

Improving Discoms' Revenue Recovery During and After the Pandemic

A case study of MVVNL discom in Uttar Pradesh

Kanika Balani, Bharat Sharma, and Shalu Agrawal

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Technical staff of MVVNL at a sub-station office during the pandemic.

Abstract

In November 2015, the Government of India launched the *Ujwal Discom Assurance Yojana* (UDAY) to improve the financial health of power distribution companies (discoms) in India. The scheme had set a target for the discoms to bring down their aggregate technical and commercial (AT&C) losses to 15 per cent by March 2019. However, more than half the discoms in India reported AT&C losses of over 20 per cent in FY 2018-19. Systemic gaps in

billing and revenue collection operations have been contributing to discom losses for decades.

Discom finances took a further hit in the wake of the COVID-19 pandemic. During the nationwide lockdown (March–May 2020), most discoms suspended physical meter reading, bill delivery, and revenue collection through offline modes. They also lost revenues from higher tariff consumer categories due to a fall

in demand. The Investment Information & Credit Rating Agency (ICRA) recently revised its estimation of the discoms' revenue gap for FY 2021 to INR 42000-45,000 crore (USD 5.612- 6.012 billion) from INR 20,000 crore (USD 2.672 billion) estimated earlier. Against this backdrop, discoms need to address their financial sustainability concerns and can begin by fixing their systemic issues.

The Madhyanchal Vidyut Vitran Nigam Ltd. (MVVNL), a discom which covers 19 districts (out of 72 districts) in Uttar Pradesh, recorded 41 per cent AT&C losses in FY 2018-19. We studied their case to identify the systemic and recent challenges in billing and collection brought about by COVID-19 that contribute to discom losses. This study presents the findings from a telephonic survey of 300 domestic consumers – 172 rural and 124 urban – randomly selected from all the zones of MVVNL.

Only half of MVVNL's consumers received regular bills before the lockdown, and less than one-third paid their last electricity bill.

Our survey reveals that only half of the consumers received regular bills, and less than one-third had paid their last electricity bill. But during the lockdown, the billing and payment rates significantly declined to even lower levels. On the positive side, we noticed a significant increase in digital bill payments by urban consumers during the lockdown, highlighting the opportunity to expand digital payment options.

Along with measures to enhance billing and collection efficiency, we discuss some innovative initiatives implemented by discoms in other Indian states. These include rural revenue franchises in Bihar, women self-help groups in Odisha, and the e-wallet system in Maharashtra, where the discoms are engaging local youth and institutions for improving billing and collection efficiency. We also discuss the need to introduce tariff reforms in UP, especially for low consumption poor consumers as the tariffs in the state are relatively higher than most Indian states, raising affordability concerns. Besides MVVNL, the findings and recommendations of the study could be relevant for other discoms with high AT&C losses resulting from similar challenges.



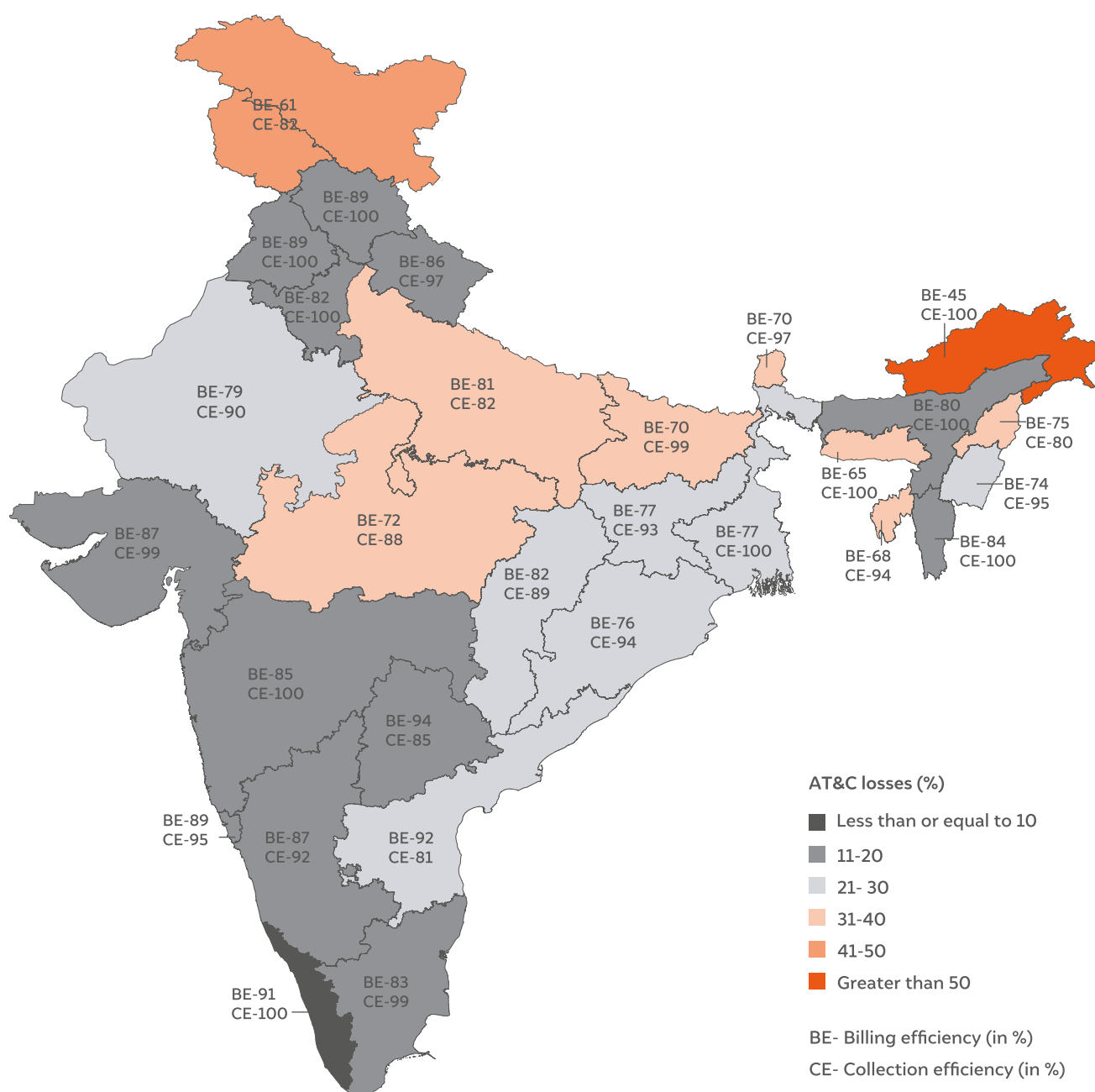
A CEEW webinar where our researchers discussed this study's findings with discom officials of Uttar Pradesh and other states.

