



Jayanta Bhattacharya
Chief Editor

Power sector reforms must strive for financial efficiency and accountability: The case of India and Great Britain (Part-I)

Note: This article is in two parts. As universally known, the power sector is not known for market, payment and financial efficiency and accountability but burdened by political economy, the market reforms have been tried in various countries with different results. This article in the first part describes the reforms and their results in India and in the second part, the pro-market and privatization in the Great Britain power sector.

History of reforms in India

Take the case of India. Following India's independence in 1947, the government's federal structure allowed both the central and state governments to pass laws governing power provision. This turn toward public ownership of the power sector was solidified with the passage of the Electricity Supply Act of 1948, which provided for the establishment of the Central Electricity Authority (CEA) and coordinated power provision throughout India. The act also dictated the creation of State Electricity Boards (SEBs), which were responsible for the generation, transmission, and distribution of electricity within each Indian state. SEBs were housed within their respective state government's Ministry of Power and operated as a direct extension of the state government with minimal oversight from the central government. Most Indian state governments established SEBs, with the exception of a few minor states that instead relied upon a government agency to manage the power sector. The states that elected not to establish SEBs, such as Goa, Sikkim, and Tripura, were the smallest in either population or area and barely generated any of their own electricity. Despite persistent power deficits and ever increasing financial shortfalls, this arrangement remained substantially unchanged until the 1990s.

The primary reason for widening power loss and the financial predicament of the SEBs was cross-subsidization of the politically favored agricultural sector, which came at the

expense of industrial customers. This began a vicious cycle whereby industrial customers met their energy needs through "captive generation" (off-grid electricity generation for own use) while the political strength of the agricultural lobby prevented reform of the heavily subsidized tariff rates for agricultural customers. The inability to collect adequate tariffs to cover operating expenses deprived many SEBs of the financial capital necessary to expand electricity generation to meet ever-increasing demand for power as the Indian economy developed and hobbled efforts towards rural electrification. Rampant transmission and distribution (T&D) loss exacerbated the financial plight of SEBs. On average, the magnitude of T&D loss increased dramatically since the early 1990s. It was not until the enactment of the 2003 Electricity Act that these losses narrowed.

Following India's balance of payments crisis in 1991, the Rao government embarked on a policy of aggressive economic liberalization and the Indian power sector opened up to foreign investment under the Independent Power Producer (IPP) policy. Under this framework, many SEBs signed long-term power purchase agreements in exchange for private sector investments aimed at increasing generating capacity. Despite the fact that the IPP policy signaled a major turn toward private investment in a sector historically dominated by the Indian government, it did not directly reform the politically dominated SEBs despite their continued financial losses. Despite the blessing of the national government, private investors remained hesitant to invest in many of the Indian states. By 1996, the failure of the IPP policy was evident, and the central government issued guidelines urging the state governments to reform their SEBs through unbundling. These guidelines paved the way for further legislation that created politically insulated State Electricity Regulatory Commissions (SERCs) and allowed for "open access" to transmission lines for private generating companies under the Electricity Act of 2003.

It was during this period that the Indian state of Odisha sought funding for the completion of a hydro-power generation project and a new thermal power plant. After being rebuffed by all external sources of private funding, the Government of Odisha was offered financing for the generation projects by the World Bank. This funding required Odisha to reform its ailing SEB via unbundling and to subsequently privatize several of the newly unbundled entities [8]. Odisha's experience with unbundling and privatization was the first case of SEB reform, and signaled the beginning of the power sector reform that is currently ongoing in other Indian states. Delhi was the next state to begin electricity sector reform, and by the late 1990s the capital city had embarked on a path of unbundling coupled with limited privatization. The Government of Delhi learned from the problems encountered by Odisha only a few years earlier, and accepted private sector bids based on reduction of power losses rather than lowest bid price. By the end of the 1990s, Odisha's reforms were considered partially successful while Delhi's experience delivered more promising results.

