

# Embeddedness of Economic Reforms in Regional Political Climate: A Case of Delayed Reforms in Bihar's Electricity Sector



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## 1 Introduction

More often than not most experts and researchers have focused on national-level administrative and legal institutions proposed by the centre as the main determinant of changes in electricity sector. In hind sight it is obvious that not all states implemented the nationally proposed reform policies in the same spirit and speed. Some states have had very different approaches for their electricity sector and often resisted policies promoted by central government. However, some states differed significantly in the pace of implementation of national-level policies. One of the key states that stands out in resisting implementation of electricity sector reforms is Kerala. It did not go for outright unbundling of vertically integrated Kerala State Electricity Board on the basis of functional lines, i.e. generation, transmission and distribution. On the other hand, Bihar implemented such policies at a much later stage with its own tinkering. The main focus of this chapter is to highlight the importance of regional political climate of Bihar in implementation of electricity reforms.

Bihar has consistently ranked at the bottom for most social and economic indicators. So much so that the first two letters of “BIMARU” states represent Bihar to designate the usual suspects in the list of underdeveloped states of India. Bihar's development outcomes can only be compared to countries of Sub-Saharan Africa. Not surprisingly, Bihar ranks among the countries with the lowest per capita electricity consumption (311 units) in the World and is comparable to countries of Sub-Saharan Africa such as Ghana (341 units). Despite the state's leading role in initiating pro-democracy political movement during the ‘emergency’ of mid-1970s and being known for having a politically argumentative mass, governments have never been

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punished for lacking in accountability. Dismal performance of governments in provision of basic services like education, health and basic energy needs has hardly translated into the mainstream political discussions. Mundle et al. (2016) use composite index of several socio-economic indicators for interstate comparison ranking Bihar among the worst performers in the case of infrastructure, social service, and law and order delivery.

Since the anti-emergency movement popularly known as ‘*Sampoorn Kranti*’ (complete revolution), there is considerable increase in participation of the socially stratified ‘lower caste’ politicians. Under the mentorship of Jayprakash Naryan, the leading figure of anti-emergency movement, several new politicians from the lower castes emerged, each one vouching to be the carrier of the legacy of ‘complete revolution’. Lalu Prasad Yadav and Nitish Kumar are the most noticeable among them.

## 2 The Political Context

During the period of 1990s–2005, every Indian state barring Bihar went through historically unprecedented economic transformation. Bihar’s economy was largely stagnant during this period. For instance, India’s per capita national income grew at the rate of 4% annually in real terms while Bihar’s per capita state net domestic product annual growth during the same period was merely 1.6%. Growth of per capita income in Bihar was higher in both and post-Lalu era—between 1980 and 1991 it grew at 2.1% and in post 2005 period, i.e. between 2005 and 2017, it grew by an annual average of 6.2%. Thus, Bihar’s political history can essentially be seen in three epochs in which Lalu’s period appears as central.

By the first half of 2000s, most states had implemented nationally proposed policies of electricity sector reforms, i.e. unbundling of vertically integrated electricity boards and inception of a state level independent quasi-judicial body for regulation of electricity industry. These bodies, are usually named as State Regulatory Commission, are expected to act at arm’s length from the respective state governments. However, Bihar’s electricity sector continued to operate under a monolithic electricity board mode without any regulator. Nevertheless, an additional change that shook the electricity sector was the bifurcation of the state into two regions, i.e. Bihar and Jharkhand. It caused a major erosion in the revenue base of the state’s electricity board as most of the high tariff paying industrial consumers of electricity were situated in Jharkhand. Additionally, it lost access to cheap sources of power as most generating capacities with captive coal mining were also in the region that became Jharkhand.

Notwithstanding, the stagnant economy during the 15-year rule of Mr Yadav, the state experienced steep social and political mobility of *Dalits* and backward classes. The opposing dynamic of economic vis-à-vis sociopolitical changes in the state tempted Jeffery Witsoe to title his book as *Democracy Against Development* (Witsoe, 2013). Interactions with intelligentsia of Bihar during the field work reveal that many hold the view that political and social churning during Lalu’s regime is

fundamental to enhanced economic growth that can be seen in present-day Bihar. In a leading researcher's language, 'Lalu was enabler and Nitish is the provider. Obviously, the enabler is critically important'. Thus, Lalu's intervening period of 15 years can be seen as a significant rupture in the contemporary political history of the state. The most remarkable thing about Lalu's period is the progressive decline of poverty rate despite near zero economic growth. Between 1993 and 2005, the years of National Sample Survey on Consumption Expenditure that roughly coincide with Lalu's regime, the poverty ratio of Bihar (including Jharkhand) declined by 14% points (from 54.5 to 41.5%), compared to a less than 8% point decline nationally and a less than 2% point decline in Odisha.

