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Stalled Reform in a Politically Competitive State: Uttar Pradesh's Electricity Distribution Sector

Working Paper
Mapping Power Project

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Project Overview

This working paper was written as part of a collaborative research project, Mapping Power, which aims to provide a state-level analysis of India's electricity governance. The project is coordinated by Sunila S. Kale (University of Washington, Seattle), Navroz K. Dubash (Centre for Policy Research), and Ranjit Bharvirkar (Regulatory Assistance Project), and carried out by a team of 12 researchers. The research explores the views and perspectives of various stakeholders and organizations in each state and how they will be affected by new initiatives in India's electricity sector, as well as the forces and constraints that shape decision-making in electricity governance. Using data from qualitative interviews with key informants buttressed by quantitative data, the research team covered 15 states as part of the analysis: Andhra Pradesh, Bihar, Delhi, Gujarat, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttarakhand, Uttar Pradesh, and West Bengal. You can learn more about Mapping Power as well as access other working papers in the series here: http://www.cprindia.org/projects/mapping-power.

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This paper is based on interviews with 26 individuals, including bureaucrats, regulators, business people, consumer representatives, and journalists. The author is grateful to everyone who generously gave their time to talk and share their insights for this research. Interviews were conducted on a not-for-attribution basis. The interpretations made in this paper, and any errors, are the author's own.

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Abstract

The electricity distribution sector in Uttar Pradesh has, since the late 1980s, faced the persistent problem of poor performance by its public electricity distribution companies (discoms), which are crippled by high levels of debt. Following years of discussion and at a time of fiscal crisis, in 1999 the Government of Uttar Pradesh, supported by the World Bank, initiated a reform programme for the distribution sector. Multiple discoms were to be set up, which were to operate commercially and independently before being quickly privatised. Investment in infrastructure was planned, and the process of tariff-setting was to be depoliticised. While five new discoms were created, they have not since been privatised, and the state of the distribution sector has seen little improvement. A gap has opened between how the sector should operate on paper and how it operates in practice. A number of factors help to explain the situation in Uttar Pradesh, and suggest that improvements in the financial performance of public discoms will be difficult in the coming years. First, in the context of competitive state politics, successive governments have pursued populist policies in regard to the electricity sector, and have been unwilling to see tariffs increase significantly for agricultural and domestic consumers, or to oversee a crack down on theft. While governments have at several times pushed for the privatisation of discoms as a solution to the sector's problems, union opposition and practical challenges have stalled any plans. Second, the structural mix of domestic, agricultural, and industrial consumers served by public discoms has become increasingly unfavourable for any attempted financial turnaround. Over the last 30 years, large numbers of domestic and rural consumers have been connected to the electricity grid, from whom discoms collect little revenue. At the same time, industrial consumption, which provides the revenue that cross-subsidises domestic and agricultural customers, has flatlined at a low overall level.

Introduction

Since the 1980s, Uttar Pradesh's discoms have been persistently performing poorly, registering large annual losses while failing to meet electricity demand. High levels of debt have crippled the ability of discoms to operate effectively or to improve their performance. The core problems for Uttar Pradesh's discoms are low revenue realisation and poor billing levels, high aggregate technical and commercial (AT&C) losses, and subsidised tariffs for rural and domestic consumers that are not fully compensated by the state government. The resulting need to periodically bail out discoms has been a drain on wider state public finances, and has meant that there has not been the capital available for adequate investment in transmission and generation infrastructure.

Following years of discussion, and at a time of acute fiscal crisis, in 1999 the Government of Uttar proceeded with reform of the distribution sector. A reform programme was launched, supported by the World Bank, which set out a timetable for the creation of multiple discoms, which were to operate commercially, before being quickly privatised. The reform programme further sought to de-politicise electricity tariffs, by giving responsibility for tariff setting to the newly established Uttar Pradesh Electricity Regulatory Commission (UPERC), an independent regulatory body. The normative end goal of reforms was a distribution sector of profitable private discoms. These reforms quickly stalled, however, and while five new discoms were created, the privatisation process never went forward. Discoms were not left to act independently, their performance did not improve, and tariff setting continued to be politically influenced.

This paper traces how the failure of reforms and the lack of significant improvements in performance at Uttar Pradesh's public discoms can be linked to several key factors. First, since reform was carried out in 1999, successive governments have adopted politically populist approaches to the electricity distribution sector, undermining the chances of the state's discoms seeing a financial turnaround. While governments have often spoken about reform, they have been unwilling in practice to carry out changes that may be politically unpopular in the short-term. Repeatedly, governments have not allowed tariffs to be set independently of political considerations, and have not allowed agricultural and domestic tariffs to rise significantly. Providing subsidised electricity to key groups, such as farmers and weavers, has been important for the electoral fortunes of all political parties over the last three decades, but subsidised tariffs have never been properly financed. Governments have been unwilling to oversee a crackdown on high theft levels, and theft is in instances informally sanctioned by local politicians.[1] This paper shows that when governments have at several times pushed for the privatisation of discoms, union opposition and practical challenges have stalled any plans. Second, this paper highlights how the structural mix of domestic, agricultural, and industrial consumers served by public discoms has been unfavourable for any financial turnaround. The addition of large numbers of domestic and rural customers to the electricity grid over the last 30 years, coupled with flat and low industrial consumption, makes it very difficult for improvements in the distribution sector to be made. Public discoms have become financially reliant on cross-subsidisation by industry consumers, who pay significantly more in tariffs than it costs to supply them.

The establishment of an independent regulatory committee, the introduction of Open Access (OA) regulations, public and industrial stakeholder engagement, and the rising importance of renewable energy and new technologies have not been catalysts for major change in the electricity distribution sector in Uttar Pradesh. Recently, plans to privatise the state's discoms have been largely abandoned. Privatisation, which has persisted as a normative end point for the state's distribution sector over the last 30 years, has arguably been a distraction from the need to tackle high losses and theft, and to resolve the political and practical question of whether and how rural and domestic consumers are to be subsidised.

The paper is structured as follows. The first section focuses on the run-up period to the World Bank-supported reform programme, and on this reform period. The second section looks at how from 2002, following state-level elections, reforms largely stalled amid political instability. The paper examines how from 2007 onwards, under a Bahujan Samaj Party (BSP) and then a Samajwadi Party (SP) government, there were several windows where reforms might have enabled a restart for discoms. It traces how several attempts at privatisation were made, and how in the end populist politics, a lack of political will, and union opposition to privatisation prevented change. The third section turns to look at how a new drive to improve the performance of discoms has been started following the signing of the *Ujwal Discom Assurance Yojana* (UDAY) program.

I. Context

Uttar Pradesh is India's most populous state, with a population of nearly 200 million.[2] Low average income, slow economic growth in recent decades, and high levels of poverty highlights the difficult context within which the electricity distribution sector operates. Per capita annual income is Rs. 42,249,

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[1] Golden, Miriam, and Brian Min. "Theft and Loss of Electricity in an Indian State." In *International Growth Centre, London School of Economics and Political Science*, 2012.
[2] Census of India. "2011 Census".

which is significantly lower than the Indian average,[3] and Uttar Pradesh performs below average on literacy and health indicators.[4] The growth rate of state domestic product (SDP) was 2.5 percent between 1980/81 and 1990/91, 1.3 percent between 1990–91 and 2000–01, and 3.9 percent between 2000/01 and 2010/11, versus equivalent GDP growth figures for India of 3.1 percent, 3.9 percent, and 5.9 percent.[5] Household electrification in 2011 was 36.8 percent, with just 23.8 percent of rural households electrified.[6]

Per capita energy consumption in Uttar Pradesh is 450 kWh, against an average in India of 884 kWh.[7] Providing adequate electricity to meet demand in the state has been an ongoing challenge over recent decades, with a persistent gap between demand and electricity supplied. In November 2016, Uttar Pradesh had a total available installed capacity of 19,388.92 MW.[8] Figures 1 and 2[9] show the breakdown of this capacity in terms of type and ownership. Over the last two decades there has been a significant increase in installed capacity, with private investment in generation encouraged following reforms to the electricity sector in 1999. The financial performance of Uttar Pradesh's discoms has remained poor over recent decades. In 2016, the Ministry of Power, in its annual report on India's discoms, gave the state's four discoms B, C+, and C ratings.[10] Average cost of supply (ACS) has remained significantly higher than average revenue realised (ARR) for all public discoms, as highlighted in Figure 3.[11] Similarly, AT&C losses have remained high, with only small improvements, and a large amount of year to year variability. Figure 4 shows state-wide AT&C losses over the last decade. Industrial consumption at all public discoms is low, and industry consumers significantly cross-subsidise domestic and agricultural consumers. In 2014–15, while industrial consumers accounted for from 11 percent to 34 percent of consumption at the state's five public discoms, revenue from industrial consumers was from 21 percent to 49 percent of overall revenue. In contrast, while domestic consumption was from 34 percent to 48 percent of overall consumption at the five discoms, revenue from domestic consumers was only from 21 percent to 33 percent of overall revenue. Figures 5 and 6 highlight this situation.

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[3] Government of India. "Open Government Data Platform India."
[4] Dréze, Jean, and Amartya Sen. *An Uncertain Glory: India and Its Contradictions*. London: Penguin, 2013.
[5] *Ibid*. 296, 297.
[6] Census of India. "2011 Census.".
[7] Planning Commission. "Annual Report (2013-14): On the Working of State Power Utilities & Electricity Departments." 2014.
[8] CEA. "Monthly Generation Reports".
[9] Figures 1 and 2 Data Source: CEA. "Monthly Generation Reports".
[10] Power Ministry. "State Distribution Utilities Fourth Annual Integrated Rating." Power Ministry. New Delhi, 2016.
[11] Data for Figures 3, 4, 5, and 6 from UPERC tariff rulings, various years.

