

# Five Stitches in Time

Regulatory and policy actions to ensure effective electricity service



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Prayas (Energy Group), Pune

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May, 2019



Prayas (Energy Group)

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# Five stitches in time

## Regulatory and policy actions to ensure effective electricity service

It is indeed a welcome development that all villages in India have been electrified and most houses given electricity connections. Having met this challenge, it is now time to shift attention to the next electrification challenge of providing effective, quality electricity supply and service. For electricity to improve quality of life and promote economic activities, it is essential to ensure sufficient and affordable electricity supply, delivered with good quality, and supported by good services.

Sufficiency and affordability of electricity supply are complex issues, closely linked to power sector policy and planning, as well as the country's economic development. This report does not address these aspects. On the other hand, improving the quality of electricity supply and service is achievable with timely and concerted efforts. Having nearly overcome the connection challenge, it is high time that regulators, distribution companies, and policy makers shift their focus to this aspect. In the last one and half decades, the central government has played a significant role in meeting the connection challenge. But state Distribution Companies (DISCOMs) and State Electricity Regulatory Commissions (SERCs) have major roles to play in ensuring good Quality of Supply and Service (QoS in short).

This report presents the challenges in implementing the existing regulatory provisions to ensure QoS and suggests five urgent actions to improve QoS for all consumers, especially rural and small consumers including households, agriculture, community services and small businesses.

Committed, timely action can bring about a remarkable improvement in the current poor quality of electricity supply within a short span of time. The immediate goal need not be to provide high quality electricity supply and service in cities like Mumbai, or what is available to high end industry or commercial consumers. The target could instead be at a level that is good enough to increase the uptake of appliances in poor rural homes, significantly improve community services like street lighting, drinking water supply and health centres, and encourage small enterprises in rural areas. If urgent steps are not taken now, there is a danger of consumers losing faith in distribution companies, and worsening of QoS—a situation which may not be easy to recover from. But once a reasonable QoS is achieved, pressure from consumers will ensure that DISCOMs are accountable for sustaining and further improving it.

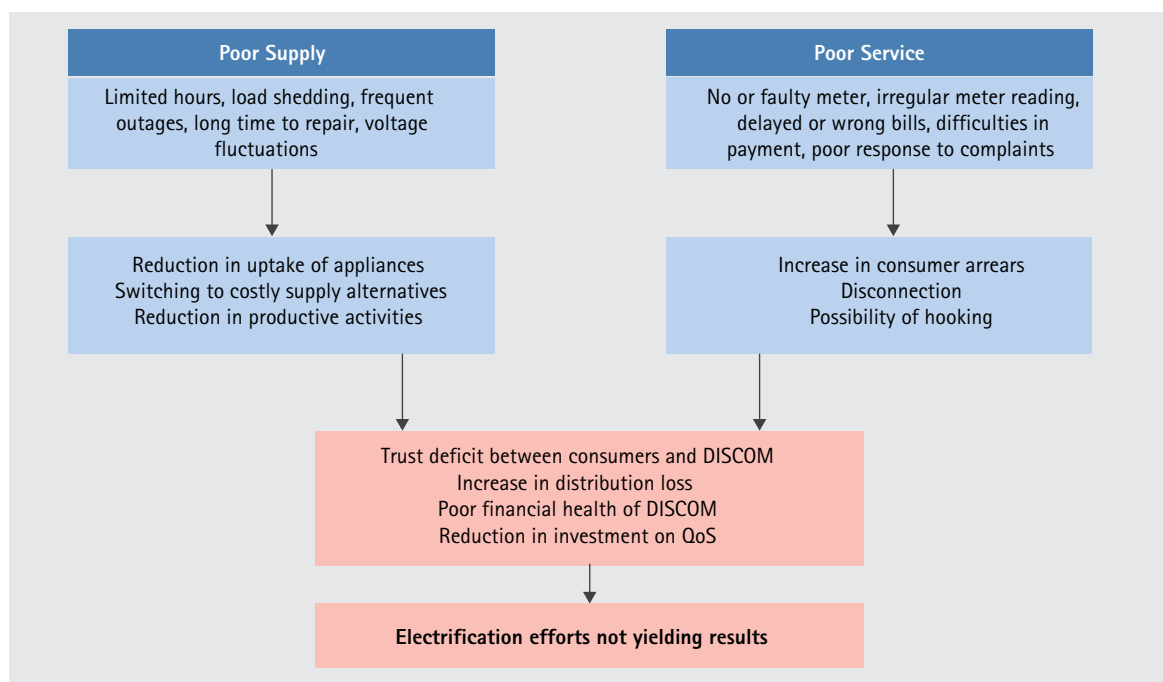
# 1 Why does quality of supply need urgent attention?

Providing electricity connections is indeed the first necessary step in facilitating electricity access. For a vast country like India, with significant connection deficit and low network investment in rural areas, this task needed political commitment and resource allocation, spread over years. As per government reports, significant progress in village electrification occurred during the two decades between 1969 and 1990 when village electrification increased from 12% to 80% (CEA, 2018). Similarly, significant progress in the provision of rural household connections occurred in the last two decades, when rural connections increased from 44% in 2001 to nearly 100% by the end of 2018 (Census, 2011; MoP, 2019a).

Building electricity infrastructure and providing connections is a one-time effort which was achieved through concerted drives. To achieve near universal electrification, the maximum resources of the state and central governments were deployed, and when needed, deployed at different locations, during different periods of time. On the other hand, ensuring quality of supply is a long-term commitment. At present, QoS is the responsibility of cash-strapped Distribution Companies (DISCOMs), and in their pursuit of this goal, they are faced with several issues beyond their control. These include generation and transmission system failures, unforeseen weather-related events, consumer (mis)behaviour, and the poor quality of equipment like meters, relays or Distribution Transformers (DTs). Presently, the quality of supply and service is reported as poor, not only in newly electrified states like Jharkhand and Uttar Pradesh, but also in more developed states like Maharashtra and Haryana.

Figure 1.1 provides examples of poor supply and service and how they lead to increase in DISCOM losses and low benefits of electrification. If the QoS is poor, consumers may not pay their bills, may resort to theft, or reduce their dependence on electricity supply from the DISCOM for their energy needs. Their electricity connection may get terminated due to non-payment of high bills, wrongly issued to them.

Figure 1.1: Poor QoS decreases the benefits of electrification



Source: Prayas (Energy Group)

Uptake of appliances and growth of productive loads will also suffer. All these consequences would result in an increase in the financial and technical losses for DISCOMs, and sub-optimal benefits from the massive public investment of around Rs 55,000 crore that has gone into creating electricity infrastructure and providing connections in the last 15 years (PEG, 2018a). Ensuring quality supply is therefore crucial, and is a different challenge than providing connections.

Improving quality of supply and service requires capital investment, but more importantly, significant progress is possible through improved government attention and sustained efforts by the DISCOMs and SERCs. These measures can quickly improve the quality of electricity supply and service for small and rural consumers.

To address the quality of supply issues, the Electricity Act 2003 (E Act) directs all State Electricity Regulatory Commissions (SERCs) to prepare regulations on Standards of Performance (SoP), which the DISCOMs are required to follow. These regulations cover supply quality and service performance indicators, specify performance targets for each indicator (generally called Guaranteed Standards of Performance in regulations), state overall benchmarks (generally called Overall Standards of Performance in regulations) for meeting these targets, and provide for compensation payable if targets are not met. Table 1.1 gives an overview of the parameters typically covered in SoP regulations, briefly explains performance indicators, the performance target for each indicator, response to violation of the target and the Overall performance standard or benchmark.<sup>1</sup>

As per the E Act, DISCOMs are also mandated to prepare periodic reports on progress under SoP regulations. They are bound to pay compensation to consumers if these standards are not met. All states have SoP regulations but their implementation leaves a lot to be desired. Despite the legal and regulatory mandate, not all states prepare SoP reports or have consumer friendly mechanisms for compensation. With less accountability and attention, improvement in QoS, has been gradual or limited to few consumers despite significant investments.

Recent rural electrification initiatives have created new infrastructure and have increased the number of rural consumers. DISCOMs are not yet equipped to handle the operation and maintenance of the network and the new large consumer base (Gill, 2019). The central government has provided significant assistance for rural electrification and has indicated commitment towards the goal of 24x7 power for all. However, there are no plans to launch central government programmes for network strengthening or ensuring quality supply and service.

This report is based on the study of regulatory documents, DISCOM reports, and other publicly available material on standards of performance and quality of supply. It focusses on a few major states and developments in the last few years. It explores the challenges in implementing the current provisions towards QoS. Further, it suggests five urgent action ideas, which could be taken up by DISCOMs, SERCs, and the central government to improve QoS. Implementing these ideas do not require any fundamental changes to the existing institutions, policy or regulations. But it does require efforts by SERCs and DISCOMs, support from the central government, and contribution by civil society organisations. Recent technological innovations in metering and information technology make it easier to attempt implementation of these ideas. Even though five separate action ideas are listed, they are related to one another. It would be ideal if all ideas were attempted, rather than trying to implement some of them in isolation.

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1. A typical example: performance indicator – consumer-fuse-off (consumer power outage) in urban area; performance target – to be attended within **4 hours** of receipt of complaint; response to violation of target – DISCOM to pay compensation of **Rs 50/default** if not attended within **4 hours** of consumer complaint; Overall performance standard/benchmark – all fuse off calls in all urban areas in a DISCOM to be attended within 4 hours in **99%** of the complaints received. Annexure II gives more details of performance targets, compensation and Overall standards.



Table 1.1: Overview of Standards of Performance regulations

Parameter	Explanation	Examples
Performance indicators	Around 30–40 indicators which impact consumer QoS.	Outage (consumer-fuse-off, feeder, Distribution Transformer (DT)), Power quality (voltage, frequency harmonics), Metering (burnt meter, defective meter), Billing (average billing, delay, wrong bill), Connection (new, disconnection, reconnection, modification).
Performance target for each indicator	Target (mostly time limit) to be met for each of the parameters for each consumer. This is called 'Guaranteed standards of performance'.	Time limit 3–4 hours to address consumer outage, 2 days for DT failure, few weeks for metering, billing or connection.
Response to violation of target	DISCOM is mandated to attend to it within the set target and if not complied with, pay compensation to the consumer.	Many methods to complain and escalate the complaint. Typical compensation for not attending the complaint in time: Rs 50–100 per default, per hour, etc.
Overall performance standard/benchmark	Overall standard for the whole DISCOM, for addressing all complaints related to one indicator within the set target. This is called 'Overall standards of performance'.	Examples: All urban power outage complaints to be met within target time in 99% of the cases; annual rural DT failure to be less than 10%; faulty meters to be less than 1%.
Other features	<p><b>Reliability indices:</b> Calculation of average frequency and duration of consumer/feeder interruptions and average duration of interruptions in the DISCOM (examples: SAIFI, SAIDI).</p> <p><b>Exemptions:</b> Reasons or circumstances where the DISCOM is not mandated to meet SoP norms due to weather related or other force majeure situations.</p> <p><b>Reporting:</b> Specification of formats for reporting and periodicity for reports (examples: table for reporting compensation cases to be filled and submitted quarterly).</p> <p><b>Awareness:</b> Measures to build consumer awareness (examples: posters in DISCOM offices, consumer meetings and audio-visuals).</p>	

Source: Compiled by Prayas (Energy Group) based on SoP regulations and (PEG, 2005)

It is of relevance here to mention related topics which lie outside the scope of this report. This report does not cover the complaint handling process of DISCOMs, the Consumer Grievance Forum, the Electricity Ombudsman, and consumer courts. It does not cover technical dimensions of power quality like harmonics, voltage unbalance across three phases, or frequency distortion. It also does not cover capital investment requirement and DISCOM managerial capacity enhancement for improving QoS.

