

Distribution in India after Two Decades of Unbundling: Why Integration is Back on the Table

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Introduction

India's electricity distribution sector is at a turning point. Despite two decades of reform, distribution companies remain financially weak, with high technical and commercial losses and heavy dependence on government subsidies. The RBI Financial Stability Report (FSR) for June 2023 highlighted that the total accumulated losses of state Discoms reached a staggering ₹6.5 lakh crore by 2022-23, accounting for 2.4 per cent of the country's GDP. According to CRISIL Ratings, Indian DISCOM losses decreased in 2025, with expected operating losses dropping to Rs 8,000-10,000 crore. This marks a significant reduction from previous years was supported by tariff hikes, cost reductions, and improved efficiency. The Aggregate Technical and Commercial (AT&C) losses saw a substantial decline, falling from 22.62% in 2014 to a projected 15% in 2025. These figures, thus, indicate a positive trend towards financial stability and operational improvements in the sector. Schemes like the Ujwal DISCOM Assurance Yojana (UDAY) and the Revamped Distribution Sector Scheme (RDSS) contribute towards improving the financial and operational health of DISCOMs. However, the outstanding payments to generators, though reduced from crisis peaks, still stood at more than 60 thousand crore rupees. This persistent stress raises fundamental questions: should electricity utilities be vertically integrated, controlling everything from generation to distribution, or should these functions remain separated? Should they be publicly owned or privatized?

India has experimented with every model. In financial year 2024-25, Delhi's privatized discoms, run by Tata Power and Reliance (BSES), are vertically integrated and have dramatically improved efficiency. In FY 2024-25, Gujarat's state-owned DISCOMs reported low AT&C losses (1.3–15.8%) and high collection efficiency (97–100%), with tariffs nearly covering costs (ACS-ARR gap ₹0.47–0.60/kWh). These indicators show they were financially healthy and likely in profit. By contrast, many other states that unbundled their utilities still suffer from high losses and unsustainable

debt. While, Uttar Pradesh Power Corporation Limited (UPPCL) reported high AT&C losses (23.44%) and a cash gap of ₹48,515 crore, reflecting significant financial strain.

This policy brief reviews the performance of different models since the Electricity Act of 2003, explains why unbundling was originally pursued, and considers why arguments for bundling, or reintegration, are emerging again. Our recent publication in *Journal of Quantitative Economics* (Gupta, 2024) gives insights on how buyer power and vertical mergers affect consumers and industry profits. The central conclusion is that no single model works everywhere. Instead, outcomes depend on state capacity, governance quality, consumer mix, and regulatory strength. For policy advocates, the challenge is to support reforms that strengthen efficiency and accountability rather than cling to ideology.

Why the Electricity Act of 2003 Unbundled Utilities

In the decades before reform, India's state electricity boards controlled generation, transmission, and distribution in each state. They were heavily politicized, overstaffed, and financially unsustainable. By the late 1990s, their combined losses exceeded 26,000 crore rupees annually. Average AT&C losses were close to 30 percent, and in some states more than half the power supplied was lost to theft or poor billing. Agricultural consumers received free or heavily subsidized electricity, and industrial consumers were overcharged to cross-subsidize these losses. State governments' involvement in SEB operations often led to inefficiencies and mismanagement.

The Electricity Act of 2003 aimed to break this cycle. Its main objectives were to separate functions so that costs and losses could be clearly identified, to encourage competition in generation and open access in transmission and distribution, to create independent state regulators insulated from political pressure, and to make the sector financially viable through transparent tariffs.

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Unbundling was seen as essential for accountability. By splitting generation, transmission, and distribution into separate companies, policymakers hoped to pinpoint where losses occurred and force managers to take responsibility. Independent power producers were expected to bring investment into generation. Consumers were promised more choice through open access, where large users could buy directly from generators. Regulators were tasked with balancing the interests of utilities and consumers.

