Policy Brief

Impact of Ujwal Discom Assurance Yojana (UDAY)

Key insights

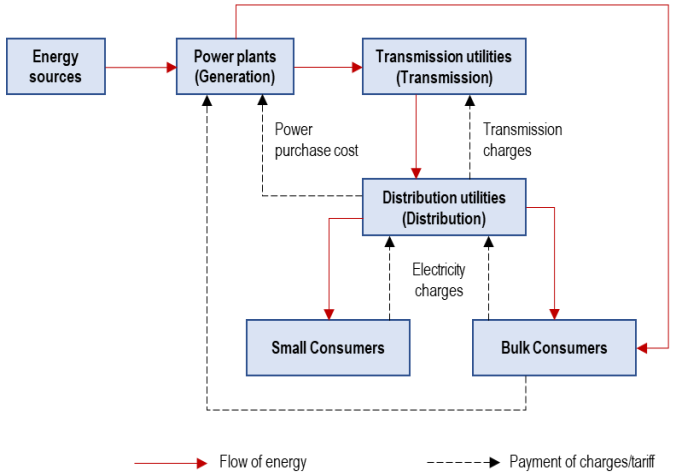
- Between 2014-15 and 2019-20, gross annual financial losses of discoms (excluding UDAY grants and regulatory income) at the national level increased from Rs 59,000 crore to Rs 75,000 crore.
- As of 2019-20, Gujarat, Haryana, and Himachal Pradesh recovered sufficient revenue to cover the cost of supplying electricity.
- Most states observed a reduction in aggregate technical and commercial (AT&C) losses between 2014-15 and 2019-20. In 2019-20, the average AT&C losses of all state-owned discoms was 21%.

Ujwal Discom Assurance Yojana (UDAY) was launched in 2015 for improving the financial health and operational efficiency of state-owned distribution companies (discoms) across the country. In June 2021, the Revamped Distribution Sector Scheme was approved based on the objectives of UDAY to improve operational efficiency and ensure financial sustainability of discoms.[1] This note provides an overview of the impact of UDAY across Indian states.

Electricity sector in India

The supply of electricity in India consists of three stages: generation, transmission, and distribution. Generation is the process of producing power using different sources of energy. High voltage power is carried from the generation plants to the distribution sub-stations through a transmission grid. Electricity is finally transferred from the sub-stations to individual consumers through a distribution network. Distribution includes retail supply of electricity to the consumers and maintenance of the distribution network.

Figure 1: Functioning of the power sector



The Electricity Act, 2003 reformed the Indian power sector by: (i) delicensing generation of electricity, (ii) allowing open access for distribution and transmission network of electricity (refers to a mechanism where the consumer may directly buy electricity from a generator), (iii) setting up regulators (both at the state and national level), and (iv) constituting the Appellate Tribunal for Electricity to adjudicate on appeals against orders of the regulators.

In most Indian states, the power sector activities (generation, transmission, and distribution) are separated for independent functioning and administration. A few states have separated the transmission segment from the generation and distribution while a few have an integrated utility. Table 1 shows the structure of the power sector across India.

Table 1: Structure of power sector across states as of August 2021

Structure	States
Separated generation, transmission, and distribution	Assam, Chhattisgarh, Jharkhand, Meghalaya, Uttarakhand, Andhra Pradesh, Bihar, Delhi, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Uttar Pradesh, West Bengal
Transmission separated from generation and distribution	Himachal Pradesh, Kerala, Manipur, Punjab, Tamil Nadu, Tripura
Integrated power departments	Arunachal Pradesh, Goa, Jammu and Kashmir, Mizoram, Nagaland, Sikkim

Sources: NITI Aayog; PRS.

Aditya Kumar
aditya@prsindia.org

December 9, 2021

Ujwal Discom Assurance Yojana (UDAY)

One of the key issues with the power sector has been the poor financial situation of state distribution companies (discoms).[2] If discoms do not have enough cash to purchase electricity, or conduct repair and maintenance activities, the supply of electricity to consumers is disrupted and payments to other stakeholders in the value chain (such as coal companies and railways which transport coals) will be affected. Discoms borrow short term loans at expensive rates to eliminate such shortage of cash, which further adds to their financial burden. Further, discoms may default on interest and loan payments to banks leading to creation of non-performing assets, which will affect the overall economy.

