

# India's Electricity Subsidies: Gaps and Challenges



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Issue Brief

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# India's Electricity Subsidies: Gaps and Challenges

| Neha Chauhan

## ABSTRACT

India's power sector is a crucial component of its infrastructure, directly impacting the living standards of its population. However, the Indian power sector faces numerous challenges, particularly in the distribution segment. This paper focuses on the existing subsidy regime in the power sector and its impact on DISCOMs' financial stability. It examines direct tariff subsidies and cross-subsidies provided to consumers, particularly to agricultural and residential customers. The study identifies gaps and inefficiencies in subsidy design, including delays in disbursement and rising cross-subsidies.

The paper emphasises the need for subsidy reforms, such as better targeting, limiting cross-subsidies, and timely disbursement, to improve the financial viability of DISCOMs and enhance the overall efficiency of the power sector.

### Keywords:

DISCOMs, subsidies, challenges, financial viability, cross-subsidies, targeting

## BACKGROUND: INDIA'S POWER SECTOR

Power is a fundamental component of infrastructure and a key indicator for evaluating a country's population's living standard. With the rapidly growing population and economic growth, India's energy consumption has more than doubled since 2000 (International Energy Agency, 2021). Over the next 20 years, a developing and industrialising economy as well as a growing urban population, will drive up this energy consumption. In fact, the energy consumption is anticipated to more than double and account for one-fourth of the worldwide growth by 2040 (Puri, 2016).

The Indian power sector is one of the largest and most complex power sectors in the world. The value chain of India's electricity sector can be divided into three parts: generation, transmission, and distribution. The generation process, which involves power production and is carried out by power generation companies [GENCOs], is the first phase in the value chain. The transmission process follows, in which the generated power is transmitted via transmission lines from the power plants to the distribution substations. The distribution process is the final phase in the value chain. Power distribution companies [DISCOMs] use a distribution network to transport electricity from substations to ultimate users (commercial and industrial consumers, agricultural households, and so on).

As India recovers from a Covid-induced downturn, electricity demand is likely to rise rapidly. To fulfil the rise in electricity consumption over the next twenty years, India will need to add a power system the size of the European Union to what it currently has (International Energy Agency, 2021). As a result, the country's power sector needs to be made financially and operationally resilient in order to fulfil the growing electricity demand. However, the sector continues to face several challenges.

On a per capita basis, India's electricity consumption is significantly lower than the global average. According to the Central Electricity Authority (2022), in 2021-22, India's per capita electricity consumption was 1,255 kWh. While this figure has improved over time, India's performance remains poor when compared to global per capita consumption, which was estimated to be 3,128 kWh in 2014 (The World Bank, 2014). Unsustainably high aggregate technical and commercial [AT&C] losses, poor electricity supply and service, a lack of investment in the power infrastructure, and unsustainable debt are some of the challenges which plague India's power sector (Garg and Shah, 2020). There is also the issue of vast disparities in service quality among states and between rural and urban areas (International Energy Agency, 2021).

Because of its poor financial and operational health, power distribution is generally recognised as both the most significant and weakest link in the overall value chain of the power sector (Power Finance Corporation Ltd. [PFC], 2022; Nirula, 2019; Garg & Shah, 2020;

Powell et al., 2021). Table 1 shows a snapshot of the financial performance of the DISCOMs.

<i>Aggregate losses of DISCOMs</i>	<i>Rs 31,026 crore</i>
<i>Net worth</i>	<i>(Rs 53,559)</i>
<i>Total borrowings by distribution utilities</i>	<i>Rs 6,17,928</i>

Source: PFC, 2023

The poor financial and operational viability of DISCOMs have an impact on the entire value chain and, as a result, the state of the country's power sector. Due to a lack of funds, DISCOMs frequently fail to make timely payments to generators and transmission companies for their purchases (Nirula, 2019). As a result of payment delays, the financial and operational efficiency of generation and transmission businesses suffers. The losses faced by DISCOMs also have an impact on investments required to increase the quality of power supply. Consequently, consumers suffer as a result of DISCOMs' poor financial health since they are unable to access good quality power. Furthermore, DISCOMs' shortfalls are frequently compensated through borrowings and subsidies, which invariably affects the state finances.