## 2 Challenges in implementation of existing QoS provisions

This section discusses the challenges faced by consumers, DISCOMs, and SERCs with respect to implementation of existing QoS provisions. It also discusses problems with respect to SoP regulations, their relevance and effectiveness; the importance of regulatory directives; how official data collection and provision has been poor (both at the state and central levels), thereby making tracking of QoS difficult; and limited success in improving metering and billing.

### 2.1 Standards of performance, their implementation, and effectiveness

#### 2.1.1 SoP regulations

It is mandated in Section 57 (1) of the Electricity Act, 2003 (E Act), that all SERCs have to specify Standards of Performance (SoP) regulations. Andhra Pradesh, Delhi, Karnataka, Odisha, Rajasthan, and Uttar Pradesh are states which had notified regulations before 2003. By 2006, about 13 states followed suit. Presently, all SERCs have issued SoP regulations. Annexure I lists current regulations issued by 29 SERCs along with previous regulations, as available on respective websites.

In order for these regulations to be effective, consumers need to be aware of such provisions and the compensation they can claim if these standards are not met. Along with this, the scope of such regulations needs to be revised and broadened periodically to account for sector and technological changes. A review of SERC regulations from these aspects is presented below.

#### Limited consumer awareness about Standards of Performance and compensation

SERCs themselves have noted that consumers have very low awareness about SoP regulations, the performance targets that DISCOMs should be accountable for, and the compensation due to consumers in case of non-compliance (MERC, 2013a). A lot can be done to increase access to such information, including conducting awareness camps and disseminating consumer-centric booklets and videos to provide this information. Some SERCs, such as in Odisha and Madhya Pradesh, are providing booklets and videos to increase awareness. (OERC, 2019; MPERC, 2019).

An essential step to increase access is to ensure that regulations are available in the regional language on SERC websites. Only 8 out of 29 SERCs and Joint ERCs have these regulations published in regional languages on their websites. These states are Tamil Nadu, Gujarat, Maharashtra, Chhattisgarh, Delhi, Uttar Pradesh, Madhya Pradesh, and Uttarakhand.

#### Irregular revision of provisions in SoP regulations

Over the years, there has been a significant increase in network investments. Further, operation and maintenance expenses across DISCOMs have increased much faster than inflation. This increase in investment and cost is often justified to improve quality of supply and service. However, the expected improvements are not tracked and do not translate to a revision in performance targets specified in the regulations.

Very few SERCs have amended their SoP regulations regularly. Thus, factors such as time-based targets for performance indicators, compensation provisions, or Overall performance standards often do not get updated to reflect technological advancements and changing realities in states. About twelve SERCs have not revised their SoP regulations since their notification. Seven of these SERCs had notified

their regulations before 2007. The Uttar Pradesh SERC has amended the Supply Code (which mentions regulations regarding SoP) 12 times, but has not revised the SoP parameters since 2006.

There are also some drawbacks associated with revisions of SoP regulations, as elaborated below.

#### *Limited public consultations for amendments to regulations*

Enactment of new regulations or changes to existing ones should take into account demands, requirements, and concerns of consumers, which also change over time. Section 181 (3) of the E Act mandates that before bringing regulations into effect, prior drafts should be published<sup>2</sup>. This creates an important and much required space for a public consultative process. For example, while notifying tariff regulations, typically, the SERCs first publish a background paper explaining the key issues and the SERCs' outlook and seek public comments on it. After taking public comments into consideration, the SERCs publish a draft of the proposed regulations, along with a public notice seeking comments and suggestions. SERCs also often hold a public hearing to further encourage public consultation in this regard. Such extensive public processes also help in spreading and furthering awareness regarding such issues. The SERCs then notify the new regulations after taking into account all the inputs and suggestions received during the public process. Many SERCs also publish a statement of reasons which records the reasons for considering or not considering the various comments and suggestions received by the Commission. The Maharashtra Electricity Regulatory Commission (MERC) follows such a process while notifying new regulations. These notices also mention where the draft can be accessed, how comments should be submitted, and by when (MERC, 2013b).

Compared to the above process, when amendments are made to existing regulations, SERCs often do not undertake a similar detailed public consultation process. It is noticed that draft amendments are often uploaded on SERC websites, but comments are not sought actively, nor are public hearings held. Concerns raised during notification of a regulation might get neglected when an amendment is made to the same regulation without a public process. However, in 2017, the MERC had issued a public notice to seek comments on its proposed amendment to SoP regulations, in a similar procedural manner as was done while issuing the parent regulation (MERC, 2017a).

#### *Not providing statements of reasons for amendments*

Given the importance of SoP regulations, it is critical to understand the necessity and impacts of amendments in the context of present challenges and past experiences. Unfortunately, when the final regulations are issued, background material that elaborates on the objectives of the amendments or explains the analysis that motivated the amendments are not published in most cases. The absence of such a statement of reasons makes it difficult to evaluate whether all possible alternatives were duly considered, or why certain other provisions of the regulations were not amended and so on. Given the fact that regulations are subordinate legislations, publication of statement of reasons is also crucial from a regulatory accountability point of view. For example, the Madhya Pradesh Electricity Regulatory Commission (MPERC) has amended its Distribution Performance Standards four times since its revision. Over the course of such amendments, there has been repeated inclusion and deletion of the clause regarding automatic compensation payment (which is crucial to providing compensation to consumers for non-compliance). However, no reasons have been recorded for doing this. On the other hand, the MERC had published a statement of reason for amending regulations in 2017 (MERC, 2017b). All SERCs need to adopt this practice.

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2. In 2005, Ministry of Power (MoP) issued a rule and an order (both dated 9/6/2005) with regard to interpretation of section 181(3) of E Act. To quote from the order: "Regulations made by the State Commissions, before the commencement of this order, without meeting the requirement of the previous publication under sub-section (3) of section 181 of the Act shall again be published as draft regulations for the information of persons likely to be affected thereby for inviting the objections or suggestions following the procedure prescribed under the Electricity (Procedure for Previous Publication) Rules 2005, and shall be finalised after considering such objections or suggestions received." (MoP, 2005, p. 324 and 250)

### Factors that are seldom revised in amendments

It is often seen that amendments are mostly in the form of revision in amount of compensation. No justifications are provided for these revisions involving monetary impacts. In spite of such multiple amendments, performance targets are seldom revised in most states.

In many states, there are separate performance standards for rural and urban consumers. Over time, with investments in network strengthening, and with rural consumers paying similar tariffs as urban consumers, the standards could be revised to reduce distinction between urban and rural areas. This could eventually lead to uniform standards for rural and urban areas where the geographical terrain is not a challenge. Conversely, it has been observed that revisions and amendments often do not reflect uniformity of standards between rural and urban areas and might involve increase in time disparity. Table 2.1 highlights some examples of how performance standards have been different for rural and urban consumers, even with revisions or amendments to regulations. In the case of MERC regulations, it can be seen that for strengthening of performance targets for rural areas, they are still significantly weaker than those for urban areas. Annexure II compiles various SERC regulations of SoP performance indicators, targets, compensation for non-compliance, and overall performance targets.

Table 2.1: Different performance targets for rural and urban consumers

State	Regulations	Detail
Delhi	DERC SoP Regulations, 2007 vs amendments in 2017 (DERC, 2007; DERC, 2017a)	Performance targets for power supply failure were differentiated between rural and urban in 2007. In 2017, this classification was revised to be based on level of AT&C losses in an area.
Kerala	KSERC SoP Regulations (2006) amendments in 2009 vs SoP Regulations, 2015 (KSERC, 2010; KSERC, 2015)	Response for fuse-off calls was revised from 24 hours in 2009 to 8 hours in 2015 for rural areas. The performance target for urban areas had been kept constant at 6 hours.
Maharashtra	MERC SoP Regulations, 2005 vs SoP Regulations, 2014 (MERC, 2005; MERC, 2014)	Response to fuse-off calls in rural areas was revised to 18 hours in 2014 from 24 hours in 2005. This had remained constant at 4 hours for urban areas.
West Bengal	WBERC SoP Regulations, 2010 vs amendments in 2013 (WBERC, 2010; WBERC, 2013)	For replacement of faulty meter when supply is not affected, for rural areas, the targeted time limit was 7 days for burnt meters and 20 days for faulty meters. There was an upward revision of this time limit in 2013 to 15 days and 30 days respectively. In comparison, it has been 7 days and 20 days respectively for urban areas.

Source: Prayas (Energy Group), based on SoP regulations of various states

### What is not covered in SoP regulations

Some key aspects which affect consumers, such as safety and appliance damage, are not covered in SoP regulations. This is a major lacuna, as many issues about appliance or property damage due to erratic power supply have been raised by consumers<sup>3</sup>, and electrical accidents account for about

3. Examples: 1) In Rajasthan, over 2000 farmers petitioned the Rajasthan Electricity Regulatory Commission (RERC) in 2011 about crop damage caused due to erratic and low voltage power supply. See: <http://rerc.rajasthan.gov.in/Orders/Order211.pdf> The petition was admitted, but compensation was not paid as per the order.  
2) In Karnataka, an NGO, Environment Support Group, had petitioned the Karnataka Electricity Regulatory Commission (KERC) in 2003 about appliance damage due to voltage surges. The KERC ordered compensation to the consumer as per its order. See <https://www.karnataka.gov.in/kerc/Court%20Orders/CO%202003/CaseNo-OP-%2029-2003.pdf>

11,000 deaths every year (between 2010 and 2015) (NCRB, 2015). Including such provisions can induce DISCOMs to take preventive steps to reduce accidents. Safety is of paramount importance, especially with the recent increase in newly electrified consumers across the nation, in areas where networks are not that well-developed. DISCOMs could be held accountable if these provisions were to be included in the regulations as well. But today no SERC includes parameters such as provision for earthing facilities and precautions to be taken against leakage before installation of connections in the SoP regulations. One possible reason could be that the Central Electricity Authority (CEA) already issues safety regulations at the national level (CEA, 2010). Even in such a case, SERCs should check compliance to CEA safety norms for its licensees by including it in their SoP regulations.

All SoP regulations include force majeure clauses. These clauses come into play during unforeseen circumstances such as war, mutiny, natural calamities or 'acts of god'. Under such situations, DISCOMs are not bound to the conditions in the regulations. The conditions under which the force majeure clause is a necessity need to be defined to ensure accountability of DISCOMs. Some regulations include windy, rainy, and stormy situations for applicability of force majeure.<sup>4</sup> This can be found in regulations of Gujarat, Rajasthan, and Tamil Nadu, among others. In the regulations of the Delhi Electricity Regulatory Commission (DERC) and a few other SERCs, the list of force majeure circumstances ends with an 'et cetera'. Such drafting of regulations can lead to a more liberal interpretation of the phrase and thus less accountability.

While it may be possible that these situations require suspension of services, not clearly defining their intensity dilutes the responsibility of DISCOMs. Defining the quantum of rainfall, or a time period before the end of which services should commence as per regulations, could bring more accountability. The MPERC in its regulations provides some accountability measure. It mentions that in the event of force majeure, reports need to be submitted within thirty days by the licensees to the SERC. Formats specified by SERCs for SoP reporting under Section 59 of the E Act should include reporting of non-compliance due to force majeure.

