

Electricity (Amendment) Bill, 2020

Inviting a Bigger Crisis

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The proposed Electricity (Amendment) Bill, 2020 aims to reduce subsidies and push for privatisation, especially in the distribution segment of the power sector.

Undertaking structural changes in a core sector at a time of crisis from the COVID-19 pandemic and its economic effects defies logic. The proposed amendments are not only anti-people, but they also fail to address the long-term crises in the sector and will only accelerate its deterioration. The central government must hold off on passing any hasty legislation on the subject and adopt a more scientific and less ideological approach to deal with the travails of the power sector.

The Electricity (Amendment) Bill, 2020¹ is a rehashed version of a bill that the central government has been trying to pass in Parliament since 2014. Different versions of this bill have been circulated since 2014, the latest coming at a time when India is trying to fight the COVID-19 pandemic and figure out a way to deal with the economic fallout of the prolonged nationwide lockdown. The overall aim of the proposed bill is to reduce subsidies in the power sector and push for privatisation, especially in the distribution segment of the power sector. This move comes at a time of severe economic slowdown, when salvaging productive capacity, jobs, wages, and demand and supply in the economy should be the priority. Undertaking structural changes, which are likely to further change the centre-state relationship and increase costs of an essential commodity, in a core sector such as electricity at such a time defies logic.

A Brief Contemporary History of the Power Sector

The Electricity Act of 2003 was passed by the first National Democratic Alliance (NDA) government, which consolidated the structural reforms that were introduced and implemented in the power sector since 1991 (Bhattacharyya 2005).

In an earlier era, the responsibility to create electricity infrastructure and expand access to energy was with the state electricity boards, entities which were arms of state governments. Therefore, the task of ensuring affordability, reliability, and growth were those of the state government. The centre provided the broad contours of policy and also played a role in ensuring access to natural resources which are not equitably distributed across states. Since the structural reforms of the 1990s, almost all state electricity boards were “unbundled” into generation, transmission, and distribution companies (referred as DISCOMS for the sake of simplicity). Power generation was delicensed to promote private sector investments and private companies were also allowed to undertake distribution of electricity.

The generation segment did attract some private investments, buoyed by the guaranteed returns and payment security afforded by the state-backed model. But the mess of non-performing assets in the power sector we see today is indicative of the flaws in this model. Privatisation in the power sector has stalled and even where it was pushed through, markets have failed to deliver (Chandrasekhar 2018), thus, underlining the need to rethink our reliance on markets and revert to planning. We will return to both these arguments shortly as we

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discuss three aspects of the proposed amendment to the Electricity Act, 2003. First, we discuss the attempt to further privatise electricity distribution through the introduction of sub-licensees and franchisees. Second, we discuss the proposed elimination of cross-subsidies to be replaced by direct benefit transfers. Third, we discuss the envisaged centralisation of the power sector in contravention of the provisions of the Constitution, which have placed the electricity sector in the concurrent list.

Why Are DISCOMs Financially Stressed?

One of the main proposals of the new bill is that new “distribution sub-licensees” or franchisees may be introduced to manage the distribution of electricity in a region within the jurisdiction of a distribution licensee (which in most cases, currently, are state-owned DISCOMs). While the distribution franchisee model is an older one that has been tried out earlier in different regions with varying degrees of success, the proposed sub-licensee model does not seem to bring anything new except perhaps to isolate the more profitable clusters within DISCOMs to be handed over to sub-licensees. In other words, it introduces markets in select segments of the distribution business. For many years now, the neo-liberal wisdom has been advocating separation of carriage from content by unbundling the wires business from the actual supply of electricity. In this model, the role of the state DISCOMs is restricted to maintaining the wires and infrastructure while the actual supply of electricity is carried out by separate (presumably private) suppliers. This was advocated by the World Bank in their 2014 report and supported uncritically by many independent organisations that work on power policy (Prayas 2018). Opposition from several states and the DISCOMs themselves has merely led to rephrasing of the proposal, keeping the crux of the amendment unchanged.

The central government seems to have based their proposal for introducing private sub-licensees on two claims—first, that this would reduce the cost of power procurement which is currently high due to poor planning that DISCOMs have always been responsible for (Josey et al 2018) and, second, that it would reduce the cost of operation (Singh 2006). The first claim is based on the assumption that state-owned DISCOMs are currently facing severe financial distress because of unscientific management of their supply portfolios, resulting in high costs of power procurement. This, according to the government, will be resolved by the introduction of distribution sub-licensees, which will look for ways to reduce costs, thus introducing efficiency into the system. This claim and therefore the solution to deal with the problem is misplaced for the three reasons discussed in the following sections.