1. Study motivation and objectives

Financial sustainability in the distribution segment is critical for the viability and growth of the power sector. In the past, several policies of the Government of India (GoI) have focused on ensuring the same through improved operational efficiency of the power distribution companies (discoms). In November 2015, the GoI launched the *Ujwal Discom Assurance Yojana* (UDAY) intending to improve the financial health of the discoms in India

(Ministry of Power 2015). The scheme had set a target for the discoms to bring down their aggregate technical and commercial (AT&C) losses to 15 per cent by March 2019. However, the AT&C losses of all public discoms in India amounted to 22 per cent in FY 2018-19 (PFC 2020). These losses are attributable to inefficient billing and collection (ICRA and CARE Ratings 2019). Figure 1 shows the state-wise losses along with billing and collection efficiency values for FY 2018-19.

Figure 1 More than half of Indian states reported AT&C losses of above 20 per cent due to gaps in billing and collection operations



Source: Authors' compilation based on the Report on the Performance of Utilities – 2018-19 by PFC

Uttar Pradesh has had some of the highest loss-making discoms, with the average AT&C losses of 33% in FY 2018-19.

Uttar Pradesh (UP) has had some of the highest loss-making discoms, with the average AT&C losses of 33 per cent in FY 2018-19. The gaps in metering and billing in the state are more noticeable in rural areas. As of December 2019, 17 per cent of rural consumers in UP were unmetered, while 30 per cent of metered consumers did not receive bills based on their power consumption.¹ Further, while 60 per cent of urban consumers paid their monthly bills on an average, only 11 per cent in rural areas paid theirs. As shown in Figure 1, such gaps in metering, billing, and collection have contributed to a below-par performance of discoms in UP with billing efficiency at 81 per cent and collection efficiency at 82 per cent vis-a-vis other states. While ~80 per cent of all Indian states have at least 90 per cent collection efficiency, UP does not factor among these.

The issues related to billing and collection were expected to exacerbate in the wake of the COVID-19 induced nationwide lockdown (March–May 2020), when most discoms suspended physical meter reading, bill delivery, and revenue collection through offline modes (Balani, Mani, and Agrawal 2020). They lost significant revenues from higher tariff consumer categories due to a fall in demand. Recently, the Investment Information & Credit Rating Agency (ICRA) also raised its estimation of the revenue gap for all discoms in India to INR 42000-45000 crore (USD 5.612- 6.012 billion) for FY 2021, up from earlier estimates of INR 20000 crore (USD 2.672 billion) (ICRA 2020). Despite the adverse implications of the pandemic-induced economic setback to discom finances, discoms must devise an aggressive yet consumer-centric strategy for improved revenue recovery during the pandemic and after.

This policy brief discusses systemic and recent challenges in billing and collection for the distribution sector in India. We advance this discussion through a case study of MVVNL, a public discom that caters to 19 districts (out of 72 districts) in UP and is the highest loss-making discom in the state, recording losses of 41 per cent in FY 2019 (PFC 2020). The billing and collection efficiency of MVVNL stands at 78 per cent and 76 per cent levels, respectively. We use data from a telephonic survey of ~300 domestic consumers of MVVNL to highlight the pre and post-lockdown challenges and discuss potential strategies to address the billing and collection gaps in a sustained manner. The study answers the following research questions:

- What is the scale of systemic weaknesses in billing and collection among MVVNL's domestic consumers? How did the lockdown affect these?
- What are the significant reasons for the non-payment of bills by consumers? Did these factors change during the lockdown?
- What are the possible solutions to improve the discom's revenue recovery in the current scenario?

The billing and collection efficiency of MVVNL stands at 78% and 76% levels, respectively.

2. Methodology

The MVVNL supplies electricity to 19 districts clustered into five distribution zones in UP (Figure 1) and has a consumer base of nearly 72 lakh (7.2 million) domestic consumers. This forms about 19 per cent of total domestic consumers in UP (UPERC 2019).

To capture the state of billing and revenue collection in MVVNL, we conducted a telephonic survey of nearly 300 domestic

1. Based on our analysis of discom-wise/substation-wise monthly data from UP Power Corporation Limited (UPPCL 2020).

consumers – 172 rural and 124 urban – randomly selected from all the zones of MVVNL with the help of the discom's consumer database (with appropriate permissions). To achieve a representative sample, we allocated the sample to each zone in proportion to the consumer population and the share of urban and rural consumer base.²

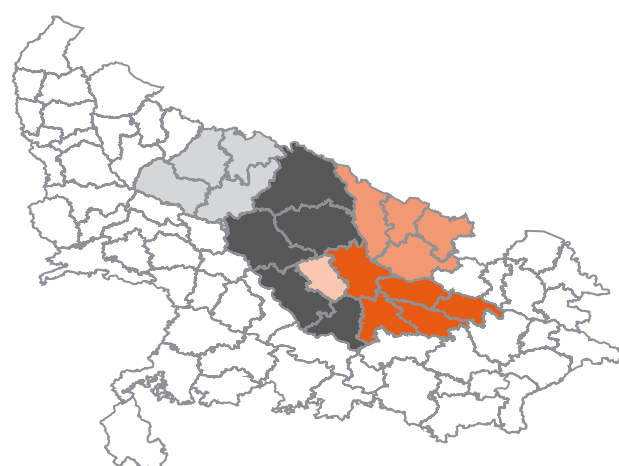
We used a 10-minute long structured survey questionnaire to interview any adult member of the sampled household aware of billing and payments. Our questionnaire covered the following key themes:

- Frequency of billing and modes of receiving bills
- Payment discipline and preferred modes of payment
- Reasons for non-payment

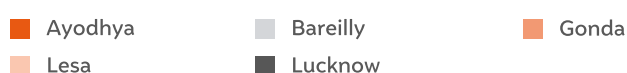


CEEW's field coordinator, Alok Kumar conducting telephonic surveys during the COVID-19 lockdown.

Figure 2 MVVNL zones covered in the CEEW survey



MVVNL zones



Source: Authors' collation

We trained the enumerators virtually on collecting the primary data with the help of ODK Collect– a mobile application for digital surveys.

We surveyed the consumers between 8-17 May 2020, when phase three of the nationwide lockdown was underway.

Besides, we also engaged with the discom officials to triangulate the responses from consumers and understand the factors determining the gaps in billing and payments.