### 2.1.2 SoP reporting

The Electricity Act, 2003 (Section 59) mandates DISCOMs to submit to SERCs their level of performance and details of compensation provided to consumers. The E Act also mandates SERCs to arrange to publish this information at least once every year.

Annexure III lists the parameters that need to be reported as per SERC regulations in various states. It also shows the frequency and regularity of such reporting. Many of these SERC regulations mandate SoP reporting much more frequently—quarterly or monthly—than what is mentioned in the E Act. It can be observed that out of the seven states<sup>5</sup> listed, other than DISCOMs in Delhi and Maharashtra, others do not report all required details and do not submit the reports as regularly as mandated by the SERCs. Reports generally contain details of number of cases of non-compliance, the nature of such non-compliance, and the compensation paid.

#### Status and quality of SoP reporting

In Maharashtra, all DISCOMs publish quarterly information on their websites, which is up to date. This is unlike the Andhra Pradesh Electricity Regulatory Commission's (APERC) website where the latest uploaded data is from 2013–14.<sup>6</sup> There are regulatory commissions like the DERC that publish compliance information every quarter, adhering to a comprehensive mandate of 16 report formats.

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4. Exemptions include: "Force Majeure conditions such as...and also under wind or rainy conditions where safety of electrical equipment and personnel is not possible." (GERC, 2005, p. 30; TNERC, 2008, p. 20; RERC, 2014, p. 4)

5. Maharashtra, Madhya Pradesh, Andhra Pradesh, Rajasthan, Delhi, Uttar Pradesh, Bihar

6. In recent years, AP DISCOMs submit some information regarding QoS along with annual tariff petitions.

However, in the case of most other states, details that are being submitted are not in accordance with what is mandated to be reported. For instance, the Madhya Pradesh and Andhra Pradesh SERCs require assessment of the coming year's targets to be submitted along with measures taken to improve performance. The SoP regulation by the Rajasthan Electricity Regulatory Commission (RERC) mandates that reasons for not achieving specified targets should also be submitted. However, these details are not present in any of the reports published online by RERC.

A separate periodic scrutiny and vetting of data of SoP reports needs to be conducted, as these reports have often been found to be incomplete. For instance, Rajasthan DISCOMs' SoP reports contain a format named 'SOP-3'. This format records the number of complaints received in a circle. Though the reports in this format record the number of complaints received, in no report are the subsequent columns as per the format filled, for compensation amount paid and the number of consumers who received this amount (RERC, 2019a).

DISCOMs across states provide information at various levels of disaggregation. While DISCOMs in Madhya Pradesh and Andhra Pradesh provide circle-wise data for each DISCOM, in Maharashtra and Uttar Pradesh, information is not disaggregated circle-wise. For tracking QoS and planning measures to improve it, it is important to have division or sub-division level reports (PEG, 2018b, p. 53).

### Reporting of reliability indices

The practice of reporting reliability indices is different across states. While reliability indices are defined at the consumer level, data is provided at the feeder level. Andhra Pradesh DISCOMs report real time feeder interruption data for each circle and mandal for rural and urban areas (APSPDCL, 2019). Maharashtra reports circle-wise information on a monthly basis (MSEDCL, 2018). There are some states where the information is not updated. For example, for Madhya Pradesh and Rajasthan DISCOMs, information is not updated on the websites for all DISCOMs. Comprehensive interpretation of reliability indices is only possible if performance is reported along with benchmark norms. In the absence of this practice, analysis of performance becomes challenging.

### Accountability for reporting

A measure to increase accountability of reporting is to link quality of reporting to return on equity, as is done in Kerala. Based on grades assigned by auditors on the basis of accuracy of data provided for achievement of Overall standards, the DISCOM is allowed an incentive/disincentive of 0.05% for a deviation up to +/- 2%, and of 0.10% for above +/- 2% (KSERC, 2015).

#### 2.1.3 Financing and payment of compensation by DISCOM for not complying with SoP

In order to hold DISCOMs accountable for non-compliance with SoP norms, regulations specify compensation payment to consumers when certain identified parameters are not met by the DISCOMs. Compensation is provided for parameters such as delay in provision of connections, response to fuse-off calls, changing defective meters, etc. Financing such compensation payment by the DISCOM can be based on different principles. There can be different methods of compensation for non-compliance. These are discussed below.

### Financing of compensation payment by DISCOMs

Compensation payment by the DISCOMs can be financed by recovering the total compensation amount through regulated consumer tariffs, through penalty imposed on DISCOM employees' salaries, or by imposing a disincentive on the return on equity. Based on a survey of all states, table 2.2 summarises some of the ways in which compensation can be recovered according to regulations.

Table 2.2: Practices for recovery of compensation payment

Linking compensation recovery to ARR	Details of procedure adopted	States having regulation
Compensation recovery through ARR on the basis of level of achievement of Overall standards of SoP	<ul style="list-style-type: none"> <li>Compensation paid to consumer for failing to meet specified standards is allowed to be recovered in revenue requirement fully or partly.</li> <li>Extent of compensation payment recovered from ARR depends on extent to which the DISCOMs have been able to achieve the Overall standards</li> </ul>	<ul style="list-style-type: none"> <li>Rajasthan</li> </ul>
Compensation recovery through ARR based on audit report and its accuracy	<ul style="list-style-type: none"> <li>Compensation paid to consumer for failing to meet specified standards is allowed to be recovered in revenue requirement fully or partly.</li> <li>Extent of compensation payment recovered from ARR depends only on accuracy of data in audit reports which is assigned accuracy grades. Higher accuracy translates to higher recovery from ARR.</li> </ul>	<ul style="list-style-type: none"> <li>Model standards of performance regulations for distribution licensees (2009), by Forum of Regulators (FoR)</li> <li>Madhya Pradesh<sup>7</sup></li> <li>Arunachal Pradesh<sup>8</sup></li> <li>Jharkhand<sup>9</sup></li> <li>Goa and Union Territories<sup>10</sup></li> </ul>
Compensation recovery through ARR based on select criteria	<ul style="list-style-type: none"> <li>Same methodology as above but compensation cannot be recovered in case of <i>"negligence, inefficiency and for not exercising reasonable care and diligence by its employees."</i></li> </ul>	<ul style="list-style-type: none"> <li>Himachal Pradesh<sup>11</sup></li> </ul>
Denial of compensation recovery through ARR	<ul style="list-style-type: none"> <li>Explicitly mentions that compensation cannot be recovered through the ARR process.</li> </ul>	<ul style="list-style-type: none"> <li>Delhi<sup>12</sup>, Uttar Pradesh<sup>13</sup></li> </ul>

Source: Prayas (Energy Group), based on SoP regulations of various states

In Rajasthan, compensation can be recovered from the Annual Revenue Requirement (ARR) process depending on how much of the Overall standards the DISCOMs attain over the relevant period (RERC, 2014)<sup>14</sup>. While this is an incentive for the DISCOMs to perform better and meet their Overall standards, it also unfairly lets them recover this amount from consumers as has been discussed later in this section.

The Forum of Regulators (FoR) in its report on Model standard of performance regulations for distribution licensees (2009), suggests a way of recovering compensation payment based on the quality of SoP reporting. It says that the compensation paid to consumers:

*"8.9...may be allowed to be recovered partly or fully in the revenue requirement of licensee, keeping in view the extent to which the licensee is able to achieve the overall standards of performance, as measured through auditing results."*

7. Regulation 8.13 (MPERC, 2012b)  
 8. Regulation 8.16 (APERC, 2016)  
 9. Regulation 5.2.8 (JSERC, 2015)  
 10. Regulation 8.13 (JERC, 2015)  
 11. Regulation 12 (4) (HPERC, 2010)  
 12. Regulation 74. (2) (DERC, 2017a)  
 13. Regulation 7.6 (UPERC, 2018)  
 14. Regulation 7.2 of RERC's SoP regulations state that *"The compensation amount paid by the licensee, may be allowed to be recovered partly or fully in the ARR, keeping in view the extent to which the licensee is able to achieve the Overall Standards as per the Schedule -3."*



*"8.17 Based on the accuracy grade assessment of the information provided on the achievement on Overall Standards, certain percentage of compensation paid may be allowed in the ARR by the Commission ..."*

It is interesting to note that 70% of recovery can be claimed even with a data accuracy level of +/- 10% for the information produced on achievement of Overall standards. It can be seen in table 2.2 that many states, such as Madhya Pradesh, Arunachal Pradesh, and others, adopted this practice soon after.

When recovery of the paid compensation is allowed through the annual cost recovery process, it means that the costs are passed on to consumers through tariff increase in subsequent years. Essentially, it unfairly makes the consumer pay for a cost that the DISCOM incurred because they failed to achieve the given standards. If compensation is not part of the Annual Revenue Requirement (ARR), it perhaps would contribute to the financial loss of the DISCOM and may incentivise better performance. There are measures to incentivise accuracy in reporting, but not to incentivise better QoS, as the costs are passed onto consumers. Among the SERCs surveyed, only Delhi and Uttar Pradesh SERCs explicitly disallow recovery of compensation payments from consumers. Such disallowance is necessary and can go a long way in increasing accountability and should be adopted by other states.

Another option is to recover costs from employees who are directly involved. This was observed as a part of a directive by the APERC.<sup>15</sup> Similarly, in its tariff order for 2017, the KERC imposed a fine per subdivision for failing to conduct Consumer Interaction Meetings (KERC, 2017, p. 151). KERC noted that:

*"The Commission has decided to impose penalty up to Rs.one lakh per sub division on MESCOM who fail to conduct Consumer Interaction Meetings at least once in three months and such penalty would be payable by the concerned officers of the MESCOM."*

It could be argued that such a step might ensure accountability of the person responsible for supply and service quality in an area. However, the reason for not meeting SoP on a case to case basis might be attributed to larger systemic inefficiencies rather than the performance of particular employees. In such situations, recovery of costs through employees is not just. This subject needs further study and discussion.

Another way of recovering costs could be through linking compensation recovery to the allowed return on equity of DISCOMs. This would directly affect the percentage of profit that a DISCOM can retain. Of the methods adopted typically for compensation recovery, this could be an effective practice, as there are disincentives for the DISCOMs for not meeting standards. However, in situations where DISCOMs forgo their return on equity completely because of incurred losses (as in the case of Rajasthan DISCOMs), such a disincentive would not work.

### Compensation payment to consumers

In most states, a complaint has to be registered by the consumer in order to claim compensation from the DISCOM for not meeting the Guaranteed standards of performance. However, consumer awareness is often low. The process for claiming compensation is generally time consuming and involves high transaction costs in the form of paper-work, follow-ups, travel, and interaction with the Internal Grievance Redressal Cell (IGRC) of the DISCOM or escalating the issue to the Consumer Grievance Redressal Forum (CGRF), the Electricity Ombudsman, and perhaps the courts. In addition, as mentioned in section 2.1.2, there are issues with reporting by DISCOMs which result in limited information on compensation payments.