Figure 1: State-Wise Installed Capacity by Ownership, November 2016 (MW)

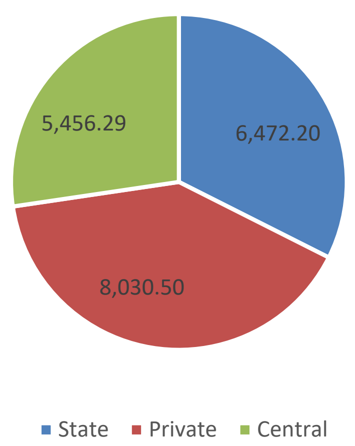


Figure 2: State-Wise Installed Capacity by Type, November 2016 (MW)

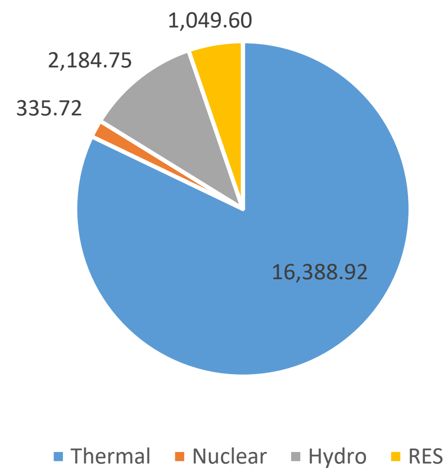
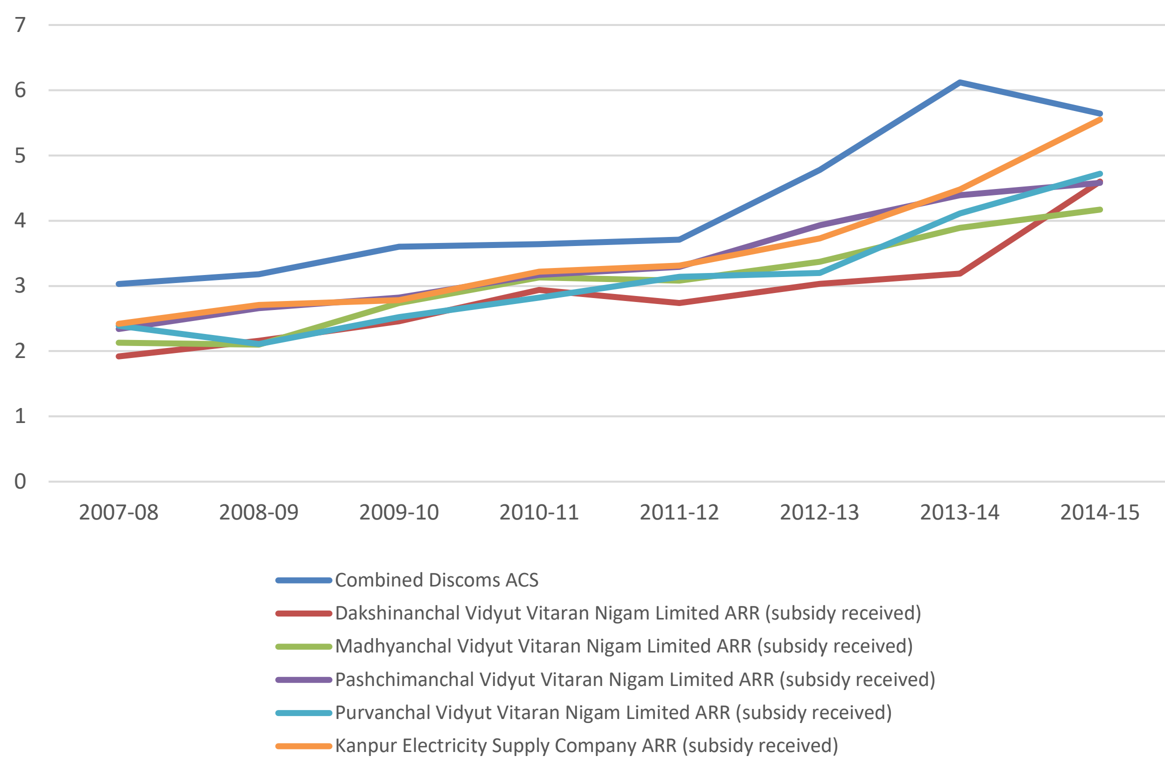


Figure 3: Average Cost of Supply (ACS) vs. Average Revenue Realised (ARR) (Rs/kWh)



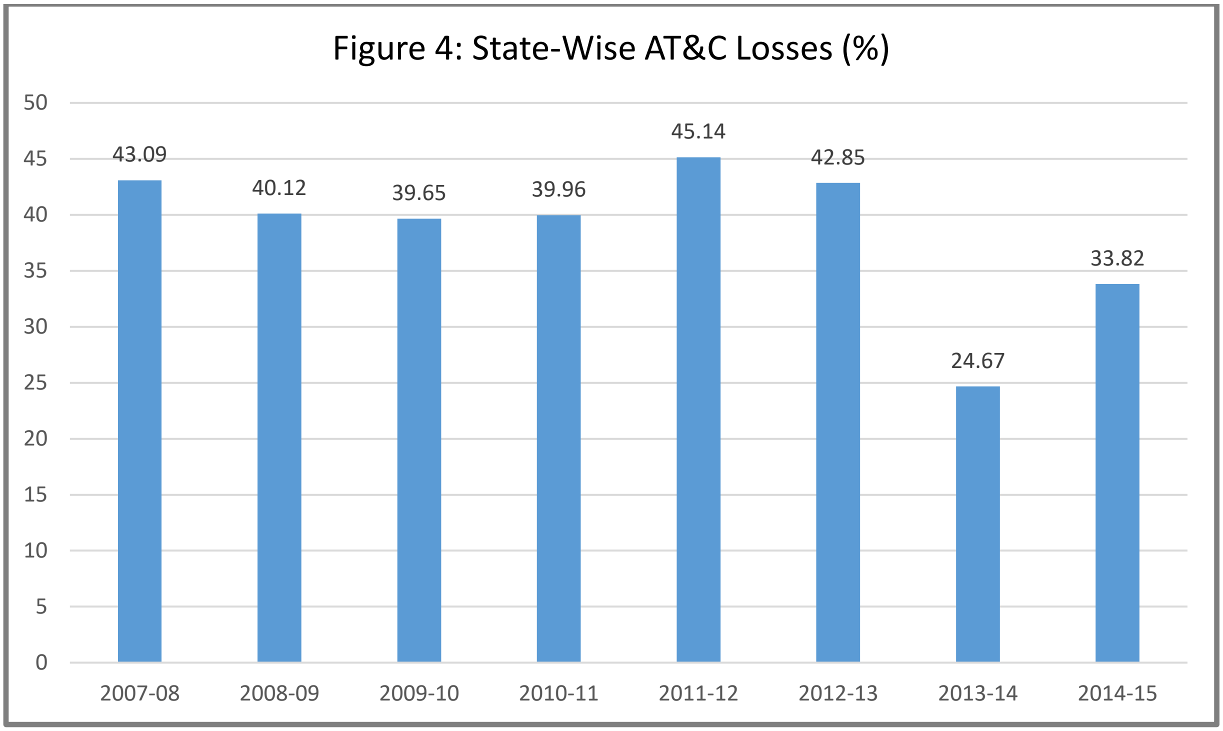


Figure 4: State-Wise AT&C Losses (%)
50
45
40
35
30
25
20
15
10
5
0
43.09
40.12
39.65
39.96
45.14
42.85
24.67
33.82
2007-08
2008-09
2009-10
2010-11
2011-12
2012-13
2013-14
2014-15

