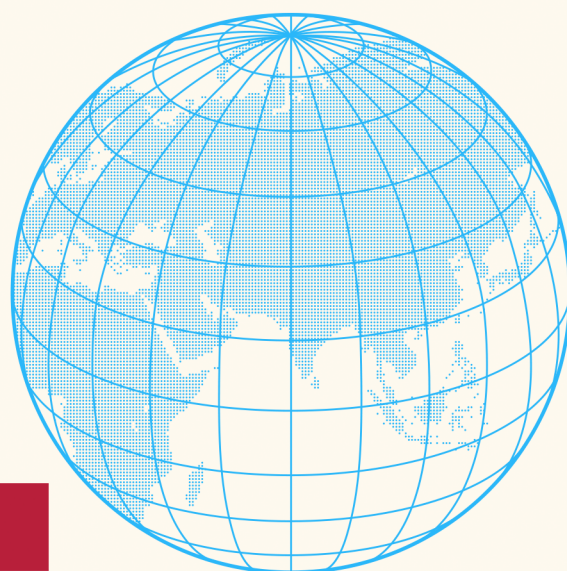


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Odisha Privatisation Round 2

Lessons, Challenges, and Opportunities

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Abbreviations

ARR	Annual Revenue Requirement	NTPC	National Thermal Power Corporation
AT&C	Aggregate Technical and Commercial	ODSSP	Odisha Distribution System Strengthening Project
ATE	Appellate Tribunal for Electricity	OERC	Odisha Electricity Regulatory Commission
BGJY	Biju Gram Jyoti Yojana	OHPC	Odisha Hydro Power Corporation
BPL	Below Poverty Line	OPGC	Odisha Power Generation Corporation
BSP	Bulk Supply Price	OPTCL	Odisha Power Transmission Corporation Limited
BSVY	Biju Saharanchala Vidyutikaran Yojana	OSEB	Orissa State Electricity Board
CAG	Comptroller and Auditor General	PFC	Power Finance Corporation
CAPEX	Capital Expenditure	PIM	Preliminary Information Memorandum
CCI	Competition Commission of India	PPA	Power Purchase Agreement
CESCO	Central Electricity Supply Company of Odisha	REC	Rural Electrification Corporation
CESU	Central Electricity Supply Utility	RFP	Request for Proposal
DFID	Department for International Development (UK)	RST	Retail Supply Tariff
Discom	Distribution Company	RPO	Renewable Purchase Obligation
DRE	Distributed Renewable Energy	SAIDI	System Average Interruption Duration Index
DSM	Deviation and Settlement Mechanism	SAIFI	System Average Interruption Frequency Index
EDF	Électricité de France	SAR	Staff Appraisal Report (World Bank)
EHT	Extra-High-Tension	SLDC	State Load Dispatch Centre
EOI	Expression of Interest	SOUTHCO	Southern Electricity Supply Company
GFA	Gross Fixed Assets	SPV	Special Purpose Vehicle
GoO	Government of Odisha	T&D	Transmission and Distribution
GRIDCO	Grid Corporation of Odisha	TPC	Tata Power Company
GW	Gigawatt	TPCODL	Tata Power Central Odisha Distribution Limited
HT	High-Tension	TPNODL	Tata Power Northern Odisha Distribution Limited
IPP	Independent Power Producer	TPSODL	Tata Power Southern Odisha Distribution Limited
kWh	Kilowatt-hour	TPWODL	Tata Power Western Odisha Distribution Limited
LT	Low-Tension	WESCO	Western Electricity Supply Company of Odisha
MAIFI	Momentary Average Interruption Frequency Index		
MOD	Merit Order Dispatch		
MW	Megawatt		
NALCO	National Aluminium Company		
NESCO	North Eastern Electricity Supply Company of Odisha		
NFA	Net Fixed Assets		

Executive Summary

The state of Odisha has a predominantly rural and tribal population, with over three-quarters of its residents living in rural areas. Managing electricity distribution in Odisha has been challenging, characterised by high transmission and distribution (T&D) losses, underinvestment, and system inefficiencies. Odisha first ventured into privatising its power sector in the late 1990s. The effort failed to meet its objectives for several reasons, including poor scheme design, lack of investment by the private players, insufficient political support and regulatory oversight, and the failure to reduce technical and commercial losses. As a result of this failure, rural and household electrification also suffered. The first round of privatising electricity distribution ended with the Odisha Electricity Regulatory Commission (OERC) revoking the licences of all the privately owned distribution companies (discoms) and entrusting their operation and management to the administrators appointed by it.

In 2017, the OERC embarked on a second phase of privatisation by auctioning the utilities managed by the administrators. It aimed to bring private sector investment and expertise to improve the discoms' performance. Tata Power Company (TPC) was eventually selected as the new private partner to operate all four discoms in the state—Northern, Western, Central, and Southern Odisha Distribution Limited (now Tata Power Northern Odisha Distribution Limited [TPNODL], Tata Power Western Odisha Distribution Limited [TPWODL], Tata Power Central Odisha Distribution Limited [TPCODL], and Tata Power Southern Odisha Distribution Limited [TPSODL]). GRIDCO, a state-owned company, continued to be responsible for all the power procurement and planning for the state. It is also a part-owner of the new discoms and holds 49% equity, while Tata Power holds 51%.

This paper reviews the second round of Odisha distribution privatisation in detail to draw broader lessons and insights to help the process of structural reforms at the state level. It is part of a project that evaluates various ownership options for the discoms, including public ownership, private ownership, and distribution franchisees.

Odisha's Second Round of Privatisation

In 2016–2017, the OERC initiated the privatisation process by first inviting bids for the erstwhile Central Electricity Supply Utility (CESU). There was little

interest. Eventually, bids for all four discoms were invited, but interest remained low. Noting the lack of enthusiasm from the private sector, the Commission conducted several meetings with potential buyers to understand how the bid design could be improved. Post these consultations, the revised bids offered several attractive incentives to make the proposal more appealing to the potential bidders. The entry barriers were lowered, allowing generating companies or consortia with 1 GW+ generating stations to qualify, and reducing the net worth requirement from Rs 1,200 crore to Rs 600 crore. Some of the more salient features of the revised bids are as follows:

1. **Setting a Low Reserve Price:** In contrast to the first round of privatisation—in which the asset value was inflated supposedly to realise better returns—in the second round, the OERC deliberately set the asset prices at 15%–30% of the book value. This achieved two things: first, it made it easy for the bidders to participate, as the upfront investment required was substantially low; second, it protected consumers from a potential tariff shock on account of upward asset revaluation. The reserve price was also used as the base for computing return on equity for the new discoms. As the new discoms would undertake capital expenditure (capex), the equity base would increase proportionately. This also helped in keeping tariffs low while incentivising fresh investments.
2. **Continuing With the Single-Buyer Model:** In round two, the state continued with GRIDCO as the single entity responsible for all power purchase planning and procurement. Being a coal-rich state, GRIDCO has the advantage of having access to low-cost power purchase agreements (PPAs) with various independent power producers (IPPs) under the state's energy and industrial policy. Low-cost hydropower is also a part of the state energy mix. The low power purchase cost helps in keeping consumer tariffs low. The OERC approves GRIDCO's power purchase expenses and determines the quantum and cost of power allocated to each discom. While the consumer tariff is uniform across the state, the Bulk Supply Price (BSP)—the price at which the discoms buy power from GRIDCO—differs for each discom. It is the lowest for Southern Electricity Supply Company (SOUTHCO) or TPSODL, which has

a very high share of low-tension (LT) consumers, and is the highest for Western Electricity Supply Company of Odisha (WESCO) or TPWODL, which has a very high share of high-tension (HT) and extra-high-tension (EHT) consumers in its mix.

3. **Equity-in-Kind Arrangement:** Since 2013, the Government of Odisha (GoO) has invested over Rs 10,000 crore in improving the distribution infrastructure. These assets are on the books of the state government and are transferred to the new discoms as and when GRIDCO needs to make any equity contribution for new capital investments made by them. This arrangement, called equity-in-kind, has three key benefits: a) it allows the new discoms to use the entire asset base from day one without buying these assets; b) it helps the financially constrained GRIDCO fulfil its obligation to contribute equity in the new investments without any additional support from the state government; and c) it moderates the tariff impact for retail consumers by gradually increasing the book value of assets.
4. **Discoms as Franchisees:** The second round of privatisation has primarily followed an input-based distribution franchisee-like model, where the new discoms act more as distribution network operators than fully independent distribution licensees. This is due to the continuing role of GRIDCO as the state's bulk power supplier, which relieves the new discoms of power procurement responsibilities. Like the franchisees, the OERC uses a fixed trajectory for Aggregate Technical and Commercial (AT&C) losses for tariff determination. The discoms keep any losses or gains arising from the actual AT&C loss levels.
5. **Floor for Capital Expenditure:** Learning from the mistakes of the first round, in which the private sector made few investments, in the second round, the bidders were required to provide a capital expenditure trajectory for the first five years and invest at least Rs 500 crore during this period. This was crucial to ensure that the new discoms made investments not just for loss reduction but also for network upgradation and augmentation.

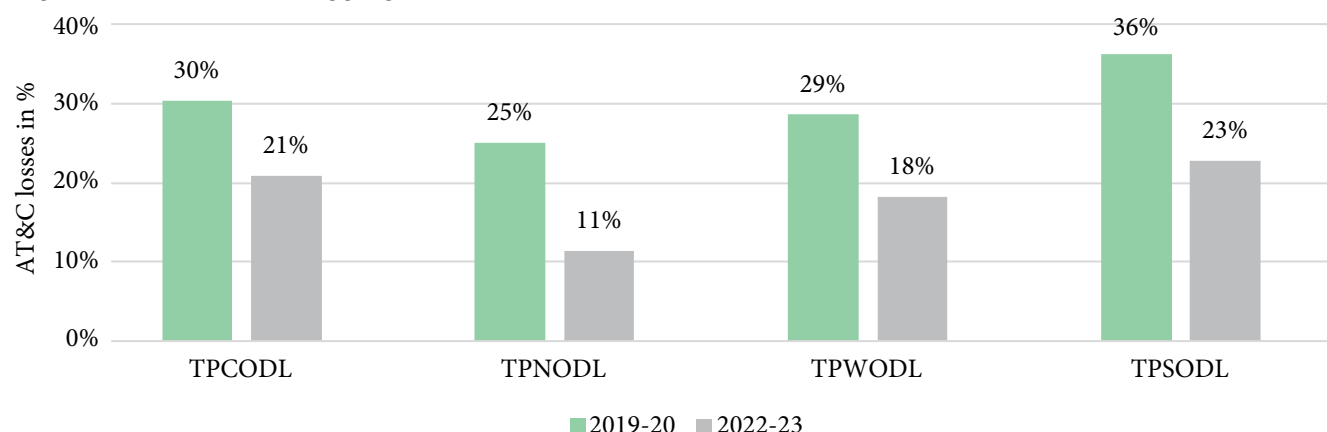
6. **Incentive on Arrear Collection:** The bids offered an incentive of 10% for past arrears collected from live consumers and 20% for those collected from the permanently disconnected ones. In the case of SOUTHCO, the incentive is higher at 20% on past arrears collected from live consumers and 30% on those collected from permanently disconnected consumers due to higher arrears. The bidders were required to quote an arrear recovery trajectory for the first five years. Failure to recover arrears as per the commitment given in the bid for any given year could lead to encashment of the Performance Guarantee, to the extent of 10% of such shortfall.
7. **Transfer of Employees and Employee Benefits:** All existing utility employees, except those on deputation, were transferred to the newly formed discoms. These employees continue to be governed by the terms of their original appointment. The new discoms cannot change them or make their existing service conditions worse in any manner. The bidders were required to submit a staff deployment plan after considering the existing employees of the erstwhile utilities. Each utility had an Employee Pension Trust, an Employee Gratuity Trust, an Employee Provident Fund Trust, and a Rehabilitation Trust. After bidding and selecting new discoms, these arrangements were to continue as before. The new discoms are responsible for remitting designated amounts to these Trusts at scheduled intervals, and they cannot liquidate these investments without OERC's prior approval.

Operational Performance of the New Discoms

Given below are some of the highlights of the new discoms' operational and financial performance:

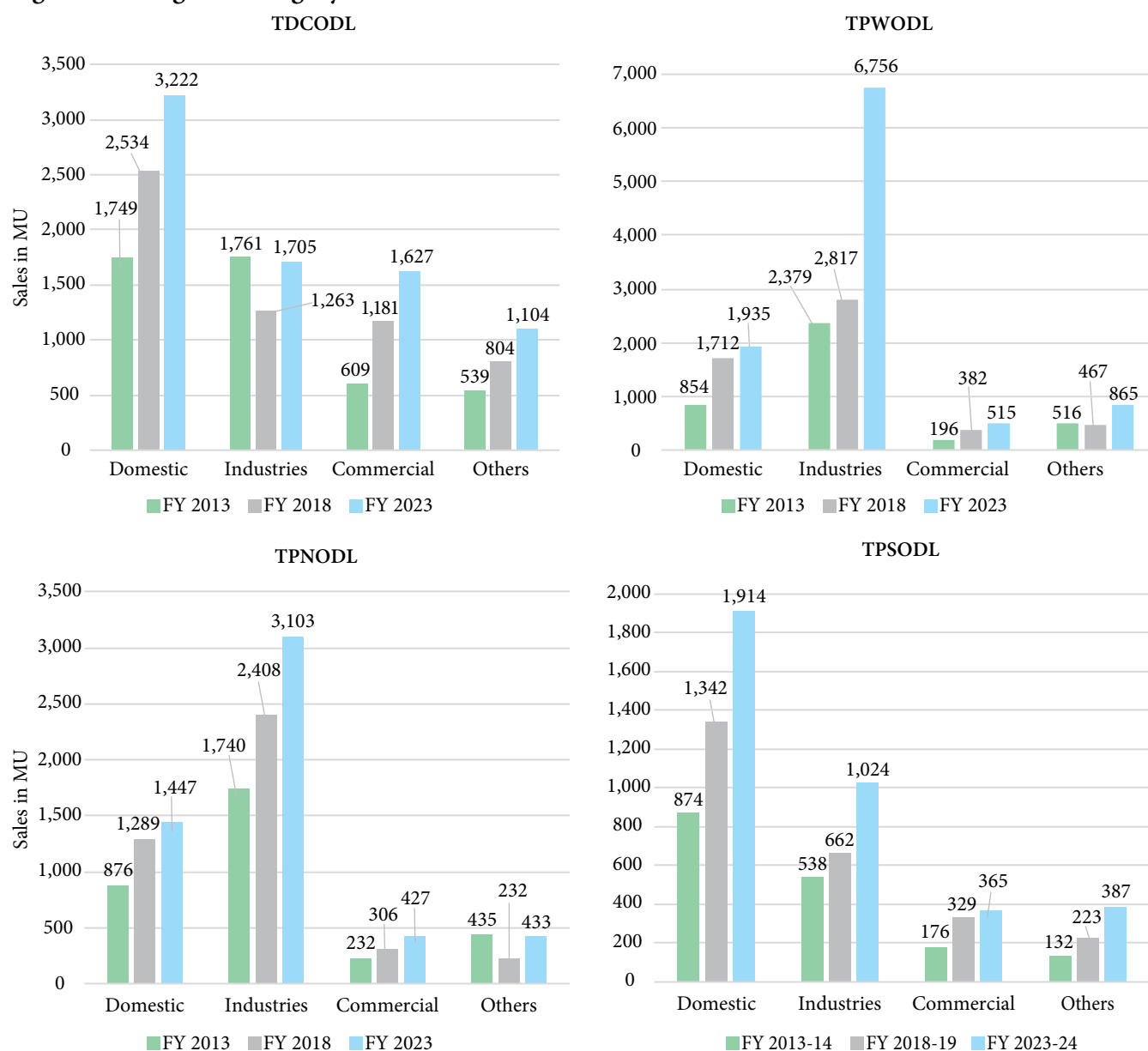
- As can be seen from Figure 1, the AT&C losses for all four discoms have reduced significantly over three years. Furthermore, in FY 2023, all discoms achieved lower AT&C loss levels than the trajectory set by the OERC for tariff determination for that year.

Figure 1: Reduction in Aggregate Technical and Commercial (AT&C) Loss Levels



Source: Compilation from tariff orders.

Figure 2: Changes in Category-Wise Sales From FY 2013 to FY 2023



Source: Compilation from the tariff orders.

- Total sales across all four discoms have also increased substantially (refer to Figure 2). In addition, except for TPCODL, the new discoms have increased sales to industrial and commercial consumers, including those who had earlier migrated to open access and/or captive consumption.
- In its bids, TPC committed to undertaking total capital expenditure of Rs 5,640 crore in the first five years across all four discoms. As per the FY 2024-25, the capex approved until FY 2023 seems largely on track to meet this commitment. However, the level of capitalisation is different for each discom, ranging from 60% to 80%, and overall spending is around 70% of the planned amount.
- Most significant, as per the annual reports (FY 2023), all discoms have reported profits after tax.

These performance indicators are certainly encouraging. However, it needs to be noted that a good part of this success can be attributed to the favourable terms of the deal, which included a clean slate free from past liabilities (mandatory as per Section 21 of the Electricity Act, 2003), substantial state support, below-cost bulk supply tariffs, lucrative incentives for loss reduction and arrear recovery, and so on. Further, the new discoms seem to be shielded from current and ongoing losses due to tariffs not reflecting costs, as the government has explicitly suggested to the OERC to park such losses in GRIDCO's accounts. The success of TPC's involvement suggests that government support and favourable regulatory and financial conditions are critical for attracting private investment in electricity distribution, particularly in regions with rural and low-income consumers.

Observations and Lessons from Odisha's Second Round of Privatisation

Based on a detailed review of the second round of privatisation in Odisha, we draw the following lessons, observations, and insights.

1. **Need to Balance the Interests of Private Entities and Consumers:** One of the critical lessons from the second round of privatisation is the limited interest from private entities in operating discoms with a large number of rural and low-income consumers. The reluctance stems from the perception of high financial risk and the challenge of achieving full-cost recovery in such areas. Odisha addressed this by shielding the new discoms from revenue losses due to the

non-revision of tariffs, at least so far in the initial period, and providing subsidised bulk supply rates. It also offered substantial incentives for loss reduction and arrear recovery while giving significant discounts on asset prices. All this was instrumental in attracting a big and serious player like Tata Power to bid for and take over the discoms, but there was hardly any competition.

2. Cross- and Direct-Subsidisation Done Through GRIDCO:

Odisha's state-owned bulk power supplier, GRIDCO, is central to managing the second round of privatisation. Its access to relatively low-cost power is vital to keeping the new discoms financially viable without significantly increasing retail tariffs. This enabled the discoms to operate without immediate financial distress. Although there is not much cross-subsidy built into the retail tariff structure, it is provided by adjusting the BSP that the discoms pay to GRIDCO. The BSP is lowest for TPSODL, which has a predominantly LT small and residential consumer base, while it is the highest for TPWODL, which has a majorly HT industrial and commercial consumer base. BSP is set prospectively for the year, and there are no mechanisms to compensate GRIDCO for short-term borrowings arising on account of changes in power purchase cost or quantum, or deviations from scheduled generation or demand.

3. **Continued Need for State Support:** Like most states, achieving full-cost recovery through tariff increases is a politically sensitive issue in Odisha, particularly given the state's rural and low-income demographics. Going forward, OERC's reluctance to adopt measures such as a fuel adjustment surcharge, intra-state Deviation and Settlement Mechanism (DSM) or setting cost-reflective retail supply tariffs can make it challenging for GRIDCO to fully cover operational costs. Without such corrective measures, losses could continue, as would the need for state support. Even if all the desirable regulatory measures are implemented to enable GRIDCO and discoms to recover costs through tariffs, small and vulnerable consumers will need protection and support from the state to withstand such cost increases. This suggests that while privatisation can drive efficiency improvements, it may not be sufficient to resolve the financial challenges that the sector faces. Addressing these challenges will necessitate not just tariff and regulatory reform, but also sustained and consistent political and financial support from the state government.

Conclusions

The second round of electricity distribution privatisation in Odisha offers valuable lessons for the broader power sector. Tata Power's success suggests that favourable regulatory and financial conditions are critical for attracting private investment, particularly in regions with rural and low-income consumers. The experiment so far has led to notable improvements in operational efficiency, loss reduction, and the overall financial situation of the discoms. However, full-cost recovery over a sustained period remains challenging due to constraints on tariff reforms and the difficulties inherent in serving a predominantly rural consumer base. The issue of ensuring full-cost recovery over the long term with gradual reduction and ultimately elimination of financial support from the state government is important. However, given the complexity of the issue, it would be best covered in a separate paper. Nevertheless, the experience in Odisha 2.0 described in this paper highlights the possibility of turning around a loss-making distribution business through carefully designed reforms supported by the state with adequate subsidies and financial support.

As the whole power sector in Odisha moves towards full-cost recovery, power procurement practices will need improvement. This will be best accomplished if effective resource planning is implemented to manage the resource portfolio.

The sustainability of Odisha's newly (re)privatised discoms will depend on continued regulatory and state support and their ability to adapt to future challenges, particularly the integration of renewable energy. To ensure long-term success, regulatory innovations and a collaborative approach between the private sector and the government will be necessary to maintain financial stability while meeting consumers' evolving needs. The Odisha experiment serves as an important case study for other states such as Uttar Pradesh that are considering structural reform to improve efficiency in power distribution, demonstrating both the potential benefits, costs, and the ongoing challenges in managing the complexities that arise in the wake of such changes.