Miscalculated Demand Projections

Much of the power procurement by DISCOMs currently happens through long-term power purchase agreements (PPAs). In the case of thermal plants, the DISCOM pays to the generator a variable cost on a per-unit (kwh) basis, and a fixed cost as per schedule (either long or short term) duly approved by the

regulator. Over the years, there has been a significant increase in coal prices by the public sector units controlled by the central government who produce more than 94% of the total coal in India. In addition, the central government levies a coal cess (which is effectively a carbon tax) in the name of clean energy. In June 2010, this cess was first levied on all coal mined/imported in India at 50 per tonne, but has been doubled three times since then, reaching a rate of 400 per tonne on 1 March 2016. India’s Central Electricity Regulatory Commission (CERC) has held that the central government’s imposition of the cess constitutes a “change of law” in all PPAs entered into by central power producers under the Electricity Act (CERC 2018). Therefore, all thermal power plants have raised their tariffs to pass on the cost of this cess to consumers. Over and above this, steep increases in freight charges for transporting coal have also resulted in higher variable costs. Between 2009–10 and 2016–17, the average coal cost (including taxes and duties), coal transportation cost, and taxes and duties on transportation increased three times, specifically by 82%, 60%, and 340% respectively. These unprecedented cost increases were mainly due to the policies of the central government monoliths (Coal India and the Indian Railways) and the Ministry of Finance that sees the coal and power sectors as the proverbial golden goose. All these cost increases have been passed through to the DISCOMs who are left to manage the final consumer tariffs under the constraints imposed by the state government (through the regulator).

While increases in variable costs of thermal generation are more or less inevitable, it is the fixed costs that are putting the DISCOMs in distress today, since 92 GW of new thermal capacity has been added in the power sector in the last five years (CEA 2020). The fixed costs of these new plants are higher compared to older thermal plants as the debt that financed these plants is yet to be repaid. These new thermal plants have also been commissioned at a time when renewable energy (RE) supply to the grid has increased despite the supply–demand mismatch and the upward revision of national and international targets for RE sources. We shall return to the issue of RE later.

It is important to underline that the new generation capacity has come up in an environment of an overall economy-wide slowdown in demand even before the COVID-19 pandemic arrived at Indian shores. Power sector growth has been slower than anticipated, as per the government’s projections. The revised demand projections in the 19th Electrical Power Survey (EPS), published by the Central Electricity Authority (CEA), are significantly lower than the earlier projections from the 18th EPS (CEA 2019, 2020). Mostly, power generators (independent power producers or IPPs), who had banked their revenue streams on power markets instead of long-term PPAs, are the ones facing difficulties in paying back their debts. For the DISCOMs, the lack of growth in demand as anticipated has led to a problem of having to pay fixed charges for power plants (the ones they have signed PPAs with) even though they are purchasing very little power from some of them. To lay the blame for this squarely on the DISCOMs is unfair since this is prompted by faulty demand projections by the CEA coupled

with the misplaced hubris of windfall profits anticipated by IPPs without PPAs for sale of their power in day-ahead markets. Yet, the blame for the poor performance is placed at the door of the DISCOMs who will now be penalised further with the proposed amendments.

If the DISCOMs are responsible for not being able to forecast power demand accurately, so is the central government for projecting an ambitious 7% GDP growth, the CEA for overestimating demand, the IPPs who banked on power markets, and the centrally-controlled power finance institutions and public sector banks who gave loans without the guarantees of PPAs. State-owned DISCOMs are simply easier scapegoats but hardly the main culprits.

Expensive 'Must-run' Renewable Energy

The miscalculated demand growth forecast is however only one of the problems. The other reason is that there has been a significant increase in the flow of RE into the grid, especially solar energy, in the last few years. This increase is based on chasing centrally determined targets for RE and not on a scientific study of whether that much energy is required, given newly commissioned and planned thermal capacity. While RE technologies were new and more expensive some years back and special incentives were needed to absorb them into the grid at that time, these incentives remain in place although costs for new plants have reduced significantly. For example, solar and wind energy plants enjoy a "must-run" status as per the central government's Grid Code, which is mandatory for all states, that is, all energy produced by solar and wind energy plants must be absorbed by the DISCOMs, irrespective of its cost.

