2024 for '**total annual agricultural consumption**' to be replaced by '**peak agricultural consumption**'.
- Vide OM dated 18 Nov 2024, MNRE has allowed solar plant capacity under KUSUM-C as per peak demand at concerned feeders/ substation
  - ✓ Enables larger projects and helps in optimum benefit from the project

Innovation-4: Reactive power compensation ….(1/5)

'The innovation'- being universally recognized & acknowledged as "catalytic climate solution"…

- Reactive power is on account of inductive loads (e.g. induction motors) all over the State- responsible for voltage drop in system
  - Presently, it is addressed by Capex investment and giving incentive to industrial customers

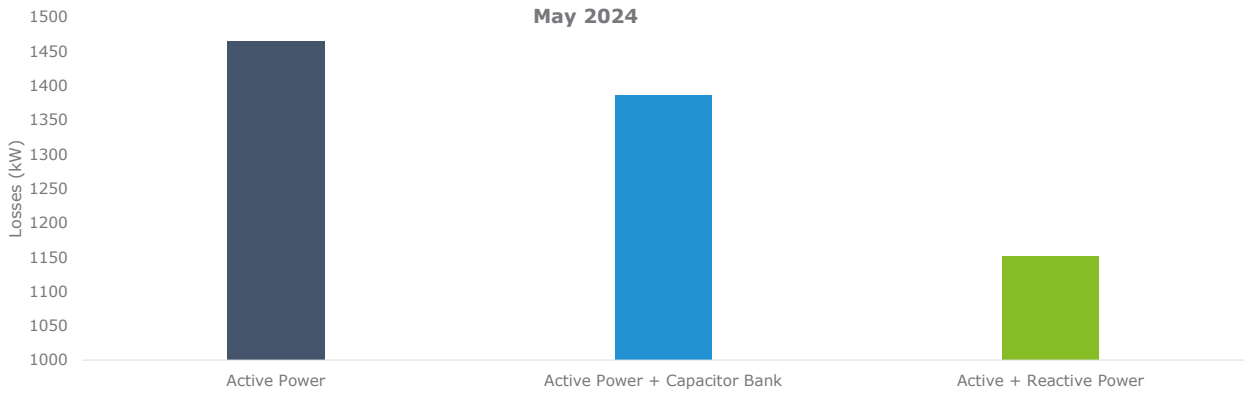


Zone	Max. load during Rabi (MW)	Time	Date	Total MVAr	MVAr from upstream	MVAr (Capacitor banks)
East	4757.66	10:40	29.12.23	1453.28	382.13	1063.52
West	7201.25	12:10	22.12.23	2466.87	707.19	1759.68
Central	5593.06	09:45	22.12.23	2494.81	1612.87	929.55

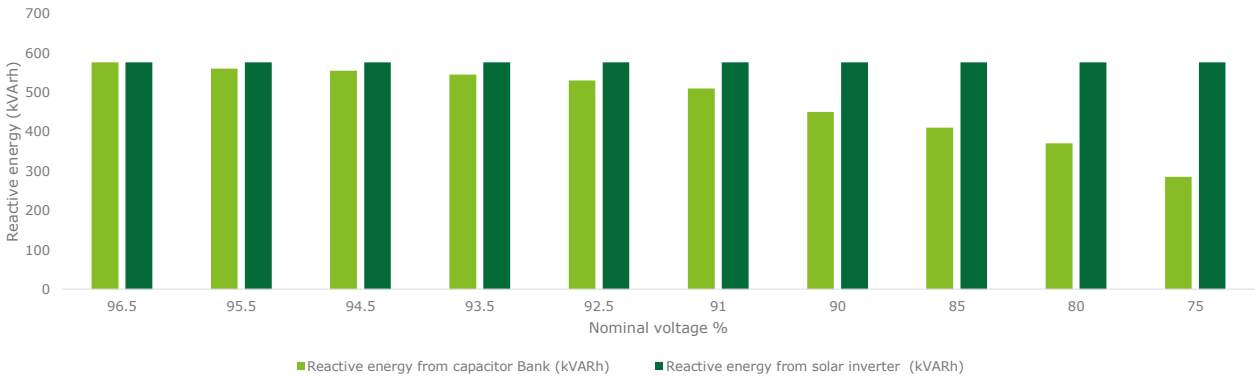
- Solar plants have been traditionally injecting at zero power factor and not providing reactive power compensation.
- WB TA - MANIT Report: Solar plants can provide reactive power, including in night hours, if commercially compensated.
- KUSUM C, being a decentralized generation project, would address decentralized problem of Reactive power

Innovation-4: Reactive power compensation ….(2/5)

- Loss reduction without any CAPEX investment by DISCOMs



Innovation-4: Reactive power compensation ….(3/5)

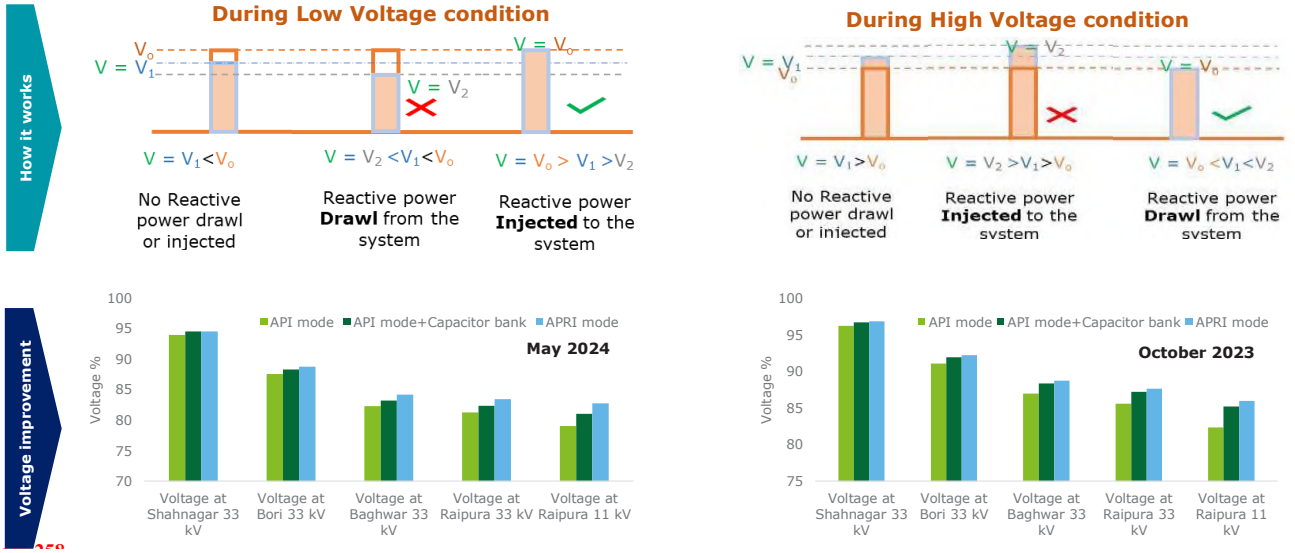


Reactive power output achievable by capacitor bank and solar inverter

- Reactive power management enables dynamic control.
- Better at providing Reactive power than Capacitor Banks, especially at low voltages.

Innovation-4: Reactive power compensation ….(4/5)

- Voltage improvement with reactive power injection is better, out of three conditions: active power (API), active plus reactive power (ARPI) and active power plus capacitor



Innovation-4: Reactive power compensation ….(5/5)

- To enable voltage regulation through reactive power management through decentralized RE projects, proposed:
  - ✓ Payment of paise 5/ kVArh, with escalation of paisa 0.5/ kVArh be made to RE generator to absorb or supply reactive power through grid
  - ✓ Above would be in line with Cl. 1(c) of Annexure-4 of CERC (Indian Electricity Grid Cide) Regulations, 2023
  - ✓ MPERC to be requested to issue order in this matter under Cl. 1(b) of Annexure-K of M.P. Electricity Grid Code (revision-III), 2024.

    - ➢ When Voltage<-3%, compensation at paise 5/ kVArh for reactive power injected and penalty of paise 5/ kVArh for reactive power drawn
    - ➢ When Voltage>+3%, compensation at paise 5/ kVArh for reactive power drawn and penalty of paise 5/ kVArh for reactive power injected
    - ➢ Within band of 3%, no compensation.

Innovation-5: Reactive Power at Night

- Inverter can supply/absorb reactive power during nighttime
- Useful for maintaining grid stability & voltage levels, even when solar panels are inactive
- When grid voltage is low, active power taken from the grid (at zero cost) and reactive power injected
- When grid voltage is high, active power taken from the grid (at zero cost) and reactive power drawn
- The proposed Reactive power compensation sufficient incentive for the RE Generators.

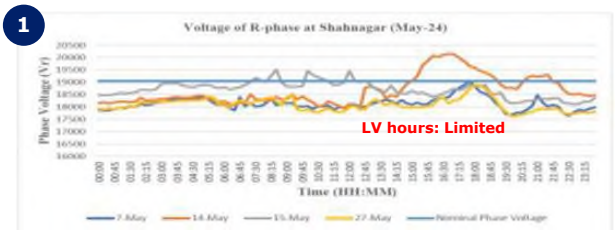
Innovation-4 & 5: Reactive power compensation

- Reactive power management envisages following:
    - ✓ Dynamic control
    - ✓ Utilization of existing infrastructure
    - ✓ Reduction in operational and maintenance costs
    - ✓ Relieves the burden on central reactive power compensators
- USP of the innovations 4&5
    - ✓ Reactive power compensation in place in inter-state and intra-state transmission. Not in distribution space.
    - ✓ WB TA: MANIT Report has pioneered a unique innovation
    - ✓ Not attempted anywhere internationally
    - ✓ Innovation recognized by MPERC
    - ✓ Presented before Forum of Regulators. CERC is examining it.
    - ✓ Kerala Govt + Regulators have requested for advice

Impact-1: Addressing low voltage …… (1/3)

- Especially at tail end
- More so during peak demand period

1



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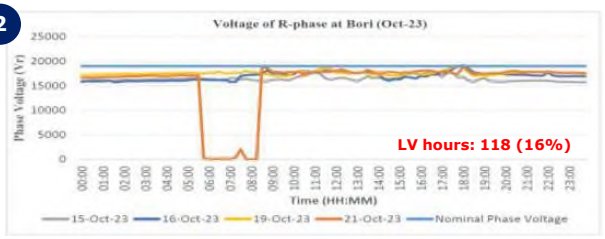

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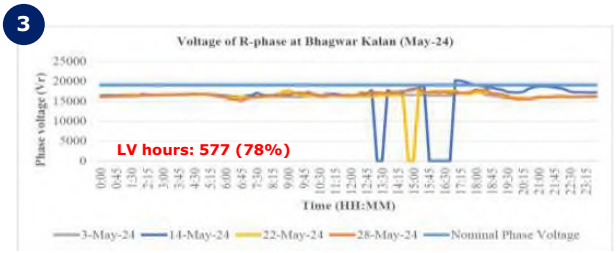

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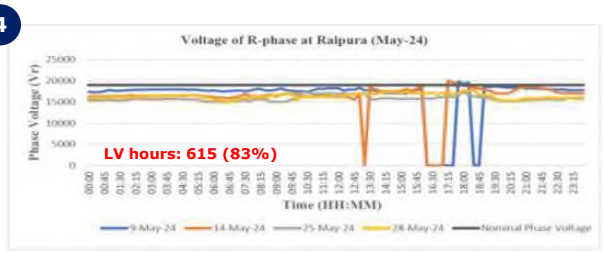
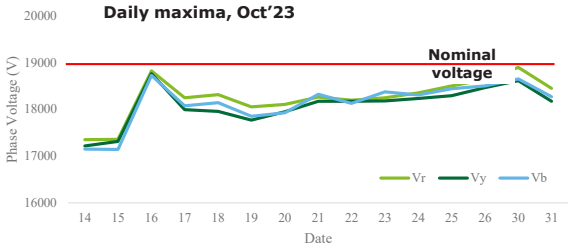
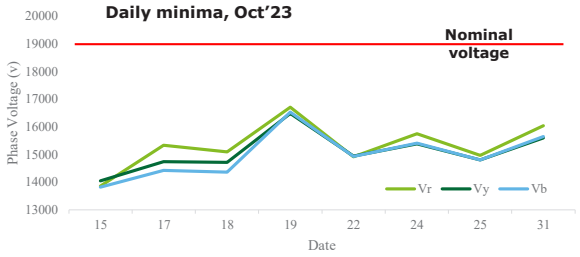


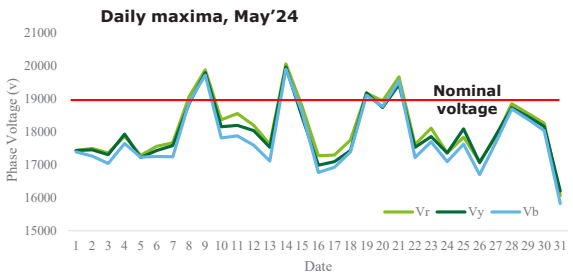
1 **Increasing distance from main substation- undervoltage conditions aggravate** 4

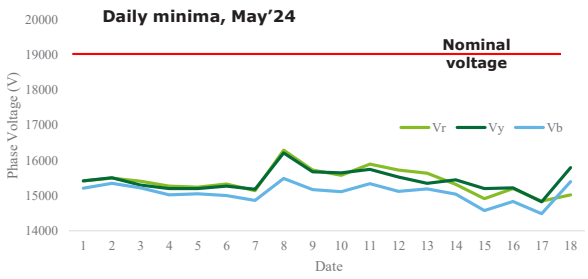
Impact-1: Addressing low voltage …… (2/3)

- Daily maxima and minima voltages









Impact-1: Addressing low voltage…… (3/3)

- Solar plants inject power during generation hours
- Power injection at distribution end prevents voltage drop

October 2023

Base Case	Voltage (%)				
	33 kV bus Shahnagar	33 kV bus Bori	33 kV bus Baghwar Kalan	33 kV bus Raipura	11 kV bus Raipura
	93.81	85.67	78.86	78.04	75.5
Analysis with solar power generator					
Injection point	33 kV bus Shahnagar	33 kV bus Bori	33 kV bus Baghwar Kalan	33 kV bus Raipura	11 kV bus Raipura
11 kV bus Shahnagar	96.25	88.38	81.81	81.03	78.62
11 kV bus Bori	96.84	91.49	85.16	84.41	82.12
11kV bus Baghwar Kalan	97.49	92.73	89.53	88.82	86.67

May 2024

Base Case	Voltage (%)				
	33 kV bus Shahnagar	33 kV bus Bori	33 kV bus Baghwar Kalan	33 kV bus Raipura	11 kV bus Raipura
	94.55	88.37	83.47	82.98	81.39
Analysis with solar power generator					
Injection point	33 kV bus Shahnagar	33 kV bus Bori	33 kV bus Baghwar Kalan	33 kV bus Raipura	11 kV bus Raipura
11 kV bus Shahnagar	96.67	90.71	86.01	85.54	84.02
11 kV bus Bori	96.98	93.33	88.75	88.3	86.83
11kV bus Baghwar Kalan	97.34	94.02	92.24	91.81	90.39

Dynamic control through inverter also addresses high voltage situation

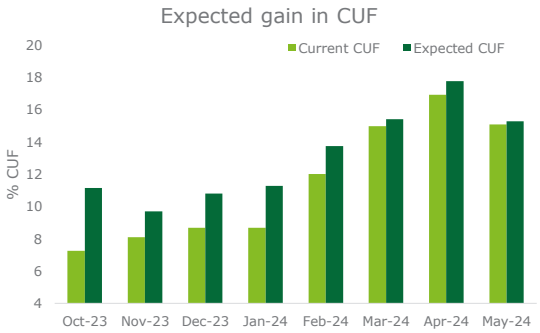
Impact-2: Reduction in Network losses

- Solar plants at tail end also contribute in reduction of network losses
- For a typical 5 MW project evacuating through a 1 km long 11 kV feeder, reduction is losses is as tabulated below:

Location	Month of observation	% Reduction in network feeder losses w.r.t. base case
Bori	May	45.22
	Oct	43.87
Bhagwar Kalan	May	61.60
	Oct	62.94
Shahnagar	May	24.23
	Oct	22.30

Impact-3: Benefits to developer

- Developers also benefit in return.
- Many existing plants are suffering from poor CUF, because of low voltage and shutdown. Better voltage control leads to improved performance of the plant.



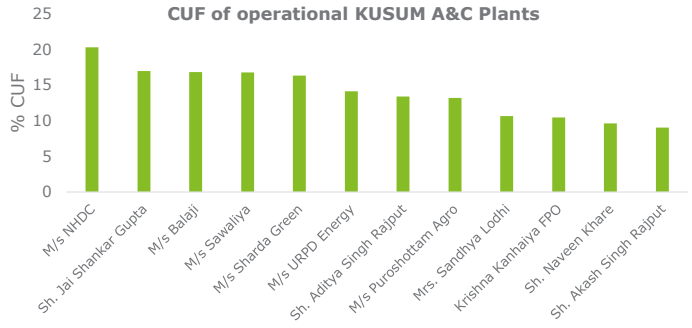
- Monetization from reactive power (and not just active power)

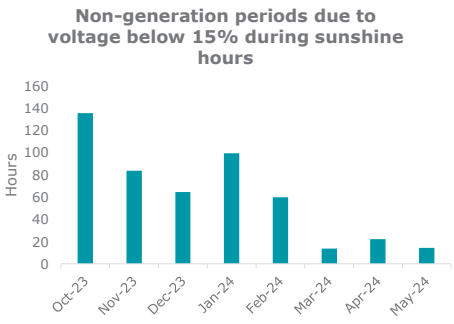
Particulars	Active Power Injection (API) mode	Active + Reactive Power Injection (ARPI) mode	
		VBI	
		Sunshine hour RPM	Continuous RPM
Annual revenue (₹)	3085875	3720554	3857584
Profit %	-	20.56	25.00

Revenue of generator may go up by 20-25%

Challenges: Low CUF

- Caused by sub-optimal maintenance practices of sub-stations
- Due to grid connectivity issues or maintenance deficiencies
- Largely attributable to lack of coordination among protective devices such as relays and circuit breakers
- Inverters trip when voltage dips below 15%





Courtesy: MANIT study supported by World Bank-TA

Collaboration with GIZ

- Indo-German Technical Cooperation Agreement, 2020, followed by Indo-German Technical Cooperation Agreement, 2021.
- Pursuant to above, GIZ & MNRE executed Indo-German Solar Energy Partnership- Innovative Solar in Sept 2021.
- GIZ has acknowledged MP's innovation in voltage management through reactive power compensation.
  - ✓ To ensure its successful implementation, GIZ is willing to extend long term handholding for overall implementation of KUSUM C & A.
    - Looking into challenges in operation of already commissioned projects.
    - Using the learnings from Step 1, the team should examine the substations to verify their appropriateness for injection under the project & also to help make the substations ready.
    - As the projects get implemented, the teams should handhold them to iron out the challenges that might come up in each substation.

Collaboration with CEEW

- The Council on Energy, Environment, and Water (CEEW) has signed a Memorandum of Understanding (MoU) with the New and Renewable Energy Department.
- CEEW, along with IISD and CSTEP, is providing technical assistance to accelerate the solarisation under the PM KUSUM A&C scheme,
- CEEW is providing support through following activities:
  - ✓ Site surveys of solar plants commissioned under the KUSUM scheme to identify technical and managerial challenges
  - ✓ Develop Engagement to monitor progress and understand the operational challenges they face
  - ✓ Analysis of substation selection criteria for KUSUM plants and supplementing MPUVNL's framework
  - ✓ Review of SoP for the KUSUM scheme and recommendations for improvement based on insights from field surveys
  - ✓ Support in Grid Stability Study with Dr. Priyanka Paliwal, Associate Professor, MANIT, Bhopal, to examine the impact of distributed renewable energy (DRE) injection on grid stability, the potential for DRE plants to provide reactive power, and other technical considerations.

Challenges: Land availability

- Availability and visibility over land fit for projects is a challenge
- An MoU executed with **IDinsights,** with following scope involving ground truthing for decentralized solar plant installation
  - ✓ use geo-tagged markers and satellite imagery to identify land parcels close to 33/11 kV substations identified for KUSUM A and KUSUM C programs
  - ✓ Conduct in-person surveys to assess land characteristics, ensuring suitability for decentralized solar plants

MOU signed with SBI for financing

- To facilitate ease of doing business (EoDB) in financing of KUSUM A&C projects, MoU executed between MPUVNL & SBI:
  - Standardized documentation
  - Streamlined and uniform process across branches
  - Standardized contracting documents, including escrow agreement

Bidding process

- L-1 based bids to be invited for all identified substations
- Bidders to have freedom to quote for any number of substations, but allocation subject to Financial capability.
- Selection of substations/developers up to MNRE KUSUM C target:
  - L1 rates for each substation to be mapped
  - Substations to be arranged in ascending order of respective L-1 rates
  - Subject to financial capability of concerned bidder, substations shall be allocated in bucket filling approach to reach the desired cumulative capacity

Path Ahead

- Discom to finalize list of target substations of 33/11 kV
- Collation of geo-coordinates of identified substations by MPSeDC for identification of nearby land.
- MPUVNL/ MPPMCL to file petition before MPERC for determination of reactive power compensation charges
- Discoms to provision/ budget under SSTD for ₹ 5 lakh per substation (₹ 20 crore) towards one-time minor technical alignments/ upgrades to allow optimization of solar power generation and consumption

Decision points in Cabinet Precis on “Surya Mitra Krishi Feeder”

- Given multi-pronged beneficial impact of KUSUM-C projects, these projects would be implemented even without GoI subsidy after sunset of subsidy
- For efficient and timely implementation and management of transactions post implementation, SOP (Standard Operating Procedure) be issued by MPNRED in coordination between Energy Dept.
- Power injection to be preferably at 11 kV side of 33/11 kV substation
- Power injection up to respective PTR capacity
- Projects to be utilized for reactive power management
- Unified administrative approval to be provided for projects selected under the scheme
- To be considered as farmers, bidders should own 50% of land required for such projects near to target substation
- To the extent possible, all agricultural feeders to be provided supply during day hours

The sun does not forget a village just because it is small

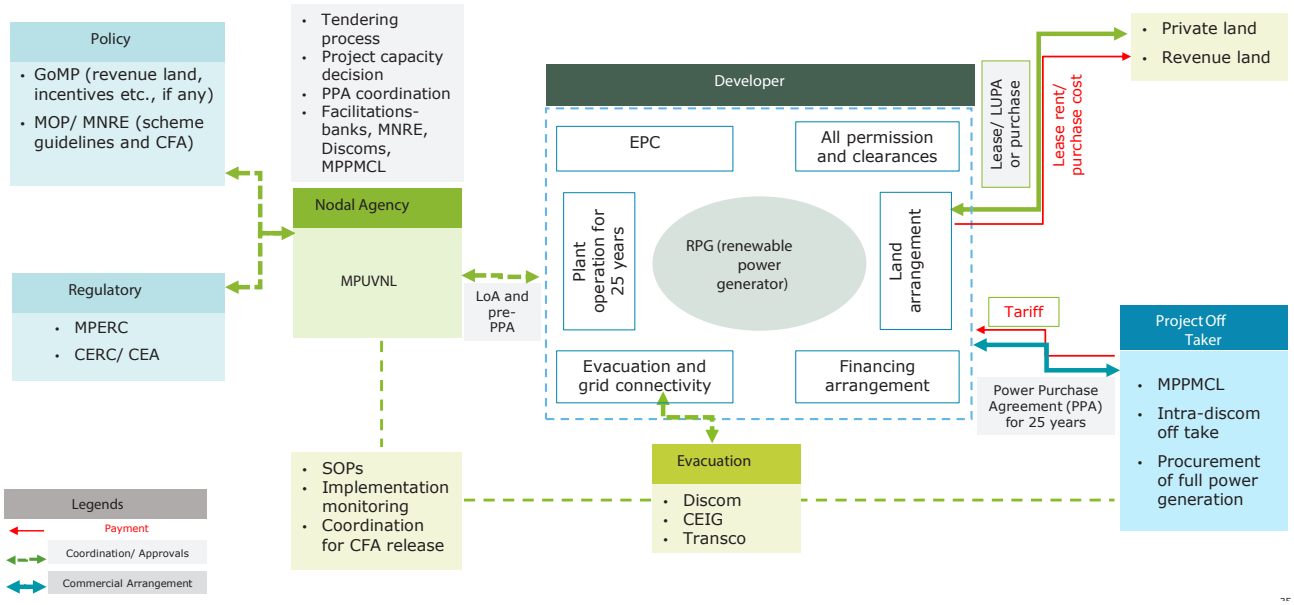
Incentive payable on billed energy charges

BACK

Average monthly power factor percentage	Percentage incentive payable on billed energy charges
86	0.5
87	1.0
88	1.5
89	2.0
90	2.5
91	3.0
92	3.5
93	4.0

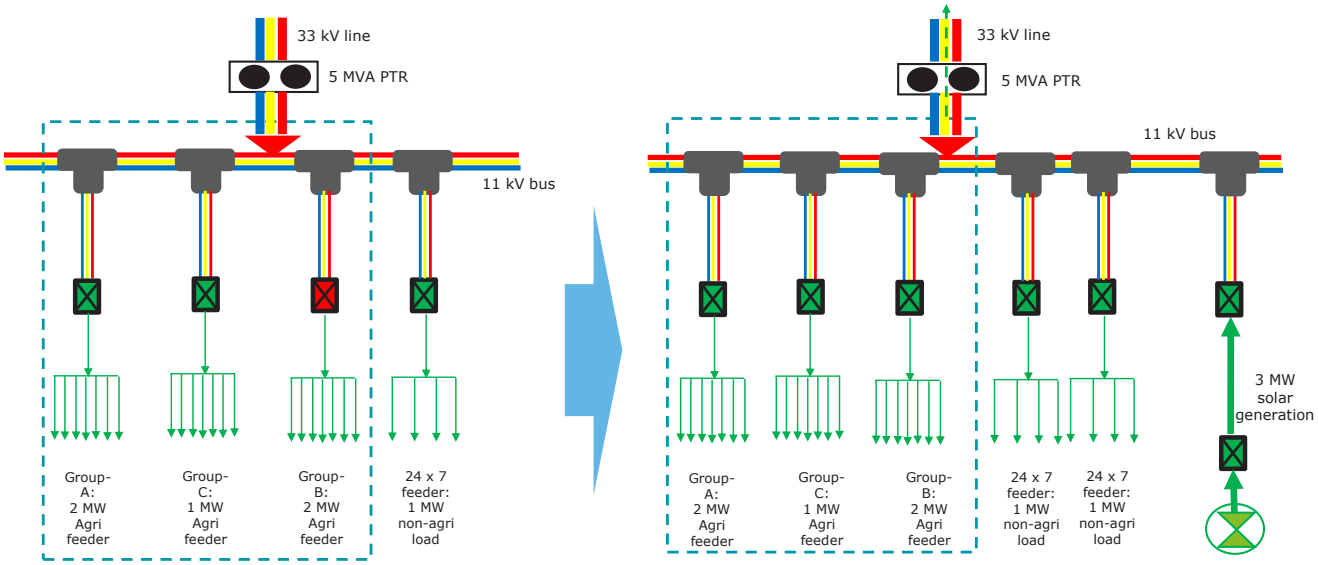
Average monthly power factor percentage	Percentage incentive payable on billed energy charges
94	4.5
95	5.0
96	6.0
97	7.0
98	8.0
99	9.0
100	10.0

Implementation model of KUSUM-C (FLS)

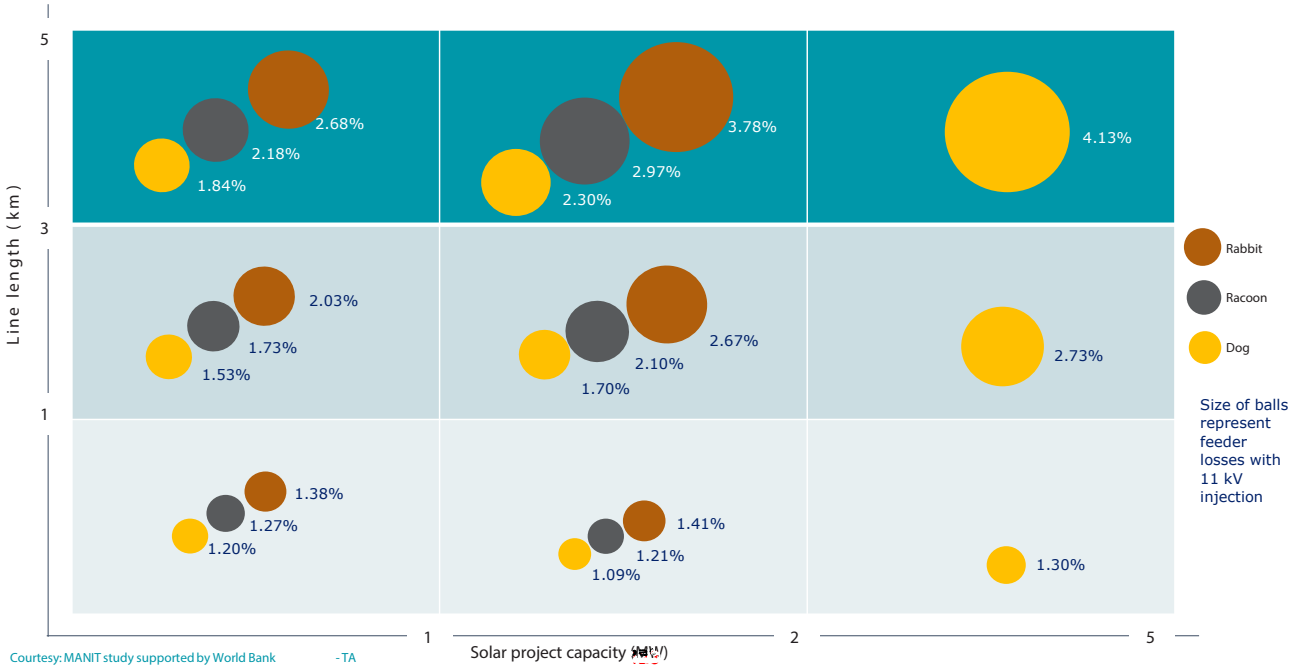


Innovation: Connectivity at appropriate voltage level

Typical representation of day-time substation operations



Ideal location for KUSUM A&C projects



Courtesy: MANIT study supported by World Bank - TA

MINUTES OF THE FIFTH MEETING OF THE WORKING GROUP OF THE FORUM OF REGULATORS (FOR) ON "VIABILITY OF DISCOMS"

Venue : Virtually through MS-Teams
Date/Day : 26th December,2024, Thursday
List of Participants : Appendix-I

At the outset, Chairperson of the Working Group (WG), Chairperson, MPERC welcomed the members to the fifth meeting of the WG on Viability of Discoms. Thereafter, the agenda items were taken up for discussion.

AGENDA ITEM 1: CONFIRMATION OF 4TH WG MEETING ON VIABILITY OF DISCOM HELD ON 25TH NOVEMBER 2024.

1. Chief (RA), CERC apprised the members that based on the discussion held in the 4th Meeting of the WG, draft Report was circulated to members for their inputs.

   After discussion, the WG Confirmed the minutes.

AGENDA ITEM 2: DRAFT REPORT OF FOR WORKING GROUP ON VIABILITY OF DISCOM "ANALYSIS OF FACTORS AFFECTING VIABILITY OF DISCOMS AND ITS RECOMMENDATIONS FOR IMPROVEMENT"

2. The Chairperson of the WG while appreciating the report, sought suggestions and feedback on the Report from the members. Some key issues were deliberated, and a few modifications were suggested during the meeting.

3. The Working Group accorded its approval and endorsed the Report with the following modification:
   a) Timeline for issuance of Order in Para 5.1.5.1 (1)(a) of the draft Report shall be as per Section 64(3) of the Electricity Act, 2003.
   b) Clarity in Para 5.1.5.1 (1)(b) to be provided by annexing reference to the best practices adopted by various SERCs to streamline information exchange.
   c) Para 5.1.7.3 (5) of the draft Report may further explain on Resource Adequacy plans and how to optimise the cost of power.

d) Para 5.1.7.3 (6) of the draft Report may annex the presentation made by Additional Chief Secretary of Power, Government of Madhya Pradesh, for integration of Decentralised Renewable Energy (DRE) projects. Further, suggested to incorporate reference to Energy Storage System (ESS) to support RE integration.

e) Para 7.1.1.2 (1) of the draft Report may also include recommendations on considering any waiver given by the State Government as Subsidy. The discoms shall be paid in advance in case of any such waiver. Further, the recommendation may also include the payment of carrying cost by State Governments (to be computed at the rate of Interest on Working Capital approved by the State Commission from time to time) in case of any deferment of recoveries including delayed subsidies.

4. With above inputs and suggestions, the Working Group adopted the draft Report. Further, it was suggested that the Final Report may be placed before FOR in its next meeting scheduled on 10th January 2025 for consideration and approval.

5. The meeting ended with a Vote of thanks to the Chair.

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Appendix-I

LIST OF PARTICIPANTS OF THE 5th MEETING OF FOR WORKING GROUP ON 'VIABILITY OF DISCOMS'

Date: 26th December, 2024

Sl. No.	Name and Designation	ERC/Organization
1.	Shri S.P.S. Parihar, Chairperson	MPERC - In Chair
2.	Shri Viswajeet Khanna, Chairperson	PSERC
3.	Shri Hemant Verma, Chairperson	CSERC
4.	Shri Devendra Kumar Sharma, Chairperson	HPERC
5.	Smt. Jyoti Prasad, Member	JERC (Goa and UTs)
6.	Shri Hemant Kumar Jain, Member	RERC
7.	Shri H.S. Pruthi, Secretary	CERC
8.	Dr. S.K. Chatterjee, Chief (RA)	CERC
OTHERS		
9.	Smt. Sukanya Mandal, Assistant Chief (RA)	CERC
10.	Shri. Aman Raj, Research Associate	CERC
11.	Ms. Medhavi Sarraf, Research Associate	CERC
12.	Shri Suresh Gehani, Director	ABPS
13.	Shri Sanjiv Singh, SVP	ABPS
14.	Shri Saibal Chowdhry, Manager	ABPS

MINUTES OF 94th MEETING OF FORUM OF REGULATORS (FOR)

Date /Day : **10th January, 2025; Friday**
Venue : **Assam Electricity Regulatory Commission Guwahati, Assam**
Timings : **10.30 am**
List of Participants: Appendix-I

Chairperson of Assam Electricity Regulatory Commission (AERC), in his welcome address to the Forum, provided an overview of the power scenario in Assam, which has 69 lakh electricity consumers, with domestic users being in the majority. He informed that Assam's current installed generation capacity meets only 17% of its peak demand, with the remainder procured through Power Purchase Agreements (PPAs) from central sector generating stations such as NTPC, NHPC, NEEPCO, OTPC, IPP, and also from Bhutan. He added that any shortfall in demand is managed through tenders on the DEEP portal or power markets and that the State has initiated efforts to promote clean, accessible, and affordable energy, aiming to increase renewable energy capacity from 309 MW to 1,200 MW by 2037

2. He highlighted the achievements of AERC, which included the introduction of several new regulations, including Demand-Response, Resource Adequacy Framework, group metering, net metering, virtual net metering for renewable energy, deviation settlement, ancillary services, etc. The power sector in Assam is expanding, aligning with developments in other states. The Chairperson welcomed participants of the 94th Forum of Regulators (FOR) meeting to Guwahati, extending special greetings to Justice Devaraju Nagarjun, Chairperson, TSERC, who was attending his first FOR meeting and wishing everyone a pleasant stay.