1. Background and Context

Odisha¹ is the 8th largest state in India by area. It has 30 districts spread across roughly 155,000 square kilometres. It is the 11th largest state by population, of which more than 22% consists of tribals (GoO, 2025). Of the roughly 30 million people living there, more than 80% live in rural areas. The state does not have any metro or million-plus cities. Interestingly, it is also one of the first states in India to undertake electricity distribution privatisation, way back in the 1990s. At the time, only one-fourth of the rural households in the state were electrified and the state was experiencing significant financial distress. The power sector reforms were aimed at easing this distress and developing the sector with investments from the private sector. The reforms were encouraged by the then central government and supported by donor agencies such as the World Bank and the UK's Department for International Development (DFID)² (OERC, 2002a).

Against this backdrop and borrowing heavily from the Washington Consensus³ policies, the state assembly passed the Orissa Electricity Reform Act of 1995, which provided the blueprint for the reform model. The state also divested its loss-making thermal generation units at Talcher by handing them over to the National Thermal Power Corporation (NTPC). The main objective of the 1995 Reform Act was to facilitate the restructuring of the state electricity sector to promote private-sector participation. This was done by unbundling the Orissa State Electricity Board (OSEB) into separate companies to manage electricity generation, transmission, and distribution. The Act also paved the way for the establishment of an independent Electricity Regulatory Commission, the first one in the country. Post unbundling, the state adopted a “single-buyer model” wherein the newly formed state-owned company GRIDCO Ltd was entrusted with purchasing power for the entire state. Subsequently, in 1999, the distribution sector was wholly privatised.

Regrettably, the first phase of privatisation in Odisha did not meet its stated objectives (Dixit, Sant, & Wagle, 1998; Dubash & Rajan, 2001; TERI, 2002). This failure had disastrous consequences for the state distribution sector. The aggregate technical and commercial losses for all distribution companies (henceforth discoms) remained very high, exacerbating their already precarious financial situation. Precious little investment was made in improving the network. As a result, the losses (both monetary and technical) increased even further, and rural and household electrification⁴ suffered majorly. Far from being self-sustained and resilient, the electricity sector continued to rely on state government support while incurring substantial losses. Ultimately, the state electricity regulatory commission had to step in to revoke the distribution licences of the privately owned discoms. Strangely, despite this colossal failure, the state did not revert to public ownership of the discoms.

In 2017, the OERC initiated a second round of discom privatisation by calling bids for the companies whose licences were revoked. Being mindful of the failure of the first phase of privatisation, the OERC adopted a different approach. The results of this exercise seem encouraging so far, though not without its challenges and lessons. There are claims of rapid loss reduction, increase in sales, and significant improvements in supply and service quality, starkly contrasting with the first round. In addition, the state government and private companies have also made substantial investments to improve the network and supply reliability.

Given these promising developments and claims surrounding the second phase of privatisation, it was felt crucial to delve into the specifics of this reform experiment. It is hoped that this in-depth analysis, currently lacking in the public domain, will provide valuable insights and lessons for the sector. Many state discoms are reeling under severe financial stress. For example, Uttar Pradesh is set to undertake privatisation of its distribution business on similar lines

¹ The state was earlier called “Orissa.” In 2011, it was named Odisha, and its language changed from “Oriya” to “Odia” (GoO, 2011). We have used the name that is applicable for the period in question.

² The World Bank committed USD 350 million for long-term capital investment, while the DFID was to provide USD 65 million for undertaking critical repair and maintenance expenses and provide consultancy support.

³ “The Washington Consensus” is a term coined to describe a set of 10 economic policy prescriptions, a significant aspect of global economic policy. These prescriptions constitute the “standard” reform package, often promoted for crisis-wracked developing countries by Washington, D.C.-based institutions such as the International Monetary Fund (IMF), World Bank, and United States Department of the Treasury (Wikipedia, 2024).

⁴ As of 2012, 44% of the total households, including about half of the rural households in Odisha, were still un-electrified (MoP, 2012; Prayas, 2013).

(Hindustan Times, 2025). Odisha's experience of this second round of structural reform can offer valuable insights and lessons.

Sections 1 and 2 deal with the paper's brief background, objectives, and methodology. Section 3 provides a brief overview of Odisha's power sector. Section 4 follows a review of the first round of privatisation and the crucial lessons that shaped the second round. Sections 5 and 6 describe the bid design and strategies adopted for the second round in detail. Section 7 presents a review of the operational and financial performance of the new discoms. Sections 8 and 9 discuss the role of GRIDCO and the state government in managing the second round. Finally, Section 10 concludes the paper with key lessons, observations, and insights.

2. Objective and Methodology

As stated earlier, the key objective of this paper is to undertake a detailed review of the second round of distribution privatisation in Odisha. The paper aims to review these developments to gain an understanding of the process and to assess the impact on the financial and operational performance of the companies. It also attempts to evaluate its benefits to the state government (i.e., the exchequer) and the consumers of the four discoms. The review is also concerned with analysing the governance mechanisms that facilitated this change and their sustainability and replicability. Finally, it aims to draw lessons and suggest ideas for structural reforms in other states in India.

This working paper is part of a series that evaluates various ownership options for the discoms. The broader objective is to recommend the most optimal solution for the changes needed in organisational structure in the context of the given state and discom's realities. Apart from this paper, there is one which focuses on the distribution franchisees (Chitnis, 2024), another on the impact on effectiveness of regulation of different ownership options (Singh,

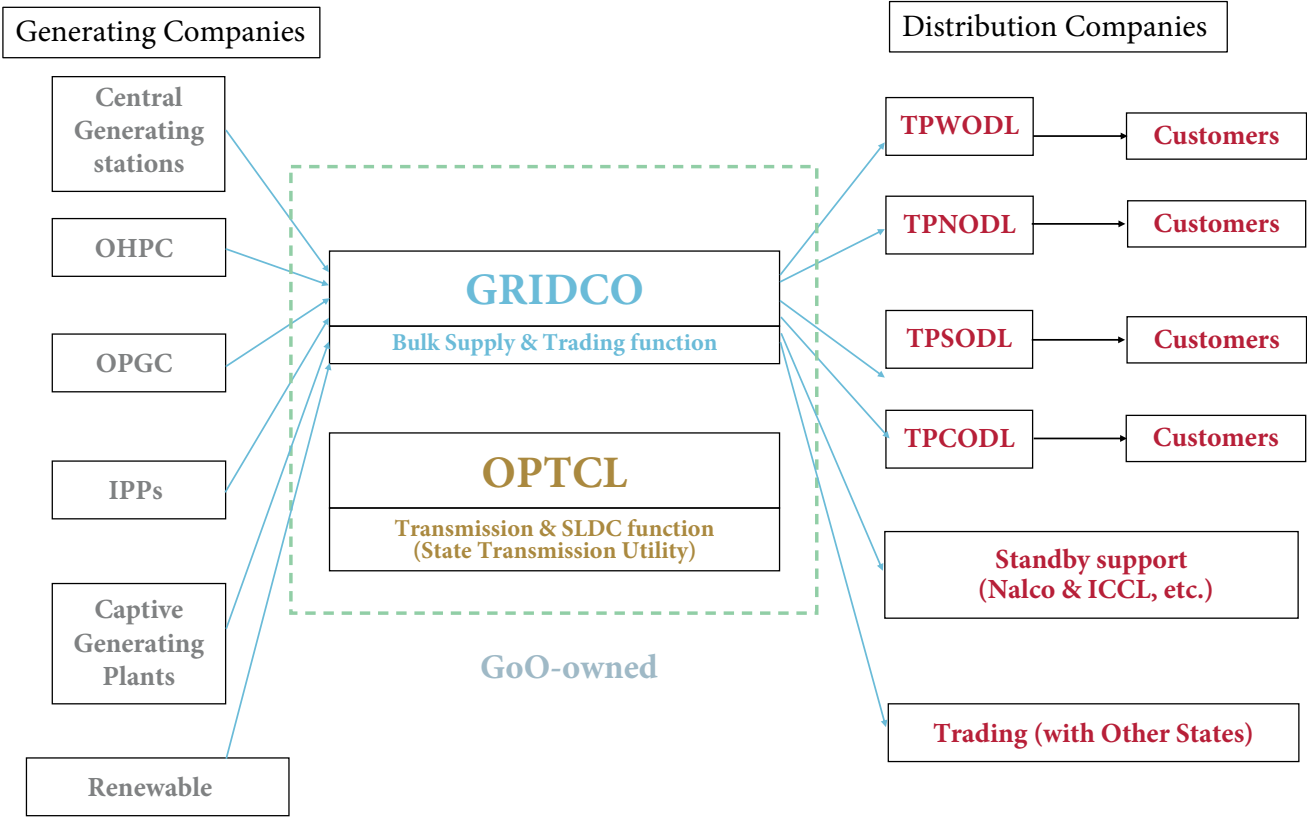
2023) and a third paper that reviews international experience with privatisation reforms in distribution (Vaishnava, 2024).

In terms of methodology, the paper relies on publicly available data such as regulatory filings, orders, and regulations issued by the OERC, orders of the Competition Commission of India (CCI), judgements by the Appellate Tribunal for Electricity (ATE) and the Supreme Court of India, audit reports and findings by the Comptroller and Auditor General (CAG), state government policies, circulars, notices, etc. for its analysis and conclusions. The paper has significantly benefitted from interactions with regulators (both past and present), academics, utility officers, and civil society organisations. A statistically sound consumer survey that captures consumer perceptions regarding changes in supply quality and overall service delivery would enhance the insights from this paper. We hope that such a survey will be part of future work on these issues.

3. A Brief Overview of the Odisha Power Sector

Before diving into the details of the two rounds of privatisation, it would be helpful to take a brief look at how the power sector in Odisha is structured. Since the sector's unbundling in 1998–1999, which we will discuss shortly, the distribution segment is managed by four separate companies. Their areas of supply are divided based on geographical regions. The state follows what is known as the single-buyer model with GRIDCO, a state government-owned company, responsible for power purchase planning and power procurement. Figure 3 shows the key components of the state power sector and their interconnections. GRIDCO buys power from all the generators and the market and sells it to the four discoms in the state. It also provides standby support to some large captive consumers, such as the National Aluminium Company (NALCO), and trades its surplus power with other states through the exchanges.

Figure 3: Overview of the Odisha Power Sector



Source: A modified version of a slide published by the OERC in 2017 for the prospective bidders (OERC, 2017).

Note: In the original presentation, the OERC mentioned the then-utilities CESU, WESCO, North Eastern Electricity Supply Company of Odisha (NESCO), and SOUTHCO.

The four discoms in the state include Tata Power Northern Odisha Distribution Limited (TPNODL)—erstwhile NESCO; Tata Power Western Odisha Distribution Limited (TPWODL)—erstwhile WESCO; Tata Power Central Odisha Distribution Limited (TPCODL)—erstwhile CESU; and Tata Power Southern Odisha Distribution Limited (TPSODL)—erstwhile SOUTHCO. Figure 4 shows their geographical spread, share in the total state area, and consumer sales. The Odisha Electricity Regulatory Commission (OERC) determines the quantum and BSP at which each discom is allotted power. The discoms further sell this power to consumers in their respective supply areas. Table 1 provides details such as the price at which the discoms buy the power, their average

cost of supply and billing or distribution loss. As can be seen from Figure 5, the sales mix for the discoms also varies significantly. In the case of TPNODL and TPWODL, more than half of the sales are to high-tension (HT) and extra-high-tension (EHT) consumers, while it is precisely the reverse case for TPCODL and TPSODL as they have a much larger low-tension (LT) consumer base.

Odisha Power Transmission Company Ltd (OPTCL) oversees the state transmission network’s planning, management and operation as the state transmission utility. As the system operator, the State Load Dispatch Centre (SLDC) is responsible for the state-level grid operation.

Figure 4: Geographical Overview of the Four Distribution Companies in the State



Name of DISCOMS	Licensed Areas (Districts)	Per cent area of the State	Per cent share of total sales approved for FY 2024-25
TPWODL	Sambalpur, Sundargarh, Bolangir, Bargarh, Deogarh, Nuapara, Kalahandi, Sonepur and Jharsuguda.	32%	22%
TPSODL	Ganjam, Gajapati, Kandhamal, Boudh, Rayagada, Koraput, Nawarangpur and Malkanagiri.	31%	13%
TPCODL	Puri, Khurda, Nayagarh, Cuttack, Denkanal, Jagatsinghpur, Angul, Kendrapara and some part of Jajpur.	19%	32%
TPNODL	Mayurbhanj, Keonjhar, Bhadrak, Balasore and major part of Jajpur.	18%	33%
Odisha Total	–	100.0	–

Source: Odisha Electricity Regulatory Commission (OERC, 2023a, p.14 and OERC, 2024a).

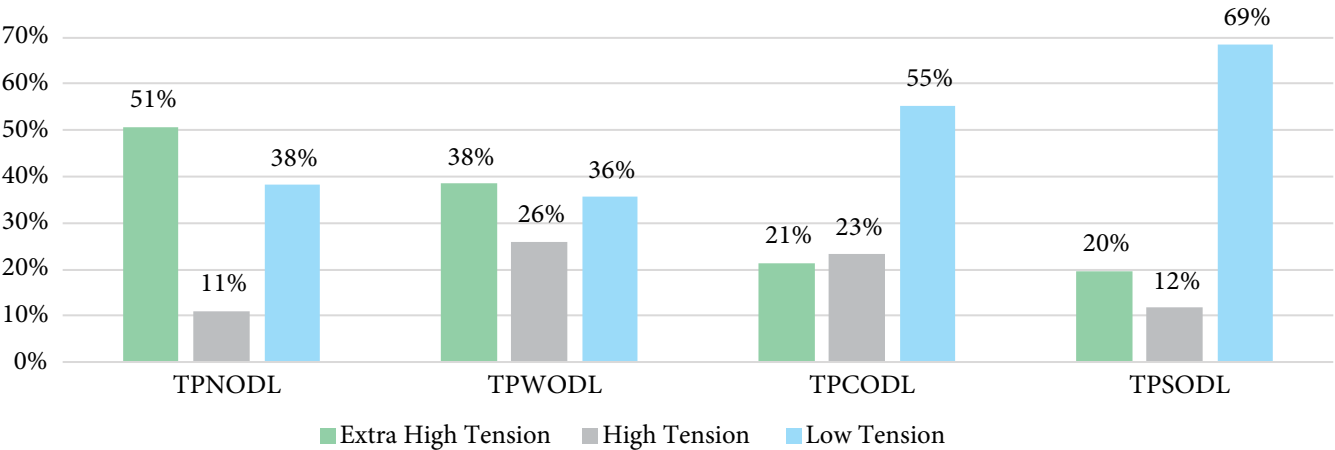
Disclaimer: This map is for illustrative purposes and does not imply the expression of any opinion on the part of CSEP concerning the legal status of any country or territory or concerning the delimitation of frontiers or boundaries. The authors or CSEP do not vouch for the accuracy and the correctness of the map.

Table 1: Regulatory Overview of the Four Distribution Companies in the State

Discom	Total Revenue Requirement for FY 2023–2024 (Rs crore)	Average Cost of Power Purchase FY 2023–2024 (Rs/kWh)	Average Cost of Supply (Rs/kWh)	Distribution Loss Estimate for FY 2023–2024 (%)
TPCODL	5,171	3.06	5.74	21
TPNODL	3,559	3.26	5.65	16
TPWODL	6,252	3.98	7.69	18
TPSODL	1,991	2.25	5.78	25
State total	16,972	3.33	6.31	27

Source: Odisha Electricity Regulatory Commission (OERC, 2024a).

Figure 5: OERC -Approved Sales Mix for All the discoms for FY 2024–2025



Source: Odisha Electricity Regulatory Commission (OERC, 2024a).

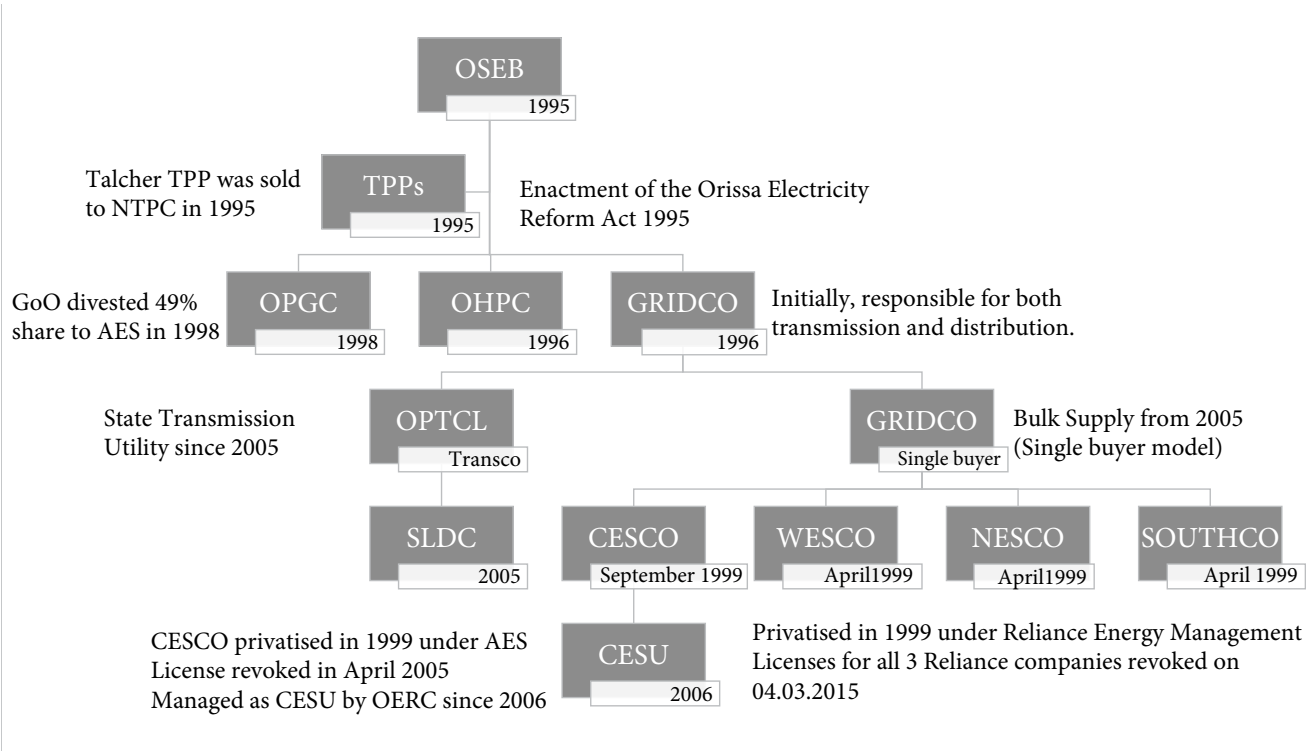
4. First Round of Privatisation

4.1 First Phase of Reforms (1992–1999)

In 1992, the government of Orissa and the OSEB began discussions with the World Bank regarding possible reforms in the power sector. To advance these discussions, in 1993, the government constituted a Steering Committee chaired by the Chief Secretary and a Task Force chaired by the Energy Secretary.

Subsequently, these deliberations and other related efforts led to the formulation of the Orissa Electricity Reform Act, passed by the state assembly in 1995 and enacted in 1996. To rein in the losses from the power sector, the state government also divested the thermal power station at Talcher, selling it to the NTPC for a consideration of Rs 356 crore (OERC, 2002a). Figure 6 shows the various developments in this first stage of power sector reforms.

Figure 6: First Two Decades of Power Sector Reforms in Odisha (1995–2015)



Source: Compilation by the authors from various sources.

After the Reform Act came into force, the OSEB was split into two companies: the Grid Corporation of Odisha (GRIDCO) and the Odisha Hydro Power Corporation (OHPC). GRIDCO was entrusted with transmission and distribution (T&D) functions, while OHPC was responsible for generation. Following this, the Orissa Electricity Regulatory Commission was constituted in 1996, becoming the country's first electricity regulatory commission.⁵ In 1997, the distribution function was separated from GRIDCO by splitting it into four subsidiaries, WESCO, NESCO, SOUTHCO, and CESCO, based on the geographic zones they catered to. Privatising these newly formed discoms was initiated by floating requests for proposals (RFP) in 1998. Based on the bidding process, BSES Ltd. acquired three discoms: WESCO, NESCO, and SOUTHCO. A consortium⁶ led by an American energy company, AES Corporation, won the bid for CESCO (GoO, 2024). AES also bought 49% equity in the state-owned Odisha Power Generation Corporation (OPGC), which owned and operated the Ib thermal power station. At that time, the installed capacity of the Ib power plant was 420 MW, and the company had started constructing several mini hydel power projects.

4.2 Reform Framework and the Underlying Assumptions

A crucial tenet of the first reform process was to ensure the financial viability of all the newly formed companies. By setting up a regulatory commission independent of the state government, it was hoped that commercial matters, such as tariff setting, would be decided based on techno-economic considerations. This was expected to result in cost-reflective tariffs, allowing the newly formed companies a reasonable rate of return. Even the companies still under government ownership and control, namely GRIDCO and OHPC, were expected to earn returns comparable to those of private firms managing similar businesses. As commercial organisations, GRIDCO and OHPC management were supposed to enjoy operational autonomy. To ensure this, Corporatisation agreements were signed to spell out the respective responsibilities of the state government and the two utilities (World Bank, 1996).

One of the critical decisions concerning the formation of these companies was to restate their assets when they were created or carved out from the erstwhile OSEB. As per the World Bank Staff Appraisal Report (SAR) of 1996 on Orissa privatisation, the restatement increased the asset value of GRIDCO by 200% and that of OHPC by 300%. This was done to help the state government realise a better value for these investments whenever these corporations were privatised. The SAR notes in this regard:

These are path-breaking decisions—SEBs have never been permitted to revalue their fixed assets and earn commercial returns—to put GRIDCO's and OHPC's tariffs and finances on a sound basis and will subsequently, at the time of privatisation, enable the Orissa government to realise a more realistic value for its past investments. They also help eliminate GRIDCO's and OHPC's dependence on budgetary support from the state government (emphasis added) (World Bank, 1996).