The Ujwal Discom Assurance Yojana (UDAY) was launched by the Ministry of Power in November 2015 for improving the financial health and operational efficiency of state-owned distribution companies (discoms) across the country. Key benefits for the states participating in UDAY include: (i) coal price rationalisation, (ii) additional coal at notified prices, and (iii) faster completion of interstate transmission lines. 27 states and five union territories participated under the scheme.[3] Odisha and West Bengal did not participate in UDAY.[3]

States had to meet certain targets under UDAY. They were required to take over 75% of the outstanding debt of their discoms (accumulated till 2015) over two years (50% in 2015-16 and 25% in 2016-17).[4] They were also required to progressively fund a greater share in losses of discoms from their budgetary resources (10% in 2018-19, 25% in 2019-20, and 50% in 2020-21). As of March 2020, 15 out of 27 participating states took over the debt of their discoms worth two lakh crore rupees.[5] In addition, UDAY specified certain operational targets such as achieving 15% AT&C losses by 2018-19 at the national level.[6] Based on the status of discoms, the targets under UDAY varied across states. Overall UDAY was aimed at: (i) enforcing financial discipline on discoms, (ii) reducing the cost of power, and (iii) improving the operational efficiency of discoms.[2]

UDAY was not the first intervention towards resolving the financial crisis of discoms. In the last couple of decades, discoms have needed financial assistance several times to deal with their mounting losses. For example, one-time support was provided in the form of: (i) dues settlement for state electricity boards (includes waiver of 50% of interest payable to public sector undertakings) in 2002, and (ii) Financial Restructuring Package in 2012. These schemes turned out to be short-term support to discoms as they had debt of Rs 3.96 lakh crore by September 2015.[7]

Financial losses

Between 2014-15 and 2019-20, gross losses of discoms at the national level increased at an annual rate of 6% (see Table 2).[8,9] Gross losses do not account for certain revenues such as revenue grants under UDAY, and regulatory income. The net losses, which accounts for subsidy gap (difference between subsidy booked and subsidy received), revenue grants under UDAY, and regulatory income declined at an annual rate of 9% between 2014-15 and 2019-20.[8,9] However, there was an increase in the net losses at the national level from Rs 30,014 crore in 2017-18 to Rs 51,366 crore in 2018-19. This was mainly due to the increase in the power purchase cost (amount spent by a discom to procure a unit of power).[10]

In 2019-20, states with high net losses include Tamil Nadu (Rs 11,965 crore), Telangana (Rs 6,057 crore), and Uttar Pradesh (Rs 3,792 crore). Of the 27 states that signed up to UDAY, 15 observed a reduction in net losses between 2014-15 and 2019-20. For the remaining 12 states, the net losses increased between 2014-15 and 2019-20. Table 3 in the annexure shows aggregate net losses across states.

Table 2: Aggregate losses of state-owned distribution utilities (in Rs crore)

Year	Gross losses (A)	Subsidy gap (subsidy booked - subsidy received) (B)	Revenue grant under UDAY booked (C)	Regulatory income booked (D)	Net Losses (E = A-B-C-D)
2014-15	56,939	2,381	0	0	54,558
2015-16	54,380	1,093	0	5,761	47,526
2016-17	60,978	4,918	13,833	8,333	33,894
2017-18	59,996	4,373	19,676	5,933	30,014
2018-19	88,057	11,963	20,674	4,054	51,366
2019-20	74,915	6,365	23,721	10,478	34,351

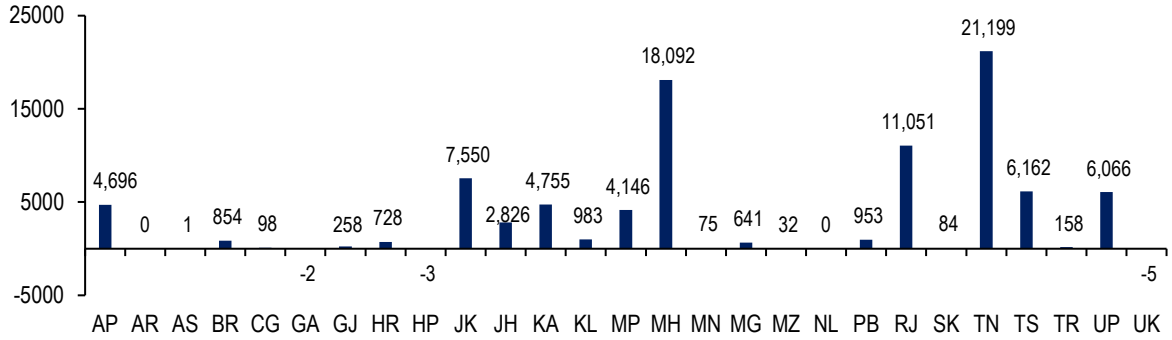
Sources: Reports of Power Finance Corporation (PFC) on the performance of state power utilities; PRS.