3. Key findings

In this section, we discuss the key findings from the survey of ~300 consumers in the MVVNL distribution region.

3.1 Billing regularity and corresponding gaps

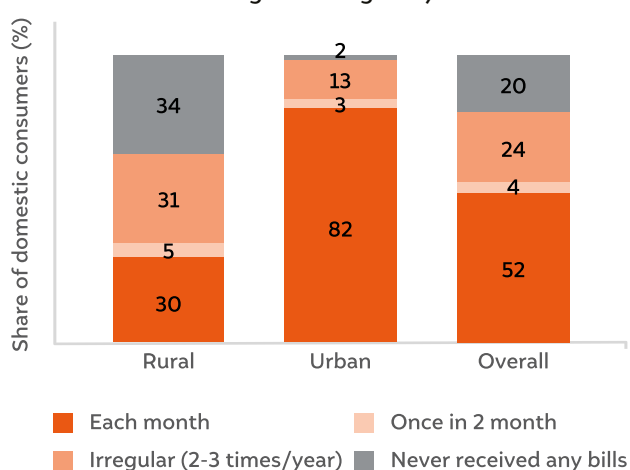
Regular billing is imperative to ensure timely payments by consumers. In UP, domestic

2. During the pilot surveys, we observed a low response rate of 30 per cent, due to a high share of invalid or incorrectly matched telephone numbers in the database. So, we commenced with a sample of 800 consumers to achieve the desired sample of 300 consumers.

consumers are billed mostly through spot-billing, which involves on the spot bill generation using a hand-held device by the meter reader. If not given a spot-bill, a consumer is provisionally billed on their past consumption and can either collect the bill from the discom's local office or is sent an SMS by the discom. Other than this, the consumers can also self-generate the bills based on their meter's reading.

As per our survey, only 56 per cent of the consumers reportedly receive bills regularly through any mode (Figure 3). Irregular billing appeared to be more prevalent in rural areas, where only one-third of consumers receive bills regularly, compared to urban areas. Notably, 34 per cent of the rural consumers have never received bills since electrification. However, as per UPPCL, nearly all the rural and urban consumers under MVVNL were billed every month in 2019.³ The difference between our survey findings and the billing status from UPPCL's database can be partly attributed to the prevalence of provisional billing. Nearly 15 per cent of rural and 7 per cent of urban consumers were billed on a provisional basis in MVVNL, in December 2019.³

Figure 3 Even before the lockdown, only half of the consumers were being billed regularly

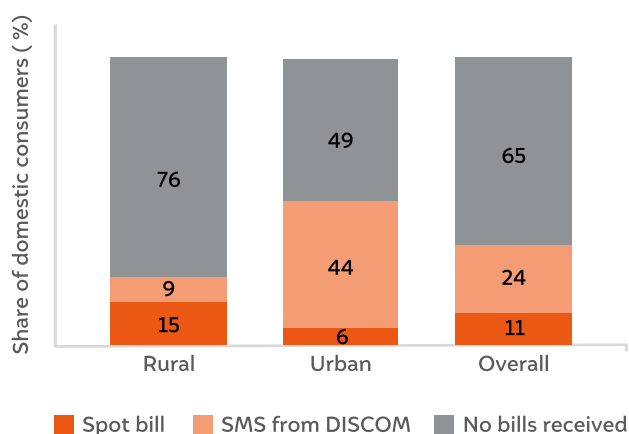


Source: Authors' analysis

During the lockdown, MVVNL suspended physical meter reading and bill delivery in most locations until the first week of May 2020. Consequently, the gaps in billing further widened, with only 35 per cent of consumers receiving bills in April 2020 (Figure 4). While half of the consumers received bills in urban areas, only 24 per cent of consumers received bills in rural locations. A majority of urban consumers who received bills got an SMS from the discom regarding their billing information.

Only 56% consumers received bills regularly before the lockdown, but only 35% received bills in April 2020.

Figure 4 One-third of consumers received bills during the lockdown



Source: Authors' analysis

Reasons for low billing efficiency

Our survey exercise and discussions with the discom staff provide useful insights into the reasons behind billing gaps. The absence of updated consumer phone numbers in the billing database emerged as the primary reason for low receipt of bills during and before the lockdown. Due to this, bills generated on a provisional basis and sent via SMS are often not delivered to the consumers. Of all consumers registered with the discom, the phone numbers of nearly 50

3. Analysis based on UPPCL's discom-wise/substation-wise monthly data (UPPCL 2020).

per cent consumers are not available. Further, while conducting the survey, of the 800 phone numbers randomly selected, we found that only 48 per cent were valid and correctly matched with the consumer's name. In effect, the database has updated contact details of just one-fourth of all consumers. These gaps are higher in the case of the rural database, which explains the low receipt of bills via SMS during the lockdown.



Our interaction with the on-ground discom staff and meter readers suggest that the gaps in billing can also be attributed to the inadequate allocation of meter readers across the geography, low incentives offered to them and gaps in performance monitoring. Typically, a meter reader earns INR 4 on every bill generated, which includes their travel expense. We also find that there is understaffing in the discom at the ground level. Typically, two employees (including a sub-division officer and a junior engineer) manage several operations ranging

from supply interruptions, billing disputes, disconnections, consumer grievance redressal, and organising camps in villages to collect payments. Further, the human resource crunch has substantially increased with the addition of new consumers under the Saubhagya scheme. As shown in Table 1, the employee expenses of MVVNL has reduced by 12 per cent, despite an increase in the consumer base by 37 per cent (UPPCL 2020, UPERC 2019).

Table 1 The employee expenses in MVVNL has reduced, despite an increase in the consumer base

| | Net employee expenses* (INR crore) | Consumers |
|------------|------------------------------------|-----------------|
| FY 2017-18 | 338.96 | 51,76,604 |
| FY 2018-19 | 297.41 (-12%) | 70,98,379 (37%) |

Sources: Authors' collation based on UPERC True-up order for FY 2017-18 and UP discom true-up filings for FY 2018-19

*Net employee expenses after netting of the employee expenses which have been capitalized

Further, the discom has been consistently underspending on employee expense component, vis-a-vis the expenses approved by the regulator (Table 2). The understaffing in the discom limits its ability to monitor the performance of the meter readers properly and conduct timely checks.