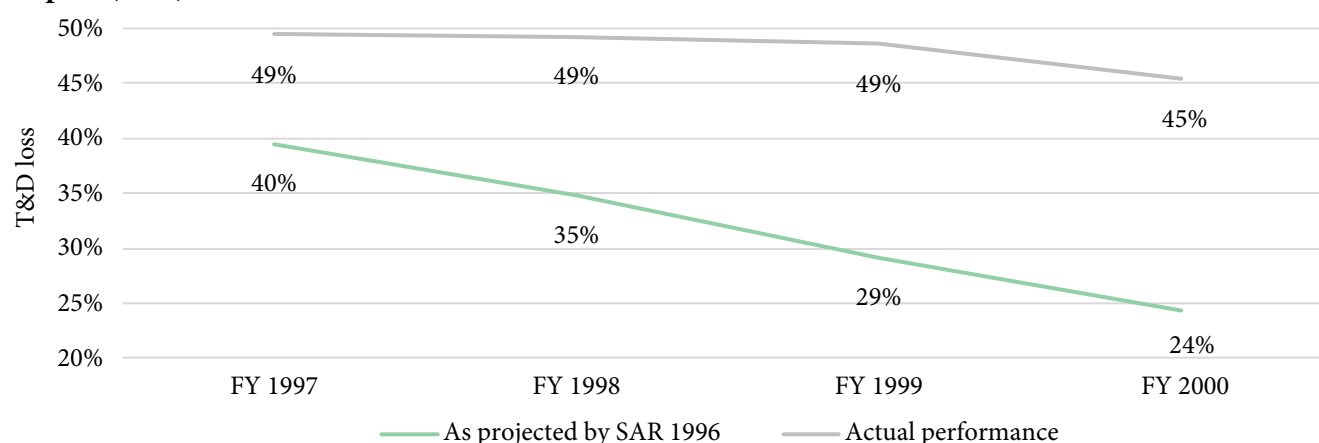
Post re-statement, the tariffs for these companies went up sharply because it increased tariff components such as depreciation, operations and maintenance, and return on equity. Upon the creation of the companies and signing of corporatisation agreements, the state government immediately withdrew the subsidy support from them in 1996–1997. The decision seemed to assume that making tariffs reflective of costs and reforming the management style should be sufficient to turn a loss-making sector around. However, that did not happen. Soon after their formation, GRIDCO and OHPC also started incurring losses. This was despite a steep increase in the consumer tariffs. Worse still, this significant tariff increase failed to ease the financial distress of GRIDCO and OHPC, and it did not result in any notable improvement in the supply or service quality.

The World Bank's prediction regarding GRIDCO's profitability and turnaround was based on two main assumptions: lower than actual levels of T&D losses (see Figure 7) and full revenue recovery from the increased tariffs. Unfortunately for GRIDCO, these predictions failed remarkably as the T&D losses remained high, and it could never realise the revenue from the increased tariff due to the discoms' failure

⁵ In 1998, the central government enacted the Electricity Regulatory Commissions Act based on which the Central Electricity Regulatory Commission was set up. Subsequently, few other states such as Maharashtra, Madhya Pradesh, Andhra Pradesh, etc. also set up respective state regulatory commissions.

⁶ The consortium consisted of the AES Corporation, USA, AES Orissa Distribution Company Private Limited, and Jyoti Structures Limited.

Figure 7: Transmission and Distribution (T&D) Loss as Estimated in the World Bank Staff Appraisal Report (SAR) of 1996 and Actual.



Source: Odisha Electricity Regulatory Commission (OERC, 2002b).

Note: SAR stands for Staff Appraisal Report of the World Bank (1996).

to pay it. The discoms' failure, in turn, was because of their inefficiencies and unsustainable billing and commercial losses. The overall T&D losses that stood at 49% in 1996 were reduced marginally to 45% by 2000. As against this, the SAR had assumed that they would fall to 24%. Figure 7 shows the reduction in the T&D loss that the SAR estimated vis-à-vis the actual performance of the companies. Later, it was found that the discoms failed to make the necessary investments in network improvement and strengthening, which could have helped in lowering the losses (OERC, 2002b).

4.3 Revocation of CESCO's Licence

Making a bad situation worse, the state was hit by a super-cyclone in 1999, which caused significant impairment to CESCO's network. Staring at the massive damage and high costs of network restoration, the owners of CESCO abandoned their business. To continue the power supply to its consumers, the OERC stepped in and appointed a state government officer to take charge of the company's management and operation (OERC, 2001). GRIDCO filed a case against CESCO for not taking due steps to maintain electricity supply in its area of supply. The OERC gave several opportunities to CESCO management to take over the operations again, but they failed. In 2004, the company was asked to submit a business plan to revive its operations and restore the damages. Despite many opportunities and after a significant delay, the company failed to submit a business plan that could satisfy the OERC.

Finally, in 2005, noting the company's failure to abide by the regulatory directions, the OERC revoked their

licence using Section 19 of the Electricity Act, 2003 (OERC, 2005). Following the revocation, the OERC tried but failed to find a new owner for the company. In 2006, it formulated a scheme to vest all CESCO's assets and liabilities into a new entity called the Central Electricity Supply Utility (CESU). A Chief Executive Officer and an Administrator were appointed to discharge CESU's licenced activity. Subsequently, a Management Board consisting of one Chairperson, two Chief Executive Officers, and six other Members was formed to operate and manage the utility (OERC, 2006).

4.4 Findings of the Kanungo Committee

While the AES-led consortium's abandonment of its business was an extreme case, the BSES-owned discoms were not doing much better either. Given the massive scale of billing and commercial losses and continued defaults in payments to GRIDCO, the need for state support persisted and increased. The turnaround promised by the reforms seemed improbable in the foreseeable future. To solve this conundrum, the state government constituted a Committee of Independent experts to review its Power Sector Reforms. Headed by a retired Indian Administrative Service (IAS) officer, Sovan Kanungo, the committee was tasked with the following responsibilities (Kanungo Committee Report, 2001):

- To examine whether the reforms in the electricity sector have proceeded in the desired direction.*
- If not, what corrective steps need to be taken to ensure that the reform process's intended benefits flow to the targeted groups?*

- c) *What can be done to strengthen key institutions like GRIDCO and the Orissa Electricity Regulatory Commission?*
- d) *What specific steps need to be taken to promote socially relevant objectives like rural electrification and providing electricity to the underprivileged sections of the community?*
- e) *Any other matter connected or incidental thereto.*

The committee submitted its report to the state government in November 2001. It found that the restatement of GRIDCO's and OHPC's asset base was the key reason for their worsening financial situation. It lamented that contrary to the reform expectations, private companies failed to bring in the so-called superior management skills and even to arrange the necessary investments. The companies failed to even arrange for the working capital. Most regrettably, it noted that rural electrification was the worst casualty of the reform process. The new discoms made no effort to further electricity access and/or enhance the productive use of electricity in rural areas.

It noted that between 1996 and 2001, the average tariff increased at a cumulative rate of 15.5% annually compared to the earlier nine years. However, no notable improvements in supply or service quality accompanied this massive increase in tariff. There was hardly any improvement in billing and commercial losses of the discoms. The losses of GRIDCO kept rising, mainly because the discoms defaulted on their payments to it. The Escrow system that was supposed to ensure regular payments to GRIDCO to cover its power purchase expenses also failed. Interestingly, a large amount of money (Rs 306 crore cumulatively until 2000) was spent on consultants during the pre- and post-reform period for services such as preparing the reform blueprint and helping the discoms in developing internal systems of operation and management, financial control, technical services, project implementation, etc. To put the figure in context, it was more than 15% of GRIDCO's total revenue requirement for the year 2001–2002. This should be (OERC, 2002a).

The report summarises the reform outcome:

The outstanding overdues of GRIDCO as of 30 Sept. 2001 against these three DISTCOs is Rs.680.72 crore, including bonds issued by them in lieu of cash payments. So far as the other distribution company CESCO is concerned, the situation is worse. AES, the

private sector partner never fulfilled its commitment to bring working capital. They were allowed to pile up unpaid power purchase bills amounting to Rs.403 crore by, time they walked away in August 2001. Now that AES have abandoned CESCO, GRIDCO seems to be left with hardly any other option except exploring legal remedy. As far as BSES managed DISTCOs are concerned, the attitude of deliberate default in payment to GRIDCO must end. BSES should make all efforts to bring in working capital in terms of the Shareholders Agreement. (Kanungo Committee Report, 2001).

Finally, based on its findings and observations, the committee made the following key recommendations:

- The restatement (or up-valuation) of OHPC and GRIDCO assets should be held off until the sector becomes financially healthy.
- The state government should allow a moratorium on debt servicing, except for the loans from the World Bank, for which it needs to make payments to the centre.
- The World Bank and DFID should provide support to bridge the revenue gap till the sector turns around. The financing cost of this was estimated to be Rs 3,240 crore.
- The state government should provide capital and revenue subsidies to boost rural electrification.
- To allow the smooth operation of the OERC, vacancies in the Commission should be avoided. The government must ensure timely appointments of the chairperson and members. The candidate chosen should be able to complete a full five-year term. In addition, there should be adequate budgetary allocations to the Commission.
- To ensure concerted efforts for the sector turnaround, the government and the OERC should institute a due process to exchange ideas, formulate plans and monitor implementation.
- GRIDCO's managerial competence needs to be improved significantly. Key personnel should be appointed based on merit and relevant experience.
- Discoms should ensure 100% consumer metering within a year, with immediate metering of LT transformers. Energy audits should be institutionalised, and discoms should be given a circle-wise loss reduction target.

- Finally, emphasising the gravity of the challenge before them, the committee urged the need for all stakeholders (namely, the government, GRIDCO, OHPC, discoms, and the donor agencies) to adopt a long-term comprehensive perspective while working towards rescuing the sector from the impending crisis.

The state government accepted many of the committee's recommendations. Notably, the up-valuation of GRIDCO and OHPC assets was decided to be kept in abeyance from FY 2001–2002 prospectively until 2005–2006 or the sector turns around, whichever is earlier. A moratorium on debt servicing of the loans was also allowed for the same period, except for loans taken from the World Bank. GRIDCO's dues to OHPC on account of power purchase were to be securitised using bonds issued by the former to the latter. Of the Loan from the World Bank, 30% was converted into a grant, and the remaining 70% was to be repaid at an interest rate of 13% per annum. Tax-free bonds with an interest rate of 8.5% would be floated to meet Power Finance Corporation (PFC) and Rural Electrification Corporation (REC) loans. Benchmarking the distribution loss at 42.21% in FY 2001–2002 as the base, the discoms were given a loss reduction target of 5% per year until 2005. The collection efficiency was estimated at 85% for the same base year and was to be improved to 95% during the

same period. Feeder metering was to be prioritised, especially on the LT side of the distribution network. The state government would exempt Water cess on the volume of water used by OHPC. GRIDCO and OHPC were asked to check all wasteful and unimportant expenses. It was hoped that the sector could be turned around by introducing the changes and corrective measures suggested by the Kanungo Committee. Unfortunately, that did not happen.

4.5 Revocation of Distribution Licences of WESCO, NESCO, and SOUTHCO

Sadly, the financial situation of the discoms did not improve even after the state government implemented many of the recommendations of the Kanungo Committee. Because of their high AT&C losses and poor operational performance, the discoms continued to default on their payments to GRIDCO. In 2008, the OERC securitised the dues owed by the discoms to GRIDCO and ordered the discoms to repay them in instalments until 2013 (OERC, 2008). By FY 2014, the discoms had not made payments according to these directions, and GRIDCO's losses continued to increase. Table 2 shows that as of FY 2014–2015, the discoms owed GRIDCO more than Rs 4,000 crore as dues. This amount was more than 60% of GRIDCO's annual revenue requirement for that year.

Table 2: Various Dues Owed by the Discoms to GRIDCO as of FY 2014–2015 (Amounts in Rs Crore)

Financial Year	Unpaid Securitised Dues till FY 2014	Outstanding Dues as per Tariff Orders till FY 2014	Dues as per Current BSP	Total dues as % of GRIDCO Annual Revenue Requirement (ARR) FY 2014–2015
FY 2014–2015	1765	572	1739	63%

Source: Odisha Electricity Regulatory Commission (OERC, 2015b, p. 147-149).

Figure 8: Distribution Loss (in %) Approved by OERC vs Actual Level Achieved by the Discoms till FY 2014

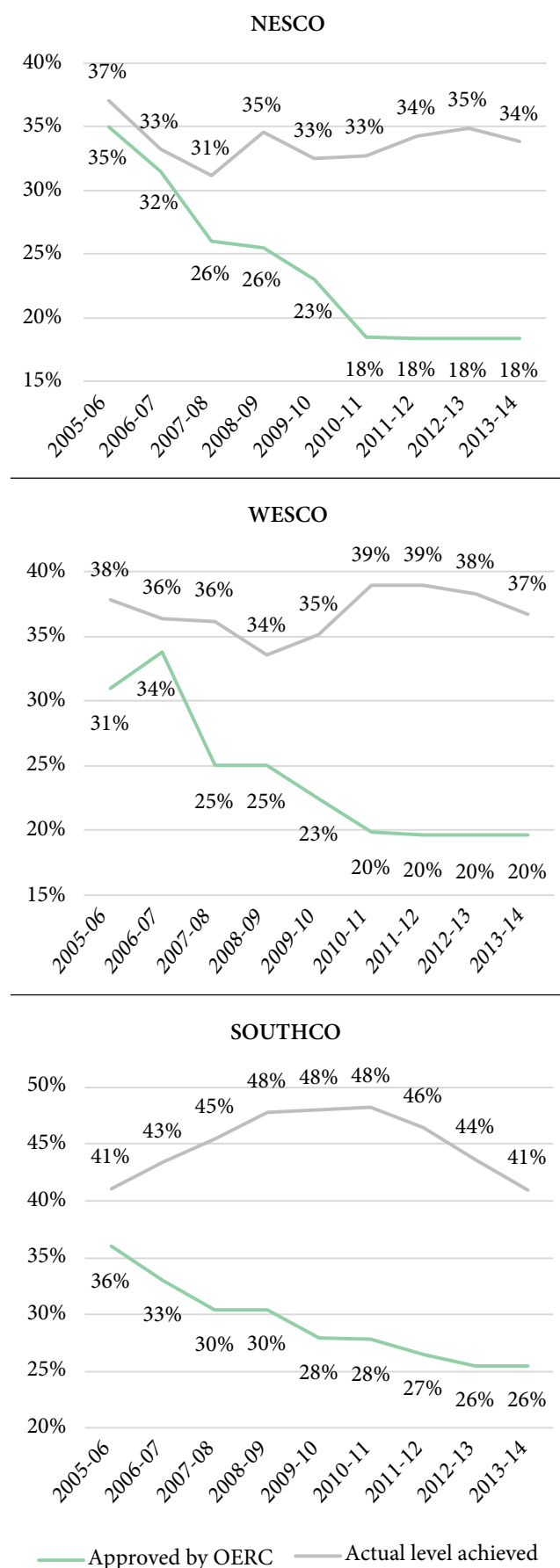


Figure 8 shows the distribution loss (%) reduction achieved by the discoms from FY 2006 to FY 2014 vis-à-vis the target that OERC approved for the same period. As can be seen, there was hardly any improvement over these nine years. The discoms also failed to bring capital to facilitate better metering and billing. Finally, after several warnings were served to the discoms, the OERC issued a show cause notice. The discoms failed to respond to it in a satisfactory manner, and through a *suo motu* process, the OERC revoked their licences in 2015 (OERC, 2015a). The Commission highlighted “wilful and prolonged default” on the part of the discoms regarding the following issues as the reason for licence revocation:

- a) Failure to manage power purchase expenses, thereby jeopardising the continuity of power supply. This included:
 - i Failure to repay dues towards BSP and dues as per the Securitisation order of 2008 to GRIDCO.
 - ii Failure to clear dues of NTPC bond worth Rs 198 crore.
 - iii Failure to manage and maintain adequate balance in the escrow account.
- b) Failure to deposit funds towards terminal liabilities of the employees in the corpus fund as per the direction of OERC.
- c) Failure to conduct timely energy audits and reduce distribution losses as per the Commission’s directions.
- d) Failure to undertake due capital expenditure towards network expansion and management.

In addition to these failures, the OERC charged them with several violations of the Electricity Act, 2003, the licence conditions and its orders. The violations included:

- a) Transferring part ownership of the companies to entities that were not technically and financially eligible as per the qualifying criteria specified at the time of initial disinvestment. Further, such transfers were made without the approval of the Commission.
- b) Non-incorporation of important clauses of the Shareholders’ Agreement in the Articles of Association of the discoms.

- c) The transfer of shares to companies that were not group companies violated the provisions of the Shareholders' Agreement.
- d) Violation of Section 17(3) of the Electricity Act, 2003, and Section 21(2) of the Orissa Electricity Reform Act, 1995.

After the OERC revoked the licences of the three discoms, it appointed administrators to manage the utilities (OERC, 2015b). The discoms challenged the licence revocation order before the Appellate Tribunal for Electricity (ATE). The Tribunal ruled in favour of OERC, upholding its revocation order (ATE, 2017). The discoms then challenged the ATE judgement before the Supreme Court of India, which also ruled in favour of the Commission and dismissed the discoms' appeal (Supreme Court, 2017). This paved the way for the second round of privatisation.

5. Privatisation Round 2.0

Despite the massive failure of the first round of reforms, the state government did not show any interest in taking over the ownership and management of the discoms. As a result, the OERC was faced with an unenviable task of finding new buyers for all the four financially stressed discoms or managing them until this was achieved. For over a decade, it had been unsuccessful in finding a buyer for CESU. During this period, CESU had handed over more than half of its circles and roughly 75% of its consumers to privately owned distribution franchisees. But the performance of the franchisees was not satisfactory, and OERC was aware that it could not be the solution for its challenges (Chitnis, 2024). Thus, began round 2.0 of distribution privatisation.

5.1 CESU Bidding Process Initiated in 2016

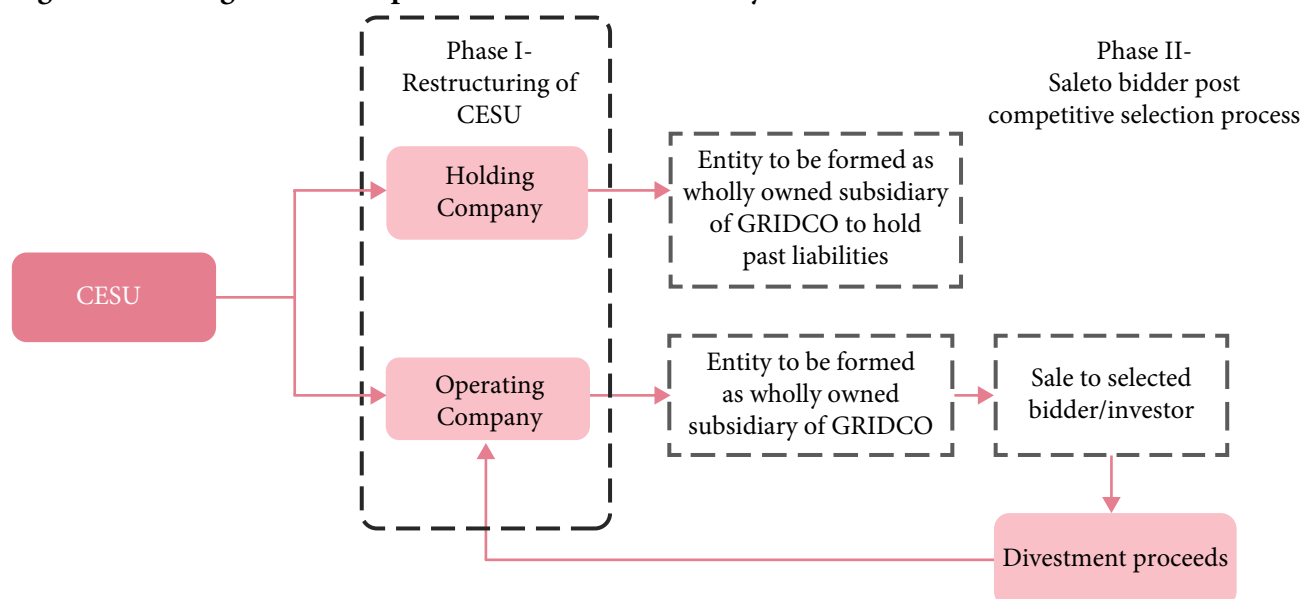
While the licence revocation of the three Reliance-owned discoms was still subjudice, the OERC initiated the sale of CESU. In April 2016, it published a notice of sale and invited tenders for expression of interest (EOI). Along with the notice, it also published a Preliminary Information Memorandum

(PIM), which gave the prospective investors information regarding the state of CESU's financial condition and laid out the scheme for bidding (OERC, 2016). As per the PIM, CESU's net worth as of FY 2015 was negative (minus Rs 1,320 crore), and its profit and loss statement for that year showed a net loss of Rs 154 crore.