3. Chairperson, FOR/CERC, in his address, highlighted Assam's remarkable achievements in the power sector and congratulated AERC and other stakeholders for these accomplishments. He also reminisced about his enriching service tenure in the State and shared insights into the rich culture and history of the State. He added that the agenda items include addressing key challenges in Knowledge Sharing and Capacity Building Programs (CBPs) for Electricity Regulatory Commissions (ERCs), including proposals from IIFT and IIT Roorkee for CBPs, as well as discussions on reports from the FOR

Working Group on Discom viability and the Hydro Working Group. He thanked the former Chairperson of the Madhya Pradesh Electricity Regulatory Commission, Shri S.P.S. Parihar, who superannuated in the recent past, for his contribution to the affairs of FOR and especially for leading the working group on discom viability and congratulated him for coming out with an excellent report on a matter of such importance. He also welcomed Dr. Justice Devaraju Nagarjun, Chairperson of the Telangana State Electricity Regulatory Commission, attending his first FOR meeting. Lastly, he extended gratitude to the Chairperson, AERC and his team for their hospitality and excellent arrangements and requested the FOR Secretariat to take up the agenda items for discussion

AGENDA ITEM 1: CONFIRMATION OF THE MINUTES OF THE 93RD FOR MEETING HELD ON 13TH SEPTEMBER 2024

4. Joint Chief (RA), CERC, apprised the Forum about the action points in the minutes of the 93rd meeting of the FOR held on 13th September 2024 in Indore, Madhya Pradesh. One of the action points was with respect to GST issues and the decision to constitute a Committee to discuss and make recommendations to MOP. As this issue was already discussed with the Hon'ble Minister of Power in a special interaction with the FOR on 18th October 2024, the Forum was of the view that there was no need for the Committee. In this matter, the Forum discussed that as different ERCs have filed cases in various High Courts in the GST matter, the ERCs may await decisions of the Court before taking further action at their end. With this, the Forum confirmed the minutes of the meeting.

AGENDA ITEM 2: FRAMING OF POLICIES FOR KNOWLEDGE -SHARING AND CAPACITY-BUILDING PROGRAMS FOR ERCs.

5. The Forum was apprised of various capacity building programs (CBPs) being conducted in FOR for Chairpersons, Members, and Officers of ERCs which were supported/conducted/coordinated by various institutions viz. IITs/IIMs/IICA and USAID (under the Government to Government cooperation). As such, a need was felt for framing a policy for such CBPs with due regard to the decisions of the FOR in various meetings.

6. After detailed deliberations, the Forum decided on the following Framework for

a) There will be distinct programs for Chairpersons, Members, and other Officials of SERCs, JERCs & CERC.
b) Programs for Chairpersons will be held annually. The reimbursement for air travel (for the international component) would be premium economy class airfare (or business class if the premium economy is unavailable) based on the shortest direct route along with the return ticket.
c) Programs for Members and Officers will be held in alternative years. For international travel, the FOR Secretariat will reimburse economy airfare and the difference in fare between economy fare and their entitlement (as per their ERC policy) will be borne by the respective ERC.
d) FOR Secretariat to determine the ceiling limit of such airfare (being the highest cost of the ticket on the shortest and direct route ex-India) within 10 days from the date of announcing the program.
e) Government Institutions such as IITs/IIMs/IICA and Other institutions under Government-to-Government (GTG) cooperation may be engaged for arranging domain-specific sessions, site visits, and logistical support.
f) Booking Procedures: Air tickets (preferably in fully refundable mode), visas, insurance, etc, are to be arranged by participants either on their own or through their travel agents as per respective ERC policies.
g) Other Logistics: Hotel stay, local travel, and site visit expenses will be reimbursed by the FOR Secretariat to the designated SERC managing the arrangements.
h) Daily Allowance: Per diem, subject to a ceiling of 5 days for foreign travel (excluding travel time and as per Rules of Ministry of External Affairs, Government of India) will be reimbursed on submission of the final claim form after completion of the journey.
i) There will be no financial liability of FOR for costs in cases of extended stays or non-compliance with other travel route guidelines as above.
j) A three-member Committee of FOR will be constituted to coordinate the activities as per the above guidelines before the start of each CBP (which has an international component).

AGENDA ITEM 3: RECORD OF DISCUSSIONS OF MINISTER MEETING WITH FOR

7. The Forum was apprised of the action points of FOR consequent to the interaction of FOR with the Hon'ble Minister of Power on 18th October 2024.

a. Study report on constraints and remedial measures for implementing RCO targets.

8. The Forum was informed that a detailed analysis of a few States, viz. Andhra Pradesh, Assam, Himachal Pradesh, Punjab, Uttar Pradesh, and Gujarat have been completed by the FOR WG on RE related Policies, and a detailed presentation on the analysis and findings will be made in the next meeting of the WG scheduled on 17th January 2025. Thereafter, based on the recommendations of the WG, the report will be presented in the subsequent FOR meeting for necessary approval.

The Forum noted the same.

b. Proposal for a rebate mechanism to incentivize pre-payment meters.

9. The Forum was apprised of a compilation made by the FOR Secretariat on the existing provisions across various States with reference to rebates for pre-paid metering arrangements.

10. After detailed deliberation, the Forum noted the provisions in the regulations with respect to rebates in various States, which were in the range of 2-4 %, while some SERCs were allowing a prompt payment rebate ranging from 0.5 - 2 %. Hence, it was decided that individual SERCs may take a view based on the same.

AGENDA ITEM 4: REFERENCES FROM KSERC

(a) ENABLING ACCESS TO THE SCHEDULING DATA IN RLDC WEBSITES FOR STATE ELECTRICITY REGULATORY COMMISSIONS.

11. The Forum was apprised of the reference from KSERC seeking access to scheduling data from Regional Load Despatch Centres (RLDCs), which is currently restricted only to members, thus reducing public transparency in energy market information, trading volumes, and grid operations. Based on provisions of the Grid Code issued by CERC, Grid India introduced the New Web-Based Energy Scheduling Software (New WBES) on August 5, 2024, requiring mandatory user registration for detailed market and grid operation data access.

12. After detailed deliberations with respect to the need of the SERCs seeking access to such data, Chairperson, CERC, informed the Forum that the Commission will facilitate providing SERCs with access to domain reports as registered users.

(b) UTILIZATION OF FUNDING FROM PSDF/ NCEF FOR REDUCING THE TRANSMISSION CHARGES OF RAIGARH- PUGALUR- THRISSUR HVDC TRANSMISSION SYSTEM.

13. Joint Chief (RA), CERC apprised the Forum regarding another reference from KSERC wherein the issue of significant increase in Inter-State Transmission System (ISTS) charges due to changes in the regulatory framework under the CERC (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2020, and its amendments were brought to notice and requesting CERC / MOP to issue directions to PGCIL to avail maximum grant from PSDF/NCEF so as to reduce the burden of high capital cost of Rs 22000/- Crores for the said transmission system.

14. In this matter, the FOR Secretariat informed the Forum about the response received from PGCIL, stating that they have been vigorously pursuing with the Ministry of Power for the funds from PSDF so as to reduce the capital cost of the said line. The Forum noted the same and suggested that CERC may once again write to PGCIL to follow up with MOP for funds. Similar funding should be available for all projects of national importance.

AGENDA ITEM 5:

(a) DRAFT MOU BETWEEN IIT-ROORKEE AND FORUM OF REGULATORS

15. The members were informed that that the Indian Institute of Technology, Roorkee (IITR) wished to engage with the FOR to set up a "Centre of Excellence for Regulatory Affairs"

within the premises of IITR at their Greater Noida and Roorkee campuses.

16. The draft MoU was reviewed clause wise and after deliberations, the FOR approved in principle the said proposal and decided as under:

a) The draft MoU will be circulated to all ERCs for their input within 7 days, after which the MOU may be signed after seeking approval from the FOR Chairperson.

b) One-time payment towards the corpus of Rs 5 Crores as per draft MOU to be made to IIT-R, for which all members of the FOR are to make contributions with differential share for SERCs of North East and Sikkim. The differential contribution/share of ERCs will be finalized after seeking approval from the Chairperson, FOR/CERC.

(b) MOU/ENGAGEMENT WITH THE INDIAN INSTITUTE OF FOREIGN TRADE (IIFT) FOR CAPACITY BUILDING PROGRAMS.

17. The Forum was briefed on a proposal to have an MoU with IIFT to conduct various activities and workshops for the Forum. IIFT is an autonomous body under the Ministry of Commerce & Industry recognized as a Grade 'A' institution in 2005 and 2015, and has campuses in Delhi, Kolkata, Kakinada, and Gandhinagar. IIFT offers programs relating to the Electricity Sector in India with respect to Policy and Regulation carbon neutrality and issues; Renewable energy and regulatory framework, etc. Additionally, it also conducts field trips in both India and abroad as part of its programs to enhance experiential learning.

18. The Forum deliberated on the need for institutions to offer various types of CBPs and studies and approved the proposal to have an MOU with IIFT for need-based training programs and studies. IIFT will submit financial proposals on a case-to-case basis, which will be finalized with the approval of the Chairperson, FOR/CERC. The FOR Secretariat was directed to take further steps in this matter.

AGENDA ITEM 6: REPORT OF FOR WORKING GROUP ON "VIABILITY OF DISCOM."

19. Joint Chief (RA), CERC apprised the Forum of its decision taken in the 88th meeting

held on 13th October 2023 for constituting a Working Group on the "Viability of Discom" under the Chairmanship of the Chairperson of MPERC. The Working Group conducted five meetings and held comprehensive discussions on issues pertaining to the DISCOM viability in the country. The final Report was approved by the Working Group at its 5th Meeting held on 26th December 2024.

20. A presentation on the report **(Annexure I)** was made by the consultant assisting the WG. The Forum appreciated the efforts of the WG and noted the distinctive recommendations, especially on the O&M/manpower benchmarking, performance-linked incentives for employees, technological interventions, and administrative measures for efficiency improvement. After a detailed presentation, the Forum recommended that separate norms be explored for hilly States and NE States and to increase the threshold KPI to 80% to qualify for incentives. With this, the Forum adopted the report of the Working Group and suggested that the recommendations be forwarded to MoP and SERCs for suitable action.

21. As Chair of the WG, Shri S P S Parihar, Chairperson, MPERC, had demitted office, the Forum recommended co-opting Shri Kumar Sanjay Krishna, Chairperson of Assam ERC, as Chair of this WG so as to continue to deliberate and make recommendations on other issues assigned to this WG.

AGENDA ITEM 7: FOR - WORKING GROUP ON "EXPLORE MEASURES FOR ENCOURAGING HYDROPOWER DEVELOPMENT AND SUGGEST WAYS AND MEANS TO ACCELERATE HARNESSING HYDRO POTENTIAL (INCLUDING PUMPED STORAGE) IN THE COUNTRY."- UPDATE

22. The Forum was apprised of the constitution of the FOR WG on Hydro power development and its activities. The WG has conducted six meetings till date, and an update on the activities of the Working Group was presented **(Annexure II)** by the consultant assisting the Working Group.

23. After detailed deliberations, the Forum decided that the report be circulated to the members of the Forum for comments, and be taken up for consideration in a Special FOR meeting.

CONCLUSION

24. At the conclusion of the meeting, the Chairman, West Bengal ERC offered to host the next meeting of the Forum in April 2025 in Darjeeling.

25. Thereafter, the Secretary, FOR/CERC thanked the Forum members for their active participation in the discussion and decision on important agenda items regarding Viability of Discom report, guidelines for capacity building in FOR, engagements with leading educational institutions with FOR for capacity building etc. He also thanked Chairman, FOR/CERC, for his guidance and support in the meeting. He thanked Chairman of Assam ERC and his entire team for their hospitality and arrangements for the stay in Assam and for conducting the meeting in the elegant office of AERC. Lastly, he thanked the FOR Secretariat for their efforts in coordinating and conducting the meeting.

26. The meeting ended with a vote of thanks to the Chair.

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APPENDIX – I

LIST OF PARTICIPANTS OF 94th MEETING OF FORUM OF REGULATORS (FOR) HELD ON 10th JANUARY 2025. ASSAM

S. No.	NAME	ERC
01.	Shri Jishnu Barua Chairperson	CERC/FOR – in Chair.
02.	Shri R K Joshi Chairperson	APSERC
03.	Shri Kumar Sanjay Krishna Chairperson	AERC
04.	Shri Amir Subhani Chairperson	BERC
05	Shri Hemant Verma Chairperson	CSERC
06.	Justice (Shri) Jayant Nath Chairperson	DERC
07.	Shri Anil Mukim Chairperson	GERC
08.	Shri Nand Lal Sharma Chairperson	HERC
09.	Shri D.K. Sharma Chairperson	HPERC
10.	Shri Rafi Andrabi Chairperson	JERC for UTs of J&K and Ladakh
11.	Shri P. Ravi Kumar Chairperson	KERC
12.	Shri Sanjay Kumar Chairperson	MERC
13.	Shri Rengthanvela Thanga Chairperson	MnERC
14.	Shri Chandan Kumar Mondal Chairperson	MSERC
15.	Shri Benjamin L. Tlumtea Chairperson	MzERC
16.	Shri Khose Sale Chairperson	NERC
17.	Shri Viswajeet Khanna Chairperson	PSERC
18.	Shri K.B. Kunwar Chairperson	SSERC

19.	Dr. Justice Devaraju Nagarjun Chairperson	TSERC
20	Shri Madan Lal Prasad Chairperson	UERC
21.	Dr. M.V. Rao Chairperson	WBERC
22.	Shri Gajendra Mohapatra Chairperson In-charge	OERC
23.	Ms. Jyoti Prasad Member	JERC for State of Goa & UTs
24.	Shri A.J.Wilson Member	KSERC
25.	Shri Prashant Kumar Chaturvedi Member	MPERC
26.	Shri Hemant Kumar Jain Member	RERC
27.	Shri K. Venkatesan Member	TNERC
28.	Dr. Sanjay Kumar Singh Member	UPERC
29.	Shri Harpreet Singh Pruthi Secretary	FOR/CERC
30.	Dr. Sushanta Kumar Chatterjee Chief (Regulatory Affairs)	CERC
	SPECIAL INVITEES	
31.	Shri Ramesh Babu V Member (Technical)	CERC
32.	Shri Harish Dudani Member (Law)	CERC
33.	Shri Alokeswar Bhattacharyya Member (Law)	AERC
34.	Shri Ashok Kumar Barman Secretary	AERC
	FOR SECRETARIAT	
35.	Ms. Rashmi Somasekharan Nair Joint. Chief (RA)	CERC
	OTHERS / GUESTS	
36.	Shri Sanjiv Kumar Singh Sr. V.P.	ABPS
37.	Shri Akhil Katiyar Regulatory Specialist	USAID/SAREP

Annexure-I

Presentation to Forum of Regulators

FOR Working Group report on
Viability of DISCOM

January 10, 2025
Guwahati

In this Presentation

- Background
- Work & Activity Plan
- Approach and Methodology
- Case Studies
- Factors influencing DISCOM Sustainability
- Analysis and Benchmarking of Employee and Administrative Cost Structure
- Recommendations and Way Forward

Background

The Forum of Regulators, in its 88th meeting held on 13th October 2023, deliberated extensively on the issue of the long-term sustainability of DISCOMs and subsequently constituted a Working Group to study their viability

Terms of Reference for the Working Group is as follows :

"
- *Identify and analyse the factors impacting the sustainability of DISCOMs.*
- *Examine the existing measures and suggest strategies for minimizing operational losses and enhancing efficiency.*
- *Analyze employee cost structures and make recommendations for optimization of employee cost.*
- *Suggest guidelines to reduce O&M and A &G costs of DISCOMs.*
- *Any other matter related and incidental to the above."*

The First Meeting of the FOR Working Group was held on 21st June, 2024 where following five paraments affecting DISCOMs sustainability were discussed.

ACS-ARR gap,

AT&C losses,

Regulatory Assets,

O&M cost,

Cross Subsidies

Timely Issuance of tariff orders and pass through of increased cost of procurement of power.

Work Plan

Based on discussion held during the first meeting, the following analysis was decided to be carried out :

1) *Each cost parameter of the ACS-ARR needs to be analysed. FOR Secretariat to study a few progressive discoms like Torrent, Tata, MSEDCL to understand their best practices.*
2) *The WG can explore fixing norms for each parameter and also arrive at benchmark principles. To this effect, a template is to be prepared and data to be collected from all SERCs.*
3) *Some Public owned and Private owned Discoms from Gujarat, Maharashtra, M.P. (Indore), U.P. (Agra) and Karnataka (who have made good progress in decreasing their AT&C losses) may be asked to present their success stories before the Working Group.*
4) *The O & M should be benchmarked either on number of consumers served or per MW basis. In this regard, data to be sought from discoms(public& private).*
5) *Obtain data from discoms (public & private) and analyse the methodology of determination of cross-subsidy surcharge and its impact on the viability of discoms.*
6) *The use of IT tools for data collection and analysis for tariff orders may be explored.*
7) *As viability of Discoms is critical to overall performance of power sector, therefore it may be useful to invite comments from other WGS of FOR as well to ensure wider consultation on the subject.*

Activity Plan

Several DISCOMs, including GUVNL, DGVCL, Tata Power-Odisha, TPDDL, MP West DISCOM, and Torrent Power Limited, were invited to share their success stories, with additional inputs provided by CESC, Rajasthan, and State Electricity Regulatory Commissions (SERCs).

During the fourth meeting, MP Central DISCOM highlighted key issues faced by Madhya Pradesh's distribution utilities, shared learnings, and suggested focus areas for the Working Group's consideration.

Followed by a detailed presentation by the consultant assisting the Working Group on the inputs received from DISCOMs and SERCs and the activities carried out against the Terms of Reference.

Further, Some suggestions were made by the members of the Working group, and it was decided an Interim Report be prepared based on the consultant's presentations and suggestions of WG, and the draft Report be circulated for consideration of the Working Group.

In the fifth and final meeting, the Working Group's Chairperson and members discussed the Draft Interim Report and endorsed the report with some modification. The WG also decided to place the Report before FOR for its consideration and approval.

Approach and Methodology

The Working Group adopted a structured and data-driven approach to carry out the tasks specified under the TOR. The approach and methodology included:

Case Studies of Successful DISCOMs: Presentations were made by progressive DISCOMs, showcasing their **major accomplishments** and the underlying factors that **contributed** to the significant improvements in **operational and financial performance**. The Presentation also highlighted best practices followed that **have been proven** to be useful to **overcome operational and financial challenges**.

Inputs and Suggestions from SERCs: Feedback from **various SERCs** was analysed to understand the **regulatory challenges** faced by DISCOMs such as **tariff structures**, **cross-subsidy management**, and other issues which are critical to ensuring a **sustainable power distribution system**.

Identification of Key Sustainability Factors: Comprehensive analysis was undertaken to **identify the critical factors influencing the long-term sustainability of DISCOMs** such as financial health, operational efficiency, and effective management of cost structures.

Study of O&M and Employee Costs: Detailed examination of the **O&M costs**, **particularly Employee-related expenses and Administration & General (A&G) expenses** was carried out including benchmarking of these costs.

Deliberation and Recommendations: **Targeted recommendations** was put forward to address the **core challenges** faced by the DISCOMs.

Case Studies Learning from DISCOMs……1/5

DISCOM	Achievements	Key Strategies/Initiatives
Gujarat Urja Vikas Nigam Ltd. (GUVNL)	▪ AT&C Losses, in the past decade, consistently below national average. AT&C losses in FY 2022-23 at 10.24%. ▪ Monthly cash collections doubled, growing from **Rs.3,257 Crore in 2016-17** to **Rs. 7,128 Crore in FY 2023-24.** ▪ Achieved consolidated **ACoS-ARR surplus**. ▪ Made significant investments in metering and grid modernization under the **RDSS**. ▪ **Skilled Manpower.** ▪ Improved system efficiency and financial stability with Rs.1 lakh Crore invested in transmission and Rs.10,602 Crore allocated for smart metering. ▪ Enabled uninterrupted power supply and reduced operational inefficiencies through innovative reforms.	▪ **Jyoti Gram Yojana (JGY): Segregated 11 kV feeders for uninterrupted non-agricultural power** and reliable agricultural supply. ▪ **Suryashakti Kisan Yojana (SKY):** Enabled farmers to **install solar systems**, ensuring consistent supply and income from surplus power. **Reduced subsidised LT consumption.** ▪ Establishment of **dedicated police stations, special courts and carry out proactive inspection, disconnection drives.** ▪ **Centralized Financial Management: Streamlined** billing processes and **optimized credit utilization**. ▪ Upskilled workforce through the **Gujarat Energy Training and Research Institute (GETRI)**. ▪ Leadership Development Program – PAHAL Initiative ▪ **Infrastructure Modernization:** Advanced Distribution Management Systems **(ADMS),** High Voltage Distribution Systems **(HVDS)**, and large-scale smart metering initiatives. ▪ **Consumer Engagement:** Digital platforms for online payments, complaints, and a paperless **Centralized Processing Centre (CPC)** for seamless service delivery.

Case Studies Learning from DISCOMs……2/5

DISCOM	Achievements	Key Strategies/Initiatives
Tata Power Delhi Distribution Ltd. (TPDDL)	▪ AT&C losses dropped significantly from **53.1% in FY 2002-03 to 5.9% in FY 2023-24**. ▪ Improved system reliability with ASAI reaching 99.9% in FY 20224 as against 70% in 2002 and transformer failure rates falling to 0.68% in FY 2024 from 11% in FY 2002. ▪ Revenue collection improved to 100%, complemented by high consumer satisfaction levels (97%). ▪ Successfully **installed 4.33 million smart meters**, promoting accurate billing and operational transparency. ▪ **Reliability Enhancements:** Expanded the network from **6,750 km (2002) to 14,108 km (2024**), increasing peak load capacity to **2,218 MW (2024) from 930 MW (2002)**. ▪ **Customer-Centric Innovations:** Reduced connection energization time from **51.8 days (2002) to 5.57 days (2024)**.	▪ **Reduction of AT&C Losses:** Regular **Energy Audits and DTR level**, **Automated Meter Reading** (AMR) systems for high revenue consumers. ▪ Adoption of **High Voltage Distribution Systems** (HVDS) and **LT ABC** in theft prone areas. ▪ Infrastructure Upgradation to **reduce transformer loading.** ▪ **System Modernization: Integrated SCADA and GIS technologies** to enhance service reliability. ▪ IT initiative such as **SAP/ERP** systems. ▪ Real time **Outage Management system.** ▪ **Community Engagement:** Tailored **outreach programs** to foster trust and compliance in underserved areas. ▪ Alignment of **CSR** with business goals.

Case Studies Learning from DISCOMs……3/5

DISCOM	Achievements	Key Strategies/Initiatives
Tata Power – Odisha DISCOMs	▪ Reduced **AT&C losses** from **30%-40%** in FY 2017-18 to **9%-16%** in FY 2024-25 across all four discoms. ▪ Enhanced financial performance with revenue increasing from **Rs. 9,869 Crore in FY 2018-19** to **Rs.18,999 Crore in FY 2024-25**. ▪ Transitioned PAT from a **deficit of Rs.1,562 Crore** in FY 2018-19 to a projected **profit of Rs. 540 Crore in FY 2024-25**. ▪ O&M Cost: Reduction in operational cost from Rs.1.66.kWh in FY 2018-19 to Rs.1.47/kWh in FY 2024-25. ▪ From cash deficit of Rs.1,562 Crore in FY 2018-19 to an estimated surplus of Rs.718 Crore in FY 2024-25. ▪ Reduction in ACS-ARR gap from 81 paise in FY 2018-19 to 23 paise in FY 2023-24.	▪ **Infrastructure Upgrades:** Invested Rs.5,600 Crore to modernize the distribution network with SCADA, Ring Main Units (RMUs), and smart meters. ▪ **Meter:** Replacement of defective meters with smart meters, ensuring transparency and accurate energy accounting. ▪ **GIS mapping, ADMS** ▪ **Employee Motivation – Promotions, group health Insurance.** ▪ **Societal Engagements – Mission Cheetah** ▪ **Consumer-Centric Services:** Introduced 24/7 call centers, digital payment solutions, and SMS-based outage communication.

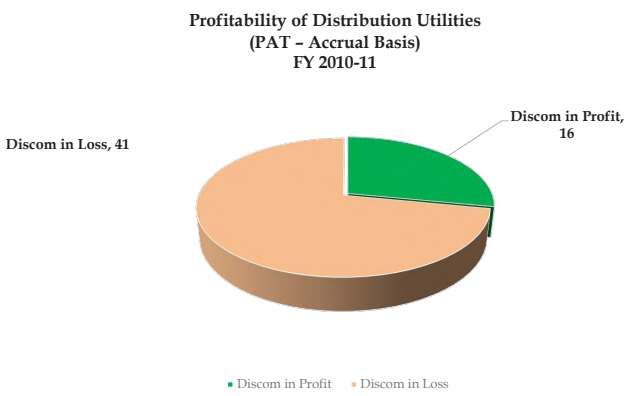
Case Studies Learning from DISCOMs……4/5

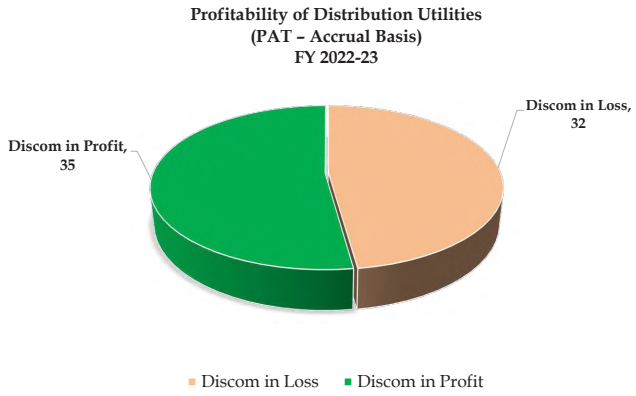
DISCOM	Achievements	Key Strategies/Initiatives
MP Paschim DISCOM (MPPKVVCL)	▪ Reduced **AT&C losses** from **25.26%** in FY 2015-16 to **10.88%** in FY 2023-24. ▪ **ACS-ARR gap** narrowed to a **Rs.0.33/kWh surplus** in FY 2023-24 from a **deficit of Rs.1.47/kWh** in FY 2020-21. ▪ **Smart meter deployment** identified discrepancies, **resulting in Rs.21.96 Crore of additional billing** and **Rs.308.63 Crore of arrear recovery**. ▪ **Feeder separation** led to **lower power purchase costs** and **optimized energy demand management**.	▪ **Loss Reduction Initiatives:** Deployed **smart meters** to improve billing accuracy and identify losses. ▪ **Feeder Separation:** **Dedicated agricultural** and **non-agricultural feeders** to optimize energy usage. ▪ **Revenue Strategies:** Streamlined **arrear recovery** with **targeted campaigns**. ▪ **New Vigilance information Systems :** Introduced NVIS to enhance the **vigilance and enforcement operations**, improve overall efficiency in electricity distribution and also **curb power theft and enhance monitoring**.
CESC Rajasthan (DFs)	▪ From FY 2016-17 to FY 2023-24, **AT&C losses significantly dropped** from **29.71% to 14.25%** in Kota, **27.43% to 10.16%** in Bharatpur, and **24.43% to 12.49%** in Bikaner, highlighting substantial improvements in efficiency. ▪ Enhanced **collection efficiencies to >99%** across Kota, Bharatpur, and Bikaner. ▪ **Strengthened consumer trust** through **efficient grievance redressal, real-time updates**, and **simplified billing mechanisms**.	▪ **Loss Reduction Strategies:** **IT-based loss monitoring, targeted metering, and energy audits**. ▪ **Customer-Focused Initiatives:** Launched mobile apps, **SMS-based billing**, and a **24/7 call center** for improved service. ▪ **Revenue Enhancement:** Implemented structured **follow-ups** and **arrear categorization** to improve collections. ▪ **Technological Advances:** Installed **DT-level energy audits** and **smart metering**.

Case Studies Learning from DISCOMs……5/5

DISCOM	Achievements	Key Strategies/Initiatives
TPL-Bhiwandi	▪ Reduced **AT&C losses** from **64.9%** in 2007 to **9.27%** in FY 2023-24. ▪ Achieved **100.41% collection efficiency**. ▪ **Improved power availability** from **75% to 99%**. ▪ Reduced **HT SAIFI** from **383.3** in 2007 to **33.93** in FY 2023-24 and **HT SAIDI** from **201.6 hours to 33.32 hours**. ▪ **Reduced transformer failure rate** from **40% to 0.74%**, ensuring higher service reliability.	▪ **AT&C Loss Reduction:** **Modernized theft-prone infrastructure** by replacing **overhead lines** with **underground** systems. ▪ **Metering Improvements:** **Legalized 1.25 Lakh unauthorized connections** through Ujjwal Bhiwandi Abhiyan (UBA). ▪ **Operational Enhancements:** Introduced digital tools like **Field Force Applications** and **Mobile Energy Bill Collection Vans**. ▪ **Technology Adoption:** Deployed **SCADA, RMUs, IoT**-enabled transformer monitoring units, and **Fault Passage Indicators** (FPI).
Torrent Power (Ahmedabad)	▪ **Improved SAIDI from 43.21 hours** in 1998 to **0.26 hours** in 2024. ▪ Reduced **AT&C losses** to **4.18%**, achieving **100% collection efficiency**. ▪ Expanded consumer base from 9.79 Lakh in 1998 to 20.99 Lakh in 2024). ▪ **Elevated customer satisfaction** with **seamless digital platforms** and **efficient service delivery**.	▪ **Reliability & Efficiency:** **Transitioned** from **overhead to underground networks**, **implemented AMR** for **high-value consumers**, and **adopted proactive fault detection** technologies. ▪ **Customer Services:** Enhanced **digital engagement** through **mobile apps** and **portals**. ▪ **Revenue Management:** **Strengthened metering**, **billing**, and **collection systems** to **combat energy theft**.

Distribution Utilities Profitability Analysis – FY 2022-23





Source: PFC Report on Performance of Power Utilities

Factors Influencing DISCOM Sustainability

- Based on the detailed presentations provided by the distribution utilities, inputs received from SERCs, WG identified following factors that directly affect the commercial viability and sustainability of DISCOMs.

  1) **AT&C losses**
  2) **Cross-subsidies**
  3) **O&M costs**
  4) **Human resource optimization and workforce management**
  5) **Timely issuance of tariff orders**
  6) **Regulatory assets**
  7) **ACS-ARR gap**

- Understanding of the above issues is vital for policymakers and stakeholders to devise targeted reforms.

- The above factors are co-related and therefore it is imperative that the relation between them is understood and to improve upon, a 360 degree approach is required.

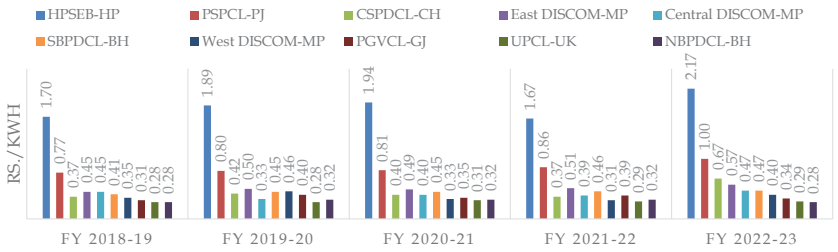
Correlation Between Performance Metrics: ACS-ARR Gap, AT&C Losses, Billing Efficiency, and Collection Efficiency

State	ACS-ARR Gap (Rs/kWh)		AT&C (%)		Billing Efficiency (%)		Collection Efficiency (%)	
	FY 2021-22	FY 2022-23	FY 2021-22	FY 2022-23	FY 2021-22	FY 2022-23	FY 2021-22	FY 2022-23
HPSEBL	0.09	0.8	12.9	10.59	87.25	89.41	99.82	100
JBVNL	1.61	2.47	30.85	30.28	72.51	69.72	95.37	100
MSEDCL	0.02	1.42	16.73	19.07	84.77	84.94	98.23	95.28
MePDCL	0.09	1.41	25.52	23.97	78.94	87.97	94.35	86.43
TANGEDCO	1.01	0.96	11.44	10.31	89.49	90.83	98.95	98.75
TSNPDCL	1.52	1.19	14.11	22.19	91.19	92.83	94.19	83.82
TSSPDCL	1.4.0	1.08	9.14	17.2	90.86	91.5	100	90.49
TSECL	0.53	1.00	31.17	28.15	75.26	75.3	91.46	95.41
DVVNL	1.63	2.08	31.04	24.04	74.36	78.41	92.74	96.87
MVVNL	2.51	2.39	35.63	24.22	82.64	84.94	77.89	89.22
PuVVNL	1.79	2.92	40.02	27.27	79.85	82.6	75.12	88.06
Andaman & Nicobar PD	2.83	0.51	19.8	19.81	80.74	81.86	99.33	97.96
Ladakh PD	0.39	1.99	48.29	30.33	59.48	69.67	86.94	100
BEST	1.60	2.06	7.89	4.18	95.37	95.82	96.59	100
Mizoram PD	1.32	2.07	36.23	26.27	70.55	73.73	90.39	100
TPSODL	0.38	0.74	34.26	31.32	76.64	75.04	85.77	91.53
IPCL	0.34	0.8	4.02	6.56	96.9	96.99	99.04	96.34

Source: RPM Meeting of MoP 18th and 19th Jan 2024

- There is a correlation between a large ACoS-ARR gap and low billing efficiency.
- It is observed that where there is significant ACoS-ARR gap, the billing efficiency is very poor establishing an inverse co-relation.
- Therefore, improving billing efficiency plays a central role in reducing AT&C losses.

Analysis of Employee Expenses to Sales

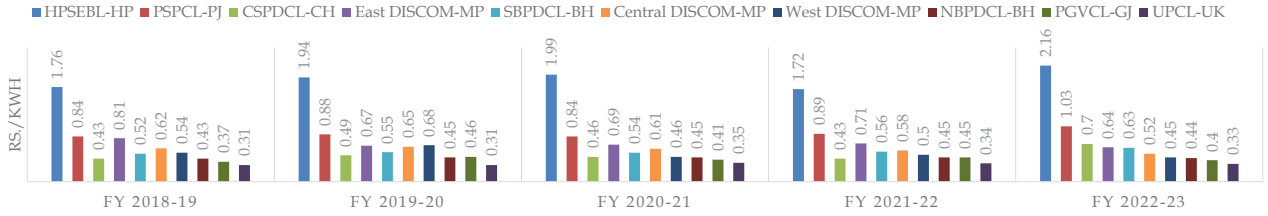


Source: Various Tariff Orders issued by State ERCs

DISCOM	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
HPSEB-HP	1.70	1.89	1.94	1.67	2.17
PSPCL-PJ	0.77	0.80	0.81	0.86	1.00
CSPDCL-CH	0.37	0.42	0.40	0.37	0.67
East DISCOM-MP	0.45	0.50	0.49	0.51	0.57
Central DISCOM-MP	0.45	0.33	0.40	0.39	0.47
SBPDCL-BH	0.41	0.45	0.45	0.46	0.47
West DISCOM-MP	0.35	0.46	0.33	0.31	0.40
PGVCL-GJ	0.31	0.40	0.35	0.39	0.34
UPCL-UK	0.28	0.28	0.31	0.29	0.29
NBPDCL-BH	0.28	0.32	0.32	0.32	0.28

- DISCOMs highlighted in green appears to represent the desired State of efficiency and financial performance.
- These entities indicate the potential outcomes of streamlined operations, optimized costs, and effective regulatory practices.
- However, it does not mean that there is no room for improvement even within this group, these DISCOMs should not be complacent to not try to further refine their operations, reduce inefficiencies, and aspire towards better operational efficiency.
- The DISCOMs that are better in terms of the benchmark cost appear to be on the right trajectory.
- The focus must remain on consistently implementing best practices and adapting strategies proven successful in other progressive utilities.