Table 2 MVVNL spends less than one-third of the approved expenses on its employees

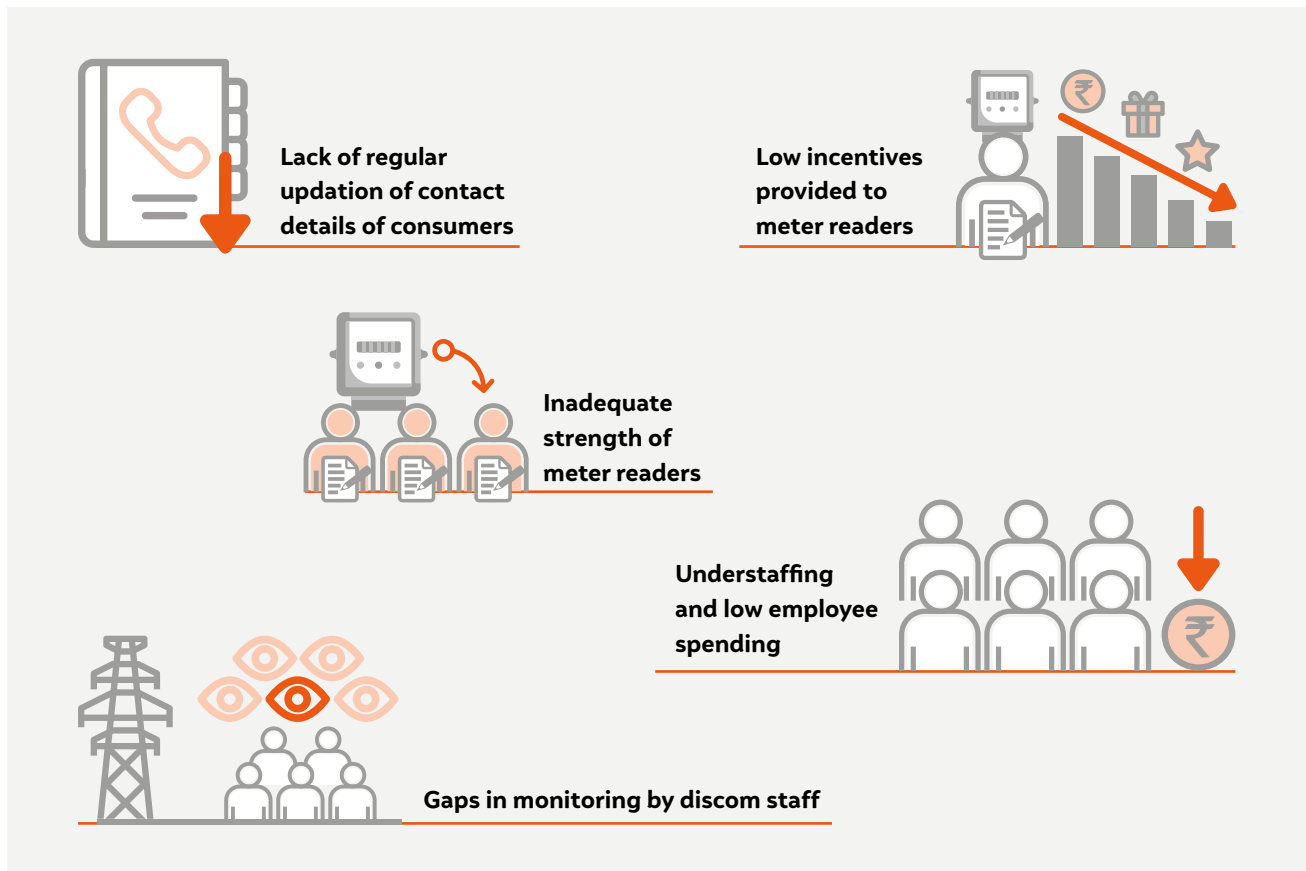
| | Approved employee expenses* in the Tariff Order (INR crores) | Audited employee expenses as per the True-Up (INR crores) | Difference (INR crores) (share in %) |
|------------|--|---|--------------------------------------|
| FY 2017-18 | 1057.24 | 338.96 | 718.28 (-68%) |
| FY 2018-19 | 1635.83 | 297.41 | 1,338.42 (-82%) |

Sources: Authors' collation based on retail tariff filings by UP discoms for true-up of FY 2017-18 and FY 2018-19

*Net employee expenses have been considered for the analysis which includes the employee expense capitalisation

We have summarised the reasons contributing to the billing inefficiencies in MVVNL in Figure 5.

Figure 5 Key factors contributing to billing inefficiencies in MVVNL



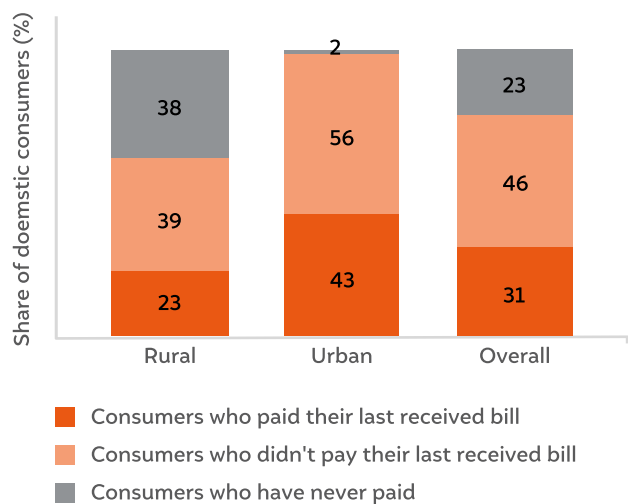
Source: Authors' analysis based on consumer survey and interaction with discom officials

3.2 Bill payment behaviour and modes

Receiving timely payments from consumers is essential for discoms to recover costs and meet its working capital requirements. Figure 6 shows that 23 per cent of consumers (mostly rural) have never made any payments since they received power connection; 90 per cent of them have never received bills. In effect, less than one-third of consumers reported paying their last received bill.

Less than one-third of consumers reported paying their last received bill.

Figure 6 Less than one-third of consumers have paid their last received bill



Source: Authors' analysis



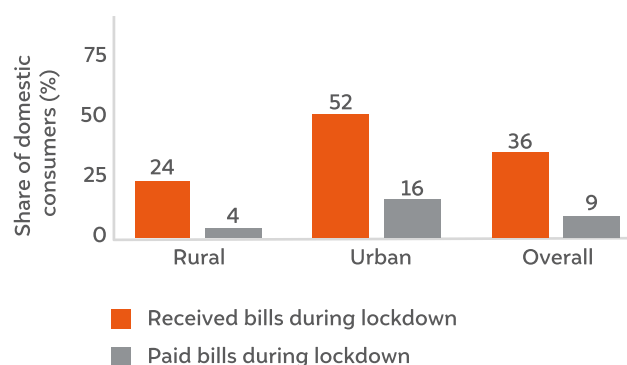
Images: Alok Kumar/CEEW

Consumers in rural parts of MVVNL using electricity for various purposes

Irregular billing is a significant factor resulting in irregular payments. Since most consumers do not receive bills regularly (as shown in Figure 3), it is often challenging for them to pay the accumulated bills when received.