## 2.1 *Pre-Lalu Period*

The period prior to 1990 represents upper caste dominated political landscape with no perceptible change in fate for the lower rungs of the society. Almost every institution of governance and media had negligible participation of lower caste or religious minorities in the state. Successive governments ruled the state without any sense of accountability or responsibility towards masses of people living under shackles of poverty. The budgetary resources including the transfers from the central government were routinely misappropriated by official-politician nexus with impunity. This mass scale organized loot of the state resources often allocated in the name of anti-poverty programmes was never reported as corruption by media. The best that media did to chastise the state for slow or no progress in social indicators and poverty alleviation was to term it as inefficiency of state machinery. High officials were never held accountable for not ensuring the appropriate use of tax-payers' money either by court or media. More than half of the state's population (54%) lived under poverty even after more than 40 years of independence as per 1993-94 survey conducted by NSS.

## 2.2 *Lalu's Regime*

Given the historical experience of near zero developmental achievement in the state, Lalu Yadav knew well that delivering development to his constituency of voters, i.e. lower castes and Muslims will not be possible through the bureaucracy. If anything, the bureaucracy had demonstrated extreme efficiency in siphoning off the money that came in the name of development expenditure. Instead, trying to turn around the bureaucracy which was dominated by upper castes, Lalu made deliberate attempts to follow the policy of 'incapacitating the state' by weakening state institutions and limiting public expenditure in order to prevent the flow of state resources to the upper castes. Lalu, in fact, provided a formidable counter-slogan to Indira Gandhi's famous '*Garibi Hatao*' ('Eradicate poverty') with '*Bhurabal hatao*' ('Remove upper castes')

where upper castes include Bhumiars, Rajputs, Brahmins and Lalas or Kayasthas) and '*Vikas nahin Samman chahiye*' ('Not development, we want dignity').

Lalu sought to dislodge upper caste bureaucrats from influential positions (a) through frequent transfers, (b) by placing lower caste bureaucrats in influential positions by promoting or transferring them prematurely and (c) by avoiding new recruitments to fill vacant positions. Thus, weakening of institutions of governance was an unavoidable side effect in the process of curtailing the upper caste domination. Lalu likewise remained unfriendly to even corporate interests to weaken upper caste hegemony. For example, mining lease of Tata Industries was not extended (Kale & Mazaheri, 2014).

Given Lalu's tactic of 'state incapacity by design', Bihar's electricity sector also decelerated. Electrification made no progress during this 15-year period. In fact, percentage of household electrification declined to 10% in 2001 from 12% in 1991. Thanks to lawlessness that prevailed as a result of weakening of police forces in the state, theft of electricity, distribution wires and transformers became rampant.

### 2.3 *Post-Lalu Period*

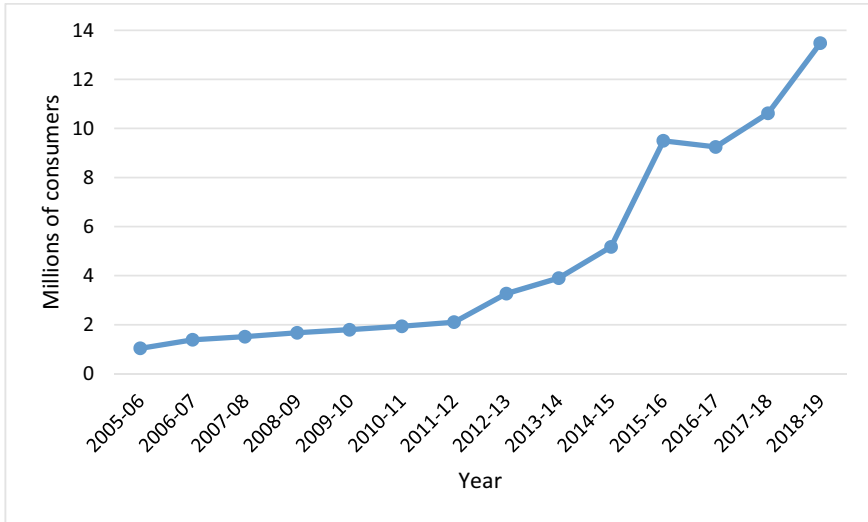
After fifteen years out of power, the surviving upper castes forged a coalition with other disempowered castes whose interests Lalu had failed to address. A new party named Janata Dal United—representing the left-behind disempowered castes and led by Nitish Kumar—came into power with the help of the upper caste Bhartya Janata Party (BJP). Upper castes, in 2005, represented by BJP, for the first time in history of Bihar joined a government as secondary partner in power-sharing coalition.

Bihar's economic fate including electricity sector improved in post-2005 as Mr. Lalu lost the election to Mr. Nitish Kumar. In general, Bihar began to show signs of improved delivery of public services. Frequency of serious crimes also declined (Mukherji & Mukherji, 2012).

The political mobilization or empowerment of lower castes and poor masses during Lalu's period made it impossible for Kumar's government and bureaucracy to survive without addressing issues that masses faced. Kumar's government initially focused on reviving schools and building roads and bridges. However, not all crimes fell, as crime against women and Dalits rose with little state response (Gupta, 2010).