The scheme for investment proposed by the OERC followed Section 21(a) of the Electricity Act, 2003, which requires the utility to be auctioned free from any debt, mortgage, or past obligations. This allows the prospective owner to operate without being saddled with past losses and liabilities. Figure 9 shows the structure of the investment scheme proposed by OERC. The utility was to be split into two parts. The first part, consisting of past liabilities, was to be made the Holding Company, which would also be a wholly owned subsidiary of GRIDCO. The remaining part, the Operating Company, would get a clean slate. The Operating Company would also be a wholly owned subsidiary of GRIDCO and would be auctioned for sale to the investors. The successful bidder would become the owner of the Operating Company, including all its assets, and would be responsible for the current and future liabilities from the take-over date.

The EOI for CESU was published in April 2016, and responses were due by June 2016. Subsequently, the request for proposal (RFP) was made available, and the bid deadline was August 25, 2016, (OERC, 2016). The Commission received a single bid in response to its notice, which was returned unopened (OERC, 2020). To better understand the bidders' low interest, the OERC held several meetings and consultations with them. Based on the feedback received, the RFP documents were modified. Still, attracting investors remained a challenge. The bid deadline for CESU bidding was repeatedly extended until September 2018 but failed to entice investors. After the Supreme Court upheld its licence revocation order in November 2017, OERC initiated the sale of WESCO, NESCO, and SOUTHCO utilities in December 2017. As in the case of CESU, investor interest was shallow, and the bid deadline had to be extended several times (OERC, 2019).

Figure 9: Bidding Process Proposed Under the Preliminary Information Memorandum 2016



Source: Preliminary Information Memorandum published by OERC in April 2016 (OERC, 2016, p. 48).

5.2 Key Features of the Revised RFP(s)

As per the vesting orders, the following are the key features of the RFPs based on which the bids were submitted. The RFP documents included drafts of the Share Acquisition Agreement and Shareholders' Agreement to be executed by the new entities and the Bulk Supply Agreement to be executed between the newly formed discom(s) and GRIDCO (OERC, 2020). At the time of writing this paper, the RFPs were not available in the public domain, and hence, a more detailed analysis of the terms and conditions contained therein is not possible.

Reserve Price and Share in the Special Purpose Vehicle (SPV)

The utilities were split into two entities: one holding past losses and liabilities and the other operating part, which was to be auctioned. Upon the completion of the sale, the operating part was to be vested into an special purpose vehicle (SPV). As per the vesting order, the RFP gave the successful bidder an option of either owning 100% of the SPV's equity shares or 51%, while the GoO could choose to own the remaining 49%. If the GoO decided to take 49%, the successful bidder and GoO (or its designated entity, GRIDCO) would sign the Share Acquisition and Shareholders' Agreements. The reserve price is the minimum price above which the bidders had to quote to qualify in the bidding process. It was dif-

ferent for each utility and specified in the RFP. The highest price bid would win, subject to other qualification requirements. Even if the bidder wished to choose a 51:49 equity arrangement, the bid had to be quoted for 100% equity shares in the SPV.

AT&C Loss Reduction Trajectories

Learning from past failures, AT&C loss reduction was an essential consideration for the Commission. The RFP/vesting order specified two trajectories for AT&C loss reduction: one for tariff determination and one to evaluate and ensure a certain minimum level of performance, refer Table 3. Failure to meet the committed performance trajectory would result in a penalty of Rs 50 crore for every 1% shortfall in meeting the committed target. The Commission can relax AT&C loss reduction targets only under force majeure conditions. Under any other circumstances, non-achievement of the targets can seriously violate the licence conditions and may lead to licence revocation.

In the case of CESU (TPCODL), the RFP required the bidders to provide a performance trajectory for the first five years with the condition that in the third and fifth years after the takeover, losses should be less than or equal to 27% and 23.70%, respectively. For the other three discoms, bidders were required to provide a performance trajectory for the first ten years with the condition that the AT&C loss level in

the third and fifth year from takeover shall not be higher than 23% and 19%, respectively. As per the RFPs and the vesting orders, the gains accrued on account of reduction in AT&C losses are allowed to be retained in full up to FY 2030 by TPCODL and up to FY 2031 for the remaining three discoms. The tariff regulations formulated post-privatisation exclude AT&C loss and arrear recovery from the gain and loss sharing mechanism. In short, like an input-based distribution franchisee, if the companies rapidly reduced the AT&C losses lower than the trajectory used for tariff determination, they could make significant gains, which would not be shared with the consumers.

Performance Guarantee

The winning bidder had to provide a performance guarantee of Rs 150 crore with OERC for the first five years. After a satisfactory performance of the first five years, the amount would be reduced by 50% for the next three years and renewed every year till the

10th year of the licence period. If the performance is satisfactory, it will be further reduced to 25% from the 10th to the 15th year. After the 15th year, it will be returned to the discom. If it is encashed at any time during this period, the discom must renew it within 30 days. The Performance Guarantee could be encashed for any of the following reasons:

- Failure to meet the committed AT&C loss reduction target.
- Failure to collect past arrears as specified in the vesting order.
- Failure to pay the BSP and/or Transmission Charges to GRIDCO.
- Any other reason mentioned in the RFP and required under the licence conditions.

The performance guarantee is Rs 150 crore for all discoms except TPSODL, which is Rs 100 crore.

Table 3: AT&C Loss Reduction Trajectories for Tariff Determination and Minimum Performance Commitment

Year	TPCODL		TPWODL		TPSODL		TPNODL	
	Trajectory for Tariff Determination (%)	Minimum Performance Committed as per the Bid (%)	Trajectory for Tariff Determination (%)	Minimum Performance Committed as per the Bid (%)	Trajectory for Tariff Determination (%)	Minimum Performance Committed as per the Bid (%)	Trajectory for Tariff Determination (%)	Minimum Performance Committed as per the Bid (%)
FY 2021	23.70	29.13	—	—	—	—	—	—
FY 2022	23.70	26.89	20.40	27.56	25.75	35.29	19.17	24.32
FY 2023	23.70	23.76	20.40	25.56	25.75	34.29	19.17	22.32
FY 2024	22.00	21.98	18.90	22.50	25.75	32.80	17.09	20.80
FY 2025	20.00	20.19	17.40	20.50	25.35	30.00	15.00	17.80
FY 2026	18.00	—	15.90	18.50	25.00	26.75	13.83	15.50
FY 2027	16.00	—	14.50	14.50	22.57	22.00	12.76	12.50
FY 2028	15.00	—	13.00	12.50	20.38	20.00	11.77	11.50
FY 2029	14.00	—	11.50	11.00	18.40	18.00	10.85	10.50
FY 2030	13.50	—	10.00	9.50	16.61	16.25	10.00	9.50
FY 2031	—	—	9.50	9.08	15.00	14.80	9.50	8.90

Source: Vesting orders for respective discoms.

Power Purchase Conditions

The new discoms are not responsible for power procurement or capacity addition planning. As explained earlier, Odisha follows the single-buyer model (refer to Figure 3), under which GRIDCO plans for and procures power on behalf of all discoms. This practice is continued in the second round of privatisation. The OERC determines the quantum and cost of power allocated to each discom. While the consumer tariff is uniform across the state, the BSP—the price at which the discoms buy power from GRIDCO—differs for each discom. It is the lowest for TPSODL, which has a very high share of LT consumers, and is the highest for TPWODL, which has a very high share of HT and EHT consumers in its mix. The vesting orders mention that GRIDCO has already contracted sufficient capacity to meet the existing and future demand for power. If any need for power procurement arises, then GRIDCO will sign additional PPAs with prior consultation with the discoms and approval of OERC. Prior consultation with GRIDCO is required to sign any new PPAs, even to meet renewable energy purchase obligation (RPO) targets. Until GRIDCO explicitly expresses its inability to meet the discoms' power requirements, they cannot sign new PPAs without its explicit approval.

Payment Security Mechanism for GRIDCO

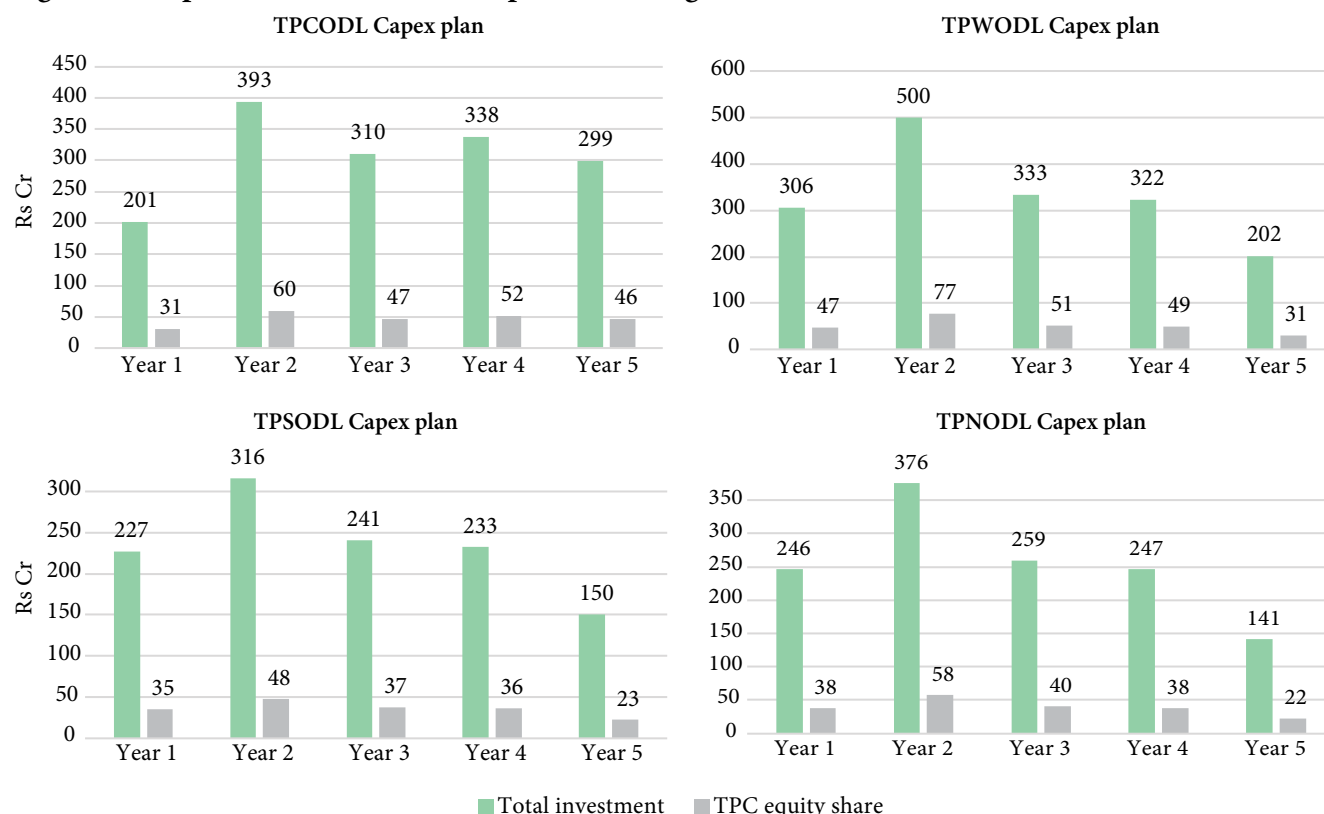
One of the critical issues in the earlier period was the repeated failure of the discoms to pay for the power purchase bills to GRIDCO on time. To avoid this, the vesting orders mandate the new discoms to provide GRIDCO with a revolving letter of credit facility equivalent to two months of the average BSP bill as a primary payment security mechanism. The provisions for opening and maintaining this credit

facility would be mentioned in the bulk supply agreement that new discoms would enter with GRIDCO. If the amount in the letter of credit is insufficient to recover its dues, GRIDCO can approach the OERC to encash the performance guarantee to make up for the shortfall. Under such an event, the discom would be immediately required to replenish the performance guarantee after encashment and be given a reasonable opportunity to be heard before it occurs. Like the BSP bills, a payment security mechanism for payment of transmission and SLDC charges is also incorporated in the vesting orders.

Capital Investment Plan

The RFP specified a minimum cumulative capital investment that needed to be made by the new discoms in the first five years. The bidders could also bid for higher investments. The minimum amount specified differed for each discom. Upon winning the bid, the new discom would be required to seek regulatory approval for its capital expenditure plan in line with the OERC regulations that would be in force at the time of the implementation. The vesting orders provide the details of the annual and cumulative capital investments the new discoms committed to. All four discoms exceeded the minimum Rs 500 crore mark mandated in the RFP, committing to twice or thrice that limit. Figure 10 shows the investment commitments made by the four discoms. TPC's share in the discom is only 51%. Any new capital expenditure requires the owner to contribute at least 30% in equity, so TPC's equity share in the proposed investment is proportionately low (30% of 51%). For instance, TPC will need to contribute equity of about Rs 863 crore for the total capital investment of Rs 5,640 crore that it has proposed for the first five years of operations.

Figure 10: Capital Investment Plans as per the Vesting Orders



Source: Vesting orders.

Equity-in-Kind Arrangement

One of the interesting features of the RFP/vesting order is the arrangement that allows GRIDCO to contribute towards the new capex “in kind” instead of injecting new equity. This is done using the book value of the past investments made by the GoO towards network strengthening. The state government has significantly invested in improving the distribution infrastructure in the last decade. While the erstwhile utilities could use these assets for their consumers’ benefit and claim operation and maintenance (O&M) expenses incurred towards them through tariff, the assets belonged to the GoO. They were not in the utility books (GRIDCO, 2021). The vesting orders allow GRIDCO to benefit from this arrangement.

As per regulatory norms, the debt-to-equity ratio for any new capital investment in the power sector is 70:30. As part owner of the new discoms, GRIDCO is expected to contribute 49% of the 30% equity component in cash. However, its financial position is not strong, so it is not easy to do this. Still, the lack of equity from GRIDCO needs to be covered while financing the new capex proposals. To overcome this, the vesting order allows GRIDCO to contribute equity by moving assets with book value worth

its share from the GoO books to the books of the new discom. This financial jugglery, however, does not overcome the need to raise the debt to finance the missing equity portion. For this, the discom is allowed to artificially inflate the overall outlay of the new capex plan and finance the missing liquid equity through debt. Due to this, the overall capex plan of Rs 5,640 crore would need to be increased to about Rs 6,612 crore, which could have some additional tariff impact, though it might not be significant.

Recovery of Past Arrears

One of the criteria for bid evaluation was the bidders’ commitment to recovering the past arrears from live and permanently disconnected consumers during the first five years of operation. The RFPs of all discoms, except SOUTHCO, specified an incentive of 10% for past arrears collected from live consumers and 20% for those collected from the permanently disconnected ones. In the case of SOUTHCO, the incentive is higher at 20% on past arrears collected from live consumers and 30% on those collected from permanently disconnected consumers due to higher arrears. The vesting order gives the arrear recovery committed by each TPC discom. The incentive is based on the amount of past arrears collected from the consumers,

net of all taxes and duties recovered from consumers. However, the collection from current live Consumers will be first appropriated towards the current bill and then towards the arrears. Any additional cost explicitly incurred for arrear recovery cannot be passed on to the consumers through tariff. Failure to recover arrears as per the commitment for any given year shall lead to encashment of Performance Guarantee, to the extent of 10% of such shortfall, as computed at the end of that year.

Transfer of Employees and Employee Benefits

Once the sale was completed, all existing utility employees, except for the staff of the GoO on deputation, would be transferred to the newly formed discoms. These employees would continue to be governed by the terms of their original appointment, and the new discoms cannot change them to make their existing service conditions inferior in any manner. Table 4 gives the number of regular and contractual employees on the payroll of each utility. As per the vesting orders, the bidders were required to submit a staff deployment plan after considering the existing employees of the erstwhile utilities. Each utility had an Employee Pension Trust, an Employee Gratuity Trust, an Employee Provident Fund Trust, and a Rehabilitation Trust. These trusts managed the funds against pension, gratuity, provident fund, and rehabilitation liabilities, respectively. After the sale of the utilities, these arrangements were to continue as before, with the new discoms responsible for remitting designated amounts to these Trusts at scheduled intervals. The discoms cannot liquidate the investments made by these Trusts without OERC's prior approval.

Table 4: Existing Employees on the Payroll of the Erstwhile Utilities at the Time of Handover

Utility	No. of Regular Employees on Payroll	No. of Contractual Employees on Payroll
CESU	4,917	435
SOUTHCO	2,113	14
WESCO	2,388	10
NORTHCO	2,304	13
Total	11,722	472

Source: Vesting orders of the utilities.

6. Incentives and Other Strategies

Though the OERC worked hard to make the deal attractive for the investors, few takers remained. In the case of CESU, few private sector players were in the fray, but eventually, the bid submitted by Tata Power Company Limited (TPC) qualified (Powerline, 2020). In the case of WESCO and SOUTHCO, TPC and a consortium of India Power Corporation and French government-owned power utility Électricité de France (EDF) were the only two bidders, with TPC winning the bid (The Mint, 2020). In the case of NESCO, a single bid by TPC was received before the due date. The OERC set up an independent bid evaluation committee that recommended TPC as the successful bidder, and the Commission accepted it (OERC, 2021). Thus, TPC won all four bids, and the new discoms were named TPCODL (CESU), TPSODL (SOUTHCO), TPWODL (WESCO), and TPNODL (NESCO).

The OERC had to exert enormous effort and patience to engineer a successful deal in the second round of privatisation. The Commission benefited from hindsight from past failures and did its best to avoid known pitfalls. This section highlights the various measures adopted by the Commission to make the deal palatable for the prospective bidders and how it tried to balance consumer interest vis-à-vis investor interest.

6.1 Dilution of the Entry Criteria

Initially, the financial criteria for qualification included a minimum net worth of Rs 1,200 crore or its equivalent in USD and average net cash accruals of Rs 500 crore as per the audited account of the preceding three financial years. The technical criteria for qualification included experience in operating and managing a distribution licence and the ability to deploy an adequate number of senior management and technical experts with the required competence and skills. Due to the lack of response, the OERC lowered the entry barrier by changing the technical eligibility criteria in 2017 by allowing investors who own and operate power generation projects of cumulative capacity greater than or equal to 1 GW to qualify in the bidding process, provided they met the financial criteria. Thus, entities which did not have any experience in managing a discom could also participate.

6.2 Setting a Low Reserve Price

One of the crucial reasons for the failures of the first round of privatisation, as highlighted by the Kanungo Committee report, was the restatement of GRIDCO and OHPC assets. The OERC has been very careful not to repeat this mistake. One might say that the pendulum has swung to the other side in the second round. Far from restating the assets, the OERC set low reserve prices for the utilities. The bidders needed to bid for a value higher than this to qualify. The RFP required the bidders to quote for 100% equity shares in the SPV, although post-bidding, they could be part-owners of the new entity. This meant they would have to invest only 51% of the amount they quoted. Table 5 gives the details of the price bids quoted by TPC. They opted for a 51% equity share in all the newly formed SPVs, while the state government designated GRIDCO to hold the remaining

49%. As can be seen, the reserve price set by OERC was the highest for TPCODL and TPWODL, whereas the price quoted was the highest for TPWODL and TPNODL.

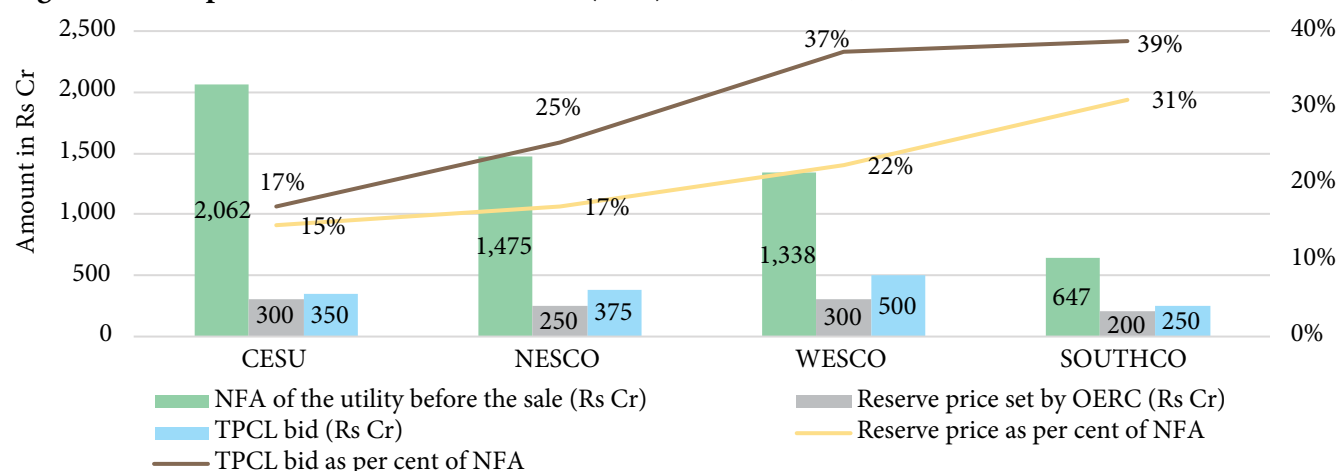
Figure 11 shows a comparison of the utilities' net fixed assets (NFA) at the time of the sale vis-à-vis the reserve price set by the OERC and the price quoted by TPC. As can be seen from the figure, the reserve price and bid value range between 15%–40% of the NFA. Given the 51% ownership clause, TPC contributed only half of the bid price. Setting the reserve price so low certainly made the deal very attractive for the investors, though, to be sure, there were not many takers for it. But, more significantly, perhaps, it also lowered the risks for GRIDCO and the government if the experiment were to go awry and it had to buy back the share of the private player.⁷

Table 5: Details of the Winning Bids

Particulars	TPCODL	TPSODL	TPWODL	TPNODL
Reserve Price Set by OERC (Rs crore)	300	200	300	250
Purchase Price Quoted by TPC in its Bid (Rs crore)	350	250	500	375
TPC share in the Utility (%)	51	51	51	51
TPC Share in the Purchase Price (Rs crore)	178.5	127.5	255	191.25
GRIDCO Share in Utility (%)	49	49	49	49
GRIDCO Share the Purchase Price (Rs crore)	171.5	122.5	245	183.75

Source: Vesting orders for all four companies.