Outstanding dues to generators

The losses of discoms lead to a systemic crisis affecting the liquidity in the entire supply chain of the electricity sector. This is reflected in the overdue payment to generation companies, which increased from Rs 17,030 crore

in August 2017 to Rs 94,920 crore in August 2021, indicating financial stress in some discoms.[11] Note that discoms faced financial issues due to the COVID-19 lockdown in 2020 as most consumers in the higher tariff segments (commercial and industrial) were closed or operating at lower capacity.[12] The steps taken by the government to address the financial crisis for discoms include: (i) liquidity infusion (through loans worth Rs 90,000 crore), (ii) three months moratorium for payments by discoms to generators and transmission licensees, (iii) 50% reduction in payment security, and (iv) extension in timelines of various projects.[12,13] Between March 2020 and March 2021, the outstanding dues to generators increased from Rs 72,202 crore to Rs 76,632 crore (an increase of 6%).[11] Figure 2 shows state-wise outstanding dues by discoms to generators as of August 2021.

Figure 2: Tamil Nadu, and Maharashtra have the highest outstanding dues to generators (in Rs crore)



Note: The outstanding dues do not account for disputed amounts; Jammu and Kashmir include Ladakh; Data as of August 2021 as accessed on September 10, 2021.
Source: PRAAPTI portal; PRS.

The financial losses of discoms are mainly on account of three factors: (i) high cost of supply and under-pricing of tariff, (ii) delays in release of subsidy, and (iii) high technical and commercial losses.

Gap between the average cost of supply and average revenue realisation (ACS – ARR gap)

The average cost of supply (ACS) of electricity to consumers includes the cost of generation (fuel, capital costs, and other operational costs) or power purchase cost, transmission cost and distribution cost. ACS may vary across states due to variations in these costs. For example, the states procuring electricity from distant sources will have to pay high transmission charges compared to the states procuring electricity from nearer sources.

Reducing the power purchase cost was an important objective of UDAY. This constitutes over 70% of the cost of supply. However, at the national level, the power purchase cost per unit has increased from Rs 3.98 in 2015-16 to Rs 4.71 in 2019-20.[9] Typically, procurement of electricity by the discoms is arranged through Power Purchase Agreements (PPAs) which are bilateral contracts between the procurers (discoms) and generators (power plants). PPAs include the price at which electricity would be purchased, and the mechanism for adjustment of tariffs for select events mutually agreed on conditions for risk-sharing and termination of the PPAs. In general, PPAs tend to be long-term in nature, i.e., around 20-25 years.

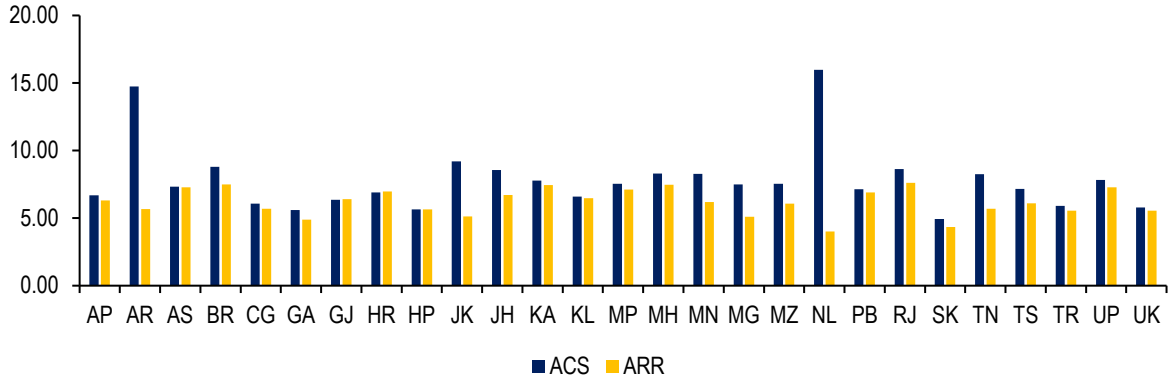
The electricity tariff structures are not cost-reflective.[2] This means that the electricity tariff in India has usually been under-priced (the sale price of electricity is lower than the cost of electricity).[14] The under-recovery of costs and commercial losses (due to billing and collection inefficiency) leads to a gap between the average cost of supply and average revenue realisation (ACS-ARR gap). This impacts the overall revenue and consequently the liquidity and solvency of these discoms. UDAY aimed at eliminating the ACS-ARR gap. Figure 3 shows a state-wise comparison of ACS and ARR in 2019-20. Further, under UDAY, states also had to file timely petitions to revise tariffs. However, several states (such as Uttar Pradesh, Madhya Pradesh, Kerala, Tamil Nadu, Manipur, and Tripura) did not file tariff petitions for the financial year 2018-19 on time.[15]

At the national level the ACS-ARR gap declined marginally from Rs 0.77 per unit in 2014-15 to Rs 0.72 in 2019-20.[8] However, there is wide variation in the ACS-ARR gap across states, with the gap widening in some states (see Table 4 in Annexure).