## 3 **Changes in Electricity Sector Since 2005**

Bihar's condition began to recoup from long slumber in governance after governor's rule was implemented due to indecisive election result in early 2005. Bihar Electricity Regulatory Commission (BERC) was established during the governor's rule in 2005. It issued its first tariff order for the financial year 2006–07. However, it took some



**Fig. 1** Growth in number of domestic consumers 2005–06 to 2018–19. *Source* Various Tariff Orders of BERC

time for the sector as a whole to wake up. The standardized functional unbundling of Bihar State Electricity Board has not been done till 2012.

The government continued to neglect the electricity sector until widespread protests across the state were in full swing in 2011. Press reports from 2011 indicate that people agitated by blocking roads and destroying properties of electricity board throughout the state. For example, a group of more than 300 women laid siege to the BSEB General Manager’s office in Bhagalpur during March 2011. This siege took a violent shape as people were enraged over the non-response of the authorities. The District Magistrate and Superintendent of Police narrowly escaped from being lynched by a mob. Such protests had become increasingly common in district towns across the state by the end of 2011. The severity of the crisis can be gauged from the fact that Bhagalpur was supplied only 1–7 MWs of electricity during March 2011 against a peak demand about 60 MW.

Owing to these protests, the Chief Minister made a commitment to fix the dismal performance in supply of and access to electricity in his Independence Day speech at Gandhi Maidan in Patna in 2012, failing which, he said, he will not seek re-election in forthcoming assembly election in 2015. Notably, BSEB was unbundled within less than two months.

### 3.1 *Expansion of Network and Consumers*

Figure 1 illustrates the rapid expansion of electrification in Bihar. The growth in domestic consumers since 2005–06 has been phenomenal. It went from one million in 2005–06 to more than 13 million in 2018–19. Major boost to new connections came in 2012. Village-level electrification was accomplished by November of 2018. Bihar continues to be a predominantly rural state. Even in 2011, about 89% of Bihar's 104 million population lived in rural areas (Census, 2011).

Despite improved access to electricity, as mentioned earlier, per capita consumption of electricity in Bihar is the lowest (311 units) among Indian states. Gujarat has the highest per capita electricity consumption among major Indian states at 2378 units nearly eight times that of Bihar. Even this low average is unevenly distributed across the rural–urban areas and districts within the state. For instance, district of Patna's per capita electricity consumption (about 800 units in 2019–20) is eight times higher than that of Araria. This low average consumption is despite the near universal electrification of households in the state. Such low consumption may follow from low-supply–low-demand dynamics. Given that power supply has remained highly unreliable for sufficiently long in the past, people have adapted to take power as state provided luxury, availability of which is as good as random except when political fates are to be decided. Life is organized around alternative sources of energy in which electricity is just one additional resource which should be utilized when available but life can go on uninterrupted even without it. For example, peak demand for power in Bihar was 6 Giga Watts (GW) in the month of August 2020 while for West Bengal which has very similar level of population, it was 8.5 GW. Similarly, Madhya Pradesh with very similar levels of economic development and significantly less population than Bihar had 10 GW peak demand for same month.

However, another serious dimension of energy deprivation which has significant impact on gender equity is access to clean cooking facilities. Bihar is still far from attaining the goal of universal access on this front. About 44% of rural household have access to some form of clean cooking facility as per National Sample Survey data collected during second half of 2018 (NSS 76th Round for Drinking Water, Sanitation, Hygiene and Housing Condition). The access to clean cooking in urban areas, however, is 91%. Again these averages mask the significant socio-economic gradation in prevalence of access to clean cooking. In relative scale, however, Bihar is significantly better in terms of making improvements in access to clean cooking. For example, in Odisha and West Bengal, 24% of the population have access to clean cooking in 2018. These access rates need careful interpretation as was highlighted earlier in case of electricity. Moreover, high rates of access in clean cooking facility do not necessarily translate into actual usage due to expensive refilling of the LPG bottles.

Rural Bihar can make immense economic and ecological gains by promoting innovative renewable energy industry. This may well be a major source for creating new jobs and entrepreneurship abilities for remote corners of the state. Such policies

can potentially combat climate change and be pro-poor at the same time. Conventionally, poverty alleviation programmes are seen as having a trade-off with climate change (Bazilian et. al., 2011). However, accumulated learning from research indicates that there are synergies in policies for combating problems of human development, energy security and climate change (Haines et al., 2007; Biswas et al., 2001). However, political will for harnessing such synergies is absent. High-level officials often doubted the ability of state in harnessing renewable energy on account of high population density and intense use of land for agriculture.

Seeing low demand for new connections within electrified villages, Mr. Kumar announced electricity connection with zero upfront charges in November 2015 to every household to reach the goal of universal access by November 2017. Earlier only to below poverty line (BPL), households were eligible for free connection while non-BPL households had to pay Rs 1500 for connection.

### ***3.2 Adverse Effects of Bifurcation of Electricity Sector Assets***

A significant portion of erstwhile Bihar State Electricity Board's (BSEB) assets went to Jharkhand State Electricity Board in 2001 resulting division of state. Installed generating capacity Bihar reduced by 70%—from 2000 MW to less than 600. Bifurcation also impacted consumer mix of BSEB resulting in substantial loss of revenue paying industrial consumers. Proportion of industrial demand in the state reduced from 48 to 25%. A retired official with significant experience in power sector hinted that the loss of industrial consumers will have sustained adverse effect on financial prospect of electricity sector in Bihar. Loss of generation capacity may not be that significant as liberalized generation sub-sector is quite competitive now, leading to cheap availability of power for the state from third parties.