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15. Clause 195 of the Tariff Order by APERC in 2008-09: *"The compensation payable/paid by a licensee for non-compliances with the Standards of Performance as laid down by the Commission from time to time shall not be a charge on the consumer tariffs and should be recovered by the licensees concerned from the person(s) held responsible for such non-compliance."* (APERC, 2008, p. 75)



Table 2.3: Examples of automatic compensation

State	Period	Performance indicators covered	Details about automatic compensation
Haryana (HERC, 2004)	2004–Present	Normal fuse-off, line breakdowns, DT failure, major power failure involving transformer, period of load shedding, period of scheduled outages, voltage variations, meter issues, ownership transfer, change in category, billing complaints, reconnection, meter shifting	The licensee has to pay affected consumers automatically in the next billing cycle if there is non-compliance of a particular standard.
Uttar Pradesh (UPERC, 2018)	2005–Present	Normal fuse-off, line breakdowns, DT failure	Release of automatic compensation within 90 days for specific parameters.
Madhya Pradesh (MPPERC, 2004; MPPERC, 2011a; MPPERC, 2012a)	2004–2005; 2011–2012	All parameters under Guaranteed standards of performance	2004 regulation allowed for automatic compensation within 30 days. This section was removed after revision and was reintroduced in 2011—compensation would be through rebate in bill. This was subsequently deleted in 2012.
Maharashtra (MERC, 2005; MERC, 2014)	2005–2014	All parameters under Guaranteed standards of performance	Regulation 12.1 of 2005 SoP regulations contained the following: "Where the Distribution Licensee finds that it has failed to meet the standards of performance ... either <i>of its own knowledge</i> ... shall be liable to pay such person ... such compensation as has been determined by the Commission ..." indicative of automatic compensation. This part was removed in 2014 SoP regulations.
Odisha (OERC, 2004a; OERC, 2004b)	2012–Present	Normal fuse off (urban areas), voltage variations, meter complaints for burnt meters and stuck meters, erection of substation required for release of supply, transfer of ownership, consumer bill complaints, reconnection, network expansion	SoP regulations, 2012 clearly allows payment of automatic compensation through consumer bills. Section 4.3 of Code of Practice and Payment of Bills mentions that " <i>Automatic compensation for violation of minimum standards should be built into billing system as per schedule in regulation. The same should be paid automatically by the licensees without waiting for claim.</i> "
Delhi (DERC, 2018)	2018–Present	Restoration of power supply	The third amendment to SoP regulations in 2018 clearly allows for automatic compensation payment through consumer bills, without requiring consumers to file a claim. The regulations also mandate DISCOMs to report outage information along with compensation value in consumer bills. <sup>16</sup>

Source: Prayas (Energy Group), based on SoP regulations of various states

16. Delhi government in 2015 issued policy directions to DERC to allow for "suo moto payments" made by DISCOMs through consumer bills within 90 days (Govt. of Delhi, 2015). Payments would be on an hourly basis for unscheduled outages. This compensation would not be allowed to be passed through in ARR. In 2016, the same directive was turned down by the then Lieutenant Governor. In 2018, similar propositions were approved by the present Lieutenant Governor, followed by an amendment to regulations by DERC, allowing for automatic compensation. Additionally, in Delhi, the term "automatic" has been interpreted differently previously. The DERC interpreted that the compensation norm, as determined in SoP regulations, would "automatically" have to be considered while paying compensation. This given amount could not be negotiated by the DISCOMs. The DERC noted that the process of enacting a regulation involves rigorous stakeholder consultations, and thus the amount should "automatically" apply. It was observed that claims of compensation would however have to be made by a consumer to avail compensation (DERC, 2017b).

Alternatively, there can be a provision whereby the DISCOM pays 'automatic compensation' to the consumer, without requiring the consumer to appeal and claim such compensation. If it is implemented, the number of cases claiming compensation will increase from what it is presently. This in turn would put pressure on the DISCOMs to improve QoS. The practice of automatic compensation is included in the regulations of a few states from time to time, as shown in table 2.3.

Provision for automatic compensation is a part of SERC regulations in Haryana, Uttar Pradesh, Odisha, and Delhi. The DERC has recently amended its regulations to include automatic compensation payment for restoration of power, and provides some details regarding compensation payment methods and reporting. In Madhya Pradesh and Maharashtra, the provision for automatic compensation payments has been removed in subsequent regulations or amendments. Anecdotal evidence suggests that implementation of automatic compensation has not been effective in most states. This might be related to low consumer awareness, coupled with low accountability mechanisms in regulations for DISCOMs. This is further discussed in section 3.4.

The amendments to the National Tariff Policy and the Electricity Act which were proposed in 2018 emphasise 24X7 power supply and payment of penalties by DISCOM for failing to do so. It has been suggested that such compensation can be paid directly to the bank accounts of consumers. In both cases, it is not clear if the payment happens without appeal or without the DISCOMs' right to be reasonably heard. It is also not clear if and how violations are tracked to determine automatic compensation in the absence of an appeal or complaint.

## 2.2 Directives are not implemented

SERCs are empowered by Section 129 of the E Act to issue directions to DISCOMs when they contravene terms of license or that of the Act. Non-compliance can result in penalties under Section 142 or 146 of the Act or even revocation of the distribution license under Section 19 in some cases. Issuing directions to the DISCOM for specific cases is thus a powerful tool in the hands of the SERC to ensure compliance and to increase accountability.

Directives from the SERC are generally listed in a separate chapter in tariff orders of most states. However, the accountability mechanisms for non-compliance are seldom used. A rare example of penalty being imposed is that of the RERC (2016, p. 201), when it imposed a fine of Rs 5 lakhs on each DISCOM for failing to submit a report on the conversion of urban flat rate agricultural consumers to a metered category. There are many instances where the same directives are issued repeatedly year after year. Compliance is hardly checked and it becomes difficult to do so with repeated directives. Table 2.4 lists directives related to QoS from a few SERCs that were taken up during multiple tariff processes and their latest compliance status.

Of the directives issued with every tariff order, not many directives refer to standards of performance issues. Most directives generally revolve around the broad issue of achieving 100% metering. Directives that are repeated, regarding harmonics, impedance, or reactive power, generally concern large industrial and commercial consumers and are not related to issues that are faced by small consumers.

Other than Uttar Pradesh and Maharashtra, no SERC explicitly mentions the time period for compliance with directives. Non-compliance to directives generally does not attract penalties, which weakens the effectiveness of this accountability mechanism.

Sometimes, directives have also been issued to aid consumer welfare. The UPERC has issued directives for developing mobile apps for ease of bill payments. Since 2010, the KERC has been allocating Rs 1 crore for the Bangalore Electricity Supply Company (BESCOM) and Rs 50 lakhs for the other four DISCOMs in the ARR, under the head of "Fund Towards Consumer Relations / Consumer Education" (KERC, 2018a; KERC, 2018b). Similar efforts were undertaken by the RERC as well with an allocation of Rs 50 lakhs per DISCOM for consumer education and awareness camps (RERC, 2015a).

Table 2.4: Repeated directives and their compliance status

SERC	Directive	Directive repeated in tariff orders of:	Compliance status
MERC	Report metering of unmetered agricultural consumers by DISCOMs.	FY13, FY15, FY17	FY17: Project report not submitted; provisional capitalisation allowed to expedite process
MPERC	Conduct impact assessment study for switching from kWh billing to kVAh billing.	FY17, FY18, FY19	FY19: Report submitted by DISCOMs not supported by spreadsheet-based data, SERC directs for resubmission
UPERC	Report actual number of supply hours to rural and urban areas.	FY15, FY16, FY17, FY18	FY16: Rural areas data submitted FY17: Inadequate data—SERC asks for re-submission FY18: Directive re-issued

Source: Prayas (Energy Group), based on various tariff orders of state DISCOMs

Provision of details such as the original date of issue of a directive, compliance status in subsequent years, the SERC's comments and additional directives help in tracking the progress of compliance better (PEG, 2018b). Whenever fresh directives are issued, it would be useful to explicitly state the time period within which the SERC expects the DISCOM to take action and report compliance. When SERCs issue repeated directives that have been issued earlier, DISCOMs should report compliance from the first issuance of the directive to facilitate better tracking.

Penalties could be imposed in situations where directives have had to be repeated. These penalties could be set in a manner that the monetary amount is progressively increased when more time is taken. Measures by the SERC in the form of disallowance of agricultural sales (in the case of non-compliance to directives related to metering) or denial of capital expenditure plans can be implemented to nudge the DISCOM to follow directives strictly.

To ensure increased accountability, more directives should be issued that focus on safety, reporting and improving hours of supply, reporting and reducing DT failure rate or increasing number of bill collection centres, whose compliance should be tracked in a more systematic manner.

### 2.3 Lack of information on QoS

Supply quality is a parameter that is not tracked regularly by central government agencies, unlike other parameters such as those related to DISCOM finances (through UDAY dashboard<sup>17</sup>, PFC reports<sup>18</sup>), or tracking the number of new connections provided (through Saubhagya dashboard<sup>19</sup>).

In addition to tracking new connections, it is important to continuously track the status and progress of QoS for new as well as existing connections. Parameters such as hours of supply, frequency of outages, and information on DT failure are indicators of quality of supply and infrastructure planning

17. The Ujwal DISCOM Assurance Yojana (UDAY) is a bailout scheme for state-owned DISCOMs by state governments through issuing of bonds. See <https://www.uday.gov.in/home.php>

18. The Power Finance Corporation of India (PFC) prepares reports on annual integrated ratings of state DISCOMs. See <http://www.pfcindia.com/Home/VS/25>

19. The Pradhan Mantri Sahaj Bijli Har Ghar Yojana (Saubhagya) is a drive to provide free electricity connections to all households without electricity in rural areas, as well as poor families without electricity connections in urban areas. See <https://saubhagya.gov.in/>

of the DISCOM. Retention of connection is also dependent on the service quality aspects such as regular reading of meters, timely issue of bills, and safety considerations. Presently, there is no public agency compiling and analysing such data in a comprehensive manner. There is not only a lack of data provision, disaggregated to a feeder/circle level or on the basis of geographic location (rural/urban), but also an absence of agencies to compile and analyse this data.

### 2.3.1 Information on national portals and DISCOM websites

At the national level, some tracking of QoS can be found in various programme evaluation reports by the erstwhile Planning Commission of India. The last such evaluation of the Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY), a central government programme aimed at providing connections to rural Below Poverty Line (BPL) households, was done in 2014. There has been no evaluation of the Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY), and Saubhagya, the recent rural electrification programme. While the programme evaluation reports are now dated and focus on various aspects of programme implementation, they have touched upon problems related to outage, metering and billing, and safety for newly electrified areas since 1965 (PEG, 2018a).

The Ministry of Power aggregates feeder level data from both rural and urban areas to report the number and duration of interruptions on the National Power Portal. Even though this is a positive step, ambiguities in the data are often observed. For instance, the total duration of interruptions reported (in seconds) annually has been much more than the total number of available seconds in a year. Such anomalous trends are perhaps due to issues with representation and aggregation of data which need to be corrected. For example, it is better to provide the total duration of interruption per feeder. The same data set also showed a counter-intuitive result of smaller towns in backward districts having less interruptions and lower total duration of interruptions than the large cities in the state (PEG, 2018c). This could be because of the fact that about 87% of the feeders have been sending data from urban areas, while data from only 36% of rural feeders has been captured (MoP, 2019b).

The Urja Dashboard hosts data from 'go-live' reports from urban areas at the 11kV level under the Integrated Power Development Scheme (IPDS)<sup>20</sup>. It provides information on the average number and duration of power outages, pending connections and consumer complaints; e-payments by consumers; and the status of commercial losses (MoP, 2019c). Such data is however available only for urban areas and not rural areas. The dashboard hosts historical month-wise data from 2016 and provides infographics of annual summaries. The summary for 2018–19 for the all India average duration of power cuts (hours/month) shows that it is maximum in the monsoon months of June, July, and August.