This vision partially succeeded. Private investment in generation grew rapidly. In 2003, private companies accounted for less than ten percent of installed capacity. By 2024, their share has risen to more than 52 percent. National transmission was strengthened, and India now operates one of the world's largest synchronous grids. Power exchanges emerged, enabling more competitive procurement. Gujarat and Haryana demonstrated that unbundled state utilities could cut losses dramatically with strong governance. But in distribution, which accounts for the bulk of financial losses, the picture is mixed.

Performance of Private Integrated Models

Private vertically integrated utilities have produced some of India's most striking success stories. Tata Power Delhi Distribution Limited (TPDDL), created after Delhi's privatization in 2002, reduced losses from fifty-five percent to less than six percent today. Collection efficiency reached nearly one hundred percent. Customer services improved through smart meters, mobile apps, and quick complaint resolution. Torrent Power, operating in Ahmedabad, Bhiwandi, and Surat, maintains losses below five percent. Adani Electricity Mumbai Limited also records single-digit losses and provides near-uninterrupted supply in its license area.

These successes come from integration. A single management controls procurement, distribution, and consumer service, aligning incentives across the chain. Investments in technology and infrastructure are coordinated. Unlike public utilities, these companies face pressure from shareholders to remain profitable. Consumers benefit from more reliable supply and transparent services.

However, these achievements are shaped by context. Delhi and Mumbai are urban areas with high-paying consumers, limited agricultural demand, and relatively strong regulatory oversight. The government provided substantial financial support during privatization and guaranteed job security for employees, smoothing the transition. These conditions are rare in rural states. Private firms have been reluctant to operate in areas with large agricultural loads and chronic under-recovery of costs, unless significant subsidies are assured.

Performance of Private Separated Models

Private separation has worked better in generation than in distribution. Independent producers now supply more than a third of India's power, competing to sell through long-term

contracts or on exchanges. This has increased efficiency and lowered procurement costs. Short-term transactions through the Indian Energy Exchange have grown by more than twenty percent annually over the past decade, and states actively using exchanges report fifteen to twenty percent savings.

In distribution, the franchisee model represents private separation. In Bhiwandi, Torrent Power reduced losses from over 40 percent to less than 15 percent within a few years, though its urban industrial consumer base made this easier. FEDCO in Odisha also reduced losses in Puri, but franchisee arrangements in several states were cancelled due to non-payment, political resistance to tariff increases, or coordination problems.

The main challenge is coordination. When different companies manage generation, transmission, and distribution, disputes over payments and contracts are frequent. In India, regulators often mediate, but the separation increases transaction costs and slows response to crises.

Performance of Public Integrated Models

State-owned vertically integrated utilities still dominate in several regions. Some, like Gujarat before unbundling, showed strong improvement with political commitment. Others, like Odisha before privatization, struggled with deep inefficiencies. In 2025, integrated public utilities in northeastern states and Jammu and Kashmir continue to report high losses. Employment ratios are high, sometimes exceeding two hundred workers per one lakh consumers, compared to 60 to 90 in better-performing utilities. These utilities depend on regular state subsidies to stay afloat. Political pressures to keep tariffs low and hire excess staff remain strong.

Despite these problems, integrated public utilities do provide social benefits. They extend service to remote and poor areas where private companies would not invest. They can align with environmental goals or rural development programs, though at the cost of financial sustainability.

Performance of Public Separated Models

Most Indian states formally unbundled their SEBs after 2003. Gujarat and Haryana stands out as successes. Losses fell from nearly 35 percent to below 15 percent, thanks to professional management, consistent investment, and political support for tariff revisions.

But in many states, separation without governance reform failed. Uttar Pradesh, Madhya Pradesh, Rajasthan, and parts of the northeast continue to record losses above thirty percent. Subsidy arrears, poor billing, theft, and underinvestment persist. The separation of functions alone could not overcome weak institutions and political interference.