Indian Power Sector (Reforms: Milestones)

1. Enactment of ERC Act 1998
2. Constitution of CERC
3. Constitution of SERC's
4. Unbundling of State Electricity Boards
5. Privatisation of Distribution

Fig.1: Milestones

The second phase of reforms began with the Electricity Regulatory Commissions Act of 1998 and continued with the nationwide Electricity Act of 2003. In addition to establishing a Central Electricity Regulatory Agency at the national level, the law also required the creation of State Electricity Regulatory Commissions (SERCs). The 2003 Act was broad in scope, and necessitated reforms in several key areas. First, the Act mandated the establishment of SERCs and the unbundling of SEBs; and responsibility for overseeing the progress of these reforms was vested in the Central Electricity Agency (CEA). Unlike their predecessors, the SERCs were primarily concerned with reforming the tariff setting mechanism, and allowed for states to move responsibility for setting tariffs to an agency outside of the politically motivated Ministries of Power in Indian states. The law also simplified the process by permitting states to establish SERCs without new legislation at the state level. The establishment of a functioning SERC is a major step in the reform process given that a functioning and politically insulated SERC is crucial for removing electrical subsidies for the agricultural sector. Second, power generation was mostly de-licensed, and independent power companies were allowed to use the power grid under an open access framework. Lastly, the 2003 Act

required the metering of all electricity and strengthened provisions against power theft. While both of these provisions reduced the distribution of free power, they also limited the ways that politicians could provide free or low cost power to favoured constituencies. Delhi and Odisha's experiences drew attention to the promises and pitfalls of electricity sector reform. Since then, the remaining Indian states have embarked on electricity sector restructuring; although some have moved quickly while others have lagged behind.

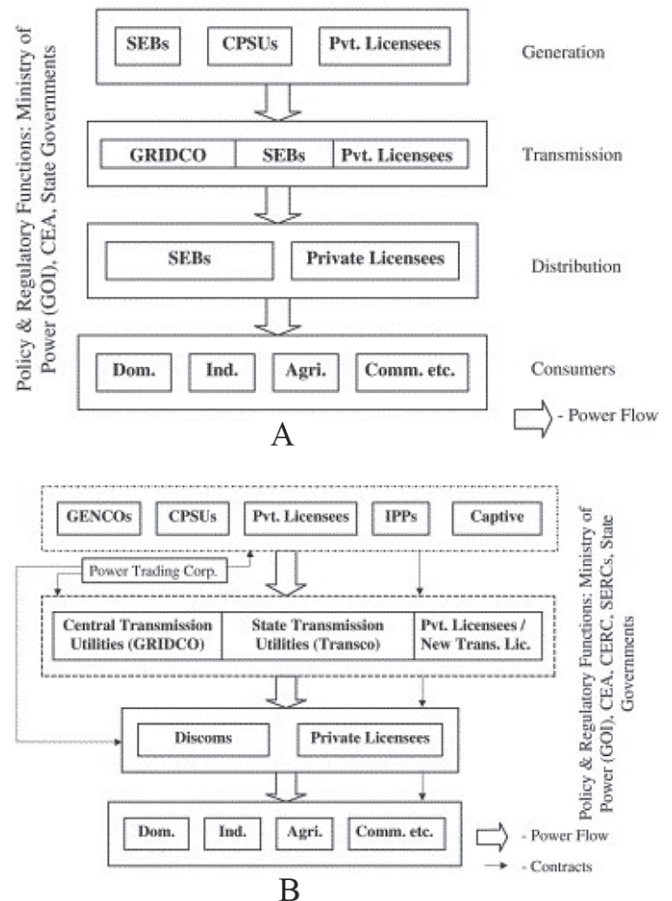


Fig.2: Indian power sector (pre reform), A and power sector (post reform) B. Source: <https://www.sciencedirect.com/science/article/pii/S030142150400254X>