Other than information sources such as SoP reports and directives in tariff orders, information at the state level regarding power supply and outage can be found on DISCOM websites. However, the extent and disaggregation of this information varies from state to state. Table 2.5 captures the nature of data reported on websites of some DISCOMs on outage.

However, for some other DISCOMs, access to feeder outage information requires passwords, and for others, the available information is dated. There is no information on the methodology of calculation of such data<sup>21</sup>, whether such information was automatically or manually updated on the website, and if third party audits have taken place.

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20. The Integrated Power Development Scheme (IPDS) is a central government capital expenditure grant scheme to ensure strengthening and metering of sub-transmission and distribution networks primarily in urban areas. See <http://www.ipds.gov.in/>

21. It is not clear how calculation is done, whether it includes planned outages, outages due to force majeure causes, number of consumers affected by such outage, etc.

Table 2.5: Outage information reported on DISCOM websites

State	DISCOM	Information reported
Maharashtra	MSEDCL	Provides month-wise feeder outage information along with start time, end time, and duration and reason of outage (MSEDCL, 2019a).
Andhra Pradesh	APEPDCL	Provides mandal-wise feeder information on a daily basis, stating whether outages happen on rural or urban feeders (APEPDCL, 2019).
Madhya Pradesh	West Zone DISCOM	Publishes daily reports of scheduled outage information which mentions if alternate supply options have been arranged for and how much demand (in megawatts) is affected by the outage (MPWZ, 2019).

Source: Prayas (Energy Group), based on information published on various DISCOM websites

### 2.3.2 Survey based information

Other than the sources mentioned above, there are publicly available data sources as well as analysis based on surveys. Mission Antyodaya, a programme by the Ministry of Rural Development, publishes data on hours of supply for sample villages (Ministry of Rural Development, 2019). The data indicates that around 20% of India's villages receive less than 8 hours of electricity and only 47% receive more than 12 hours of supply.

The Indian Human Development Survey (IHDS) captured hours of supply for 41,554 households in 1503 villages. Additionally, it captured bill payment methods and hours of supply for public institutions such as in schools and health care centres. The survey is conducted once in five years and was last conducted in 2011-12. This showed that the average hours of electricity supply varied from less than 10 hours/day (in states like Assam, Bihar and Uttar Pradesh) to 22 hours (Kerala, Gujarat etc). The average duration of outages/day was 10.7 hours (IHDS, 2012).

Analysis reports can also be found from sources such as the Access to Clean Cooking Energy and Electricity – Survey of States (ACCESS) survey which surveyed 9000 households across six states in India in 2018. A previous survey was conducted in 2015 of the same households. The results suggest that metering efforts should improve further in states such as Jharkhand, Uttar Pradesh, and Madhya Pradesh. It was also seen that there were significant disparities in the number of hours that households get electricity. While on an average, in West Bengal households get 20 hours of power supply, in Jharkhand they receive only nine hours of supply. It was also seen that about two-thirds of all households received only three hours of supply between sunset and midnight, almost 36 per cent of electrified rural households were dissatisfied with their electricity supply, and about 76 per cent of them complained about frequent voltage fluctuations that led either to sub-optimal use or damage of appliances (CEEW, 2019).

A survey by Smart Power India of 10,000 households and 2000 rural enterprises in 200 villages across four states (Bihar, Uttar Pradesh, Odisha and Rajasthan) reported that half the households experienced eight hours of power cut in a day and nearly half the rural enterprises use non-grid supply options (solar home systems, rechargeable batteries, mini-grids, and diesel generators). One in two households with grid-electricity face a power cut of at least eight hours per day. During evening hours, more than a third face power cuts for at least three hours (Smart Power India, 2019).

Prayas' Electricity Supply Monitoring Initiative (ESMI) is another public database which independently monitors supply quality parameters based on 433 Internet of Things (IoT) based devices located in 23 states across India (PEG, 2019a). In February 2019, 48% of ESMI locations experienced outages for more than 15 hours. 29% locations experienced more than 30 interruptions, each greater than 15 minutes. Added to this, only 19% of rural areas received evening supply for the entire six hours between 5 PM and 11 PM (PEG, 2019b).

## 2.4 Limited success of efforts to ensure metering and billing

### 2.4.1 Status of metering and billing efforts

Ensuring steady and reliable metering and billing services is an important aspect of electricity provision, mandated in SoP regulations. It has been seen that supply has often been provided without proper meters, that meters are not being read, and that bills are being issued without proper meter readings. These issues can largely be found even in urban areas. For example, in 2011, the MPERC noted that there were increasing instances of incorrect billing in the cities of Bhopal and Ujjain (MPERC, 2011b; MPERC, 2011c). This issue would be more chronic in rural areas. The Commission also recently noted the trend in an increase in the number of defective and non-functioning meters across the state (MPERC, 2018a). In Rajasthan, the DISCOMs reported that about 8–9% of the single-phase domestic consumers have meters that are defective (RERC, 2015b). Even in states with high electrification rates, such as Andhra Pradesh and Maharashtra, even non-agricultural consumers have regularly presented evidence before the SERCs of rising number of defective meters, and delays in meter readings and billing (MERC, 2016; APERC, 2016).

While there has been a push for 100% metering through various policy and regulatory measures, metering electricity usage by all consumers has always been a challenge, and especially the metering of agricultural consumption. Sustained poor quality of supply, metering and billing issues lead to frustration among consumers. This creates a trust deficit with consumers, which in turn makes metering a challenging task. Proper metering reduces AT&C losses and can incentivise more investment in a given area along with regulatory accountability as collection improves. However, faulty metering issues and billing problems constitute a significant proportion of complaints in SoP reports. This is illustrated in table 2.6.

Table 2.6: Issues pertaining to metering and billing

State	Issues pertaining to metering and billing
Gujarat	Even though it is a state with relatively low AT&C losses, metering and billing issues constitute around 13% of all registered complaints, followed by complaints on loose connections and line breakdowns (GERC, 2018). The total number of faulty meters rose by 18% from 2015 to 2018 (GERC, 2015, 2018).
Maharashtra	Metering and billing complaints constitute around 9% of total complaints (MERC, 2018).
Rajasthan	Proportion of complaints regarding metering and billing issues are much higher and have grown from 28% of total complaints to 35% between 2016 and 2018 (RERC, 2016; RERC, 2018).

Source: Prayas (Energy Group), based on various SoP reports of state DISCOMs

### 2.4.2 Introducing new technology and concerns

There have been recent efforts to introduce smart meters and pre-paid meters, considered important to reduce losses. Such efforts need to be accompanied with complementary and synchronised metering of the entire system, such as installing Automated Metering Infrastructure, involving feeder, DT, and substation metering. Only then could detecting and tracking pilferage and losses be faster. Given the scale of cost of such updating of infrastructure, uniform metering of feeders with automatic feeder metering (AMR) across the country as a first step would enable regulatory and public accountability. System integration of smart and prepaid meters on a sustained basis is a challenge. Few states such as Maharashtra, Karnataka, and Andhra Pradesh might have made progress in AMR, but there have been many challenges in getting reliable information from these meters. Therefore, technical and system challenges of large scale on-field operation and maintenance of smart meters should not be underestimated and needs special attention.



Introduction of prepaid and smart meters brings up questions, old and new, about service quality. In case of prepaid meters, the question of continuous supply arises in the event of meter damage, incorrect metering, or if recharge facilities are not available (especially in remote areas). Such situations might encourage bypassing of meters, especially in areas with existing high AT&C losses.

Smart meters in the initial years will be costly and might not be widely available. Even if installation is initially subsidised, what would happen in the event of meter damage (attributable to the consumer), remains a question, if the consumer cannot bear the replacement cost. The quality standard of these meters needs to be guaranteed, and they should be replaceable within a short period of time.

Pre-paid and smart meters are an important way forward but require complementary efforts especially during the transition. Limited public data is available for states where these meters have been installed. There is a need for learning and sharing of results from pilot studies, and more innovation in design to suit local realities.

Sometimes DISCOMs outsource billing and collection functions to vendors which might dilute accountability. Mechanisms such as spot billing services, online billing, and SMS alerts are being implemented by DISCOMs. Spot bills are often not detailed. To remedy this, DISCOMs should send detailed bills to such consumers from time to time for transparency. Also, DISCOMs often provide incentives in the form of rebates for online bill payment. This, along with photo metering, has been implemented in Maharashtra.

## 2.5 Use of ICT for enhancing interactions of consumers

As discussed in previous sections, availability of information on QoS has been poor at the DISCOM level. At the individual level, DISCOMs have developed web-based mobile applications for ease of use for individual consumers. Apps help keep consumers informed about their consumption patterns, bill payment details, outage schedules, emergency contacts, energy efficiency measures, and where to lodge complaints. Table 2.7 lists some features of mobile apps in a few states. While these apps assist consumer participation, not all apps are developed with features to access consumption history and scheduled outage information, or register detailed complaints. The Bangalore Electricity Supply Company Limited's (BESCOM) app captures the widest range of features among the apps that have been looked at.

On Google Play Store, many 'unofficial apps' can be found which already have been downloaded by significant numbers of users. Consumer reviews can be found about apps of various DISCOMs such as the North Bihar Power Distribution Company Limited (NBPDC) and the Kanpur Electricity Supply Company (KESCO), of which there have been thousands of downloads. Users have often commented that they have faced issues with acknowledgment of bill payment. While consumers are beginning to use e-payment facilities, DISCOMs need to ensure that these payment platforms are more secure and reliable.

Table 2.7: Features of mobile apps of various DISCOMs

Features	MSEDCL	TSSPDCL	TANGEDCO	BESCOM	BSES	UPPCL	DGVCL	PSPCL
State	Maharashtra	Telangana	Tamil Nadu	Karnataka	Delhi	Uttar Pradesh	Gujarat	Punjab
Addresses of offices	X	X	X	✓	✓	X	X	X
Bill payment	✓	X	✓	✓	✓	✓	✓	✓
Complaints registration without any charges (toll free number, websites)	✓	✓	X	✓	✓	✓	✓	✓
Consumption history	✓	✓	X	X	X	X	X	X
Energy calculator	✓	X	X	✓	✓	X	✓	X
Energy conservation tips	X	✓	X	✓	✓	X	✓	✓
Feedback on app	✓	X	✓	✓	✓	✓	X	X
Help / FAQs	✓	✓	✓	✓	X	✓	✓	✓
Language options	✓	✓	X	✓	X	✓	X	✓
Payment history	X	X	✓	X	✓	X	X	X
Safety tips	X	X	X	✓	✓	X	X	X
Scheduled outages	✓	✓	X	✓	X	X	X	X
Status tracking (requests, complaints)	✓	✓	X	✓	✓	X	X	✓

Source: Prayas (Energy Group), compilation from various applications

While mobile apps have been made available only recently, information for consumers has been available on DISCOM and SERC websites for a while, in the form of consumption and bill calculators, safety tips, and online bill payment options. Contact details of officials are also provided. There are options to call toll free numbers and for receiving updates via SMS as well. These are positive steps, but as mentioned above in the case of mobile apps, more could be done to increase awareness and accessibility to QoS related issues.



## 3 Five urgent actions to improve QoS

Section 2 covered the challenges in implementation of QoS provisions in different DISCOMs and suggested some possible improvements. This section outlines five concrete actions which could be taken up by the Ministry of Power, Forum of Regulators (FoR), SERCs, DISCOMs and civil society organisations.