While there are various factors contributing to the DISCOMs' poor financial situation, the prevailing subsidy regime is a key one. The mechanism through which electricity sector subsidies are calculated and distributed has a severe impact on the financial viability of DISCOMs, and thus the entire power sector. The problems continue to persist in estimating the subsidy requirement and targeting of the subsidies. Additionally, delays in disbursement of subsidy amounts to DISCOMs contribute to their liquidity stress, and they frequently end up borrowing money to continue their operations. Furthermore, prolonged reliance on subsidies disincentivizes DISCOMs from making significant structural adjustments while negatively impacting state finances.

As the government attempts to supply affordable and sustainable electricity to a growing population, the power sector in India presents a number of challenges and opportunities. As discussed, the electricity demand is expected to rapidly increase in the coming years and therefore, it is important to address the pertinent question of how this demand would be fulfilled without exacerbating the current challenges of this sector. While subsidies play a vital role in ensuring power affordability, these must be better designed and targeted to ensure that subsidies do not adversely impact the financial stability of DISCOMs. Therefore, this paper aims to understand the key challenges in the design and implementation of subsidies to the DISCOMs across India's states and UTs.

## **SECTION I: THE CURRENT SUBSIDY REGIME**

Given the widespread poverty and poor socioeconomic indicators in India, the affordability of electricity remains a crucial concern for a huge number of citizens. Given these conditions, provision of price support by the government to certain consumers becomes necessary.

Historically, the Indian government has subsidised energy for its population, particularly the poor, to ensure access and to protect citizens from global price volatility (Soni et al., 2012). In most states in India, the DISCOMs are required to sell electricity to certain consumers at a subsidised price. The main beneficiaries of under-priced electricity are mostly the agricultural and residential consumers.

The different forms of subsidies related to the electricity distribution sector are as follows:

### **1. Direct Tariff Subsidies**

Tariff determination, or the process of setting the price of electricity for consumers, is an important procedure with far-reaching repercussions for both consumers and DISCOMs. The State Electricity Regulatory Commission [SERC] is an autonomous quasi-judicial authority that determines electricity tariffs. A state's DISCOMs file a tariff petition in the required format with the corresponding SERC. A tariff petition is a detailed document that outlines the operational and financial capacities of the DISCOMs. It contains estimates of the DISCOMs' overall energy demands, sales projections, electricity sources to meet those needs, power purchase costs, operating and maintenance expenditures, and other pertinent information (Shakti Sustainable Energy Foundation et al., n.d.).

The DISCOMs compute the electricity tariffs and file the tariff petition. The tariff petition is filed every year by the DISCOMs and the tariff rates differ among states and between consumer categories in each state. At the same time, the states are expected to declare a lump-sum direct subsidy for DISCOMs at the start of the year. This is referred to as "subsidy booked", and also has to be taken into account in the tariff petition. The petition is reviewed by the respective SERC, who then finalises the tariff order, i.e., a statement that specifies the precise tariff rates to be charged from each category of consumers.

Direct tariff subsidies mostly comprise annual payments made by state governments to state DISCOMs to assist in covering the costs of providing electricity at low prices. According to Section 65 of the Electricity Act (2003), all subsidies declared by the state governments must be paid to the DISCOMs, in advance, for the following financial year.

## 2. Cross-Subsidies

The DISCOMs impose higher costs on some customers, such as commercial and industrial users, to cover the expense of subsidised power delivered to low-paying consumers, who are primarily agricultural and domestic households. The mechanism of charging higher prices from one group of consumers to compensate for lower prices for another group is referred to as cross-subsidisation.

According to the Electricity Act of 2003, cross subsidies should be gradually reduced. The National Tariff Policy of 2016 also stated that direct subsidies are preferable to the system of cross-subsidising tariffs for aiding the poorer categories of consumers (Ministry of Power, 2016). Additionally, the National Tariff Policy 2016 mandates that states make sure that power supply costs are gradually reflected in tariffs, and it limits cross-subsidies to no more than +/- 20% of average supply costs (ibid).

## 3. Others

According to the Electricity Act of 2003, cross subsidies should be gradually reduced. The National Tariff Policy of 2016 also stated that direct subsidies are preferable to the system of cross-subsidising tariffs for aiding the poorer categories of consumers (Ministry of Power, 2016). Additionally, the National Tariff Policy 2016 mandates that states make sure that power supply costs are gradually reflected in tariffs, and it limits cross-subsidies to no more than +/- 20% of average supply costs (ibid).

