

SUDIP DUTTA

The Increasing Grip of Big Business over India's Power Sector

We are standing at a juncture of history, when global capitalism is undergoing a deep crisis and energy has become a central agenda in this turmoil. This article is an attempt to locate the growing control of big business in India's power sector, in the background of this burgeoning global crisis. We will construct this analysis within the framework of Marxist crisis theory and attempt to understand the flow of capital and emergence of new technology-industry as part of the capitalist system's endeavour to sustain and reproduce itself amid crisis.

CRISIS AND ENERGY – TWO HISTORICALLY INTERLINKED CATEGORIES

Economic crises and energy transitions have always been interlinked in a strange yet obvious manner. Coal emerged as an industrial fuel replacing biomass during the mid-18th century economic crisis and subsequent Industrial Revolution in Europe. The 1930s crisis, followed by World War II, created the need and scope for nuclear energy; however, nuclear power infrastructure proved costly and risky, and remained limited. The 1960s economic crisis was followed by the rise of petroleum and gas energy, while in the 1970s the OPEC cartel was formed and the petrodollar system emerged in 1972.

The hydrocarbon energy regime enabled the rise of globalization and neoliberalism, with hydrocarbon-petrodollar-based globalization dominating world politics for five decades. The oil shocks of the 1970s exposed the limits of Keynesianism and paved the way for neoliberalism, under which public sector energy monopolies were unbundled into generation, transmission, and supply, weakening them financially and facilitating takeover by private monopolies and oligopolies, while the world's largest private energy firms remained integrated.

The 2008 crisis, however, was unprecedented and the longest ever. Capitalism attempted to evade this crisis in two ways. The first is the spatial fix, whereby the capital investments and thus industries migrates from the Global North to the Global South, where the extraction of surplus labour and natural resources by capital is largely unhindered and often brutal. This has been made possible by the revolutionary change in transport and communication sector, in which the use of energy has played a central role. The second is the socio-ecological fix, in which capital gets invested in new energy and other modern technologies that brings new services in society. These new industries

create fresh opportunities for non-competitive price fixation and thus a higher monopoly rate of profit.

Consequently, the energy transition was made as an investment tool to attract idle capital into the energy market and present it as another temporal solution to the crisis. Following a pattern similar to Roosevelt's 'New Deal,' the 2009 Green New Deal and the 2015 Paris Agreement took shape, propagating a model of Green Keynesianism and setting global climate targets.

Energy transition processes always create a ripple in the global power relations. Britain's global dominance was based on coal; USA's hegemony was linked to its control over oil trade; and today, China dominates solar and critical mineral value chains. The contradiction between the capital of old and new industries is apparently reflected in the tensions between the fossil fuel and renewable corporate lobbies of the world, where as finance actually plays a secular role, traversing freely from one to the other in search of ever higher rates of return. Certainly, future global relations will be shaped by renewable interconnections, while the destiny of petro-states remains uncertain.

In this background, the rise of private sector-led renewable energy (REs) in India also fits neatly into the framework of transition. We stand amidst two simultaneous transitions- one from public to private, and other from fossils fuels to the renewables. This new era with changing pattern of operation of infrastructure is accompanied by a newly emerging version of the Indian state.

THE POST-NEOLIBERAL JOURNEY OF THE INDIAN STATE AND ITS ENERGY SECTOR

In spite of being a late entrant in India, neoliberalism fundamentally altered the economic, political, and ideological perspective of the Indian state – gradually transforming its focus from a public sector-oriented productive entity towards a tax-collecting parasitic one. Privatization and disinvestment, ensuring an advantageous playing field for global finance by handing over key energy sectors/resources, lowering of corporate taxes, and withdrawal of the special and monopoly status of electricity PSUs – all these transformations clearly demonstrates the tectonic shift in the modus operandi of the state.

However, these efforts could not fully succeed in the power sector in India. It was the second phase of transition after the 2008 crisis and particularly after the political victory of RSS-BJP in 2014, which accelerated this transformation in India's power sector. Through a distinct mechanism such as the National Infrastructure and National Monetization Pipeline, the Indian state started limiting itself as a developer of state Power infrastructure, handing over the operational revenue extracting capacity to corporate entities (thereby itself becoming shallow in its financial capacity).

POWER AS A COMMODITY AND SERVICE IN THE ERA OF TRANSITION

The question is how power, as a commodity, is transforming itself in this transition process. Like any other commodity, power has two aspects – one is its use value, referring to its concrete technological utility. It must be recalled that any revolutionary

change in the use value of energy has always altered the mode of production dramatically and thus determined the course of history. The other is its exchange value, referring to its role in the economy, especially in the capitalist world economy, where it plays a major role in profit, accumulation, and control. Undoubtedly, these two aspects are deeply intertwined.

The energy transition introduces a crucial change in the mode of energy production. Any commodity production essentially involves the assimilation of three labour processes: (a) services to bring labour, means of production, and raw materials together, i.e., to prepare the conditions of production; (b) the process of production itself and the conversion of living labour into a new commodity; and (c) the service processes related to circulation – transport, storage, and exchange – of the new commodity, i.e., the realisation of value. In this process, the main value addition occurs in process (b), i.e., the process of production, with supplementary value addition in transport.

In the power sector, electricity is the commodity. For thermal power, bringing coal/diesel and other raw materials, along with workers, to the plant is the preparatory work; generation takes place in thermal power plants. Through transmission and distribution mechanisms, power is delivered to consumers. Storage is still neither widespread nor readily available in the power sector. Unlike other services, the electricity as commodity is essentially tangible, though the labour involved in the generation, transmission, and distribution of power is almost momentary; one cannot produce power and hold it in transmission or distribution lines, unless there exist appropriate storage systems – so, it's a system highly dependent on living labour.