### 3.1 Track QoS for newly electrified households and rural areas

Many problems in metering, billing, hours of supply, and inadequacy of supply have been reported for newly provided connections, as mentioned in sections 1 and 2. To ensure that these connections are retained, there is a pressing need for periodic monitoring and evaluation of supply and service quality to newly electrified villages and households. This is essential to ensure accountability of the quality and reliability of supply.

This could include parameters like hours of supply (especially during evening hours), metering and billing information, disconnection data, new connections for productive use, consumer complaints and compensation paid for poor QoS. Such information can be reported on national dashboards, SERC and DISCOM websites and regulatory submissions in an easily accessible and disaggregated manner. There should also be consumer surveys and third-party evaluations of QoS reports. Some parameters and potential data that can be asked for from each DISCOM are listed in Annexure IV. These could be provided division-wise, and metering & billing data could be provided for each billing cycle.

SoP regulations can be amended to ensure reporting of these parameters. To ensure standardisation across states, the Forum of Regulators (FoR) could specify model formats for adoption. The MoP and other agencies can prepare reports based on data vetted by SERCs on a quarterly basis. DISCOMs and SERCs should publish this data on websites as well.

There should be special efforts to track rural QoS. The Ministry of Power and SERCs can prepare annual reports analysing progress and ranking DISCOMs for overall rural quality of supply based on many parameters and data on hours of supply, metering and billing gathered from DISCOMs, SoP reports and those of various schemes. As of now, rural electrification funds are disbursed based on project milestones for current capitalisation. The central government should use some of the parameters mentioned in Annexure IV to determine sustainability of investments already made in the past, say 10 years. This should influence future grants disbursement.

Civil society groups can take up independent studies on the quality of supply and service of newly electrified areas, using surveys, RTI queries and public hearings. They can cross check data on quality of supply submitted by DISCOM to SERCs and the Ministry of Power. In 2015, the central government requested all states to set up District Electricity Committees, with the senior most Member of Parliament as the chairperson and the collector as the convener (MoP, 2015). These committees are expected to meet once in three months and review central government programmes, quality of supply and consumer satisfaction. District Development Coordination and Monitoring Committees (DISHA) are also in place under the Ministry of Rural Development to oversee rural development efforts.<sup>22</sup> The

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22. These were set up in 2016, to replace the earlier District Vigilance & Monitoring Committee, to coordinate between central, state and panchayats for successful implementation of 28 central schemes, including rural electrification. For a brief overview, see the announcement at <http://pib.nic.in/newsite/mbErel.aspx?relid=147922>

working of these committees, their recommendations and follow up could be tracked by civil society groups. Crucially, ground pressure is needed to ensure that DISCOMs work to provide quality rural supply.

### 3.2 Technology and other measures to improve the credibility of QoS reports

Even though provisions exist in SERC regulations for SoP reporting, the availability, quality and credibility of such reports have been poor. This demands improvement, which could be done through the use of Information and Communication Technology (ICT) for consumer supply quality monitoring, commissioning third party audits, conducting periodic consumer surveys and reassessing reliability indices.

Capital investment plans are already underway for Distribution Transformer (DT) and feeder metering. These metering interfaces could be mandated by the SERC to be fully automated to record data and upload to a server without any manual intervention. This data could be made publicly available in order to help track the duration and number of interruptions. Most indices relate to feeder reliability, not consumer supply reliability, which is more important. Reports can be prepared with more granularity, indicating division-wise and consumer category-wise indices at different voltage levels. During the Multi Year Tariff (MYT) process, typically organised once in three years, the SERCs can commission studies of such reports and publish them in time for the public hearings. SoP regulations could be amended to mandate such analysis to track progress in QoS and tighten performance targets.

Since consumer level supply monitoring will take time, DT and feeder indices, along with consumer indexing data, could be used to approximately calculate consumer level values. Reliability indices should be used to assess the efficacy of capital investments and to check the improvements in service resulting from increased O&M expenses. This correlation will increase accountability.

Initiatives like the Prayas Electricity Supply Monitoring Initiative (ESMI), which monitors consumer level supply across various locations in 23 states, should be encouraged. Mobile applications, which help consumers to record interruptions or complaints, should be popularised by DISCOMs and civil society organisations. This information could be used in public hearings of the SERC to hold the DISCOM accountable for QoS. Photo metering (where the bill has a photo of the meter reading), now discontinued, is evolving into app-based meter reading, with instant intimation to consumers in Maharashtra. Such initiatives are noteworthy and need to be studied in detail for adaption in other states.

Section 2.4 briefly covered mobile apps employed by DISCOMs. These could also be used to conduct periodic consumer surveys on QoS. Other than features like bill payment and consumption history, apps could provide details like power outage history and bill breakups. Complaints for preventive action should also be included. For example, there could be options on the app to register complaints for long hanging wires, sparking joints or leaning poles that appear prone to accidents. Guidelines to provisions in regulations for escalating complaints could be included as well. While mobile applications are a good step towards ensuring convenience of bill payment, consumer security remains an important aspect. To avoid duplication or the use of 'unofficial' apps, DISCOMs could publicise the official apps via SMS, the DISCOM website and in printed consumer bills. They could issue guidelines on their websites and bills for verifying authenticity of official DISCOM apps. If collaboration is made with third party bill payment vendors, that should be specified.

Third party audits of QoS parameters can improve the credibility and quality of QoS reports prepared by the DISCOM. A 'Monitoring committee for improvement of quality of power supply and standard of performance' was formed in Odisha in 2012 (OERC, 2012). This was constituted by the SERC as per the decisions of the State Advisory Committee. The purpose of the committee was to prepare an action plan, and then to monitor the compliance level of the DISCOMs with the Guaranteed and Overall SoPs.

The committee saw representation from the SERC, the DISCOM and the state's Energy Department. Focused monitoring in this form can scrutinise area specific problems and address them accordingly.

### 3.3 Consumer awareness and separate regulatory process for QoS

In the area of QoS, SERCs should make special efforts to increase public awareness, proactively encourage participation of civil society organisations to improve QoS, and organise public hearings dedicated to QoS. The SERCs could increase efforts towards consumer awareness by commissioning booklets, posters and audio visuals in local languages and simple formats on the Standards of Performance regulations and complaint redressal mechanisms. Such content needs to be made available by SERCs and DISCOMs to all consumers through meetings, electricity bills, display at DISCOM offices, mobile apps, text messages and social media. Section 2.1.1 mentioned a few examples and more SERCs could take up similar efforts.

Civil Society Organisations (CSOs) can organise state and district level camps, and prepare booklets and audio-visuals to raise awareness about consumer rights and encourage the registration of complaints about issues like metering and billing, outages, delays in repair, safety and accidents. A few organisations have already taken steps in this direction, but more could be done.<sup>23</sup> Training could be conducted on how to file complaints with consumer forums (set up under the Consumer Protection Act), and how to access the complaint mechanism in the electricity sector (approaching the DISCOM's internal grievance cell, the Consumer Grievance Redressal Forum and Electricity Ombudsman). CSOs could also use the RTI Act, District Committees, provisions in the State Public Services Guarantee Acts and Right to Hearing provision as is used in Rajasthan (PEG, 2015).

Consumers have been raising QoS related issues in annual tariff revision processes, but these issues are not given as much attention as tariff aspects. The SERCs should organise separate public reviews of QoS parameters. Annual reports and petitions on QoS should be submitted by the DISCOMs, and comments invited through public notices and public hearings held at different locations in the state. Reasoned orders covering analysis of QoS and action items to improve it should be issued by the SERC. The reasoned orders issued by the SERC could further be linked to the ARR process as has been detailed in section 3.4.

### 3.4 Link SoP parameters to DISCOM revenue

It is important that the SERCs adopt a carrot and stick approach to gradually improve the QoS, either during the tariff revision process or by way of separate QoS public hearings mentioned in section 3.3. If the performance is better than what is specified in SoP regulations, the DISCOM can be rewarded through an all India ranking system and state level financial incentives. Failure to meet the QoS norms should invite penalties on the DISCOM. Tariff and SoP regulations can be amended by SERCs to ensure this.

If SoP reports are not submitted in the required format and in time, DISCOMs should be penalised. The SERC could develop a matrix of important parameters such as metering and billing, duration of outage, and DT failure rates. These could be different for different circles of the DISCOM. Penalties could be imposed for not adhering to the Overall standards for these parameters. This would require submission of detailed data during the tariff determination process along with petitions for ARR. Approval of O&M expenses by the SERC can be subject to a review of QoS. The SERC could also disallow capital expenditures or reduce return on equity in the event of poor compliance.

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23. Example include: Consumer guides and audio visuals by Prayas (listed in the publications at the end of this report), booklets by CUTS (<https://cuts-cart.org/>) and by the Office of Consumer Advocacy - KERC (See <https://www.karnataka.gov.in/kercold/Consumer%20Advocacy/CONSUMER-ADVOCACY.pdf> and consumer guides on KERC website at <https://www.karnataka.gov.in/kercc/Consumer%20Advocacy/Forms/AllItems.aspx>)

As mentioned in section 2.1.3, some SERCs have initiated the practice of automatic compensation, with limited impact. This provision can be slightly modified to have an impact on DISCOM finances and thus incentivise DISCOMs to take efforts towards better QoS. A brief outline for designing and implementing 'ICT enabled compensation' is given in the following paragraphs.

In the SoP regulations, SERCs could identify a few key parameters, which are important to the consumer and which can be remotely monitored, for automatic compensation if the shortcoming is due to the DISCOM. This could start with DT / feeder failure, billing errors, delays in connection, and consumer outages reported through mobile apps. The list could be slowly expanded to include meter failure, consumer outages, etc. The regulations should also clearly indicate the mechanisms for implementing, reporting and improving this provision.

There has been some debate if implementing automatic compensation is legal or fair to the DISCOM. In 2009, the Attorney General for India had responded to the Central Electricity Regulatory Commission's (CERC) query on whether automatic compensation could be provided for as per Section 57 of the E Act. The Attorney General's response was that the Act provided for the licensee to be "reasonably heard" and thus interpreted that automatic compensation could not be implemented under the Act<sup>24</sup> (Attorney General for India, 2009). This has been cited quite a few times for questioning the automatic compensation provision when it was introduced earlier in Delhi (DERC, 2017b).

To address the concern given in the legal opinion, DISCOMs could be provided an opportunity to be heard during an annual regulatory hearing either during the periodic tariff revision process or during the separate QoS hearing, suggested in section 3.3. All automatic compensation cases can be discussed at the hearing and allowed/disallowed on a post-facto basis like the vetting and approval of fuel surcharge revenue collected by the DISCOM from consumers. DISCOM submissions, public hearing and SERC analysis could help to identify occurrences which do not warrant automatic compensation.

### 3.5 Central government programmes and support for QoS

States needed central government support to meet the connection challenge and will require similar support to provide quality supply, especially because most of the DISCOMs are making financial losses. The extent of support will vary across states and the duration of support will depend on the improvement of the financial health of the DISCOMs.

As discussed in section 3.1, if tracking of new connections can be done on the various QoS issues especially for newly electrified consumers, that data would help the central government in making informed decisions. Disincentives could be designed for disbursement of central government funds in case of inadequate state government interventions in poor QoS pockets.