In addition to the ACS-ARR gap, the composition of the tariff does not reflect the cost structure. Discoms have two categories of cost: fixed and variable costs. Fixed costs include those committed to generators, transmission companies, depreciation, and interest on loans. Variable cost is incurred per unit of power procured. To reduce the mismatch between revenue and costs, discoms charge customers a tariff, which comprises a fixed charge and a variable price. A large portion of fixed costs is loaded on variable tariff.[2] This leads to a mismatch in the cash flow of discoms, as they have a fixed-cost obligation to generators and transmission companies, irrespective of the quantum of power procured.[2] The fixed cost recovery, a major part of which is recovered through variable

price, for most states remains poor.[2] In 2018-19, the fixed components of cost for the select states were in the range of 40% to 74%, whereas revenue recovery through fixed charge is in the range of 13% to 27%.[2]

Figure 3: Gujarat, Haryana, and Himachal Pradesh were able to eliminate the ACS-ARR gap in 2019-20



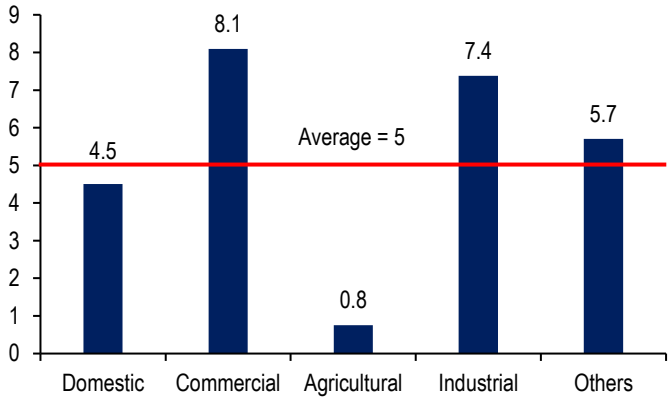
Note: The data for ACS and ARR are on the energy sold basis (in Rs per unit). This means that ACS and ARR account for losses (such as loss of electricity due to the transmission through electric wires).
Sources: Reports of Power Finance Corporation (PFC) on the performance of state power utilities; PRS.

Subsidy by state governments and accumulation of regulatory income

The electricity tariff in India is regulated to safeguard the interest of consumers and ensure the sustainability of discoms. Currently, different consumers buy electricity at different rates. State governments provide subsidies to most discoms to enable them to charge such differential tariffs (from low paying consumers). In addition to these direct subsidies from the state governments, low paying consumers (agricultural and residential) are also cross-subsidised by high paying consumers (commercial and industrial). Cross-subsidies are inbuilt in the tariff.

Reduction of cross-subsidy: The Electricity Act, 2003 requires SERCs to progressively reduce cross-subsidies in tariffs to ensure that they reflect the cost of supply.[16] The National Tariff Policy 2016 provides that the tariff for a consumer category should be progressively brought within ± 20% of the average cost of supply.[2] A study commissioned by NITI Aayog (2019) noted that cross-subsidy for industrial and commercial consumers in many states is still higher than the limit of 20% prescribed in the 2016 Policy.[2] It also observed that there is a wide gap between the tariffs of subsidising and subsidised consumers.[2] The major liability of fixed costs recovery is on the non-subsidised category of consumers (such as industrial and commercial consumers).[2] To ensure the right compensation and cash flow for discoms fixed costs should be recovered from subsidised consumers.[2] NITI Aayog (2021) noted that subsidies and free electricity for agriculture leads to leakages (use of subsidised electricity for non-agricultural purposes), and high losses for discoms.[17]

Figure 4: Commercial and industrial consumers contributed more to revenue per unit among all consumers in 2019-20



Note: Data is on energy sold basis in Rs per unit. Others include: (i) public utilities such as railways, (ii) inter-state sale of electricity, and (iii) bulk supply.
Sources: Reports of Power Finance Corporation (PFC) on the performance of state power utilities; PRS.

Delay in release of subsidy: Irregularities in subsidy payments by states leads to cash flow issues for discoms.[2] The Forum of Regulators (2016) noted that delays in subsidy released by state governments not only weakens the cash availability with the discoms but also increases the accumulated losses.[18] In 2019-20, the total tariff subsidy received by discoms was Rs 1,13,500 crore against the billed value of Rs 1,19,921 crore (which is 95% of the total subsidy billed).[8] For improving the regularity of subsidy payment and better targeting of subsidy, the direct benefit transfer (DBT) model has been proposed in the electricity sector by the National Tariff Policy 2016 as well as the Draft Electricity (Amendment) Bill, 2020.[19,20] In such a model, the subsidy will be

transferred directly to the beneficiary's bank account. NITI Aayog (2021) noted that DBT mechanism could improve efficiency and reduce leakages.[17]

However, there may be several challenges in implementing DBT. For example, any delay in transfer of subsides to consumers may adversely impact the ability of low-income consumers to pay bills on time. For instance, the average monthly power bill for a farmer using a tubewell for farming could be around Rs 3,000-5,000. This could be a significant amount for a small farmer, who may be currently getting electricity for free.