Thus, it is the central government's must-run directive to the states through the CERC, mandating a higher share for solar and wind power into their respective grids that have led to higher power procurement costs for the DISCOMs. The DISCOMs in South India have been particularly affected by this since they were at the forefront of inviting and incentivising private capital in high-priced RE because of their natural resource advantage. For example, in Tamil Nadu, about 15%–30% of the total energy is being supplied by wind and solar energy plants depending on the month. While wind energy is cheaper, the average cost of solar power in Tamil Nadu is more than 6/kwh, about 50% higher than the average cost of thermal power in the state. While newer solar plants are relatively cheaper, the DISCOMs are still bound by high-cost PPAs signed with RE developers before 2016.² This has meant lower and slower cost recovery for the producers on the one hand (at least in cases where long-term PPAs do not exist) and higher power procurement costs for DISCOMs, even when lower-cost power is available.

Again, it was the CEA's inflated demand projections that led the DISCOMs to enter into long-term PPAs with both thermal and renewable generators. The combined impact of high power purchase costs under the old RE contracts and fixed cost compensation to thermal generators (with PPAs) in the face of low demand growth is solely attributable to the policies of

the two central agencies for which the DISCOMs are now being held accountable.

The high cost of power procurement will continue in the future unless there is a change in the status afforded to RE plants or a reduction in variable costs of existing plants, which would require a reduction in the cost of coal. Neither is likely in the immediate future with or without the Electricity (Amendment) Bill of 2020. It is not clear how the situation will be different for these new distribution sub-licensees unless they are given special concessions, not awarded to the DISCOMs. For example, it is possible that a distribution sub-licensee, free of any obligation of older contracts that the DISCOM is bound by, purchases newer low-cost solar power leaving the DISCOMs with high-priced RE from older renewable plants as well as fixed costs of thermal plants with whom it has signed PPAs.

Cost of Operation

The second claim for promoting private sub-licensees in electricity distribution is to reduce the cost of operation, that is, reduce the aggregate technical and commercial losses. For this to be possible, two things are needed. First, an improvement in billing and collection efficiency and second, an investment in distribution infrastructure such as transformers, and low-voltage distribution lines.

In November 2015, the central government introduced the Ujwal DISCOM Assurance Yojana (UDAY) mainly to enable the DISCOMs to reduce their aggregate technical and commercial (AT&C) losses as well as reduce the gap between the average cost of supply (ACS) and the average revenue realised (ARR). According to the MOP (2020), the overall AT&C loss and ACS-ARR gap for 26 UDAY states and seven union territories for financial year (FY) 2016–17 were 23.96% and 48 paise per unit, respectively which has reduced to 18.19% and 27 paise per unit, respectively in FY 2019–20. The remarkable improvement of 29% in the AT&C losses and 44% reduction in ACS-ARR gap in just three years (FY 2016–17 to FY 2019–20) indicates how most DISCOMs in India have improved their operational performance while 16 state governments have also taken over 75% of the outstanding debt of the DISCOMs as on 30 September 2015 (MOP 2019). There is no doubt that these 16 states, which have cumulatively taken on a debt of more than 2.08 lakh crore, have indeed supported these DISCOMs to reduce their interest costs and improve their credit ratings. Therefore, the claim that only privatisation will succeed in such a vital sector is patently false to begin with.

The privatisation of the DISCOMs and the introduction of new private electricity distributors in the form of franchisees have been tried in the past and have largely been unsuccessful. DISCOMs were not only separated from the erstwhile state electricity boards and made into companies, but in many states they were also segregated regionally to make them operationally smaller and more manageable to facilitate privatisation. However, private distributors were only interested in urban clusters with bulk consumers. And even in these, while improvements in billing efficiency were seen in some areas,

franchisees were unable and/or unwilling to invest large amounts of money on infrastructure as the profit margins would inevitably be too narrow.