## SECTION II: THE CHALLENGES WITH THE CURRENT SUBSIDY REGIME

The price support for consumers leads to leakages and losses for the DISCOMs. This section discusses some of the gaps in the current subsidy regime

### 1. Overdependence of DISCOMs on Subsidies

In most states, the electricity tariffs or the price consumers pay for electricity, are deemed insufficient to cover the costs, and the gap between DISCOMs' expenditure and revenue is not entirely compensated by the subsidies in place for the DISCOMs (Aggarwal et al., 2020). In 2019, the total revenue billed to electricity consumers covered only 69% of DISCOMs' total expenses (ibid).

Tariff Subsidy billed by distribution utilities increased from Rs 1,33,306 crore in 2020-21 to Rs 1,43,781 crore in 2021-22 (PFC, 2023). As a percentage of total revenue, tariff subsidy billed by the DISCOMs decreased from 18.70% in 2020-21 to 17.89% in 2021-22 (ibid.).

The continued overreliance of the DISCOMs on the government subsidies disincentivises the DISCOMs from making structural improvements. The DISCOMs in the north-eastern states and agrarian states are particularly reliant on government subsidies (Regy et al., 2021). Additionally, according to a recent report analysing India's electricity subsidies, only seven states had been able to reduce direct tariff subsidies as a share of their expenses since 2016 (Aggarwal et al., 2020). The rising subsidies adversely affect the state finances and their ability to meet their fiscal deficit targets.

## **2. Subsidy Released being less than Subsidy Booked**

As mentioned earlier, the states announce a lump-sum direct subsidy for DISCOMs at the beginning of the year, which is referred to as 'subsidy booked'. The actual subsidy payment to the DISCOMs by the state governments is known as 'subsidy released', and in some states, this amount is lower than the subsidy booked. Since the DISCOMs file tariff petitions taking the subsidy announced into account, the shortage in subsidy released from that amount compels the DISCOMs to turn to short-term borrowings.

## **3. Delays in Subsidy Disbursement to DISCOMs**

As mentioned earlier in the paper, Section 65 of the Electricity Act (2003) requires that payments for subsidies be made in advance for the following fiscal year. However, this is not true in practice. There have been several delays in releasing the amount of subsidies owed by the state government to the DISCOMs. The delays in disbursement of subsidies are mostly borne by the DISCOMs since they have to resort to short term loans at high interest rates to meet their working capital requirements.

## **4. Rising Cross-Subsidies**

A large number of DISCOMs rely on the high-paying consumers, i.e., commercial and industrial users, to meet their requirements through cross-subsidies. Over the last few years, cross-subsidies have been rising (Regy et al., 2021).

Although the Tariff Policy mandates that cross-subsidies be reduced to 20% or less of the average cost of supply, they are over 50% in some States, making industries uncompetitive (Ministry of Power, 2020). According to a recent analysis, it was found that in 2019, in 12 out of 31 states and UTs, household and agricultural customers were billed less than 80% of supply cost, while industrial and commercial users were billed over 120% of supply cost (Aggarwal et al., 2020).

Traditionally, consumers typically purchase electricity from state-owned electricity distribution units or DISCOMs. However, the Electricity Act (2003) introduced the concept of open access, giving the option to large consumers (with a load requirement above 1 MW) to choose an electricity supplier other than DISCOMs in order to encourage competition and boost efficiency in the power sector (CEEW Centre for Energy Finance, 2019). Currently, open access is not commonly utilised in the majority of states (Regy et al., 2021).



If the open access regime is widely adopted, the DISCOMs risk losing out on higher paying customers due to the cross-subsidies.

Furthermore, there is another challenge of poor cross-subsidy reporting. There is no disaggregated data available for cross-subsidies, making it difficult to assess the risk of loss to different states in case there is a fall in the demand from high-paying consumers or a rise in demand from the low-paying consumers (Aggarwal et al., 2020).

## **SECTION III: CONCLUSION**

### **1. Improving Subsidy Targeting**

As mentioned, the demand for electricity is expected to increase rapidly in the coming years. Consequently, the subsidy cost for the government is also expected to increase. At the same time, as open access gains prominence and competition increases in the distribution sector, the high-paying consumers may buy less from the DISCOMs. Therefore, targeting the subsidies only to the vulnerable groups and reducing them for higher-income consumers will help improve DISCOMs' finances and efficiency.

### **2. Limiting Cross-Subsidies**

The directive to progressively reduce cross-subsidies has been in place for several years. However, very few states have been complying with this. Therefore, efforts should be made to limit the use of cross-subsidies by states.