Accumulation of regulatory income: When the cost of supply increases, the tariff is revised gradually over a period of time to reduce economic pressure on consumers. The unrealised revenue which will be recovered with interest in later years is called regulatory asset (accumulated regulatory income). The part of the regulatory asset recovered in a financial year is called regulatory income for the year. In March 2020, the regulatory asset of discoms was Rs 39,951 crore, an increase of 37% from March 2018 (Rs 29,218 crore).[8] In 2019-20, the regulatory income booked by discoms increased from Rs 4,054 crore to Rs 10,478 crore (an increase of 158%).[8]

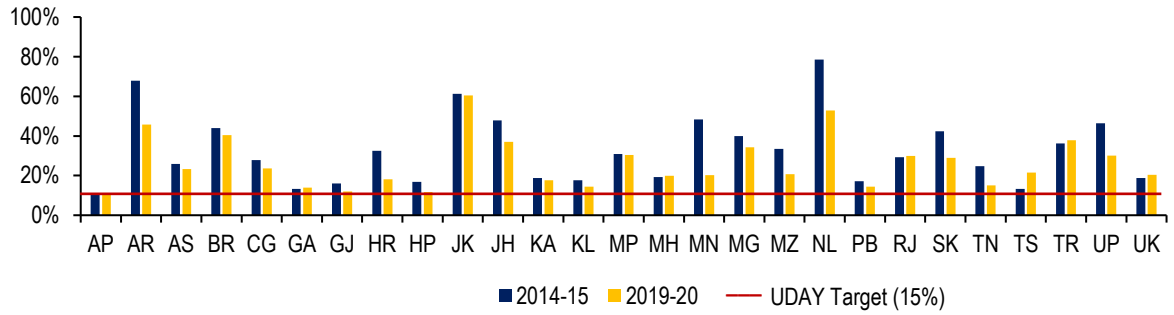
Such cases of delay in disbursement of subsidies and accumulation of regulatory assets lead to a shortage of cash inflow to discoms. This shortage is covered through loans, which further leads to an increase in interest amount to be paid by discoms. This increase in financial burden on discoms will be passed on to the consumers through future tariff hikes, thereby, increasing the cost of electricity. Further, an increase in debt and interest payments increases the risk of default by discoms, which has negative implications for both its suppliers (such as generating companies) and creditors (such as banks).

Aggregate technical and commercial (AT&C)

AT&C losses account for the proportion of power procured by a discom for which it did not receive any payment. Technical losses refer to the losses related to distribution network (such as losses during transmission of electricity in wires). Commercial losses refer to losses due to human factors (such as theft of electricity), and poor administration and management systems (such as delay in billing).

Between 2014-15 and 2019-20, the AT&C losses at the national level declined from 26% to 21%.[8,9] However, these losses vary across states from 11% in Andhra Pradesh to 60% in Jammu and Kashmir.

Figure 5: Most states observed a reduction in AT&C losses between 2014-15 and 2019-20 (in %)



Note: The methodology of calculating AT&C losses were revised in June 2017; Jammu and Kashmir include Ladakh.
Sources: Reports of Power Finance Corporation (PFC) on the performance of state power utilities; PRS.

Low levels of investment in distribution have resulted in overloaded systems, leading to higher technical losses.[21] Key reasons for high commercial losses for discoms include: (i) theft and pilferage of power, (ii) lack of metering, and (iii) poor billing and collection systems.[21] Under UDAY, the target for the maximum aggregate AT&C losses at the country level was set at 15% by the end of 2018-19.[6] AT&C target at the state level was different for each state as it was specified at the discom level in states. At global level, in 2018-19, the world average for AT&C losses was 8%.[17] In USA, China and Japan the AT&C losses in 2018-19 were 6%, 5%, and 4%, respectively.[17]