Privatisation, Distribution Franchisees and Their Pitfalls

Other than Odisha, Delhi, and Mumbai, no other state's utility could be privatised. In Andhra Pradesh, attempts of the then incumbent political party (the Telugu Desam Party) to privatise the sector since 1996 were met with widespread protests eventually costing the party the subsequent elections (Suri 2013). Mumbai is an island city, with no agricultural consumption, making it much easier to manage, but the experience of privatised electricity distribution there has also been problematic with frequent protests against continuous increases in tariffs (Nair 2018; PTI 2009). In Odisha, after years of failed attempts to manage the sector, and three failed attempts at private management, electricity distribution has reverted to the state (Mahalingam 2002; Dubash et al 2018). The experience in Odisha has demonstrated that this experiment in a region with a diverse set of consumers, largely rural, and a smaller industrial consumer base, has been a dismal failure. In Delhi, privatisation had to be propped up with generous handouts from the taxpayer, far in excess of what was initially proposed. And despite this, and the advantage of a non-agrarian consumer base, privatisation only partially succeeded in reducing power procurement costs but failed in transferring those benefits to consumers (Dubash and Rao 2006; Singh 2005).

When privatisation did not work, the model of distribution franchisees was introduced, where the state-run utilities would subcontract a section of the network to private companies or other agencies, much like what is proposed now. These subcontractors were expected to improve the losses and collection of bill payments in these regions, something the distribution utilities had been unable to do. However, after it was first introduced many years back, this model could be employed only in a few regions where agriculture consumption was low, for example, in Bhiwandi, Agra and Ahmedabad. Even in these regions, this model has had a sketchy experience (Thakur et al 2017; Chitnis et al 2009). The experience of distribution franchisees shows that while some billing and collection efficiencies could be addressed by the franchisees, reducing technical losses would require significant capital expenditure which, without the ability to pass on to consumers, the franchisee will have no incentive to undertake. The grand plans of encouraging rural franchisees came to a swift and quiet end some years back as private companies did not see profit in supplying electricity to a largely poor population unable to pay the full cost of electricity.

Therefore, even after cherry-picking only urban agglomerations for franchising electricity supply, this model could not work. The character of electricity consumption in India itself is such that many consumers still cannot pay the full cost of electricity and for small- and medium-scale manufacturing units, especially in the informal sector, electricity constitutes a significant proportion of input costs. Large consumers have exited the grid because of the open access policies introduced

by the central government in the Electricity Act, 2003, making their own arrangements for cheaper electricity supply. Therefore, distribution companies do not even have the benefit of consumers who can pay the full cost and more for electricity, such that the electricity supply business can be financially viable, if not profitable. In such a situation, undertaking capital expenditure to improve line losses also becomes an expensive proposition with no guarantee of equivalent returns.

The claim of privatisation improving efficiency and reducing costs is dependent on the assumption that there will be competition among different distributors who will then have an incentive to reduce costs. For a business with a wires monopoly, this is a difficult proposition to begin with (Ranganathan 2005). The bid to introduce private sub-licensees in the form of franchisees at an earlier time has also been a failure in most cases, with either an inability to reduce costs, or an inability to transfer the cost reduction benefits to consumers. With the proposed amendment, it is reasonable to assume that history will repeat itself, with traders being interested only in areas where consumers can pay, that is, in cities, or areas within cities where poor consumers are at a minimum. This would mean that DISCOMs once again would be left with the poorest segment of consumers to serve, with no cross-subsidising consumers to be able to distribute the burden, or the ability to avail the option of cross-subsidies itself.

The changes that have been carried out so far in the sector have already been one of the main reasons for the current financial crises of the DISCOMs. In many states, the regional breakdown of distribution utilities have also weakened them financially as they have been unable to depend on the economically advanced regions of the state to cover the losses from their economically backward counterparts. The new policy will only exacerbate the problem further.

Irrational 'Rationalisation of Tariffs'

DISCOMs contend with large sections of consumers who cannot pay the full cost of electricity, such as small and middle peasants, poor urban and rural domestic consumers, and even to an extent some household-based or small enterprises. They usually depend on charging higher tariffs to consumers with the ability to pay, that is, large industrial and commercial consumers, and use that revenue to cross-subsidise the poorer consumers.

However, the state's ability to cross-subsidise has been curtailed by the centre over the years. The Electricity Act of 2003 itself mandated an "elimination of cross-subsidy," which was later amended to a "progressive reduction in cross-subsidy." What the New Electricity (Amendment) Bill, 2020 proposes is nothing less than a catastrophic game-changer, considering the ground realities in India. The amendments envisage that the SERCs will determine tariffs without allowing cross-subsidies which means, each category of consumer will pay what it costs to serve that category. State governments wishing to subsidise particular categories of consumers should do so through direct transfer of the subsidy amount into the beneficiary accounts through the DBT (direct benefit transfer) mechanism.