Employee and A&G Expenses per Sales



Source: Various Tariff Orders issued by State ERCs

DISCOM	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
HPSEBL-HP	**1.76**	**1.94**	**1.99**	**1.72**	**2.16**
PSPCL-PJ	**0.84**	**0.88**	**0.84**	**0.89**	**1.03**
CSPDCL-CH	0.43	0.49	0.46	0.43	0.70
East DISCOM-MP	0.81	0.67	0.69	0.71	0.64
SBPDCL-BH	0.52	0.55	0.54	0.56	0.63
Central DISCOM-MP	0.62	0.65	0.61	0.58	0.52
West DISCOM-MP	**0.54**	**0.68**	**0.46**	**0.50**	**0.45**
NBPDCL-BH	**0.43**	**0.45**	**0.45**	**0.45**	**0.44**
PGVCL-GJ	0.37	0.46	0.41	0.45	0.40
UPCL-UK	0.31	0.31	0.35	0.34	0.33

- DISCOMs highlighted in green appears to represent the desired State of efficiency and financial performance.
- While the DISCOMs that are better in terms of the benchmark cost appear to be on the right trajectory, the focus must remain on consistently implementing best practices and adapting strategies proven successful in other progressive utilities.

Employee and A&G Expenses as a percentage of ACOS

DISCOM	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	ACOS (FY 2022-23)	Expenses as a % of ACOS (FY 2022-23)
	Rs. /kWh						
HPSEBL-HP	1.76	1.94	1.99	1.72	2.16	6.94	31%
PSPCL-PJ	0.84	0.88	0.84	0.89	1.03	7.09	15%
CSPDCL-CH	0.43	0.49	0.46	0.43	0.70	7.02	10%
East DISCOM-MP	0.81	0.67	0.69	0.71	0.64	7.16	9%
Central DISCOM-MP	0.62	0.65	0.61	0.58	0.52	6.80	8%
West DISCOM-MP	0.54	0.68	0.46	0.50	0.45	7.50	6%
SBPDCL-BH	**0.52**	**0.55**	**0.54**	**0.56**	**0.63**	**9.94**	**6%**
NBPDCL-BH	**0.43**	**0.45**	**0.45**	**0.45**	**0.44**	**7.10**	**6%**
PGVCL-GJ	0.37	0.46	0.41	0.45	0.40	7.64	5%
UPCL-UK	0.31	0.31	0.35	0.34	0.33	6.90	5%

Source: Various Tariff Orders issued by State ERCs

- DISCOMs highlighted in green appears to be around the desired level of cost efficiency. Anything below 6% is highly desirable and expenses in the range of 6-7% of ACoS is acceptable for Distribution Utilities in plain regions.
- Anything beyond 7% requires graded rationalisation. However, for Utilities in hilly areas and island areas, percentage will vary based on Utility specific factors and SERCs will have to consider those factors.
- This analysis underscores the importance of benchmarking workforce cost efficiency and provides a roadmap for all DISCOMs to achieve balanced and sustainable operations while ensuring robust infrastructure maintenance.

Recommendations and Way Forward….1/4

- **AT&C Loss Reduction**

  1. **Strengthening Distribution Infrastructure**
     - **Ensure 100% metering of all connections, with functional meters.**
     - **Replace aging transformers and distribution lines with efficient transformers, advanced covered conductors, and switchgear (GUVNL/ TPDDL/ Tata Power – Odisha DISCOMs/ MP Paschim DISCOM/ TPL-Bhiwandi/ Torrent Power (Ahmedabad)/ CESC Rajasthan)**
     - Leverage technological interventions, **Advanced Distribution Management Systems (ADMS) Geographic Information System (GIS) mapping, and Supervisory Control and Data Acquisition (SCADA) systems (GUVNL/ TPDDL/ Tata Power – Odisha DISCOMs/ MP Paschim DISCOM)**
     - **Implement High Voltage Distribution Systems (HVDS) and LT Aerial Bunched Conductors (ABC) in high loss areas. (GUVNL/ TPDDL/ TPL-Bhiwandi/ Torrent Power (Ahmedabad))**
     - **To ensure DT-level metering and to conduct energy audits at the Distribution Transformer (DT) level to accurately map losses. (GUVNL/ TPDDL/ MP Paschim DISCOM/ TPL-Bhiwandi/ Torrent Power (Ahmedabad)/ CESC Rajasthan)**
     - **Undertake feeder separation in regions with significant agricultural consumption to reduce losses and improve load management. (GUVNL/ MP Paschim DISCOM)**
     - **Roll out smart metering, prioritizing high-loss areas, and consider retrofitting existing electronic meters as a cost-effective alternative. (GUVNL/ TPDDL/ MP Paschim DISCOM)**
     - **Introduce prepaid metering systems in areas with low billing efficiency to improve collection rates and reduce AT&C losses. (GUVNL/ MP Paschim DISCOM)**
     - **Adopt Advanced Metering Infrastructure (AMI) (TPDDL/ MP Paschim DISCOM)**

Recommendations and Way Forward….2/4

- **AT&C Loss Reduction**

  2. **Ways to improve Revenue Collection**
     - **Minimize frequent waiver schemes,** implementing them judiciously, and treating any such waivers as subsidies by the State Government **to be paid in advance** to avoid financial disruptions.
     - **Any revenue recovery that is deferred by the State government including tariff subsidies, shall attract carrying costs, to mitigate working capital constraints.**
     - **Revalidate assessment methodologies for unmetered connections, particularly for agricultural consumers, based on current consumption patterns.**

  3. **Displacing LT consumption**
     - **Facilitate** the adoption of **distributed energy systems,** such as solar rooftops and energy storage systems (ESS), **to** reduce losses and enhance grid efficiency**. (GUVNL/ TPDDL/ TPL-Bhiwandi/ Torrent Power (Ahmedabad))**
     - Introduce **dynamic pricing to increase consumer awareness of real-time consumption costs and encourage demand shifts for efficient grid management.**
     - Explore **localized irrigation solutions** through **mini/micro-dam systems** to reduce **agricultural consumption.**

Recommendations and Way Forward….3/4

Particulars	Recommendations and Way Forward
Ways to Optimize O&M Cost	▪ Encourage State Governments to partially or fully assume liabilities for terminal benefits. ▪ Transition from outsourcing manpower to outsourcing repetitive, non-critical activities to optimize costs. ▪ Implement predictive maintenance technologies leveraging data analytics to reduce unplanned outages and emergency repair costs. ▪ Utilize IT-enabled systems such as ERP/SAP for asset management to significantly lower administrative overheads.
Ways to Optimize Human Resource	▪ Continuation of Leadership (Managing Director) at the helm of affairs for at least 3-4 years is critical to make progress. ▪ Conduct manpower skill audits to identify gaps and implement training, upskilling, and reskilling initiatives to enhance workforce productivity. ▪ Introduce performance-based incentive structures to motivate employees to contribute. ▪ Align employee Key Performance Indicators (KPIs) with organizational goals for cohesive and synergistic outcomes.
Rationalization of Cross Subsidies	▪ Gradually align tariffs with the actual cost of supply across all consumer categories to mitigate cross-subsidy migration risks. ▪ Explore direct subsidy transfers to vulnerable consumer segments, such as residential and agricultural users, to support affordability without distorting tariffs.
Timely Issuance of Tariff Order	▪ Establish explicit timelines for the issuance of tariff orders in line with Section 64(3) of the Electricity Act, through appropriate tariff regulation provisions. ▪ Streamline regulatory review processes by adopting standardized templates, predefined evaluation criteria, and simplified tariff formats to expedite decision-making.

Recommendations and Way Forward….4/4

Particulars	Recommendations and Way Forward
Measures to Avoid Regulatory Assets	▪ Ensure regular pass-through of uncontrollable expenses, such as power purchase costs, to prevent the accumulation of regulatory assets. ▪ Facilitate State Governments to assume or finance legacy regulatory assets, reducing carrying costs and enabling liquidation. ▪ Issue tariff and true-up orders within stipulated timelines to maintain financial discipline.
Platform for Sharing Best Practices	▪ Establish a forum for distribution licensees to: a) Share best practices through periodic meetings. b) Serve as a repository of sectoral knowledge. c) Facilitate learning of technological advancements and sector updates. d) Represent collective concerns effectively and assertively.
Subsidy Management	▪ Ensure subsidies are paid in advance by the State Governments. ▪ Structure subsidies to deter malpractice, such as consumers manipulating consumption to qualify for subsidy thresholds.
Recovery through Fixed Charges	▪ Gradually increase the proportion of fixed cost recovery through the fixed charge component of retail tariffs, targeting 30-50% recovery to stabilize revenue streams and mitigate financial uncertainties.
Continued Government Support	▪ Advocate continued support from State and Central Governments for debt restructuring, soft loans, and grants for critical capital expenditures under schemes like RDSS. ▪ Engage the Forum of Regulators (FOR) and State Governments in policy formulation to ensure balanced outcomes. ▪ Direct cost reduction benefits under Central Government policies to beneficiaries through grants, rather than increasing Average Cost of Supply (ACoS) and tariffs.

KPI-Based Incentive Framework

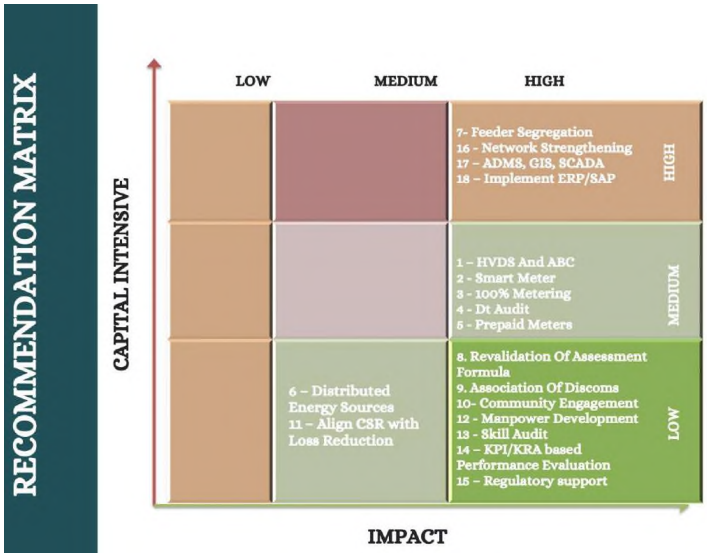
- A sample assessment matrix of **KPI based Performance appraisal system** has been prepared.
- To make this mechanism **self-sustainable**, it is proposed that incentive shall be allowed only if there is savings arising out of fulfilling these targets specified by the Commission.

Name of Distribution Licensees				Year under Evaluation	
Category	Overall Weightage	Sr. No.	Key Performance Indicators	Reference	Weightage (%)
(A) Loss Reduction	**40**	(i)	Billing Efficiency should not be lower than 90% for the Financial Year		40
			Collection Efficiency (>99%)		10
			AT&C Loss (%)	State Tariff Regulations	10
		(ii)	Provisional Billing/Assessment Bills shall not be in excess of the limits specified by the respective Commission	<5% of total Bills	10
		(iii)	Compliance to directions - Loss Reduction	Regulations, Orders issued.	10
		(iv)	Complete Consumer Indexing and GIS mapping		10
		(v)	Annual Energy Audit at DT Level		10
(B) Reliability	**20**	(i)	SAIFI, SAIDI and MAIFI Reports	As per SOP Regulation	30
		(ii)	Transformer Failure Rate	Reduction YOY	20
		(iii)	No Planned Load Shedding/Rostering		20
		(iv)	Approved Resource Adequacy Plan to meet power demand	As approved by Commission	30

KPI-Based Incentive Framework

Name of Distribution Licensees				Year under Evaluation	
Category	Overall Weightage	Sr. No.	Key Performance Indicators	Reference	Weightage (%)
(C) Capital Expenditure	**20**	(i)	Timely filing of Capex Plan for approval	As per Regulation	10
		(ii)	Timely completion of at least 80% of the planned capex		30
		(iii)	Non-Planned Capex not in excess of 10% of planned Capex		20
		(iv)	Nos. of Overloaded Transformer (>90% Rate capacity) should not be more than 10% of the total transformers.		10
		(v)	No unmetered Consumers		30
(D) Regulatory Compliance/Safety Compliance	**10**	(i)	Timely Filing of Tariff Petitions	Timelines specified under the Tariff Regulations	20
		(ii)	Timely submission of Compliance to Directives		20
		(iii)	Timely preparation of Audited Accounts		30
		(iv)	Regulatory Compliance with regard to Safety related issues.		10
		(v)	Compliance to Regulation 65(3) of EA – 03 - Subsidy		20
(E) Customer Satisfaction	**10**	(i)	Timely issuance of New Connections – At least 90% of the applications to be disposed of within the timelines specified under Supply Code and other relevant Regulations	Distribution Supply Code	30
		(ii)	Adherence to timelines specified for fault rectification and complaint addressal (90% complaints/request to be within the timelines specified under the SOP Regulation)	As per SOP Regulations	30
		(iii)	Online Portal for making Service Requests including application for new connections		20
		(iv)	Establishment of CGRF	As per CGRF Regulations	20
Total	**100**				

Recommendation Matrix



- The **Recommendation Matrix** is based on the analysis of issues affecting the financial and **operational viability of the distribution utilities**.
- Since each utility faces **unique challenges**, recommendations must be prioritized considering their specific context.
- **Key prioritization factors include:**
  a) **Capital Intensity**
  b) **Impact on Operational Efficiency and Sustainability**
- Recommendations have been categorized to address the utilities' varying needs, ensuring targeted and effective implementation.

List of Recommendations

S. No.	List of Recommendations
1	HVDS and Aerial Bunch Conductors
2	Initiating Smart Metering in high loss areas/ high value consumers – Implement Advanced Data Analytics tools for improved analysis and decision making
3	100% Connections to be metered
4	DT Level Energy Audit
5	Prepaid Meters and Automated Meter Reading in areas with low billing efficiency
6	Facilitating Distributed Energy Systems
7	Feeder Segregation - (Wherever high agricultural Load/consumer)
8	Re-validation of Assessment Formula wherever billing is being carried out on assessment basis.
9	Setting up of an Association of Distribution utilities – Facilitate Knowledge sharing and Policy Advocacy
10	Community Engagement - Consumer Awareness Campaign
11	CSR alignment with Loss Reduction Strategies - Building Synergy
12	Focus on Manpower Capacity Development
13	Manpower Skill Audit and Rationalisation/Re-deployment
14	KPI/KRA based Employee Accountability and Incentivisation
15	Tariff Revision - Cross Subsidy Reduction - Regulatory Support for KPI/KRA based Employee Benefit Scheme
16	Network Strengthening - Reducing Overloading of Lines and Transformers
17	Installation of Advanced Distribution Management, GIS, SCADA Systems
18	Implementation of ERP, Exploring IT/AI enabled services/Digital Transformation

Thank You!

ABPS Infrastructure Advisory Private Limited

Practical Solutions to Real Life Problems

Case Study – Major Factors behind success of Gujarat Discoms……1/3

The factors that contributed to achieving viability and sustainability of Gujarat's Discoms:

Structural Reforms: Early Unbundling of SEBs and Corporatization – **Front runner to Un-bundle**

Financial Reforms

- **Financial Restructuring:** Significant efforts were made to **clear past debts and improve financial health – Clean Balance sheet for Discoms – Loss taken over by GUVNL**.
- **Cost-Reflective Tariffs:** Tariffs were restructured to better reflect the cost of supply, for ensuring sustainable operations.

Operational Efficiency

- **Reduction of AT&C Losses**: Gujarat successfully reduced Aggregate Technical and Commercial (AT&C) losses through **better metering, theft prevention measures, and upgrading of infrastructure**. This included:
  - Implementation of **high voltage distribution systems (HVDS)** to reduce technical losses.
  - Strengthening the **enforcement against power theft through strict measures and the use of advanced technologies**.
  - Improved **metering and billing systems – Replacement of Mechanical Meters with Electronic meters**
  - Promotion of **Distributed Energy System/Rooftop solar**. (Distributed Generation – Reduces LT Losses)
  - Separation / bifurcation of agricultural feeders.
  - 24x7 Power Supply: Achieving a reliable and continuous power supply helped in improving revenue collections and consumer satisfaction.

Case Study – Major Factors behind success of Gujarat Discoms ……2/3

Renewable Energy Integration

- **Promotion of Renewable Energy**
- Enabling Policy Support towards Net Metering and Incentivizing Rooftop Solar

Regulatory Support

- **Effective Regulatory Framework:** Ensuring transparent, consistent regulatory oversight, regular tariff revisions and enforcement of performance standards.
- **Consumer-Friendly Policies:** Implementation of consumer-friendly policies and grievance redressal mechanisms improved consumer satisfaction and trust in the Discoms.

Government Initiatives

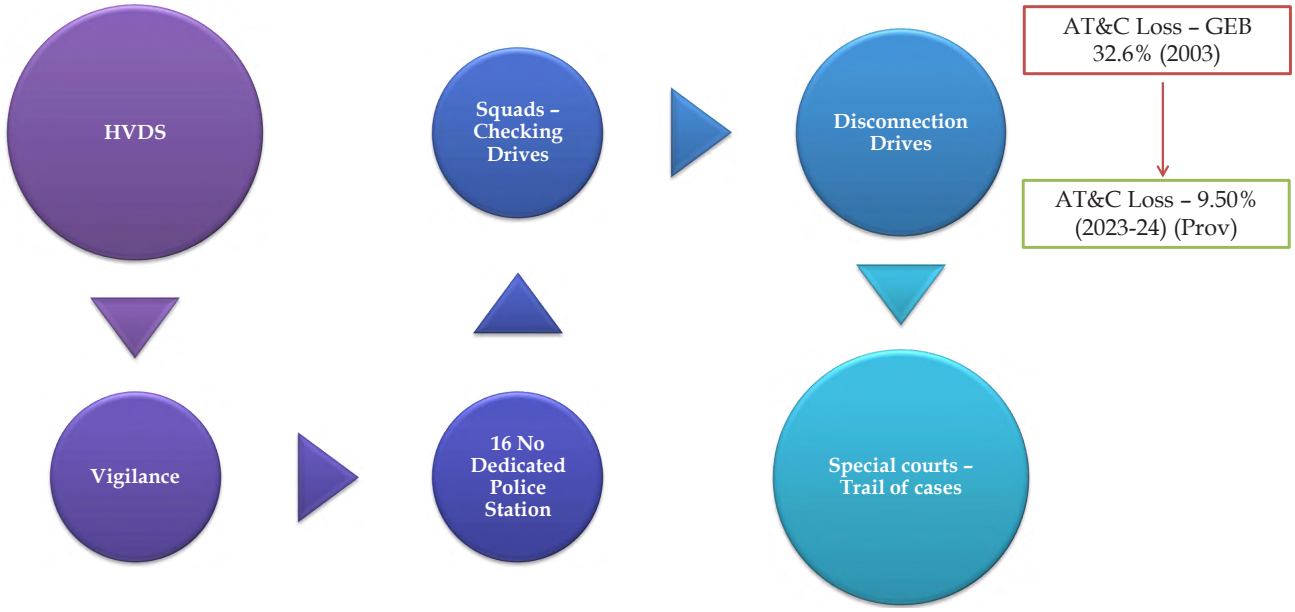
- **Jyotigram Yojana:** This scheme **separated agricultural feeders from residential and industrial feeders**, ensuring continuous power supply to households and industries while providing scheduled power supply to agricultural consumers. **Innovative Funding – 90% from State and 10% by Village** - This initiative **helped in reducing power theft and losses – Instilled Sense of Responsibility – joint ownership**.
- **Infrastructure Development:** Significant investments were made in upgrading and modernizing the distribution infrastructure, including the installation of **advanced distribution management systems (ADMS) and smart grid technologies**.

Case Study – Major Factors behind success of Gujarat Discoms……3/3

Capacity Building and Human Resources

- **Training and Development:** **Continuous training programs for employees helped in building a skilled workforce capable of handling advanced technologies and improving operational efficiency**.
- **Performance-Based Incentives:** Introducing **performance-based incentives** to encourage employees to be more accountable and perform better.

Initiatives for Reduction of AT&C Losses



Effective HR Deployment – Training, Collaborations and Engagements

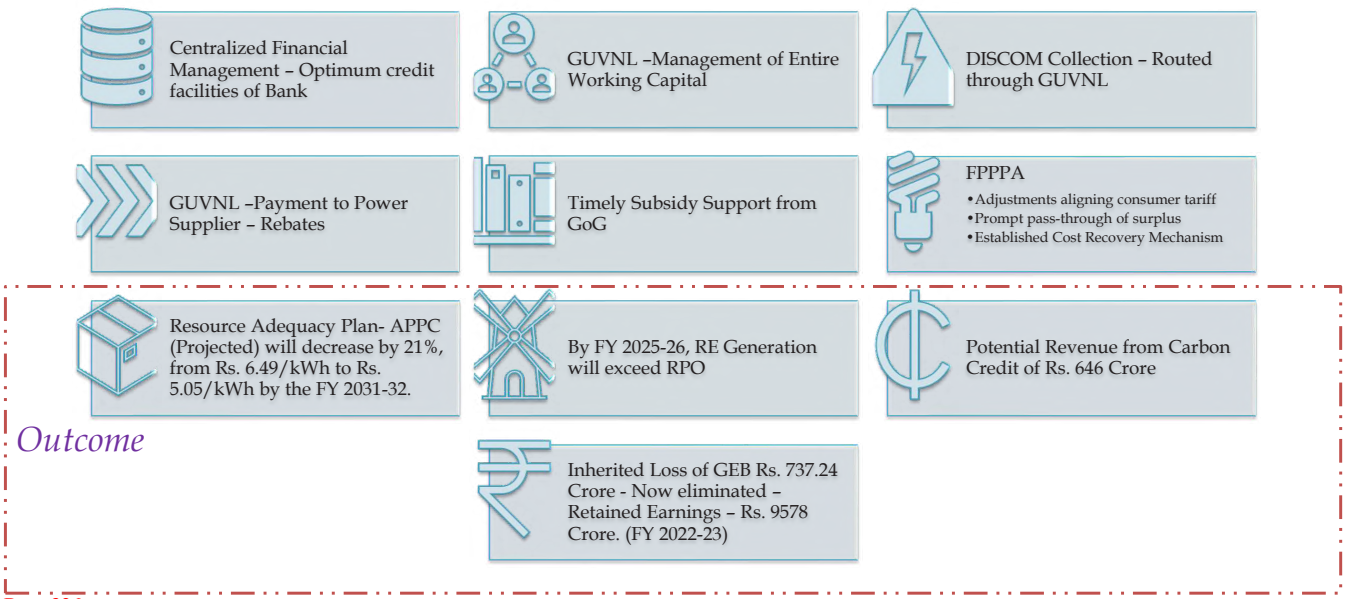
- **Capacity building**
- **Research and analysis**
- **International tie-ups and partnerships**
- **Academic institutions**
- **Research organizations**
- **Institutions working in the field of net zero emissions**
- **Consultancy Services**
- **Workshops, Seminars, Events**

- Realised the importance of Upskilling/Re-Skilling of Employee Work Force – Instituted **GETRI** in 2006
- Even as early as FY 2005-06 – 620 different training programmes conducted – Focus Area – Technical, Behavioural Change towards Customers, Safety, Corporate Training.
- Benefitted from USAID & DRUM Project (Distribution Reform Upgrade and Management)

Effective HR Deployment – Training, Collaborations and Engagements

- **Ideation Premier League** – Created Strong Ecosystem for Employees to share ideas and Creativity with appropriate reward system for viable ideas.
- **PAHAL** – An initiative designed to recognise, celebrate, and motivate the exceptional team members, both as individuals and as a united force.
- Recognised the importance of maintaining Employee motivation through **Employee Welfare Activities**.
- Recognised Human Resource to be most valuable asset to the Company.
- Increased Employee Engagement through organising various social events.
- Carrying out Several Management Development Programme at **IITs/IIMs**

Financial Management



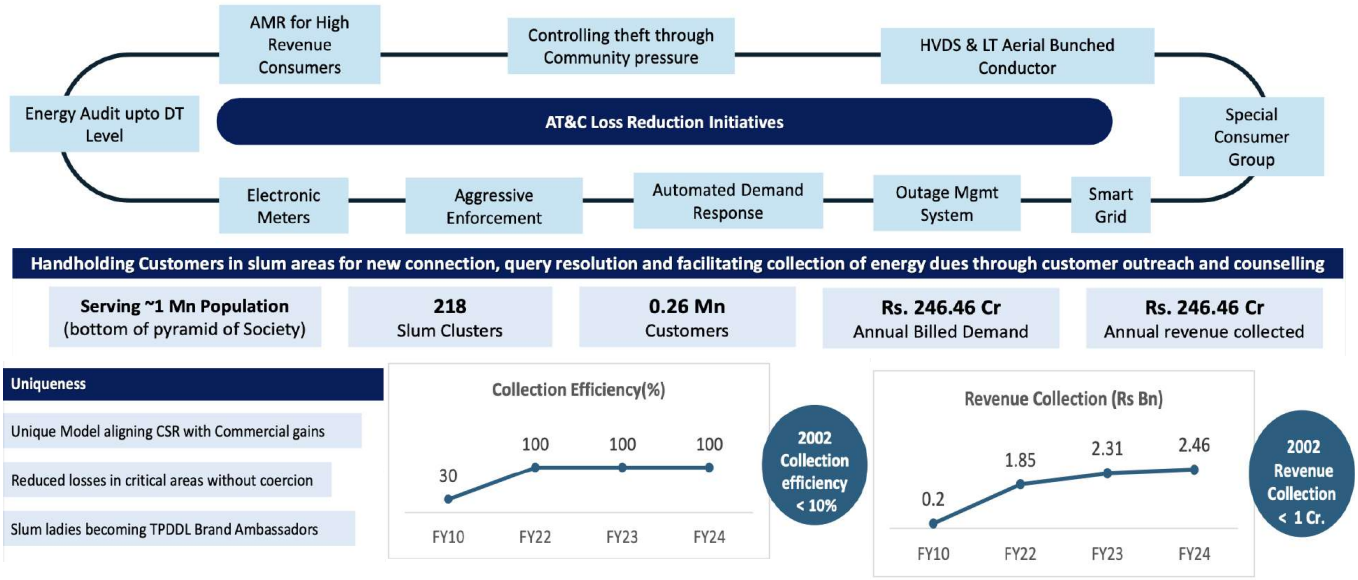
Case Study - Tata Power – Delhi (TPDDL)

Key Achievements

Initial challenges
AT&C Loss at **53%** - rampant theft
Dilapidated Network – on the verge of collapse
Unreliable Power Situation (**11%** Transformer failure Rate, **48%** Streetlight functional, **8-10 hrs** of Power cut)
Erroneous Consumer Database (**50%** of consumers had some form of an error)
> 1,00,000 Billing Complaints & **> 20,000** applications pending for New connection
No Computerization/Automation/Tracking & Monitoring
Absence of Consumer Relationship approaches

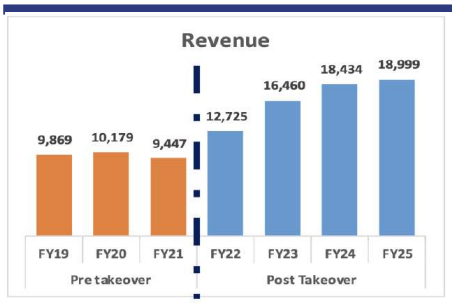
Parameter	Unit	July 2002	March 2024
OPERATIONAL PERFORMANCE			
AT&C Loss	%	53.1	5.9
System Reliability – ASAI Availability Index	%	70	99.9
Transformer Failure Rate	%	11	0.68
Peak Load served	MW	930	2218
Length of Network	Ckt km	6750	14108
Street Light Functionality	%	40	99.6
Smart Meters Installed	Lakh	0	4.33
CONSUMER RELATED PERFORMANCE			
New Connection Energisation Time	Days	51.8	5.57
Meter Replacement Time	Days	25	3
Mean Time to Repair Faults	Hours	11	.9
Consumer Satisfaction Index	%	-	97

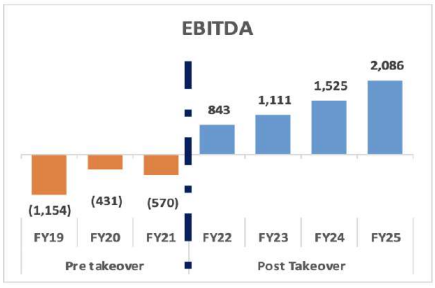
Initiatives for Reduction of AT&C Losses

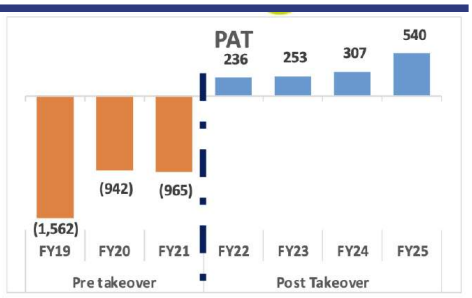


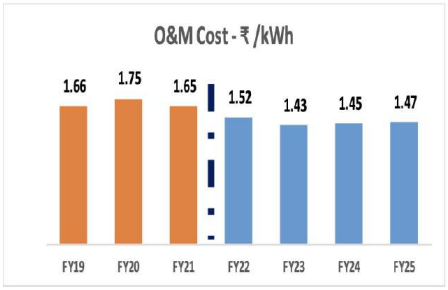
Case Study - Tata Power – Odisha

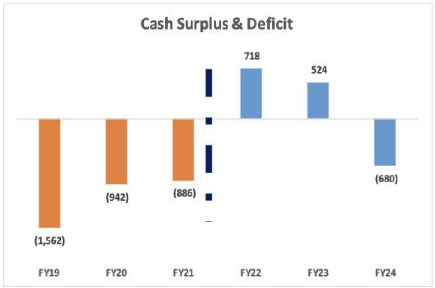
Key Achievements (1/2)

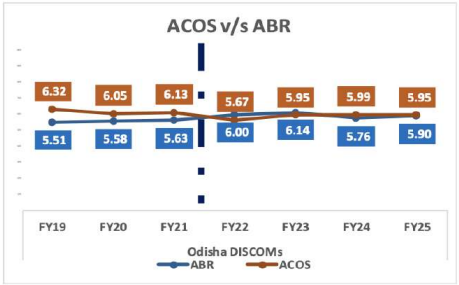




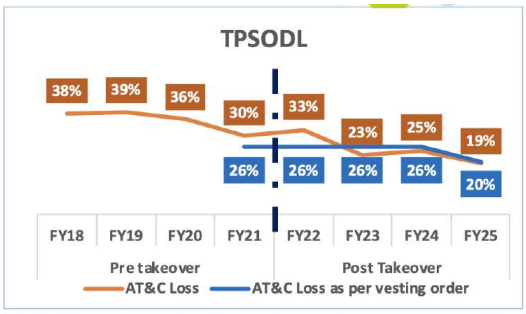


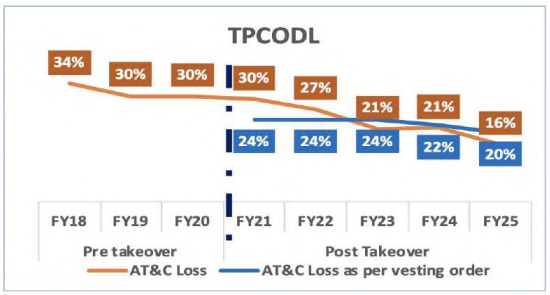


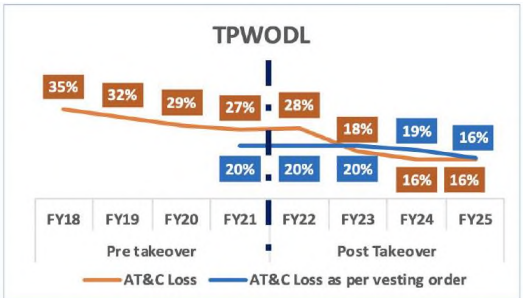


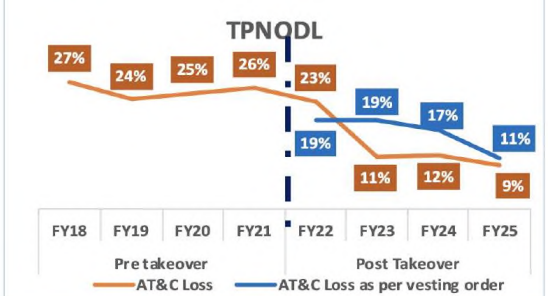


Key Achievements (2/2)









Commercial Turnaround – Initiatives & Enablers

Metering

New Connections Addition

Replacement of Defective Meters

100% compliance with statutory meter testing

Conversion of Unmetered to metered

Smart Metering

Billing

Addressing Provisional Billing and

Unbilled cases scenario

Technology infusion to reduce Suppressed reading and Tabletop Reading

Implementation of OCR for Meter Reading

Spot Billing

Collection

QR Code based payment

Arrear collection Drives through Ex-Servicemen, Bike Squads & DC Squads

100% Online Cash Collection through "Sangrah" Mobile App

Focused Recovery from Rural Areas through Gram Panchayat Level collection Teams

Operation "Clean Slate" - liquidate the arrears in urban areas

m-POS for Spot Collection deployed.

Rural Electrification

Gaon Chalo Camps & Establishment of Bidyut Seva Kendra to increase outreach for rural consumers

Mission Cheetah to bring unbilled consumers to billing net

Structural Reforms (Accountability & Reach)

Circle- Introduction of HoD/HoG-Comm

Division - Introduction of CSM,TL-MBC,CRE,MMG & ENF

Section - Introduction of JM-Comm. & CCE.