### ***3.3 Critical Role of the Holding Company After Unbundling***

Vertically integrated BSEB was unbundled on functional line in November 2012. The entire asset base of BSEB was divided into five companies, namely.

1	Bihar State Power (Holding) Co. Ltd. (BSPHCL)
2	Bihar State Power Generation Co. Ltd. (BSPGCL)
3	Bihar State Power Transmission Co. Ltd. (BSPTCL)
4	North Bihar Power Distribution Co. Ltd. (NBPDCCL)
5	South Bihar Power Distribution Co. Ltd. (SBPDCL)

These five companies included one generation, one transmission and two distribution companies representing south and north Bihar. These companies were

subsidiaries of the fifth company, i.e. Bihar State Power (Holding) Co. Ltd. All these de jure changes on paper hardly made any difference for a common man walking through the Bidyut Bhavan (literally meaning Electricity Building) in Patna as every organization pertaining to electricity sector including the BERC still operates from Bidyut Bhavan in Patna where BSEB was located. A remarkable difference in case of electricity sector unbundling in Bihar was the idea of a holding company. Having a parent or holding company meant that hierarchy needed to ensure coordination, sharing of capabilities and human resources across the companies remained intact despite the unbundling. Often same individuals were responsible for two Discoms at similar levels of hierarchy. For example, same person was serving as General Manager of Revenue in both Discoms. It was also common to see that individuals from different organization consulted each other for information or expert advice. For example, a senior Transco official dealt with power purchase planning at regular basis for two Discoms due to his experience of having worked with independent generators. The executive head of Bihar State Power (Holding) company has the authority to transfer employees across the organization. In many cases, contracts for other organizations are routed through Bihar State Power (Holding) company. Thus, separation of entities has increased the flow of information due to regulatory process but at the same time these companies could share their resources due to the presence of a glue, i.e. parent or holding company.

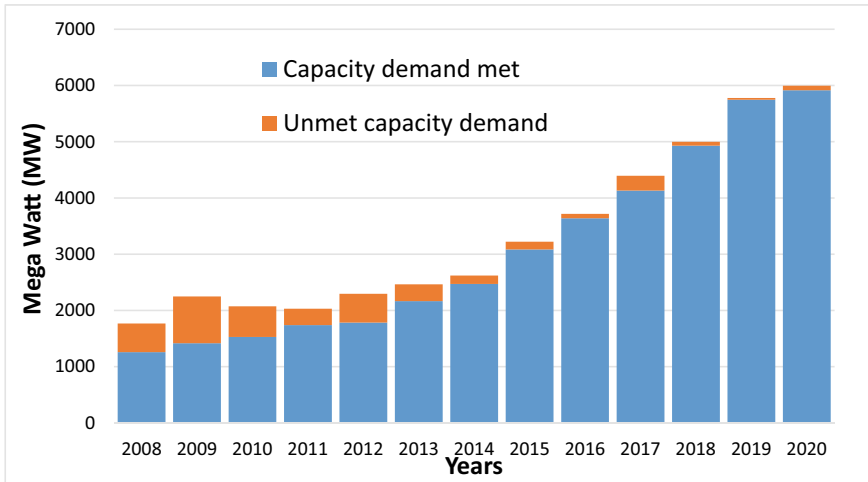
As a result of functional unbundling, Bihar's electricity sector like many other states potentially eliminated major shortcomings which were hallmark of the BESB era. Accounting and regulatory norms made it difficult for the sector to manipulate information regarding cost components and consumption data for which all state electricity boards are infamously remembered. However, one distinctive feature of Bihar's unbundling process was the idea of having a holding company. It helped the state in mitigating potential increase in transaction costs that usually arise when different organizations have to coordinate and cooperate within a value chain as is the case under post-unbundling scenario.

### ***3.4 Surge in Demand for and Supply of Power***

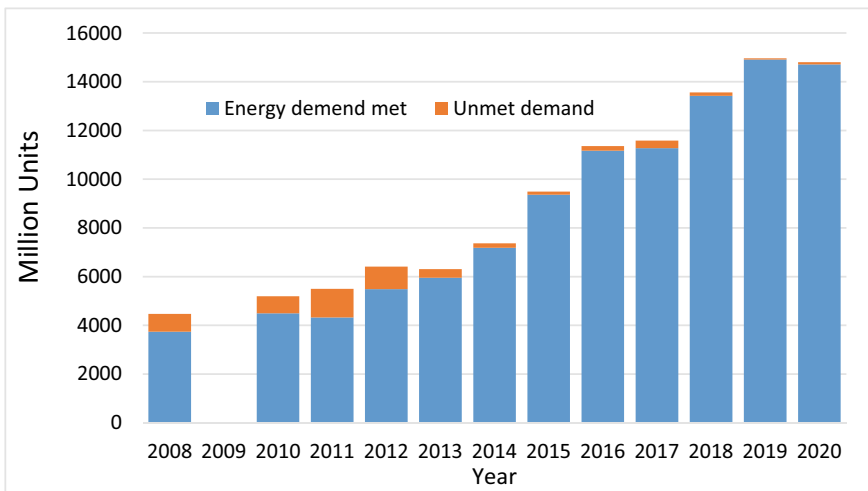
Notwithstanding the low peak demand which was highlighted earlier, power shortage was rampant till 2011. However, in post-2011, frequency of power shortage has reduced significantly both at capacity as well as at energy level. The cheap power available from short-term market or power exchange has enabled Bihar to purchase enough power. However, reliability of network particularly at distribution end is still a serious bottleneck in smooth delivery of power.