These proposals are acutely problematic. The most glaring impact of this would be to charge the steepest tariffs for rural consumers, for whom electricity supply entails long transmission and distribution lines, attendant line-losses and cost of various step-down transformers. Industrial consumers using high tension and extra high tension lines will have much lower costs to serve and hence their tariffs will be cheaper. This would be patently inequitable since electricity is not a luxury that rural consumers can do without, but a basic human necessity, and hence they would have to be supplied at affordable prices regardless of the costs to serve them.

Expecting the states to directly subsidise them is virtually asking for the impossible, considering the precarious state of state finances. On the one hand, with the implementation of the goods and services tax (GST), revenue streams of states have been squeezed and states are increasingly dependent on the centre for money which often does not get released on time (ET Bureau 2020). On the other hand, poor consumers—residential, agricultural, other categories of consumers (even amenity providers like public health centres and government schools)—form a significant proportion of electricity users in most states and cannot afford to pay high costs for electricity. To expect the state governments to foot both the subsidy and cross-subsidies directly and immediately is infeasible and impractical, to say the least.

The inability to provide this basic necessity to households is likely to cost state-level representatives heavily. The central government while being responsible for the problem will however bear no responsibility for the consequences.

Besides, the DBT scheme is also not proven to be successful across sectors. Its administration in a data-scarce environment is difficult, and effective and timely delivery of benefits is a problem. In the case of the electricity sector, the transfers will be done by cash-strapped state governments and it is reasonable to assume that this will not happen on time, if at all. So the DISCOMs (and definitely the private sub-licensees) will either cut off the power supply to consumers who cannot pay on time or if they cannot do so for political reasons, the problem of under-recovery will not be solved in any case. If state DISCOMs cannot ensure the timely disbursement of subsidies from the state, how will individual consumers ensure the same? If tariff hikes can lead to protests in relatively higher income pockets of Mumbai, why will the same not play out across the country? Additional problems of households that live in rented premises where meters may be in someone else's name further compound the problem. The old anti-subsidy ideological refrain in a new form is once again only likely to worsen the situation in the power sector.

State–Centre Relationship in the Power Sector

Another major concern about this new bill is that it seeks to centralise control over the power sector more aggressively than ever attempted before. This has been happening in creeping doses over the years through central policies binding on states, but the slew of amendments proposed in the bill indicates the encroachment of the centre into the states' domain, in contravention of the provisions of the Constitution.

First, the bill seeks to wrest the power of appointment of the chairperson and members of the SERCs from the state governments to vest it in a central selection committee controlled by the central government. The bill proposes that the selection committee—common for the CERC, Appellate Tribunal for Electricity (APTEL) and the proposed Contract Enforcement Authority—will be headed by a chairperson, a judge, to be nominated by the chief justice of the Supreme Court, two serving secretaries to the Government of India (GoI), one of whom would also be the convener of the selection committee and two chief secretaries of state governments to be appointed in the alphabetical order of states (that is, Andhra Pradesh, Arunachal Pradesh will go first and so on), both for one year each. There are many problems with this arrangement. There is a conflict of interest in having the same committee select the chairpersons and members of all regulatory bodies in the power sector. Also, to those familiar with the Indian bureaucratic hierarchy, it is clear who will call the shots when there is a tie between two serving secretaries to the GoI and two chief secretaries of states, the latter being junior to the former two. Thus, virtually the centre controls the selection of state regulators and could control regulatory decisions at the state level, seriously jeopardising regulatory independence. Regulatory literature is legion on the need for a robust and impartial selection process for the independence of regulatory institutions.

Second, the bill categorically fixes a time frame for state regulators to approve a tariff petition. If the SERC fails to fix tariffs within 60 days of receiving a tariff revision petition, the revision sought in the petition would be deemed to have been approved. Setting unrealistic time limits for the state commissions to fix tariffs, considering the tortuous process involved in the collation of documents and verification of financial claims by the utilities and following due procedures, including public consultation, is a draconian proposal which hits at the root of regulatory remit at the state level.

Third, the proposed amendments empower the regional load dispatch centres (regional LDC) to withhold dispatch of power to states unless payment for power is made in advance by the DISCOMs. This means that the national LDC which will have powers to direct state LDCs could deny scheduling power if the DISCOMs fail to put up payment security. This is clearly in the interest of private sector RE developers who can now arm-twist the DISCOMs which are already caught in the cleft between “must-run” renewables and idling costs of backed down thermal power. It is a catch-22 situation for the DISCOMs that face penalties if they do not offtake renewable power offered by the must-run generators and face financial ruin if they do.