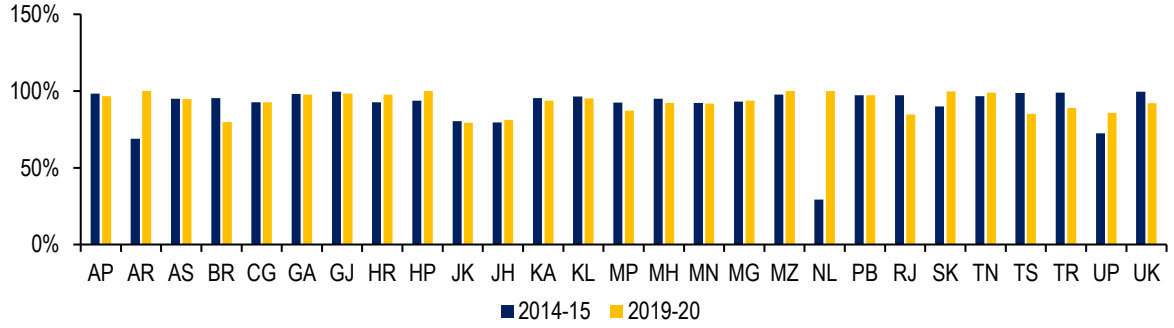
The Forum of Regulators (2016) noted that strengthening metering, billing and collections would improve the reduction in AT&C losses leading to the better financial health of discoms. Thus, the loss reduction targets should be strictly adhered to by the discoms.[18]

Electricity cost is recovered based on the actual consumption of consumers during the billing period. Therefore, timely billing is an important factor for the on-time realisation of revenue. The billing efficiency of discoms in 2019-20 was 92.2%.[8] Billing efficiency refers to the proportion of energy billed to consumers to the energy supplied to an area.[22]

Collection efficiency refers to the ratio of total revenue realised to the total revenue billed. As of 2019-20, Arunachal Pradesh, Mizoram, and Nagaland have achieved 100% collection efficiency. Between 2014-15 and

2019-20, out of 27 UDAY states only 12 improved their collection efficiency.[8] The states with comparatively lower collection efficiency in 2019-20 include Jammu and Kashmir (79.3%) and Bihar (79.7%).

Figure 6: Collection efficiency in UDAY states in 2019-20 vis-à-vis 2014-15 (%)



Note: Jammu and Kashmir include Ladakh.
Sources: Reports of Power Finance Corporation (PFC) on the performance of state power utilities; PRS.

Smart metering: Under UDAY, smart meters were to be installed as a measure to improve operational efficiency. This would have helped in reducing the commercial losses due to theft, billing issues and collection issues. The Standing Committee on Energy (2019-20) observed that smart meters are efficient in reducing AT&C losses significantly specifically in areas where the frequency of manual meter reading and collection is low.[24] As of September 20, 2021, at the national level, smart meters have been installed for: (i) 8% of consumers with consumption above 500 kWh, and (ii) 9% of consumers with consumption between 200 and 500 kWh.[25]

The Forum of Regulators (2016) recommended that discoms must adopt efficient initiatives for capital expenditure and loss reduction based on consumer types.[26] They suggested augmentation of substations and distribution transformers (DT). Further, the separation of power lines of agricultural and non-agricultural consumers was recommended. Under UDAY, 88% of urban DT metering, 64% of rural DT metering, and 84% of feeder segregation was achieved.[27]

The Draft Electricity (Amendment) Bill, 2020

Some of the above measures were proposed in The Draft Electricity (Amendment) Bill, 2020.[20] As per the Ministry of Power, the Draft Bill seeks to address critical issues which have weakened commercial and investment activities in the electricity sector. The Bill has not yet been introduced in Parliament. Some of the key relevant reforms proposed by the draft Bill are:

- **Reduction in cross-subsidy:** The Draft Bill notes that tariff determined by state electricity regulatory commissions (SERCs) has not been cost-reflective and has resulted in the weakening of the financial health of discoms and recommends SERCs to adhere to the National Electricity Tariff Policy for determining cross-subsidy.[20]

  The Forum of Regulators (2015) had noted that high cross-subsidies may result in loss to state utilities as the commercial consumers may bypass the grid and opt for captive power generation.[23] Captive power generation refers to the localised power generation facility which is separate from the grid.

- **Direct transfer of subsidy to consumers:** Currently, the subsidy amount is provided to discoms. The draft Bill proposes the transfer of subsidies to consumers through direct benefit transfer (DBT) mechanisms. DBT system in electricity can help improve accountability, reduce delays, and deliver subsidies to consumers more efficiently.[2] It is expected to provide the following benefits: (i) targeting of subsidy to actual consumption and not power pilferage or losses, (ii) improvement in the segmentation of needy consumers based on units of consumption rather than based on consumer category, and (iii) more efficient utilisation of electricity by subsidised consumers otherwise they would move out of the subsidised slabs.[2]

- **Authorisation of sub-licensees by discoms:** Currently, discoms are responsible for distributing electricity, billing, and collection. The draft Bill proposes to allow sub-licensees authorised by discoms for the distribution of electricity. With sub-licensees dedicated towards distribution of electricity, discoms may focus on improving billing and collection efficiency leading to better performance of discoms.[20]