Figures 2 and 3 reveal that the state has experienced a significant surge in terms of peak capacity as well as total energy demand particularly since 2012. More importantly, there is an increased ability of the state in satisfying the fast-growing demand for power. Both figures show consistent decline in the amount of unmet demand with time and eventually to negligible levels. The increase in demand for power is





**Fig. 2** Capacity demand (met + unmet) during April–August (MW). *Source* Calculated from Monthly Reports on Power Supply Position; <https://www.cea.nic.in/monthlyarchive.html>



**Fig. 3** Energy units demanded (met + unmet) during April–August (Million Units). *Source* Calculated from Monthly Reports archive on Power supply situation. <https://www.cea.nic.in/monthlyarchive.html>

primarily on account of growth of new domestic consumers since 2012 as result of fast paced electrification process as shown in Fig. 1. Despite the phenomenal growth for the demand for power in recent past, Bihar’s electricity consumption continues to remain far below the global standard as has been highlighted earlier.

### ***3.5 Subsidies to Retain Domestic Consumers***

The growth in electricity consumption since 2012 was largely possible due to huge revenue subsidies from the state government. For example, in year 2014–15, revenue subsidy to the electricity sector—dubbed as ‘resource gap grant’—totalled Rs. 2891 crores. A large part of these costs cannot be recovered through the BERC-approved tariff scheme—even if billing and collection efficiency is 100%—because approved distribution losses are smaller than the actual level. The government, through its massive revenue subsidy, is helping Discoms to recover more than these losses so that retail tariffs for economically weaker consumer groups can be kept at lower levels than originally approved. For example, in 2014–15, actual distribution loss was 38% for the northern discom against its approved loss level of 21%. This implied that the northern Discom would not be able to recover Rs. 519 crores of its cost because 17% of its distribution loss was not considered to be part of covered costs when BERC issued retail tariff. However, the government’s subsidy to the northern Discom was more than enough to compensate for this revenue loss. In fact, the northern company received close to Rs. 700 crores in excess of its losses which allowed it to keep retail tariffs at lower levels than were specified by BERC.

During various interviews with high-level executives in power sector, it was evident that any increase in tariffs was seen as an unfeasible option because it might hinder the current momentum towards universalization of access to electricity. Once Discoms are able to establish their credibility of reliable supply of power, tariffs may rise in the future. Therefore, Discoms’ initial focus on expanding the network and providing hassle-free experience to new consumers has nearly been accomplished. However, the recent COVID-19-induced economic crisis has forced the government to sustain its revenue subsidy which is to the tune of Rs. 3500 crores.

## **4 Drivers of Change**

### ***4.1 Availability of Financial Resource at Opportune Time***

Bihar’s electricity sector is fortunate enough to find necessary financial resources at an opportune moment when political class was compelled to address the sector. Interestingly, budgetary transfers from the central government under different heads complemented the needs of the sector appropriately. The power sector needed investment at three levels, i.e. expansion of rural distribution network, metering and reinforcement of urban distribution network and most importantly strengthening of the transmission network to support the increased demand for power due to new connections. Financial resources for the first two levels of investment came from central transfers under the Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) or its later avatar Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY) and the Accelerated Power Development Programme (APDP) and its later avatars such as Ujwal

DISCOM Assurance Yojana (UDAY). In other words, there was sufficient fund to expand and strengthen the distribution sector. Thus, it was not surprising to achieve massive growth number of consumers.

However, a significant expansion of distribution sector cannot sustain on its own. It needs complementary transmission capacity to evacuate sufficient amount of electricity from generating stations to serve the increased demand for power. However, there was no central sector budget for strengthening the transmission system. Several states in India face similar limitations. Many states achieved universal access to electricity in a fairly short period of time due to funds available under the programme but failed to make complementary investment in transmission network to serve the increased demand for power in a reliable manner. Additionally, Bihar traditionally struggled in spending even when financial resources were available. However, owing to the recent recruitment drive and the organizational restructuring of Discoms, the capacity to spend public resources has gone up significantly for at least the electricity sector. Incidentally, Bihar is a big beneficiary of the Backward Regions Grant Fund (BRGF). A large chunk of the BRGF fund was invested in transmission network which went a long way in supplementing availability and reliability of power in the state. Therefore, the recent success of electricity sector can largely be attributed to simultaneity in availability of investment funds in all sub-sectors of the industry.