But, the transition to solar or wind is transforming the system in a significant way. First of all, living labour is becoming marginal in the process of production. The development of storage systems is designed to further enable employers to reduce their dependence on living labour. The strategic striking capacity of power sector workers will, therefore, be reduced to a great extent. The third feature is the shift in the mechanism of profit extraction in this sector. In the case of thermal generators, the price of electricity originates from the value addition in coal mining as well as in power generation through the inclusion of labour. But in the case of solar or wind, a great share of the price derives from the rent of the utility – that is, from monopoly rights over those utilities. Thus, there is a shift towards a more rentier form of capitalism, where labour becomes relatively redundant and monopoly control over the sector, along with large parcels of land, determines the conditions of consumption.

In this framework, we will try to analyse the power sector of India – especially its journey in last two decades.

POWER DEVELOPMENT FROM INDEPENDENCE TO 1991

Independent India, emerging from workers' and peasants' struggles, had certain welfare obligations; with the Indian bourgeoisie unwilling to invest in capital-intensive basic industries, the state framed industrial policy and built a public sector. The Electricity (Supply) Act, 1948 aimed to develop electricity as an essential service for socio-economic growth, leading to successive Five-Year Plans and institutions like CEA (1951), SEBs, and REBs (1974), with generation, transmission, and distribution integrated.

The first financial crisis in the early 1970s saw governments failing to expand electricity, and neoliberal policies began entering the power sector. In response, NTPC (1974) and NHPC (1975) were set up to channel bilateral-multilateral loans from foreign countries and the World Bank; later NPC (1987) and other PSUs emerged. Meanwhile, BHEL became capable of supplying indigenous equipment for up to 86% of new capacity installed during the Fifth Plan (1975–80), and India achieved 100% self-reliance in transmission and distribution systems.

Installed capacity grew 38 times to 65,000 MW at 9.6% annually (fastest during 1974–84 with over 80% indigenous equipment) and consumption grew at 9.8% per year, while electricity prices remained among the lowest globally (about 30% of developed countries).

THE GENESIS OF THE RESOURCE-CRISIS

The Indian power sector grew much faster than the national economy in these decades (about an 8:1 ratio). In developed countries, investment for generation and distribution was nearly three times revenue from electricity sales; as electricity underpins all economic activity, developing economies had to channel financial surpluses from other sectors.

However, as per the CEA chairperson, till March 1980 most SEBs earned returns above 9.5% and mobilized internal resources for plan outlays; another report notes that in the mid-1970s SEBs had an operating surplus of 24% (cost 16 paise, realization 20.4 paise per kWh). Strikingly, by 1990–91 SEBs incurred losses of around 30% (cost 105 paise, realization 81 paise per kWh) – a fivefold tariff rise alongside a sharp shift from profit to loss.

The Root Causes

The cost per MW addition was stable at Rs 26–30 lakhs till the mid-1960s, but after 1966–when foreign aid was cut and rupee devaluation occurred – it rose to Rs 79 lakhs, later reduced to Rs 74 lakhs per MW by 1975 through improved indigenous capacity.

Despite difficulties, India achieved self-reliance in generation, distribution, and capacity addition, with indigenous equipment 50% cheaper than imports and potential to reduce costs to 30% of developed-country levels; foreign exchange needs were about 10% of sectoral investment and under 4% of total imports.

However, the government accepted World Bank and IMF credit policies; from 1975 NTPC and NHPC expanded, but new capacities increasingly used imported equipment, pushing costs up to Rs 332 lakhs per MW by the Eighth Plan (1990). SEB-generated electricity was kept artificially low-priced to balance tariffs (1992–93: SEBs 65 paise vs CPSUs/IPPs 95 paise; 2001–02: 130 paise vs 240 paise per kWh), creating inter-utility tariff imbalances and deepening the crisis.

The Disastrous 1991 Reform

At this juncture of the Indian economy and power sector, the Government of India remained silent on rising electricity investment costs and, under World Bank and IMF influence, opened power generation to private and foreign companies. To attract Independent Power Producers (IPPs), it guaranteed 16% tax-free profit on equity,

allowed 100% foreign equity with full equipment imports, enabled accelerated depreciation, and mandated SEBs to bear higher purchase costs. The core objective of providing adequate, low-cost electricity to the national economy was thus replaced by profit-driven commodification and expanded private sector participation.

Globally, the Gulf War drove fuel prices sharply up, and limited foreign exchange reserves worsened the pricing crisis. Tariff-setting power was vested in the government through an amendment to the 1948 Act, replacing earlier negotiations between SEBs and generation companies.

Meanwhile, in August 1989, the Government of India decided to form the National Power Transmission Corporation (NPTC) to manage inter-state transmission and related systems, which was renamed Power Grid Corporation of India Limited (PGCIL) in October 1992.

First Decade of Reform

The government and WB-IMF claimed the 1991 reforms would rapidly boost power generation through IPPs in scale and efficiency; however, the IPP Report (2001) shows that only 3,200 MW became operational and 2,700 MW reached financial closure by 2001. Against a 1992-97 target of over 40,000 MW, less than 17,000 MW was added. A 2001 report noted that, in the name of reform, successful public institutions were being dismantled for costly, untested alternatives, while established PSUs like NTPC were denied a level playing field despite proven performance.

The Promised Financial Recovery Failed Utterly

Another stated reform aim was reducing DISCOM losses, but losses rose from Rs 4,600 crore in 1992-93 to about Rs 26,000 crore by March 2001, and supply reliability became among the worst in developing countries.