Technology Adoption – Network Expansion/Modernisation

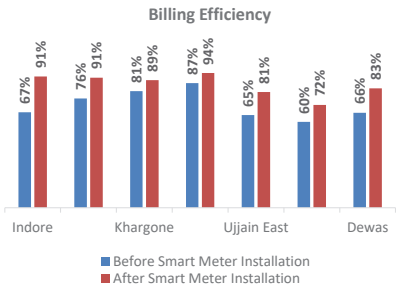
SCADA & Automation	Geographical Information System	Smart Metering	ERP System	Advanced Distribution Management System	Remote & Online Monitoring
Central Power System control	Consumer indexing	Transparency of usage	Finance, MM, HR integration – PMS, BAMS	Integrated distribution planning for growth, operations	Use of Thermovision scanners for online inspection
Automation of sub-stations	Asset mapping including network trail, MRU, Energy Audit	Remote monitoring and controlling for energy management	Billing system integration, mapping of 100% consumers for CRM and Billing	Predictive operations	Drones for tower and feeder maintenance
Real time remote monitoring and operations	Network planning based on GIS	Drone based meter reading of Bluetooth meter		Optimized Grid Operations.	Field Force Applications – OCR, MMG, ENF, DO, Suraksha Kavach.
Eliminating Human intervention	New connection based on GIS				

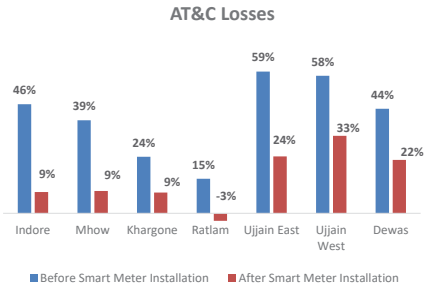
Effective HR Deployment

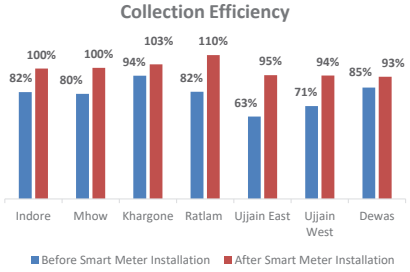
1	2	3	4
Priority to recruitment from State	**Stagnation Promotion Policy**	**Recruitment Policy for spouse & ward**	**Conducive working environment**
Campus recruitment only from Colleges of State Preference to State based candidates	1086 out of 1844 OSCR employees promoted under Stagnation Promotion Policy	Introduced recruitment policy for spouse and ward	Renovation of more than 80% offices , 100% Executives provided laptops, Training & Development
5	**6**	**7**	**8**
Group Health Insurance Policy	**Annual Health Check Up**	**Enhanced Fuel Allowance**	**Inclusivity**
Policy for employees and family : ₹ 5 Lakhs/ ₹ 7 Lakhs, Top up upto ₹ 15 Lakhs	Annual Health Check up for all employees	Enhanced fuel allowance for Executive Employees	Onboarded • Ex-servicemen • Women Self Help Groups

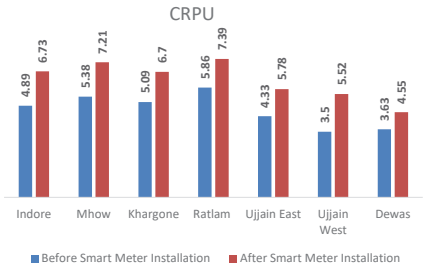
Madhya Pradesh Paschim Kshetra Vidyut Vitaran Company Limited

Key Achievements – Smart Metering Benefits









Improvement in Sales and Revenue Billed	Average Monthly Units Billed improved by 13.63% and, Average Monthly Per Consun current bill improved by 21.46
Aberrations Reported	Total 18196 cases identified le to additional billing of Rs 21.9 Crores
Recovery against MD> SL for <10kW consumers	More than Rs. 8.39 Crores recovered accurate recording MD
PF Penalty and Incentive	**PF Penalty** imposed to 2.43 La bills amounting to Rs. 7.46 Cr **PF Incentive** to 4.89 Lakhs bil amounting Rs 25.68 Cr.
Remote Reconnections and Disconnections	6.57 Lacs successful remote R of around Rs 308.63 Cr on arre
Smart Meter to Net Meter	3707 Smart Meter converted i Net meter with connected loa MW

Strategies – Initiatives – Performance Improvement

Improvement in Sales and Revenue through effective implementation of Smart Metering

Effective Vigilance Enforcement Activity through NVIS

Door to Door Revenue Collection with on-the-spot receipts through Mobile App

System strengthening work carried out through various projects and SSTD scheme

Monitoring of feeder wise RPU and area specific strategy for RPU improvement

Providing irrigation power supply during off-peak period as a DSM measure.

Special drive for old arrear recovery through Japti/Kurki and seizer of bank accounts

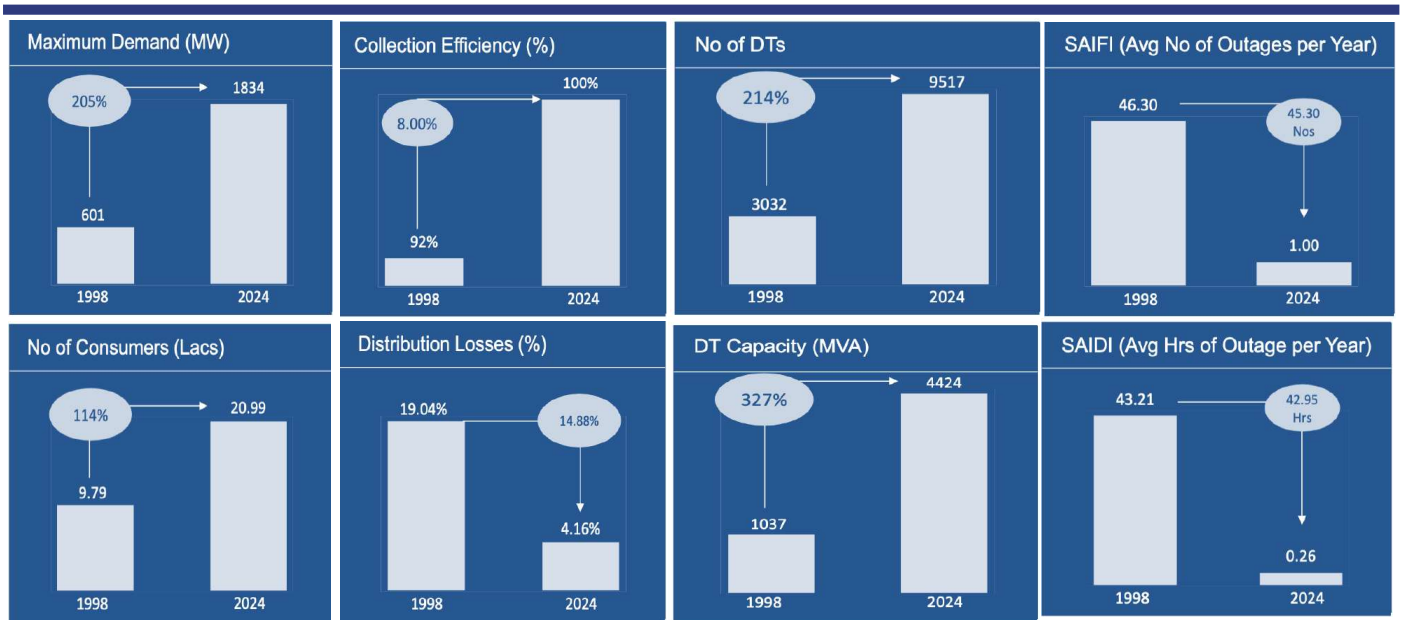
Augmentation of overloaded PTRs/DTRs and shifting of DTRs at load center

Employee Motivation

- **Free Health Checkup :** Under the umbrella of AROH, West Discom conducted a comprehensive health initiative – the 'Health Check-Up Camp.
- **Sona Chandi scheme :** West Discom motivates its employees under its appreciation schemes like Sona Chandi scheme under which (SE, EE, AE, JE) received certificates, gold and silver coins, for highest revenue collection, AT&C loss reduction, CRPU improvement and FRT bill collection.
- **Safety Training:** West Discom have nominated 100 technical staff for imparting refresher training program at the Central Training Institute in Jabalpur.
- **Training & Employee recognition:** West Discom have nominated 100 technical staff for imparting refresher training program at the Central Training Institute in Jabalpur.

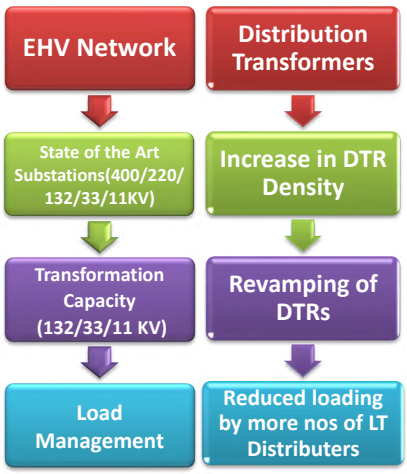
Torrent Power - Ahmedabad

Key Achievements

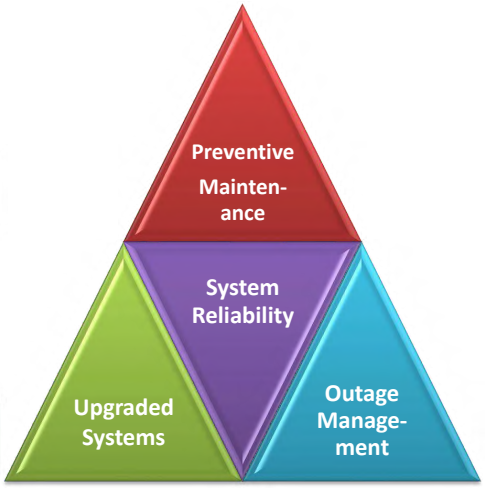


Key Measures (1/2)

IT Integration

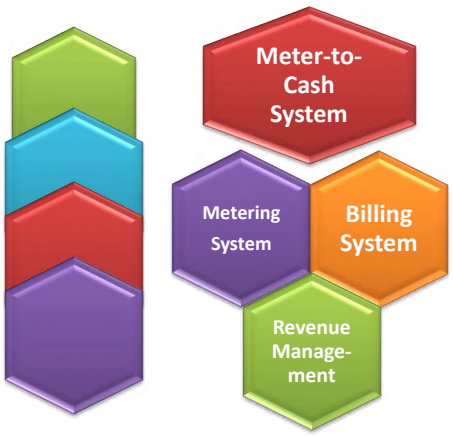


Network Augmentation

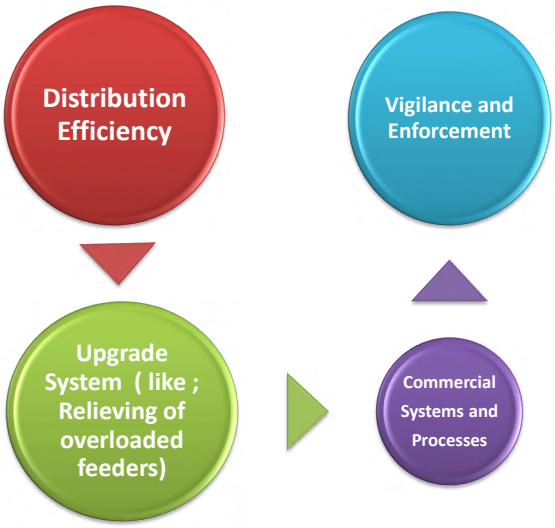


System Reliability

Key Measures (2/2)

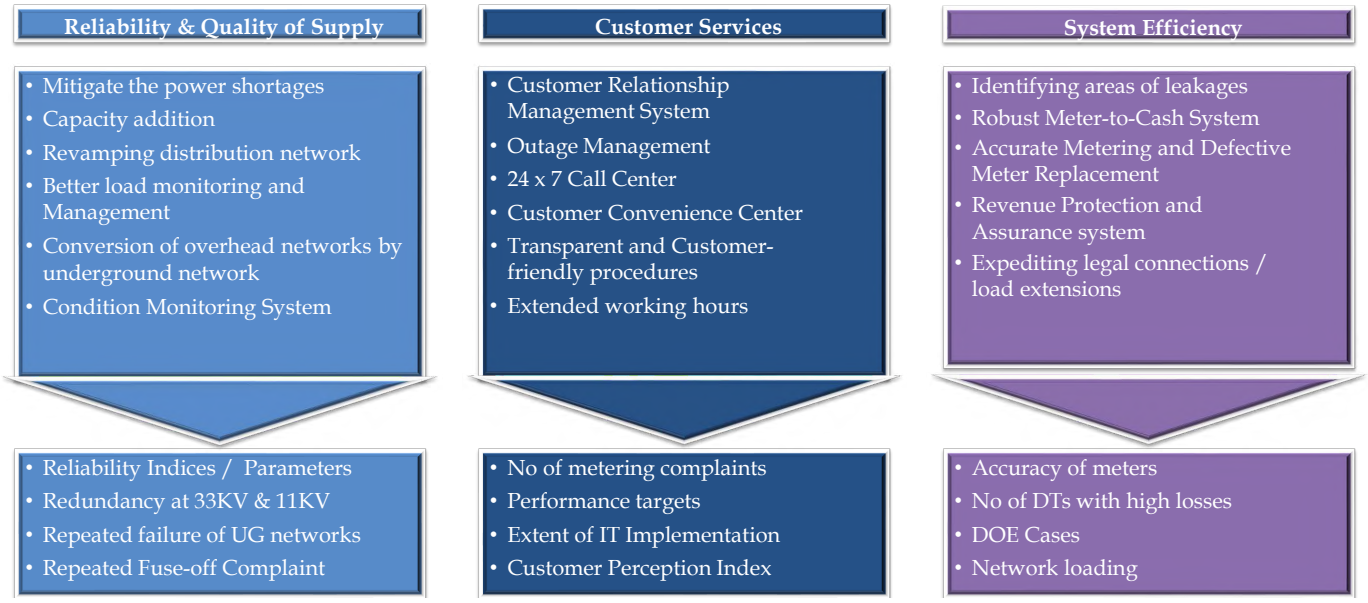


Meter to Cash



Distribution Efficiency

Distribution Business Turnaround Strategy adopted by Torrent - Summary



Torrent Power - Bhiwandi

Key Achievements

Till Jan 2007	UoM	Parameters
1.30	Lacs	Customer base
48.60	%	T&D Loss
68.29	%	Collection Efficiency (incl. Subsidy)
64.90	%	AT&C Loss (incl. Subsidy)
75	%	Power Availability
383.30	Nos.	HT SAIFI
201.60	Hrs.	HT SAIDI
40.00	%	DT Failure Rate
46	Nos.	No. of Feeders
754	MVA	Distribution Tr. Capacity
10.23	Rs. Cr.	CAPEX - Cumulative
650	MVA	Power Tr. Capacity

Parameters	UoM	FY 2023-24	Variance (%) w.r.t takeover
Customer base	Lacs	3.95	↑ 203.85
T&D Loss	%	9.64	↓ 38.96
Collection Efficiency (incl. Subsidy)	%	100.41	↑ 32.12
AT&C Loss (incl. Subsidy)	%	9.27	↓ 55.63
Power Availability	%	99	↑ 25
HT SAIFI	Nos.	33.93	↓ 91.15
HT SAIDI	Hrs.	33.32	↓ 83.47
DT Failure Rate	%	0.74	↓ 39.22
No. of Feeders	Nos.	109	↑ 137
Distribution Tr. Capacity	MVA	1,355	↑ 80
CAPEX - Cumulative	Rs. Cr.	1,128.02	-
Power Tr. Capacity	MVA	1,085	↑ 67

Major Initiatives Taken

Strengthening Network Efficiency and Reliability

- Modernizing Infrastructure - Outdated, theft-prone networks were eliminated, and overhead lines were converted to underground systems.
- Enhancing Network Protection - Cable safeguarding measures and the introduction of Medium Voltage Covered Conductors (MVCC) improved reliability and reduced faults.
- Adopting Cutting-Edge Technology - Advanced systems like SCADA, RMUs, Auto-Reclosures, IoT-enabled Transformer Monitoring Units, and Fault Passage Indicators (FPI) were deployed to enhance network performance.

Transforming Metering, Billing, and Consumer Management

- Improved Metering Accuracy - Focused on metering upgrades and replacements to enhance billing efficiency.
- Legalizing Unauthorized Connections - The Ujjwal Bhiwandi Abhiyan (UBA) successfully transitioned 1.25 lakh illegal connections into legal frameworks.
- Data-Driven Monitoring - Feeder-level loss tracking, theft deterrence, and integrating illegal consumers into billing systems were prioritized.

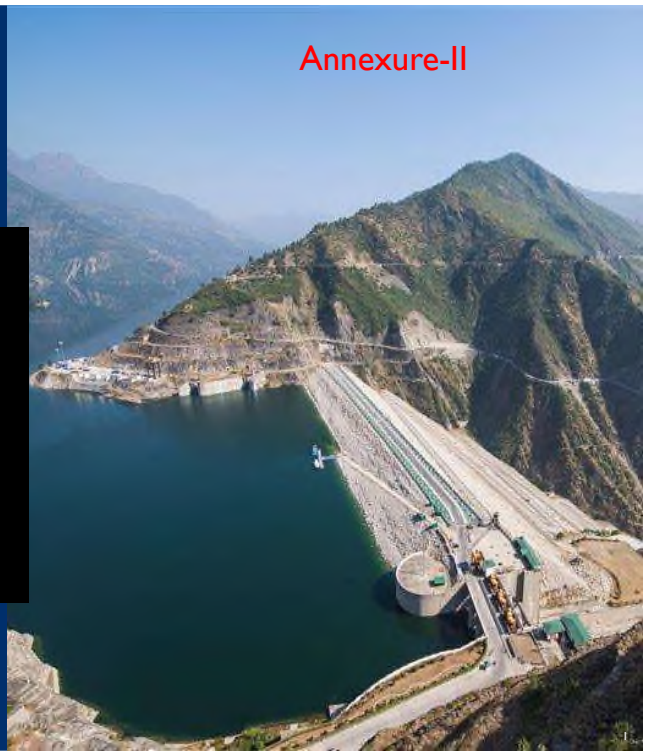
Operational Excellence and Rural Outreach

- Streamlining Operations - Digital tools such as Field Force Applications (FFA) and digital mapping systems improved operational efficiency.
- Expanding Rural Accessibility - Mobile energy bill collection vans were introduced to ensure service accessibility in rural areas.
- Quality Assurance Measures - An NABL-accredited Meter Testing Laboratory was established to uphold precision and standards in metering equipment.

Annexure-II

94th Meeting of the Forum of Regulators

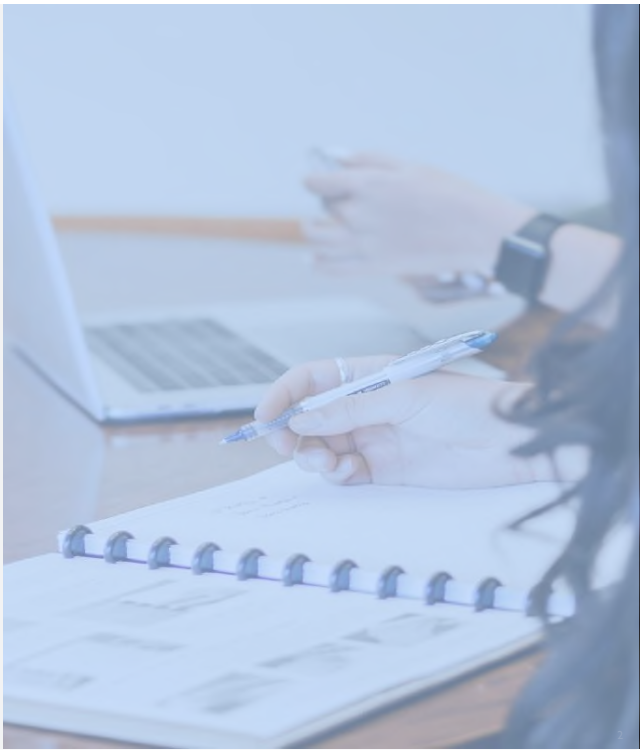
Status Update of FOR Working Group on "Accelerating the Development of Hydropower and Pumped Storage Project for Grid Stability in India"



January 10, 2025

Presentation Outline

- Context
- Progress so far
- Highlights of the WG meetings
- Discussion on the 'Recommendations of the Working Group'



Context

Objective of WG: To identify and mitigate emerging issues that hinder the development of hydropower resources, including pumped storage Projects in India

1. Evaluate the current regulatory framework, policies and practices governing hydropower development and identify any difficulties
2. Explore measures aimed at encouraging the development of hydropower resources, including pumped storage projects, within the country
3. Suggest strategies and mechanisms for accelerating the harnessing of hydroelectric and pumped storage potential.
4. Any other matter related and incidental to the above

Scope of the working group

Constitution of FOR Working Group

- Chairperson, HPERC - Chairperson of the WG
- Chairperson, AERC - Member
- Chairperson, APSERC - Member
- Chairperson, CSERC – Member
- Chairperson, KERC - Member
- Chairperson, MERC – Member
- Chairperson, PSERC - Member
- Chairperson, SSERC - Member
- Chairperson, UERC - Member
- Chairperson, WBERC - Member
- Chairperson, UPERC - Member

Progress so far...

Highlights of 1st WG Meeting

- The 1st WG meeting was held on May 9, 2024, at CERC, New Delhi
- Following key topics were discussed:
  - Overview of the status of Large Hydro, Small Hydro, and PSP in India
  - Barriers, risks, and mitigation strategies associated with hydropower development

Highlights of 2nd WG Meeting

- The 2nd WG meeting was held on June 28 and 29, 2024, in Chail, HP
- Following key topics were discussed:
  - Development of Hydro power and means to accelerate harnessing hydro potential (including pumped storage) in India - Presentation by SJVNL
  - Case study of Purulia Pump Storage Plant - Presentation by WBERC
  - Status of development of hydroelectric and PSP projects in other countries - Presentation by consultants assisting the WG
  - Preparation of a questionnaire to identify and analyze the key issues faced by hydro developers in India

Highlights of 3rd WG Meeting

- The 3rd WG meeting was held on August 08, 2024, in FOR Secretariat, New Delhi
- Following key topics were discussed:
  - Views and experiences on policy issues, issues related to clearance of projects, tariff, future recommendations, etc. - Presentation by JSW Energy and Greenko
  - Identify best practices from USA and China and develop specific recommendations for adoption in India - Presentation by Consultants assisting the WG
  - Questionnaire Structure:
    - Policy Issues
    - Issues related to Clearances and preparation of DPR (Pre-planning phase)
    - Selection of Developer & Contractor
    - Determination of Tariff
    - Development of Project
    - Execution of Projects
    - Attributes/Services Offered by Hydro and PSP
    - Outlook and Recommendations

Highlights of 4th WG Meeting

- The 4th WG meeting was held on September 23, 2024, in Purulia, West Bengal
- Following key topics were discussed:
  - Views and experiences on Policy issues, issues related to clearance of projects, tariff, future recommendations; experience on Hydro and PSP, etc. - Presentation by DVC and WBSEDCL
  - Discussion on the responses to the questionnaire

Highlights of 5th WG Meeting

- The 5th WG meeting was held on November 08, 2024, in Gangtok, Sikkim
- Following key topics were discussed:
  - Discussions on Scheme of Central Financial Assistance (CFA) towards equity participation by the State Governments for the development of Hydro Electric Projects in the North - Eastern Region
  - Views and experiences on policy issues, issues related to clearance of projects, tariff, future recommendations; experience on Hydro and PSP, etc. - Presentation by NHPC
  - Discussion on the responses to the questionnaire

Highlights of 6th WG Meeting

- The 6th WG meeting was held on December 20-21, 2024 in Uttarakhand
- Following key topics were discussed:
  - Business Models for PSP
  - Utilization of Pumped Storage Projects as a Grid Asset
  - Scheme for Budgetary support for enabling Infrastructure for Hydro Projects
  - Presentation by THDC on impediments hindering development of Hydropower Projects

Number of responses received

1. Greenko Group
2. Bhakra Beas Management Board (BBMB)
3. Maharashtra State Power Generation Company Limited (MSPGCL)
4. Himachal Pradesh State Electricity Board Limited (HPSEBL)
5. Adani Green Energy Limited (AGEL)
6. JSW Energy limited
7. Tata Power Company Limited
8. NHPC Limited
9. Jindal Steel and Power Limited
10. SJVN Limited
11. Devi Energies Private Limited
12. Malana Power Company Limited

12 responses

RECOMMENDATIONS OF THE WORKING GROUP

Recommendations

- For Policy Reforms
- For selection of Contractors
- For Tariff determination
- For Project Execution
- For preplanning phase
- For selection of developers
- To fast pace project development
- For monetization

Major Recommendations for Policy Reforms

Creation of Single window system for clearance: Can significantly streamline the approvals, and expediting project development by reducing delays. (It can be integrated in National Single window system for all the approvals)

Land Acquisition: For Hydro projects, river valleys and areas above tunnel alignment should be excluded from CA land calculations, as 25-30% of forest land required for project construction often falls within the river course.

Carrying Capacity Study Requirements: Work may be carried out by an Empowered committee on Hydro for all river basins.

Support by the States in getting NOCs for Forest Clearance and from Gram Sabha

Consideration of Off-stream Pumped storage Project under White Category

Major Recommendations for Preplanning phase of projects

Single agency for DPR preparation to project development (Creation of SPV similar to UMPP): Creating a SPV framework for Hydro and Pumped Storage Projects (PSPs), similar to the UMPP model for thermal plants

Creation of checklist for each responsible agencies with its timeline: A comprehensive checklist be developed for each responsible agency, with clearly defined timelines for each stage of the clearance process.

Creation of Private testing agencies for all the tests approval: to allow the creation of private testing agencies or accredited third-party labs to conduct the required tests for the approval of DPRs, similar to practices seen in other industries.

Creation of Zone-wise directorate for each government agency: Each regional directorate would be responsible for reviewing the DPR chapters and conducting the necessary scrutiny before forwarding the recommendations to the Empowered committee on Hydro for final approval.

Major Recommendations for Selection of Contractors

Use of Quality-Cost-Based Selection (QCBS) Model: QCBS mechanism should be adopted for selecting contractors for hydro and PSP projects.

Incentives for Timely Completion: Contractors should be incentivized with performance-based bonuses for completing projects ahead of schedule or meeting key milestones ahead of time

Strengthening the Contract Monitoring and Compliance Framework: Robust monitoring and compliance framework should be set up to track contractor performance during the project lifecycle

Dispute resolution process: An empowered committee to settle contractual claims quickly and to ensure that work is not held up for any contractual dispute

Empanelment of Pool of Contractors and Capacity Building: Govt. may empanel a pool of contractors and initiate a capacity-building program for contractors and OEMs. OEMs need to be encouraged to establish manufacturing capacities in India

Major Recommendations for Selection of Developers

Transparent bidding mechanism for the selection of developers for projects identified by the Government

Selection process should evaluate developers based on a comprehensive set of criteria, including technical capability, financial strength, experience in similar projects, and regulatory compliance

Consideration of Technical Expertise and Experience in Hydro/PSP Projects

Major Recommendations for Tariff Determination

Increase in Useful life of the project from 40 years to 50 years: The useful life of hydro power plants can reasonably be extended to 50 years, as these projects are often capable of operating beyond 40 years without requiring major Renovation & Modernization (R&M).

Increase in expenditure towards developing local infrastructure in the vicinity of the power plant: The current expenditure limit of ₹10 lakh/MW, as stipulated in the CERC regulations, may be increased to at least ₹20 lakh/MW or allowed on an actual basis as part of the capital cost.

Major Recommendations for fast pace project development

Use of Digital Monitoring Platform: Implementation of advanced digital platforms (e.g., GIS-based systems, real-time data tracking) is crucial for enabling constant monitoring of key project parameters, such as land acquisition, environmental clearances, construction timelines, and grid connectivity. MoRTH has implemented it.

Frequent Progress Reviews: Implement a structured framework for monthly or quarterly project reviews involving all stakeholders, including developers, contractors, and regulatory bodies. These reviews will ensure regular monitoring, address bottlenecks promptly, and facilitate better coordination to keep the project on track.

AI and Predictive Analytics: Leveraging AI and predictive analytics can significantly enhance project management by identifying potential risks, such as geological challenges or construction delays. These technologies can generate early warning signals, enabling timely interventions and ensuring smoother execution of hydro and PSP projects.

Centralized Data Repository: Establishing a centralized repository can enhance project coordination and transparency. This repository should include real-time updates on construction progress, regulatory approvals, and any changes to the project scope or timeline, facilitating better decision-making and accountability.

Major Recommendations for project Execution

Contractual and Risk Management Framework: Establishment of a strong contractual framework that defines roles, responsibilities, and deliverables for all parties involved

Establishment of Project Monitoring Mechanism: It should include regular progress reports, milestone reviews, and performance assessments. Utilization of digital tools and real-time data collection methods to monitor project execution and identify potential delays or issues early.

Major Recommendations for Monetisation of Hydro/PSP Projects

Providing Ancillary Services: Currently, Central Public Sector Undertaking (CPSU) hydro plants provide Secondary Reserve Ancillary Services (SRAS) support to the grid. This provision can be extended to State hydro projects as well, enhancing grid reliability and stability.

Promotion of Hydro Tourism in Reservoirs of Hydro and PSP Plants: Encouraging recreational activities such as boating, fishing, and nature tours around the reservoirs of hydro and pumped storage plants can attract tourists and local visitors, creating opportunities for additional revenue and enhancing community engagement.

Sale of extracted sediments from reservoir areas: Extracting sediments from the reservoir beds of hydro and pumped storage plants presents an opportunity to generate additional revenue. Once processed, the extracted sediments can serve various purposes, including soil conditioning, use as construction material, and as a raw material for manufacturing products such as bricks and tiles.

Thank you

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KOTA DF

BHARATPUR DF

BIKANER DF

CESC Rajasthan

www.cescrajasthan.co.in

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Three wholly owned subsidiaries in the three cities–

- **Kota Electricity Distribution Ltd**
- **Bharatpur Electricity Services Ltd**
- **Bikaner Electricity Supply Limited**

DFA signed for a period of 20 years

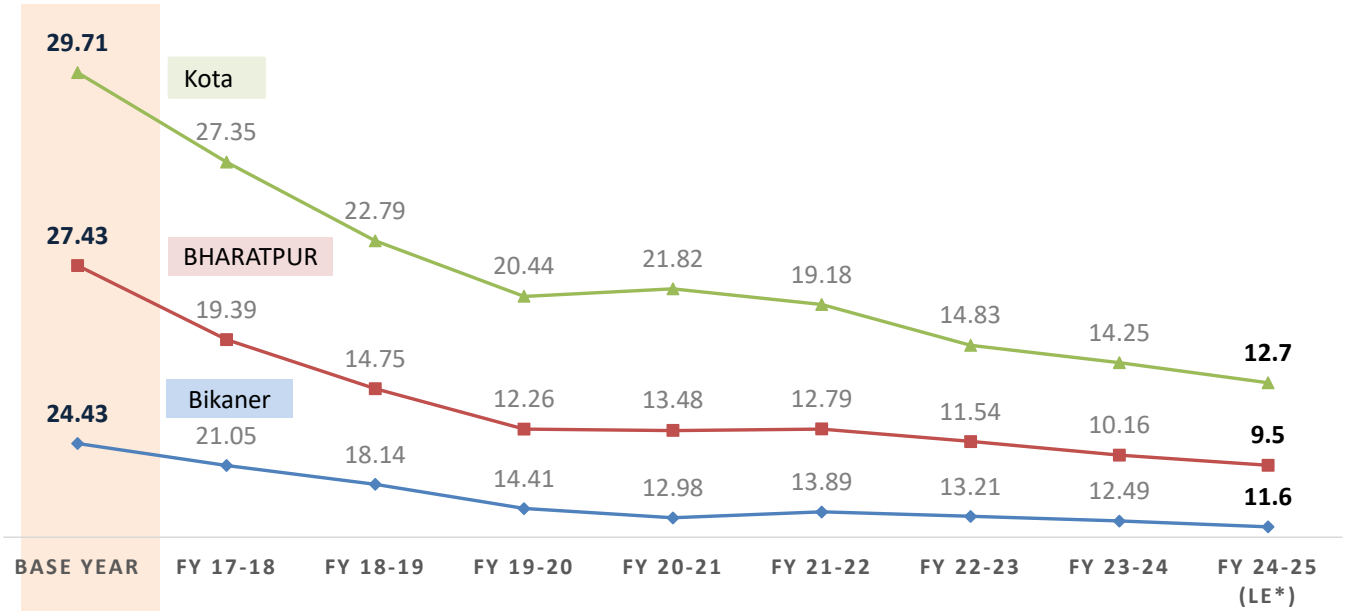
JVVNL (Kota & Bharatpur)
JdVVNL (Bikaner)

Quickest ever takeover on compliance

Revenue Sharing Arrangement with Licensee

Particulars	Kota	Bharatpur	Bikaner
Area (Sq. Km.)	176	50	155
Population (Nos. Lakh)	11.76	2.52	6.44
Consumer Count (Nos. Lakh)	2.69	0.74	1.78
DF Handover Date	01-Sep-2016	01-Dec-2016	16-May-2017

T&D Loss Trajectory



17% Loss Reduction in Kota; 18% Loss Reduction in Bharatpur & 13% Loss Reduction in Bikaner

Loss Reduction Initiatives

- DT Level Audit & identification of high loss area/ pockets
- Chalking of area / cluster specific strategy
- Involvement of IT based reports/ Analysis
- CAPEX Activities on Network to curb pilferage
- Initiation of Network Surveillance to ensure sustenance of Network CAPEX
- Continual routine Vigilance & De-Hooking activities to create deterrence

Key Activities to identify the Loss Pockets :

DT wise consumer indexing

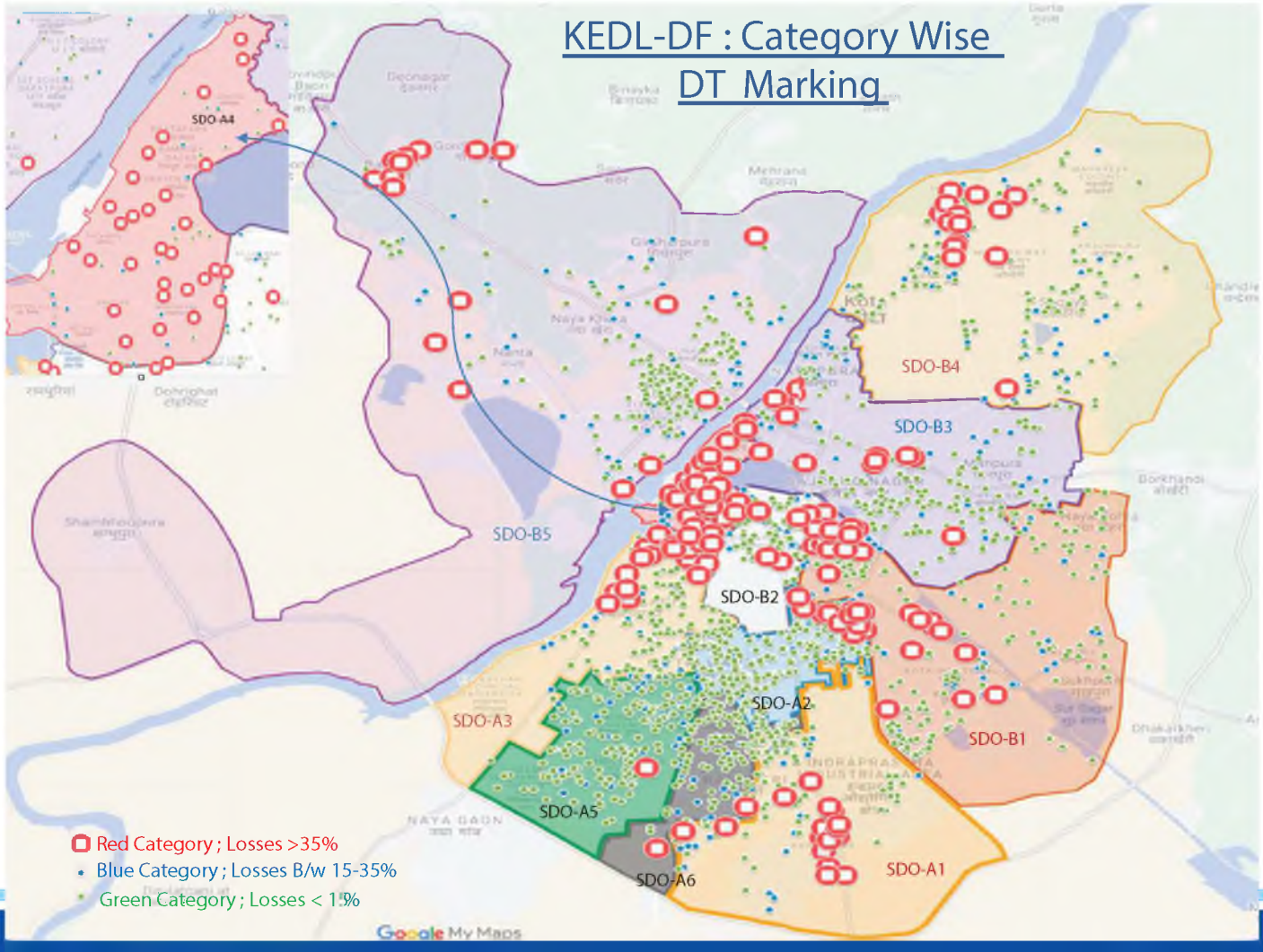
- 100% Consumers mapped
- Realtime updation of New Connections
- Specific tagging for Hostels, Commercial Buildings, Factories and Basti's to track consumption trends.
- Continual survey to flag-out unaccounted consumer/ meters in system