Bihar's total entitlement for 12th five-year plan (2012–17) under the BRGF was Rs 12,000 crores. 70% of the entire BRGF money of Rs 8308.67 crores was earmarked for the electricity sector in Bihar. Even before the Fifth Plan period, the money available under Rashtriya Sam Vikas Yojana (RSVY) of the centre, a previous avatar of the BRGF scheme, was allocated to Bihar's electricity sector especially the transmission sub-sector.

Thus, due to the availability of the BRGF money at an opportune time, all sub-sectors could complement one another to improve the delivery of electricity services in Bihar. The cheap availability of power in short-term market also helped Discoms a great deal in procuring much-needed power especially after loss of installed capacity due to bifurcation of the state.

## ***4.2 Organizational Changes***

Availability of financial resources is just one part of the story. History of public sector procurement and human resource hiring in Bihar is marred with allegations of corruptions and legal disputes. Given the track record of the state, it was quite unlikely that such a massive spending programme will progress flawlessly. The cumbersome tendering process and limited availability of human resource was a major roadblock. These limitations could have turned the whole reform agenda into a fiasco. Restricted ability of public sector to spend money is a generic problem in the state. During

first half 2014, two calls for competitive bidding of electrification project failed in attracting sufficient interest on account of restrictive eligibility conditions.

In a senior bureaucrat's view, it is best for an independent agency to execute the tendering process. This is because there is a genuine anxiety about corruption allegations among employees of the relevant organizations while handling the tendering process. This anxiety is based on fairly long history of legal disputes in public sector procurement processes in the state.

The leadership in Bihar State Power (Holding) company decided to change the rules of the game. As the first step, they were interested in discovering the reason behind lack of bidders' interest in rural electrification contracts. In an informal discussion, potential bidders revealed that certain provisions of eligibility criteria acted as entry barrier for them. Thus, these criteria were amended and necessary clearance of these amended provisions was sought from the funding agency, i.e. Rural Electrification Corporation. One of the prerequisites for technical eligibility that restricted many potential bidders from participating in the bidding process was experience of having dealt with at least 50% of BOQ (bill of quantities) of current bidding. This prerequisite was amended to include minimum work experience of the contractor in the relevant sector. Further, provisions for incentives and penalties were introduced to ensure execution of work in time-bound manner. To ensure transparency and to preempt legal disputes, bids were opened (both technical and financial) within three days of the closure of the call under the video surveillance. This allowed non-winners to see the details of the winning bids for their own satisfaction. The REC cooperated by releasing the money on time. Engineers of Discoms routinely inspected the progress of rural electrification for each contractor. It was a rare occasion for a tendering process to be accomplished without any legal dispute in Bihar.

Another perceptible change was in the area human resource management and augmentation. Engineers have traditionally managed the electricity sector. This is true for most states in India. In 2014 recruitment drive, however, a significant number of professionals without engineering backgrounds were brought in at high-level positions.

Graduate Aptitude Test in Engineering (GATE) score was used instead of organizing an in-house examination to recruit engineers. This was a smart move because it reduced the cost of hiring along with increased transparency. Again, it avoided much speculated legal haggling regarding legitimacy of examination process for which bureaucrats in Patna are infamous.

Additionally, the organizational hierarchy was restructured on functional lines. The organizational hierarchy in BSEB ran purely on the basis of years of experience without any regard to specialization in handling of any particular sub-sector. For example, an engineer who worked mostly in transmission sector could get posted in distribution sub-sector because his/her promotion deems him for a position that is available only in that sector.

The new organizational hierarchy now operates strictly along the well-identified functional lines, i.e. operation and maintenance, revenue and projects. In the pre-2014 period, considerable experience in functional lines were not seen as essential criteria for the purpose of filling up senior-level positions. As a result of this, fixing responsibilities on individuals became difficult. Further, in post-2014 era, with increased

number of professionals due to new recruitments and clarity in roles and responsibilities of each staff member, sector's capacity to spend money on projects has increased manifold.

### ***4.3 Rural Revenue Franchisees***

The Rural Revenue Franchisees (RRF) model is a step away from the standardized national model formulated by Ministry of Power at the Centre. In Bihar, RRFs are compensated for each activity at predetermined rates while in other states, the standard practice is to compensate RRFs on the basis of overall collection efficiency. During 2016, RRFs earned Rs 4.50 for every additional metre reading, Rs 1.50 for every additional delivery of bill, and finally they earned 3% of every bill amount they could successfully collect. About 3,500 RRFs were operating to cover nearly 51 lakh rural consumers of the state during 2016. This minor change in rules of engagement for RRFs in Bihar turned it into a backbone of rural revenue collection. This may have been on account of the reduced revenue risk of RRFs in Bihar resulting from fixation of piece rate for each activity in the process of billing and collection. In most states, RRFs are either non-functional or dysfunctional.