### **3. Timely Disbursement of Subsidies**

The state governments have not been adhering to the norms that require the advance payment of subsidies. Therefore, there is a need for a policy framework that penalises the state governments for delays in subsidy disbursements. Furthermore, the regulatory commissions must make sure that the state governments, not the DISCOMs, are responsible for paying the additional costs incurred by the DISCOMs as a result of taking out loans to fulfil their demands arising out of delays in the disbursement of subsidies.

### **4. Improving Data on Subsidies**

Reporting on the distribution of subsidies must be done more frequently and transparently in order to undertake subsidy reforms. Better cross-subsidy data reporting, for instance, would assist policymakers in determining which DISCOMs face the risk of a loss should high-paying consumers reduce their demand. Therefore, processes for routine data collecting and reporting must be in place to assist in improving the targeting and design of subsidies.

## REFERENCES

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Aggarwal, P., Viswamohanam, A., Narayanaswamy, D., & Sharma, S. (2020). Unpacking India's Electricity Subsidies: Reporting, transparency, and efficacy. International Institute for Sustainable Development. <https://www.iisd.org/system/files/2020-12/india-electricity-subsidies.pdf>.

CEEW Centre for Energy Finance. (2019, August 10). Open access. <https://www.ceew.in/cef/masterclass/explains/open-access>.

Central Electricity Authority. (2022). Executive Summary on Power Sector. Ministry of Power, Government of India. <https://cea.nic.in/executive-summary-report/?lang=en>.

Garg, V. & Shah, K. (2020). The Curious Case of India's Discoms: How Renewable Energy Could Reduce Their Financial Distress. Institute for Energy Economics and Financial Analysis. <https://ieefa.org/resources/curious-case-indias-discoms>.

International Energy Agency. (2021). India Energy Outlook 2021. [https://iea.blob.core.windows.net/assets/1de6d91e-e23f-4e02-b1fb-51fdd6283b22/India\\_Energy\\_Outlook\\_2021.pdf](https://iea.blob.core.windows.net/assets/1de6d91e-e23f-4e02-b1fb-51fdd6283b22/India_Energy_Outlook_2021.pdf).

Ministry of Power. (2016). Tariff Policy. Government of India Press. [https://cercind.gov.in/2018/whatsnew/Tariff\\_Policy-Resolution\\_Dated\\_28012016.pdf](https://cercind.gov.in/2018/whatsnew/Tariff_Policy-Resolution_Dated_28012016.pdf).

Ministry of Power. (2020). India prepares for a change in Electricity sector through Proposed Electricity (Amendment) Bill 2020. Press Information Bureau. <https://pib.gov.in/PressReleaseDetail.aspx?PRID=1634253>.

Nirula, A. (2019). India's Power Distribution Sector: An assessment of financial and operational sustainability. Brookings India. <https://www.brookings.edu/research/indias-power-sector-distribution/>.

Powell, L., Sati, A., & Tomar, V. K. (2021). Discom reforms in India: Why the inefficiency narrative is inadequate. Observer Research Foundation. <https://www.orfonline.org/expert-speak/discom-reforms-in-india-why-the-inefficiency-narrative-is-inadequate/>.

Power Finance Corporation Ltd. (2023). Report on Performance of Power Utilities: 2022-22. <https://pfcindia.com/Home/VS/29>.

Power Finance Corporation Ltd. (2022). Report on Performance of Power Utilities: 2020-21. <https://pfcindia.com/Home/VS/29>.

Puri, R. (2016, March 9). Why the power sector in India, is key to its growth. World Economic Forum. <https://www.weforum.org/agenda/2016/03/why-the-power-sector-in-india-is-key-to-it-s-growth/>.