Despite rising retail tariffs (105.4 paise per kWh in 1992-93 to 240 paise in 2001-02), higher input costs widened the ACS-ARR gap from 24 paise per kWh in 1990-91 to 92 paise in 2000-01. Costlier inputs from foreign capital, guaranteed high profits, and expensive liquid fuels deepened the crisis, alongside energy shortages of about 8.3% and peak shortages of around 11.3%.

Devastating Experiences of Pioneer Reforming States

In the mid-late 1990s, Odisha, Haryana, Andhra Pradesh, Uttar Pradesh, Rajasthan, and later Karnataka adopted reform policies to access World Bank loans, agreeing to a three-pronged programme: unbundling integrated utilities into generation, transmission, and distribution; privatizing generation and distribution; and setting up independent regulatory commissions to take over tariff roles from state governments. However, these reforms failed, further deepening the crisis, as reflected in subsequent data tables.

Table 1A: Subsidy Before and After Unbundling

State	Year of unbundling	Subsidy in crores	
		Pre-unbundling	Post-unbundling

Andhra Pradesh	1999	850.4	1982
Haryana	1999	1063	1244
Karnataka	1999	510.7	1924
Rajasthan	2000	706	1715

Source: Power Sector Reform, Author

Table 1B: Revenue Balance

State	Profit (+)/loss (-) in crores	
	Pre-unbundling	Post-unbundling
Andhra Pradesh	-88.52	-1194.04
Haryana	6.69	-1537.37
Rajasthan	63.22	-2412.3

Source: Power Sector Reform, Author

Table 1C: Average Tariff

State	Average tariff (paisa* per KWH)	
	Pre-unbundling	Post-unbundling
Andhra Pradesh	156	222
Haryana	155.3	225.37
Karnataka	165.5	221.32
Rajasthan	140.6	245.69

Source: Power Sector Reform, Author

THE SECOND BLOW OF REFORM: ELECTRICITY BILL 2001

The Electricity Bill 2001, tabled in August 2001 to enable private entry, was stalled for two years by protests and became the Electricity Act, 2003, aimed at distancing government from regulation to promote privatization. The Act de-licensed generation, allowed captive plants and private transmission licenses, provided for SEB unbundling, and removed IPPs' obligation to sell to SEBs. It also enabled power trading without physical infrastructure, introducing speculative finance capital into the sector. Despite expanded privatization through contractorisation, franchising, and outsourcing, the Act failed to ensure cheap and affordable electricity for the masses.

A 2006 policy document by the Electricity Employees Federation of India (EEFI) outlined a roadmap to resolve the crisis, emphasizing reduction of installation, fuel, foreign exchange outflow, O&M costs, and AT&C losses, while maximizing techno-

economic benefits from available sources. However, governments ignored these suggestions and persisted with reforms, worsening the crisis.

Data shows that in the first decade after the 2003 Act, AT&C losses declined somewhat, but despite reduced cross-subsidy, DISCOM losses increased.

Table 2: Change of Key Performance Parameters Between 2004–2012

	2004	2012
AT&C losses (%)	34.8	25.4
Profit margin without subsidy (%)	-21.6	-33.4
Tariff distortion [a measure of cross-subsidy, i.e., 1 - (tariff of agriculture /tariff of industry)]	0.81	0.72

Source: Power Sector Reform, Author

All reform programmes failed to address the roots of the crisis, which deepened despite multiple financial schemes. After coming to power in 2014, the Modi government pushed further reforms through the Electricity (Amendment) Bill; after five failed attempts, a sixth draft was released on 14 October 2025.

The draft’s explanatory note admits that despite 22 years of the Electricity Act, 2003 and major structural reforms, the distribution segment remains in severe financial stress, with cumulative losses rising from Rs 26,000 crore to Rs 6.9 lakh crore. Before examining this Bill, it is necessary to assess the current extent of privatization across power sector segments.

Generation

Tracing the crisis-driven evolution of India’s power generation reveals striking trends: private sector share in installed capacity rose from 15% in 2008–09 to over 55% today, accelerating after the 2008 global crisis; a 2012 World Bank Group policy paper identified this trend unambiguously – *‘the highest-ever rate of private participation in the power sector occurred... over a five-year period (2007–12)’*. It has doubled in the last decade.

Non-fossil fuel capacity (52.57%) has now overtaken fossil fuel (47.43%) and is expanding rapidly, with 80–90% of growth over the past decade concentrated in solar and wind power. Undoubtedly, REs are the developing category in India’s energy mix. Now let us see the dominance of private capital in these segments.

Table 3: Share of Public and Private in Source-wise Installed Capacity

Region	Ownership/Sector	Thermal		Hydro		RES (Except Large Hydro and Nuclear)	
		In MW	In %	In MW	In %	In MW	In %
All Ind	State	83379	34	27525	54	18436	9
	Private	81055	33	5851	11	185528	86

ia	Central	84108	34	17789	35	11559	5
	Total	248542	100	51165	100	215523	100

Source: CEA Monthly Installed Capacity Reports

Table-3 shows that while thermal capacity ownership is roughly balanced among private, state, and central sectors, renewable energy – mainly solar and wind – is overwhelmingly private (86%), indicating that the future of energy is largely in corporate hands.

Though central sector entities are owned by CPSEs, significant stakes have shifted to private investors via equity sales; for instance, 48.90% of NTPC shares have been divested (NTPC Annual Report 2024–25).