Figure 11: Comparison of the Net Fixed Asset (NFA) of the Utilities, the Reserve Price, and Bids Received



Source: Vesting orders for all four companies.

⁷ Generally, when an asset is sold to a buyer at below cost, there may be a concern that the buyer could sell the asset at its market value and earn a significant profit. However, in the case of the sale of a discom, such concerns would not exist because the sale would require prior approval from the regulatory commission, which could block it (See Electricity Act, 2003, Section 17.3).

6.3 Linking Return on Equity to the Reserve Price

Another interesting aspect of the RFP was to set the reserve price as the base for the return on equity for the newly formed discoms by setting a low reserve price and making it the base on which the return would be computed, the OERC restricted the tariff impact on this account. All the investments made by the new companies after taking over the business would add to this base, and the return on equity would eventually increase, but that would be a more gradual process than a one-time restatement.

6.4 Equity-in-Kind Arrangement

As explained earlier, this is a peculiar feature of the RFP. The arrangement allows GRIDCO, which is the co-owner of the new discoms, to fulfil its obligations towards equity contribution for new capex without further jeopardising its delicate financial situation. The arrangement has both advantages and disadvantages. Its advantage lies in facilitating asset transfer from GoO books to the books of the new discoms gradually without causing a sudden tariff shock. However, since it also inflates all new capex by roughly 17%, it can also lead to some increase in tariff on this account.

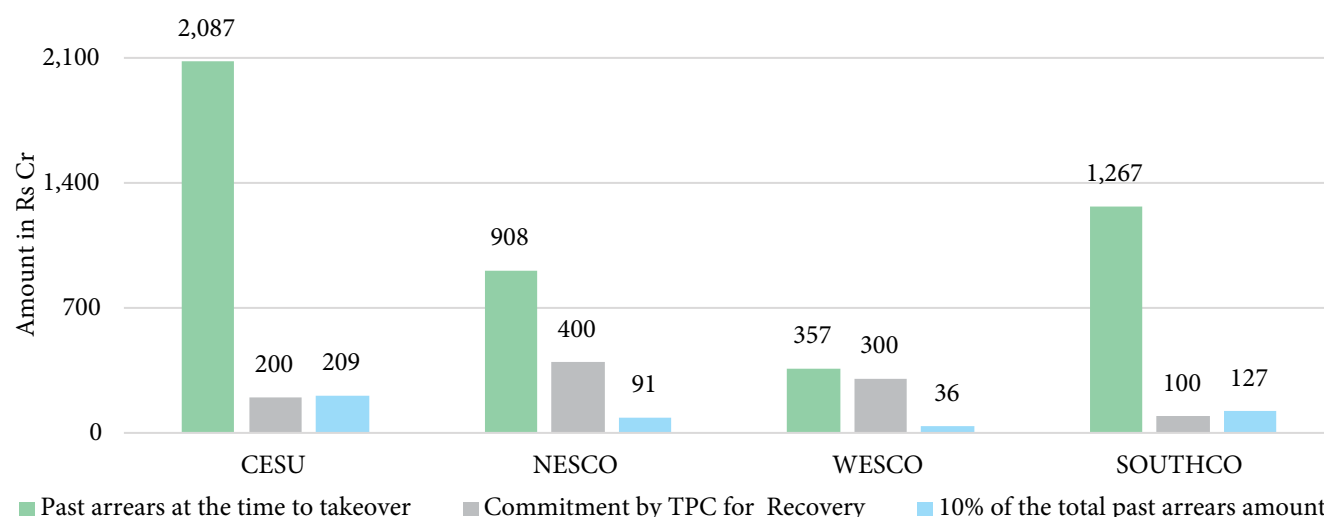
6.5 Incentive on Arrear Collection

As seen earlier, the bidders were supposed to quote a trajectory for the amount of arrears they would collect from live and permanently disconnected consumers.

The incentive that is offered in place of the arrear collection is significant: 10% for arrears collected from live consumers and 20% for those collected from permanently disconnected consumers. In the case of SOUTHCO, the incentives are even higher at 20% and 30% for current and permanently disconnected consumers, respectively. The breakdown of the total accumulated arrears at handover into those from live and permanently disconnected consumers is not available in the public domain. Figure 12 shows utility-wise past arrears, recovery commitment, and the potential incentive. One can see that the total arrears across all four utilities stood at around Rs 4,600 crore at the time of handover. Even if one considers a conservative incentive of 10% for CESU, NESCO, and WESCO and 20% for SOUTHCO, the incentive that can be earned from collecting all the past arrears becomes around Rs 600 crore. To put this number in context, this amount is roughly 3% of the total revenue requirement for FY 2023 of all four discoms. In other words, it is equivalent to a 3% increase in tariff.

As Figure 12 shows, the Commission tried hard to entice the investors. Sadly, there remained few takers for the utilities. Strangely, the bidders were not even interested in WESCO and NESCO, which have a high share of HT and EHT consumers. Except for TPC, no serious Indian private distribution player seems to have bid or qualified. Apart from TPC, a consortium of India Power Corporation and French government-owned power utility EDF were the only other bidders for WESCO and SOUTHCO,

Figure 12: Utility-Wise Total Arrears at the Time of Handover, Recovery Amount Committed by TPC and Potential Incentive



Source: Compilation by the authors from regulatory filings.

Note: Since the breakup of the total accumulated arrears at the time of handover into those from live and permanently disconnected consumers is not available, the potential incentive is calculated at 10% of the total arrears for CESU, NESCO, and WESCO and 20% for SOUTHCO.

respectively (Odisha Bytes, 2020). It is interesting that TPC ultimately won all the four bids. One wonders if the results would have been different had the OERC auctioned all four utilities as one combined bid. Since the retail tariffs for all the discoms are uniform, having control on all four could have reduced the risk perception on account of differences in consumer mix.

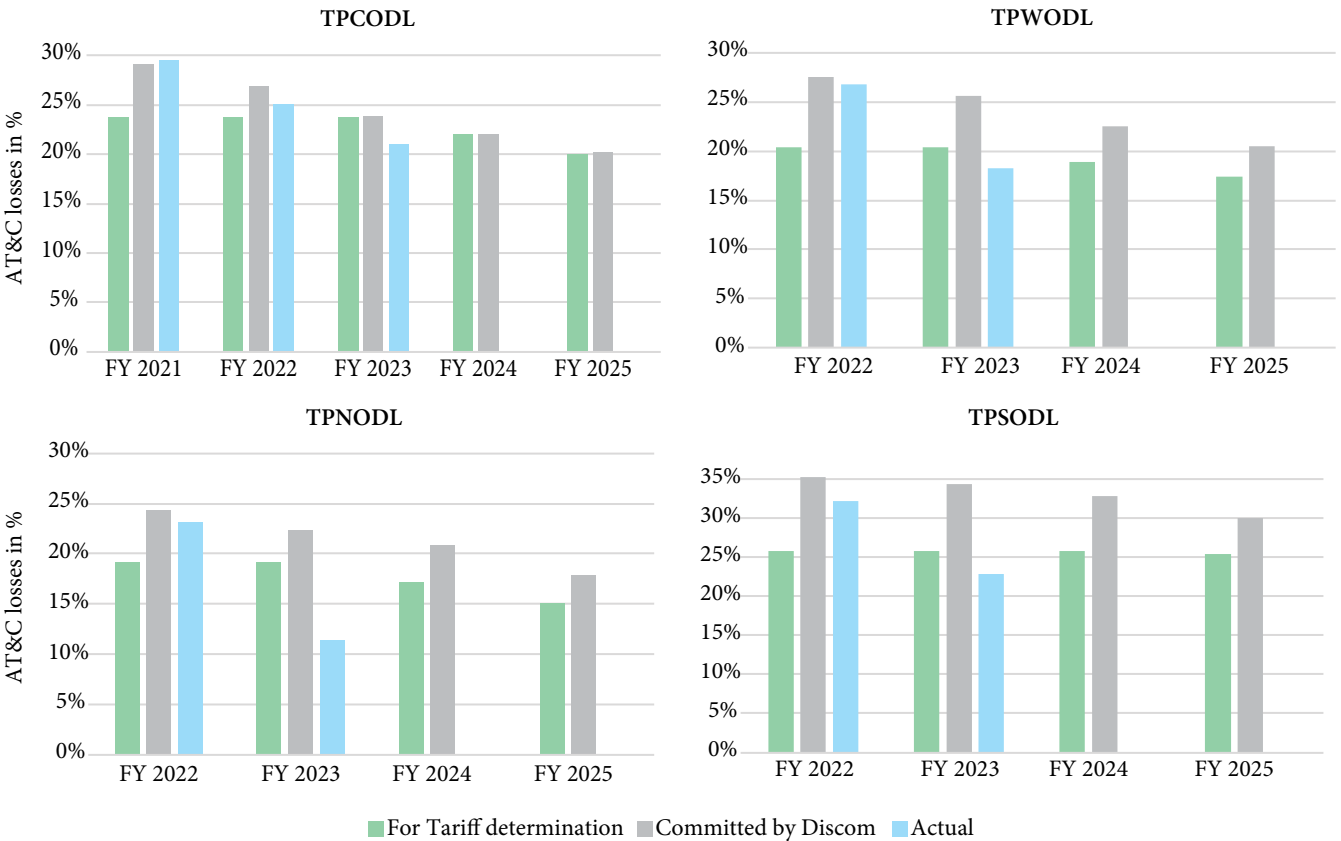
7. Operational and Financial Performance of the New Discoms

This section looks at the operational and financial performance of the new discoms, as recorded in the tariff filings and regulatory orders.

7.1 Performance on Loss Reduction Targets

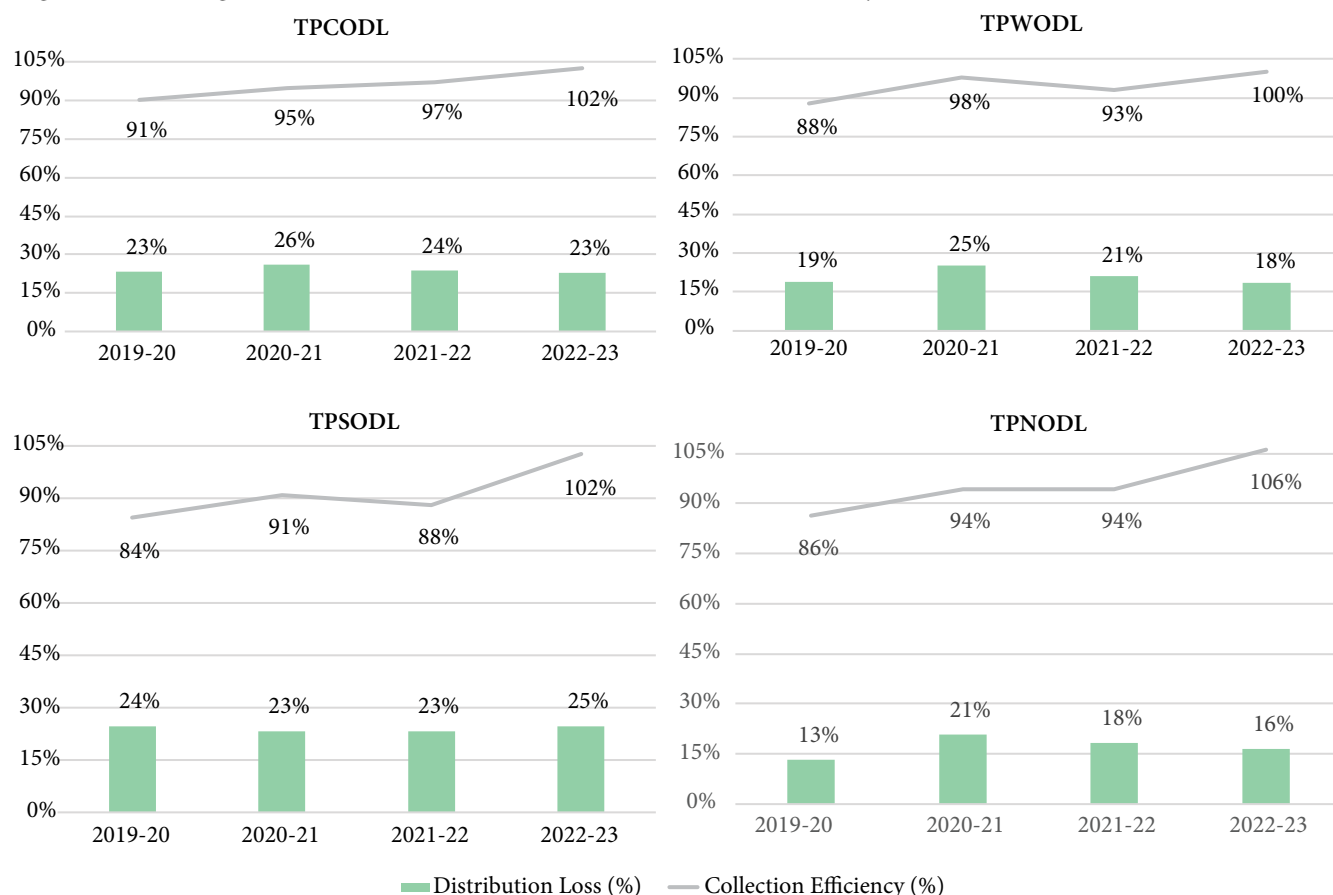
As noted earlier, AT&C loss reduction is a crucial objective of the second round of privatisation. The readers would recall that the OERC has specified separate loss reduction trajectories for tariff computation and performance evaluation (refer to Section 5.2). The new discoms seem to have done well on this front. They have achieved the performance commitment stated in the vesting orders. As seen in Figure 13, they have surpassed the loss levels considered for tariff determination for FY 2023. The AT&C loss levels they achieved for FY 2023 are already lower than what would be considered for tariff determination in FY 2024. As discussed earlier, they are not expected to share these efficiency gains with the consumers.

Figure 13: Performance of the New Discoms on AT&C Loss Reduction Targets



Source: Tariff orders.

Figure 14: Changes in Distribution Losses and Collection Efficiency From FY 2020 to FY 2023



Source: Odisha Electricity Regulatory Commission (OERC, 2024a).

A closer examination of the loss reduction numbers shows that much of the improvement is due to improved collection efficiency, while the distribution losses are more or less at the pre-handover period (FY 2020) levels (refer to Figure 14). As can be seen, in the case of TPSODL and TPNODL, the distribution losses have in fact increased as compared to FY 2020. This is perhaps understandable in the initial period, as improving collection efficiency can be easier (and faster) than reducing technical losses, as the latter may often require capital expenditure.

7.2 Changes in Sales and Sales Mix

Figure 15 shows changes in the sales mix of the discoms since FY 2010. It captures four distinct snapshots, each representing a particular reform stage. In FY 2010, it was still the erstwhile Reliance-owned discoms managing distribution. FY 2015, OERC revoked the licences of the Reliance-owned discoms. FY 2018 to FY 2019 is when the discoms were being managed as utilities by the administrators appointed by OERC, and tenders had been floated for their sale.

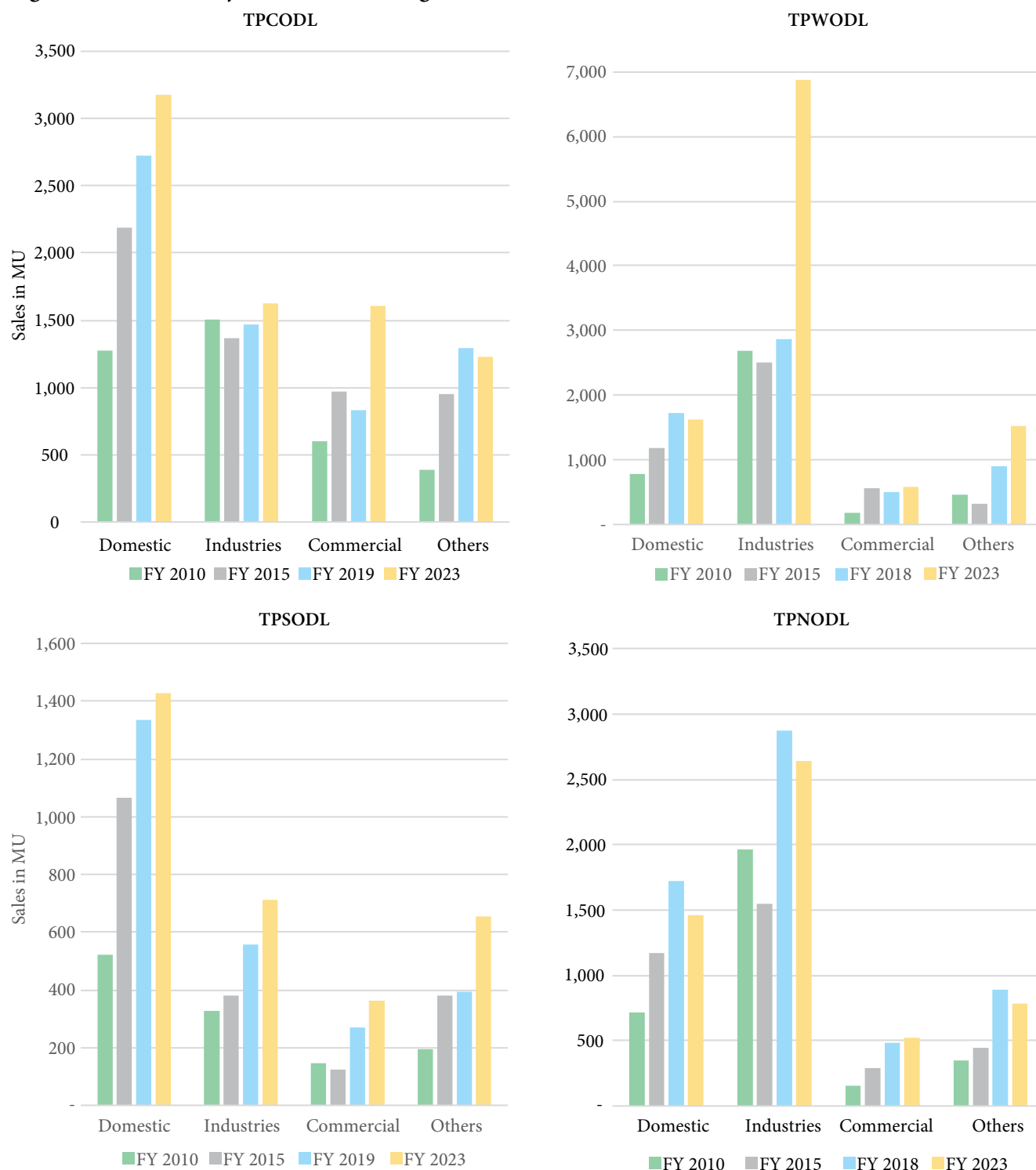
Lastly, FY 2023 captures the performance of the new discoms, as TPC took over operations between FY 2020–FY 2021.

The new discoms seem to have improved the sales mix and increased sales to industrial and commercial consumers, which had earlier migrated to open access and/or captive consumption. Figure 16 shows the percentage sales mix changes from FY 2019 to FY 2023. In the case of TPWODL, the share of sales to industrial consumers has increased from 42% to 65%. This was achieved by regaining captive and open-access consumers by offering them various incentives and rebates. OERC supported and facilitated these efforts, as they helped improve revenue. In absolute terms, the overall quantum of sales has increased for all categories except for domestic consumer sales of TPWODL and TPNODL. They have decreased in both absolute and percentage terms. As per the FY 2024-25 tariff order, TPWODL has updated its consumer database and identified around 2 lakh “ghost consumers” (OERC, 2024a, p. 12).