In June 2021, the Union Cabinet approved the Revamped Distribution Sector scheme.[1,28] The objectives of this scheme are similar to those of UDAY. The scheme aims to: (i) reduce AT&C losses across India to 12-15% by 2024-25, (ii) eliminate the ACS-ARR gap by 2024-25, (iii) develop institutional capabilities for modern discoms, and (iv) improve financial and operational efficiency of the distribution sector to enhance quality, reliability, and affordability of electricity supply.[1,28]

The scheme has been allocated a capital outlay of three lakh crore rupees over five years (from financial year 2021-22 to 2025-26).[1,28] The scheme provides for an annual appraisal of discoms based on certain pre-defined targets (such as AT&C targets). Discoms will have to score at least 60% and clear certain minimum criteria to

be eligible for funds under the scheme.[1,28]

The major component of the scheme includes: (i) prepaid meters for all consumers except agricultural consumers (priority will be given to urban areas, AMRUT cities, and high loss areas), (ii) segregation of feeders for cheap day-time power for irrigation through solarisation, and (iii) modernisation of discoms through better supervisory systems.[1,28]

Annexure

Table 3: Tamil Nadu, Telangana, and Uttar Pradesh observed highest net losses in 2019-20 (in Rs crore)

States	2014-15	2019-20
Tamil Nadu	-12,757	-11,965
Telangana	-2,514	-6,057
Uttar Pradesh	-6,473	-3,792
Jammu and Kashmir	-4,114	-3,160
Bihar	-1,045	-2,948
Karnataka	87	-1,850
Madhya Pradesh	-4,501	-1,744
Punjab	166	-1,158
Jharkhand	474	-1,132
Chhattisgarh	-1,554	-973
Uttarakhand	-260	-577
Nagaland	-315	-488
Meghalaya	-198	-428
Arunachal Pradesh	-257	-413
Goa	-17	-271
Kerala	-1,273	-270
Andhra Pradesh	-2,397	-151
Mizoram	-192	-109
Tripura	-80	-91
Sikkim	-35	-57
Manipur	-30	-9
Himachal Pradesh	-114	11
Assam	-578	203
Maharashtra	-366	307
Haryana	-2,117	331
Gujarat	108	538
Rajasthan	-12,474	2,986

Note: Negative sign (-) indicates a loss; Positive sign (+) indicates Profit After Tax (PAT). The data includes regulatory income and revenue grants under UDAY; Jammu and Kashmir include Ladakh.
Sources: Reports of Power Finance Corporation (PFC) on the performance of state power utilities; PRS.

Table 4: Nagaland had highest ACS-ARR gap in 2019-20 (in Rs per unit)

States	2014-15	2019-20
Nagaland	7.2	12.0
Arunachal Pradesh	4.1	9.1
Jammu and Kashmir	3.3	4.1
Tamil Nadu	1.6	2.5
Meghalaya	1.1	2.4
Manipur	0.3	2.1
Jharkhand	0.9	1.8
Mizoram	3.6	1.5
Bihar	0.8	1.3
Telangana	0.5	1.1
Rajasthan	1.9	1.0
Maharashtra	0.3	0.8
Goa	0.1	0.7
Sikkim	0.5	0.6
Uttar Pradesh	1.8	0.6
Madhya Pradesh	1.0	0.4
Andhra Pradesh	0.8	0.4
Chattisgarh	0.9	0.4
Tripura	0.6	0.4
Karnataka	0.1	0.3
Uttarakhand	0.2	0.2
Punjab	0.3	0.2
Kerala	0.7	0.1
Assam	0.9	0.04
Himachal Pradesh	0.3	-0.01
Gujarat	-0.1	-0.1
Haryana	0.5	-0.1

Note: Negative sign (-) indicates that ARR is higher than the ACS; Jammu and Kashmir include Ladakh.
Sources: Reports of Power Finance Corporation (PFC) on the performance of state power utilities; PRS

[1] "Cabinet approves Revamped Distribution Sector Scheme: A Reforms based and Results linked Scheme", Press Information Bureau, Cabinet Committee on Economic Affairs, June 30, 2021.

[2] Diagnostic study of the power distribution sector, NITI Aayog, April 2019, https://web.archive.org/web/20210519035658/https://niti.gov.in/sites/default/files/2019-08/Final%20Report%20of%20the%20Research%20Study%20on%20Diagnostic%20Study%20for%20power%20Distribution_CRISIL_Mumbai.pdf .

[3] List of states signed MoU, UDAY website, as accessed on October 4, 2021, https://www.uday.gov.in/mou_signed.php.

[4] Salient Features of the Scheme, UDAY website, as accessed on October 4, 2021, https://www.uday.gov.in/Salient-Features.php.