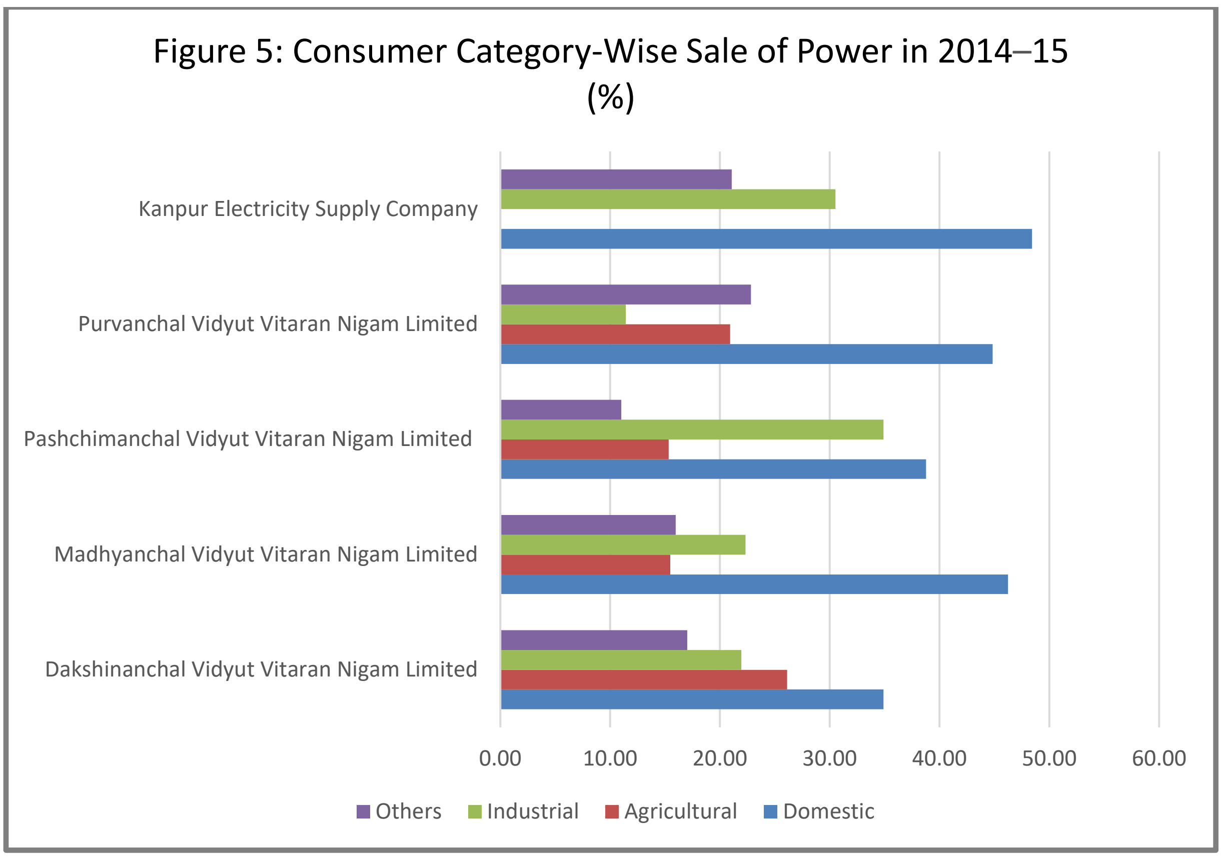
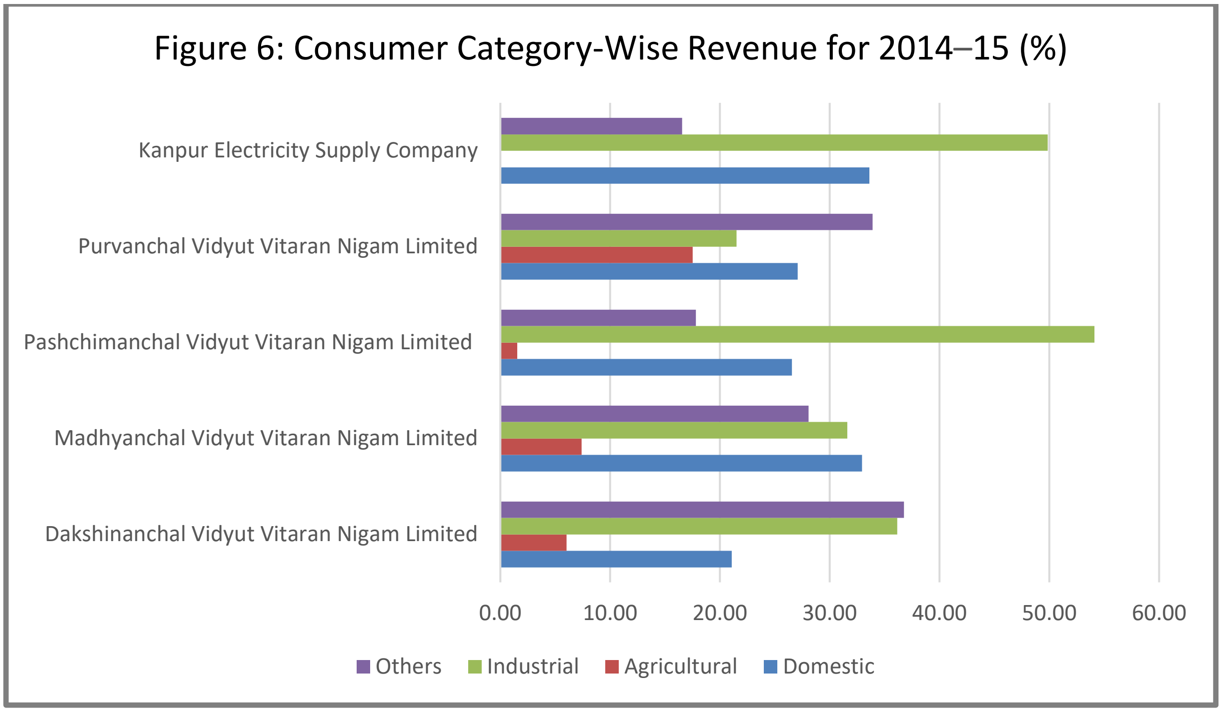


Figure 5: Consumer Category-Wise Sale of Power in 2014–15 (%)
Kanpur Electricity Supply Company
Purvanchal Vidyut Vitaran Nigam Limited
Pashchimanchal Vidyut Vitaran Nigam Limited
Madhyanchal Vidyut Vitaran Nigam Limited
Dakshinanchal Vidyut Vitaran Nigam Limited
0.00
10.00
20.00
30.00
40.00
50.00
60.00
Others
Industrial
Agricultural
Domestic



II. Planning a Distribution Sector of Privatised, Financially Self-Sufficient Discoms

Until the end of the 1990s, Uttar Pradesh, like most states in India, had a vertically integrated and publicly owned state-electricity board, the Uttar Pradesh State Electricity Board (UPSEB), which was responsible for generation, transmission, and distribution throughout the state. During the late 1980s and the 1990s the financial position of the UPSEB had rapidly deteriorated, and the capital was not available to invest in new, or upgrade existing, transmission infrastructure and generation capacity. Low revenue realisation and poor billing levels, high AT&C losses, and politically determined tariff setting were identified at the time as key problems.[12]

Through the late 1980s and 1990s, as the need for reform was becoming apparent, the World Bank was engaged repeatedly by governments in Lucknow, and plans for a World Bank-supported reform programme were formulated and considered at several points. The reforms that were proposed at this time focused on restructuring the UPSEB, the rationalisation and de-politicising of tariff setting, investment in transmission infrastructure, and allowing and encouraging private sector involvement in generation, transmission, and distribution. Their end goal was to see private generators in the state and private, commercially run, financially self-sustaining distribution companies. The late 1990s was more broadly a period of crisis and change for the electricity sector throughout India, as vertically integrated state electricity boards lost money and struggled to meet growing demand, and as the publicly run

[12] Gurtoo, A., and R. Pandey. "Power Sector in Uttar Pradesh: Past Problems and Initial Phase of Reforms." *Economic and Political Weekly* 36, no. 31 (2001): 2943-53.; World Bank "India - Uttar Pradesh Power Sector Restructuring Project." Washington DC: World Bank, 2000.

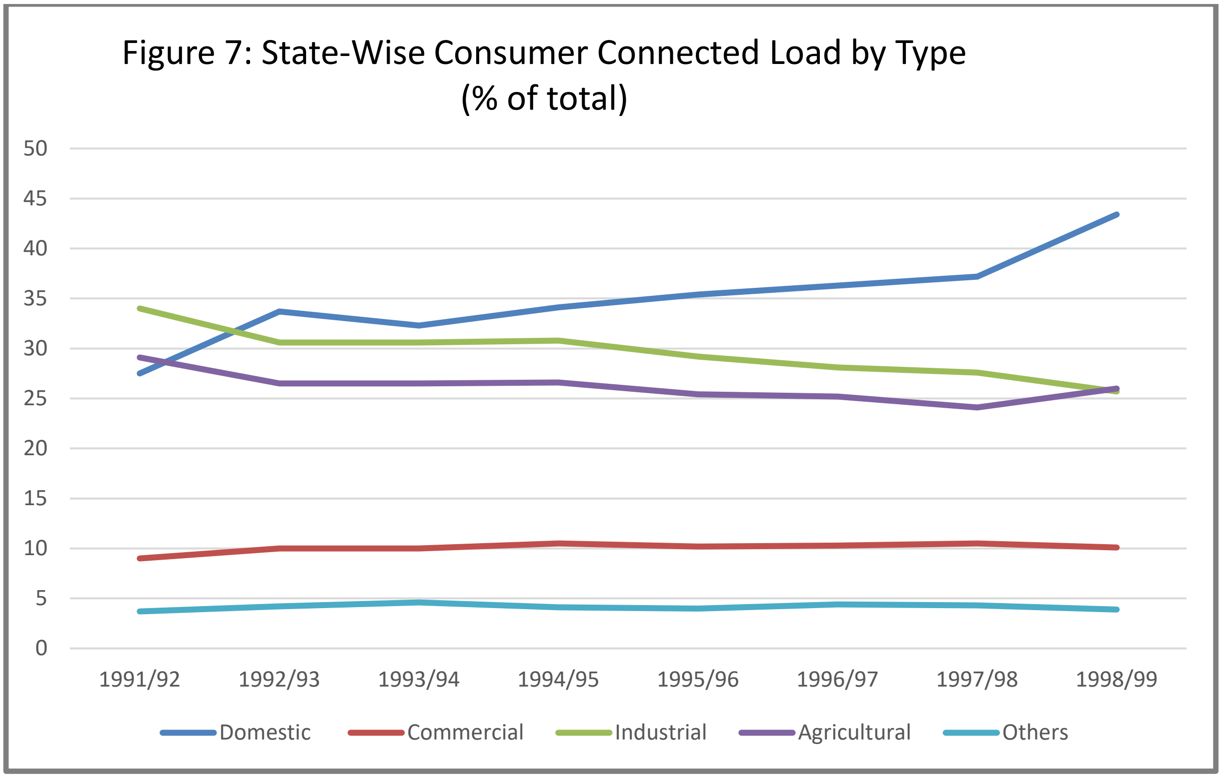
electricity generation, transmission, and distribution company model fell out of favour.[13] Uttar Pradesh was a pioneering state when it came to planning reforms. The focus of planned reforms showed the adoption of World Bank and New Delhi ideas, and mirrored reforms being adopted and planned elsewhere.[14]