Within the domestic category, sales to the Below Poverty Line (BPL) or the Kutir Jyoti consumers have fallen sharply across all discoms. These consumers only pay a fixed monthly charge of Rs 70. The annual cumulative consumption should be less than 360 units to be eligible for this category. With increased rural and household electrification, BPL consumer numbers have risen significantly since FY 2012. However, in recent years, their numbers have

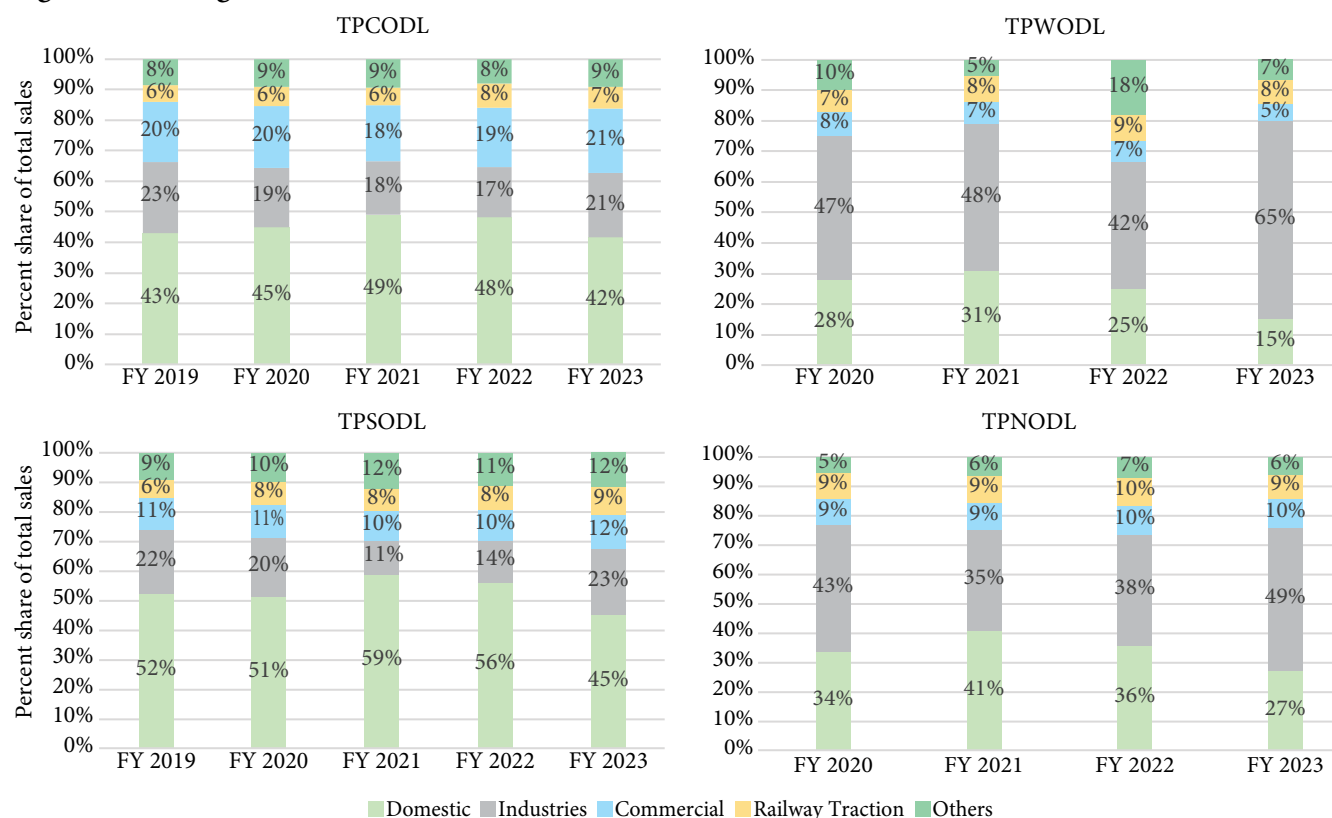
fallen. If one looks at the average annual consumption of BPL consumers (in units), it too seems to have fallen sharply in recent years (refer to Figure 17 and Figure 18). It is difficult to say whether this is due to increased consumption by these consumers or metering and billing issues. OERC should investigate this more thoroughly and revise the tariff design for the BPL category to ensure that consumers who need such support get the due benefits.

Figure 15: Sales to Major Consumer Categories Between FY 2010 and FY 2023



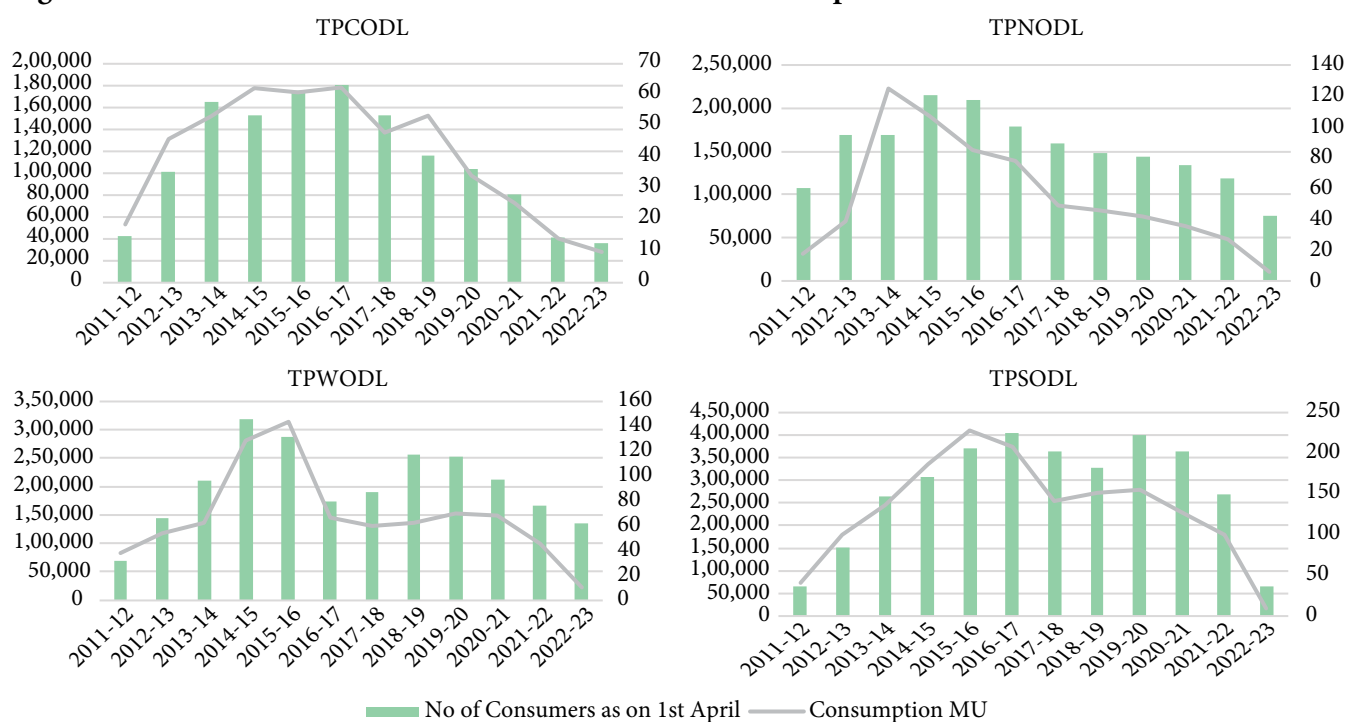
Source: Tariff filings of the respective discoms.

Figure 16: Changes in Consumer Mix Between FY 2019 and FY 2023



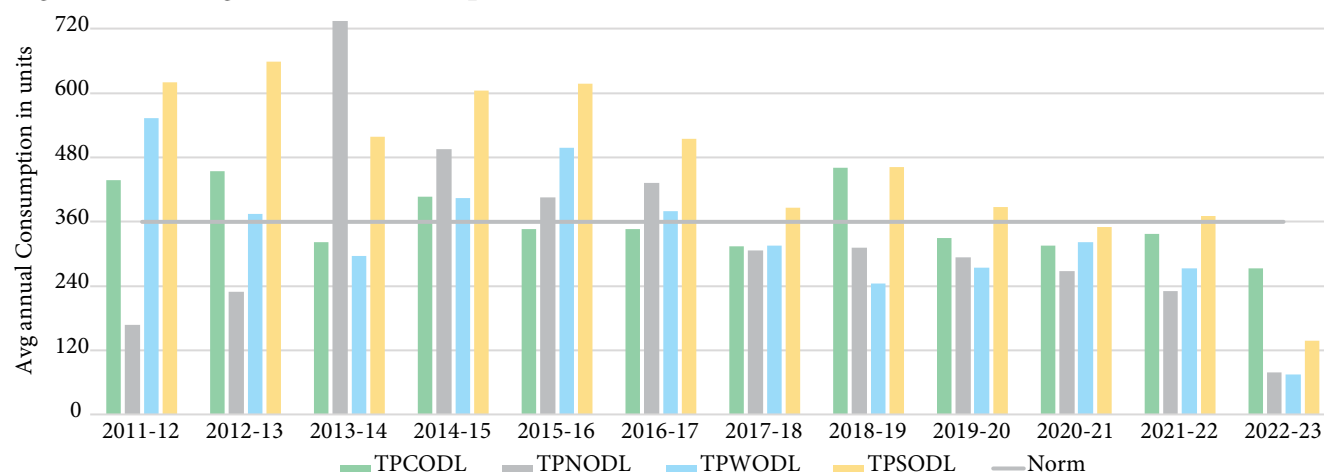
Source: Tariff filings of the respective discoms.

Figure 17: Trend of BPL Consumer Numbers and Their Consumption



Source: Compilation from tariff filings.

Figure 18: Average Annual Consumption of BPL Consumers from FY 2012 to FY 2023



Source: Compilation from tariff filings.

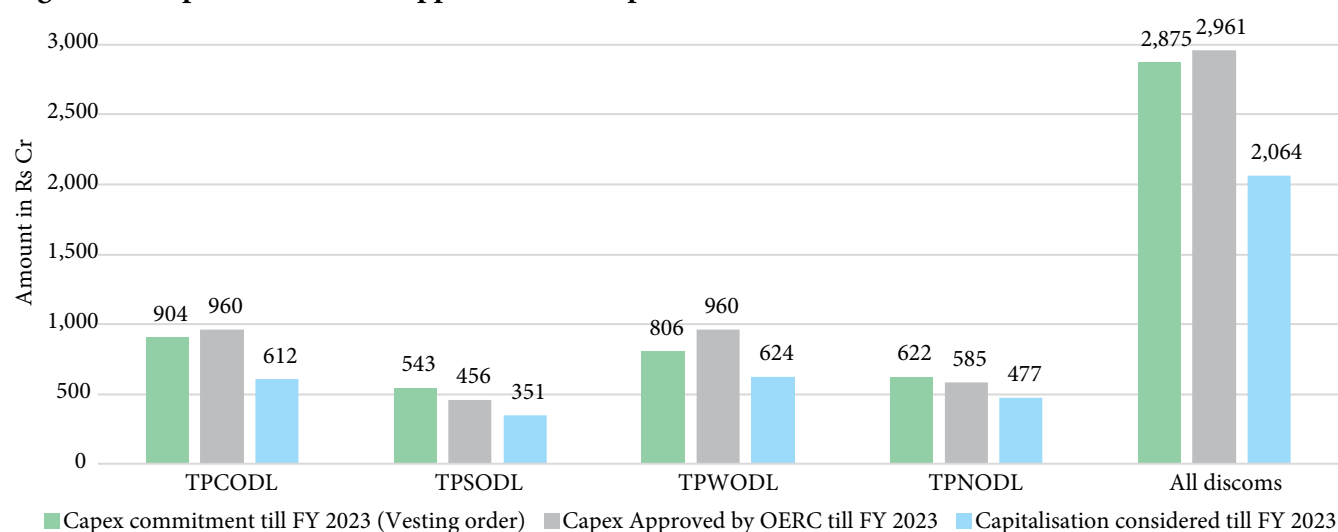
7.3 Capital Investment

All four discoms have proposed capital investment plans in keeping with their commitment in their bids. Figure 19 shows the capital investment commitment of each discom per the vesting order vis-à-vis capex approved by the OERC and the capitalisation, meaning the actual expenditure that was undertaken towards the intended projects.

As can be seen, planned expenditure is higher than the committed amount in TPCODL and TPWODL, whereas it is slightly lower in the case of the remaining two discoms. The level of capitalisation is also different, ranging from 60% to 80%, and overall spending

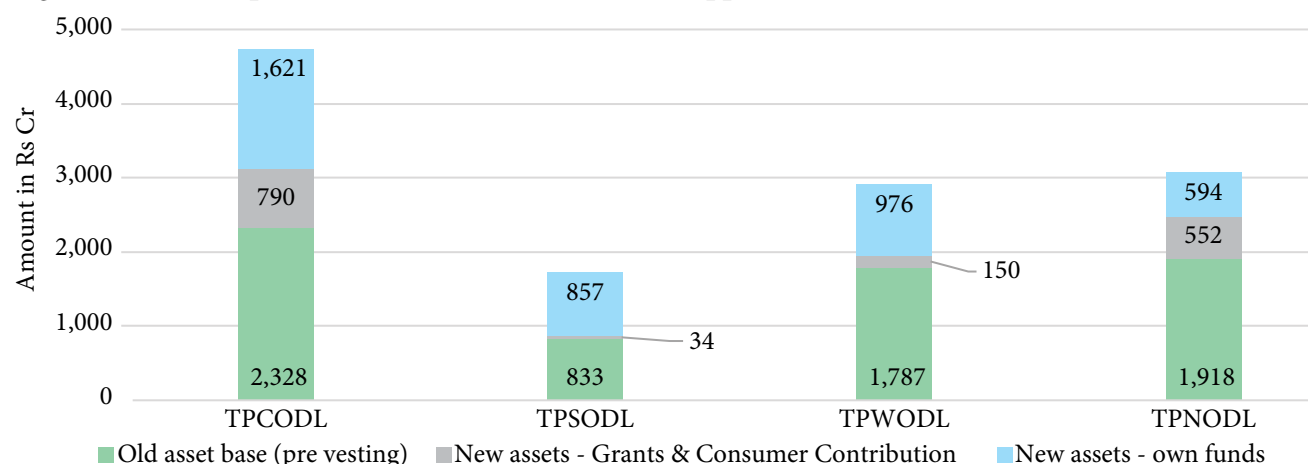
is around 70% of the planned amount. The OERC, while approving the business plans of the discoms for FY 2024–2025 to FY 2027–2028, has noted that the actual capitalisation until FY 2023, as reflected by the books of accounts, is around 50%. It has also stated that “...in the Business Plan, no quantifiable benefits and cost-benefit analysis due to investment under the proposed CAPEX have been outlined. The details of investment plan under each head have not been submitted by the DISCOMs for each year of the control period.” (OERC, 2023b, p. 38). The lack of such crucial data is a concern, hindering a more detailed scrutiny of the proposed expenditure.

Figure 19: Capex Committed, Approved, and Capitalisation till FY 2023 for all Discoms



Source: Vesting orders of the respective discoms and Odisha Electricity Regulatory Commission (OERC, 2023b).

Figure 20: Break-up of the Gross Fixed Assets (GFA) Approved for FY 2024



Source: Odisha Electricity Regulatory Commission (OERC, 2024a).

Apart from undertaking capital investments per the commitment given at the bidding time, the discoms are also responsible for implementing the ongoing and new schemes of the state and central governments. These schemes aim to strengthen the distribution infrastructure, reduce losses, improve metering and billing systems, etc. Figure 20 shows the gross fixed assets (GFA) of the four discoms as of FY 2024. It gives a breakdown of the assets based on who has contributed to their creation, namely, old assets existing at the time of vesting, new assets added through government grants and consumer contributions, and new assets added by the discoms through their investments. The GFA has almost doubled for TPCODL and TPSODL and significantly increased for the other two discoms. Grants and consumer contribution have played a significant role in the case of TPCODL and TPNODL, while the discoms have

invested most in the case of TPCODL, TPSODL, and TPWODL.

7.4 Financial Performance

As per the annual reports, all discoms have reported a profit after tax for FY 2023. Given the history, this is a significant achievement. As per GRIDCO's FY 2023 report, the financial performance of the discoms is as shown in Table 6. The regulatory deficit is due to the disallowances in the annual revenue requirement for those particular years. As per the tariff orders, the revenue gap for these financial years has been adjusted against the surplus available in the regulatory accounts. Any disallowances in power procurement costs are not reflected in the discoms accounts and are absorbed by GRIDCO. As per the regulatory accounts, the discoms also seem to be doing well.

Table 6: Financial Performance of all Discoms Combined (All Amounts in Rs Crore)

Particulars	FY 2021–2022	FY 2022–2023	Percentage Increase/Decrease (%)
Total Revenue from Operation	13,659	17,296	27
Power Purchase Cost and Transmission Charges	8,808	11,607	32
Distribution Cost	3,834	4,857	27
Surplus/(Deficit)	1,018	832	-18
Regulatory Surplus/(Deficit)	-705	-493	–
Profit Before Tax	314	338	8
Profit/(Loss) After Tax	236	253	7

Source: Grid Corporation of Odisha (GRIDCO, 2023, p.21).

Table 7: Summary of True-up for FY 2021 to FY 2023 for all Discoms (Amounts in Rs crore)

Particulars	TPCODL	TPWODL	TPNODL	TPSODL	Total
True up Surplus for FY 2020–2021	-43	95	0	22	73
True up Surplus for FY 2021–2022	102	610	52	46	810
True up Surplus for FY 2022–2023	171	737	136	54	1097
Total True up Surplus	229	1441	188	122	1980
Adjusted in ARR 2022–2023	140	150	0	60	350
Adjusted in ARR 2023–2024	83	663	66	40	853
Adjusted in ARR 2024–2025	6	510	0	22	537
Net Surplus Available for Carrying Forward	0	117	122	0	239

Source: Odisha Electricity Regulatory Commission (OERC, 2024a, p. 147).

In the FY 2024-25 tariff order, the OERC undertook a detailed truing-up exercise for all the discoms since the handover occurred.

Table 7 gives the details of the OERC truing-up exercise. As can be seen, even according to the regulatory accounts, the discoms have a net surplus of Rs 239 crore, which can be used in the coming years to offset any cost overruns.

Thus, the new discoms seem to be doing quite well financially.

7.5 Compliance with Standards of Performance

OERC was one of the first ERCs to notify standards of performance and supply code regulations (OERC, 2004). These are amended from time to time, and all discoms are mandated to follow them. The regulations stipulate the duties and responsibilities of the discoms in managing service delivery related issues. In particular, they specify the timelines within which the discoms should address specific types of consumer complaints and requests, restore supply after a fault/interruption, or disconnection, etc. They also specify “Guaranteed Performance,” which the discoms are supposed to deliver to the consumers. Failing to meet these performance standards, the discoms are liable to compensate the affected consumers as per the terms mentioned in these regulations.

There are many issues for which performance standards are specified, and compliance status is expected to be reported by the discoms (TPCODL, 2023). All new discoms seem to mainly comply with the stan-

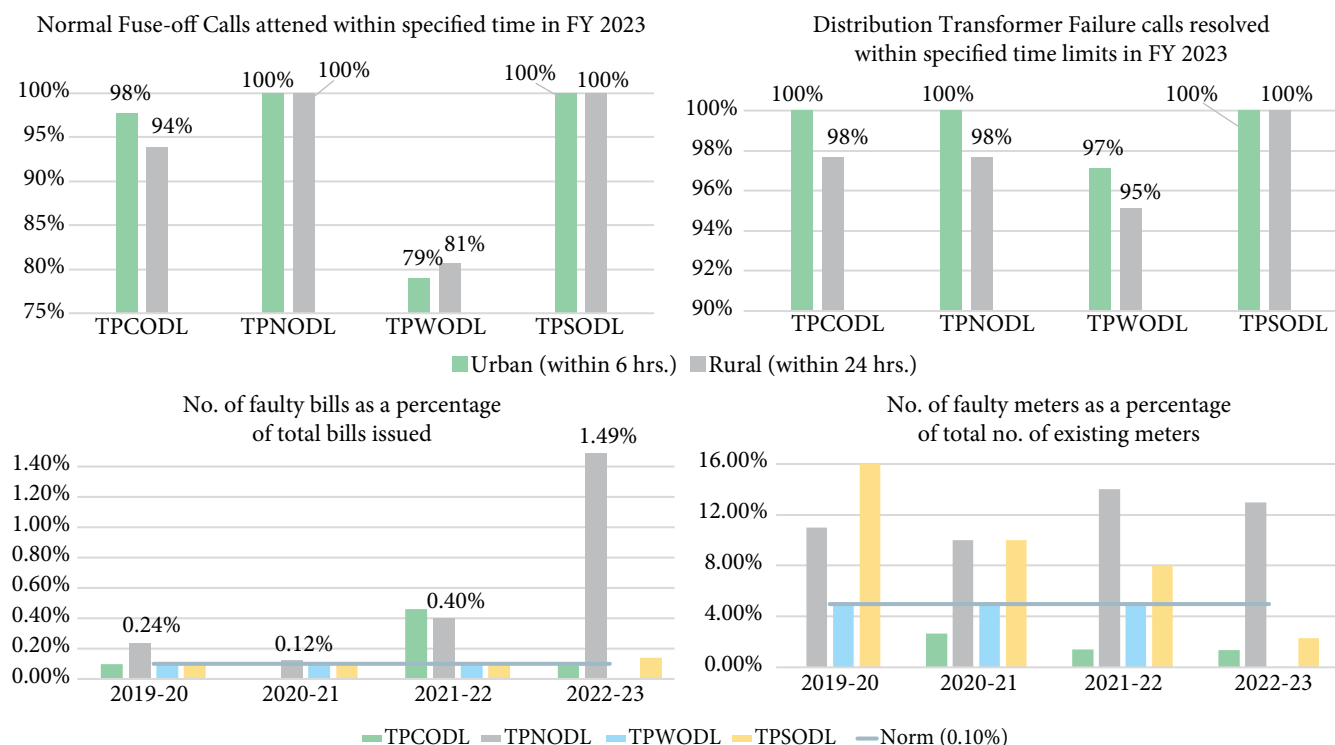
dards. Figure 21 shows the compliance status in case of fuse-off calls and distribution transformer failure. As can be seen, the standards differ for urban and rural areas. Such faults in urban areas are to be rectified within six hours, while in rural areas, 24 hours are allowed to address the issue. Similarly, there is also a limit to which the discom can issue faulty bills or the number of consumer meters that can be defective during a year. These measures are aimed at improving metering and billing efficiency. Figure 21 shows that the new licensees can meet the norms for managing common issues such as fuse off call and transformer failure, except TPWODL and TPNODL seem to be consistently failing to meet the standards for metering and billing. In general, it is surprising that despite having a primarily HT and industrial and commercial consumer base, TPWODL, and TPNODL seem to be not at par with TPSODL or TPCODL—which have primarily LT consumers.

Figure 22 and Figure 23 show the performance of the discoms concerning distribution system reliability indices. The methodology to compute these indices is specified in the standards of performance regulations, and it states as follows:

The Indices shall be computed for the Discom as a whole by stacking, for each month all the 11KV feeders in the supply area, excluding those serving predominantly agricultural loads, and then aggregating the number and duration of all interruptions in that month for each feeder (OERC, 2004).