We found that the share of consumers who made payments further declined during the lockdown period (Figure 7). Less than 10 per cent of all consumers paid their bills for April 2020 (during the lockdown), and most of them were urban consumers.

Figure 7 Less than 10 per cent of consumers made payments during the lockdown



Source: Authors' analysis

Only 31% consumers paid their last received bills, and less than 10% paid during the lockdown in April 2020.

Reasons for non-payment

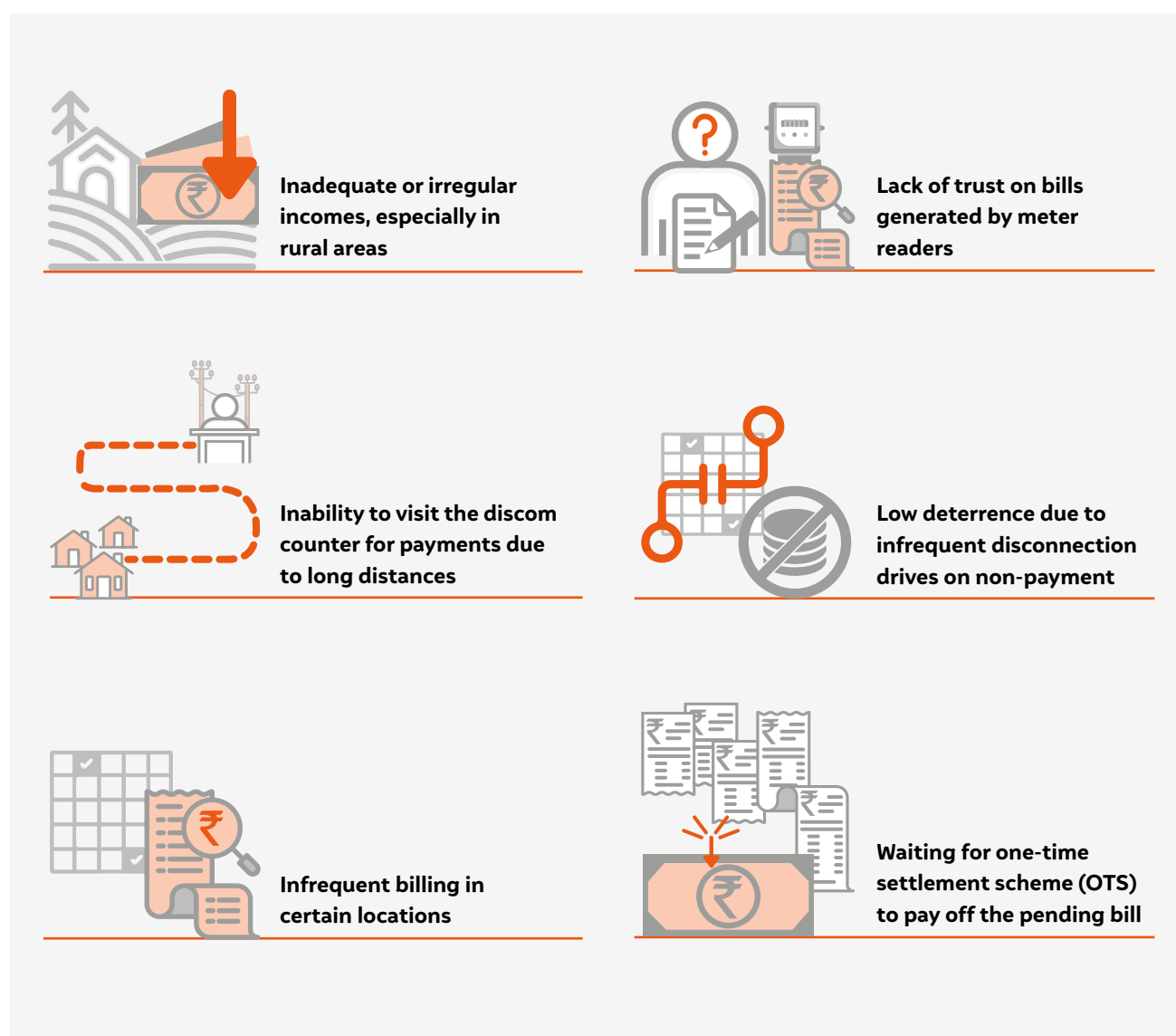
When asked about the reasons for non-payment of electricity bills, 46 per cent of consumers cited inadequate or irregular income as the primary reason, followed by the inability to visit the counter for payments due to long distances (23 per cent). A few rural consumers claimed that they were waiting for the one-time settlement (OTS) camps to be organised in their villages. The OTS scheme is announced every year between December and March, wherein consumers can pay their pending bills and have their late payment fee waived off. For about 22 lakh consumers in UP who made payments under OTS in 2019, the discoms waived off the late payment surcharge worth INR ~1700 crores (UPPCL 2020). This reflects that the discom never recovers a massive sum of interest costs on working capital, waived off during OTS camps.

Lack of trust on the bills generated by the meter readers and low deterrence due to irregular disconnection drives also emerged as other reasons for non-payment. In addition, some respondents also mentioned the extension of the date for bill payment as the reason for their non-payment during the lockdown. A few consumers erroneously believed that the discom had waived off their bills for the lockdown

months. Figure 8 summarises the key reasons for low collection efficiency in MVVNL.

This highlights the need to i) revisit the tariff schedules to define the lifeline tariff and subsidy required in line with consumers' ability to pay, and ii) make convenient payment options available to consumers. We discuss these in detail in the next chapter.