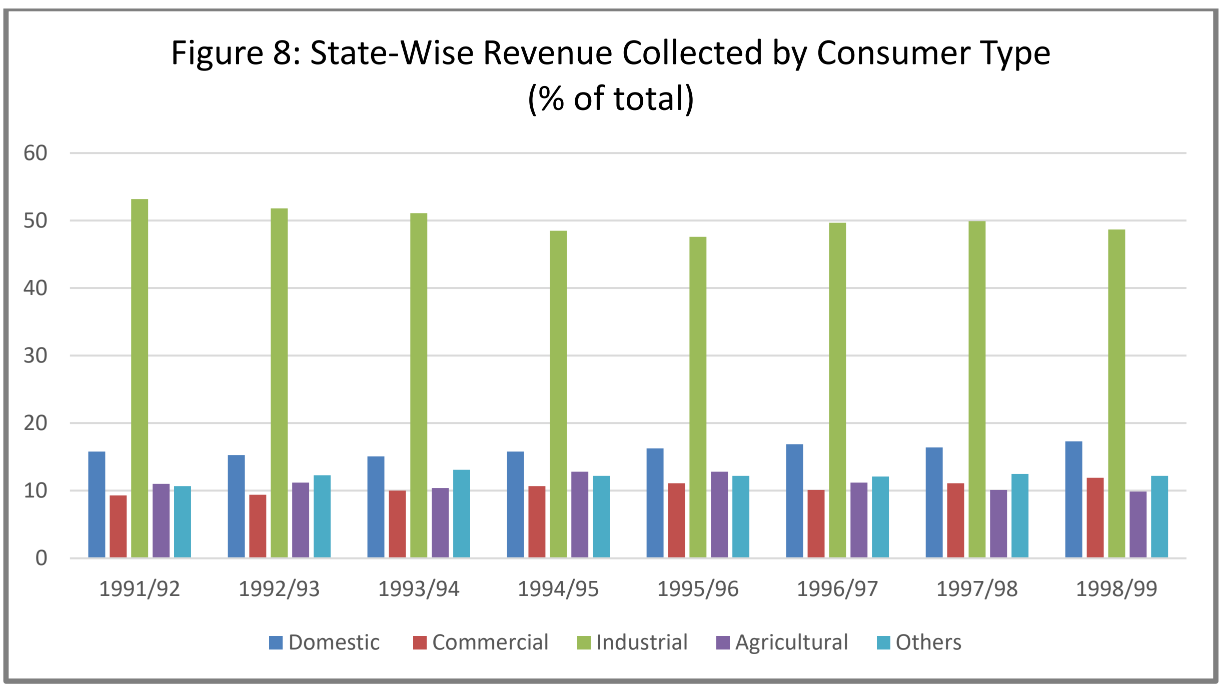
Political instability in Uttar Pradesh in the late 1980s and 1990s, however, saw large-scale reforms delayed; even though a $350 million World Bank–funded program was on the table from the late 1980s. By the start of the 1990s, politics in Uttar Pradesh had become a four-way battleground between the Congress Party, Bharatiya Janata Party (BJP), Samajwadi Party (SP), and Bahujan Samaj Party (BSP); from the late 1980s the state saw a quick succession of chief ministers, supported by shifting coalition governments.[15] With unstable governments, political competition, and the growth of political populism, no government was willing to commit itself to reforms that might be painful for the state's electorate.[16] One experimentation with privatising distribution did, however, take place. In 1993, a new Power Policy was set out, and the Noida Power Company was established as a private distribution company, with an arrangement that it would source bulk power from UPSEB. There was little resistance at the time to the company being set up.[17]

At the same time, during the 1990s a structural shift in the electricity consumer base was taking place in Uttar Pradesh. A context of subsidised domestic and agricultural tariffs, and heavy industry cross-subsidisation, was becoming entrenched, making the situation for the then-UPSEB more fragile. The number of domestic consumers in the state expanded rapidly, while industrial demand largely flatlined. Between 1991–92 and 1998–99 Uttar Pradesh saw its domestic consumer connected load increase in absolute terms from 2912 MW to 6290 MW, and as a percentage of overall load from 27.5 percent to 43.4 percent. This was a compound annual growth rate of 11.6 percent. But revenue from domestic customers only grew from 15.8 percent to 17.3 percent of total revenue. Over the same period, the overall load of industry increased only marginally, from 3,472 MW to 3,732 MW, and the percentage of overall demand that industry constituted declined from 34 percent to 25.7 percent. In 1991–92, industry provided 53.2 percent of UPSEBs revenue, and despite big structural changes, it still made up 48.7 percent of revenue in 1998–99. The tariff for the domestic sector grew at a compound annual growth rate of 4.4 percent between 1992–93, and 1998–99, below inflation, and the ratio of the average domestic tariff to the average tariff for all consumers decreased from 74.7 percent to 56.1 percent.[18] Through the 1990s, industry increasingly turned to captive power plants,[19] drawing more from captive power than from the grid,[20] while the UPSEB was administering much greater numbers of domestic

[13] Kale, Sunila. *Electrifying India: Regional Political Economies of Development*. Stanford: Stanford University Press, 2014.
[14] Dubash, Navroz K, and Sudhir Chella Rajan. "Power Politics: Process of Power Sector Reform in India." *Economic and Political Weekly* 36, no. 35 (2001): 3367-90.
[15] Michelutti, Lucia. *The Vernacularisation of Democracy: Politics, Caste and Religion in India*. New Delhi: Routledge, 2008.
[16] Pai, Sudha. "Populism and Economic Reforms: The BJP Experiment in Uttar Pradesh." In *The Politics of Economic Reforms in India*, edited by J. Mooij, 98-129. London: Sage Publications, 2005.; Pai, Sudha et al. "Uttar Pradesh in the 1990s: Critical Perspectives on Society, Polity and Economy." *Economic and Political Weekly* 40, no. 22 (2005): 2144-47.
[17] A majority of the Noida Power Company's revenue comes from industrial consumers. The profitability of this privatised discom, since it was established, lends weight to making the argument that discoms with a large base of industrial consumers are more likely to be financially successful, which I mention at the end of this paper.
[18] UPPCL. "Petition before the Uttar Pradesh Electricity Regulatory Commission." Uttar Pradesh Power Corporation Limited. Lucknow, 2000. 6,7.
[19] A 'captive power plant' refers to an electricity generation facility managed by an energy user for their own energy consumption.
[20] GoUP. "Power Policy 2003." Lucknow: Government of Uttar Pradesh, 2003.

consumers, for whom tariffs were low and revenue realisation was difficult. Figures 7 and 8[21] highlight this changing situation.





[21] Data for Figures 7 and 8 from UPPCL. "Petition before the Uttar Pradesh Electricity Regulatory Commission." Uttar Pradesh Power Corporation Limited. Lucknow, 2000. 6,7.

At the turn of the century, a state-level fiscal crisis in Uttar Pradesh, at the same time as a relatively stable BJP government was in power in Lucknow, briefly stabilised a context in which electricity sector reform would be planned and partially implemented. By the end of the 1990s, Uttar Pradesh's economy was growing slowly, investment was urgently needed, and the state's finances were in a debt trap. The raising of public employee salaries following the 1997 decision of the Fifth Pay Commission created an immediate budgetary crisis.[22] In response to this, in 1997 Sushil Chandra Tripathi, then Uttar Pradesh's principal secretary of finance, initiated a dialogue with the World Bank on launching a reform program. The support of Chief Minister Kalyan Singh and his government was won to draw up reforms together with the World Bank. Following a period of talks, the parties reached an agreement to go ahead with fiscal and public sector restructuring, a new industrial policy, and the decentralisation and reform of the village-level governance institutions known as panchayats.[23] At a national level, a BJP government in Delhi was likewise pushing reform and privatisation.[24] Reform of the electricity sector was key to achieving broader reforms, because the poorly performing and loss-making UPSEB was a serious drag on the state's finances. This was the most significant window of recent decades for the electricity distribution sector in Uttar Pradesh to be transformed.

Reorganisation and reform of the electricity sector was started in 1999. The agreed programme was that over several years there would be an unbundling of the UPSEB, the encouragement of new private generation, the establishment of a regulatory commission, the rationalisation of tariffs, investment in transmission infrastructure, and a timetable for the creation of multiple distribution companies and their privatisation.[25] By way of the Electricity Regulatory Commission Act (1998), the Uttar Pradesh Electricity Regulatory Commission (UPERC) had already been established. The UP Electricity Reform Act (1999) enacted the unbundling of the UPSEB into three independent corporations, the Uttar Pradesh Power Corporation Limited (UPPCL) for transmission and distribution, the Uttar Pradesh Rajya Vidyut Utapadan Nigam (UPRVUNL) for thermal generation, and the Uttar Pradesh Jal Vidyut Nigam (UPJVNL) for hydro generation. Following these reforms, the World Bank approved a $150 million loan to the state, primarily aimed at supporting improvements to the state's transmission system and to metering, which was to be matched by government funding.[26]

The government pushed ahead with reforms, despite resistance. Employee unions were opposed to restructuring and privatisation because they were set to lose their status as public sector employees, and because there was uncertainty surrounding their pensions. Their pension fund had in previous years been used by UPSEB to invest in fixed assets.[27] More than 100,000 employees went on strike, with unions in other states in India also calling strikes in solidarity. The government, however, refused to back down, and was given the full support of the central government. After some months, strikes were called off when the government agreed to fund the pensions of UPSEB workers, and reinstate workers who had been sacked for striking.[28] Gurtoo and Pandey argue that not effectively engaging and winning the support of unions for reforms was a mistake, that the UPSEB had been understood symbolically as a

[22] Kirk, J. *India and the World Bank: The Politics of Aid and Influence*. New York: Anthem Press, 2010.; Pai, Sudha et al. "Uttar Pradesh in the 1990s: Critical Perspectives on Society, Polity and Economy." *Economic and Political Weekly* 40, no. 22 (2005): 2144-47.
[23] Kirk, J. *India and the World Bank: The Politics of Aid and Influence*. New York: Anthem Press, 2010.
[24] Chandrasekhar, C. P., and J. Ghosh. *The Market That Failed: A Decade of Neoliberal Economic Reforms in India*. New Delhi: Leftword, 2002.
[25] GoUP. "The Uttar Pradesh Electricity Reforms Act, 1999." Lucknow: Government of Uttar Pradesh, 1999.
[26] World Bank. "India - Uttar Pradesh Power Sector Restructuring Project." Washington DC: World Bank, 2000.
[27] Gurtoo, A., and R. Pandey. "Power Sector in Uttar Pradesh: Past Problems and Initial Phase of Feforms." *Economic and Political Weekly* 36, no. 31 (2001): 2943-53.
[28] *Ibid*.

public state institution by employees for decades, and that the breaking up of the board was insensitive to this. Their prediction that this would set a dangerous precedent for future privatisation has proven to be the case, as protests in later years would derail plans for privatisation.