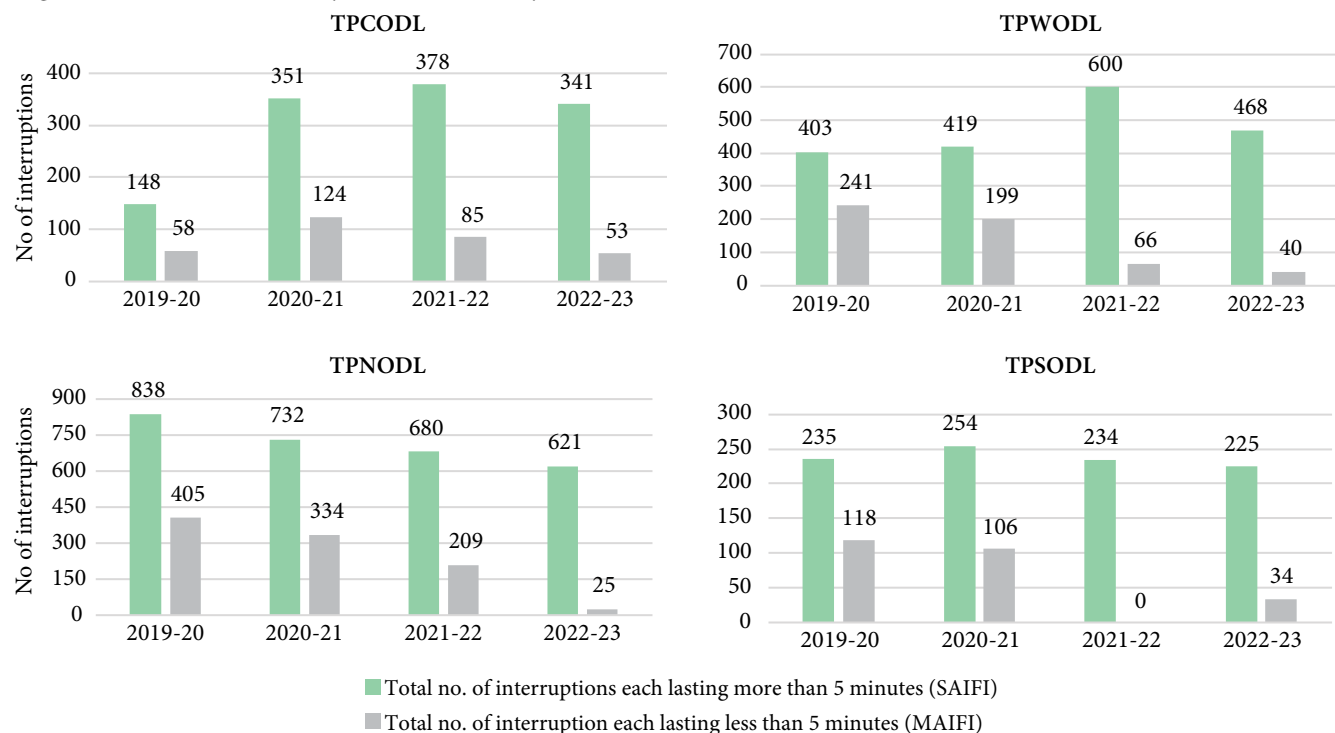
Once again, TPCODL and TPSODL perform much better than TPWODL and TPNODL, implying that the LT consumers in the latter’s supply areas may not be getting as good a service as those in the former’s.

Figure 21: Compliance Status % of Total Complaints for Specific Issues Resolved Within the Specified Time Limits



Source: Tata Power Central Odisha Distribution Limited (TPCODL, 2023).

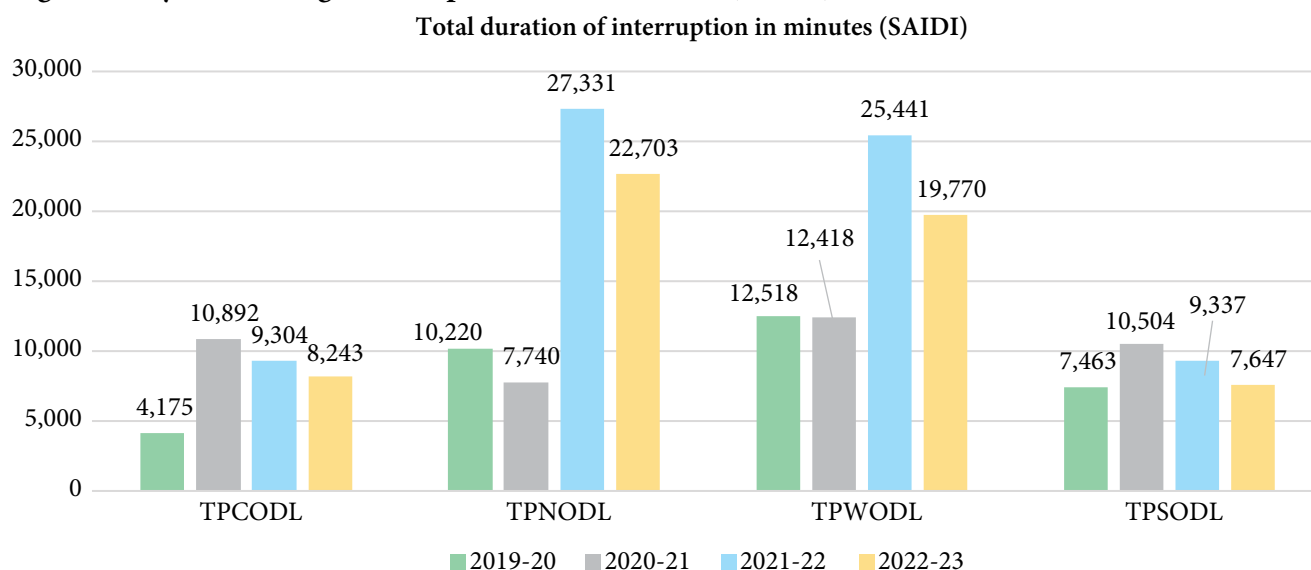
Figure 22: Distribution System Reliability Indices (SAIFI and MAIFI)



Source: Tata Power Central Odisha Distribution Limited (TPCODL, 2023).

Note: SAIFI stands for System Average Interruption Frequency Index and MAIFI stands for Momentary Average Interruption Frequency Index.

Figure 23: System Average Interruption Duration Index (SAIDI) for all Discoms



Source: Tata Power Central Odisha Distribution Limited (TPCODL, 2023).

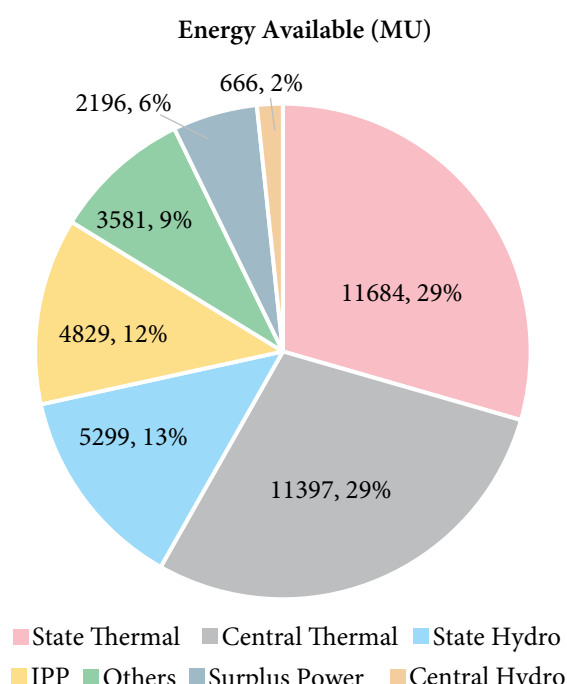
8. GRIDCO

GRIDCO, as we know, is responsible for procuring power for all four discoms. GRIDCO's main sources of power procurement include state hydro (OHPC), state thermal (OPGC), central hydro (Chukha, Tala, Teesta, Mangdechhu), central thermal (NTPC), independent power producers (IPPs) (Vedanta Ltd., JITPL, GMR Kamalanga Ltd.), and Renewable Energy Sources. Figure 24 gives the source-wise break-up of GRIDCO's proposed energy availability for FY 2024–2025. As can be seen, more than half of the energy comes from state and central sector thermal plants. Hydro accounts for about 15%, and IPPs, which are privately owned thermal plants located in the state, account for 12%, with the remaining 9% coming from renewables and other sources. Roughly 6% of energy purchased is available as surplus, which GRIDCO trades in the short-term market.

8.1 Past Losses

Since its formation during the first phase of privatisation, GRIDCO has been a loss-making entity. Earlier, we saw the damage caused by asset restatement. This issue is still pending, and losses incurred due to this restatement are yet to be settled. In this regard, in FY 2024-25 tariff order of GRIDCO, the state government has stated as follows: “As intimated vide this Government letter No.3333 dated March 24, 2021, the Government has agreed to extend the status quo on up-valuation of assets of OPTCL, Generators and other licensees till FY 2025–26” (OERC, 2024b).

Figure 24: Source-Wise Break-up of GRIDCO's Power Purchase Basket for FY 2024



Source: Odisha Electricity Regulatory Commission (OERC, 2024b).

Unfortunately, past losses are not the only problem for GRIDCO.

Apart from the asset restatement, GRIDCO has suffered financially due to the non-payment of power purchase costs by the erstwhile Reliance discoms. GRIDCO's statement in the FY 2024-25 tariff order shows that as of September 2023, Rs 6,707 crore was receivable from the erstwhile discoms. As a result of these payment defaults, GRIDCO, in turn, has defaulted in making payments to OHPC to the tune

of Rs 631 crore during the period of FY 1996–1997 to FY 2012–2013. In 2014, the OHPC dues were securitised and converted into a loan (with an 8% annual interest charge), which GRIDCO was supposed to repay by FY 2017. While GRIDCO has made interest payments, the principal is yet to be repaid (OERC, 2023c).

8.2 Current and Ongoing Losses

Over the years, the power purchase cost approved by OERC has often been lower than the actual cost incurred by GRIDCO. This has resulted in losses for GRIDCO on an ongoing basis, in addition to the accumulated/past losses discussed earlier. As a result of this, GRIDCO has been borrowing short-term capital to manage its working capital requirements. In its submission to the OERC in this regard, it stated,

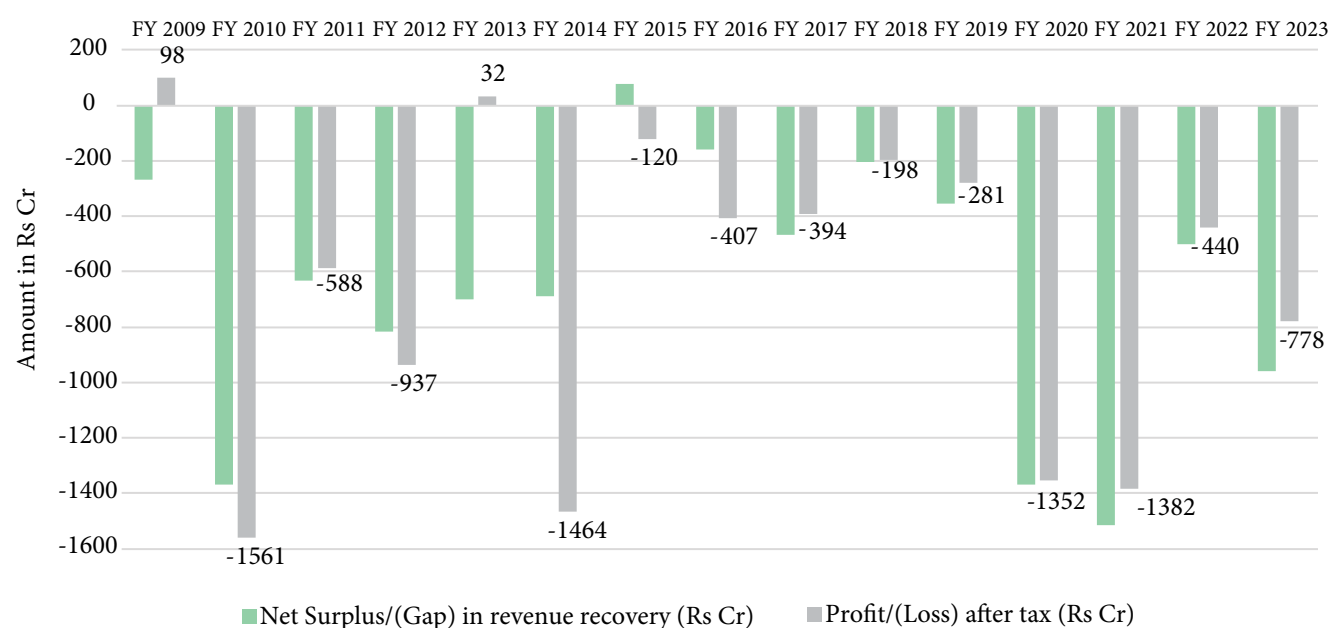
the reasons for borrowing working capital loans in the past were predominantly due to non-cost reflective BSP, delay in truing up exercise, disallowances of carrying cost on regulatory assets in the past period, huge

outstanding receivables from erstwhile DISCOMs and mandate to supply power as “State Designated entity” irrespective of recovery of uncontrollable cost from sale of power to State DISCOMs as approved in the ARR (OERC, 2024d).

GRIDCO has stated that its outstanding loan balance is Rs 6,564 crore as of March 2022 with a repayment liability of Rs 1,593 crore. This is more than half of GRIDCO’s total revenue requirement for FY 2023.

Figure 25 shows the net revenue surplus (+)/gap (-) as per the tariff orders for GRIDCO from FY 2009 to FY 2023 along with the profit/loss post tax reported by it in its annual reports for the same period. As can be seen, for most years, GRIDCO fails to earn revenue that will be sufficient to meet its expenses. In other words, apart from the past losses arising out of payment defaults by the erstwhile discoms, GRIDCO was also losing money while meeting its expenses on an ongoing basis. Unfortunately for GRIDCO, these losses seem to be increasing since FY 2020.

Figure 25: GRIDCO’s Revenue and Profit/Loss from FY 2009 to FY 2023



Source: Compilation from GRIDCO tariff orders and annual reports.

8.3 Reasons Behind GRIDCO's Losses

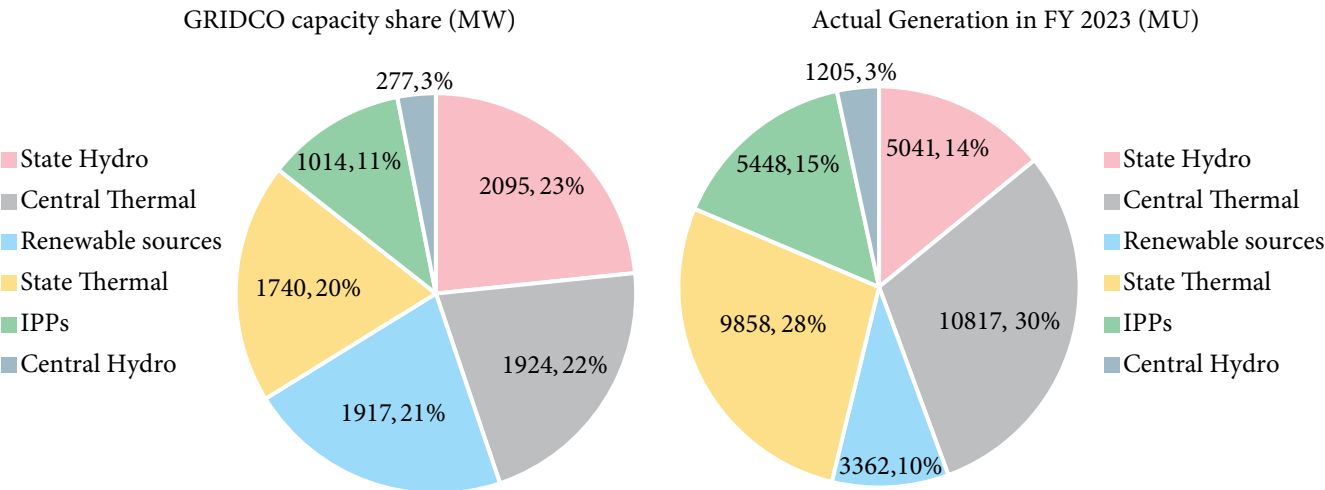
Several factors are responsible for GRIDCO's losses apart from payment defaults by the erstwhile dis-coms. These are as follows:

Lack of Sufficient Power Supply by IPPs

Figure 26 gives the break-up of source-wise capacity share allocated to GRIDCO and actual generation from these sources in FY 2023. The power purchase cost for GRIDCO is approved by the OERC by considering generation from these sources as per their place in the merit order dispatch (MOD) stack, i.e. lowest fuel cost generators are considered first for meeting the demand. However, if any of the lower cost units are not available for any reason, GRIDCO has to buy from the higher cost units or the short-term market to make up for this shortfall.

As can be seen from Figure 26, IPPs account for 11% of GRIDCO's total capacity and 15% of the total energy purchased in FY 2023. Odisha is a coal-rich state, and many private companies have set up their generation stations there. Depending upon the terms of the individual PPA, GRIDCO gets a certain fixed share of power from these IPPs (refer to Table 8 for details of GRIDCO's share in the IPP generation). In terms of MOD stack, these plants have lower fuel costs than some of the NTPC units allocated to Odisha. However, since the commissioning of these units, GRIDCO has not been able to secure its share of allocation for reasons such as disputes over coal allocation, low generation from these units, and delays in commissioning.

Figure 26: Source-Wise Break-up of GRIDCO's Capacity Share and Actual Generation From These Sources in FY 2023



Source: Odisha Electricity Regulatory Commission (OERC, 2024b).

Table 8: Summary of GRIDCO's Share Based on PPAs with Operational IPPs

Sl. No.	Name of IPP	Installed Capacity (MW)	Odisha Share Ex-Bus (MW)	Odisha Share Ex-Bus (MU)	Date of Commercial Operation
1.	M/s. Vedanta Ltd	1X600 (3X 600): Converted to CGP from April, 2015	30% of Total Energy Sent Out from the plant or injection from Unit#2, whichever is higher (*).	5039	# 1: 30-03-2011 # 2: 10-11-2010 # 3: 19-08-2011 # 4: 26-04-2012
2.	M/s. GMR Kamalanga Energy Ltd.	3x350 (1,050)	247	1844	# 1: 30-04-2013 # 2: 12-11-2013 # 3: 25-03-2014
3.	M/s. Jindal Thermal Power Ltd	2X600	144(**)	1007	# 1: 19-04-2015 # 2: 12-02-2015
4.	M/s. Ind-Barath Utkal Energy Ltd	1X339.5	37.08	—	# 1:20-7-2016
5.	M/s. NBVL	1X60	6.55	—	—
	TOTAL	3249.5		7890	

Source: Grid Corporation of Odisha (GRIDCO, 2020, p. 43-44).

Note: (*) From Vedanta Ltd, State entitlement is as per Para 35(c) of OERC order January 27, 2016, in Case No.21 of 2015 i.e. 25% + 5% (instead of 7% due to de-allocation of coal blocks).

(**) State Entitlement from JITPL is 14% or 12% based on allocation/non-allocation of coal blocks within the State. As JITPL is having linkage coal supply against Unit #1(600MW) only for 72MW of generation as per FSA, thus 12% from #1 and #2 have been shown.

Lack of Regulatory Support for Timely Cost Recovery

Odisha does not have a mechanism to account for fuel price variations on a monthly or quarterly basis. Usually, this is done by imposing a quarterly surcharge for fuel cost adjustment and is to be paid by the consumers over and above their regular energy charge. It can even be negative if the fuel prices drop or there has been any over-recovery on this account. The National Tariff Policy insists on imposing it to ensure timely cost recovery and to avoid the creation of regulatory assets (MoP, 2016). In 2021, the MoP issued a rule to ensure this surcharge is implemented across all states (MoP, 2021). OERC has consistently issued tariff orders for GRIDCO on an annual basis before the start of a new financial year. However, in the case of generation, due to various factors, fuel, and power prices can fluctuate significantly on a short-term basis. In the case of thermal plants, fuel costs account for more than half of the power purchase cost. Therefore, timely reconciliation of changes in this area can be a big relief for the power procurer. In

addition, regulations require buyers to pay the generators in advance, and there are stringent penalties for late payments. Thus, while GRIDCO pays the generators in advance on a monthly basis, any differences in the costs approved by OERC vis-à-vis the actuals get reconciled only on an annual basis. Depending upon the nature and duration of variations in approved and actual power purchase costs, GRIDCO's cash flows can be seriously impacted.

OERC has not yet implemented the intra-state DSM.⁸ If a discom draws more energy than its allocated share, it pays for this additional energy at a bulk supply price. However, if such overdrawal happens at peak periods, GRIDCO may need to resort to high-cost power purchase from the market. Similarly, deviations from schedules for power can also take place by open access or captive consumers. Such variations directly affect GRIDCO's merit order stack and may increase power purchase costs even if there is no market procurement. The lack of a monthly or quarterly fuel cost adjustment surcharge exacerbates this problem, as

⁸ Electricity grid has to operate within a tight frequency band of 49.90 to 50.05 Hz. To achieve this, supply and demand need to be balanced at all times. For this reason, there are certain rules and regulations to ensure that the entities drawing power and supplying it adhere to their schedules and grid discipline is always maintained. DSM is one such regulatory tool. Its purpose is to ensure reliability, security, and stability of the grid and to apportion the financial costs arising from such deviations on to the entities responsible for them (CERC, 2024).

true-up happens only at the end of the financial year. This is a known issue and a cause of dispute between GRIDCO and the discoms much before the second round of privatisation. In 2015, GRIDCO appealed against it before the Appellate Tribunal for Electricity (ATE). However, at that time, an amicable solution was reached between the utilities, GRIDCO and the SLDC. In light of this settlement, the appeal was withdrawn. One of the conditions of the settlement was that “SLDC will stop billing to DISCOMs on account of deviation of energy henceforth till [intra-state] DSM Regulation is pronounced by OERC and to withdraw the DSM bills so raised SINCE 17.02.2014” (ATE, 2018).