Strikingly, NTPC plans to reach 60,000 MW by 2032, but the National Monetisation Pipeline mandates PSUs like NTPC and NHPC to transfer operational renewable assets to private players, showing that public ownership no longer ensures full operational control (Source: NITI Aayog NMP document Vol-II page 54).

DIRECT PRIVATE INVESTMENT IN INDIA'S POWER SECTOR

It is clear that the private investment and control in India's power generation sector have increased aggressively since 2008 global crisis, and multiplied in the last decade of Modi Government. It was facilitated by the boom of Renewable Energy. A 2012 World Bank Report states '*Private investment in generation under the market-driven competitive bidding scenario did well in the 11th Five-Year Plan (2007–12), and the initial rounds of bidding coincided with a booming economy and a stock market bubble in which private companies responded in large number.*'

But the real private growth started in Renewable Sector mostly after 2015. It was supplemented by historic 6-decade lowest long-term OECD interest rates. IEA, India Energy Outlook 2021 predicted – '*India will need US\$ 1.4 trillion in additional funding for low emission technologies*'. However, the major concern to private capital was the deflationary trajectory of Solar Tariff. In 2021, the Institute for Energy Economics and Financial Analysis (IEEFA) suggest in a Policy paper that – '*the country must continue to work on resolving policy and legacy issues to prevent these financial institutions losing traction in the deflationary, domestic renewables sector.*' A serious problem for the private Generation investors was the payment delays by the Distribution Companies (DISCOMs).

To mitigate offtaker risk and increase the confidence of investors, the Centre empowered two Centre-owned for-profit companies to serve as intermediaries for power procurement on behalf of credit-risky DISCOMs. These companies – NTPC and the Solar Energy Corporation of India (SECI) – are typically referred to as 'central offtakers.' These companies started purchasing power from private RE developers through guaranteed cost reflective 25-year Power Purchasing Agreements (PPAs) and sold to DISCOMs through Power Sale Agreements (PSAs) at reasonable trading margins. The risk and delay of payment was shifted to Government while profit was ensured to private players through strong payment security mechanisms.

STATE OF PRIVATISATION AND FINANCIALISATION

The key financial institutions driving the private investment in India's Power sectors are: a) Private Equity, b) Sovereign Wealth Funds, c) Global and National Pensions and Infrastructure Funds, d) Global Fossil Fuel Power Utilities, e) Big Oil and Gas Corporations, f) India's Energy Oligopolies, g) Multilateral Development Finance Institutions and h) Indian State-owned Enterprises & Government Finance Organisations.

The purpose of investment and modus operandi of finance can be categorized in three segments: a) Investing in existing developers, b) Creating new developer and c) Investing in Infrastructure Investment Trusts (InvIT).

The first two investments are mostly in greenfield assets, whereas the third is typically for brownfield assets. InvIT is a SEBI created special purpose investment vehicle for Indian infrastructure with predictable and guaranteed return.

The Ministry of Power (MoP) has introduced several regulations and financial incentives and waivers to promote renewable energy projects and encourage private investments. It starts from mandatory Renewable Purchase Obligation (RPO), then Renewable Consumption Obligation (RCO) for DISCOMs, a full waiver of Interstate Transmission System (ISTS) Charge for solar and wind projects, and various incentive schemes to promote investments in PV cell and energy storage. However, these waivers, while intended to boost renewable adoption, have skewed the market in favour of a few large corporate players.

A detailed study of the top Renewable companies in India exposes the degree of financialisation and foreign control over India's Renewable Power Generation sector.

ReNew Power: ReNew, with 18.5 GW operational capacity and 11.45 GW MoU-cleared assets, has major investments from the Canada Pension Plan Investment Board (CPPIB) (with Board representation), along with the Abu Dhabi Investment Authority (ADIA) and Abu Dhabi Future Energy Company (MASDAR). In May 2025, it secured US\$100 million from British International Investment (BII); Goldman Sachs was also an early investor.

Adani Green Energy Limited: Adani Green Energy Limited has a total portfolio of ~16.7 GW, with ~5 GW operational capacity. It is controlled by the Adani promoter group (~50%), including Adani Trading Services LLP and SB Adani Family Trust, and has major global investors such as Total Energies (~16-18%), Ardour Investment Holding (~6.35%), and Foreign Institutional Investors (~12.5%). The company has signed a 5 GW solar PPA with MSEDCL and is developing the world's largest renewable energy park (30,000 MW) in Kutch, Gujarat, along with hybrid solar-wind projects in Rajasthan and wind projects in Gujarat.

Greenko Group: Greenko Group has a portfolio of 7.5-9.4 GW, with over 6 GW operational capacity. It is predominantly owned by global investors – GIC, Singapore (58%), Orix Corporation, Japan (20%), and ADIA (14%) – with a smaller founder stake. It has developed projects in collaboration with other corporates, including Adani, and is increasingly focusing on integrated renewable energy and storage solutions, including pumped storage.

Tata Power Renewable Energy Limited and Tata Cleantech Capital: Tata Power Renewable Energy Limited occupies a leading position with a portfolio of about 15.6 GW

and plans to expand to nearly 24 GW. Backed by Tata Sons as the principal promoter (~45%), along with institutional investors such as LIC (~5.2%), BlackRock, Vanguard Group and Nippon Life, the company is focusing on hybrid renewable projects, battery storage systems, and pumped hydro storage.

NTPC Renewable Energy Limited: NTPC Limited retains a significant public sector presence with ~9.7 GW renewable capacity (~4 GW operational). The Government of India holds ~51.1% through the President of India, with the rest owned by institutional investors like LIC, ICICI Prudential, and global asset managers such as BlackRock and Vanguard. NTPC is expanding its renewable arm, NTPC Green Energy Limited, targeting 60 GW by 2032, alongside major initiatives in green hydrogen and pumped storage, and is exploring partnerships with foreign organisations like Saudi Electricity Company and ENEOS Corporation (Japan).