Figure 8 Factors contributing to low receipt of bill payments



Source: Authors' analysis based on consumer survey and interaction with discom officials

Bill payment modes

While both the billing and payment rates went down during the lockdown, we also observe a silver lining. Around 90 per cent of urban consumers paid their bills through online modes during the lockdown (Figure 9). This share was less than 20 per cent before the lockdown, when consumers relied on offline payment modes,

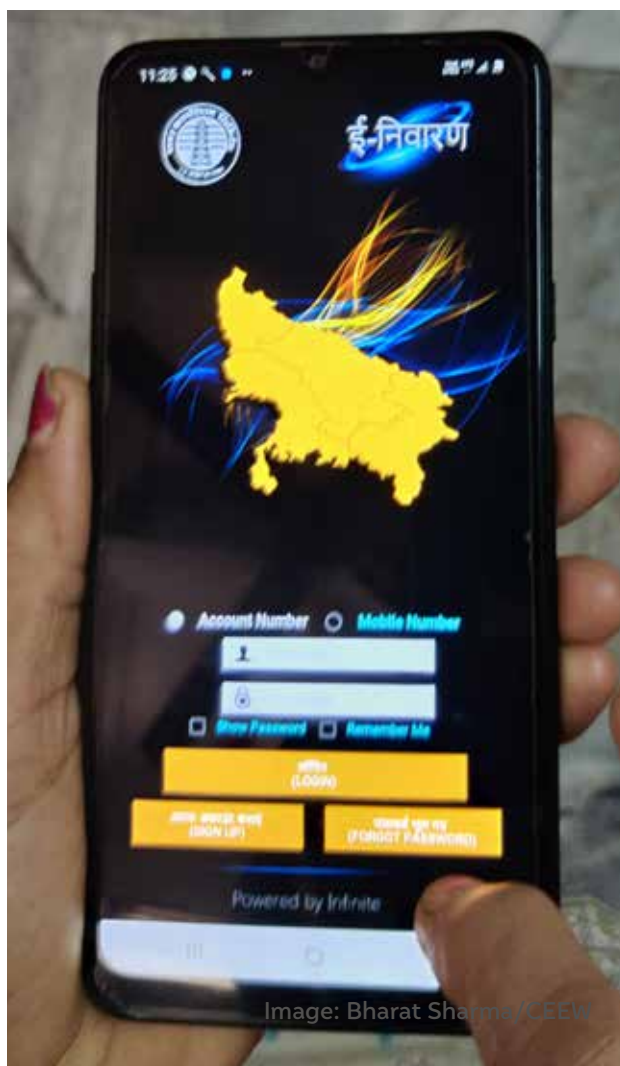
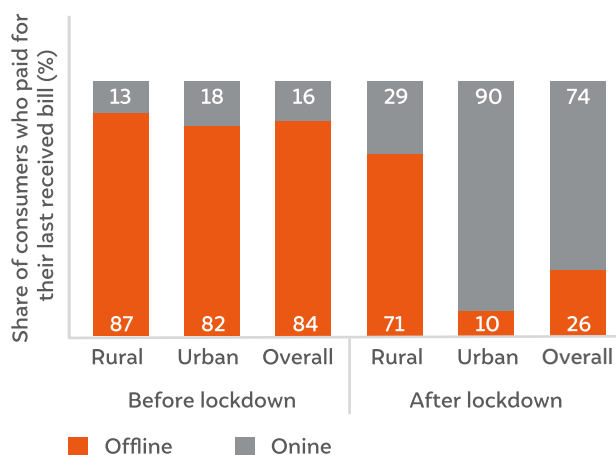


Image: Bharat Sharma/CEEW

including collection counters and common service centres. This finding is in line with UPPCL data, which shows that 24 per cent of urban consumers and 14 per cent of rural consumers of MVVNL paid their bills through digital modes in 2019.⁴ The increase in digital

payments offers an opportunity to promote digital mediums for timely bill payments, particularly in urban areas.

Figure 9 Ninety per cent of urban consumers made payments via online modes during the lockdown



Source: Authors' analysis

4. Finding solutions to enhance revenue recovery

The MVVNL discom needs to adopt and implement measures that can help bridge the existing gaps in billing and revenue collection. To identify relevant solutions and strategies, we studied the good practices and innovative initiatives introduced by discoms and state governments across the country. These practices, discussed here, could also benefit other discoms that have high AT&C losses resulting from similar challenges.

4.1 Innovative models for billing and payment collection in rural areas

Billing and collection inefficiencies are exceptionally high in rural areas and require context-specific solutions. We have identified three innovative approaches implemented by discoms in other states to improve revenue recovery in rural areas, that could be adopted by MVVNL.

4. Analysis based on UPPCL's discom-wise/substation-wise monthly data

4.1.1 Involvement of women SHGs in Odisha

In 2013, Feedback Energy Distribution Company (FEDCO), a distribution franchisee under the Central Electricity Supply Utility, in Odisha experimented with women self-help groups (WSHGs) in Nayagarh district. It engaged 142 WSHGs responsible for meter reading, bill generation, and collection, filing consumer complaints, and reporting electricity theft based on information from community members. An SHG management committee, consisting of educated and socially-active individuals from local areas, tracks the performance of the WSHGs and serves as the link between the FEDCO and the WSHGs (Swami and Wagle 2019).

Resultantly, the AT&C losses in Nayagarh district reduced from 59 per cent in FY 2013 to 39 per cent in FY 2018. This was the highest achieved loss reduction across areas under FEDCO. During this period, billing efficiency improved from 58 to 78 per cent and collection efficiency from 84 to 102 per cent (Swami and Wagle 2019). A vital feature of this intervention is a performance-based incentive structure, displayed in Table 3.

4.1.2 Rural revenue franchisees (RRF) in Bihar

Discoms in Bihar launched an RRF scheme in 2013, employing the local youth for meter reading, bill distribution, and revenue collection

from consumers in rural areas. In 2018, the discoms introduced spot billing and collection through mobile applications (NBPDCCL 2018). This contributed to increasing collection efficiency, following which, discoms' AT&C losses declined from 44 per cent in 2014-15 to 31 per cent in 2018-19 (PFC 20). We discuss the key features of this scheme below.⁵

Billing process

- Every RRF is assigned a list of consumers (typically 2,000) by the discom to be billed every month.
- After 23 days from the last bill date, the system generates a unique consumer ID for each consumer to be billed by an RRF in their spot-billing app. Using these IDs, RRFs are required to generate bills by the 25th of each month.

Collection process

- RRFs use e-wallet for payment collection, which they can recharge instantly and collect payments equivalent to the recharge. As RRFs recharge their wallets, the amount is deposited to a virtual account linked to the discom. This system requires no manual verification of receipts.
- Consumers can make payments in cash, against which RRFs print an instant receipt using a Bluetooth printer. Consumers also receive an SMS acknowledging payment-receipt on their registered phone number.