### ***4.4 Coordination Between Political and Executive Leadership***

Top executives, leading the electricity sector since mid-2014, are award winning Indian Administrative Officers from Bihar cadre Mr Prataya Amrit and Mr R. Lakshmanan. They successfully demonstrated their abilities in improving bridges and road sector of Bihar before this. Transfer of these officers to the electricity sector revealed the seriousness of government's commitment to deal with the electricity sector before the assembly election in 2015. The government wanted to see similar improvements in the electricity sector as well.

These officials joined the electricity sector in mid-2014. They faced a strict time constraint, i.e. a little more than one year's time to turn things around. Mr Pratya Amrit admitted in his discussion that he had to deliver the expected outcome before the state elections which was due in November 2015. The first things he focused on were to improve delivery of electricity services in rural areas to fulfil the promise made by Nitish Kumar. Immediately after he took the charge of the sector, rural electrification contracts were awarded in speedy manner, details of which has already been discussed and 35,000 non-functional distribution transformers were replaced. Thankfully, momentum of reforms in electricity services did not die down with election victory of Nitish Kumar in November 2015. Thus, the political will to continue the reforms and concomitant support from bureaucracy has been a critical aspect of positive changes in Bihar's electricity sector.

## 5 Experiments with Distribution Franchising

Bihar experimented with three distribution franchisees (DF), namely in Muzaffarpur, Gaya and Bhagalpur. All the DFs were eventually abandoned by 2018. First distribution circle was under Northern region Discom (NBPDCCL) while the remaining two are under Southern region Discom (SBPDCL). It is important to mention that experience with DFs in other parts of India was not very encouraging to start with. For example, operation of distribution franchises in cities of Madhya Pradesh, i.e., Ujjain, Gwalior, Sagar and Indore had already been suspended. Nagpur DF was also terminated. However, Maharashtra and Rajasthan have continued with DFs operating in some circles.

Under the standard model, DFs are not required to file for revenue requirements to the regulator because they operate under the licence of main distribution companies, i.e. they have same tariff as the Discom under whom they operate. The DF operates the distribution network and collects bills. It also has the authority to deal with stealing of electricity and pilferages. DF is expected to undertake capital expenditure (CAPEX) to create distribution assets in the distribution network but there is no stipulated amount.

The three franchisees in Bihar were contracted between end of 2013 and beginning of 2014. These franchisees were selected through competitive bidding floated by Bihar State Power (Holding) Company Ltd. The bidding process followed central Ministry of Power guidelines for appointing input urban franchise.

The experience of working with DFs was not different from experiences in other states. Discoms consistently failed in complying with regulatory requirements mandated under electricity Act 2003 pertaining to DFs operating under them. Discoms are required to produce details of capital expenditure by DFs and their asset creation plans to the regulator. However, Discoms failed to comply with this regulatory requirement because Discoms and DF could not mutually agree on CAPEX.

As per the information collected during visits, DFs did undertake capital expenditure but Discoms did not examine these CAPEX on time. According to a representative of a DF 'monitoring of Discom operated more like an auditing team rather than monitoring team'. Delayed inspection of CAPEX led to a number of issues that made it difficult for the Discom and DF to arrive at mutually agreed amount of CAPEX. For example, a transformer may have been implemented by DF but due to long gap between time of CAPEX and the inspection transformer may not be functional at the time of inspection either because it got stolen or became dysfunctional due to over loading. Delayed inspection also meant that monitoring cell was inspecting only a sample of all CAPEX undertaken by DF which obviously became a matter of controversy between the Discom and the DF. It was also found that availability of electricity in certain locations within a DF area was significantly lower particularly in neighbourhoods with poor records of socio-economic status. This was happening because DF deliberately avoided supplying 24X7 power in pockets with higher commercial and technical losses as these areas may not be as lucrative in terms of revenue.

Employees of DF, during discussions, did indicate towards such a strategy. On the contrary, Discoms have an incentive in supplying enough power to DF on priority basis because DFs for them act like a big consumer who is most likely to pay the bill. Another worth mentioning aspect is, DF areas were not receiving benefit in proportionate manner for which Discom was eligible. DFs were supposed to generate their own sources of finance for CAPEX. Upon further probing, with employees working in DF, it was revealed that DFs were not able to spend mandated amount for CAPEX as per DF agreement due to scarcity of staff and limited credibility in raising funds from the market. Thus, despite sufficient incentive for DFs to spend on CAPEX, they failed to do so due to their own limited capacity in human and financial resources. In summary, failure of DFs in most cases appears to be result of adverse selection.

## 6 Progress of Renewable Sources

Bureaucrats working in Bihar's energy sector at every level of hierarchy unanimously cited high population density and expensive land as major hurdle in tapping the renewable energy potential. Bihar Government has circulated a policy document 'policy for promotion of new and renewable energy sources 2017' envisioning expansion of renewable generation capacity in the state to 3433 MW. It is important to note that total grid connected renewable energy (RE) installed capacity was around 250 MW in 2017. So this is a highly ambitious target.