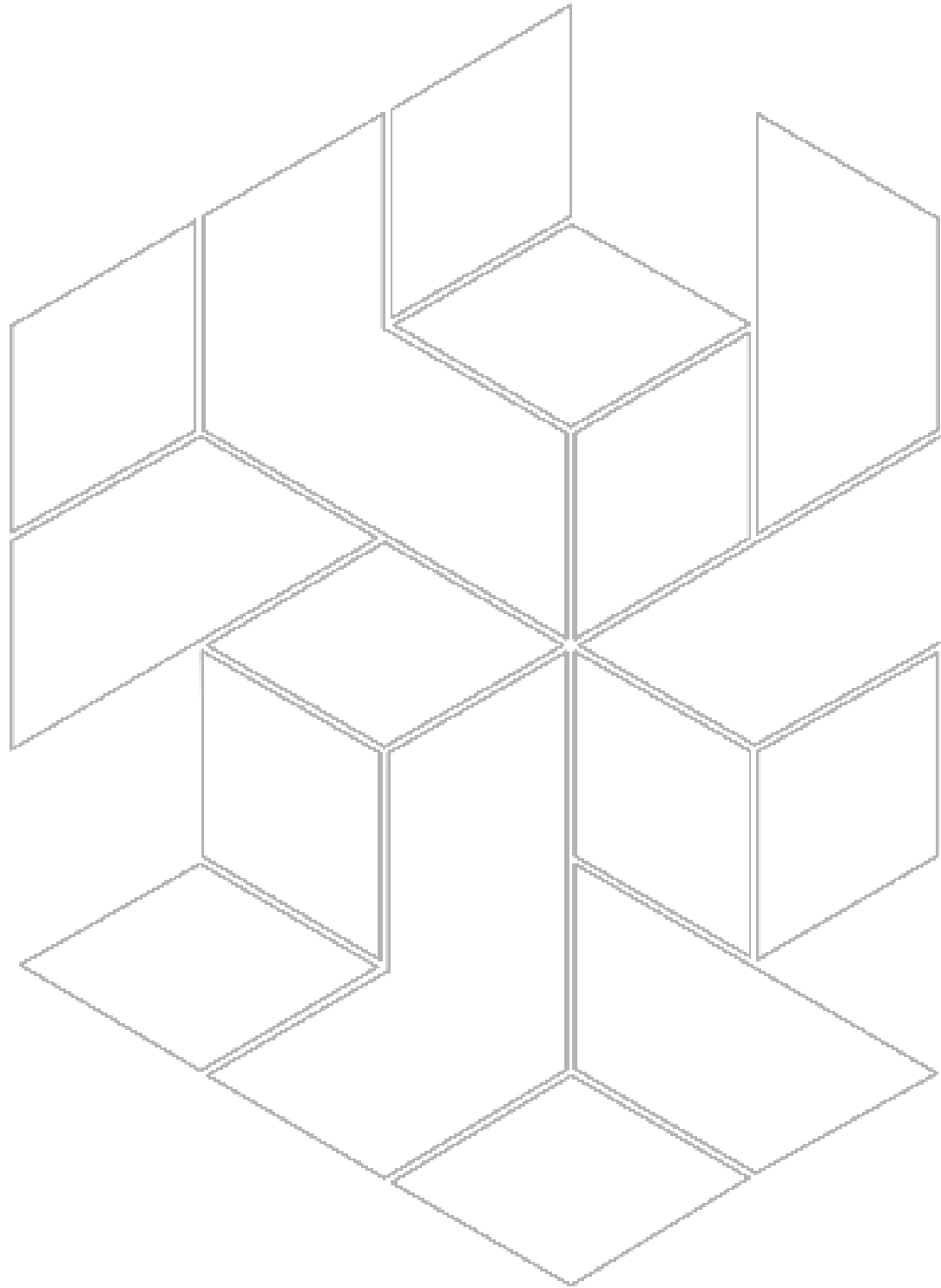
Regy, P., Sarwal, R., Stranger, C., Fitzgerald, G., Ningthoujam, J., Gupta, A., & Singh, N. (2021). Turning Around the Power Distribution Sector: Learnings and Best Practices from Reforms. NITI Aayog, RMI, and RMI India. [https://www.niti.gov.in/sites/default/files/2021-08/Electricity-Distribution-Report\\_030821.pdf](https://www.niti.gov.in/sites/default/files/2021-08/Electricity-Distribution-Report_030821.pdf).

Shakti Sustainable Energy Foundation, CUTS International, & Bask Research Foundation. (n.d.). Tariff Determination Procedure. <https://cuts-ccier.org/pdf/cbec-tariff-determination-procedure.pdf>.

Soni, A., Chatterjee, A., Bandyopadhyay, K., Lang, K., & Vis-Dunbar, D. (2012). A Citizens' Guide to Energy Subsidies in India. The Energy and Resources Institute & International Institute for Sustainable Development. <https://www.iisd.org/publications/citizens-guide-energy-subsidies-india>.

The Electricity Act. (2003). [https://www.indiacode.nic.in/handle/123456789/2058?sam\\_handle=123456789/1362](https://www.indiacode.nic.in/handle/123456789/2058?sam_handle=123456789/1362).

The World Bank. (2014). Electric power consumption (kWh per capita). <https://data.worldbank.org/>.



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