Table 3 Performance-based incentives for payment and collection for WSHGs

| | Billing | Collection |
|----------------------|--|--|
| Commission | • INR 3 per meter reading | • Six per cent of total collection |
| Additional Incentive | • INR 5 for every extra bill generated above target • INR 2 per bill generated of new connections | • Two per cent if collection is above 100% |

Source: (Swami and Wagle 2019)

5. Details based on our interaction with North Bihar Power Distribution Co. Ltd. (NBPDCCL) officials and their circulars on RRF.

Incentive structure

- An RRF is paid INR 6.39 for each bill generated and 3 per cent of total revenue collected in a month. If a consumer billed by RRF pays through any other mode, the RRF still receives a 1.5 per cent commission on the amount paid. The incentive structure is designed to ensure timely billing, besides facilitating door-to-door collection.
- The incentives are also linked to performance and are directly deposited in the RRF account.

Monitoring and transparency

- Discom field officials are responsible for the daily monitoring of RRF operations. They can monitor RRFs' geo-coordinates and verify billing accuracy with the help of meter images uploaded on the application.

4.1.3 E-wallet (online wallet) collection in Maharashtra

The Maharashtra State Electricity Distribution Company Limited (MSEDCL) discom in the state of Maharashtra launched MahaPowerPay, an online wallet payment system to improve collection efficiency in rural areas, where counter density is low. Under this system, MSEDCL designates select retailers (grocery, medical stores, etc.) as collection agents, with whom consumers can deposit payments in cash. To collect payments, MahaPowerPay owners have to first recharge their wallet, which serves as the security deposit. The first minimum recharge is INR 5,000, and subsequent ones can be in multiples of INR 1,000. After the payment, the wallet sends an SMS to the consumer and generates a receipt with MSEDCL logo. The collection agents receive a commission of INR 5 (USD 0.07) per bill, which is credited to the wallet after the online submission of the invoice.⁶

The key strengths of these three approaches include i) reliance on the local youth, community members or institutions, ii) performance-based incentives, and iii) use of technology for ensuring timely billing and revenue collection. UP has also recently initiated a payment collection exercise through the SHG model in select districts in collaboration with the *National Rural Livelihoods Mission* (Mishra 2020). The model is being implemented in a phased manner and is yet to gain pace. It would be useful for the UP discoms to take lessons from the experience of Odisha and other states for a successful implementation of the community-led model.

4.2 Institutional mechanisms to improve billing efficiency

Besides adopting area-specific solutions, there is also a need for relevant institutional reforms to ensure periodic meter-based billing of all consumers, as discussed next.



Image: Bharat Sharma/CEEW

6. Details based on MahaPowerPay brochure and inputs from MSEDCL's Chief General Manager- IT

- **Periodically update consumer database:** A key issue highlighted by this study is the lack of updated contact details of consumers with the discoms that can significantly constrain discoms' ability to communicate with the consumers, including sharing of bills and other information through SMS. MVVNL needs to set up institutional mechanisms for periodically updating the phone numbers of consumers through know-your-customer (KYC) drives.
- **Institute a robust monitoring mechanism:** The discom must use the bill data to monitor and regulate any gaps in billing consistently. Routine follow-ups with the ground staff and the involvement of other stakeholders would also help the discom achieve higher billing efficiency. Jaipur Vidyut Vitran Nigam Ltd. (JVVNL) in Rajasthan had constituted feeder management committees with feeder-in charges (discom agents) and sarpanch/village heads as its members. Such committees have been acting as drivers to ensure loss reduction efforts and remove bottlenecks from consumers' end, if any (JVVNL 2016). However, all of this would also require ramping up the employee base and employee spending within the discom, which is well below the expenses prescribed by the regulator in UP.

4.3 Incentives and measures to encourage timely payments

To encourage timely payment of bills, MVVNL discom must make diverse payment modes available to the consumers and simultaneously incentivise payment discipline through rebates. We have already discussed a few innovative models of payment collection in section 4.1. Further, a significant increase in digital payments among urban consumers during the lockdown indicates an opportunity to promote such payment modes. Below, we discuss

incentives and measures to encourage timely payments from consumers.

- **Offering incentives and discounts:** Discoms in UP currently provide one per cent rebate on total bill amount when consumers pay before the due date. Going forward, these could be made more attractive for consumers by taking inspiration from practices in other states. For instance, during the lockdown months, discoms in Rajasthan offered 5 per cent rebate on the bill amount, and MP discoms offered discounts to low-consuming consumers (RERC 2020; Government of Madhya Pradesh 2020). Ajmer Vidyut Vitran Nigam Ltd. in Rajasthan and Tata Power Delhi Distribution Ltd. in Delhi operate lotteries offering attractive prizes for consumers with no outstanding dues (TATA Power-DDL, 2020; AVVNL 2020). Punjab State Power Corporation Ltd. provides an advance payment option to its consumers with attractive interest rates of one per cent per month (PSPCL 2020).
- **Allowing staggered payments and flexible payment options:** Consumers with large pending payments may find it difficult to pay their bills in one go, particularly after the economic shock related to the COVID-19 lockdown. Allowing staggered payments will help reduce the burden on consumers and enhance payment discipline. For instance, the Maharashtra Electricity Regulatory Commission (MERC) had directed the discoms to allow consumers to pay bills for the lockdown months in three installments (MERC 2020). Further, income irregularity or seasonality is a primary reason cited by consumers for non-payment of bills in our survey. Discoms in UP could consider allowing consumers to choose a preferred payment frequency (monthly/bi-monthly/bi-annually) aligned to their income flows.

- **Enabling access to user-friendly mobile applications:** Though UPPCL has a mobile application (e-Nivaran) to facilitate digital payments, it can be made more customer-friendly by incorporating the following suggestions.
 - ◆ Ensuring a simpler login by adding the 'guest feature' and 'keep me logged in' option.
 - ◆ Providing additional services for complaint registration, tracking and viewing consumption and payment history, and a section to raise consumer awareness.
 - ◆ Allowing multiple payment options to provide additional choices to users.
- **Educating consumers:** MVVNL must conduct awareness and advertisement campaigns to improve consumer awareness about the benefits of timely payments, various modes available, including online payment through multiple mediums. For instance, with online payments, consumers can avoid the hassle of physically visiting the counters and associated expenses. They can also benefit from discounts (by discom), and cashback offers from online payment gateways and can also keep track of their payment history. Besides conventional routes, the discom could also leverage new communication channels. For instance, the Pune regional office of MSEDCL has created thousands of Whatsapp groups to facilitate communication between the discom officials and the consumers (ETEnergyWorld 2020).