While the breakup of the UPSEB was completed, initial attempts to move ahead with privatisation failed. The intention was that the newly created Kanpur Electricity Supply Company Ltd. (KESCO), formed as a subsidiary of UPPCL to serve the Kanpur area, would be a test case for privatising a distribution company. Bids were solicited from private players to run the yet to be created KESCO in 1999, and four bidders were prequalified: BSES Limited, Calcutta Electricity Supply Company Limited (CESC), Larsen & Toubro Limited and AES Combine, and Tata Electric Companies.[29] Tadimalla and Bhattachary and Patel report, however, that the bidders were concerned about the estimations of technical and commercial losses given, difficult targets for loss reduction, and unreliable estimates of receivables. Risks were seen to be too high by bidders in terms of uncertain energy input prices, demand for electricity, tariffs, and operating expenses, while the potential benefits were not attractive enough.[30] Tadimalla also notes how detailed asset registers were not available to bidders. CESC was the only one of these companies to submit a bid in 2000, and it withdrew shortly after.

The UPPCL was set up as an independent company in 2000, with no debts on its books, and was to operate free from government interference. After 2000, there was a real opportunity for a financial turnaround to be engineered. However, the BJP-led government backed away from difficult decisions to support the UPPCL's turnaround in the run-up to state elections in 2002. While the UPPCL started with a clean balance sheet, the state government failed to provide it with transition financial support, despite this being a key part of the reform programme plan. As elections approached, the government froze tariffs, despite the UPPCL hoping to raise them significantly to cover costs, and argued that they could be raised once performance had been improved.[31] In 2000, the newly formed UPPCL was in a situation where with transmission and distribution losses at 43.5 percent, and collection efficiency at 81.2 percent, it was only collecting money for 49 percent of the electricity it was supplying to customers.[32] It proved unable to improve revenue collection and reduce AT&C losses significantly in the years following reform. Furthermore, the formation of the state of Uttarakhand in 2000 saw the UPPCL lose the vast majority of its cheap hydro power generation to the new state. Uttar Pradesh's hydro power capacity went from 1,497 MW to just 516 MW,[33] and the average cost of power purchase for the state rose from about Rs. 1.50 per unit in FY2001 to Rs. 1.66 per unit in FY2003, placing an additional financial burden of Rs. 4 billion per annum on the UPPCL.[34,35] In 2001 and 2002 the UPPCL faced a large cash gap, and had to borrow funds.[36]

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[29] Tadimalla, S. "Privatisation of Kanpur Electricity Supply Company (Kesco) a Case Study." Mimeo. Mumbai: Infrastructure Development Finance Company Limited, 2000.

[30] *Ibid*.; Bhattacharya, Saugata , and Urjit Patel. "Markets, Regulatory Institutions, Competitiveness and Reforms." In *Workshop on Understanding Reform Global Development Network*. Cairo: Infrastructure Development Finance Company Limited, 2003.

[31] Kirk, J. *India and the World Bank: The Politics of Aid and Influence*. New York: Anthem Press, 2010.

[32] UPPCL. "Petition before the Uttar Pradesh Electricty Regulatory Commission." Uttar Pradesh Power Corporation Limited. Lucknow, 2000.

[33] GoUP. "Power Policy 2003." Lucknow: Government of Uttar Pradesh, 2003.

[34] See Gurtoo and Pandey (2001) for a good analysis of this reform period, and why reforms failed to bring about an improvement in financial performance at the UPPCL.

[35] World Bank. "India - Uttar Pradesh Power Sector Restructuring Project." Washington, DC: World Bank, 2005. 43.

[36] World Bank. "India - Uttar Pradesh Power Sector Restructuring Project." Washington, DC: World Bank, 2005.

III. Faltering Reform Within a Competitive, Populist Political State Context

The 2002 state elections in Uttar Pradesh saw the BJP lose power, and heralded the start of five years of political instability. Directly following the election, a period of President's Rule was imposed before the BSP, headed by Mayawati, was able to form a coalition government with the support of the BJP and Rashtriya Lok Dal. This was a weak coalition that lasted little over a year. After this the SP formed another weak coalition government. There was briefly a continuation of the 1999 reforms programme. However, the state's discoms were not allowed to operate independently, and populist decisions were taken, damaging their finances and chances of a turnaround. The core problems of low revenue realisation and high AT&C losses continued. A gap opened between how the distribution sector should operate on paper and how it was operating in practice.

By the time Mayawati was able to form a coalition government in 2002, the World Bank supported reform programme for fiscal reform in Uttar Pradesh was already off-track, including reform of the electricity sector, and the World Bank was withholding further funding.[37] The Bank and the new chief minister held a number of meetings, and there was initially optimism that reforms would continue.[38] However, the World Bank, after suggesting it might fund a number of Mayawati's prized projects, turned down Lucknow's application for funding, following which the chief minister declared that she would not be held to the World Bank's "diktats", and that privatisation in the power sector would not be advanced.[39] In 2003 the World Bank had suspended its loan payments to the state for electricity sector reform, due to non-compliance with the plan and because the UPPCL had failed to meet its financial turnaround goals.[40] Shortly after this, the BSP-led government did nevertheless put reforms back on track, creating four distribution companies in July 2003 as independent subsidiaries of the UPPCL, covering four separate geographical areas. The intention was stated that privatisation would soon be carried out. A second financial restructuring plan was also announced, with the government providing a Rs. 1,340 crore loan to the UPPCL and agreeing to take employee pension fund liabilities of Rs. 1,337 crore.[41] In August 2003, after agreeing that necessary measures had been carried out to put reform back on track, the Word Bank agreed to lift its suspension of funds.[42]

The BSP-led government collapsed in 2003 and was replaced by an SP-led coalition. The SP had promised that upon coming to power, it would increase the availability of electricity supply to rural areas from eight to 14 hours a day. However, while this was done, the government did not back up the promise with adequate financing to the UPPCL, which saw its financial position deteriorate further. As a result, one month later the World Bank cancelled its support for electricity sector reform in Uttar Pradesh, citing a lack of political stability and commitment to the privatisation and restructuring agenda.[43] The SP-led government did, however, state its intention to continue with reform of the energy sector. The UP Power Policy 2003 outlined the government's focus on upgrading the transmission network, metering, tariff rationalisation, private investment in generation, and private involvement in distribution. In 2004, the UPPCL invited private players to bid for the state's five discoms,[44] and in 2005

[37] Bishtl, A. S. "Wb Refuses Loan Instalment to Up." *The Times of India*, 2001.
[38] Kirk, J. *India and the World Bank: The Politics of Aid and Influence*. New York: Anthem Press, 2010.
[39] *Ibid.*; Srivastava, A. "No 'New Privatisation' in Energy: Cm." *Times of India*, 2002.
[40] World Bank. "India - Uttar Pradesh Power Sector Restructuring Project." Washington, DC: World Bank, 2005.
[41] Parashar, B. K. "Uday on Horizon, but Past Bailouts Disappointing." *Hindustan Times*, 2015.
[42] World Bank. "India - Uttar Pradesh Power Sector Restructuring Project." Washington, DC: World Bank, 2005. 3.
[43] *Ibid*.
[44] The Hindu. "Bids Invited for Power Discoms." *The Hindu*, 2004.

the government shortlisted Torrent, Reliance, and TATA as approved bidders.[45] However, the unions voiced opposition, and at the time privatisation in Odisha was seen to not be showing the expected results, and so the government did not proceed with privatisation.[46]

Over the five years from 2002 to 2007, in a competitive political context, the electricity distribution sector had little chance of seeing a turnaround. Political populism had become key for all political parties in Uttar Pradesh, and the electricity sector was an important area where they could provide benefits.[47] While the UP Power Policy 2003 reiterated many of the reforms started in 1999, it also stated that the government was committed to extending hours of supply, electrifying rural areas, and providing customers with subsidised electricity. Such policies were electorally crucial for the SP and BSP, supporting their voter bases. As well as increasing hours of supply in 2003, in mid-2006, before the upcoming 2007 elections, the SP announced a lower flat rate tariff structure for power loom weavers,[48] but did not fully finance the UPPCL's implementation of this.[49] This subsidy most benefited the east of the state, which is for a key area of the SP's voter base. The UPERC tried to prevent this subsidy from being given, on the grounds that the government had not provided the necessary advance financing to UPPCL to cover the cost of the subsidy. However, instead of providing the subsidy through changing the pre-existing tariff for weavers, which would have been against regulations, the UPPCL provided the subsidy via a rebate in electricity bills to weavers, bypassing the rule that any change in tariffs must be subsidised in advance.[50] Levels of electricity theft throughout the state remained high in these years, and the persistence of theft has been attributed to local political interference, with parties seen as unwilling to crack down on their voters.[51]