The Government of India can periodically commission countrywide surveys on QoS and the effectiveness of rural electrification to make data availability more robust and to increase the accountability of the process. National level ranking and credit rating of DISCOMs should include QoS parameters also, in addition to financial performance and regulatory compliance. This will help to highlight good practices which can be adapted by all DISCOMs.

The Integrated Power Development Scheme (IPDS) can increase focus in rural areas – to improve the rural infrastructure, metering, billing and maintenance systems. DISCOMs will need support for supply to low revenue generating areas to overcome the financial disincentives of supplying electricity to

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24. To quote from point 7 of the legal opinion: "Besides, the Appropriate Commission has to determine the compensation and before such determination, the concerned licensees shall be given a reasonable opportunity of being heard. Accordingly, it is clear that compensation is to be determined on a case to case basis. An automatic imposition of compensation by way of regulation is not possible." Section 57 of the E Act also mentions that "... before determination of compensation, the concerned licensee shall be given a reasonable opportunity of being heard".

consumers with low tariff. The central government can financially support these states to provide supply of low-cost power. This power can be obtained from states which have surplus or stranded capacity. Thus, this surplus capacity can be reallocated at concessional rates, with part of the fixed costs foregone. However, this should be conditional on monitoring the supply of power. Another way to reallocate power would be for the central government to create a Special Purpose Vehicle (SPV) to consolidate and bundle all the surplus power to facilitate reallocation (PEG, 2017). This support can be provided till the Average Billing Rates in the regions grow sufficiently to incentivise the DISCOM to supply power to these areas.

Agriculture water pumping is a major productive use in rural areas, and power supply to agriculture is currently a tough financial and technical challenge for DISCOMs. Solar feeder programme which are being implemented in Maharashtra could be replicated across states, as part of the Kisan Urja Suraksha evam Utthaan Mahabhiyan (KUSUM) initiative of the Government of India. The central government can also support community services like health centres and *anganwadis* with solar based systems with battery backup.

### 3.6 Five stitches in time

Now that the village electrification and household connection challenges have been met, it is crucial for DISCOMs, SERCs, the Indian government and civil society organisations to step up the quality of supply and service. This is a tough and ongoing challenge, which can be met by the cash strapped DISCOMs with support from all quarters.

It is unfortunate that while significant attention is being paid to tariffs and the financial viability of DISCOMs, QoS for small and rural consumers suffers neglect. The existing SoP regulations of the SERC can be put to better use to increase accountability of DISCOMs for QoS. This would require enforcing the standards, monitoring compliance, improving reporting, creating consumer awareness and simplifying grievance redressal mechanisms. The SERCs can take stricter measures to implement their directives and hold separate public hearings on QoS. Efforts should also be made to periodically improve the performance standards, considering the changes in the sector and the potential of information and communication technology. The Indian government has played a significant role in the connection drive, and should now facilitate the improvement of QoS.

Unless the five urgent actions outlined in the report are implemented to address the worsening issues in metering, billing, and the reliability of supply, the danger of the massive distribution infrastructure falling into disuse is real and imminent, and may lead to low realisation of the benefits of universal electrification.

# Annexure I:

## Present and previous SoP regulations for all SERCs

State/ SERC	Year regulation was notified	
	Previous regulations	Current regulation
Odisha	1998	2004
Andhra Pradesh	2000	2004
Karnataka	2001	2004
Assam	NA	2004
Haryana	NA	2004
Tamil Nadu	NA	2004
Uttar Pradesh	2002	2005
Tripura	NA	2005
Gujarat	NA	2005
Chhattisgarh	NA	2006
Jammu & Kashmir	NA	2006
Bihar	NA	2007
Uttarakhand	NA	2007
Himachal Pradesh	2005	2010
West Bengal	2005	2010
Nagaland	NA	2011
Meghalaya	2006	2012
Sikkim	NA	2012
Madhya Pradesh	2004, 2005	2012
Rajasthan	2003	2014
Maharashtra	2005	2014
Punjab	2007	2014
Manipur & Mizoram	2010	2014
Jharkhand	2005	2015
Kerala	2006	2015
Goa & Union Territories	2009	2015
Arunachal Pradesh	NA	2016
Telangana	2000, 2004	2016
Delhi	2002, 2007	2017

### Notes:

1. This list does not cover amendments to regulations, but repealed regulations and current ones.
2. Telangana was a part of Andhra Pradesh till 2014.
3. Here, "NA" indicates that there have not been any previous notified regulations than what is indicated under column "Current regulation".

## Annexure II:

### SoP standards for fuse-off, DT failure, burnt meter, and billing complaints in various SERC regulations

#### Consumer Outage - Fuse- off

SERC/FoR	Class I City (hours)	Urban (hours)	Rural (hours)	Compensation	Overall standard (% complaints filed)
Andhra Pradesh	4		12	Rs 100 in each case; Rs 50 to each consumer if event affects more than one consumer	99%
Bihar	4		24	Rs 50 to each consumer affected for each day of default	95%
Madhya Pradesh	4 (on working days); 5 (on non-working days)		24	Rs 100 each day	95%
Maharashtra	3	4	18	Rs 50 per hour or part thereof of delay	NA
Rajasthan	4	6	24	Rs 50 for low tension consumers, Rs 100 for high tension consumers	95%
Uttar Pradesh	4		8	Rs 50 in each case of default	NA
FoR Model SoP	3	4	8	Rs 50 in each case of default	98%

SERC	Difficult Areas	Urban	Rural	Compensation	Overall standard (% complaints filed)
Kerala	10	6	8	Rs 25 in each case of default	95%

SERC	Restoration of power supply (hours) for the Zone/ Subdivision having AT&C losses (%)			Compensation	Overall standard (% complaints filed)
Delhi	3 (upto 10%)	4 (10-20%)	6 (more than 20%)	Rs 10 per kW per hour of sanctioned load or contract demand, subject to maximum Rs 200 per hour per consumer	95%

Note: "NA" in Annexure II indicates that SERC regulations do not specify Overall standards.

## Annexure II...continued

### Distribution Transformer Failure

SERC/FoR	Class I city (hours)	Urban (hours)	Rural (hours)	Compensation	Overall standard (% complaints filed)
Andhra Pradesh	24		48	Rs 200 in each case; Rs 100 to each if event affects more than one consumer	95%
Bihar	24		72	Rs 100 for each day of default if event affects single consumer, or Rs 50 to each consumer if event affects more than one consumer	95%
Delhi	within 6 hrs			Rs 10 per kW per hour of sanctioned load or contract demand, subject to maximum Rs 200 per hour per consumer	95%
Kerala	48 (difficult areas)	24	36	Rs 25 in each case of default	90%
Madhya Pradesh	12 (commissionary headquarters)		72 (dry weather)	Rs 100 to each consumer served through particular transformer	NA
	24 (other urban areas)		7 days (July-Sept)		
Maharashtra	18	24	48	Rs 50 per hour or part thereof of delay	NA
Rajasthan	16	36	72	Rs 100 for low tension, Rs 300 for high tension	90%
Uttar Pradesh	24		72	Rs 50 to each affected consumer	NA
FoR Model SoP	16	24	48	Rs 150 in each case of default	95%

Note: "NA" in Annexure II indicates that SERC regulations do not specify Overall standards.



## Annexure II...continued

### Burnt Meter

SERC/FoR	Burnt meter attributed to DISCOM			Burnt meter attributed to consumer			Compensation	Overall standard (% complaints filed)
	Class I city	Urban	Rural	Class I city	Urban	Rural		
Andhra Pradesh	7 days			Within 7 days of receiving payment from consumer			Rs 100 for each day	Maintain the % of defective meters to total meters in service at value not greater than 3%
Bihar	7 days			Within 14 days of receiving payment/meter			Rs 100 for each day (NA if consumer's fault)	99% in urban areas 98% in rural areas
Delhi	Restoring supply within 3 hours, meter replacement within 3 days from consumer complaint			Restoring supply within 3 hours, meter replacement within 3 days from consumer complaint			Rs 50 for each day (for replacement)	95%
Madhya Pradesh	Within 7 days of receipt of complaint			Within 7 days of payment of charges by consumer			Rs 100 per week	99.5% for urban areas 98% for rural areas
Maharashtra	18 hours	24 hours	48 hours	18 hours	24 hours	48 hours	Rs 50 per hour	NA
Rajasthan	Within 2 months of detection; for 'no current' complaint within 48 hrs of reporting			Within 48 hrs after depositing amount of security towards cost of meter			Rs 200 for low tension consumers	90%
Uttar Pradesh	3 days			3 days			Rs 50 in each case	NA
FoR Model SoP	3 working days	5 working days	15 working days	15 working days			Rs 50 for each day	Maintain the % of defective meters to total meters in service at value not greater than 3%

Note: "NA" in Annexure II indicates that SERC regulations do not specify Overall standards.

## Annexure II...continued

### Billing Complaints

SERC/FoR	Days		Compensation	Overall standard (% complaints filed)
	No additional information required to process complaint by DISCOM	Additional information required to process complaint by DISCOM		
Andhra Pradesh	Within 24 working hours of receipt of complaint	Within 7 working days of receipt of complaint	Rs 50 for each day of default	DISCOM shall maintain percentage of bills requiring modifications following complaints to total no. of bills issued at a value not greater than 0.1%
Bihar	Within 24 working hours of receipt of complaint	Within 7 working days of receipt of complaint	Rs 50 for each day of default	99%
Delhi	Within 7 days of receipt of complaint or additional information	Within 7 days of receipt of complaint or additional information	10% of excess amount billed, on the second and subsequent incorrect bill in a financial year	DISCOM shall maintain percentage of bills requiring modifications following complaints to total no. of bills issued at a value not greater than 0.2%
Kerala	On same day (for obvious errors)	Within 3 working days (for incorrect bills)	Rs 50 for each day of default	99%
Madhya Pradesh	Same day of receipt (except for HT consumers)	5 days (urban) & 7 days (rural)	Rs 100 per day or part thereof	99%
Maharashtra	Within 24 hrs of receipt (if electricity bills)	During subsequent billing cycle (other complaints)	Rs 100 per week or part thereof	NA
Rajasthan	3 working days	7 working days	Rs 50 for low tension	95%
Uttar Pradesh	Doesn't segregate on basis of information needed. Gives time standards for: Termination of agreement; reduction/enhancement of load; carry forward of fictitious arrear			DISCOM shall maintain percentage of bills requiring modifications following complaints to total no. of bills issued, at value not greater than 0.2%
FoR Model SoP	Within 24 working hours of receipt of complaint	Within 7 working days of receipt of complaint	Rs 50 for each day of default	DISCOM shall maintain percentage of bills requiring modifications following complaints to total no. of bills issued at a value not greater than 0.1%

Note: "NA" in Annexure II indicates that SERC regulations do not specify Overall standards.