DT Energy Metering

- DT metering prioritized in high-loss and low-loss areas to monitor loss trends
- Adopted innovative strategies to prevent copper control cable theft
  - Introduced Aluminum Control Cable
  - Heightening of DT Meter Box with Modem
- Based on DT Metering details, DT wise Loss prepared monthly

Feeder Metering

- All 11 KV feeders are metered to monitor loading and energy flow.
- Mapping of all the DTs accurately mapped with Feeder to know the sales gap of Feeder
- Regular Monitoring of SDO wise Loss
- Monthly calculation and monitoring of 11 KV feeder losses and initiate necessary action
- Technical Losses calculation and optimisation



Based on the Loss Profile: All the DTs / Areas are divided in three Categories :

Category -1 (Red Zone) :

- The most resistive-tough and high loss area ; T&D > 35%
- 100% DT Metering in such areas
- DT wise planning with support of local police / QRT Teams
- 100% Cleaning of Network and installation of PMDB

Category-2 (Blue Zone)

- Moderate Level resistance, Losses B/w 15 %-35% range
- Loss Control Activities performed like Mass Dehooking, Shifting of Meters & Vigilance Theft Booking/ Mass Vigilance Inspections
- Regular Surveillance in such pockets

Category-3 (Green Zone)

- Low Loss Areas, where the Losses are <15%
- Regular Surveillance
- Vigilance Survey based on consumption analysis
- Continuous monitoring and regular site visit

IT in Loss Reduction

Data Analysis – IT based Reports

- Low consumption Analysis
- DT wise loss movement Analysis
- SDO wise loss tracking
- Feeder wise loading and Input Energy Monitoring

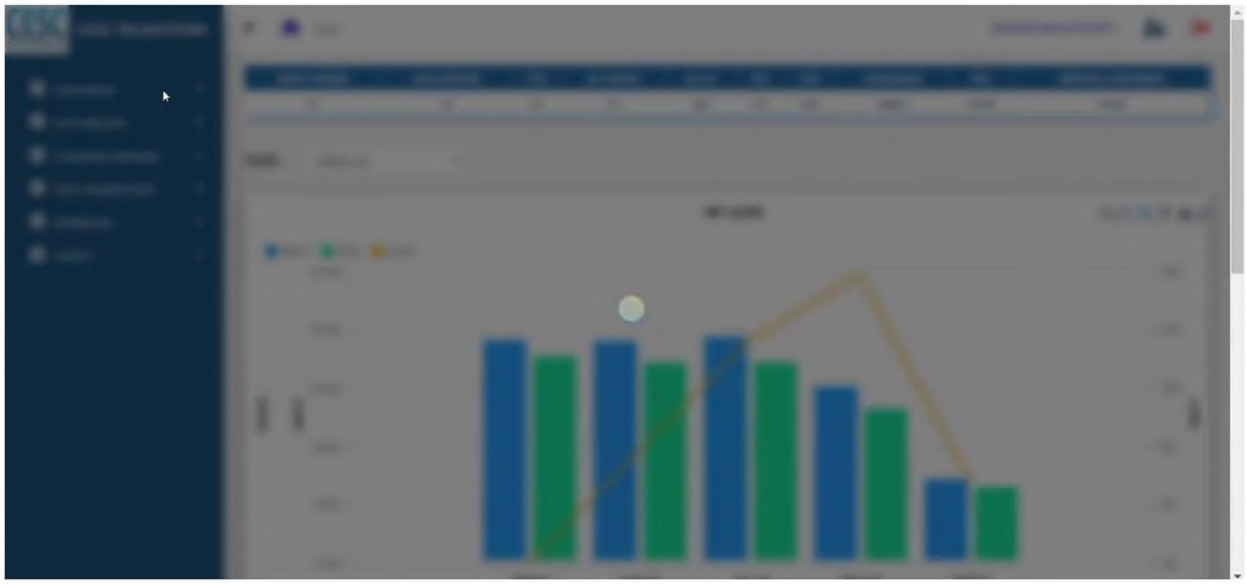
IT Role : Various Portal / App Developed

- CI Portal / GIS Portal
- Low Consumption App
- DF wise Dashboard Circulation
- Exception Report on Rajportal

Way Ahead Planning

- Bases on DT Losses, LR Capex Planning
- Based on No Power Complaint trend, Maintenance Planning
- Based on DT Loading Report, DT Plan
- Surveillance Planning

Network Mapping
33 KV to End Consumer Level



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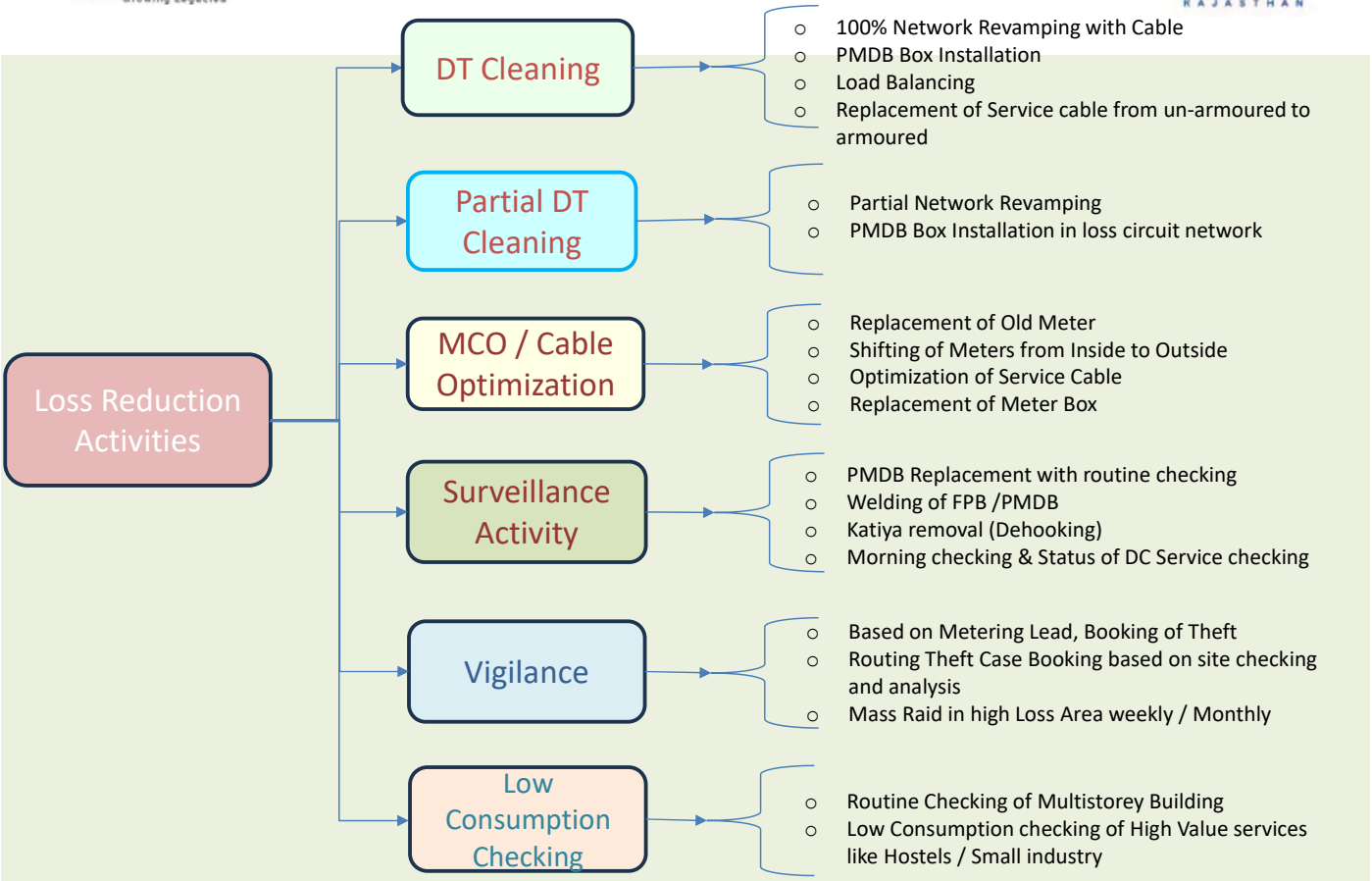
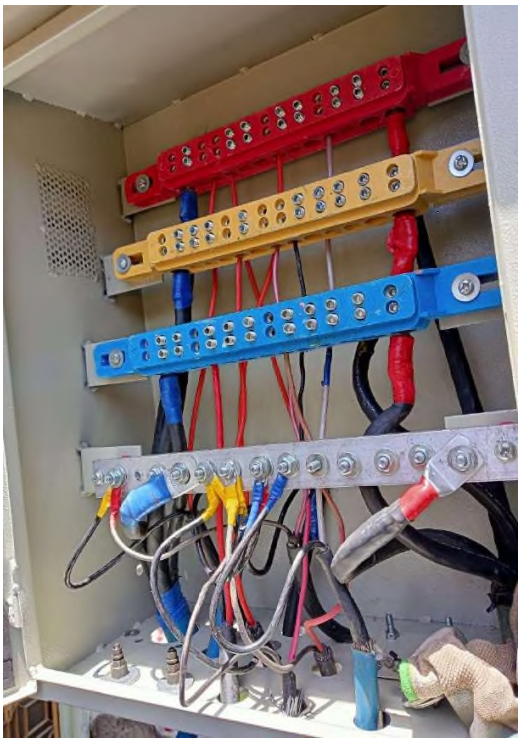
Loss Reduction Activities at Site



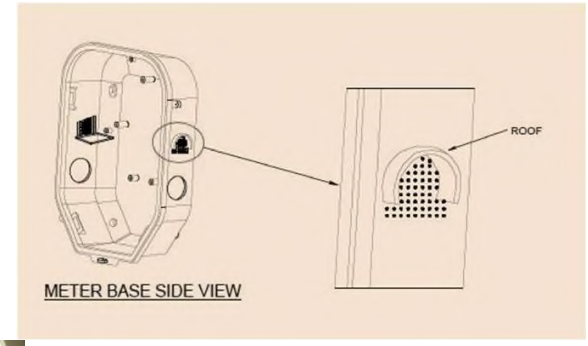
Network Activity

Conversion of Old Bare Conductor to OH Armoured Cable with Pole Top



Insulated Pole Top Box

Single Phase Unified meter Box



This arrangement helps prevent pilferage attempts by way of incoming cable cut or box insertions.

Before

After

Service Pillar Box : Before

Meters shifted to Readable/ Less Pilfer prone locations

Enhancement of Public Safety

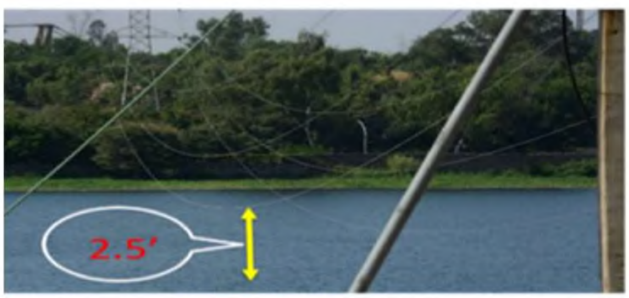
Public Safety Enhancement

GUMANPURA CHOWK

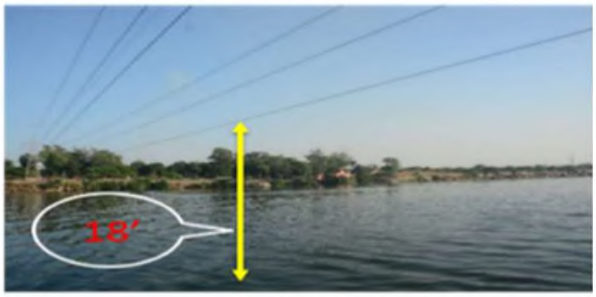
BEFORE

AFTER

DESAGGING OF CHAMBAL RIVER CROSSING OVERHEAD 33KV



BEFORE



AFTER

Public Safety Enhancement

(Transformer Fencing)

Public Safety Enhancement

(HT/ LT Line Shifting)

Before **After**

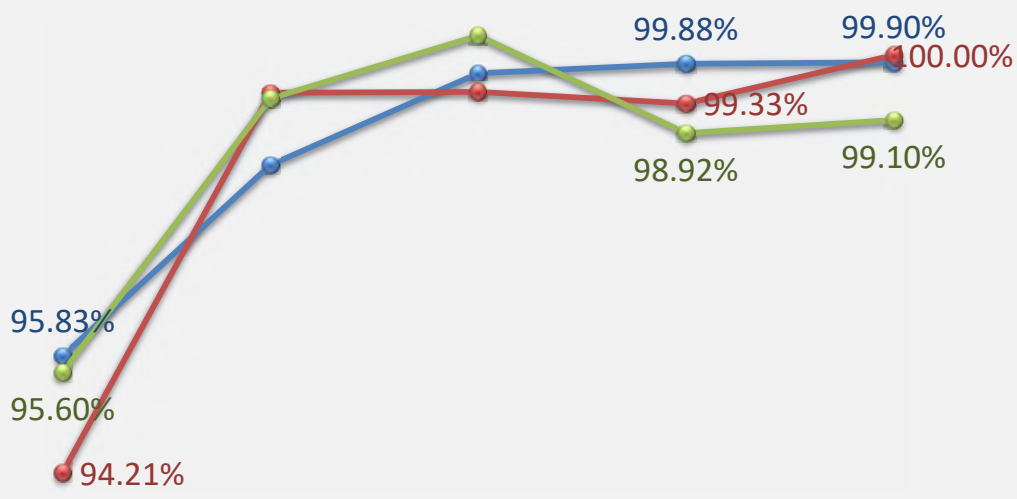
LT Line shifting

Before **After**

33 KV Line shifting

Collection

Collection Efficiency Trajectory



	FY 20-21	FY 21-22	FY 22-23	FY 23-24	LE FY 24-25
Kota	95.83%	98.48%	99.75%	99.88%	99.90%
Bharatpur	94.21%	99.48%	99.49%	99.33%	100.00%
Bikaner	95.60%	99.40%	100.27%	98.92%	99.10%

Revenue Realisation Strategy

Based on the Outstanding amount bucketing strategy is being used :

Dues : >50 K
- Monitored by dedicated Executive Officers
- Calling reminder by SDO Teams
- Pursuance by QRT (Quick response teams) for Hard Core & Non paying Consumer
- Cable Removal against unauthorized reconnection immediately

Dues :20-50K
- Monitored by Junior executive officer with supervision of Senior officer
- During first visit a reminder to consumer & Disconnection in Second visit at site
- Maximum involvement of DET officers at site with rigorous follow-up

Dues : 5-20K
- Monitored by third party vendor with supervision of SDO ARO officer
- Tele-Calling Reminder by SDO officer & Disconnection-cum-Recovery Team
- Door to door knocking in first instance and Disconnection in Third Knocking

IVRS Calling / SMS triggered out

1st Time : At the time of Bill Generation
2nd Time: On Due Date
3rd Time : After Due Date

Dedicated Survey Cum Recovery Team for DC Consumer

- To curb theft and un-authorized use of electricity.
- To find out means of supply, if supply is in use.
- To ascertain use by another meter viz. with Neighbor meter, New Connection or any other meter is in same premises, if any.

Billing & Collection

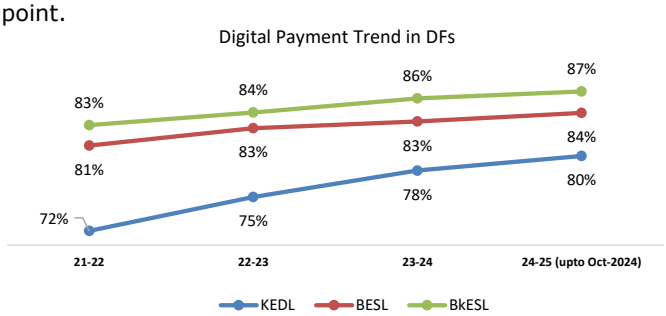
To advance the Billing of High Value Consumers, following initiatives have been taken :

- 100% AMR on HT consumer, enabling billing on the 1st day of each month.
- Billing of all the high value consumer >18.65 KW in the first week of the each month.
- More Emphasize on route-sequencing to optimize Meter Reading output.
- The in-house app enhances monitoring and more checks.
- Meter Location inside / outside tracking month on month.
- Site Condition of Premises / Specific requirement may be scheduled through app based on requirements
- Developing of mechanism for Bill Scan during delivery to ensure the 100% delivery of bills on time.

Billing & Collection

To improve ease of Payment

- Rolled out Dynamic UPI-based QR codes for current bill payments to enhance payment convenience, enabling easier payments at the site for consumers.
- Tiny URL Message to make the payment of Bills online for all consumers
- Introduce system-integrated POS machines at counters, offering payment options through QR codes, debit cards, and credit cards, with implementation scheduled for Q2. This feature will also be extended to the collection team.
- Collection Van in Basti Areas to increase reach point.
- Rise in Digital Payment Trend.



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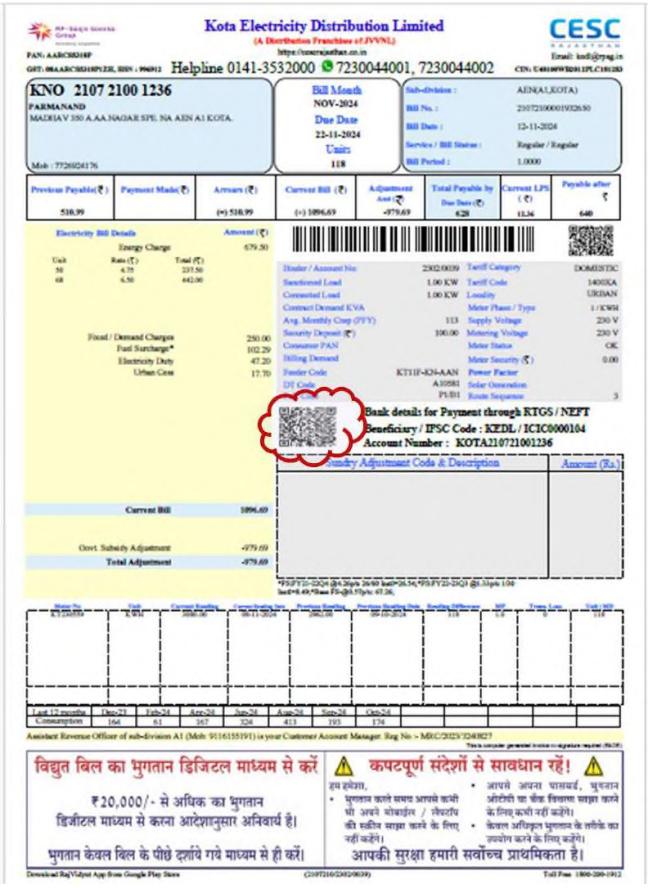


Kota Electricity Distribution Limited
(A Distribution Franchisee of JVVNL)
CESC RAJASTHAN
Helpline 0141-3532000 7230044001, 7230044002
KNO 2107 2100 1236
PARMANAND
Bill Month NOV-2024
Due Date 22-11-2024
Units 118
Bank details for Payment through RTGS / NEFT
Beneficiary / IFSC Code : KEDL / ICIC0000104
Account Number : KOTA210721001236
विद्युत बिल का भुगतान डिजिटल माध्यम से करें
₹20,000/- से अधिक का भुगतान डिजीटल माध्यम से करना आदेशानुसार अनिवार्य है।
भुगतान केवल बिल के पीछे दर्शाये गये माध्यम से ही करें।
कपटपूर्ण संदेशों से सावधान रहें!
आपकी सुरक्षा हमारी सर्वोच्च प्राथमिकता है।

Consumer Services

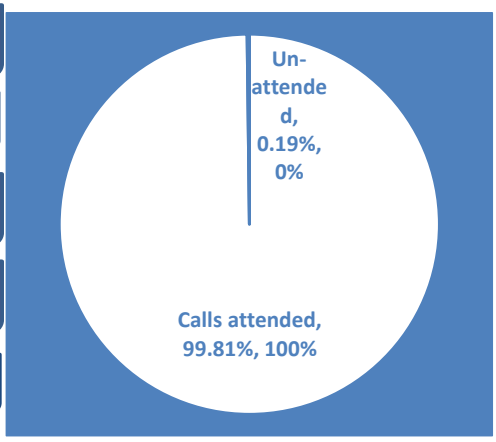
Customer Service Avenues

- Centralized Customer Care
- Mobile Cash Van for Payment
- 24 Hrs Working Call Centre with 180 lines
- Digital payment platforms
- Mobile App
- Consumer Grievance Redressal Camps
- New Connection camps
- SMS based Communication
- Designed Consumer Friendly Bill

Centralised Call Centre Complaint Handling Quantum

Calls attended	3061173 Nos
Un-attended	5685 Nos
Total Calls	3066857 Nos

^^ In last 12 months



Whatsapp CHATBOT

WhatsApp RAJBOT

Launched **"WhatsApp RAJBOT"** to facilitate better services to all 3 DFs Consumers

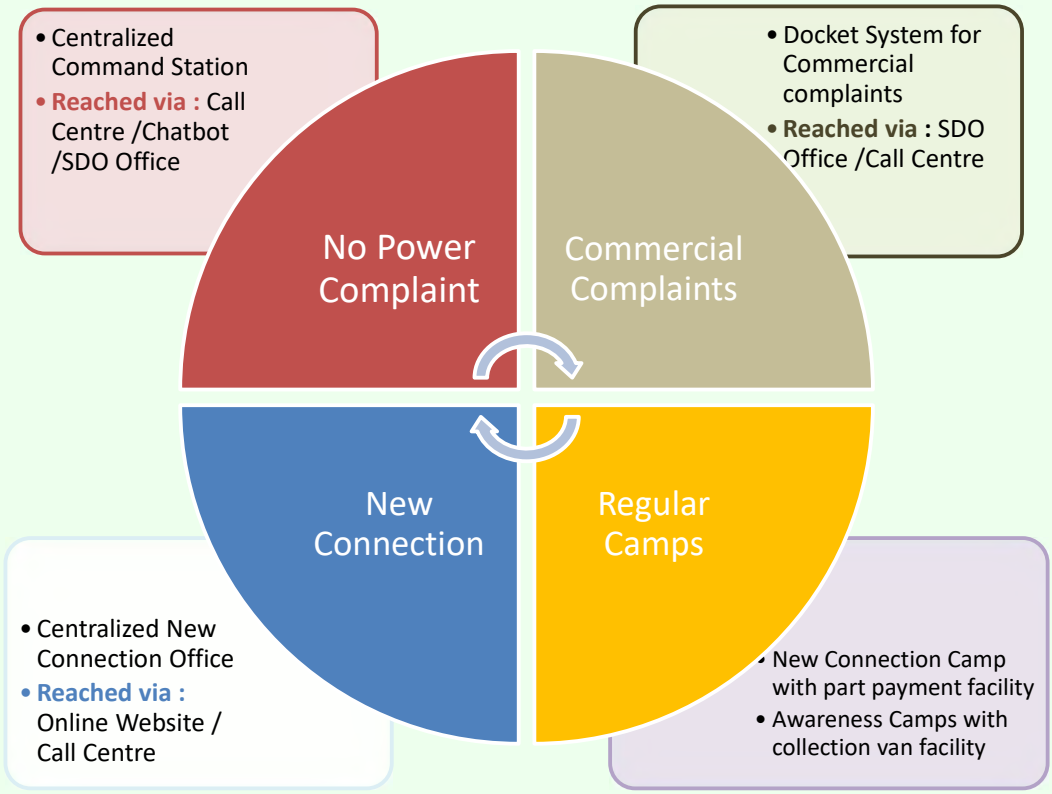
Benefit & Features :

In house APP enabled us to serve our consumers better. Salient features are : -

- Both Hindi & English Language
- Direct Consumer information
- Mob registration in case of new registration
- Download Latest Bill /Live Power Outage Info
- Payment: Online payment facility
- New Connection Application & Status
- Live Agent Support

Grievance Registration

Interface with Consumer : At the different level, we are taking feedback to improve the consumer services continuously.



Centralized New Connection Department

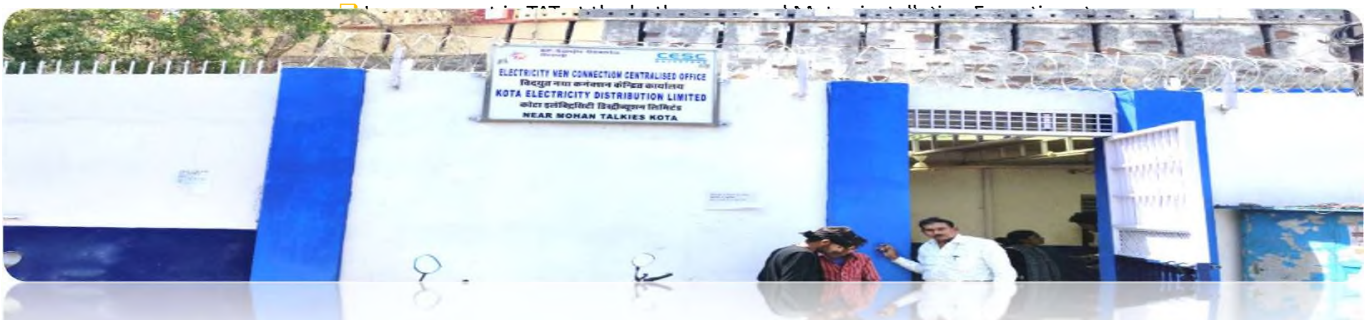
Requirement of "Centralized New Connection Dept."

- Uniform practice across in all SDOs
- Delay in Survey & Meter Execution
- Improper Document Management System
- Low accountability of Vendor Manpower Surveyors
- Lack in Fresh and Off-Circuit Meter Management

Benefit of "Centralized New Connection" Department

Introduced "Centralized New Connection Department" in Kota & Bharatpur

- Single window platform from registering of application to payment to execution of Connection
- Dedicated window to handle application disputes and allocated two hotline numbers to all
- Site Survey done by own Manpower Vs through vendor earlier
- Resource optimization & Standardized Procedures
- Improved Efficiency and Better Accountability



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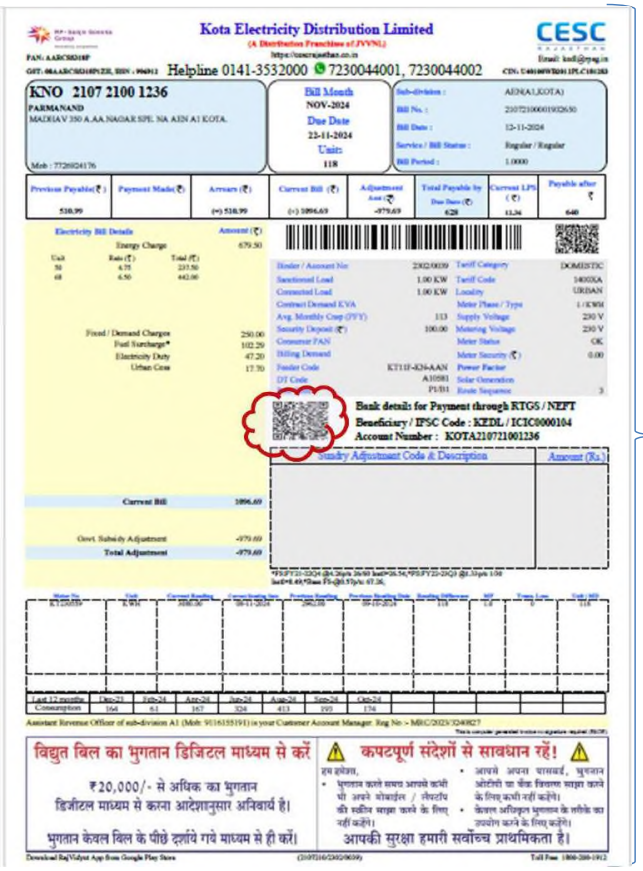
Designed a Consumer Friendly Bill



Salient Feature of Our New Bill Design :

✓ All billing components displayed

✓ Bar code & QR code displayed for the ease of payment

✓ Tariff slab wise segregation of bill amount

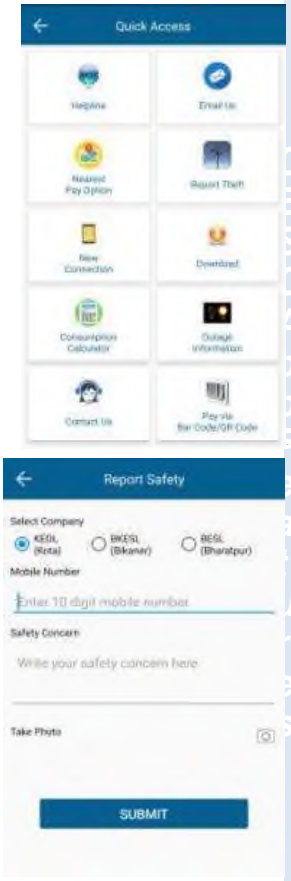
✓ Sundry / Cr.-Dr. adjustment displayed

✓ Prevalent Fuel surcharges information provided

✓ Separate display for Solar PV consumers

✓ Last 12 month consumption displayed

Mobile App for Consumers



- Hassle-free Login with mobile number
- View / Download *latest* Bill
- Online Bill payment
- Locate nearby Payment Centre's for cash payment on Google Map
- Quick Supply complaint registration without calling
- Daily/15 min Consumption of Smart Meter
- Previous Bill & Payment history
- e-bill subscription
- Send your latest bill to any other email
- Planned Outage information
- Report any safety concern or theft
- Live notification – Bill & Payment reminders

Customer Service Avenues

Regular Camps

संवाद

(Consumer Complaint Redressal Camps)

जन सुनवाई : 18 उपभोक्ताओं की समस्याओं का किया निस्तारण

भरतपुर. जनसुनवाई में समस्याओं को सुनते विद्युत विभाग के अधिकारी

भरतपुर. शहर के विद्युत उपभोक्ताओं की समस्याओं के समाधान के लिए बिजली घर स्थित व डिविजनल कार्यालय पर परिवर्तन कराने, बिलिंग की प्रक्रि तो कई ने विद्युत बिल में छूट के में जानकारी ली। अधिक उपभोक्ताओं की समस्याओं का

बीकेईएसएल जनसुनवाई : 17 शिकायतें आईं

बीकानेर | बीकानेर इलेक्ट्रिसिटी सप्लाई लिमिटेड के पब्लिक पार्क स्थित ऑफिस में शुक्रवार को जनसुनवाई हुई। बीकेईएसएल के ए. गोस्वामी ने बताया कि हर महीने की अंतिम तारीख को आमजन की समस्याओं है। इसमें बिजली है। उन्होंने बताया में से समस्याओं का केईएसएल के प्रमोद

जनसुनवाई में 18 मामलों का समाधान

भरतपुर। भरतपुर इलेक्ट्रिसिटी सर्विसेज लिमिटेड (बीईएसएल) बिजली घर चौराहा स्थित सब-डिविजनल कार्यालय पर जनसुनवाई हुई। इसमें ज्यादातर उपभोक्ता विद्युत बिल में किश्त करवाने, नया कनेक्शन लेने, विद्युत बिल में फोन नंबर, नाम व पता परिवर्तन कराने हेतु मिले। इस दौरान 18 उपभोक्ताओं की समस्याओं का समाधान किया गया। बीईएसएल के जनसंपर्क अधिकारी सुधीर प्रताप सिंह ने बजे से दोपहर एक बजे तक हुई। इसमें भरतपुर शहर के 18 उपभोक्तागण बिजली से संबंधित अपनी अपनी शिकायतें लेकर आए। इनकी समस्याओं को अधिकारियों ने सुना और समाधान कराया। इसके अलावा कुछ उपभोक्ताओं ने बिलिंग की प्रक्रिया को समझा, कुछ ने विद्युत बिल में छूट की जानकारी ली। जनसुनवाई में सभी उपभोक्ताओं को पूरी तरह संतुष्ट किया गया। वहीं बताया कि इस तरह के शिविर आगे भी

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...Thank you

MIZORAM ELECTRICITY REGULATORY COMMISSION
AIZAWL : : : MIZORAM
TBL Bhawan 2nd – 5th floor, E-18, Peter's Street,
Khatla, Aizawl-796001, Mizoram
Tel. No. : 0389 – 2335625, Email : mzerc24@gmail.com

No.T.11012/1/24-MZERC/3 **Dated Aizawl, the 13th August, 2024**

To

The Assistant Secretary,
Forum of Regulators
Sectt. Central Electricity Regulatory Commission,
8th Floor, World Trade Center,
Tower-B, Nauroji Nagar,
New Delhi – 110 029

Subject: Comments on viability of DISCOMS.
Reference: Your letter No. FOR-11011/1/2023-CERC dt.02.08.2024.

Sir,

With reference to your letter on the above subject, I am directed to State that the decision taken by the Working Group in its first Meeting is found to be encouraging for further necessary action considering the major factors that impact the viability of DISCOMS.

Yours faithfully,

(LALCHANCHINMAWII)
Assistant Secretary

Delhi Electricity Regulatory Commission
Viniyamak Bhavan, C-Block, Shivalik, Malviya Nagar, New Delhi-110017

No.F.9(274)/ DERC/ JS/2023-2024/C.F.No.7955/ 849 Dated:09.08.2024

To

Sh. Pankaj Rana
Assistant Secretary, FOR
Forum of Regulators
Sectt. Central Electricity Regulatory Commission
8th Floor, World Trade Tower, Tower-B, Nauroji Nagar,
New Delhi: 110029

Sub.: Seeking comments on viability of discoms- reg.

Sir,

With reference to your email dated 02.08.2024 on the above mentioned subject, comments of DERC are attached herewith as **Appendix 'A'** for further needful at your end please.

Yours faithfully,

09/08/2024

(Piyush Manocha)
Dy. Director (Law)/JS (LO)

Encls. As above

Appendix 'A'

Point-wise inputs on viability of sustainability of DISCOMs are as follows:

a) ACS-ARR Gaps:

- The Commission in its Tariff Orders issued in past issued Cost Reflective Tariff for DISCOMs. Relevant extracts of Tariff Orders are quoted as follows:

5.6 Summary of ARR, Revenue at Existing / Revised Tariff, Net Revenue (Gap) / Surplus for FY 2021-22 is as follows:

Table 5. 9: ARR, Revenue at Existing / Revised Tariff, net Revenue (Gap)/Surplus for FY 2021-22 (Rs. Cr.)

Particulars	BRPL	BYPL	TPDDL
ARR for FY 2021-22 (A)	8814.59	4461.43	6939.44
Carrying Cost for FY 2021-22 (B)	366.16	280.15	92.25
PPAC Cost Subsumed of various Quarters of FY 2020-21 & FY 2021-22 (C)	242.80	18.40	13.69
Revised ARR for FY 2021-22 (D=A+B+C)	9423.55	4759.98	7045.38
Revenue at Existing / Revised Tariff (E)	8325.13	4259.40	6443.76
Revenue from PPAC in FY 2021-22 (F)	1116.30	512.14	626.57
Total Revenue (G=D+E)	9441.43	4771.54	7070.33
Revenue (Gap) / Surplus (G-D)	17.88	11.56	24.95

5.6 Summary of ARR, Revenue at revised tariff, net Revenue Gap / Surplus for FY 2020-21 is as follows:

Table 5. 9: ARR, Revenue at revised tariff, net Revenue (Gap)/Surplus for FY 2020-21 (Rs. Cr.)