Fourth, the power of the state commissions to adjudicate upon disputes pertaining to contracts is proposed to be taken away and vested in a new regulatory authority called the Electricity Contract Enforcement Authority, whose members and the chairperson will be selected by the same selection committee referred to above. Perhaps this move has been prompted by concerns expressed by the Chief Minister of Andhra Pradesh Y S Jaganmohan Reddy who contemplated reopening high-cost solar PPAs or by the Supreme Court order of 2017 which

dismissed CERC's order awarding compensatory tariff to two IPPs when their coal procurement costs went up consequent to a foreign government decision. Whatever the trigger, this binds the state governments even tighter into a debt spiral not all of which is their own making.

It is ironical that the central government that has saddled the states with PPAs incorporating infructuous idling charges for thermal plants not dispatched due to lower than estimated demand (by CEA, a central agency) and expensive renewable contracts fortified with must-run diktat, should now set up a well-armed regulator under its control to ensure that these iniquitous contracts are enforced with strict penalties that would further cripple the already ailing state governments.

Conclusions

The last 20 years have exposed the inefficiency of the central government in electricity planning, power sector financing, national tariff policy, and in developing an equitable national RE policy. The proposed amendments are nothing but a desperate attempt by the government to cover up the policy miscalculations of the past decades while simultaneously protecting the interests of power generators, both thermal and renewable, at the cost of state distribution companies. The centralisation of powers envisaged in the proposed bill is intended to penalise the state-owned DISCOMs for the faults of

the central government and its agencies. The entire burden of the unrealistically ambitious renewable targets set ostensibly to please the international community is sought to be passed on to the states with the new regulatory authority wielding the stick to discipline them.

Therefore, the proposed amendments in the New Electricity (Amendment) Bill, 2020 are not only thoroughly anti-people, but they will also do nothing to stem the crises in the sector and will only accelerate its deterioration. In the era of climate change, energy transitions, and rapid economic changes, what is required is good integration between the production, transmission, and distribution segments of the sector. The need for robust planning at all levels of government and significant state intervention to ensure the expansion of access to affordable and reliable electricity to all segments of consumers cannot be emphasised enough. This cannot be done without the strong presence of the state government and other relevant state entities.

Given that the power sector and the economy as a whole face an immediate crisis in light of the COVID-19 pandemic and a long-term crisis because of unresolved issues, the government must hold off on passing any legislation hastily, especially when the states are busy fighting a more urgent battle against COVID-19. As we emerge from the more immediate crisis, wider consultation, and a more scientific and less ideological approach to deal with the travails of the power sector is urgently needed.

NOTES

- 1 The proposed amendment to the Electricity Act, 2003 (draft circulated for discussion) can be downloaded at https://powermin.nic.in/sites/default/files/webform/notices/Draft_Electricity_Amendment_Bill_2020_for_comments.pdf.
- 2 Forty percent of Tamil Nadu's solar capacity was commissioned before 2015 and has a cost of 7.01/kWh. Only 30% of its capacity is relatively newer and has an average cost of 3.5/kWh. This data has been extracted from the Tariff Order for Solar Plants in Tamil Nadu.