From 2003 Uttar Pradesh had five discoms which, on paper, should have been operating independently and in a commercial manner. In practice, the state's discoms have never been allowed to operate independently, and there has been no political will for this to happen, nor for there to be a crackdown on theft.[52] A single, politically appointed chairman oversees the UPPCL and the discoms. All the discoms buy their power from UPPCL, cannot arrange their own long-term PPAs to buy power, and must charge their customers the same tariffs, regardless of their customer mix. Multiple interviewees noted that promotions in the discoms were still overseen by the UPPCL, and discoms shared the same rules and regulations.[53]

The establishment of the UPERC, which took on responsibility for tariff setting, should have ensured that tariffs were raised regularly in the state and that revenue could grow to meet expenses at the discoms. Further, the role of the UPERC in encouraging reduction in losses might have encouraged performance

[45] Ray, J. "Up Shortlists Torrent, Rel, Tata." *The Business Standard*, 2005.
[46] Account given in interview with former official at the UPPCL and member of the UPERC.
[47] Pai, Sudha et al. "Uttar Pradesh in the 1990s: Critical Perspectives on Society, Polity and Economy." *Economic and Political Weekly* 40, no. 22 (2005): 2144-47.; Chandra, Kanchan. "Post-Congress Politics in Uttar Pradesh: The Ethnification of the Party System and Its Consequences." In *Indian Politics and the 1998 Election*, edited by R. Roy and P. Wallace, 55-104. New York: Cambridge University Press, 1999.
[48] Golden, Miriam, and Brian Min. "Theft and Loss of Electricity in an Indian State." In *International Growth Centre, London School of Economics and Political Science*, 2012. 11.
[49] Business Standard. "Powerloom Tariffs Quashed, up Govt Unfazed." *Business Standard*, 2006.
[50] Hindustan Times. "Tariff in Powerloom Sector Not Revised: Pcl." *Hindustan Times*, 2006.; UPERC. "Revised Tariff Rates for Power Loom Consumers." Lucknow: UPERC, 2006.; UPERC. "Clarification/ Corrigendum to Tariff Order for the Fy 2008-09." Lucknow: UPERC, 2008.
[51] Golden, Miriam, and Brian Min. "Theft and Loss of Electricity in an Indian State." In *International Growth Centre, London School of Economics and Political Science*, 2012.
[52] This perspective was voiced in multiple interviews with officials, regulators, and journalists.
[53] Interviews with former UPPCL officials.

improvements. However, while initially tariffs had been raised in 2000 at the time of reforms, further increases were not made on a regular basis, and the UPPCL faced annual cash gaps. Increasing agricultural and domestic tariffs was unacceptable to the parties in power, and these tariffs stayed low despite subsidies not being fully financed. Aggregate revenue requirement submissions were regularly submitted very late, and audited accounts not made available to the UPERC for the purpose of true-ups of accounts. In the years following their establishment, asset registers were not finalised for the newly created discoms, raising the issue that the UPERC could not therefore thoroughly audit their accounts.[54] Concerns about losses being hidden through so-called "creative accounting" by the UPCCL are commonly heard.[55] Further, while successive orders were given for metering to be extended throughout the state, revenue collection to be improved, and losses to be reduced, the state's discoms did not meet any of these targets.

Open Access (OA) legislation, which in principle allows customers with an electricity consumption above a certain level to buy electricity from any supplier, not just from the discom serving their geographical location, was introduced in 2005[56] in accordance with national regulations. Regulations from the UPERC set out a timetable for OA, with large industrial consumers to be allowed OA from 2005 and then eventually consumers with demand of above 1 MW from 2008. The regulations set out that OA was to be allowed dependent upon the availability of surplus transmission capacity. OA regulations might have provided a dynamic that brought change to the electricity sector. In practice, however, OA was not allowed beyond a handful of cases. The power exchanges in Uttar Pradesh did not have the necessary technology for OA initially, and in practice distribution companies were unwilling to allow OA because they could not afford to lose industrial players.[57]

The BSP won a majority in the State Assembly elections in 2007, and Uttar Pradesh entered a new period of stable one-party governance. During the BSP's administration, a drive for the privatisation of distribution was started, while at the same time the government strongly promoted private-sector investment in generation in the state. In 2007 a separate transmission company was also created, taking transmission responsibility away from UPPCL. However, political populism in regards to the electricity sector continued, and the core problems of low revenue realisation and poor billing, high AT&C losses, and non-financing of subsidised tariffs remained. In this context, the finances of public discoms continued to worsen.

In 2009, the BSP government turned its attention to carrying out reforms. It launched a new UP Energy Policy that restated the government's wishes to make the state's distribution companies financially self-sustaining, allow OA, and encourage private-sector investment in generation and distribution. The BSP government seriously pushed privatisation, but instead of direct privatisation of discoms, they planned to privatise distribution in cities where losses were high through a franchisee model, presenting private involvement as a way to bring down losses. Agra and Kanpur were the first cities selected, and in 2009 Torrent was awarded these two franchises. In 2010 Torrent took over distribution in Agra, with a contract to be supplied electricity at a fixed rate from DVVNL, the state discom in that part of Uttar Pradesh.[58] Employee and engineer unions were strongly opposed to this push for privatisation. While an MOU was

[54] 2011. Appeal No. 121 of 2010 & I.A. No. 83 of 2011. Appellate Tribunal for Electricity (Appellate Jurisdiction).
[55] Concerns about creative accounting being used to hide losses were expressed in multiple interviews, and are commonly heard in Uttar Pradesh by people in the electricity sector. These concerns are, however, anecdotal.
[56] UPERC. Uttar Pradesh Electricity Regulatory Commission (Terms and Conditions for Open Access) Regulations, 2004." Uttar Pradesh Electricity Regulatory Commission. Lucknow, 2005.
[57] Interviews with officers at UPPCL, discoms, and regulators.
[58] Jainani, D. Now, up Power Body Dumps Price Waterhouse." *The Financial Express*, 2009.; The Indian Express. "'Maya Govt's Agra Power Contract Led to Colossal Loss'." *The Indian Express*, 2012.

signed with Torrent to be a franchisee in Kanpur, the company was unable to start operating in Kanpur because of organized worker protests and strikes. At the time privatisation was proposed for KESCO, revenue recovery at the discom had been falling for several years, and AT&C losses were high. Yet when privatisation was proposed, over the following months revenue recovery went up significantly.[59] The unions then argued that as revenue from Kanpur had risen to above the national average, privatisation would be a case of privatising profits and socialising losses.[60] It is also notable that during this period of opposition to privatisation in Kanpur, KESCO managed to increase revenue significantly in a very short period, showing that discoms apparently can improve their performance when there is a strong motivation to do so.

While the unions were not well organised in Agra,[61] strong resistance in Kanpur made it impossible for Torrent to take over distribution in the city. The Torrent franchisee in Agra, meanwhile, has been heavily criticised since its inception, as DVVNL is contracted to supply power to Torrent in Agra at a rate lower than it costs them to supply that power. A recent Accountant General audit concluded that over the first two years DVVNL had made a loss of Rs. 489.86 crore from the supply arrangement with Torrent, and that over the next 18 years of the agreement this loss would rise to Rs. 5,348.35 crore. The report further found evidence of collusion and improper practice in the way the bid from Torrent was approved, and it outlined how loss reduction targets for the successful bidder had been relaxed during the bidding process.[62]

While some reforms were made during the five years of the Mayawati government, between 2007 and 2012, and while a stable government was in place, the use of the electricity sector for populist measures continued, and the structural position of the discoms remained bad. The 2009 UP Energy Policy re-affirmed the focus of the 2003 UP Power Policy on the social responsibility of the government to extend the provision of electricity to rural areas, and to raise per capita energy consumption. Rural electrification and promoting generation were the key focus of the government at this time.[63] Research from Min points to how rural electrification in Uttar Pradesh has been faster where MPs representing disadvantaged castes are in power, and how politicians who have pushed for longer hours of supply and for electrification are more likely to be reelected.[64] Between 2007 and 2012 the government continued to not fully compensate the UPPCL for lower tariffs for rural and domestic consumers, and the UPERC did not significantly raise tariffs for these groups. Between 2006–07 and 2010–11 the accumulated losses of the UPPCL increased from Rs. 16,700 crore to Rs. 42,745 crore. This figure factors in the subsidy money given by the government to the UPPCL.[65] AT&C losses were not substantially reduced, 100 percent metering was not completed despite orders from the UPERC, and revenue realisation remained poor. A single politically appointed chairman continued to oversee the UPPCL and all public discoms. During this period, Open Access was still not a catalyst for change. For example, in 2009 just nine customers applied for and were granted OA, for a total of 75 MW of power.[66]

[59] Shah, P. "Torrent to Handle Power Distribution in Kanpur." *The Times of India*, 2012.
[60] Times of India. "Employees to Strike over Kesco Privatisation." *Times of India*, 2009.
[61] In an interview with a union representative, I was told that protests were initially not well planned, and that is why Torrent was able to start in Agra.
[62] Indian Express. "'Maya Govt's Agra Power Contract Led to Colossal Loss'." *The Indian Express*, 2012.
[63] Interviews with former regulators and UPPCL officials.
[64] Min, Brian. "Electrifying the Poor: Distributing Power in India." Ann Arbor: University of Michigan, 2011.
[65] Rawat, V. S. "Up Power Corporation to Cut Losses by Rs 4,300 Cr This Year." *Business Standard*, 2012.
[66] Singh, Anoop. "Towards a Competitive Market for Electricity and Consumer Choice in the Indian Power Sector." *Energy Policy* 38, no. 8 (2010): 4196–208. 4203.