Particulars	BRPL	BYPL	TPDDL
ARR	8061	4004	6039
Carrying Cost for FY 2020-21	258	178	97
PPAC Cost Subsumed against power purchase during FY 2019-20	428	150	228
Revised ARR	8748	4333	6383
Revenue at Revised Tariff	8195	4137	6006
Revenue from PPAC by continuing levy of July PPAC %age till Mar'21 for BRPL & TPDDL and till Jan'21 for BYPL	637	252	429

Particulars	BRPL	BYPL	TPDDL
FC Reduction for Industrial & Non-Domestic Consumers for April & May 2020	58	40	41
Total Revenue	8774	4349	6395
Revenue (Gap) / Surplus	26	16	12

5.7 Summary of ARR, Revenue at revised tariff, net Revenue Gap / Surplus for FY 2019-20 is as follows:

Table 5. 9: ARR, Revenue at revised tariff, net Revenue (Gap)/Surplus for FY 2019-20 (Rs. Cr.)

Particulars	BYPL	BRPL	TPDDL
ARR	4,412	8,715	6,847
Carrying Cost for FY 2019-20	228	346	103
Revised ARR	4,640	9,060	6,950
Revenue at revised tariff	4,727	9,066	6,989
Revenue (Gap) / Surplus	86	6	38

- As stated above, the Commission endeavor to issue cost-reflective Tariff Order from time-to-time, however, due to implementation of Higher Court Judgments, there are Regulatory Assets in Delhi as stated in subsequent paras.

b) AT&C Losses:

- In Delhi, Distribution Loss Targets and Collection Efficiency Targets are defined separately rather than AT&C Losses.
- Current, Distribution Loss Targets and Collection Efficiency Targets as per DERC (Business Plan) Regulations, 2023 are as follows:

25. TARGET FOR DISTRIBUTION LOSS:

(1) The Distribution Loss target in terms of Regulation 4(9)(a) of the *DERC (Terms and Conditions for Determination of Tariff) Regulations, 2017* for the Distribution licensees shall be as follows:

Table 13: Target for Distribution Loss for the Control Period

Sr. No.	Distribution Licensee	FY 2023-24	FY 2024-25	FY 2025-26
1	BSES Rajdhani Power Ltd.	7.30%	7.14%	6.96%
2	BSES Yamuna Power Ltd.	7.72%	7.54%	7.33%
3	Tata Power Delhi Distribution Ltd.	6.91%	6.83%	6.74%
4	New Delhi Municipal Council	7.72%	7.54%	7.33%

26. **TARGET FOR COLLECTION EFFICIENCY:**

(1) The targets for Collection Efficiency for FY 2023-24 to FY 2025-26 of the Distribution Licensee shall be 99.80%.

(2) The financial impact on account of Collection Efficiency target shall be computed as per the formula specified in Regulation 163 of the *DERC (Terms and Conditions for Determination of Tariff) Regulations, 2017* as amended from time to time for the Distribution Licensee.

(3) The financial impact on account of over-achievement in terms of Regulation 164 of the *DERC (Terms and Conditions for Determination of Tariff) Regulations, 2017* as amended from time to time, for the Distribution Licensee, from the target of 99.80% to 100% shall be shared equally between Consumers and the Distribution Licensees.

Provided that there shall be no penalty for Collection Efficiency if the same is in range of 99.50% to 99.80%.

- Further, Statement of Reasons for Business Plan Regulations, 2023 is available on the website of the Commission.

c) Regulatory Assets:

- The Commission vide its True-up Orders dated 19/07/2024 have recognized Regulatory Assets of Delhi DISCOMs till FY 2020-21 as follows:

(Rs. Cr.)

Particulars	BRPL	BYPL	TPDDL
Regulatory Assets till FY 2020-21	(12,993.53)	(8,419.14)	(5,787.70)

- Relevant Extracts of True-up Orders dated 19/07/2024 is enclosed herewith as ***Annexure-1.***

- The above mentioned Regulatory Assets were recognized by the Commission due to implementation of Judgments/Orders issued by Higher Courts from time-to-time.

- However, w.r.t to Liquidation Plan/Trajectory of Accumulated Revenue Gap/Regulatory Assets, it is pertinent to submit that the Commission has submitted the Road Map of the same before Hon'ble Supreme Court in Civil Appeal Nos. 884 of 2010 and 9003-9004 of 2011 and 8% Regulatory Assets Surcharge is levied on Fixed &

Energy Charges by the Distribution Licensees *(BRPL, BYPL and TPDDL)* to the Consumers in their Electricity Bills since FY 2012-13.

d) <u>O&M Expenses (including Employee Costs):</u>

- With regard to O&M Expenses of Delhi DISCOMs, it is pertinent to submit that the Commission has approved the Norms of O&M Expenses on per unit of sales basis rather than on consolidated amount basis which will be trued-up, as follows:

(10) The Normative Operation and Maintenance Expenses of a Distribution Licensees for the Control Period, after considering Inflationary Growth Rate of 4.66% , shall be as follows:

Table 8: Norms of O&M Expenses for DISCOMs for the Control Period [Rate / Unit of sale (Paise)]

Distribution Licensees	FY 2023-24	FY 2024-25	FY 2025-26
BRPL	54.72	54.92	55.13
BYPL	64.15	64.40	64.64
TPDDL	61.46	62.09	62.73
NDMC	54.72	54.92	55.13

(4) The Distribution Licensee shall be allowed O&M expenses for a particular Financial Year of the Control Period by multiplying the normative rate per unit defined herewith of that particular year with the Trued-up sales during the relevant Financial Year.

Provided that, under no circumstances, Distribution Licensees shall be allowed O&M Expenses more than the Actual O&M Expenses as per Audited Books of Accounts during True-up of relevant Financial Year.

- Further, Statement of Reasons for Business Plan Regulations, 2023 is available on the website of the Commission.

e) Cross Subsidy Surcharge

- As per Para 8.5 of the National Tariff Policy, 2006 cross-subsidy surcharge should be within ±20% of Average Cost of Supply (ACoS). The Commission vide its Open Access Order dated 1/06/2017 mentioned that Cross Subsidy Surcharge shall be based on the surcharge formula laid-down in Para 8.5 of the National Tariff Policy issued by the Government of India.

- The Commission also mentioned in the said Order that Cross Subsidy Surcharge will be determined on annual basis by nodal agency on issuance of Tariff Order. The relevant extract is as follows:

  "2.2. Cross Subsidy surcharge

  ...

  (4) Keeping in view all the above points, it is felt that it shall be appropriate to determine the surcharge on annual basis by nodal agency on issuance of Tariff Order. ..."

- In line with the Commission Order, SLDC issues yearly Cross Subsidy Surcharge computation based on the Tariff Order issued by the Commission. Cross Subsidy Surcharge for FY 2021-22 is attached as ***Annexure-2.***

f) <u>Timely Issuance of Tariff Orders:</u>

- The Commission vide its Order dated 19/07/2024 has issued True-up Orders of Delhi Power Utilities till FY 2020-21 which is available on the website of the Commission and w.r.t. FY 2021-22, the comments/suggestions from various stakeholders are in process of being received which will end on the date of Public Hearing which is due to be held. Public Notice in this regard is available on the website of the Commission.

- Further, the Commission vide its Orders dated 7/06/2024 has admitted the True-up Petitions for FY 2022-23 and ARR for FY 2024-25.

- It is pertinent to submit that ARR for FY 2023-24, Hon'ble High Court of Delhi vide their Orders dated 7/07/2023, 23/08/2023 observed the submission of Counsel of the Commission to not to pass the final Orders. Further, the Commission vide its letter dated 19/09/2023 ***(Annexure-3)*** informed Ministry of Power, GoI that:

  "....4) in view of above, it is submitted that the Tariff Order for FY 2023-24 can be passed by the Commission after vacation of the restraint order by the Hon'ble High Court of Delhi.

5) Various compliance Orders dated 27/03/2023, 14/05/2023 and 10/07/2023 on the Hon'ble Supreme Court's Orders dated 21/07/2022 on the Hon'ble APTEL's Order have already been issued by this Commission.

6) As tariff issuance being an annual exercise, the True up for the year FY 2020-21 and FY 2021-22 will be issued simultaneously with the Tariff Order for FY 2023-24"

- The Commission vide its letter dated 19/09/2023 informed the position of Tariff Orders to Ministry of Power, GoI as well.

DELHI ELECTRICITY REGULATORY COMMISSION

Viniyamak Bhawan, 'C' Block, Shivalik, Malviya Nagar, New Delhi- 110017

F.11(1935)/DERC/2021-22

Tariff Petition No. 03/2022 (True-up part)

In the matter of: **Petition for approval of True-Up for FY 2020-21**

BSES Rajdhani Power Ltd
through its: CEO
BSES Bhawan
Nehru Place
New Delhi – 110019

...Petitioner/Licensee

Coram:
Hon'ble Justice (Retd.) Jayant Nath, Chairperson

ORDER
(Date of Order: 19.07.2024)

M/s BSES Rajdhani Power Limited (BRPL) has filed the instant Petition for approval of true-up of expenses upto FY 2020-21 and Aggregate Revenue Requirement (ARR) for FY 2022-23. The Petition was admitted by the Commission vide Order dated 17.03.2022. The Petition along with Executive Summary was Uploaded on the website of the Commission and published through advertisement in newspapers for seeking response of the stakeholders. However, this Order pertains only to the approval of true-up of expenses upto FY 2020-21.

The comments and suggestions of the stakeholders including the submissions made during the virtual public hearing held on 12.05.2022 & 13.05.2022 and the arguments advanced by the Petitioner have been duly considered by the Commission.

In exercise of the powers vested under the Electricity Act, 2003 and Delhi Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff) Regulations, 2017, the Commission hereby passes this true-up Order signed, dated and issued on 19.07.2024.

(Justice (Retd.) Jayant Nath)
Chairperson

CONSOLIDATED REVENUE (GAP)/SURPLUS

REVENUE (GAP)/SURPLUS TILL FY 2020-21

3.458 The Revenue (Gap)/Surplus upto FY 2020-21 is summarised in the table as follows:

Table 3. 105: REVENUE (GAP)/SURPLUS TILL FY 2020-21 (Rs. Cr.)

Sr. No.	Particulars	TO dated 30/09/2021 upto FY 2019-20	FY 2020-21	Remarks
A	Opening Balance of Revenue (Gap) / Surplus (now revised due to prior period true up)	(3,474.79)	(11,518.08)	As per Prior Period Section of TO
B	Impact of Past Period True Up	(479.48)		
C	Revenue Requirement for the year	9,576.91	8,768.37	Table No. 3.104
D	Revenue realized	9,095.27	8,131.03	
E	(Gap) / Surplus for the year	(481.64)	(637.35)	
F	8% Surcharge for the year	728.87	612.35	Table No. 3.35
G	Net (Gap)/Surplus	247.23	(25.00)	G = E+F
H	Rate of Carrying Cost	12.59%	12.58%	
I	Amount of Carrying Cost	(482.41)	(1,450.46)	
J	Closing Balance of (Gap)/Surplus	(4,189.46)	(12,993.53)	J = A+G+I

DELHI ELECTRICITY REGULATORY COMMISSION

Vinyamak Bhawan, 'C' Block, Sriyak, Malviya Nagar, New Delhi-110 017

F.31(2936)/DERC/2021-22

Tariff Petition No. 04/2022 (True-up part)

In the matter of: **Petition for approval of True-Up for FY 2020-21.**

BSES Yamuna Power Limited
Through its: **CEO**
Shakti Kiran Building
Karkardooma
Delhi-110 092

...Petitioner/Licensee

Coram:
Hon'ble Justice (Retd.) Jayant Nath, Chairperson

ORDER

(Date of Order: 19.07.2024)

M/s BSES Yamuna Power Limited (BYPL) has filed the instant Petition for approval of true-up of expenses upto FY 2020-21 and Aggregate Revenue Requirement (ARR) for FY 2022-23. The Petition was admitted by the Commission vide Order dated 17.03.2022. The Petition along with Executive Summary was uploaded on the website of the Commission and publicised through advertisement in newspapers for seeking response of the stakeholders. However, this Order pertains only to the approval of true-up of expenses upto FY 2020-21.

The comments and suggestions of the stakeholders including the submissions made during the virtual public hearing held on 12.05.2022 & 13.05.2022 and the arguments advanced by the Petitioner have been duly considered by the Commission.

In exercise of the powers vested under the Electricity Act, 2003 and Delhi Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff) Regulations, 2017, the Commission hereby passes this True-up Order signed, dated and issued on 19.07.2024.

(Justice (Retd.) Jayant Nath)
Chairperson

Table 3. 103: Commission Approved – Revenue Surplus/(Gap) towards ARR for FY 2020-21

(Rs. Cr.)

Sr. No.	Particulars	Petitioner Submission	Commission Approved
A	ARR For FY 2020-21	4,409	4,230.51
B	Revenue Available Towards ARR without Carrying cost	4,211	4,257.23
C	**Revenue (Gap)/Surplus**	(197.59)	26.72

CONSOLIDATED REVENUE (GAP)/SURPLUS

REVENUE (GAP)/SURPLUS TILL FY 2020-21

3.409 The Revenue (Gap)/Surplus upto FY 2020-21 is summarised in the table as follows:

Table 3. 104: Revenue (Gap)/Surplus till FY 2020-21

Sr. No.	Particulars	TO dated 30/09/2021 upto FY 2019-20	FY 2020-21	Remarks
A	Opening Balance of Revenue (Gap) / Surplus	(2,292.00)	(7,819.98)	As per Prior Period Section of TO
B	Impact of Past Period True Up	(869.09)		
C	Revenue Requirement for the year	4,684.48	4,230.51	Table No. 3.103
D	Revenue realized	4,750.01	4,257.23	
E	(Gap) / Surplus for the year	65.53	26.72	
F	8% Surcharge for the year	376.65	315.37	Table No. 3.36
G	Net (Gap)/Surplus	442.18	342.09	G = E+F
H	Rate of Carrying Cost	12.57%	12.31%	
I	Amount of Carrying Cost	(369.42)	(941.25)	
J	Pension Trust Deficit for FY 2017-18	(22.59)	-	
K	Closing Balance of (Gap)/Surplus	(3,110.92)	(8,419.14)	K = A+G+I

DELHI ELECTRICITY REGULATORY COMMISSION

Viniyamak Bhawan, 'C' Block, Shivalik, Malviya Nagar, New Delhi- 110017

F.11(1934)/DERC/2021-22

Tariff Petition No. 02/2022 (True-up part)

In the matter of: **Petition for approval of True-Up for FY 2020-21.**

Tata Power Delhi Distribution Limited
Through its **Managing Director**
Sub Station Building, Hudson Lines
Kingsway Camp
Delhi-110 009

...**Petitioner/Licensee**

Coram:
Hon'ble Justice (Retd.) Jayant Nath, Chairperson

ORDER
(Date of Order: 19.07.2024)

M/s Tata Power Delhi Distribution Ltd. (TPDDL) has filed the instant Petition for approval of True-up of expenses upto FY 2020-21 and Aggregate Revenue Requirement (ARR) for FY 2022-23. The Petition was admitted by the Commission vide Order dated 17.03.2022. The Petition along with Executive Summary was uploaded on the website of the Commission and published through advertisement in newspapers for seeking response of the stakeholders. However, this Order pertains only to the approval of true-up of expenses upto FY 2020-21.

The comments and suggestions of the stakeholders including the submissions made during the virtual public hearing held on 12.05.2022 & 13.05.2022 and the arguments advanced by the Petitioner have been duly considered by the Commission.

In exercise of the powers vested under the Electricity Act, 2003 and Delhi Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff) Regulations, 2017, the Commission hereby passes the True-up Order signed, dated and issued on 19.07.2024.

(Justice (Retd.) Jayant Nath)
Chairperson

CONSOLIDATED REVENUE (GAP)/SURPLUS

REVENUE (GAP)/SURPLUS TILL FY 2020-21

3.374 The Revenue (Gap)/Surplus upto FY 2020-21 is summarised in the table as follows:

(Rs. Cr.)

Sr. No.	Particulars	TO dated 30/09/2021 upto FY 2019-20	FY 2020-21	Remarks
A	Opening Balance of Revenue (Gap) / Surplus	(1,890.00)	(1,762.81)	As per TO 30/09/2021
B	Impact of Past Period True Up	142.08	(3,568.37)	Table 3.6
C	Revenue Requirement for the year	7,452.28	6,796.99	Table No. 3.106
D	Revenue realized	7,073.29	6,373.81	
E	(Gap) / Surplus for the year	(378.98)	(423.18)	
F	8% Surcharge for the year	534.60	476.58	Table No. 3.27
G	Net (Gap)/Surplus	155.62	53.41	G = E+F
H	Rate of Carrying Cost	10.21%	9.61%	
I	Amount of Carrying Cost	(170.51)	(509.92)	I = [A+B+(G)/2]*H
J	Closing Balance of (Gap)/Surplus	(1,762.81)	(5,787.70)	J = A+B+G+I

Annexure-2

Annexure-2

Office of
Manager (System Operation)
33kV Grid Sub-Station Building
Minto Road, New Delhi-110002
Ph. No. 23211207
Fax No. 23221012, 23221059

DELHI TRANSCO LIMITED
STATE LOAD DESPATCH CENTER
REGD. OFFICE : SHAKTI SADAN BUILDING, KOTLA ROAD, NEW DELHI-110002
www.dtl.gov.in www.delhisldc.org

Cross Subsidy Surcharge as per Tariff Order for FY 21-22

For TPDDL

Surcharge(S) is calculated as follows:

			Surcharge in Ps/unit				T-{C(1+L/100)+D+R}		
Voltage Levels	X	X+D+R	Industrial	Non Domestic	Domestic	Railway	Public Utilities	E-Vehical charging stn	
T	in ps/unit	in ps/unit	939	1090	435	0	765	450	
Restricted@20%			187.8	218	87	0	153	90	
Above 66 kV	469.34	685.25	187.80	218.00	-250.25	Exempte	79.75	-235.25	
At 33/66 kV	472.99	689.60	187.80	218.00	-254.60	d as per	75.40	-239.60	
At 11 kV	481.87	700.38	187.80	218.00	-265.38	NTP	64.62	-250.38	
At LT level	513.28	738.39	187.80	218.00	-303.39		26.61	-288.39	

For BRPL

Surcharge(S) for BRPL is calculated as follows:

			Surcharge in Ps/unit				T-{C(1+L/100)+D+R}		
Voltage Levels	X	X+D+R	Industrial	Non Domestic	Domestic	Railway	Public Utility	Dial	E-Vehical charging stn
T	in ps/unit	in ps/unit	953	1124	490	0	739	820	450
Restricted@20%			190.6	224.8	98	0	147.8	164	90
Above 66 kV	445.72	575.00	190.60	224.80	-85.00	Exempte	147.80	164.00	-125.00
At 33/66 kV	450.27	684.35	190.60	224.80	-194.35	d as per	54.65	135.65	-234.35
At 11 kV	455.80	691.18	190.60	224.80	-201.18	NTP	47.82	128.82	-241.18
At LT level	492.02	735.60	190.60	224.80	-245.60		3.40	84.40	-285.60

For BYPL

Surcharge(S) is calculated as follows:

			Surcharge in Ps/unit				T-{C(1+L/100)+D+R}		
Voltage Levels	X	X+D+R	Industrial	Non Domestic	Domestic	Railway	Public Utilities	E-Vehical charging stn	
T	in ps/unit	in ps/unit	942	1139	450	0	769	450	
Restricted@20%			188.4	227.8	90	0	153.8	90	
Above 66 kV	363.64	514.92	188.40	227.80	-64.92	Exempte	153.80	-64.92	
At 33/66 kV	365.39	639.07	188.40	227.80	-189.07	d as per	129.93	-189.07	
At 11 kV	370.23	645.51	188.40	227.80	-195.51	NTP	123.49	-195.51	
At LT level	402.65	688.43	188.40	227.80	-238.43		80.57	-238.43	

Note: DMRC & DJB covered under public Utilities

Annexure-3

Annexure-3

दिल्ली विद्युत विनियामक आयोग
Delhi Electricity Regulatory Commission

F.3(656)/Tariff/DERC/2021-22/7212 (Part file) /1518 Dated: 19/09/2023

To

Mr. Suresh Annepu
Director,
Government of India,
Ministry of Power,
Shram Shakti Bhawan,
New Delhi-110001.

Subject: Timely issuance of the Tariff Orders and True-up Orders by SERCs Reg.

Sir,

With reference to letter F.No. 07/03/2023-RCM dated 1st September, 2023 on above mentioned subject, it is stated that the Commission on 06/04/2023 had issued the Business Plan Regulations, 2023 for Control Period of three years viz. FY 2023-24 to FY 2025-26. Various provisions of these Business Plan Regulations have been challenged by the three Distribution Companies - BSES Rajdhani Power Ltd, BSES Yamuna Power Ltd. and Tata Power Delhi Distribution Ltd. in Hon'ble High Court of Delhi viz WP(C) 6618/2023, 6619/2023 and 6724/2023, respectively.

2) In this regard the Hon'ble High Court in its Order dated 07/07/2023 has stated that –

"Learned Counsel for the Respondent was fair enough in stating before this Court that they will not be passing any final Order in Petition Nos. 26/2023 and 27/2023 till 14/07/2023."

3) In the Order dated 23/08/2023 the Hon'ble High Court of Delhi has stated –

"The undertaking as proffered on behalf of the DERC to continue till the next date of listing.
The next date of hearing is 30/10/2023."

विनियामक भवन, सी–ब्लॉक, शिवालिक, मालवीय नगर, नई दिल्ली–110017
Viniyamak Bhawan, Shivalik, Malviya Nagar, New Delhi-110017
Tel : 011-41601674, e-mail: dirtariff@derc.gov.in Website: www.derc.gov.in

4) In view of above, it is submitted that the Tariff Order for FY 2023-24 can be passed by the Commission after vacation of the restraint order by the Hon'ble High Court of Delhi.

5) Various compliance Orders dated 27/03/2023, 14/05/2023 and 10/07/2023 on the Hon'ble Supreme Court's Orders and dated 21/07/2022 on the Hon'ble APTEL's Order have already been issued by this Commission.

6) As tariff issuance being an annual exercise, the True up for the year FY 2020-21 and FY 2021-22 will be issued simultaneously with the Tariff Order for FY 2023-24.

This issues with approval of the Commission.

Yours faithfully,

19/9/23

(Himanshu Chawla)
Jt. Director (TE)

Appendix 'A'

Point-wise inputs on viability of sustainability of DISCOMs are as follows:

a) <u>ACS-ARR Gaps:</u>

- The Commission in its Tariff Orders issued in past issued Cost Reflective Tariff for DISCOMs. Relevant extracts of Tariff Orders are quoted as follows:

5.6 Summary of ARR, Revenue at Existing / Revised Tariff, Net Revenue (Gap) / Surplus for FY 2021-22 is as follows:

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Revenue from PPAC in FY 2021-22 (F)	1116.30	512.14	626.57
Total Revenue (G=D+E)	9441.43	4771.54	7070.33
Revenue (Gap) / Surplus (G-D)	**17.88**	**11.56**	**24.95**

5.6 Summary of ARR, Revenue at revised tariff, net Revenue Gap / Surplus for FY 2020-21 is as follows:

Table 5. 9: ARR, Revenue at revised tariff, net Revenue (Gap)/Surplus for FY 2020-21 (Rs. Cr.)

Particulars	BRPL	BYPL	TPDDL
ARR	8061	4004	6059
Carrying Cost for FY 2020-21	258	178	97
PPAC Cost Subsumed against power purchase during FY 2019-20	428	150	228
Revised ARR	8748	4333	6383
Revenue at Revised Tariff	8195	4137	6006
Revenue from PPAC by continuing levy of July PPAC %age till Mar'21 for BRPL & TPDDL and till Jan'21 for BYPL	637	252	429

Particulars	BRPL	BYPL	TPDDL
FC Reduction for Industrial & Non-Domestic Consumers for April & May 2020	58	40	41
Total Revenue	8774	4349	6395
Revenue (Gap) / Surplus	26	16	12

5.7 Summary of ARR, Revenue at revised tariff, net Revenue Gap / Surplus for FY 2019-20 is as follows:

Table 5. 9: ARR, Revenue at revised tariff, net Revenue (Gap)/Surplus for FY 2019-20 (Rs. Cr.)

Particulars	BYPL	BRPL	TPDDL
ARR	4,412	8,715	6,847
Carrying Cost for FY 2019-20	228	346	103
Revised ARR	4,640	9,060	6,950
Revenue at revised tariff	4,727	9,066	6,989
Revenue (Gap) / Surplus	86	6	38

- As stated above, the Commission endeavor to issue cost-reflective Tariff Order from time-to-time, however, due to implementation of Higher Court Judgments, there are Regulatory Assets in Delhi as stated in subsequent paras.

b) AT&C Losses:

- In Delhi, Distribution Loss Targets and Collection Efficiency Targets are defined separately rather than AT&C Losses.
- Current, Distribution Loss Targets and Collection Efficiency Targets as per DERC (Business Plan) Regulations, 2023 are as follows:

25. TARGET FOR DISTRIBUTION LOSS:

(1) The Distribution Loss target in terms of Regulation 4(9)(a) of the *DERC (Terms and Conditions for Determination of Tariff) Regulations, 2017* for the Distribution licensees shall be as follows:

Table 13: Target for Distribution Loss for the Control Period

Sr. No.	Distribution Licensee	FY 2023-24	FY 2024-25	FY 2025-26
1	BSES Rajdhani Power Ltd.	7.30%	7.14%	6.96%
2	BSES Yamuna Power Ltd.	7.72%	7.54%	7.33%
3	Tata Power Delhi Distribution Ltd.	6.91%	6.83%	6.74%
4	New Delhi Municipal Council	7.72%	7.54%	7.33%

26. TARGET FOR COLLECTION EFFICIENCY:

(1) The targets for Collection Efficiency for FY 2023-24 to FY 2025-26 of the Distribution Licensee shall be 99.80%.

(2) The financial impact on account of Collection Efficiency target shall be computed as per the formula specified in Regulation 163 of the *DERC (Terms and Conditions for Determination of Tariff) Regulations, 2017* as amended from time to time for the Distribution Licensee.

(3) The financial impact on account of over-achievement in terms of Regulation 164 of the *DERC (Terms and Conditions for Determination of Tariff) Regulations, 2017* as amended from time to time, for the Distribution Licensee, from the target of 99.80% to 100% shall be shared equally between Consumers and the Distribution Licensees.

Provided that there shall be no penalty for Collection Efficiency if the same is in range of 99.50% to 99.80%.

- Further, Statement of Reasons for Business Plan Regulations, 2023 is available on the website of the Commission.

c) Regulatory Assets:

- The Commission vide its True-up Orders dated 19/07/2024 have recognized Regulatory Assets of Delhi DISCOMs till FY 2020-21 as follows:

(Rs. Cr.)

Particulars	BRPL	BYPL	TPDDL
Regulatory Assets till FY 2020-21	(12,993.53)	(8,419.14)	(5,787.70)

- Relevant Extracts of True-up Orders dated 19/07/2024 is enclosed herewith as ***Annexure-1.***

- The above mentioned Regulatory Assets were recognized by the Commission due to implementation of Judgments/Orders issued by Higher Courts from time-to-time.

- However, w.r.t to Liquidation Plan/Trajectory of Accumulated Revenue Gap/Regulatory Assets, it is pertinent to submit that the Commission has submitted the Road Map of the same before Hon'ble Supreme Court in Civil Appeal Nos. 884 of 2010 and 9003-9004 of 2011 and 8% Regulatory Assets Surcharge is levied on Fixed &

Energy Charges by the Distribution Licensees *(BRPL, BYPL and TPDDL)* to the Consumers in their Electricity Bills since FY 2012-13.

d) <u>O&M Expenses (including Employee Costs):</u>

- With regard to O&M Expenses of Delhi DISCOMs, it is pertinent to submit that the Commission has approved the Norms of O&M Expenses on per unit of sales basis rather than on consolidated amount basis which will be trued-up, as follows:

(10) The Normative Operation and Maintenance Expenses of a Distribution Licensees for the Control Period, after considering Inflationary Growth Rate of 4.66% , shall be as follows:

Table 8: Norms of O&M Expenses for DISCOMs for the Control Period
[Rate / Unit of sale (Paise)]

Distribution Licensees	FY 2023-24	FY 2024-25	FY 2025-26
BRPL	54.72	54.92	55.13
BYPL	64.15	64.40	64.64
TPDDL	61.46	62.09	62.73
NDMC	54.72	54.92	55.13

(4) The Distribution Licensee shall be allowed O&M expenses for a particular Financial Year of the Control Period by multiplying the normative rate per unit defined herewith of that particular year with the Trued-up sales during the relevant Financial Year.

Provided that, under no circumstances, Distribution Licensees shall be allowed O&M Expenses more than the Actual O&M Expenses as per Audited Books of Accounts during True-up of relevant Financial Year.

- Further, Statement of Reasons for Business Plan Regulations, 2023 is available on the website of the Commission.

e) Cross Subsidy Surcharge

- As per Para 8.5 of the National Tariff Policy, 2006 cross-subsidy surcharge should be within ±20% of Average Cost of Supply (ACoS). The Commission vide its Open Access Order dated 1/06/2017 mentioned that Cross Subsidy Surcharge shall be based on the surcharge formula laid-down in Para 8.5 of the National Tariff Policy issued by the Government of India.

- The Commission also mentioned in the said Order that Cross Subsidy Surcharge will be determined on annual basis by nodal agency on issuance of Tariff Order. The relevant extract is as follows:

  "2.2. Cross Subsidy surcharge

  …

  (4) Keeping in view all the above points, it is felt that it shall be appropriate to determine the surcharge on annual basis by nodal agency on issuance of Tariff Order. …"

- In line with the Commission Order, SLDC issues yearly Cross Subsidy Surcharge computation based on the Tariff Order issued by the Commission. Cross Subsidy Surcharge for FY 2021-22 is attached as ***Annexure-2.***

f) <u>Timely Issuance of Tariff Orders:</u>

- The Commission vide its Order dated 19/07/2024 has issued True-up Orders of Delhi Power Utilities till FY 2020-21 which is available on the website of the Commission and w.r.t. FY 2021-22, the comments/suggestions from various stakeholders are in process of being received which will end on the date of Public Hearing which is due to be held. Public Notice in this regard is available on the website of the Commission.

- Further, the Commission vide its Orders dated 7/06/2024 has admitted the True-up Petitions for FY 2022-23 and ARR for FY 2024-25.

- It is pertinent to submit that ARR for FY 2023-24, Hon'ble High Court of Delhi vide their Orders dated 7/07/2023, 23/08/2023 observed the submission of Counsel of the Commission to not to pass the final Orders. Further, the Commission vide its letter dated 19/09/2023 ***(Annexure-3)*** informed Ministry of Power, GoI that:

  "….4) in view of above, it is submitted that the Tariff Order for FY 2023-24 can be passed by the Commission after vacation of the restraint order by the Hon'ble High Court of Delhi.

5) Various compliance Orders dated 27/03/2023, 14/05/2023 and 10/07/2023 on the Hon'ble Supreme Court's Orders dated 21/07/2022 on the Hon'ble APTEL's Order have already been issued by this Commission.

6) As tariff issuance being an annual exercise, the True up for the year FY 2020-21 and FY 2021-22 will be issued simultaneously with the Tariff Order for FY 2023-24"

- The Commission vide its letter dated 19/09/2023 informed the position of Tariff Orders to Ministry of Power, GoI as well.

TAMIL NADU ELECTRICITY REGULATORY COMMISSION
4th Floor, SIDCO Corporate Office Building, Thiru-vi-ka Industrial Estate,
Guindy, Chennai 600 032.
Phone Nos.: 044-2953 5806, 044-2953 5816 Fax: 044-2953 5893
Email: tnerc@nic.in Website: www.tnerc.gov.in

To

The Assistant Secretary
Forum of Regulators,
Sectt. Central Electricity Regulatory Commission,
8th Floor, World Trade Centre, Tower-B, Nauroji Nagar,
New Delhi – 110 029.

Lr. No.TNERC/D(T)/DD(TI)/F.Viability of Discoms/ D.1187 /24 dt: 08-08-2024.

Sir / Madam,

Sub: Seeking comments from SERCs and JERCs on Viability of Discoms – Details sought for by Forum of Regulators - Reg.

Ref: File No.FOR-11011/1/2023- CERC dated 02-08-2024 vide e-mail dated 02-08-2024 received from O/o.Assistant Secretary, FOR, CERC.

******

Referring to the above, I am directed to communicate the following:

1. **ACS-ARR Gap & Revenue Gap / Surplus**

i. In the MYT Tariff Order No.7 of 2022 in T.P.No.1 of 2022 dated 09-09-2022 issued by the Commission, the expected annual deficit / (surplus) for the Control Period FY 2022-23 to FY 2026-27are as follows:

Expected Annual deficit / (surplus) at proposed tariff (Rs.Crore)

Particulars	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27
Net Aggregate Revenue Requirement	71,940.20	74,892.14	79,517.93	83,607.70	86,086.57
Revenue from sale of power	59,435.56*	74,143.46	80,419.17	86,897.01	94,015.19
Annual Deficit / (Surplus)	**12504.64**	**748.68**	**(901.24)**	**(3289.30)**	**(7928.61)**

***Considering sales at new tariff for seven months**

ii. The above calculation assumed annual CPI inflation of 4%. However, the tariff is designed in such a way that the gap between cost and revenue is rectified by FY 2025-26.

Average Cost of Supply (ACS) :

i. In line with previous tariff orders, an indicative voltage wise cost of supply schedule has been evolved, based on the methodology suggested by APTEL.

Cost of Supply (CoS)

Step 1: Segregation of overall costs

Generation and power purchase related expenses includes cost of own generation, cost of power purchase, transmission cost and other income for the generation function. All the remaining expenses have been considered as network expenses.

Step 2: Segregation of voltage wise sales

Step 3: Allocation of Technical Loss

In the absence of a definitive independent study on losses, the voltage-wise losses proposed by Licensee has been considered to determine the cumulative losses up to a voltage level, which has been then applied on the voltage-wise sales to arrive at the technical losses incurred on sales at the respective voltage level.

The voltage-wise technical losses considered by the Commission, only for the limited purpose of this determination are given in the Table below.

Voltage wise technical losses considered, for determination of VCOS (%)

	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27
230 kV	0.77%	0.77%	0.77%	0.77%	0.77%
110 kV	2.34%	2.34%	2.34%	2.34%	2.34%
33 kV	0.72%	0.72%	0.72%	0.72%	0.72%
22 kV	1.90%	1.90%	1.90%	1.90%	1.90%
11 kV	1.95%	1.95%	1.95%	1.95%	1.95%
LT	6.00%	5.00%	4.00%	4.00%	4.00%

Step 4: Calculation of Commercial Losses

The Commission has arrived at the commercial losses as the difference between required energy input to cover the technical losses and overall energy input required based on overall approved loss.

Step 5: Allocation of Commercial Losses

The overall commercial losses, as derived in the above step, have been allocated among the various voltage levels, based on the ratio of sales + technical Losses.

The sum of all sales and losses provides the gross energy consumption at each voltage level.

Step 6: Allocation of Costs

The generation and power purchase related costs have been allocated in the ratio of the voltage-wise gross energy consumption

(sales + Technical Losses + Commercial Losses), whereas the network costs have been allocated in the ratio of sales.