India's renewable energy potential is not evenly distributed across states of India. To motivate optimal utilization, available renewable potential across Indian States Central Electricity Regulatory Commission (CERC) instituted a market-based instrument, i.e., Renewable Energy Certificate (REC). This allows for separate trading of environmental attribute of energy produced from renewable sources. Thus, generators using renewable sources are free to sell their energy at general average cost/price of conventional power while the environmental attribute of renewable generation is converted into RECs which is equivalent to one kWh of energy from renewable sources. These RECs in turn can be traded in national-level energy exchange. Therefore, the utilities or Discoms operating in states with deficient renewable energy potential can buy these tradeable certificates from national exchange to fulfil their minimum renewable purchase obligation (RPO).

Price of REC's can vary between fixed floor and ceiling (forbearance) price by CERC. The 2022 target of 175 GW of renewable-based generation capacity was set by the Government of India in 2014—100 GW of solar and 60 GW of wind capacity. Though RPOs set by several state regulatory commissions remain way below the national target, Discoms have consistently failed in fulfilling them. Often small share of RECs on offer are sold at the floor price. For instance, in October 2016 less than 1% (19,000) of the total offered solar RECs (2.3 million) were traded. Trading of non-solar RECs has done little better. More than 2% (157,000) of total offered non-solar RECs (8.3 million) were traded. However, the situation has improved significantly since then with about 64% of the total solar RECs on offer (2.1 million) being traded

**Table 1** RPO targets set by BERC for Discoms for different years

Year	Non-solar (%)	Solar (%)
2016–17	5	1.5
2017–19	5.5	2.25
2018–19	6	3.25
2019–20	6.75	4.75
2020–21	7.5	6.75
2021–22	9	8

*Source* various orders of BERC

in 2019. The corresponding number for non-solar RECs is 75% of the total on offer (6.2 million).

Enforcing RPOs was challenging initially because the penalty for non-compliance of any regulatory provision was only Rs one lakh which also applied to non-compliance of RPOs. For a Discom with turnover of Rs thousands of crores, a fine of Rs one lakh can hardly be a deterrent. Instead of complying with the RPO, Discoms preferred to pay the penalty. Finally, some SERCs including BERC changed the formula for penalty amount for non-compliance of RPO. It was calculated as product of quantum of non-compliance of RPO and to the forbearance (ceiling) price RECs (fixed by CERC). The penalty amount thus calculated was to go to dedicated RPO fund. BERC regulated that RPO fund can only be utilized for purchase of RECs or for providing evacuation facility for new renewable power projects in the state. The BERC has set the gradual increment in RPO target in the manner provided in Table 1.

Discoms in Bihar have been able to meet non-solar RPO with relative ease while they struggle to meet the RPO mandated from solar sources. In 2019, both Discoms achieved only one quarter of their total solar RPO target. In the latest tariff order, BERC has denied any further accumulation in solar RPO in case sufficient RECs are on offer at the national energy exchange. Given that only 64% of available solar RECs traded national energy exchange, Discoms in Bihar will have no option but to meet the solar RPOs through purchase of solar RECs in coming financial year.

Grid interactive rooftop solar panels are seen as yet another tool for promoting renewable energy in the state. However, it would require an upgradation in metering technology that can record withdrawals as well as injection of power to the grid from premises. Despite regulator's clear directive on this issue in 2016, not much has been achieved on this front by Discoms. The policy may well be the best-suited tool for promoting renewable energy in Bihar given the high population density and land prices.



## 7 Conclusion

The chapter demonstrates political context to delayed reforms in Bihar's electricity sector as a particular case. The purpose of this chapter is also to highlight that each state tinkered the national model of proposed reforms depending on their regional political context as has been demonstrated by Chatterjee (2017) and Dubash et al. (2018).

It is true that Lalu's period saw stagnation but it provided the much-needed empowerment to masses which was critical for establishing political accountability of the ruling elite. Although Lalu's ruling style of state incapacity by design punished the elite and the economy in general, it had a positive impact on poverty reduction and political empowerment of the poor. It would not be misplaced to concur that some of the gaps in the playing field between ruling elite and masses might have got levelled. Eruption of protests during 2011 and subsequent response by the government to bring perceptible change in electricity sector can be seen as a manifestation of empowerment of masses during Lalu's regime.

The impatience of people over dismal performance of electricity was a necessary condition for the initiation of reforms in the sector. However, its success critically depended on willingness of government to spend close of 70% of total BRGF money on electricity transmission network. Another factor that ensured that people were finally able to connect with grid was the policy of no upfront charges for connection. Rapid electrification of households in post-2012 period is in sharp contrast to dismal performance of electricity sector during pre-2005 era. The bureaucracy in Bihar is still largely dominated by upper castes. However, the new regulatory safeguards and lower caste mobilization have made it difficult for them to appropriate resources by way of corruption as was routine in pre-Lalu period.

The massive revenue subsidies have helped in addressing the lack of demand for new electricity connection. Policy wisdom is to sustain the subsidy till the demand stabilizes but get the infrastructure of billing and collection ready so that when charges are applied it can be effectively collected. Given the long history of very unreliable supply in the state, people have adapted to life where electricity is a luxury. Converting this compromise to a right to live with dignity is the real developmental challenge.

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