REFERENCES

- Bhattacharyya, S C (2005): "The Electricity Act 2003: Will It Transform the Indian Power Sector?" *Utilities Policy*, Vol 13, No 3, pp 260–72.
- CEA (2019): "CEA Annual Report 2018–19," Central Electricity Authority, viewed on 28 September 2020, http://cea.nic.in/reports/annual/annualreports/annual_report-2019.pdf.
- (2020): "Executive Summary on Power Sector: January 2020," Central Electricity Authority, viewed on 1 April 2020, http://cea.nic.in/reports/monthly/executivesummary/2020/exe_summary-01.pdf.
- CERC (2018): "Consultation Paper on Terms and Conditions of Tariff Regulations for Tariff Period 1.4.2019 to 31.3.2024," Central Electricity Regulatory Authority, Government of India, New Delhi, viewed on 25 September 2020, http://cercind.gov.in/2018/draft_reg/AP.pdf.
- Chandrasekhar, C P (2018): "Non-performing Power Sector Assets: Signalling a Larger Crisis," *Economic & Political Weekly*, Vol 53, No 37, pp 10–11.
- Chitnis, A, S Dixit, R Kadam and G Sant (2009): "Review of the Distribution Franchisee Model Implemented by MSEDCL in the Bhiwandi Circle," November, Prayas Energy Group, viewed on 26 September 2020, <https://www.prayasgroup.org/peg/publications/item/75-review-of-the-distribution-franchisee-model-implemented-by-mstedcl-in-the-bhiwandi-circle.html>.
- Dubash, N K, S Kale and R Bharvirkar (eds) (2018): *Mapping Power: The Political Economy of Electricity in India's States*, New Delhi: Oxford University Press.
- Dubash, N and N Rao (2006): "Emergent Regulatory Governance in India: Comparative Case Studies of Electricity Regulation," paper presented at a conference on "Frontiers of Regulation: Assessing Scholarly Debates and Policy Challenges," 7–8 September, University of Bath, UK, viewed on 26 September 2020, http://regulation.upf.edu/bath-06/10_Dubash_Rao.pdf.
- Economic Times* (2020): "Centre Releases ₹14,103 Crore GST Compensation to States; More to be Released Soon," 9 April, viewed on 27 September 2020, <https://economictimes.indiatimes.com/news/economy/finance/centre-releases-rs-14103-crore-gst-compensation-to-states-more-to-be-released-soon/articleshow/75048328.cms?from=mdr>.
- Josey, A, S Dixit, A Chitnis and A Gambhir (2018): "Electricity Distribution Companies in India: Preparing for an Uncertain Future," Discussion Paper, Prayas (Energy Group) Pune, viewed on 25 September 2020, <https://www.prayasgroup.org/peg/publications/item/377-electricity-distribution-companies-in-india-preparing-for-an-uncertain-future.html>.
- Mahalingam, S (2002): "A Reform Fiasco in Orissa," *Frontline*, Vol 19, No 10, pp 11–24, viewed on 26 September 2020, <https://frontline.thehindu.com/other/article30244839.ece>.
- MOP (2019): "Standing Committee on Energy 2019–20," Ministry of Power, Demand for Grants, Seventeenth Lok Sabha, December, viewed on 28 September 2020, http://164.100.47.193/lssc/committee/Energy/17_Energy_2.pdf.
- (2020): Lok Sabha Unstarred Question No 2339: Reforms Under Uday, Ministry of Power, Government of India, New Delhi.
- Nair, S (2018): "Congress Workers Protest Inflated Power Bill Outside Adani's Bhayander Office," *Times of India*, 15 December, viewed on 29 September 2020, <https://timesofindia.indiatimes.com/city/mumbai/mumbai-congress-workers-protest-inflated-power-bill-outside-adanis-bhayander-office/articleshow/67105130.cms>.
- Prayas Energy Group (2018): "Comments and Suggestions on the Proposed Amendment of the Electricity Act, 2018," viewed on 25 September 2020, <https://www.prayasgroup.org/peg/publications/item/396-comments-and-suggestions-on-the-proposed-amendment-of-the-electricity-act-2018.html>.
- Press Trust of India (2009): "Violence in Mumbai over Reliance Power Tariff Hike," *Hindustan Times*, 8 June, viewed on 29 September 2020, <https://www.hindustantimes.com/india/violence-in-mumbai-over-reliance-power-tariff-hike/story-WMCQECozOpYyb5RoCUaFXL.html>.
- Ranganathan, V (2005): "Determining T&D Losses in India: Their Impact on Distribution Privatisation and Regulation," *Economic & Political Weekly*, Vol 40, No 7, pp 657–68.
- Singh, A (2006): "Power Sector Reform in India: Current Issues and Prospects," *Energy Policy*, Vol 34, No 16, pp 2480–90.
- Singh, D (2005): "Regulation of the Indian Power Sector: Lessons for Other Sectors," *Administrative Reforms: Towards Sustainable Practices*, A Singh (ed), New Delhi: Sage, pp 147–68.
- Suri, K C (2013): "From Dominance to Disarray: The Telugu Desam Party in Andhra Pradesh," *Handbook of Politics in Indian States: Regions, Parties, and Economic Reforms*, S Pai (ed), New Delhi: Oxford University Press, pp 166–79.
- Thakur, T, B Bag and S Prakash (2017): "A Critical Review of the Franchisee Model in the Electricity Distribution Sector in India," *Electricity Journal*, Vol 30, No 5, pp 15–21.