Avaada Energy: Avaada Energy has ~4 GW capacity with a strong pipeline, led by Avaada Ventures Pvt. Ltd. (60.10%) and Global Renewable Synergy Company Ltd. (GRSC, 39.90%), a subsidiary of Global Power Synergy PCL (Thailand). It has also mobilised project-level financing from international development institutions such as ADB, DEG (Germany), FMO (Netherlands), and Japan-based agencies, reflecting a model of promoter-led ownership but deep dependence on global institutional and development finance capital.

Azure Power: Azure Power has ~3 GW operational capacity and over 4 GW pipeline, wholly owned by Azure Power Global Limited (Mauritius). It is backed by major international investors including CDPQ, Canada (~53%), OMERS Infrastructure (~23.4%), and other European institutional and venture investors, highlighting strong foreign institutional presence in India's solar sector.

ACME Solar Holdings: ACME Solar has ~2.54 GW operational capacity and ~6.9 GW pipeline, primarily promoter-owned with investments from Nippon Life, 38 FIIs, and 14 mutual fund schemes. It is transitioning from a solar-focused developer to a diversified renewable company, emphasising green hydrogen, ammonia, and firm and dispatchable renewable energy (FDRE).

Hero Future Energies: Hero Future Energies has ~2 GW operational capacity with a ~4 GW pipeline. Promoted by the Hero Group and backed by global investors such as Kohlberg Kravis Roberts (KKR) and IFC (World Bank Group), it is expanding into green hydrogen derivatives and firm renewable energy solutions, and is preparing for an IPO to raise capital for further expansion.

It is clear that India's future energy – the renewable energy sector is heavily infiltrated and controlled by foreign investors. A wide spectrum of international actors has acquired significant stakes in India's renewable power sector. These include private equity and infrastructure investment firms such as EQT (Sweden), KKR & Co. (USA), Global Infrastructure Partners, and Actis (UK); sovereign wealth funds like Abu Dhabi Investment Authority (ADIA), Masdar, Qatar Investment Authority (QIA), and Singapore's GIC; and global pension and infrastructure funds such as Canada Pension Plan Investment Board (CPPIB), Caisse de dépôt et placement du Québec (CDPQ), Brookfield Renewable Partners, Morgan Stanley Infrastructure Partners, and OMERS etc.

In addition, major global energy corporations – including fossil fuel-based power utilities transitioning into renewables such as Enel, JERA, and Électricité de France – as well as oil and gas majors like Total Energies, BP, and Shell plc, have entered India's

renewable energy space through equity investments, joint ventures, and project development. Furthermore, multilateral and development finance institutions such as the World Bank Group, Asian Development Bank, and KfW are financing renewable energy projects.

These big foreign organisations along with their Indian partners have heavily changed the corporate financial structures in many ways – the purpose is to extract maximum amount of cash out of an asset. They developed well-designed structure to allow management to move SPV Cash to Hold-Co., purchased distressed assets from developers in a fraction of its actual value, acquired and merged different components of a single asset or different assets to play in the economy of scale; financial engineering processes like Basis arbitrage (to lower its cost of Debt Capital and increase Equity returns), increasing leverage or Tax arbitrage (minimizing Tax to increase Equity returns) etc. have been introduced to amass higher and faster return from investment.

The Nuclear Power Sector was almost untouched by the Private players till December 2025. Then the Central Government passed the Sustainable Harnessing and Advancement of Nuclear Energy for Transforming India (SHANTI) Act, 2025 repealing and replacing the Atomic Energy Act, 1962 and the Civil Liability for Nuclear Damage Act, 2010. This is certainly a seismic and dangerous change on India's nuclear framework; the Act removed important safety and accountability safeguards while opening the door to large-scale private and foreign participation in the most sensitive and hazardous energy sector and its value chain.

Actually, since the enactment of the CLND Act, multinational nuclear reactor suppliers, particularly Westinghouse of the United States and Areva (subsequently taken over by EDF of France), have refused to supply reactors or invest in India's nuclear sector. During President Obama's 2015 visit to India, the Modi government attempted to circumvent this issue by proposing an Indian Nuclear Insurance Pool as part of a liability risk management framework. However, this initiative failed to satisfy foreign suppliers, who continued to insist on dilution of India's liability law. Notably, even the existing liability cap under the CLNDA was not based on any technical or economic assessment of nuclear accident costs. Instead, it was a political compromise arising from the Indo-US Civil Nuclear Agreement of 2008, designed primarily to accommodate foreign suppliers.

The Act explicitly promotes SMRs and fast-track licensing to accelerate deployment. While the Act does not expressly exempt SMRs from environmental clearance, it empowers the Central Government to prescribe licensing and approval procedures through rules, thereby creating avenue for dilution of environmental impact assessment (EIA) and public hearing requirements, coastal regulation norms, or land acquisition safeguards.

The SHANTI Act, in its present form, would institutionalise legal structures that favour suppliers and investors over victims, workers, and local communities, without adequate Parliamentary scrutiny. The Act vests sweeping discretion in the executive to permit foreign participation and technology transfer without mandatory Parliamentary approval, raising serious concerns regarding accountability, sovereignty, and long-term strategic control.

After the opening-up of the sector along with India's 100 GW nuclear target, energy conglomerates such as Reliance Industries, Tata Power, and Adani Power are preparing to invest a significant amount (~Rs 2–2.5 lakh crore), while the bulk of investment is still

coming from the public sector like Nuclear Power Corporation and other state-backed financing; additionally, NTPC Limited alone indicates about \$62 billion investment for ~30 GW nuclear capacity.