Emergence of DISCOMS

The pressure to reform the power sector in many developing countries has historically stemmed from a surge of demand for electricity that could not be met. The problem on the supply side was that the electricity sector suffered from investment shortages in utility maintenance, limited capacity to expand coverage to rural areas, and frequent power disruptions. Unlike developed countries that worked to improve efficiency within their existing regulatory framework, many developing countries began with changing existing regulatory structures responsible for financial and generation shortfalls. Prior to reform, similar problems existed in India,

with SEBs failing to meet electricity demands and facing financial difficulties. By the 1990s, state-owned enterprises in the electricity sector were not financially viable, and at one point were collectively losing over USD 5 billion per year. In 2001 the financial situation of twenty power distribution companies (discoms) across six states in 2001 was such that all but two (in Andhra Pradesh) had cash losses. They find that even after the passing of the Electricity Act, most discoms were unable to convert these cash losses to profits.

The Indian government's reports show that one of the main reasons for inadequate electricity supply was the lack of investment allocated to the transmission and distribution system. This resulted in technical losses, including frequent power outages and fluctuations in the availability of electricity. Transmission and distribution (T&D) losses in India in 1992 were on average 22.9%, peaked in 2002 at 33.98%, and has steadily decreased since then to 21.04% in 2018. However, this is still a high percentage compared to other countries (e.g., Brazil was at 16.87% in 2016). The slow improvement of the sector prompted action by the national government. Another problem for India, has been the lack of a proper billing and collection mechanism. The tax collection of electricity charges often results in non-payment, which becomes a financial burden for the power sector. Part of these losses are also attributed to electricity theft.

DISCOM PERFORMANCE				
Financial parameters	FY16	FY17	FY18	FY19*
Loss (Rs.Cr)	51,562	38,080	15,132	28,036
AT&C losses (%)	20.81	20.28	18.80	18.19
ACS-ARR gap (Rs/kWh)	0.60	0.42	0.17	0.27

Based on provisional/unaudited data entered by states/discoms on UDAY portal: *AT&C and ACS-ARR gap for FY19 based on data submitted by 28 states, P&L data based on submissions by 27 states, rest from Q3FY19 or latest available data on UDAY portal (as on Sept 27); Source: Govt data

Fig.3: DISCOM Performance (Notes: AT&C loss is the sum total of technical and commercial losses and shortage due to non-realization of billed amount. AT&C Loss = (Energy input – Energy billed) * 100/Energy input. The gap between the Average Cost of Supply (ACS) and the Average Revenue Realized (ARR) at the national level reduced from 0.47 (~\$0.006)/kWh in FY 2015-16 to 0.28 (~\$0.004)/kWh in FY 2019-20).

Curious case of the DISCOMS

Power Distribution Companies (DISCOMS) are responsible for the supply and distribution of energy to the consumers (industry, commercial, agriculture, domestic etc.). This sector is the weakest link in terms of financial and operational sustainability. DISCOMS essentially purchase power from generation companies through power purchase agreements (PPAs), and then supply it to their consumers (in their area of distribution). Due to the perennial cash collection shortfall, often due to payment delays from consumers, DISCOMS are

unable to make timely payments for their energy purchases from the generators. This gap/shortfall is met by borrowings (debt), government subsidies, and possibly, through reduced expenditure. This increases the DISCOMS cost of borrowing (interest), which is inevitably borne by the consumer.

There are two fundamental problems here

One, in India, electricity price for certain segments such as agriculture and the domestic category (what we use in our homes) is cross-subsidised by the industries (factories) and the commercial sector (shops, malls). This affects the competitiveness of industry. While the government has started a process through which the extent of cross-subsidisation is gradually being reduced, this is easier said than done as states do not like to increase tariffs for politically sensitive constituents, such as farmers. So, industry continues to cross-subsidise these categories. Second, there is the problem of AT&C (aggregate transmission and distribution losses), which is a technical term that stands for the gap between the cost of the electricity that a DISCOMS gets from the generating company, the bills that it raises and the final realisation from the collection process from end-consumers.