Step 7: Determination of VCOS

The allocated costs derived above have been divided by corresponding sales at respective voltage level to arrive at the VCOS, as shown in the Table below:

Voltage level	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27
230 kV	7.59	7.64	7.84	7.89	7.77
110 kV	7.74	7.78	7.98	8.04	7.92
33 kV	7.78	7.83	8.03	8.08	7.96
22 kV	7.91	7.95	8.16	8.21	8.09
11 kV	8.04	8.08	8.29	8.34	8.22
LT	8.46	8.43	8.56	8.62	8.49
Total	**8.35**	**8.33**	**8.48**	**8.54**	**8.41**

ii. Based on the above the Average Cost of Supply for Control Period is determined as below:

Average cost of supply for Control Period from FY 2022-23 to FY 2026-27

Particulars	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27
Net Aggregate Revenue Requirement	71,940	74,892	79,518	83,608	86,087
Sales (MU)	86,166	89,882	93,740	97,936	1,02,342
Average cost of supply (Rs./kWh)	**8.35**	**8.33**	**8.48**	**8.54**	**8.41**

2. AT&C loss reduction trajectory

i. The Commission has determined the Energy balance for the Control Period from FY 2021-22 to FY 2026-27 in the MYT Tariff Order issued vide T.O.No.7 of 2022 dated 09-09-2022 as shown in the Table below:

Particulars	FY 2021-22 (APR)	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27
Distribution Loss (%)	11.50%	11.00%	10.00%	10.00%	10.00%	10.00%
Transmission Loss (%)	3.81%	3.81%	3.81%	3.81%	3.81%	3.81%

3. Regulatory Assets

In the Approval of True-up for FY 2021-22 for TANGEDCO vide Order dated 28th March 2024 on M.P. No. 10 of 2023 the cumulative revenue gap, inclusive of carrying cost are as follows:

Cumulative revenue gap, inclusive of carrying cost

Description	FY 2016-17 (True up)	FY 2017-18 (True up)	FY 2018-19 (True up)	FY 2019-20 (True up)	FY 2020-21 (True up)	FY 2021-22 (True-Up)
Opening Balance	10,433	12,420	22,131	36,429	52,844	72,002
Addition of Revenue Gap/ (Surplus)	898	8,406	12,579	15,580	18,971	18,106
Amount Received from Govt. of Tamil Nadu towards loss funding	-	217	776	3,156	5,217	7,108
Closing Balance	**11,330**	**20,609**	**33,934**	**48,853**	**66,597**	**83,000**
Interest Rate	10.01%	9.22%	8.90%	9.36%	9.05%	9.69%
Carrying Cost	1,089	1,523	2,495	3,991	5,405	7,510
Closing Balance	12,420	22,131	36,429	52,844	72,002	90,510
To be adjusted against the loss funding received from the GoTN in the year 2022-23	-	-	-	-	-	10,998
Net Closing Balance	**12,420**	**22,131**	**36,429**	**52,844**	**72,002**	**79,512**

Note:

1. *Govt. of Tamil Nadu, vide GO (Ms.) No. 38 dated 18 August 2021 has agreed to take over 100% financial losses of TANGEDCO from FY 2021-22 onwards. Therefore, need for passing on the revenue deficit to consumers does not arise. In other words, the Commission has not created any new regulatory assets for the period from FY 2021-22 onwards.*

4. O& M Expenses (including Employee Costs)

In the Approval of True-up for FY 2021-22 for TANGEDCO vide Order dated 28th March 2024 on M.P. No. 10 of 2023 the details of O&M expenses are as follows:

A. Employee Expenses

i. In accordance with the TNERC (Terms and Conditions for Determination of Tariff) Regulations, 2005, employee expenses except DA have been

escalated at 5.72% to arrive at employee expenses of each year.

ii. The DA rates notified by GoTN have been used for estimating the DA instead of taking an escalation of 5.72% as per the TNERC (Terms and Conditions for Determination of Tariff) Regulations, 2005.

B. Repair and Maintenance (R&M) Expenses

i. For approving R&M expenses, the Commission has adopted the same approach as specified in the TNERC (Terms and Conditions for Determination of Tariff) Regulations, 2005, by considering escalation of 5.72% Y-o-Y.

C. Administrative and General (A&G) Expenses

i. For approving R&M expenses, the Commission has adopted the same approach as specified in the TNERC (Terms and Conditions for Determination of Tariff) Regulations, 2005, by considering escalation of 5.72% Y-o-Y.

5. Cross-Subsidy Surcharge

In the Multi Year Tariff Order No.7 of 2022 dt.09-09-2022, TNERC has determined Cross-Subsidy Surcharge (CSS) in accordance with the formula prescribed by the Tariff Policy, 2016 for the period of five years from FY 2022-23 to FY 2026-27. The details of approved Cross subsidy surcharge for FY 2024-25 are as follows:

Approved Cross subsidy surcharge for FY 2024-25 (T.O.No.7 of 2022):-

Particulars	ABR Rs./kWh	C Rs./kWh	C / (1-L%) Rs./kWh	D Rs./kWh	R Rs./kWh	CSS* Rs./kWh
HT Sales						
HT IA: HT-Industry	9.61	5.00	5.40	1.04	0	1.92
HT IIA: Govt. educational institute	10.53	5.00	5.40	1.04	0	2.11
HT IIB: Pvt Educational Institute	11.81	5.00	5.40	1.04	0	2.36
HT III - HT commercial	12.47	5.00	5.40	1.04	0	2.49
HT IV - Temporary Supply	16.85	5.00	5.40	1.04	0	3.37

6. Timely issuance of Tariff Orders

Tamil Nadu Electricity Regulatory Commission has already issued Multi Year Tariff for the period from 2022-23 to 2026-27 in respect of TANGEDCO, TANTRANSCO and SLDC vide Order No.7 of 2022, Order No.8 of 2022, Order No.9 of 2022 dated 09-09-2022 respectively. Further, the Tariff for 2024-25 has been

issued and revised based on the formula prescribed in the above order for TANGEDCO vide Suo-motu Order No.6 of 2024 dated: 15-07-2024, TANTRANSCO and SLDC respectively.

(Dr.C.Veeramani) 8/8/24
for Secretary

Chhattisgarh State Electricity Regulatory Commission
Vidhyut Niyamak Bhawan
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No.03/CSERC/Tariff/17/62/2024/1448 **Raipur, Date: 07/08/2024**

To,

The Assistant Secretary,
Forum of Regulators (FOR)
Sectt. Central Electricity Regulatory Commission
8th Floor, World Trade Center, Tower-B,
Nauroji Nagar, New Delhi – 110 029

Kind Attn: Sh. Pankaj Rana

Sub: Comments on Viability of Discoms- Reg.

Ref: Your letter no. FOR-11011/1/2023-CERC dated 2nd August, 2024.

In reference to above mentioned subject, the status of Chhattisgarh State Electricity Regulatory Commission is as given below:

1. ACS-ARR gap – The ACS-ARR gap for FY 2022-23 trued-up in FY 2024-25 is Rs. 0.83 per unit.
2. AT&C losses – AT&C target as specified in RDSS scheme for FY 2024-25 is 13.10%.
3. Regulatory Asset – Regulatory Asset for FY 2024-25 is NIL.
4. O&M Expenses – The Commission determines O&M charges on the basis of the normalized average of the actual expenses (excluding expenses towards outsourcing manpower) available in the accounts for the previous five (5) years immediately preceding the base year. The normalization of O&M expenses is done by applying last five-year average increase/decrease in WPI or CPI, as applicable, of all commodities on year-to-year basis. The average of normalized net present value shall then be used to project base year value. The projected base year value shall be escalated by the inflation rate to estimate the O&M expenses for each year of the control period.
5. Cross Subsidy Surcharge – The cross-subsidy surcharge as specified in Tariff Order for FY 2024-25 is as given below:
   i. For 220 kV and 132 kV consumers: Rs. 0.64 per kWh;
   ii. For 33 kV and 11 kV consumers: Rs. 0.92 per kWh

Above CSS are within specified ceiling limit of 20% of ACOS i.e. Rs. 1.38 per unit.

6. Timely issuance of Tariff Order – The Commission issued Tariff Order for FY 2024-25 on 1st June, 2024. The Tariff Order could not be issued by 31st March, 2024 because of enforcement of Model Code of Conduct for General Elections 2024.
7. Trading Margin –The Chhattisgarh Commission is considering trading margin as specified by Central Electricity Regulatory Commission.

7/6/24

(Mathura Prasad Patel)
Dy. Secretary

Note- Maharashtra Discoms Financial & Performance Parameters

a) ACS-ARR Gap for major Maharashtra Discoms is as below:

ACS-ARR Gap for major Maharashtra Discoms is as below:

Licensees	FY 23-24					FY 24-25				
	Revenue (Rs. Cr)	Sale (MU)	ACS (Rs / unit)	ARR (Rs / unit)	ACS-ARR	Revenue	Sale in Mus	ACS (Rs / unit)	ARR (Rs / unit)	ACS-ARR
TPC-D	4686	5564	8.42	8.42	0.00	5502	5564	9.45	9.45	0.00
BEST	4314	4787	9.04	9.04	0.00	4828	5038	9.61	9.61	0.00
AEML-D	9418	10987	8.57	8.57	0.00	10349	11821	8.76	8.76	0.00
MSEDCL	107047	126533	8.46	8.46	0.00	115620	129399	8.94	8.94	0.00

ACS – Average Cost of Supply, ARR – Average Revenue Realization

MERC has not created any Regulatory asset in Tariff Order

b) AT&C (Aggregate Technical & Commercial losses) loss reduction trajectory:

- MERC in its MYT Regulations, 2019 has stipulated Distribution Loss trajectory as a performance parameter instead of AT&C Loss trajectory.
- AT&C Loss is combination of technical loss & commercial loss (Default in payment + inefficiency in collection.).
- **In Maharashtra, while working out tariffs and ARR; collection efficiency is considered 100% and only Distribution Loss reduction trajectory is being set. Only consideration of Distribution Loss trajectory is more stringent than AT&C loss trajectory.**
- MERC in recently issued Mid-term Review (MTR) Orders has stipulated following Distribution Loss (%) trajectory:

Particulars	MSEDCL		BEST		TPC-D		AEML-D	
	MTR Petition	Approved	MTR Petition	Approved	MTR Petition	Approved	MTR Petition	Approved
FY 2023-24	13%	13%	4.43%	4.18%	1.02%	1.02%	6.29%	6.80%
FY 2024-25	12%	12%	4.33%	4.18%	1.02%	1.02%	6.14%	6.55%

- Further it is important to note that collection efficiency of Mumbai Utilities is almost 100%. In case of MSEDCL, collection efficiency of HT consumers is also almost 100%. But in case of LT Consumers, MSEDCL's collection efficiency is lower. Hence, in MYT Order, the Commission has stipulated following trajectory for improving collection efficiency:

Year	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25
LT Collection Efficiency	93.50%	94.00%	94.50%	95.00%	95.50%

- **As explained above, AT&C loss is combination of Distribution Loss and Collection Efficiency. By providing trajectory for collection efficiency for a licensee whose collection is lower than 100%, MERC has effectively implemented AT&C loss trajectory principles**.
- **In its upcoming MYT Regulations, MERC is introducing AT&C loss trajectory for monitoring purpose.**

c) Regulatory Assets

To ensure financial sustainability of Distribution Licensee, MERC in its Tariff Orders has not created any Regulatory Assets.

d) Cros Cross Subsidy Surcharge approved by Commission for FY 2023-24 & FY 2024-25

Electricity (Amendment) Rules, 2022 notified on 29 December 2022 stipulates that cross-subsidy surcharge to be determined by the Appropriate Commission shall not exceed twenty percent (20%) of Average Cost of Supply. Accordingly, while working out CSS, the Commission adopted the ceiling of 20%.

MSEDCL (Ref. MERC Order in Case No. 226 of 2022 dated: 31 March 2023)

Consumer Category	Approved CSS FY 2023-24	Approved CSS FY 2024-25
HT Category – EHV (66kV and Above)		
HT I (A) (i): HT -Industry	1.69	1.79
HT I (B): HT - Industry (Seasonal)	1.69	1.79
HT II (A): HT -Commercial	1.69	1.79
HT III (A): HT -Railways/Metro/Mono rail Traction	1.69	1.79
HT IV: HT - Public Water Works (PWW)	1.69	1.79
HT V(B): HT -Agriculture Others	-	-
HT VI: HT - Group Housing Societies (Residential)	-	-
HT IX(B): HT – Public Services-Others	1.69	1.79
HT Category – HT (33kV, 22kV and 11kV)		
HT I (A) (i): HT -Industry	1.69	1.79
HT I (B): HT - Industry (Seasonal)	1.69	1.79
HT II (A): HT -Commercial	1.69	1.79
HT III (A): HT -Railways/Metro/Mono rail Traction	1.69	1.79
HT IV: HT - Public Water Works (PWW)	1.69	1.79
HT V(A): HT -Agriculture Pumpsets	-	-
HT V(B): HT -Agriculture Others	1.34	1.79
HT VI: HT - Group Housing Societies (Residential)	1.69	1.79
HT IX(A): HT – Public Services-Govt. Edu. Institutions and Hospitals	1.69	1.79
HT IX(B): HT – Public Services-Others	1.69	1.79
HT X: HT – Electric Vehicle Charging Station	1.24	1.78

TPC-D (Ref. MERC Order in Case No. 225 of 2022 dated 31 March 2023)

Category	Approved CSS FY 2023-24	Approved CSS FY 2024-25
EHV - Industry	1.40	1.89
HT I - Industry	1.43	1.89
EHV- Commercial	1.68	1.89
HT II - Commercial	1.68	1.89
HT III - Group Housing Society (Residential)	1.28	1.89
EHT IV - Railways, Metro and Monorail	1.68	1.89
HT IV – Railways, Metro and Monorail		
- 22/33 kV	1.68	1.89
HT V - Public Services		
a) Govt. Edu. Inst. & Hospitals	1.68	1.89
b) Others	1.68	1.89
EHV- Public Service Others	1.42	1.89
HT VIII - EV Charging Stations	0.00	0.14
LT CUSTOMERS		
LT I (A) - Residential (BPL)	-	-
LT I (B) - Residential	-	-
LT II - Commercial		
(A) - Upto 20 kW	0.47	1.83
(B) - > 20 kW & < 50kW	1.68	1.89
(C) - > 50kW	1.68	1.89
LT III (A) - Industry < 20 kW	0.00	0.81
LT III (B) - Industry > 20kW	1.13	1.89
LT IX - Public Services		
a) Govt. Edu. Inst. & Hospitals	0.16	1.42
b) Others	0.44	1.75
LT EV Charging Stations	-	-

BEST:
Being a Local Authority, Open Access is not allowed in BEST area. Hence the Commission has not computed the Cross Subsidy Surcharge.

AEML-D (Ref. MERC Order in Case No. 231 of 2022 dated 31 March 2023)

Consumer Categories	Approved CSS FY 2023-24	Approved CSS FY 2024-25
EHT CONSUMERS		
EHT I - Industry	1.71	1.75
EHT IV - Railways, Metro & Monorail	1.71	1.75
HT CONSUMERS		
HT I – Industry	1.71	1.75
HT II – Commercial	1.71	1.75
HT III - Group Housing Society (Residential)	1.71	1.75

HT V - Public Services		
a) Govt. Edu. Inst. & Hospitals	1.71	1.75
b) Others	1.71	1.75
HT VI - EV Charging Stations	1.71	1.75
LT CONSUMERS		
LT I (A) - Residential (BPL)	-	-
LT I (B) - Residential	0.35	0.01
LT II - Commercial		
(A) - Upto 20 kW	1.71	1.33
(B) - > 20 kW & < 50kW	1.71	1.75
(C) - > 50kW	1.71	1.75
LT III (A) - Industry < 20 kW	0.80	0.62
LT III (B) - Industry > 20kW	1.71	1.53
LT IV- Public Services		
a) Govt. Edu. Inst. & Hospitals	1.11	0.98
b) Others	1.40	1.28
LT V – Agriculture		
a) Pumpsets	-	-
b) Others	1.23	1.11
LT V - EV Charging Stations	0.46	0.48

e) O &M Expenses for FY 2023-24 & FY 2024-25 approved by Commission (Rs. Crore)

Approved O&M expenses based on norms specified in MYT Regulations, 2019 are as below:

Utility	FY 2023-24	FY 2024-25
MSEDCL	8242.55	8659.55
TPC-D	257.90	270.93
BEST	662.13	690.07
AEML-D	1470.2	1533.42

O&M expenses are composed of Administrative & General (A&G) Expenses, Employee Expenses and Repair & Maintenance (R&M) expenses. In Order to ascertain contribution of each component in ARR of Distribution Licensees, it is appropriate to peruse the Trued-up figures:

Actual O&M Expenses for FY 2020-21 and FY 2021-22 as approved by Commission (Rs. Crores)

Utility	FY 2020-21	FY 2021-22
MSEDCL	**Rs. Cr. (% of ARR)**	**Rs. Cr. (% of ARR)**
Employee Expenses	5368.20 (7.06%)	6298.41(6.85%)
A&G Expenses	763.87 (1.00%)	903.94 (0.98%)
R&M Expenses	1036.21(1.36%)	1367.94 (1.49%)
Total O&M Expenses	**7168.28**	**8570.30**
ARR	76,046.12	91,985.70
TPC-D	**Rs. Cr. (% of ARR)**	**Rs. Cr. (% of ARR)**
Employee Expenses	102.20 (3.76%)	104.15 (3.01%)
A&G Expenses	84.63 (3.11%)	83.67 (2.42%)
R&M Expenses	45.21(1.66%)	45.70 (1.32%)
Total O&M Expenses	**232.04**	**233.52**
ARR	**2718.78**	**3461.07**

Utility	FY 2020-21	FY 2021-22
BEST	**Rs. Cr. (% of ARR)**	**Rs. Cr. (% of ARR)**
Employee Expenses	413.19 (12.60%)	444.31(11.72%)
A&G Expenses	130.91(3.99%)	137.85 (3.64%)
R&M Expenses	46.71(1.42%)	56.04 (1.48%)
Total O&M Expenses	**590.81**	**638.20**
ARR	**3280.45**	**3790.46**
AEML-D	**Rs. Cr. (% of ARR)**	**Rs. Cr. (% of ARR)**
Employee Expenses	654.85 (10.98%)	693.15 (9.38%)
A&G Expenses	269.45 (4.48%)	387.05 (4.85%)
R&M Expenses	260.78 (4.34%)	358.21(4.85%)
Total O&M Expenses	**1185.08**	**1438.41**
ARR	**6010.61**	**7388.61**

f) Details of MTR Orders issued on 31 March 2023 are as below:

Generation Companies		Transmission Licensees		Distribution Licensees	
1	Maharashtra State Power Generation Co. Ltd. (227/2022)	1	Jaigad Power Transco Ltd. (213/2022)	1	KRC Infrastructure and Projects Pvt. Ltd. (214/2022)
2	Tata Power Co. Ltd. (Generation) (221/2022)	2	Tata Power Co. Ltd. (Transmission)(217/ 2022)	2	Gigaplex Estate Pvt. Ltd. (215/2022)
3	Adani Electricity Mumbai Ltd.-Generation (229/2022)	3	Vidarbha Industries Power Ltd. (Transmission) (224/2022)	3	Mindspace Business Parks Pvt. Ltd. (216/2022)
		4	Adani Electricity Mumbai Ltd– Transmission (230/2022)	4	Laxmipati Balaji Supply Chain Management Ltd (220/2022)
		5	Maharashtra State Electricity Transmission Co. Ltd. (232/2022)	5	Jawaharlal Nehru Port Trust (219/2022)
		6	Amravati Power Transmission Co. Ltd. (234/2022)	6	EON Kharadi Infrastructure Pvt. Ltd. (Phase I) (235/2022)
		7	Maharashtra Eastern Grid Power Transmission Co. Ltd. (237/2022)	7	EON Kharadi Infrastructure Pvt Ltd (Phase II) (236/2022)
		8	Adani Transmission (India) Ltd. (238/2022)	8	Tata Power Co. Ltd. (Distribution) (225/2022)
		9	State Transmission Utility (STU) (239/2022)	9	Adani Electricity Mumbai Ltd (Distribution) (231/2022)
		10	Maharashtra State Load Despatch Centre (233/2022)	10	Brihanmumbai Electric Supply and Transport Undertaking (212/2022)
				11	Maharashtra State Electricity Distribution Co. Ltd (226/2022)

PUNJAB STATE ELECTRICITY REGULATORY COMMISSION
Plot No. 3, Block-B, Sector 18-A, Madhya Marg, Chandigarh (UT)

To

The Asstt. Secretary,
Forum of Regulators,
Central Electricity Regulatory Commission (CERC)
8th Floor, Tower-B, World Trade Center,
Nauroji Nagar, New Delhi – 110029.

[e-mail:asecy.for@gmail.com]

Memo No. 3213 /PSERC/DTJ-15(H)(Vol.II)

Dated: 09/08/2024

Subject: Seeking comments from SERCs and JERCs on 'Viability of Discoms'

With reference to your email dated 02.08.2024 on the captioned subject, the comments of this office on 'Viability of Discoms' are as under:

1. There is no gap in ACS-ARR determined by the Commission and no regulatory asset in the State of Punjab.
2. Regarding AT&C losses, the Commission approves the distribution loss trajectory of the DISCOM and the commercial losses are on account of DISCOM.
3. PSERC has been consistently maintaining cross subsidy levels of various categories of consumers within ± 20% of Average Cost of Supply as guided by the Tariff Policy/provisions of the PSERC Regulations and endeavoured to reduce the cross subsidy. Presently, in Punjab there is no effect of Cross Subsidy Surcharge on the viability of DISCOMs.
4. PSERC always endeavours to issue Tariff Order as per timelines specified in the Regulations. However, the Tariff Order for FY 2024-25 was delayed due to Lok Sabha Elections and was issued on 14.06.2024.

Secretary

The viability of Discoms is influenced by several factors, ranging from financial health to operational efficiency, which can be addressed through a reform-centric approach to ensure their sustainability. Below are the key factors:

1. **Financial Health**:

   - **Tariff Structure**: Inadequate tariffs that do not cover the cost of supply.
   - **Subsidies and Cross-Subsidies**: Delays in subsidy payments and high cross-subsidization burdens.
   - **Revenue Collection**: Poor billing and collection efficiency leading to high receivables.
   - **Operational Costs**: High costs due to high employee costs, inefficiencies, theft, and technical losses.

2. **Operational Efficiency**:

   - **Aggregate Technical and Commercial (AT&C) Losses**: High technical losses, theft and poor metering reduce the overall efficiency of Discoms.

   - **Infrastructure**: Outdated, Aging and poorly maintained infrastructure leads to frequent outages and high maintenance (R&M) costs.

3. **Regulatory Environment**:

   - **Policy and Regulatory Uncertainty**: Frequent changes in policies and regulations without adequate transition periods can disrupt operations.
   - **Regulatory Oversight**: Need for effective and consistent regulatory supervision.

4. **Tariff Determination**:

   - **Cost-Reflective Tariffs**: Ensuring tariffs are reflective of the actual cost of supply, including capital costs, is crucial for sustainability.
   - **Regulatory Approvals**: Timely and adequate tariff revisions approved by regulatory commissions are essential.

5. **Government Support**:

   - **Financial Bailouts and Schemes**: Government support through schemes like UDAY (Ujwal DISCOM Assurance Yojana) helps in debt restructuring and operational improvements.
   - **Policy Support**: Supportive policies for renewable energy integration, smart grid technologies, and infrastructure modernization.

6. **Consumer Base**:

    - **Consumer Mix**: A balanced mix of industrial, commercial, and residential consumers ensures stable revenue streams. Over-reliance on subsidized categories can be detrimental.
    - **Demand Forecasting and Management**: Accurate demand forecasting, using econometric/statistical techniques and effective demand-side management can optimize supply and reduce costs.

7. **Technological Adoption**:

    - **Smart Grid and Metering Technologies**: Slow adoption of advanced technologies.
    - **Renewable Energy Integration**: Challenges in integrating renewable energy sources.

8. **Human Resources and Capacity Building**:

    - **Skilled Workforce**: Shortage of skilled manpower.
    - **Training and Development**: Continuous training and capacity-building initiatives help in adapting to new technologies and practices.

9. **Social Factors**:

    - **Social Acceptance**: Public perception and acceptance of Discoms, particularly in terms of service quality and reliability, influence their operational environment.

Addressing these factors through strategic planning & funding, policy interventions, and technological advancements can significantly improve the viability of Discoms.

1. **Improving Financial Health**:

    - Implement cost-reflective tariffs.
    - Ensure timely payment of subsidies and reduce cross-subsidization.
    - Improve billing and collection systems.
    - Optimize operational costs through efficiency improvements.

2. **Enhancing Operational Efficiency**:

    - Reduce AT&C losses through better metering and anti-theft measures.
    - Invest in upgrading and maintaining infrastructure.

3. **Strengthening Regulatory Environment**:

- Ensure consistent and predictable policy frameworks.
- Enhance regulatory oversight and enforcement mechanisms.

4. **Revising Tariff Determination**:

   - Align tariffs with the actual cost of supply.
   - Expedite regulatory approvals for tariff revisions.

5. **Increasing Government Support**:

   - Continue and expand financial support schemes.
   - Formulate supportive policies for renewable energy and modernization.

6. **Balancing Consumer Base**:

   - Diversify the consumer mix (wherever possible) to reduce reliance on subsidized categories.
   - Implement effective demand-side management.

7. **Promoting Technological Adoption**:

   - Invest in smart grid and metering technologies.
   - Facilitate the integration of renewable energy sources.

8. **Building Human Resources and Capacity**:

   - Develop a skilled workforce through training and development programs.
   - Promote continuous learning and capacity building.

9. **Addressing Social Factors**:

   - Enhance public perception through improved service quality and reliability.

The viability of Discoms can be addressed through a reform-centric approach to ensure their sustainability, such as:

1. **UDAY Scheme (Ujwal DISCOM Assurance Yojana)**:

   - Financial restructuring and operational efficiency improvements.
   - Reduction of AT&C losses and improvement in billing and collection efficiency.

2. **Integrated Power Development Scheme (IPDS)**:

- Strengthening of sub-transmission and distribution networks.
- Metering of distribution transformers/feeders/consumers in urban areas.

3. **Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY)**:

   - Rural electrification and strengthening of sub-transmission and distribution infrastructure.
   - Separation of agriculture and non-agriculture feeders.

4. **Smart Grid Mission**:

   - Implementation of smart grid technologies to improve grid reliability and efficiency.
   - Adoption of advanced metering infrastructure.

5. **Renewable Energy Integration**:

   - Policies and incentives to promote the integration of renewable energy sources.
   - Encouragement of decentralized renewable energy generation.

6. **Regulatory Reforms**:

   - Ensuring regular and timely tariff revisions.
   - Strengthening the role of regulatory commissions in overseeing Discom operations.

7. **Capacity Building Initiatives**:

   - Training programs and workshops for Discom staff.
   - Knowledge sharing and best practice dissemination.

8. **Consumer-Centric Reforms**:

   - Introduction of consumer grievance redressal mechanisms.
   - Enhancement of service quality and reliability.

By addressing these factors through targeted interventions and a reform-centric approach, Discoms can achieve greater viability and sustainability.

The Gujarat Story:

The success of Discoms in Gujarat, in achieving viability and sustainability can be attributed to several key reforms and strategic initiatives. Below is an overview of the factors that contributed to the improvement of Gujarat's Discoms:

1. Structural Reforms

- **Unbundling of SEBs**: The Gujarat Electricity Board (GEB) was unbundled into separate entities for generation, transmission, and distribution. This separation allowed each entity to focus on its core activities and improve operational efficiency.
- **Corporatization**: The creation of distinct corporate entities for generation (Gujarat State Electricity Corporation Limited), transmission (Gujarat Energy Transmission Corporation Limited), and distribution (four regional distribution companies) led to more accountable and efficient management.

2. Financial Reforms

- **Financial Restructuring**: Significant efforts were made to clear past debts and improve financial health through the issuance of bonds and other financial instruments (Year 2003).
- **Cost-Reflective Tariffs**: Tariffs were restructured to better reflect the cost of supply, reducing the financial burden on Discoms and ensuring more sustainable operations.

3. Operational Efficiency

- **Reduction of AT&C Losses**: Gujarat successfully reduced Aggregate Technical and Commercial (AT&C) losses through better metering, theft prevention measures, and upgrading of infrastructure. This included:
    - Implementation of high voltage distribution systems (HVDS) to reduce technical losses.
    - Strengthening the enforcement against power theft through strict measures and the use of advanced technologies.
    - Improved metering and billing systems, including the introduction of smart meters.

    - Promotion of rooftop solar. (Distributed Generation)
    - Separation / bifurcation of agricultural feeders.
- **24x7 Power Supply**: Achieving a reliable and continuous power supply helped in improving revenue collections and consumer satisfaction.

4. Renewable Energy Integration

- **Promotion of Renewable Energy**: Gujarat has been a leader in renewable energy adoption, particularly in solar and wind power. Policies and incentives encouraged investment in renewable energy projects, helping to diversify the energy mix and reduce dependency on conventional sources.
- **Net Metering and Rooftop Solar**: Introduction of net metering policies and incentives for rooftop solar installations encouraged consumer participation in renewable energy generation.

5. Regulatory Support

- **Effective Regulatory Framework**: The Gujarat Electricity Regulatory Commission (GERC) played a crucial role in ensuring transparent and consistent regulatory oversight. This included regular tariff revisions and enforcement of performance standards.
- **Consumer-Friendly Policies**: Implementation of consumer-friendly policies and grievance redressal mechanisms improved consumer satisfaction and trust in the Discoms.

6. Government Initiatives

- **Jyotigram Yojana**: This scheme separated agricultural feeders from residential and industrial feeders, ensuring continuous power supply to households and industries while providing scheduled power supply to agricultural consumers. This initiative helped in reducing power theft and losses.
- **Infrastructure Development**: Significant investments were made in upgrading and modernizing the distribution infrastructure, including the installation of advanced distribution management systems (ADMS) and smart grid technologies.

7. Capacity Building and Human Resources

- **Training and Development**: Continuous training programs for employees helped in building a skilled workforce capable of handling advanced technologies and improving operational efficiency.
- **Performance-Based Incentives**: Introducing performance-based incentives for employees encouraged better performance and accountability.

Outcomes

- **Improved Financial Health**: These reforms led to significant improvements in the financial health of Gujarat's Discoms, with better revenue collection, reduced losses, and improved profitability.
- **Enhanced Operational Efficiency**: Reduction in AT&C losses and improved infrastructure contributed to higher operational efficiency and reliability of power supply.
- **Consumer Satisfaction**: Reliable power supply and consumer-friendly policies increased consumer satisfaction and trust in the Discoms.
- **Sustainable Practices**: The integration of renewable energy sources and emphasis on sustainable practices ensured long-term viability and environmental sustainability.

The comprehensive and coordinated approach involving structural, financial, operational, and regulatory reforms has been key to making Distribution Companies in Gujarat viable and sustainable.

New and Renewable Energy Department, Govt. of Madhya Pradesh

Presentation

on

KUSUM-C (feeder solarization)

Significant step in decentralized RE generation and decarbonization

before

Chief Secretary, Govt. of Madhya Pradesh

November 2024

Advantages of solar projects beyond RPO

- To prevent operation of expensive and polluting thermal power plants, thus optimizing power purchase cost of Discoms (~41,500 MUs, which is about 40% of total portfolio of Energy Dept.)