This rise of private monopoly-oligopolies in India's power sector and their unholy nexus with the ruling dispensations gives birth to obvious state-sponsored corruption. Examples can be called out. The Hindenburg Report triggered global scrutiny of the Adani Group, after which investigations by the Financial Times and the OCCRP provided detailed evidence of alleged over-invoicing of coal imports. According to the FT investigation over 30 coal shipments from Indonesia to India between January 2019 and August 2021, the export value was about \$139 million but import invoices declared \$215 million, implying an unexplained increase of roughly \$73 million (~52%) during transit. The investigation found that Adani used offshore intermediary shell companies registered in Singapore, Dubai, and Taiwan, through which around \$5 billion worth of coal imports were routed at prices sometimes more than double market rates. The example of one ship will be enough eye-opening; the DL Acacia ship departed the Indonesian port of Kaliorang in East Kalimantan in January 2019 carrying 74,820 tonnes of thermal coal with Mundra port in Gujarat as its destination. Surprisingly, in Indonesia, the price of coal was \$1.9 million. On arrival at Mundra, the declared import value was \$4.3 million.

The Directorate of Revenue Intelligence investigated multiple entities of the Adani Group – such as Adani Enterprises Ltd, Adani Power Ltd, and its subsidiaries – as well as companies linked to Reliance Infrastructure Ltd and Rosa Power Supply Company Ltd under Anil Ambani. These firms supplied coal to utilities like Tamil Nadu Electricity Board, Gujarat State Electricity Corporation, Haryana Power Generation Corporation, and Jhajar Power Ltd. Investigations suggest that by routing coal through intermediary firms and inflating invoices without any physical value addition, companies could manipulate both price and Gross Calorific Value (GCV), leading to higher tariffs; estimates cited in investigative reports indicate that such practices could increase electricity costs by about ₹1–1.50 per unit, significantly raising household bills.

In November 2024, the US Department of Justice and the US Securities and Exchange Commission filed criminal and civil cases against Gautam Adani and executives of Adani Green Energy Limited, alleging a bribery and fraud scheme involving more than \$250 million in payments to Indian officials to secure large solar power contracts projected to yield over \$2 billion in profits. US filings further claim that the company raised billions of dollars from global investors through misleading disclosures about anti-corruption practices.

Crucially, the alleged bribery was devised to ensure that Indian state electricity distribution companies (DISCOMs) enter into long-term power purchase agreements (PPAs) for solar power at 'above-market rates' which were difficult to sell to DISCOMs without intervention. This suggests a potential mechanism through which, if such contracts were enforced, higher procurement costs could be transferred to DISCOMs, worsening their already fragile finances.

India's power generation sector is the most affected segment due to the intrusion and control of private corporations. Although the public sector remains the dominant player in the transmission and distribution sectors, a serious push has been initiated to privatise these segments as well.

TRANSMISSION

Table 4: India's Current Transmission Network (in cKM)

Central	State	JV/Private	Total
189823	269034	44804	503661

Source: NITI Ayog

Table 5: Share of Public and Private Sector in India's Transmission Capacity

Year	2012		2017		2022		Feb-26	
	cKM	%	cKM	%	cKM	%	cKM	%
Central	91950	36	141033	38	175164	38	189823	38
State	157116	61	202197	55	246709	54	269034	53
JV/Pvt	8415	3	24621	7	34843	8	44804	9
Total	257481		367851		456716		503661	

Source: NITI Ayog

The above two tables clearly indicate that:

- a) The transmission sector is mostly dominated by public sector.
- b) The share of private sector is slowly increasing.
- c) The state transmission sector is saturating.

The largest CPSU engaged in Transmission is PowerGrid. A detailed study of policies related to PowerGrid clearly exposes the Modi Government's attempt to make it hollow from within.

Powergrid has ascended to become the third-largest power transmission entity globally. Engaged in bulk transmission through its EHVAC (up to 765 kV) and +800/+500 KV HVDC network, PowerGrid has 1,81,054 cKM, 287 substations, and a transmission capacity of 5,82,516 MVA, maintaining excellent line availability of over 99.84%. Over the past five years, PowerGrid has expanded its transmission lines by more than 30% through the rapid construction of substations, lines, and towers. Though 51.34% share of Powergrid is in hand of Government, it has heavily divested its shares to Domestic Financial Institutions (19.39%) and Foreign Institutional Investment (25.67%).

The Modi Government directed the PowerGrid Corporation under NMP-1 to divest 28,608 cKM of transmission lines and approximately 50 connected substations at a significantly discounted price of Rs 45,200 crore. Conservative estimates suggest that the construction cost for this length of 765 kV TBCB single circuit lines would be around Rs 60,649 crore.

Alarmingly, even before the National Monetisation Pipeline (NMP) policy was officially announced, monetisation had begun in PowerGrid. Through the PowerGrid

Investment Infrastructure Trust (PGInvIT), registered under SEBI on January 7, 2021, a 74% stake in five fully operational power transmission special purpose vehicles (SPVs) had already been transferred to foreign and Indian corporations. These assets include a network of 11 transmission lines totalling about 3,699 cKM and three substations with 6,630 MVA of aggregate transformation capacity.

PGInvIT paid Rs 409.62 crore to unit holders in first six months (78.39% of income), with the majority of units held by foreign portfolio investors and mutual funds. At this rate, the total invested amount in InvIT could be recovered by unit holders within a few years, leaving PowerGrid's assets financially unsustainable. This mechanism is nothing but to siphon off assets to private investors, rendering PowerGrid's assets liabilities.