Foreign investment in the sector

With limited financial capacity, many governments in the developing world have turned to development organizations such as the World Bank, the Asian Development Bank, and development agencies in developed countries for loans to carry out domestic development projects. These loans are often bundled with a group of structural adjustment guidelines and reform timetables that governments are expected to meet during the reform. Conditionality aims to induce governments to change policies that are unlikely to be changed otherwise, shield national governments from opposition pressures, and signal private donors about improved government performance in hopes of stimulating further investment. While these structural adjustments are usually aggressive measures towards market-oriented reforms, they are expected to incentivize good governance and economic growth that will lead to long-term political stability.

The power sector is one of them. The World Bank's main strategy to improve the supply of electricity is vertical disintegration or unbundling of the distribution, transmission, and generation systems. These unbundled entities are then privatized in order to reduce the share of government expenditure on electricity provision while making resources available for education, health, and other infrastructure. The Asian Development Bank also provides conditional loans and require countries to reform their electricity sector. A survey on energy sector reform by the World Bank focused on six key steps for reform which include the commercialization of the utility, legislation on unbundling and privatization, an

independent regulatory body, restructuring of the core state-owned utility, private investment in Greenfield sites, and privatization.

Reforms can fail, too!

PRESSURE OF INTEREST GROUPS

Interest groups can exert a considerable influence over the course of economic reform. Interest groups, particularly those that benefited from earlier reform attempts, became the most powerful impediment of structural reforms in the post-Soviet region. Politicians are susceptible to interest group pressures as interests groups deploy their resources, in the form of votes, financial contributions, or information that is useful to legislators' pursuit of policy agendas.

For power sector reform, there are two main opposition groups. First, the employees of public sector utilities may take action due to a fear of wage cuts and job losses. In a country dominated by state-owned industries, Indian public sector workers are especially well-organized with a strong inclination to maintain the status quo. Second, opposition to reforms is likely to be stronger in previously subsidized sectors, such as the public and agricultural sectors in India. In India, agricultural interest groups have enjoyed a long history of subsidized power. Many theoretical works describe agricultural lobbies as well-organized groups successful in influencing the policy-making process.

Positioning of the political parties

Partisan politics provides a possible explanation for why some Indian states have achieved impressive reform progress while others have not. First, market reforms for public utilities could be impeded by salient partisan cleavages within the state governments. In many cases around the world, the left-right tension is particularly problematic for reform that aims for privatization. Generally, privatizing the public sector into a

profit-oriented enterprise goes against left-wing political ideals. Therefore, state governments entangled in left-right conflicts could achieve slower reform progress than those dominated by a single party or an ideologically cohesive ruling coalition. The left leaning parties are considered the most programmatic and ideologically stringent of all Indian political factions, advocating for economic redistribution and against market liberalization. Conversely, the far right of center parties champion market liberalization since the 1990s, without much success though, although socialist parties have taken small steps towards narrowing this policy gap-trying hard always to keep the constituency intact.

Electoral liability

The final political obstacle to consider for power sector reform is electoral populism. Many have argued that introducing reform, despite its long-term benefits, will only undermine the electoral support of office-seeking politicians. In the end, the popular skepticism against market reform culminates in frequent political turnovers and policy deadlock. The economy may need to sustain interim political and economic instability before reform brings expected utilities in the long run.

In countries such as India, where the pattern of democracy emphasizes pro-client behaviour and patronage, electoral populism and opportunism are particularly potent threats to reform. Such cost considerations can go a long way toward explaining opposition to power sector reform among the Indian public, and privatization in particular. If voters reward politicians for immediate gains and harshly punish them for short-term costs, then the promise of benefits over the long run is neither credible nor effective. Therefore, electoral incentives to avoid initially costly reforms would overwhelm most reform efforts.

[To be continued in part II (July-August 2022 issue)]

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