## Annexure III: Status of SoP reporting across states

State	Frequency of reporting as per regulations	Periodicity of publishing	Reporting required as per regulations	Details reported
Maharashtra (MERC, 2014) (MSEDCL, 2019b)	Quarterly	Quarterly	<ol style="list-style-type: none"> <li>1. Total no. of cases of failure to meet each of the standards specified</li> <li>2. Total no. of cases where compensation has been paid without dispute or paid in compliance with an order or direction of the CGRF or Ombudsman, along with total amount of compensation in each category</li> <li>3. Report of action on faulty meters</li> <li>4. Reliability indices—SAIFI, SAIDI, CAIDI<sup>25</sup></li> </ol>	<ol style="list-style-type: none"> <li>1. SOP level by the Distribution Licensee</li> <li>2. Individual complaints &amp; compensation</li> <li>3. Report of action on faulty meters</li> <li>4. Reliability indices—SAIFI, SAIDI, CAIDI</li> </ol>
Madhya Pradesh (MPERC, 2012b) (MPCZ, 2019) (MPERC, 2018b)	Quarterly	Annual	<ol style="list-style-type: none"> <li>1. No. of instances when particular event occurred</li> <li>2. No. of cases in which achievement was / not within specified limits</li> <li>3. No. of consumers who were affected due to failure to meet standards</li> <li>4. No. of cases in which compensation was made, and aggregate compensation amount</li> <li>5. Measures to improve performance &amp; assessment of next year's targets</li> </ol>	<ol style="list-style-type: none"> <li>1. DISCOM websites only publish reliability indices reports, latest for MPCZ DISCOM is from FY16</li> <li>2. MPERC publishes annual SoP reports <ol style="list-style-type: none"> <li>a. Mandated SoP overall benchmark vs achieved %</li> <li>b. Feeder Reliability Index</li> </ol> </li> </ol>
Andhra Pradesh (APERC, 2013) (APERC, 2014)	Monthly (Guaranteed) Quarterly (Overall)	Annual	<ol style="list-style-type: none"> <li>1. Level of performance achieved with respect to standards</li> <li>2. No. of cases in which compensation was paid &amp; aggregate amount of compensation payable and paid by licensee</li> <li>3. Measures taken to improve performance and assessment of targets to be imposed for ensuing year</li> </ol>	<p>APERC published annual reports till FY14</p> <ol style="list-style-type: none"> <li>1. Levels of performance achieved by each DISCOM in rural areas &amp; cities and towns</li> <li>2. Reports of customer service centers—complaint resolution</li> </ol>
Rajasthan (RERC, 2014) (RERC, 2019b)	Half Yearly	Quarterly & Half Yearly	<ol style="list-style-type: none"> <li>1. Establishment of call centres</li> <li>2. Redressal of consumer complaints</li> <li>3. Compensation information</li> <li>4. SAIFI, SAIDI</li> <li>5. Measures taken to improve performance</li> <li>6. Reasons for not achieving specified targets, if any</li> </ol>	<p>Reports are published by RERC on its website separately for all DISCOMs. The reports mostly follow the prescribed formats, except for few cases.</p>

25. Details about calculation of reliability indices can be found at <https://npp.gov.in/glossary> and <http://www.prayasipune.org/peg/publications/item/43>

## Annexure III...continued

Delhi (DERC, 2017a) (BRPL, 2019)	Guaranteed– Monthly Overall– Quarterly	Monthly	<ol style="list-style-type: none"> <li>1. Fatal and non-fatal accident report</li> <li>2. Action taken report for safety measures complied for the accidents occurred</li> <li>3. Restoration of power supply</li> <li>4. Quality of power supply</li> <li>5. Complaint about meters</li> <li>6. New connections/additional load, where power supply can be provided from existing network</li> <li>7. Applications for new connections / additional load, where power supply requires extension of distribution system</li> <li>8. Connection in unelectrified areas</li> <li>9. Transfer of consumer's connection and conversion of services</li> <li>10. Complaints about consumer's bills, disconnection, reconnection of supply</li> <li>11. Failure of distribution transformer</li> <li>12. Failure of power transformer</li> <li>13. Summary of Overall standards of performance</li> <li>14. Compensation details</li> <li>15. Unauthorised use of electricity</li> <li>16. Theft of electricity</li> </ol>	Detailed reports as per formats in regulations
Uttar Pradesh (UPERC, 2018)	Quarterly	Sporadic	<ol style="list-style-type: none"> <li>1. Reliability Index at 11kV feeder level &amp; consumer level for district headquarters</li> <li>2. Complaint resolution for the quarter (cases, standards achieved)</li> <li>3. Compliance audit for the quarter for sample cases</li> </ol>	Sporadic reporting found on UPERC website only for Noida Power Company Limited (NPCL, 2019)
Bihar (BERC, 2007) (BERC, 2017)	Quarterly	Quarterly	<ol style="list-style-type: none"> <li>1. Levels of Overall performance standards achieved</li> <li>2. No. of consumer complaints, redressed and cases in which compensation was paid and the aggregate amount of the compensation payable and amount paid by licensee</li> <li>3. Number of claims made by consumers against licensee, and action taken including reasons for delay in payment &amp; non-payment of compensation</li> <li>4. Measures taken to improve performance &amp; assessment of next year's targets</li> </ol>	BERC published reliability indices for rural and urban feeders for 1 <sup>st</sup> quarter in FY18 <sup>26</sup> but no SoP reports

26. BERC issued a suo-moto order (SMP-19/2014) in 2014 asking the DISCOMs to submit various reports (SoP included) as mandated under regulations and the E Act. This was followed by submission on various formats by the DISCOMs over repeated hearings in 2015. There have been instances of the BERC asking the DISCOMs to furnish details on specific parameters such as voltage and harmonics, noting that incomplete SoP reports had been submitted and to ask for resubmission (BERC, 2015) This continued till 2016 where in various orders the BERC has acknowledged receipt of completed formats. However, they seem to not be available in the public domain. Additionally, in 2015, the BERC had maintained that non-compliance would attract penalties under Section 142 of the E Act (BERC, 2016). Due to unavailability of information regarding daily orders post 2016 on the BERC's website, the present status of SoP reporting by the DISCOMs is unknown.

## Annexure IV:

### QoS information of new consumers, to be periodically provided by DISCOMs

Parameter	Information to be provided
New connections	<ul style="list-style-type: none"> <li>– Total number of households</li> <li>– Number of electrified households</li> <li>– Number of connections given to non- household consumers</li> <li>– Number of connections given out in the past 5 years</li> <li>– Number of connections in the last 1 year</li> </ul>
Status of disconnections	<ul style="list-style-type: none"> <li>– Total number of newly electrified households who have been disconnected in the past 5 years</li> <li>– Reasons for disconnection</li> <li>– Number of newly electrified households who were subsequently reconnected in the past 5 years,</li> <li>– Number of newly electrified households who continue to stay disconnected</li> </ul>
Billing status for newly electrified households	<ul style="list-style-type: none"> <li>– Billing cycle as per supply code</li> <li>– Average time taken for first bill after issue of connection</li> <li>– Average time taken for issue of last bill</li> <li>– Number of connections who have not been billed for the past 3 months/ 6 months/ 1 year</li> <li>– Number of complaints and compensation paid – for the last 1 year</li> </ul>
Status of metering and bill payment	<ul style="list-style-type: none"> <li>– % of metered households among newly electrified households</li> <li>– Average consumption for billing cycle</li> <li>– Average bill amount for billing cycle</li> <li>– Average billing rate for domestic consumers</li> <li>– Month on month change in average billing rate (%)</li> <li>– % of bill payment to total bills raised for newly electrified households in each division</li> <li>– Basis of meter reading (based on actual reading, average meter reading, zero reading, smart meter)</li> <li>– Average consumption of newly electrified households who get bills on actual meter reading during billing cycle</li> <li>– Number of complaints and compensation paid – 1 year</li> <li>– Aggregate Technical &amp; Commercial (AT&amp;C) losses in division (%)</li> <li>– Month on month change in AT&amp;C losses in division with increase in connections in the last 1 year</li> </ul>
Key supply reliability indicators	<ul style="list-style-type: none"> <li>– DT failure rate for newly villages electrified (% for 1 year)</li> <li>– Average time take to repair DT (hours)</li> <li>– Average hours of supply in the last 1 year</li> <li>– Average evening (6 to 10 PM) hours of supply</li> <li>– Feeder fault / failure rate (% down time, month-wise for 1 year)</li> <li>– DT failure rate and reasons for failure</li> <li>– Average time take to repair feeder and DT (hours)</li> <li>– Consumer complaints on DT failure</li> </ul>

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# Selected Publications of Prayas (Energy Group)

## Guides, Booklets, and Reports

- 1 Consumer's Guide for Electricity Service—Information on consumer related rules and regulations (2019)  
<http://www.prayaspace.org/peg/publications/item/417>
- 2 A Primer on Power Sector: Know your Power – A Citizen's Primer on the Electricity Sector: 3<sup>rd</sup> Revised Edition (2019)  
<http://www.prayaspace.org/peg/publications/item/410-know-your-power-a-citizens-primer-on-the-electricity-sector.html>
- 3 Rural Electrification in India: From 'Connections for All' to 'Power for All' (2018)  
<http://www.prayaspace.org/peg/publications/item/399-rural-electrification-in-india-from-connections-for-all-to-power-for-all.html>
- 4 Bricks without Clay: Crucial data formats required for effective tariff processes (2018)  
<http://www.prayaspace.org/peg/publications/item/372-bricks-without-clay-crucial-data-formats-required-for-effective-tariff-processes.html>
- 5 Electricity Distribution Companies in India: Preparing for an uncertain future (2018)  
<http://www.prayaspace.org/peg/publications/item/377-electricity-distribution-companies-in-india-preparing-for-an-uncertain-future.html>
- 6 Demanding Electricity Service: A Guide for the Community Activist (English and Hindi) (2015)  
<http://www.prayaspace.org/peg/publications/item/300>
- 7 10 Questions to ask about Electricity Tariffs (2014)  
<http://www.prayaspace.org/peg/publications/item/272>
- 8 Electricity for All: Ten Ideas towards Turning Rhetoric into Reality - A Discussion Paper (English and Hindi) (2010)  
<http://www.prayaspace.org/peg/publications/item/84>
- 9 Awareness and Action for Better Electricity Service—An agenda for the community (2008)  
<http://www.prayaspace.org/peg/publications/item/64>
- 10 Quality of Service of Distribution Utilities—Need for End to End Commitment (2005)  
<http://www.prayaspace.org/peg/publications/item/43>

## Resources

- 1 Remote monitoring initiatives: Electricity Supply Monitoring Initiative (ESMI) and Monitoring and Analysis of Residential Electricity Consumption (e MARC)  
<https://www.watchyourpower.org/>
- 2 Short video about common electricity complaints faced by small consumers, and methods to address them (English, Hindi, Marathi, Telugu)  
<http://www.prayaspace.org/peg/resources/consumer-information.html>



Once electricity connections are given, to improve quality of life and promote economic activities, it is essential to ensure sufficient and affordable electricity supply, delivered with good quality, and supported by good service. Improving quality of service requires capital investment, but more than that, significant progress is possible through improved government attention and sustained efforts by the Distribution Companies and State Electricity Regulatory Commissions. This report presents the challenges in implementing the existing regulatory provisions to ensure quality of service. It suggests five urgent actions to improve it for all consumers, especially rural and small consumers.

Existing regulations on quality of service can be put to better use by enforcing the standards, monitoring compliance, improving reporting, creating consumer awareness and simplifying grievance redressal mechanisms. Regulatory Commissions can take stricter measures to implement their directives, hold separate public hearings on quality of service, and link quality of service to revenue recovery. There should be periodic improvement of the performance standards, considering the changes in the sector and technology. Government of India has played a significant role in the connection drive, and now should take up initiatives towards improving quality of service.

If urgent steps are not taken now, there is a danger of consumers losing faith in Distribution Companies, and worsening of quality of service—a situation which may not be easy to recover from. But once a reasonable quality of service is achieved, pressure from consumers will ensure that Distribution Companies are accountable for sustaining and further improving it.