Sl no	Plant	Avg. VC (Rs./kWh)	% of scheduled energy w.r.t. to entitled energy
1	Solapur	4.82	51.84%
2	Khargone	4.41	68.40%
3	BLA Power	4.06	53.59%
4	Gadarawara	3.97	75.57%
5	Mouda II	3.55	75.79%
6	Mouda I	3.49	76.90%
7	DVC (DSTPS)	3.44	58.27%

Sl no	Plant	Avg. VC (Rs./kWh)	% of scheduled energy w.r.t. to entitled energy
8	SSTPS Khandwa	3.41	89.39%
9	JP BINA	3.38	76.25%
10	SSTPS Khandwa 3	3.18	93.46%
11	M.B. Power	3.13	90.28%
12	SGTPS Birsingpur	3.08	95.84%
13	Jhabua Power	3.06	89.75%
14	Kahalgaon II	3.04	89.92%

- Enable supply of the cheapest source of power (solar) concurrently to all farmers who consume 41% of state's energy and who would prefer to consume power during solar hours

Capacity requirement as per CEA's resource adequacy plan for MP

Year	Solar		Solar_CMPL	
	Planned contracts	Addl. Contracts	Planned contracts	Addl. Contracts
FY25	3817	0	0	0
FY26	0	3000	0	0
FY27	0	3047	0	0
FY28	0	1047	0	2000
FY29	0	1806	0	400
FY30	0	2172	0	400
FY31	0	2384	0	400
FY32	0	1957	0	400
FY33	0	1763	0	400
FY34	0	2073	0	500
FY35	0	1890	0	500
Cumulative	**3817**	**21139**	**0**	**5000**

Large solar parks vs decentralized solar generation

Limitations of large solar parks

- **Land:** Availability of encumbrance free large chunk of contiguous land parcels is a challenge
- **Evacuation:** Development of a solar park may take 2-2.5 years, while development of transmission infrastructure (EHV) may take 3-3.5 years, thus delaying the benefit of solar power
- **Dependencies:** Associated challenges of inter-departmental coordination, clearances and compliances are more cumbersome

Additional advantages of decentralized solar generation

- **Loss reduction:** Injection of power into distribution network nearer to load centers, thus preventing T&D losses
- **Avoids expenditure** on addition or upgradation of transmission infrastructure

KUSUM-A vs KUSUM-C (feeder solarization)

	KUSUM-A	KUSUM-C (feeder solarization)
Plant size	• 0.5 - 2 MW	• Up to peak agricultural load of 33/11 kV PTR/capacity of PTR
Tariff	• ₹ 3.25/ unit	• Competitively bid out tariff
GoI subsidy	None	• ₹ 1.05 crore/ MW
Incentive to Discom	• Procurement based incentive (PBI) for 5 years	• No PBI

Progress in Madhya Pradesh

KUSUM-A

- Multiple rounds of online process conducted to select developers
- LoA issued for 595 MW;
- PPA executed for approx. 200 MW
- Projects commissioned approx. 30 MW
  - 1 MW first agri-PV at Tikamgarh sets example for multi-purpose land use

KUSUM-C (FLS)

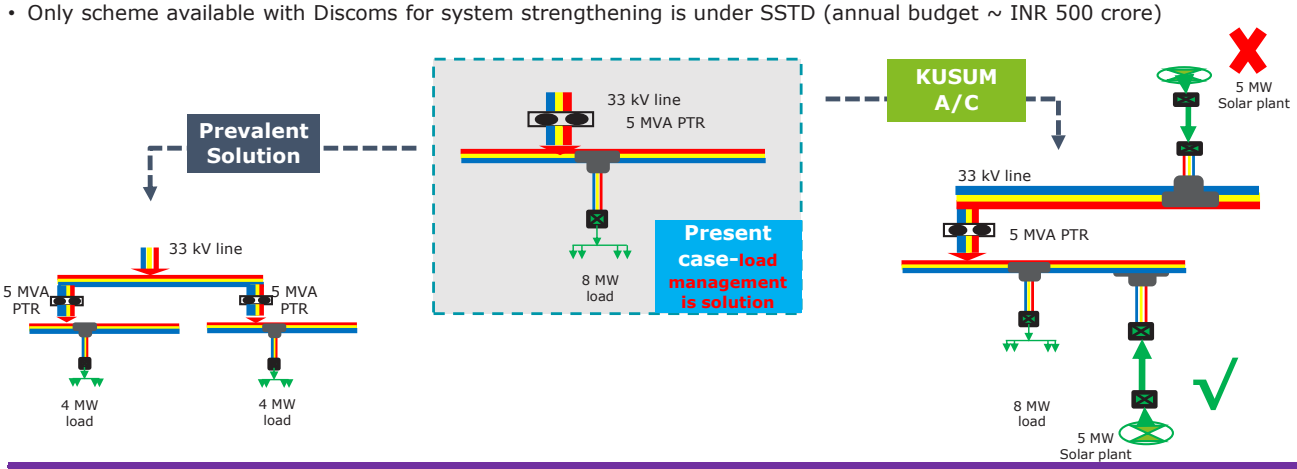
- Multiple rounds of bid conducted for selection of developers
- LoA issued for 529 MW;
- PPA executed for approx. 187 MW
- Projects commissioned approx. 40 MW
  - 8 MW project commissioned at Sanchi, as a part of Sanchi Solar City
  - Another ~ 32 MW projects commissioned

Scale of operation

- KUSUM-C has been in launched by MNRE in 2019, but its implementation planned in a fundamentally different manner
  - ✓ Scale of ~2000 MW initially, but envisaged up to 8 GW in phases
  - ✓ Multiple innovations to benefit Discoms in multiple ways
  - ✓ MNRE has directed that KUSUM A & C injection should take place in distribution substation. Most implementation in India at HV side of distribution substation or even higher voltages.
  - ✓ Implementation all across the State, especially in rural areas
  - ✓ New class of entrepreneurs
  - ✓ Permanent local employment generation to the tune of 1-2 persons per MW

Innovation-1: Shifting point of injection

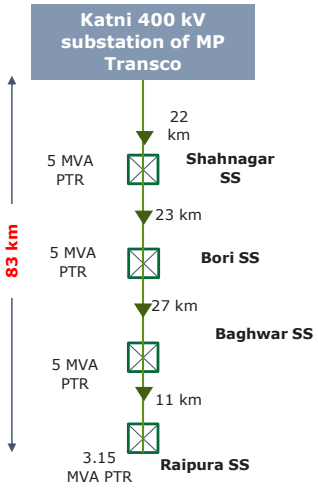
- Out of total 7860 PTRs at 33/11kV substations, over 1100 more than 80% overloaded; requires upgradation (~ INR 1 crore per PTR)
- Only scheme available with Discoms for system strengthening is under SSTD (annual budget ~ INR 500 crore)



Added advantages: alleviating thermal stress, improving PTR efficiency & extending operational lifespan

Ideal location for KUSUM A&C projects

- All substations that are 80% or more overloaded, with objective to simultaneously provide power to all feeders.
  - ✓ Injection should be invariably on 11 kV side of overloaded PTR
- Substations at fag end of a long 33 kV line, where chronic low voltage situation prevails
  - ✓ Injection preferably on 11 kV side, subject to availability of bay or space for bay construction
  - ✓ Injection on 33 kV side of Discom substations may be considered, where it helps in improvement of voltage profile



Schematic diagram of a typical system element in the State

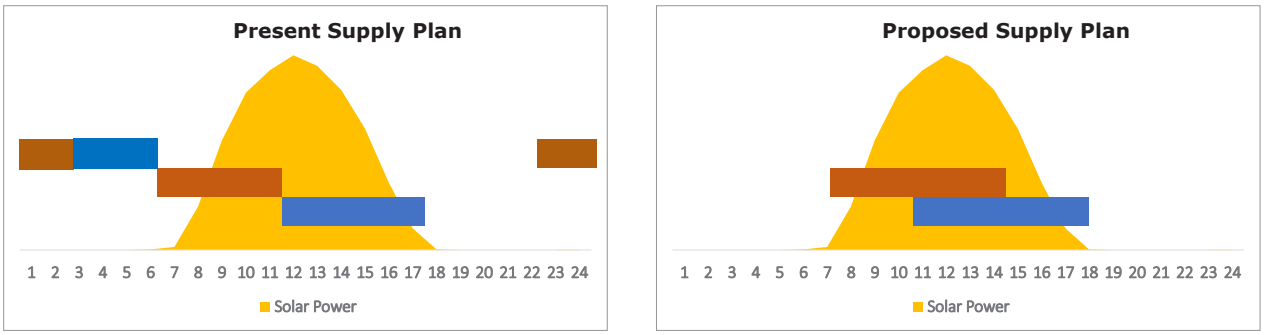
Line losses for 11 kV injection

Conductor	Line length (km)	Percentage loss (%) for different project capacities		
		1 MW	2 MW	5 MW
Rabbit	1	1.38	1.41	
	3	2.03	2.67	
	5	2.68	3.78	
Racoon	1	1.27	1.21	
	3	1.73	2.10	
	5	2.18	2.97	
Dog	1	1.20	1.09	1.30
	3	1.53	1.70	2.73
	5	1.84	2.30	4.13

Courtesy: MANIT study supported by World Bank-TA

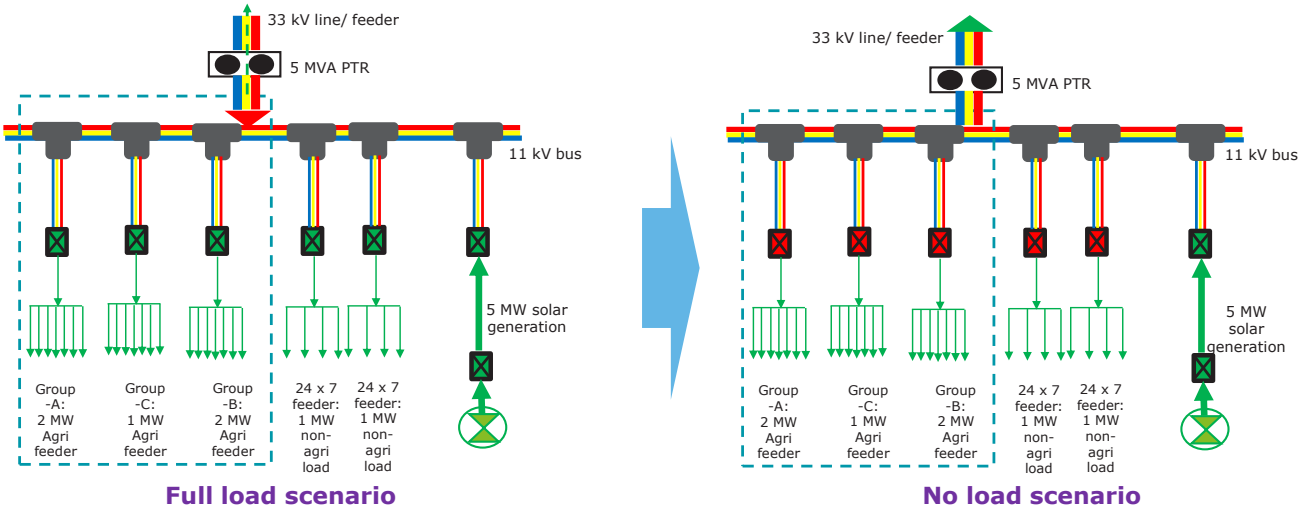
Innovation-2: Enabling concurrent supply without rostering

- Enable supply of the cheapest source of power (solar) concurrently to all farmers.
  - ✓ Presently, about 6000 MW equivalent agricultural consumers can not be supplied power concurrently, because of constraints of transmission & distribution infrastructure.
  - ✓ These are supplied expensive night-time power.
  - ✓ This compromises lifestyle of farmers.



Innovation-3: Project capacity (1/2)

- Maximum project capacity is determined on the basis of PTR capacity



Decision is relevant for rooftop projects all over country

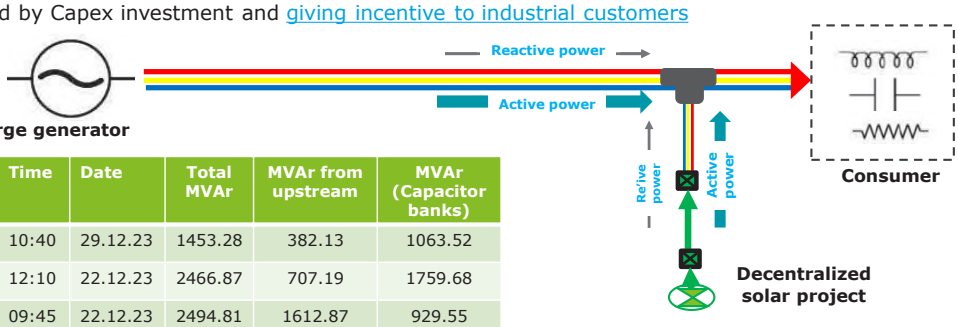
Innovation-3: Project capacity (2/2)

- Originally, solar plant capacity under KUSUM-C limited by **total annual energy** for agricultural consumption in connected feeders
- MP requested vide letter dt 14.10.2024 for '**total annual agricultural consumption**' to be replaced by '**peak agricultural consumption**'.
- Vide OM dated 18 Nov 2024, MNRE has allowed solar plant capacity under KUSUM-C as per peak demand at concerned feeders/ substation
  - ✓ Enables larger projects and helps in optimum benefit from the project

Innovation-4: Reactive power compensation ….(1/5)

'The innovation'- being universally recognized & acknowledged as "catalytic climate solution"…

- Reactive power is on account of inductive loads (e.g. induction motors) all over the State- responsible for voltage drop in system
  - Presently, it is addressed by Capex investment and giving incentive to industrial customers

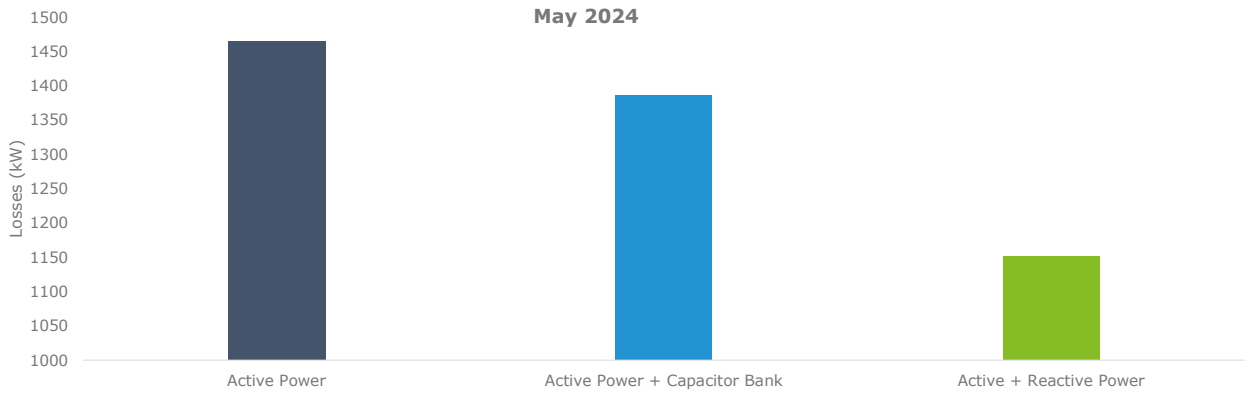


Zone	Max. load during Rabi (MW)	Time	Date	Total MVAr	MVAr from upstream	MVAr (Capacitor banks)
East	4757.66	10:40	29.12.23	1453.28	382.13	1063.52
West	7201.25	12:10	22.12.23	2466.87	707.19	1759.68
Central	5593.06	09:45	22.12.23	2494.81	1612.87	929.55

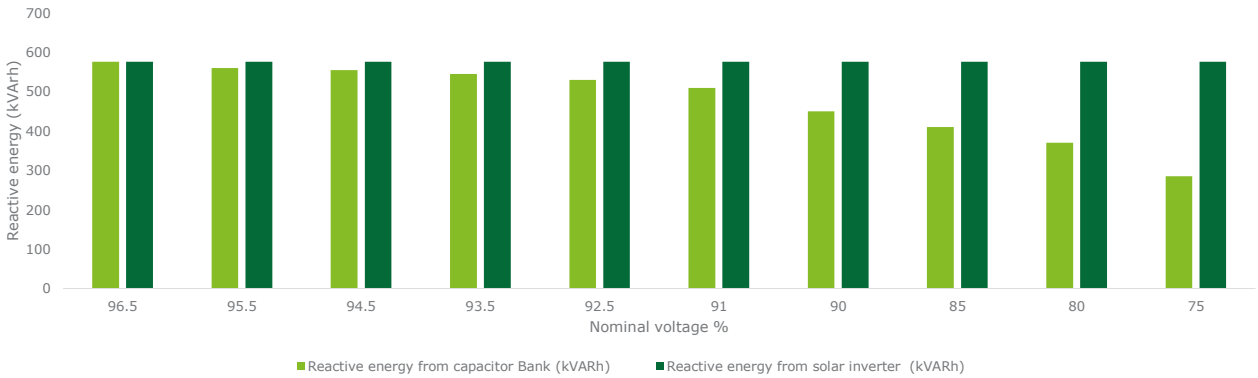
- Solar plants have been traditionally injecting at zero power factor and not providing reactive power compensation.
- WB TA - MANIT Report: Solar plants can provide reactive power, including in night hours, if commercially compensated.
- KUSUM C, being a decentralized generation project, would address decentralized problem of Reactive power

Innovation-4: Reactive power compensation ….(2/5)

- Loss reduction without any CAPEX investment by DISCOMs



Innovation-4: Reactive power compensation ….(3/5)



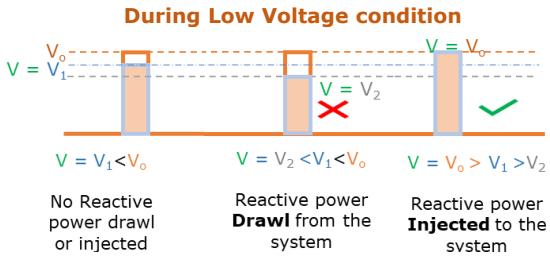
Reactive power output achievable by capacitor bank and solar inverter

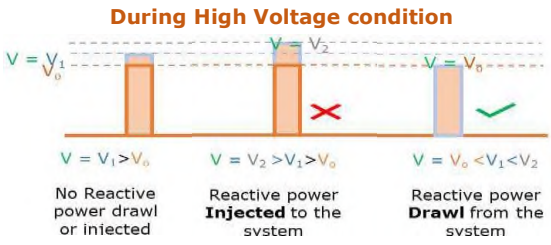
- Reactive power management enables dynamic control.
- Better at providing Reactive power than Capacitor Banks, especially at low voltages.

Innovation-4: Reactive power compensation ….(4/5)

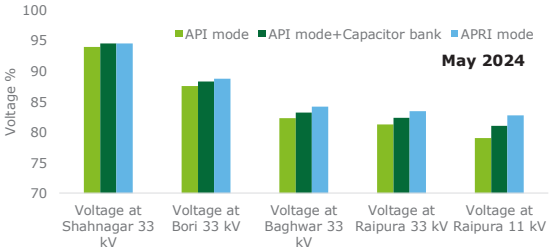
- Voltage improvement with reactive power injection is better, out of three conditions: active power (API), active plus reactive power (ARPI) and active power plus capacitor

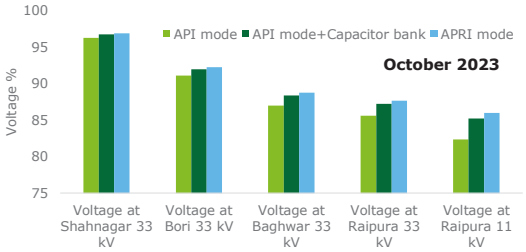
How it works





Voltage improvement





Innovation-4: Reactive power compensation ….(5/5)

- To enable voltage regulation through reactive power management through decentralized RE projects, proposed:
  - ✓ Payment of paise 5/ kVArh, with escalation of paisa 0.5/ kVArh be made to RE generator to absorb or supply reactive power through grid
  - ✓ Above would be in line with Cl. 1(c) of Annexure-4 of CERC (Indian Electricity Grid Cide) Regulations, 2023
  - ✓ MPERC to be requested to issue order in this matter under Cl. 1(b) of Annexure-K of M.P. Electricity Grid Code (revision-III), 2024.
    - ➢ When Voltage<-3%, compensation at paise 5/ kVArh for reactive power injected and penalty of paise 5/ kVArh for reactive power drawn
    - ➢ When Voltage>+3%, compensation at paise 5/ kVArh for reactive power drawn and penalty of paise 5/ kVArh for reactive power injected
    - ➢ Within band of 3%, no compensation.

Innovation-5: Reactive Power at Night

- Inverter can supply/absorb reactive power during nighttime
- Useful for maintaining grid stability & voltage levels, even when solar panels are inactive
- When grid voltage is low, active power taken from the grid (at zero cost) and reactive power injected
- When grid voltage is high, active power taken from the grid (at zero cost) and reactive power drawn
- The proposed Reactive power compensation sufficient incentive for the RE Generators.

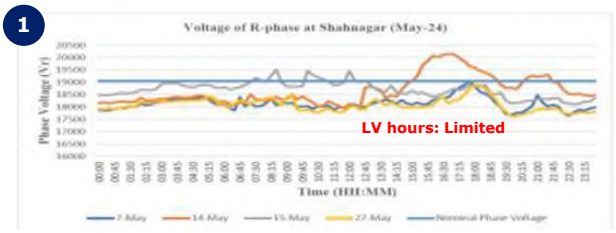
Innovation-4 & 5: Reactive power compensation

- Reactive power management envisages following:
    - ✓ Dynamic control
    - ✓ Utilization of existing infrastructure
    - ✓ Reduction in operational and maintenance costs
    - ✓ Relieves the burden on central reactive power compensators
- USP of the innovations 4&5
    - ✓ Reactive power compensation in place in inter-state and intra-state transmission. Not in distribution space.
    - ✓ WB TA: MANIT Report has pioneered a unique innovation
    - ✓ Not attempted anywhere internationally
    - ✓ Innovation recognized by MPERC
    - ✓ Presented before Forum of Regulators. CERC is examining it.
    - ✓ Kerala Govt + Regulators have requested for advice

Impact-1: Addressing low voltage …… (1/3)

- Especially at tail end
- More so during peak demand period

1



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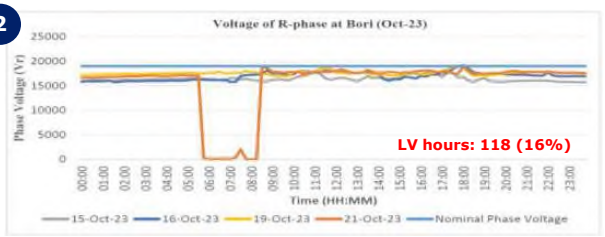

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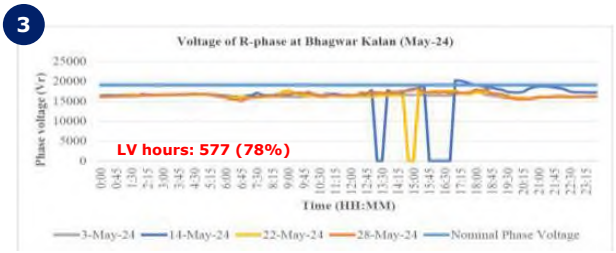

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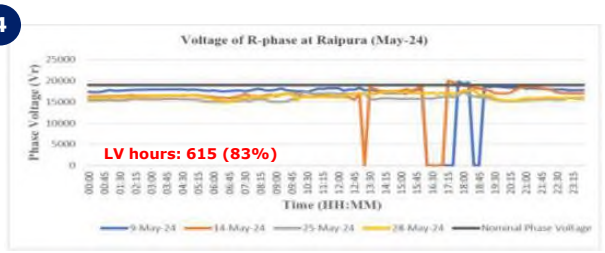
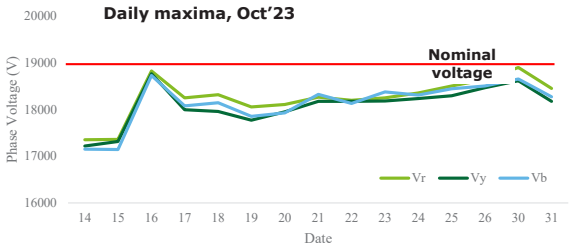
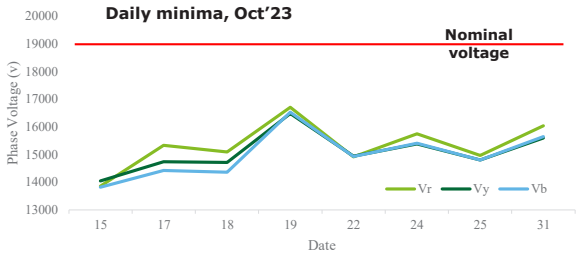


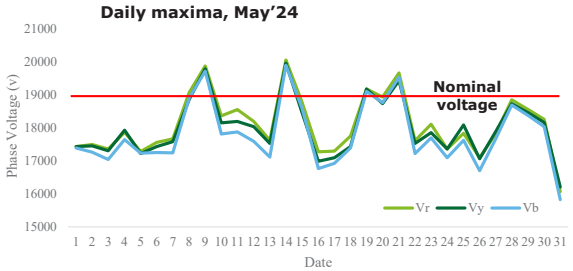
1 **Increasing distance from main substation- undervoltage conditions aggravate** 4

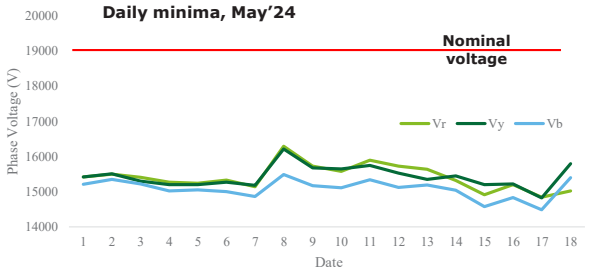
Impact-1: Addressing low voltage …… (2/3)

- Daily maxima and minima voltages









Impact-1: Addressing low voltage…… (3/3)

- Solar plants inject power during generation hours
- Power injection at distribution end prevents voltage drop

October 2023

Base Case	Voltage (%)				
	33 kV bus Shahnagar	33 kV bus Bori	33 kV bus Baghwar Kalan	33 kV bus Raipura	11 kV bus Raipura
	93.81	85.67	78.86	78.04	75.5
Analysis with solar power generator					
Injection point	33 kV bus Shahnagar	33 kV bus Bori	33 kV bus Baghwar Kalan	33 kV bus Raipura	11 kV bus Raipura
11 kV bus Shahnagar	96.25	88.38	81.81	81.03	78.62
11 kV bus Bori	96.84	91.49	85.16	84.41	82.12
11kV bus Baghwar Kalan	97.49	92.73	89.53	88.82	86.67

May 2024

Base Case	Voltage (%)				
	33 kV bus Shahnagar	33 kV bus Bori	33 kV bus Baghwar Kalan	33 kV bus Raipura	11 kV bus Raipura
	94.55	88.37	83.47	82.98	81.39
Analysis with solar power generator					
Injection point	33 kV bus Shahnagar	33 kV bus Bori	33 kV bus Baghwar Kalan	33 kV bus Raipura	11 kV bus Raipura
11 kV bus Shahnagar	96.67	90.71	86.01	85.54	84.02
11 kV bus Bori	96.98	93.33	88.75	88.3	86.83
11kV bus Baghwar Kalan	97.34	94.02	92.24	91.81	90.39

Dynamic control through inverter also addresses high voltage situation

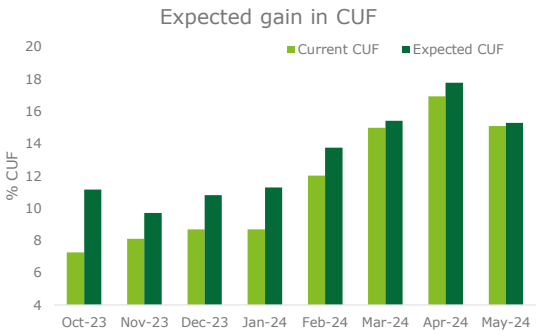
Impact-2: Reduction in Network losses

- Solar plants at tail end also contribute in reduction of network losses
- For a typical 5 MW project evacuating through a 1 km long 11 kV feeder, reduction is losses is as tabulated below:

Location	Month of observation	% Reduction in network feeder losses w.r.t. base case
Bori	May	45.22
	Oct	43.87
Bhagwar Kalan	May	61.60
	Oct	62.94
Shahnagar	May	24.23
	Oct	22.30

Impact-3: Benefits to developer

- Developers also benefit in return.
- Many existing plants are suffering from poor CUF, because of low voltage and shutdown. Better voltage control leads to improved performance of the plant.
- Monetization from reactive power (and not just active power)

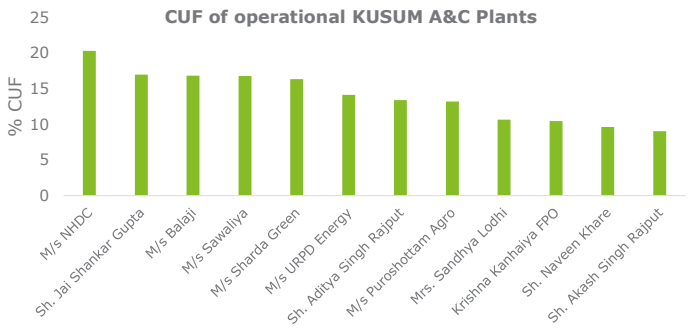


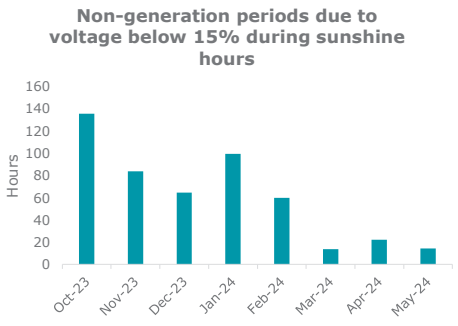
Particulars	Active Power Injection (API) mode	Active + Reactive Power Injection (ARPI) mode	
		VBI	
		Sunshine hour RPM	Continuous RPM
Annual revenue (₹)	3085875	3720554	3857584
Profit %	-	20.56	25.00

Revenue of generator may go up by 20-25%

Challenges: Low CUF

- Caused by sub-optimal maintenance practices of sub-stations
- Due to grid connectivity issues or maintenance deficiencies
- Largely attributable to lack of coordination among protective devices such as relays and circuit breakers
- Inverters trip when voltage dips below 15%





Courtesy: MANIT study supported by World Bank-TA

Collaboration with GIZ

- Indo-German Technical Cooperation Agreement, 2020, followed by Indo-German Technical Cooperation Agreement, 2021.
- Pursuant to above, GIZ & MNRE executed Indo-German Solar Energy Partnership- Innovative Solar in Sept 2021.
- GIZ has acknowledged MP's innovation in voltage management through reactive power compensation.
  - ✓ To ensure its successful implementation, GIZ is willing to extend long term handholding for overall implementation of KUSUM C & A.
    - Looking into challenges in operation of already commissioned projects.
    - Using the learnings from Step 1, the team should examine the substations to verify their appropriateness for injection under the project & also to help make the substations ready.
    - As the projects get implemented, the teams should handhold them to iron out the challenges that might come up in each substation.

Collaboration with CEEW

- The Council on Energy, Environment, and Water (CEEW) has signed a Memorandum of Understanding (MoU) with the New and Renewable Energy Department.
- CEEW, along with IISD and CSTEP, is providing technical assistance to accelerate the solarisation under the PM KUSUM A&C scheme,
- CEEW is providing support through following activities:
  - ✓ Site surveys of solar plants commissioned under the KUSUM scheme to identify technical and managerial challenges
  - ✓ Develop Engagement to monitor progress and understand the operational challenges they face
  - ✓ Analysis of substation selection criteria for KUSUM plants and supplementing MPUVNL's framework
  - ✓ Review of SoP for the KUSUM scheme and recommendations for improvement based on insights from field surveys
  - ✓ Support in Grid Stability Study with Dr. Priyanka Paliwal, Associate Professor, MANIT, Bhopal, to examine the impact of distributed renewable energy (DRE) injection on grid stability, the potential for DRE plants to provide reactive power, and other technical considerations.

Challenges: Land availability

- Availability and visibility over land fit for projects is a challenge
- An MoU executed with **IDinsights,** with following scope involving ground truthing for decentralized solar plant installation
  - ✓ use geo-tagged markers and satellite imagery to identify land parcels close to 33/11 kV substations identified for KUSUM A and KUSUM C programs
  - ✓ Conduct in-person surveys to assess land characteristics, ensuring suitability for decentralized solar plants

MOU signed with SBI for financing

- To facilitate ease of doing business (EoDB) in financing of KUSUM A&C projects, MoU executed between MPUVNL & SBI:
  - Standardized documentation
  - Streamlined and uniform process across branches
  - Standardized contracting documents, including escrow agreement

Bidding process

- L-1 based bids to be invited for all identified substations
- Bidders to have freedom to quote for any number of substations, but allocation subject to Financial capability.
- Selection of substations/developers up to MNRE KUSUM C target:
  - L1 rates for each substation to be mapped
  - Substations to be arranged in ascending order of respective L-1 rates
  - Subject to financial capability of concerned bidder, substations shall be allocated in bucket filling approach to reach the desired cumulative capacity

Path Ahead

- Discom to finalize list of target substations of 33/11 kV
- Collation of geo-coordinates of identified substations by MPSeDC for identification of nearby land.
- MPUVNL/ MPPMCL to file petition before MPERC for determination of reactive power compensation charges
- Discoms to provision/ budget under SSTD for ₹ 5 lakh per substation (₹ 20 crore) towards one-time minor technical alignments/ upgrades to allow optimization of solar power generation and consumption

Decision points in Cabinet Precis on “Surya Mitra Krishi Feeder”

- Given multi-pronged beneficial impact of KUSUM-C projects, these projects would be implemented even without GoI subsidy after sunset of subsidy
- For efficient and timely implementation and management of transactions post implementation, SOP (Standard Operating Procedure) be issued by MPNRED in coordination between Energy Dept.
- Power injection to be preferably at 11 kV side of 33/11 kV substation
- Power injection up to respective PTR capacity
- Projects to be utilized for reactive power management
- Unified administrative approval to be provided for projects selected under the scheme
- To be considered as farmers, bidders should own 50% of land required for such projects near to target substation
- To the extent possible, all agricultural feeders to be provided supply during day hours

The sun does not forget a village just because it is small

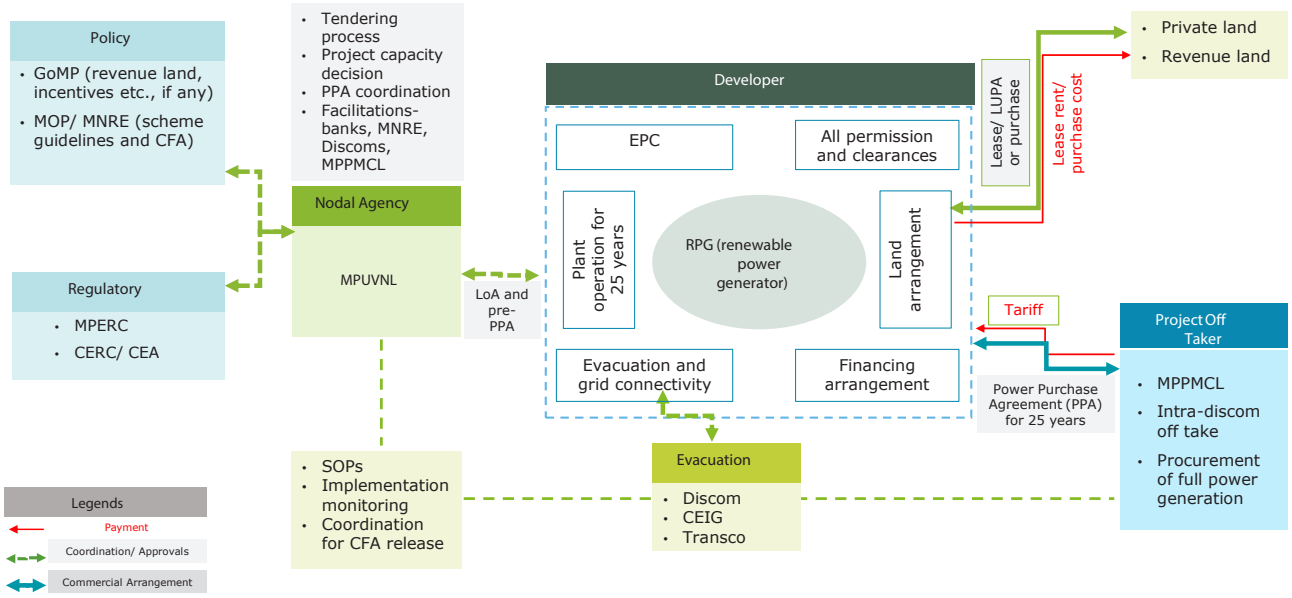
Incentive payable on billed energy charges

BACK

Average monthly power factor percentage	Percentage incentive payable on billed energy charges
86	0.5
87	1.0
88	1.5
89	2.0
90	2.5
91	3.0
92	3.5
93	4.0

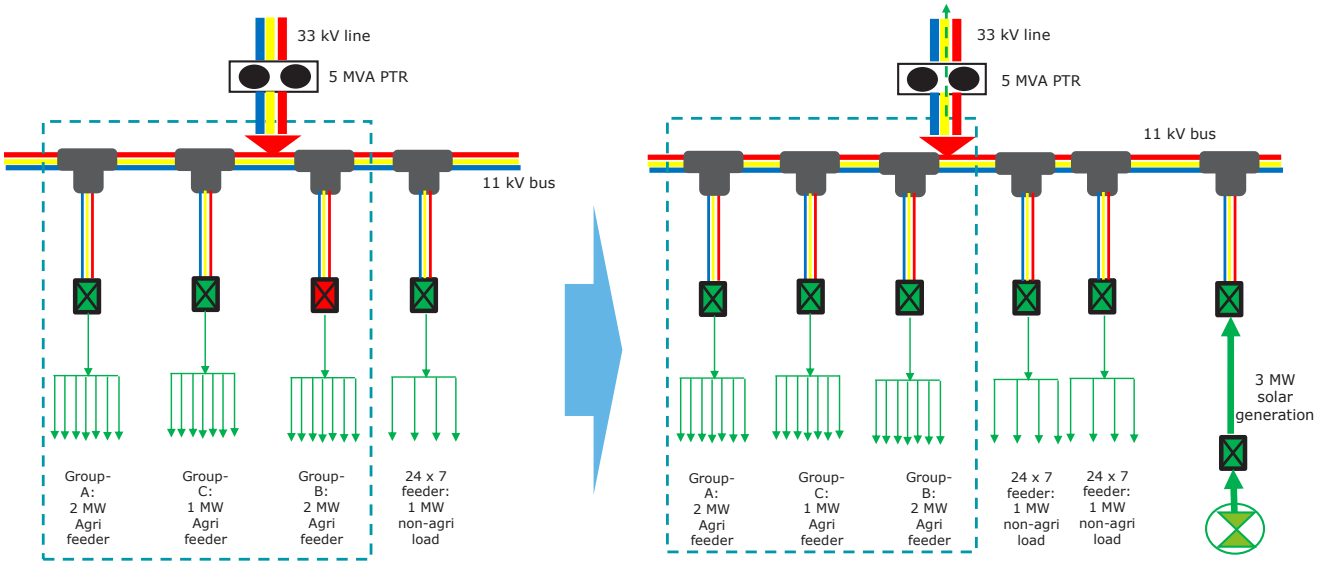
Average monthly power factor percentage	Percentage incentive payable on billed energy charges
94	4.5
95	5.0
96	6.0
97	7.0
98	8.0
99	9.0
100	10.0

Implementation model of KUSUM-C (FLS)



Innovation: Connectivity at appropriate voltage level

Typical representation of day-time substation operations



Ideal location for KUSUM A&C projects