Almost a decade since, the intra-state DSM regulations are yet to be notified by OERC. This issue has also been repeatedly highlighted by the state advisory committee in GRIDCO’s tariff proceedings. The OERC had published a draft of intra-state DSM regulations in 2022, but the final regulations were yet to be notified at the time of writing this paper (OERC, 2022) (OERC, 2025).

8.4 Regulatory Assets

Regulatory assets are created when a cost incurred by a regulated entity is deemed legitimate by the regulator, but its recovery through tariff is deferred into the future. This is usually done when the regulator does not wish to increase consumer tariffs or to avoid tariff shocks. The interest payment is applicable to the regulatory assets recognised by the Commission. Although the National Tariff Policy discourages Commissions from creating them, many states resort to it to avoid tariff increases (MoP, 2016).

In the FY 2024-25 tariff order for GRIDCO, the OERC has acknowledged a cumulative gap of Rs 1,590 crore till FY 2023. In this regard, it notes as follows:

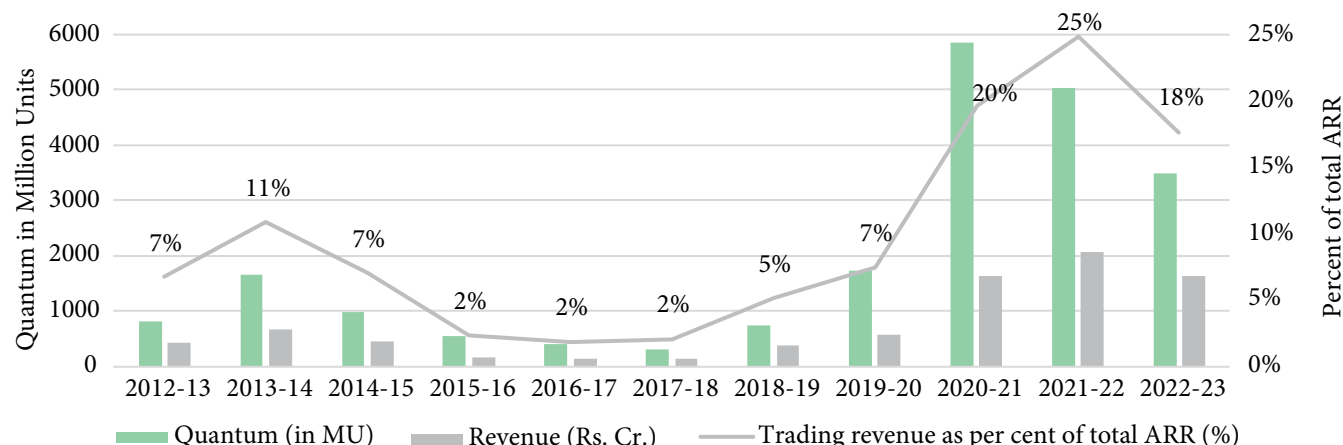
The Commission reiterates its earlier stand that in line with the previous BSP orders, the Commission is not inclined to consider the amortization of regulatory assets of Rs 1,590.26 crore as a pass through in the ARR. As stated in the previous BSP orders the amortized amount shall be funded from trading revenue, earnings from UI charges, other miscellaneous receipt and budgetary support from the Govt. of Odisha. (OERC, 2024b).

Thus, even if the costs incurred are legitimate and uncontrollable, they are not recovered through bulk supply prices. In recent years, GRIDCO has been able to make decent revenue from the sale of surplus power, which has helped in off-setting past losses (refer to Figure 27). However, for FY 2024–2025, GRIDCO has projected only 2,196 MU of surplus availability and has cautioned in this regard as follows:

...it may not be prudent to consider the revenue generation from sale of the estimated surplus energy as there is uncertainty towards such sale owing to several factors as mentioned above. Further, any surplus revenue generated from trading of power, the same would be utilized to meet the repayment obligations as per the directives of the Commission (OERC, 2024b, p. 45).

Given the checkered history of Odisha’s reforms, it is perhaps understandable why the Commission does not allow regulatory asset recovery through tariffs. However, such arrangements shield the discoms and the large C&I consumers from their role and responsibility towards an increase in the power purchase costs.

Figure 27: Quantum of Surplus Power Traded by GRIDCO and Revenue From it



Source: Compilation from GRIDCO tariff orders and Annual reports.

8.5 Challenges Facing Renewable Energy Procurement and Integration

In 2022, the Odisha government launched a new renewable energy (RE) Policy that aims at adding more than 10,000 MW of RE capacity by 2030 (GoO, 2022). The policy offers several incentives to increase RE uptake. These include exemption of Rs 0.50 per unit on electricity duty and a 25% exemption on wheeling charges for open access/captive consumers. In addition, a 50% exemption of cross-subsidy surcharge for open access consumers procuring RE. Stamp duty on the purchase and lease of land for RE projects has also been exempted (Mongabay, 2022).

Despite this growing emphasis, Odisha's power sector has struggled to prioritise this agenda effectively amidst its numerous challenges. The OERC proactively formulated regulations for rooftop solar installations and net metering (OERC, 2018). However, the implementation status of these initiatives by the discoms remains unclear. GRIDCO is designated as the nodal agency under the state RE policy and is responsible for its implementation. Yet, GRIDCO has faced significant challenges in meeting its renewable energy purchase obligations (RPO). While being aware of non-compliance, the OERC has not taken any action against GRIDCO. Nor has it ever conducted a dedicated evaluation process for RPO compliance. The reasons for the lack of enthusiasm for RE procurement could be stemming from the lack of economic incentives for it. GRIDCO has access to low-cost hydro and thermal PPAs, and the retail supply tariffs in the state are much lower than other states. As such, even the consumers may not have a strong incentive to shift to rooftop solar or to adopt green open access. Plus, most of the big industrial open access or captive consumers in the state fall under the hard to abate sectors such as steel, cement, etc. Also, the agricultural consumption in the state is very low, so there is not much scope for shifting this kind of load to solar hours.

Recently, GRIDCO has floated a tender calling for bids to set up 500 MW/2,500 MWh of battery energy storage systems (GRIDCO, 2024). There are claims about the high potential for pumped storage hydro projects in the state, but efforts towards actual exploration and development have been slow.

9. Role of the State Government

As noted earlier, despite the failure of the first phase of reforms, the state government never stepped in to restore public ownership of the discoms in Odisha. Instead, CESU was managed by an administrator for more than a decade and a half before being privatised again. Another distinctly different feature of Odisha politics has been the government's consistent refusal to provide any revenue subsidy to its electricity consumers, who are mainly tribal, poor, primarily rural, and, until recently, have had little access to electricity. Further, since very early in the first reform period, cross-subsidy was rapidly reduced by OERC to ease the pressure on the state's large industrial and commercial consumers. Many of these large consumers migrated to open access and/or group captive schemes, and the small consumers were left to bear the burden of the discoms' inefficiencies. For the last two decades, the state government has opted for capital subsidies for electrification and, more recently, also for distribution network strengthening and loss reduction.

9.1 Thrust on Capital Subsidy

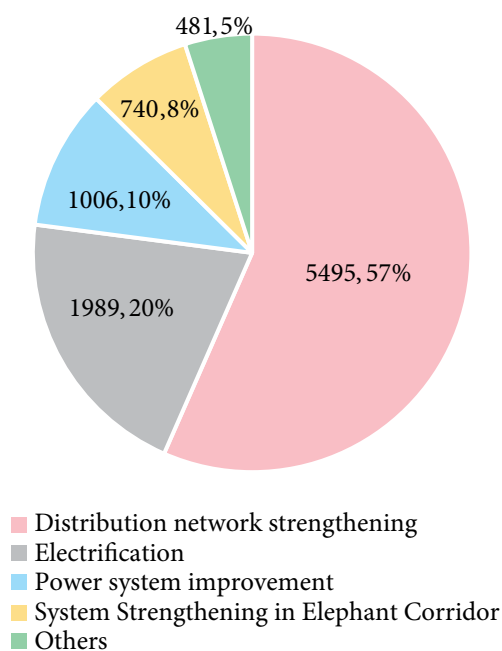
The state government has invested significantly in the distribution sector in recent years. In 2013, it launched the Odisha Distribution System Strengthening Project (ODSSP) scheme with a total outlay of Rs 3,843 crore. The scheme aimed to build 473 33/11 kV primary sub-stations (PSS) and the associated lines to ensure a good quality and reliable power supply to consumers. It also envisaged a reduction of AT&C losses at the rate of 3% per annum with an estimated additional revenue generation of Rs 255 crore per year (CAG, 2021). In 2021, ODSSP scheme outlay was increased by an additional Rs 1,800 crore for extending and strengthening distribution lines and network in rural areas. The assets constructed under this scheme are used as equity in the "equity in kind" arrangement of GRIDCO (GoO, 2023).

Apart from network strengthening, the government has also been supporting rural and household electrification through two flagship schemes, Biju Gram Jyoti Yojana (BGJY), launched in 2007–2008, and Biju Saharanchala Vidyutikaran Yojana (BSVY), launched in 2010–2011. In addition, the government also invests in initiatives aimed at power system improvement by adopting new technology in transmission and distribution sectors, as well as system strengthening in elephant corridors. As of FY 2023,

the state government has released Rs 9,712 crore from the state budget towards these schemes. Figure 28 shows a broad scheme-wise breakdown of this amount. As seen, more than 50% of it is towards distribution network strengthening and augmentation. Apart from this, the state also contributes to various schemes of the central government which are also aimed at improving the distribution infrastructure and further electricity access. Figure 29 shows the breakdown of the support for capital expenditure provided by state and central governments. Out of the Rs 7,070 crore spent by the central government, around 70% are under schemes aimed at furthering and improving household and village electrification (DDUGJY, Saubhagya, and RGGVY) and the remaining are towards strengthening distribution infrastructure (IPDS and R-APDRP).

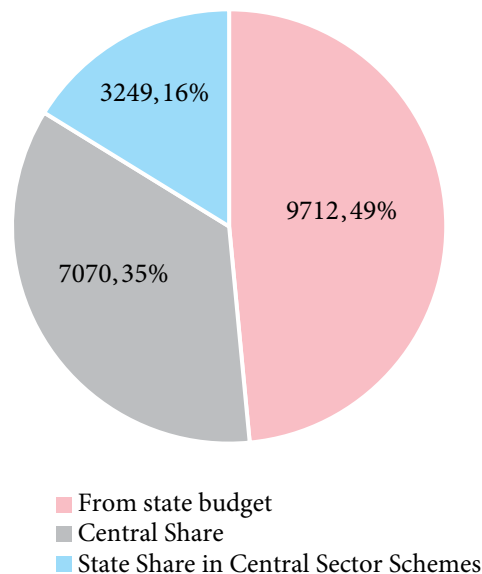
All these schemes and expenditure have undoubtedly helped the new discoms in improving supply quality and reducing losses.

Figure 28: Funds Released from the State Budget Under Different Schemes as of FY 2023 (Rs Crore)



Source: Odisha Electricity Regulatory Commission (OERC, 2024a).

Figure 29: Central and State Government Support for Capital Expenditure as of FY 2023 (Rs crore)



Source: Odisha Electricity Regulatory Commission (OERC, 2024a).

9.2 Interventions in the Regulatory Process

The state government is a regular and consistent intervener in all the tariff matters before the OERC. It is a good practice for the OERC to transparently publish all the inputs/advice offered by the government in all its tariff orders. While these *interventions* are not explicit directions to the Commission, it is hard not to read them as such. Further, the government has often instructed the OERC to create regulatory assets as it could not provide any revenue subsidy. The government openly and transparently suggests that the OERC should not increase consumer tariffs. See, for instance, the GoO submission in the FY 2024-25 retail supply tariff order:

*BSP of 3 DISCOMs namely TPCODL, TPNODL & TPWODL may be decided as thought prudent by the Commission, to the extent **not to increase (RST) during FY 2024–25. Remaining unrealized cost may be recognized as Regulatory Asset of GRIDCO to be recovered during subsequent years. The RST for FY 2024–2025 may not be increased from present level** (emphasis added) (OERC, 2024a, p. 76).*

It would be difficult for the Commission to treat the state government as another intervener in the tariff process, rallying against the proposed tariff hike. The state government's intervention will have a material impact on the regulatory decisions regarding tariff revision.

9.3 Lack of Reforms to Revive GRIDCO

The suggestion of the government to park losses in GRIDCO is neither new nor arbitrary. GRIDCO, as we saw earlier, has been at the receiving end of the failure of the reforms since its formation. On one hand, the state government proclaims to not provide any explicit revenue subsidy to any tariff category, but on the other, it lets GRIDCO bear the losses. Since the privatisation round 2.0, the government has provided soft loans of Rs 700 crore to GRIDCO in FY 2022–2023 and FY 2023–2024, and another tranche is proposed for FY 2024–2025. In addition, it converted Rs 2,039 crore of GRIDCO's loans to equity in FY 2021–2022. As of FY 2024–2025, GRIDCO has a revenue gap of Rs 1,590 crore (12% of ARR), recognised by OERC, but not as a regulatory asset that would be recovered through tariff. GRIDCO has to make up for this loss by selling surplus power or through government subsidy. The OERC has allowed carrying costs on this amount. The decision to park regulatory assets under GRIDCO might comfort the newly formed discoms, but it may not bode well for the sector's long-term financial and overall health.

Like the new discoms, if GRIDCO is also given a one-time bailout package to take care of the past dues, a lot of its financial challenges could get addressed. Such one-time write-off of dues arising from the first round of privatisation coupled with progressive regulations such as bi-monthly fuel cost adjustment and intra-state deviation and settlement mechanism can go a long way in improving GRIDCO's financial health.

10. Lessons, Observations, and Insights

Any structural reform, such as Odisha's distribution privatisation round 2.0, presents a complex challenge. It underscores the necessity to balance the private entity's interests (in this case, Tata Power Company or TPC) and consumers, especially in a state with a significant fraction consisting of rural and low-income consumers. Although privatisation can theoretically bring efficiency gains, it requires robust institutional and governance mechanisms to effectively realise them. Odisha's first tryst with privatisation is a case in point. Admittedly, this second version of reforms has firmly stayed away from those mistakes. So far, the results are encouraging. The new discoms are able to improve operational performance and have brought in fresh investments. However, as

discussed in the previous sections, a large part of the success so far can be attributed to the favourable bid design, incentives, and strong support from the state government. Unlike the first wave of reform, the government has taken a very different approach in the second one. It has provided generous capital subsidy and protected the new discoms from losses arising on account of non-revision of tariffs.

The reform in Odisha has another distinct feature. The political leadership in the state remained the same for close to 20 years during which the reforms took place. This resulted in a strong political support and a consistent approach to the reform process, despite many challenges. Going forward, whether the recent change in the state political leadership leads to any changes in the government's approach towards the sector remains to be seen.

Based on the review and analysis presented so far, following key lessons and insights emerge.

10.1 Key Observations and Lessons

1. **Private Sector Reluctance:** A critical lesson from the Odisha experience is private entities' general lack of interest in acquiring discoms with predominantly rural and low-paying consumers. This reluctance stems from the perception of high risk and potential difficulties in recovering costs, making it essential to offer incentives to attract potential buyers. Unless addressed through proper policy measures, this can be a serious deterrent to structural reforms because such areas need the reform most.
2. **Role of Incentives:** In response to the reluctance of private entities, OERC introduced several incentives such as, lowering technical criteria, setting a heavily discounted purchase price (between 15% and 31% of the discoms' book value), declaring fixed loss-reduction trajectory for tariff determination, allowing the new discoms to fully retain all gains on account of AT&C loss reduction beyond the mandated levels, and incentives for arrear recovery, etc. These measures certainly helped in making the deal more attractive, but they also highlight the challenges of privatising rural electricity distribution.
3. **Gradual Asset Transfer:** The transfer of GRIDCO assets to TPC was designed to be gradual rather than instantaneous. Although TPC began using the entire asset base on the

first day, the complete transfer would only occur gradually as GRIDCO provides “equity-in-kind” for investments made by the new discoms. This gradual approach serves a dual purpose. It protects the consumers from a sudden tariff shock while ensuring that the new discoms also make fresh investments in the sector. Since a lot of the capital investment made by the state government was aimed at reducing losses, the new discoms benefitted from that as well.

4. **Discoms as Franchisees:** The privatisation model adopted in Odisha is akin to creating distribution franchisees rather than fully privatised discoms, mainly because power purchase and planning continues to be GRIDCO’s primary role. This model works well for TPC, as it avoids the complexities of power procurement and resource planning while benefiting from GRIDCO’s existing low-cost power purchase contracts. However, as RE and distributed renewable energy (DRE) (rooftop solar, electric vehicles, etc.) sources become more prevalent, the discoms will need to develop innovative measures and agility to manage such variable future demand.
5. **Role of Government and Regulatory Oversight:** The Odisha government has favoured a capital subsidy approach over revenue subsidies. Nonetheless, political constraints continue to play a significant role, as there is hesitation in implementing fully cost-reflective tariffs. As a result, the state government provides indirect revenue subsidies through lower BSP rates for the discoms and parking financial losses with GRIDCO, a practice that shields the discoms but leaves long-term financial sustainability in question. Further, for the last two decades, the state has enjoyed a stable government and a consistent policy approach and vision. In the future, if the government’s policies or priorities change, the financial stability of the discoms may get affected.
6. **Impact on Supply and Service Quality:** Despite the challenges, available data shows improvements in supply and service quality. Many consumers who migrated have returned to the new discoms, indicating their faith in the new system. However, based on the available data, whether small consumers are experiencing any notable improvements is unclear. This is especially true for TPNODL and TPWODL, which have a predominantly high-tension industrial and com-

mercial consumer base. This aspect needs more detailed analysis supported with ground-level data that captures actual consumer experience.

10.2 Insights and Conclusions

The following insights and conclusions can be drawn based on the lessons and observations.

1. **The Continued Challenge of Full-Cost Recovery:** A recurring theme throughout the reform process is the difficulty of achieving full-cost recovery for discoms. While privatisation may bring efficiency gains and improve service quality, political constraints on increasing tariffs will likely prevent discoms from recovering their full costs. This issue is especially pronounced in a state like Odisha, where most of its population cannot pay higher electricity prices. The state government’s stubborn insistence on not providing upfront and transparent revenue subsidies to any class of consumers is also likely to play a significant role in tariff-related decision-making by the regulator. Moving away from government support and ensuring full-cost recovery in the long-term will be essential. How to achieve this is a complicated issue that deserves a separate paper.
2. **The success of TPC’s Involvement:** A large part of TPC’s success in Odisha thus far is due to the generous terms of the deal. It has also received considerable government support, including relief measures in times of natural calamities, low-cost bulk supply tariffs, substantial capital subsidies, and a clean slate free from past liabilities. The achievable loss reduction targets and incentives for collecting past arrears make the deal favourable for TPC. This tells us that the success of such experiments would be case-specific and cannot be generalised.
3. **Regulatory Innovation:** OERC proactively managed the second round of privatisation, learning from past mistakes and adopting innovative strategies such as diluting entry criteria, setting low reserve prices, and gradually transferring assets. These strategies helped attract a capable and serious player like TPC, demonstrating that regulatory innovation can make privatisation feasible even in challenging markets.
4. **Private Discoms and Resource Planning:** While the theoretical potential for private discoms to excel in resource planning is recognised,

the Indian experience has not been encouraging. Most private discoms in the country function as vertically integrated utilities and have shown a remarkable aversion to competitively procuring power. Odisha has avoided this complex issue by making GRIDCO responsible for all power purchases and planning. However, going forward, if the new discoms are given this responsibility, it is hard to say how effectively they will handle it. In the long run, ensuring efficient long-term power procurement and resource planning in a RE-dominated grid will require a regulatory approach that is diligent, proactive and well-informed on techno-economic issues. Effective long-term resource planning will be essential for reducing power procurement costs and thus facilitating full-cost recovery.

5. **Long-term Sector Viability:** Under the current framework, the long-term viability of Odisha's electricity sector will depend mainly on GRIDCO's ability to manage efficient power procurement and the discoms' ability to effectively reduce losses while handling the transition to RE and DRE sources. Broadly speaking, with increasing consumer migration, particularly among industrial and commercial users, discoms could

be left serving smaller and less profitable customers, necessitating careful planning and ongoing government support. If the experience so far is any indicator, the need for such support from the state government is also likely to be substantial.

To conclude, structural reforms must address a given region's demographic and economic realities. They also need strong political support and a robust regulatory institution that can effectively and sensitively balance the interests of the concerned stakeholders. Finally, they need to make and implement rational decisions in a transparent and participatory manner.

Being a resource-rich state leading in mining activities and having the highest number of captive industrial units along with a large base of low-income, recently electrified rural, and tribal consumers, Odisha has its task cut out for itself. Ensuring efficiency and reliability while protecting the interests of these diverse stakeholders will be a challenge. Given this reality, the state cannot expect a complete turnaround of its electricity sector without substantial (revenue) subsidy support for the most vulnerable groups. Achieving financial sustainability in such a context will continue to be a complex and delicate balancing act.

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