Andhra Pradesh and Telangana show how separation can help when regulators are strong. Between 2019 and 2021, Andhra saved over two thousand crore rupees by optimizing

power procurement through competitive markets. But in most states, regulators lacked the independence or resources to ensure efficiency.

Why Calls for Bundling Are Returning

Two decades after unbundling, the weaknesses of separation in distribution are prompting calls for bundling again. The logic is not ideological but practical. Integration simplifies accountability. One management team controls procurement, losses, and consumer service, making it harder to shift blame. Integrated entities can invest across the chain, linking generation decisions with distribution realities. They can better respond to new demands like rooftop solar, electric vehicles, and decentralized storage.

Recent academic research strengthens this case. In our study of buyer power and vertical mergers we found that when retailers and suppliers remain separate, both try to extract margins, raising final prices. This double marginalization disappears when they integrate, leading to lower consumer prices. Total profits for firms may decline because competition intensifies, but consumers benefit from cheaper power. For electricity, this implies that integration of discoms with generation could reduce costs to consumers, especially in competitive markets with multiple integrated players.

Yet integration is not a magic solution. Without strong regulation, integrated discoms may abuse their buyer power, favouring certain generators or blocking open access. The Competition Commission of India has received complaints about discoms denying open access or manipulating procurement, though most were dismissed or left to regulators. This highlights the need for vigilant oversight if bundling returns.

Statistical Comparisons in 2025

Recent data illustrate the contrasts clearly. National average AT&C losses were around 15 percent in 2024, down from 22 percent in 2019, but still far above global best practice of 5 percent. Private integrated utilities like TPDDL report losses under 6 percent, while public discoms in the northeast exceed 40 percent.

Discom debt reached ₹7.4 trillion in 2024, despite successive bailout schemes. Subsidy arrears from state governments remain a major source of financial stress.

Private utilities typically employ 45 to 65 workers per 1 lakh consumers. Public utilities average 60 to 90, with poorly performing ones employing two to three times more.

Annual investment per consumer is around 210 dollars in private utilities, compared to 185 dollars in public ones. Well-managed state utilities like Gujarat match private levels, but most lag behind.

Policy Perspectives

The Electricity Act of 2003 was necessary at the time. It broke opaque monopolies and opened the door to private investment. But its central assumption that unbundling would automatically bring efficiency has not been borne out in distribution. Experience shows that governance and regulatory strength matter far more than whether utilities are integrated or separated.

For urban areas with high-paying consumers, private integrated models have delivered excellent results. For rural states with weak institutions, public integrated models may be easier to manage than separated ones that require sophisticated regulation. States with strong governance, like Gujarat, can succeed with public separation. The choice depends on context.

Policy should therefore be pragmatic. Integration should be encouraged where it can improve efficiency and consumer service, but regulators must be empowered to prevent abuse. Subsidies should be delivered directly to consumers rather than hidden in tariffs. Public-private partnerships and franchise models can provide middle paths. Most importantly, institutional capacity must be strengthened, so that whichever model is chosen, accountability and transparency are assured.

Conclusion

Two decades after the Electricity Act of 2003, India's electricity distribution sector stands at a crossroads. Unbundling improved transparency and enabled private generation, but in distribution the gains have been limited. Losses remain high, debt continues to mount, and financial sustainability is fragile. Integrated private models like Delhi and Mumbai show what is possible, but their success depends on favourable conditions. Public separation has worked in some states but failed in others.

Therefore the lesson is there is no universal model. Context matters more than ideology. Integration may now offer advantages, particularly in aligning incentives and reducing inefficiency, but only if paired with strong regulatory oversight. For policymakers, the advocacy opportunity lies in supporting reforms that match models to local conditions, push for regulatory independence, and ensure consumer welfare remains at the centre of electricity policy.

India's next phase of reform must build on two decades of experience, neither favouring unbundling nor fearing bundling. The priority is to strengthen governance, align incentives, and deliver reliable, affordable power to consumers. Only then will the promise of the 2003 reforms be fulfilled in the realities of 2025.



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