On October 3, 2022, the Ministry of Power released a document; that guideline applies to TBCB projects owned by PowerGrid corporation but extends to state and other CPSE/PSU networks. The document outlines an AOMT model for these assets, emphasizing the monetization of stable, revenue-generating brownfield assets, effectively transferring profitable public assets to private corporations.

To undermine the viability of public sector projects, the Central Electricity Regulatory Commission (CERC) has imposed restrictions on operation and maintenance (O&M) norms, disrupting the actual cost recovery mechanism for RTM assets. As PowerGrid bids lower to win TBCB projects, 70–80% of new assets now fall under TBCB, affecting financial viability.

Another major issue is related to the introduction of Renewable energy. Initially, the renewable power policy laid emphasis on distributed generation which could have avoided transmission asset creation. However, the current focus seems to have shifted to large scale private renewable projects and ultra-mega RE parks. So, the public transmission sector is aggressively engaged in construction of remote transmission network for evacuation of Renewable energy; the operation and revenue realisation part is practically planned to hand-over to private players.

INDIA'S PRIVATE TRANSMISSION SECTOR

India's transmission sector has seen a steady growth of a few major private corporate players with measurable asset bases and increasing foreign investment linkages.

Adani Energy Solutions Limited: Adani Energy Solutions Limited is the largest private transmission company in India, operating a network of 26,696 cKM as of FY2025. It also accounts for about 41.5% of India's private transmission capacity. The company is publicly listed with majority ownership retained by the Adani Group (around 65–70%), while the remaining shareholding includes domestic and foreign institutional investors. The company has also attracted foreign capital at the group level, notably from Abu Dhabi-based International Holding Company (IHC), reflecting increasing global finance entry in India's grid infrastructure.

Sterlite Power Transmission Limited: Another key player is Sterlite Power Transmission Limited, which has developed a portfolio of over 13,700 cKM of transmission lines across India and Brazil. A significant portion of these assets has been monetised through India Grid Trust (IndiGrid), India's first power sector Infrastructure Investment Trust. IndiGrid owns approximately 8,400–8,500 cKM of transmission lines and multiple substations and

is backed by global capital, with its investment manager controlled by KKR & Co. This makes it one of the largest vehicles for foreign investment in India's transmission sector. In addition, companies such as Techno Electric & Engineering Company Limited and Kalpataru Projects International Limited have participated in transmission development, often creating assets that are later transferred to InvIT platforms like IndiGrid. Tata Power Company Limited is another important participant, though its transmission footprint is smaller compared to dedicated private developers.

A defining characteristic of this private transmission segment is the deep integration with global finance – particularly through InvIT structures – where foreign investors such as KKR and other institutional funds hold significant stakes, reflecting the ongoing financialisation of India's transmission infrastructure.

The government is targeting further asset monetisation of ₹2,76,500 crore from Central power sector projects by FY30, according to the National Monetization Pipeline (NMP) 2.0. Along with that, the Central Government is pushing State Governments for monetizing their transmission assets.

DISTRIBUTION

India's Power Distribution Sector is still the least privatised among all segments. The Central government has become increasingly determined to privatise this segment lock, stock and barrel. Distribution sector is completely under the State list and Central government is imposing draconian rules and regulations to make the private entry in the segment absolutely smooth. Before entering into the policy details, let us have a picture of status of Indian DISCOMs.

Table 6: Details of Indian DISCOMs

Total No. of DISCOMs	No. of Public DISCOMs	No. of Private DISCOMs	No. of Profit making DISCOMs	No. of Loss making DISCOMs
73	56	17	37	37

Source: NITI Ayog Source: Niti Ayog

As per government and sector estimates, private distribution accounts for roughly 10–15% of total electricity supply, largely concentrated in urban and industrial areas, while state-owned DISCOMs continue to serve the majority – especially rural and semi-urban regions.

Major Private Players in Distribution Sector

Tata Power Delhi Distribution Limited: Tata Power Delhi Distribution Limited is a joint venture (PPP) DISCOM, where Tata Power Company Limited holds a 51% stake and the Government of Delhi hold 49%. It serves North and North-West Delhi.

Adani Electricity Mumbai Limited (AEML): AEML Supplies electricity to Mumbai suburban areas, serving over 3 million consumers. The company is characterised by high tariff and profit, reflecting its concentration in a high-revenue urban market. As part of a larger

integrated corporate structure, it benefits from financial and strategic backing at the group level.

Torrent Power Limited: It operates distribution networks in Gujarat (Ahmedabad, Surat), Maharashtra (Bhiwandi), and Uttar Pradesh (Agra).

CEEC Limited: A flagship company of the RP-Sanjiv Goenka Group, it provides electricity in Kolkata and surrounding areas, and has expanded into distribution franchises in other states.

Tata Power, Odisha: In Odisha, Tata Power has implemented the largest state-wide PPP distribution model through four regional DISCOMs: TPCODL, TPNODL, TPSODL, and TPWODL. In all these entities, Tata Power holds 51% ownership and management control, while the state-owned GRIDCO retains 49%. This model represents a form of functional privatisation, where operational control is transferred to a private entity without full ownership divestment.

Though the distribution Sector was largely under the Public control, scenario started changing drastically after 2023 when the NDA Government was elected for 3rd time. It forcefully privatised the highly profitable, efficient and low-tariff Chandigarh power utility. This high-value utility was put up for bidding in an unscrupulous manner at a base price of a meager Rs 174.63 crore, without proper evaluation; whereas the profits of the utility for the past several years were around Rs 250 crore annually.