4.4 Aligning tariff structure with consumption trends

Even though the low consumption households (lifeline and rural domestic) receive electricity on subsidised rates, many rural consumers in our survey cited their inability to pay

bills due to inadequate or irregular incomes. Thus, it is pertinent to investigate whether the tariff structures in the state align with the consumption trends.

Nearly half of the households in UP consume less than 100 units of electricity per month.

As per our survey, nearly half of the households (that paid their last bill) incur a monthly expenditure of less than INR 565 on electricity use, with a majority of these being rural households. The median monthly expenditure from this survey is comparable to the estimates (INR 550 per month) from a state-wide consumer survey conducted in 2018 (Ganesan, Bharadwaj and Balani 2019). As per the current tariff schedule in UP (Table 1), these expenditure levels imply that roughly half of the households in UP fall within the first slab of the tariff schedule (0-100 units per month).⁷ Thus, roughly half of the domestic consumers in UP receive similar subsidy support at equal rates, even though it is the poorer households that may need higher support.

Further, the tariff structure discriminates between the low-consumption poor consumers categorised under the lifeline, rural and urban domestic categories. For instance, three consumers under each of the categories consuming 50 units would be charged INR 210 (lifeline), INR 270 (rural domestic), and INR 404 (urban domestic), respectively. The tariffs for urban consumers are nearly 50 per cent higher than their rural counterparts belonging to the same socio-economic class. Most states in India have standard tariffs for low consumption consumers and do not discriminate between urban and rural consumers.

There is a need to enhance the subsidy support to low consumption consumers via tariff reforms. States, such as Bihar, Gujarat,

7. The electricity bill amounts per month (without late payment surcharge) consist of energy charge, fixed charge and electricity duty. Electricity duty for domestic consumers is charged at 5% of Energy Charge + Fixed Charge, depending upon the connection category of the consumer.

Table 4 Tariff slabs for rural and urban consumers in UP (FY 2019-20)

| Domestic consumer category | Consumption range (per month) | Fixed charge (INR/kW) | | Energy charge (INR/ kWh) | |
|--|-------------------------------|-----------------------|-------|--------------------------|-------|
| | | Rural | Urban | Rural | Urban |
| Below Poverty Line / Lifeline consumers (up to 1 kW and consuming up to 100 kWh) | 0- 100 units | 50 | | 3 | |
| Other metered domestic consumers | 0-100 units | 90 | 100 | 3.35 | 5.50 |
| | 101-150 units | | | 3.85 | 5.50 |
| | 151-300 units | | | 5.00 | 6.00 |
| | 301-500 units | | | 5.50 | 6.50 |
| | Above 500 units | | | 6.00 | 7.00 |

Source: Authors' collation based on UPERC tariff order for FY 2019-20

Rajasthan, Madhya Pradesh, Maharashtra, Karnataka and Haryana, define the lifeline category for consumers using 30-50 units a month.⁸ Further, the median energy charge for the lifeline consumer category charged by discoms across most states is less than INR 2 per kWh, and the fixed charges are less than INR 20 per kW per connection. In comparison, the lifeline tariffs in UP are relatively high, as shown in Table 4.

UP's electricity regulatory commission must consider devising a higher lifeline tariff support for all consumers with less than 50 units per month and increase the tariffs above this limit for a revenue neutral adjustment. Lower tariffs would improve the affordability of electricity for poorer consumers and reduce the revenue loss for discoms on non-payments by consumers. The above should be prioritised over OTS announcements that result in high-interest cost burden for the discom.

8. Lifeline consumption range:
 0-30 units per month: Odisha, Maharashtra, Gujarat, Madhya Pradesh, and Assam;
 0-40 units per month: Karnataka and Kerala;
 0-50 units per month: Tamil Nadu, Telangana, Bihar, Haryana, and Rajasthan

5. Concluding remarks

The COVID-19 pandemic has triggered new and unexpected challenges for discoms. Our survey with MVVNL consumers demonstrates how systemic weaknesses in billing and collection accentuated during the current crisis. While more than half of the consumers responded that they received bills regularly before the lockdown, only one-third of them received bills during the lockdown. Similarly, only a third of the consumers made payments against their last received bill. There is also a significant urban-rural divide in discoms' performance, vis-a-vis these metrics, which requires urgent redressal. Further, 90 per cent of the urban paying consumers paid through digital channels during the lockdown. This

presents an excellent opportunity to scale up digital payments in urban areas.

Given the number, diversity, and geographical spread of consumers served by public discoms in India, including MVVNL, a one-size-fits all approach would not work. Discoms need to adopt a combination of robust institutional mechanisms, incentives, and context-specific solutions to bridge their billing and revenue gaps. These include better monitoring, staff enhancement, robust data management systems, financial incentives to consumers, and engaging local communities in billing and collection processes. Figure 10 summarises the critical interventions discussed in this study that MVVNL and other discoms could employ.

Figure 10 Key interventions to enhance billing and collection efficiency



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The authors



Kanika Balani

kanika.balani@ceew.in | [@kanika_balani](https://twitter.com/kanika_balani)

Kanika Balani is a Programme Associate at CEEW, and has been leading the work on improving discoms' revenue recovery operations in Uttar Pradesh. She holds a Master's degree in Regulatory Governance from the Tata Institute of Social Sciences (TISS), Mumbai.



Bharat Sharma

bharat.sharma@ceew.in

Bharat Sharma is a Research Analyst at CEEW focusing on the distribution end of the power sector in Uttar Pradesh. He holds a Master's degree in Public Policy from TISS, Hyderabad, and an undergraduate degree in Information Technology from IIIT, Noida.



Shalu Agrawal

shalu.agrawal@ceew.in | [@ShaluAgrawal12](https://twitter.com/ShaluAgrawal12)

Shalu Agrawal leads The Council's work on residential energy access and demand management, and supports the work on power sector reforms and sustainable deployment of solar-powered irrigation. She is an alumnus of University College London and IIT Roorkee.



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Peer reviewers:

Ashwini Kumar Swain, Centre for Policy Research; Shruti Sharma, International Institute for Sustainable Development; Karthik Ganesan, Research Fellow, CEEW and Prateek Aggarwal, Programme Associate, CEEW.

For queries contact

COUNCIL ON ENERGY, ENVIRONMENT AND WATER (CEEW)

NEW DELHI

Sanskrit Bhawan, A-10, Aruna Asaf Ali Marg
Qutab Institutional Area
New Delhi - 110 067, India
T: +91 11 4073 3300

LUCKNOW

504 A, Riviera Blues Fortuna Apartments
New Hyderabad, Lucknow
Uttar Pradesh - 226007, India
T: +91 0522 4230180