In 2010, renewable purchasing obligations[67] (RPOs) were set by the UPERC. Again, like with OA, this may have provided a dynamic for change in the electricity sector. The RPO level set by the UPERC in 2010 was for 3.75 percent non-solar and for 0.25 percent solar.[68] This level was set to rise annually to reach 5 percent non-solar and 1 percent solar in 2012/13. However, discoms did not comply with RPO obligations, and the UPERC was not able to enforce compliance. Regulators and officers saw renewables are being a low priority for the state.[69]

Following elections in 2012, the SP came back to power with a majority government, and another five-year period of stable government started. The SP's return to power came at a time when UPPCL was facing a serious financial crisis. This was a window, like in 1999, when major reforms might have been carried out, or privatisation could have been implemented. Instead, save for a brief period when the privatisation of distribution in a number of cities was planned, there has been an absence of notable reforms. Populist politics and interference in the electricity distribution sector and tariff setting have continued, and theft and losses have not been reduced.

When the SP took over power in Uttar Pradesh, the UPPCL was facing an acute financial crisis and was unable to pay its suppliers. In 2010–11, the debt of the UPPCL stood at Rs. 42,745 crore.[70] In July 2013, and again in February 2014, private generators in the state reduced production because of non-payment of money owed.[71] In December 2012, the UPPCL could not pay dues of Rs. 2574.66 crore for power drawn from the Northern Grid.[72] In 2012 the central Congress UPA government announced a financial repackaging programme (FRP) for India's power sector, with Uttar Pradesh being one of the key states in need of this. The scheme, designed to facilitate the financial turnaround of discoms, was made available to states on the condition that tariffs were hiked and that plans were drawn-up for discoms to be privatised. With banks refusing to lend to the UPPCL,[73] the government had little choice but to opt in to this bailout. In 2013, a tariff hike of 35 percent for domestic users was put forward, and of 45 percent for the rural sector.[74] For the FRP, it was agreed that the UPPCL would submit tariff hike plans for the next eight years, starting with a 9 percent rise in 2014, then a 10.38 percent rise in 2015 and 8.36 percent in 2016.[75] In fact, since the announcement of the FRP, tariff hikes have not happened at these agreed-to levels in the years since, with no apparent consequence. In early 2013, a loan of Rs. 1,558 crore was made by the Power Finance Corporation (PFC) to help the UPPCL, with the money deposited directly into the bank accounts of generating companies owed money by the UPPCL.[76]

In 2012 a plan was set out for privatisation of distribution in Meerut, Ghaziabad, Kanpur, and Varanasi. There was still an MOU in place for Torrent to take over KESCO's Kanpur distribution area, and officials let it be known that they were willing to hand over KESCO to Torrent.[77] Plans for privatisation were again

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67 Renewable Purchasing Obligations (RPO) mandate that a percentage of electricity supplied by qualifying distribution companies must be renewable electricity.

68 UPERC. "Uttar Pradesh Electricity Regulatory Commission (Promotion of Green Energy through Renewable Purchase Obligation) Regulations, 2010.", Uttar Pradesh Electricity Regulatory Commission. Lucknow, 2010.

69 Interviews with regulators at the UPERC and officers at the UPPCL.

70 Rawat, V. S. "Up Power Corp Electrocuted by Rs 43,000-Cr Loss." *Business Standard*, 2012.

71 Jainani, D. "As Unpaid Bills Mount, up Cant Buy Enough Power." *The Financial Express*, 2012.; Jainani, D. "Rpower, Lanco Snap Supply to Uppcl on Non-Payment." *The Financial Express*, 2013.

72 Gupta, V. K. "Uppcl Unable to Liquidate Power over Drawl Dues of Rs.2574 Crore." Indian Power Sector.

73 Bhatt, V. N. "Akhilesh Yadav's Power Woes." *Tehelka*, 2013.

74 NDTV. "Pay 35 Percent More for Power in Uttar Pradesh from Today." *NDTV*, 2013.

75 Jainani, D. "Consortium of Banks Agrees to Buy Rs 13k-Cr Bonds to Bail out Uppcl." *The Financial Express*, 2013.

76 "Consortium of Banks Agrees to Buy Rs 13k-Cr Bonds to Bail out Uppcl." *The Financial Express*, 2013.; Jainani, D. "Pfc Bails out Uppcl with Rs.1,558-Crore Loan Package." *The Financial Express*, 2013.

77 Shah, P. "Torrent to Handle Power Distribution in Kanpur." *The Times of India*, 2012.

met with resistance from employee unions, who planned strikes, and threatened a work boycott if plans were not dropped.[78] The SP, however, has not had a strong commitment to privatisation,[79] and plans to privatise distribution faded following the FRP being approved. In 2015 the SP government cancelled the Torrent KESCO franchise agreement, which dated back to 2009.[80]

A populist approach to the electricity sector, including interference in tariff setting and the running of the UPPCL, has continued over the last five years. Before the 2012 State Assembly elections, all of the four main parties were making promises to increase hours of supply, reduce the cost of supply, or provide free power to certain groups, despite the clear need for reforms.[81] For example, in their election manifesto for the state assembly elections, the SP promised free electricity to weavers at an estimated cost of Rs. 1,000 crore[82] (though this was not implemented following the election because of the fiscal crisis discoms faced). In Uttar Pradesh, so-called VIP areas both get longer hours of supply and see higher levels of theft. Theft in the politically important western districts is much higher than the state average;[83] for example, in Etawah and Mainpuri, both VIP districts, line losses were over 50 percent in 2015.[84] VIP districts continue to be given 24-hour supply, even though the Allahabad High Court ruled in 2013 that this was “arbitrary, illegal and illogical”.[85] There is much anecdotal evidence to suggest that local politicians protect power thieves, and that politicians routinely interfere in the operation of discoms, influencing the transfers of employees and when, where, and how power cuts are distributed.[86] The UPPCL exempts hundreds of feeders from power cuts in response to demands from local politicians, and reportedly receives multiple requests every day to do so.[87] Parashar reports the figure of 2,000 MW as the load resulting from such exceptions, representing about 18 percent of the state's daily load in 2012. Denyer’s finding, that many power engineers can only briefly go into many villages to crack down on a few people before they have to leave to avoid dangerous or violent confrontations,[88] is confirmed by anecdotes from officers of the UPPCL. Denyer and Lakshmi suggest that a main reason why Uttar Pradesh was drawing too much power from the grid, causing the large blackout that hit India in 2012, was that local politicians had demanded that uninterrupted power be delivered to key constituencies.[89] Prior to the 2014 national elections, power was a big issue, with the SP promising longer hours and more reliability.[90]

Political promises were again being made in the run-up to the 2017 elections, with all parties promising increased hours of supply. In March 2016, the chief minister of Uttar Pradesh, Akhilesh Yadav, made an

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[78] Rawat, V. S. “Up Powermen Warn against Privatisation of Electricity Distribution.” *Business Standard*, 2013. Times of India. “Power Privatisation: Staff Threaten Indefinite Strike.” *Times of India*, 2013.

[79] Interviews with regulators, officials, and journalists.

[80] Financial Express. “Uttar Pradesh Cancels Distribution Pact with Torrent Power.” *The Financial Express*, 2015.

[81] Kumar, Hari. “Cows, Laptops and Loan Waivers: Campaign Promises in U.P.” *New York Times*, 2012.

[82] BBC. “Akhilesh Yadav Emerges as Challenger in Uttar Pradesh.” *BBC*, 2012.

[83] Golden, Miriam, and Brian Min. “Theft and Loss of Electricity in an Indian State.” In *International Growth Centre, London School of Economics and Political Science*, 2012.; Min, Brian, and Miriam Golden. “Electoral Cycles in Electricity Losses in India.” *Energy Policy* 65 (2014): 619-25.; NDTV. “Pay 35 Percent More for Power in Uttar Pradesh from Today.” *NDTV*, 2013.

[84] Shah, P. “Torrent to Handle Power Distribution in Kanpur.” *The Times of India*, 2012.

[85] The Indian Express. “Up: Hc Says 24-Hour Power Supply to Vvip Areas Illegal.” *The Indian Express*, 2013.

[86] Golden, Miriam, and Brian Min. “Theft and Loss of Electricity in an Indian State.” In *International Growth Centre, London School of Economics and Political Science*, 2012.; Min, Brian, and Miriam Golden. “Electoral Cycles in Electricity Losses in India.” *Energy Policy* 65 (2014): 619-25.; Denyer, Simon. “Power Thieves Prosper in India’s Patronage-Based Democracy.” *The Washington Post*, 2012.

[87] Parashar, B. K. “Up Politicians Grab 18% Power for Their Turfs.” *Hindustan Times*, 2012.

[88] Denyer, Simon. “Power Thieves Prosper in India’s Patronage-Based Democracy.” *The Washington Post*, 2012.

[89] Denyer, Simon, and Rama Lakshmi. “Huge Blackout Fuels Doubts About India’s Economic Ambitions.” *Washington Post*, 2012.