[5] Debt: States' Medium Term Challenge, State Finances: A study of budgets, Reserve Bank of India, September 2019, https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/03CH300920191B65D1BDD955423F96BA64C93169312D.PDF.
[6] Targeted Activities, UDAY Website, as accessed on October 4, 2021, https://www.uday.gov.in/Targeted-Activites.php.
[7] Presentation on Journey of Ujwal Discom Assurance Yojana, UDAY website, March 2017, https://www.uday.gov.in/images/UDAYJourneyppt_29032017.pdf.
[8] Report on the Performance of State Power Utilities for the years 2013-14 to 2015-16, Power Finance Corporation Limited, as accessed on October 4, 2021, https://www.pfcindia.com/DocumentRepository/ckfinder/files/Operations/Performance_Reports_of_State_Power_Utilities/1_Report%20on%20the%20Performance%20of%20State%20Power%20Utilities%202013-14%20to%202015-16.pdf.
[9] Report on Performance of State Power Utilities 2019-20, Power Finance Corporation of India, as accessed on September 14, 2021, https://www.pfcindia.com/DocumentRepository/ckfinder/files/Operations/Performance_Reports_of_State_Power_Utilities/Report_on_Performance_of_Power_Utilities_201920_2.pdf.
[10] Chapter IV – Functioning of Power Sector PSUs, Comptroller and Auditor General of India, as accessed on October 10, 2021, https://cag.gov.in/uploads/download_audit_report/2021/6-Chapter%20IV%20Functioning%20of%20Power%20Sector%20PSUs-060ab9e0bee0357.16995844.pdf.
[11] PRAAPTI Portal, Ministry of Power, as accessed on November 4, 2020, https://praapti.in/.
[12] "Power Minister approves major relief measures for power sector", Ministry of Power, Press Information Bureau, March 28, 2020.
[13] Chapter II: Fiscal Position of State Governments, State Finances: A study of budgets, Reserve Bank of India, October 2020, https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/0SF_271020FCF77451F1DF744B2B244875C785B8EF3.PDF.
[14] Chapter IV: Issues and Perspectives, State Finances : A Study of Budgets of 2015-16, Reserve Bank of India, as accessed on November 26, 2020, https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/IVCHAPF7830E98064443649D9986186FD09EE4.PDF.
[15] Sixth Annual Integrated Rating of State Distribution Utilities, Ministry of Power, July 2018, https://pfcindia.com/DocumentRepository/ckfinder/files/GoI_Initiatives/Annual_Integrated_Ratings_of_State_DISCOMs/6th_rating_booklet.pdf.
[16] Section 181 - Powers of State Commissions to make regulations, The Electricity Act, 2003, Ministry of Law and Justice, June 2, 2003, https://powermin.nic.in/sites/default/files/uploads/The%20Electricity%20Act_2003.pdf.
[17] "Turning Around the Power Distribution Sector", NITI Aayog, August 2021, https://www.niti.gov.in/sites/default/files/2021-08/Electricity-Distribution-Report_030821.pdf.
[18] Study on "Performance of Distribution Utilities", Forum of Regulators, 2016, http://www.forumofregulators.gov.in/Data/study/pdu.pdf.
[19] National Tariff Policy, Ministry of Power, January 28, 2016, http://www.cercind.gov.in/2018/whatsnew/Tariff_Policy-Resolution_Dated_28012016.pdf.
[20] The Draft Electricity (Amendment) Bill, 2020, Ministry of Power, April 17, 2020, https://powermin.nic.in/sites/default/files/webform/notices/Draft_Electricity_Amendment_Bill_2020_for_comments.pdf.
[21] 4th Report: The Electricity (Amendment) Bill, 2014, Standing Committee on Energy, May 7, 2015, http://164.100.47.193/lsscommittee/Energy/16_Energy_4.pdf.
[22] National Power Portal, as accessed on December 8, 2020, https://npp.gov.in/glossary.
[23] Report on Road Map for Reduction in Cross Subsidy, Forum of Regulators, April 2015, http://www.forumofregulators.gov.in/Data/WhatsNew/Report.pdf.
[24] Report No. 4 – Demand for Grant of Ministry of Power 2020-21, Standing Committee on Energy, March 2020, http://164.100.47.193/lsscommittee/Energy/17_Energy_4.pdf.
[25] Operational indicators, UDAY National Dashboard, Ministry of Power, as accessed on September 20, 2021, https://www.uday.gov.in/home.php.
[26] Best practices and strategies for distribution loss reduction – final report, Forum of Regulators, July 2016, http://www.forumofregulators.gov.in/Data/study/11.pdf.
[27] UDAY Portal, Ministry of Power, as accessed on August 8, 2020, https://www.uday.gov.in/home.php.
[28] Guidelines – Revamped Distribution Sector Scheme, Ministry of Power, https://powermin.gov.in/sites/default/files/uploads/Final_Revamped_Scheme_Guidelines.pdf.