Similar attacks of privatisation have been made in Purvanchal Vidyut Vitaran Nigam Ltd. (PVVNL) and Dakshinanchal Vidyut Vitaran Nigam Ltd. (DVVNL) of Uttar Pradesh. These two utilities have been upgraded recently through heavy public investment and yet to collect Rs 66,000 crore as pending bills, which will be added to private coffers if these utilities are handed over. Strikingly, the proposed reserve bid price is around a paltry Rs 6,500 crore whereas the actual approximate value will be more than 1 lakh crore.

In Maharashtra, the push for parallel power distribution licensing has intensified with private players like Torrent Power, Adani Electricity, and Tata Power aggressively seeking entry into multiple regions.

In fact, this Modi government has strategically advanced to financially weaken the State DISCOMs from the very beginning. Just after taking charge in 2014, the government introduced several policy measures resulting in a rise in coal prices, thereby imposing a huge burden on DISCOMs. Then the government ordered to increase the import of coal, which resulted in an additional burden of Rs 42,000 crore on the power purchase bills of DISCOMs last year; all these measures have enhanced the financial vulnerability of the DISCOMs.

And recently, the MoP has claimed that, 'the States have urged the Centre to support in privatisation of distribution' and 'listing of utilities will be taken up by States to bring in investment'. Undoubtedly, all the states will be forced to speed-up their privatisation agenda.

Further, to facilitate the privatisation project, a Group of Ministers has been formed by the Government of India, with the UP Energy Minister as the convener, who is infamous for his privatisation drives. The Central government has planned to offer a Rs 1 trillion bailout for debt-laden DISCOMs with a condition to surrender control to private companies or list DISCOMs on stock exchanges.

And now, the government has released the sixth and the latest draft of the Electricity (Amendment) Bill, 2025, which is certainly more notorious than its previous versions. As per the newly proposed Draft Electricity (Amendment) Bill, 2025, the private distributors will be allowed to operate without investing in infrastructure, while state utilities will be forced to provide network access and continue bearing the costs of maintenance, losses, and expansion. Private players will focus only on profitable rich consumers – industries, malls, and IT parks – leaving public DISCOMs with low-paying rural and poor households, thereby undermining the cross-subsidy system.

This will reduce public sector revenue, increase tariffs for ordinary consumers, and push state utilities toward financial collapse and eventual privatisation. At the same time, the Bill centralises power with the Union government, weakens State Electricity Regulatory Commissions, and undermines federalism by granting sweeping rule-making authority to the Centre.

Along with this, the MoP has launched the private sector prepaid smart metering project; the operation and revenue collection right will be handed over to the private players. By generating real-time consumption and billing data, this enables private players to strategically target high-revenue consumers and regions, facilitating ‘cherry-picking’ and introducing dynamic virtual market pricing.

Under this model, control of metering infrastructure shifts to third-party AMI providers, who invest, own, and operate smart meters while charging consumers rental fees, effectively outsourcing core utility functions and raising concerns over data privacy, cybersecurity, and regulatory control. Major private players such as Adani Group, Tata Power Company Limited, Genus Power Infrastructures Limited, and Secure Meters Limited are leading this segment, with contracts and investments running into tens of thousands of crores.

With nearly 26 crore consumers, the estimated cost burden of ₹8,000–12,000 per meter implies a massive transfer of ₹2–3 lakh crore from consumers, despite a relatively short meter lifespan of 7–8 years. This model facilitates the entry of private distributors by granting them access to granular consumer data, thereby accelerating market fragmentation, undermining cross-subsidy, and threatening the principle of universal electricity access.

This should be seen in connection with the Central government’s push towards increasing reliance on market-based mechanisms for sell and purchase of power, potentially undermining existing PPAs and thus limiting DISCOMs’ autonomy in power scheduling and increasing procurement uncertainty and costs. It has sharply inflated electricity prices, with peak rates still crossing ₹10–12/unit.

The monopoly dominance of the Indian Energy Exchange (IEX) – controlling nearly 99% of the virtual transaction market – risks the genuine price discovery further. The proposed Market Coupling Operator (MCO) mechanism additionally centralizes price-setting and data control, raising serious concerns around transparency, and regulatory oversight, thereby accelerating the shift toward a speculative, privately controlled power market.

Along with this, through the establishment of Virtual Power Purchase Agreements (VPPAs) system, electricity is no longer physically transacted but settled through contract-for-difference mechanisms, allowing large corporations – especially tech firms

and multinationals – to claim ‘green energy’ credentials via Renewable Energy Certificates without altering their actual fossil-fuel-based consumption patterns.

Certainly, the distribution sector is under severe threat of various forms of privatization through policy and technological changes introduced by highly centralized monopoly capital groups and their foreign partners.

CONCLUSION

The Indian power sector is undergoing a drastic and rapid transformation in its structural, technological, and financial framework. The crisis of global capitalism has created new forms of industrial transition for its own survival and various forms of private financial instruments have entered the sector. Significantly, capitalism is neither ready to let go of the polluting fossil fuel industry nor to lose control over future renewable energy infrastructure.

The renewable transition reduces dependence on living labour, and, along with the development of storage facilities, is likely to make the service more capital-intensive and tangible with reduced worker engagement. As a result, the strategic capacity to halt the system is also being weakened.

But the most crucial feature is that big business houses in India, in collaboration with their foreign partners, are rapidly taking over the operational control of India’s power sector. India’s ostensibly sovereign power sector has already begun losing its stake to private players – a multidimensional process that represents a complex maze of privatization shaping the transition; from public to private. These new challenges must be addressed with new strategies.