[90] Express News Service. “On Shahi Imam’s Demands: Samajwadi Party Govt Never Hesitated, Gave Top Posts to Muslims: Cm Akhilesh Yadav.” *The Indian Express*, 2016.

announcement that hours of supply would be increased in the state to 16 hours for rural areas, 20 hours in tehsil (sub-district) headquarters, 22 hours in district headquarters, and 24 hours for urban areas following October 2016. That day, rural areas were receiving 10 hours of power while districts received 18 hours and metropolitan towns 22 hours. Overall demand was restricted to 9,300 MW. The day after his speech, rural areas received 12 hours of supply, districts 22 hours, and towns 23 hours, and overall demand went up to 10,692 MW. In the following days, supply rose further.[91] In the summer of 2016, Yadav was again speaking of the possibility of giving weavers free power in the future.[92]

Unfinanced subsidies provided through the electricity sector, and a failure to crack down on theft, make it very difficult for any improvements in revenue realisation to be made at the discoms. However, it is politically difficult for any governments to act, for fear that action will be unpopular and will hit their electoral support. In the years following the 2012 FRP, the financial condition of UPPCL deteriorated significantly. Tariff rises only happened at lower levels to those planned, and heavy cross-subsidisation continued. A CAG audit released in 2015 showed that power distribution companies in Uttar Pradesh had seen their cumulative losses increase from Rs. 33,600 crore in 2011–12 to Rs. 60,101.98 crore in 2013–14.[93] The UPPCL was only meeting 71 percent of power demand in 2013–14.[94] In August 2015, before Uttar Pradesh had signed up to UDAY, UPPCL was again asking the Power Ministry for financing to sustain itself.[95]

IV. Privatisation Falls off the Agenda, But Can Discoms Improve Their Performance?

In 2016, the SP government in Lucknow signed Uttar Pradesh up to the central government's UDAY scheme, allowing a fresh financial restructuring of the state's discoms to take place and signalling the start of a new effort to improve their performance. Like with previous reform programmes, the government had little choice but to act. At the time of signing, the debt level of discoms in Uttar Pradesh had reached Rs. 53,211 crore, with losses in FY 2013/14 at Rs. 13,802 crore, and projected to be Rs. 10,636 in FY 2014–15. Average revenue received (ARR) stood at only 65.97 percent of average cost of supply (ACS).[96] UDAY is designed to deal with the same core problems of poor revenue realisation and billing and high AT&C losses that reforms in 1999 tried to tackle. It is notable, however, that there now appears to have been a shift to focusing on improving the performance of discoms, rather than on pushing towards privatisation. Given the failure of privatisation over recent decades, and the structural situation of discoms in Uttar Pradesh being so unattractive to private players, this is arguably a necessary shift.

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[91] Times of India. "Power Supply Hrs Almost Double after Cm Orders." *Times of India*, 2016; The Pioneer. "16-Hr Power to Rural Areas after Oct: Cm." *The Pioneer*, 2016; "Up Budget: The Indian Express. "By Oct This Year, 24×7 Power to Urban Areas." *Indian Express*, 2016.

[92] Mahajan, Anilesh S. "Power Hungry." *Business Today*, 2014.

[93] The Economic Times. "Annual Loss of Discoms Mount to over Rs 60k Crore in Up: Cag." *The Economic Times*, 2016.; GoUP. "Report of the Comptroller and Auditor General of India on Public Sector Undertakings for the Year Ended 31 March 2014." Lucknow: Government of Uttar Pradesh, 2015.

[94] GoUP "Report of the Comptroller and Auditor General of India on Public Sector Undertakings for the Year Ended 31 March 2014." Lucknow: Government of Uttar Pradesh, 2015. 30.

[95] Jainani, D. "Uppcl Asks Govt for Loan of R5,000 Crore." *The Financial Express*, 2015.

[96] UDAY MOU. "Uday (Ujwal Discom Assurance Yojana) Scheme for Operational and Financial Turnaround of Power Distribution Companies (Discoms)." 2016.

Under UDAY, the government of Uttar Pradesh agreed to take Rs. 39,900 crore of UPPCL's debt over two years. The remaining debt, Rs. 13,300 crore, was to be issued as low-interest, state-guaranteed DISCOM bonds. The government also agreed to take on a percentage of losses in future years, at a level that will steadily increase from 5 percent in 2017–18 to 50 percent by 2020–21. Under UDAY, discoms have committed to reducing their AT&C losses to 15 percent by FY 2019–20, hours of supply are to be increased in areas where losses decrease, and the gap between ACS and ARR is to be closed by 2019–20.[97] The financial assumptions for the discoms to improve are based upon tariffs being raised over the next few years; by 5.47 percent in 2016, and by 5.75 percent, 6.96 percent, 6.80 percent, and 6.60 percent in the following years. The Uttar Pradesh government committed to pay a subsidy of Rs. 5,530 crore in FY 2016, and Rs. 5,500, 5,910, 6,002, and 3,848 crore in the following years.[98] Theft, billing systems, and metering are key areas where improvements are being sought. Within the UPPCL and discoms there is enthusiasm for the importance and potential of metering, new billing software and technology, and programmes to improve revenue realisation.[99]

It remains to be seen whether under UDAY, discoms do manage to improve revenue collection and billing, install meters, and cut down on theft. While a new action plan has been agreed, there have been multiple programmes over the last three decades in Uttar Pradesh aimed at tackling these problems. In interviews for this research, officers at the UPPCL and regulators expressed the view that it remains unclear what mechanisms UDAY has that will make it more successful than past programmes. One interview succinctly expressed this broader concern pointing out that UDAY is "OK paperwork", "a good theoretical exercise", but that there have been many acts, which if followed, should have achieved already exactly what UDAY seeks to do. One former UPPCL manager noted that: "I have been in the sector for a very long time. When I joined, on the first day the issues were the same: AT&C losses. When I left the issues were the same." New technology and IT systems may prove to be the catalyst for big performance improvements. Automatic meters, online billing, and computerised monitoring of losses may make theft and not paying bills harder.

Yet if there is not a departure from the populist approach to the electricity sector in the coming years, and governments remain unwilling to take hard decisions on tariffs, subsidies, and theft, then change will be unlikely. Improving the performance of the discoms on revenue realisation and reducing AT&C losses do appear to be possible. The improvements made at KESCO under the threat of privatisation suggest this. However, for improvements to be made throughout the state, and at all discoms, there would have to be a political commitment not to interfere in the running of the discoms or in tariff setting, to fully finance any subsidies, and to oversee a crackdown on theft. In conversation with people involved in the distribution sector in Uttar Pradesh, the view is commonly expressed that with political will, a financial turnaround could be achieved in several years. Yet the electricity sector is electorally crucial in Uttar Pradesh,[100] and subsidies provided through the electricity sector have for decades been a key commitment of parties. The chairman placed at the UPPCL and the discoms remains a political appointment. Before the 2017 state elections, tariffs were not raised in line with what had been planned for the UDAY reform programme.

Reform of the discoms and how they operate is also necessary if revenue realisation is to improve and AT&C losses are to be reduced. Since the 1990s, there has been a failure to reform the running of UPPCL

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[97] UDAY MOU. "Uday (Ujwal Discom Assurance Yojana) Scheme for Operational and Financial Turnaround of Power Distribution Companies (Discoms)." 2016.
[98] *Ibid*.
[99] Interviews with officers at the UPPCL and discoms.
[100] Min, Brian. *Power and the Vote*. Cambridge: Cambridge University Press, 2015.

and the discoms. In interviews with current and former officials and regulators, the view was that proper systems of operation were not in place to make officers responsible. As a result, it is very difficult for officers to move against the system, or to resist day-to-day political interference, and the collusion of employees with customers to avoid bills is common. Another area of concern was that promotions were slow, and therefore people only reached senior levels at the end of their career, and had little incentive or will to innovate or move against the system.

The focus on rural electrification and extending hours of supply in Uttar Pradesh by successive governments is a further challenge for the distribution sector. Under UDAY, Uttar Pradesh is now committed to completing rural electrification, with the target of connecting 143.54 lakh households by FY 2019.[101] Most people being connected to the grid, and benefiting from having longer hours of supply, lack the ability to pay commercial rates for electricity. So long as a large percentage of the population have no capacity to buy costly electricity, and there is not a large base of industry cross-subsidising these consumers, then it will be difficult for the discoms to become financially sustainable if governments are also unwilling or unable to properly finance subsidised tariffs.

Over the last five years there has been a shift away from privatisation in Uttar Pradesh as a normative end point for the state's discoms. None of the major parties currently have plans to privatise the state's discoms. Furthermore, the current SP government has publicly opposed central government plans for the separation of content and carriage, arguing that in Uttar Pradesh there is a social responsibility to provide to rural areas, which private players will not want to do. This is arguably positive if it forces a discussion and action on the core problems faced by the discoms in remaining financially viable. Further, privatisation seems unlikely to offer a solution to poor performance at discoms. The success of the Noida power company, and of discoms in Uttarakhand, suggests that a higher industrial load is key for discoms to financially do well. Noida Power Company's industrial load, at 59 percent of energy sales, is much higher than that of public discoms in Uttar Pradesh.[102]

The UPERC has now been working for nearly two decades. Its role in tariff setting had the potential to bring in a new context of depoliticised setting of electricity tariffs. However, its impact is mixed, and it has not been a catalyst for fundamental change in the electricity distribution sector. Tariffs have been raised considerably over the last two decades; this, however, has usually been at the time of financial repackaging, such as in 2000 and 2013 when tariff hikes were a condition of bailouts. Regular tariff hikes across all groups of consumers have not been made, and cross-subsidisation remains high. The UPERC has pushed for improvements in metering, revenue collection, and billing, giving orders and setting regular targets for discoms. They have set targets for the discoms to sign up new customers, trying to bring non-paying customers into the system, and they have rewarded discoms with a lower regulatory surcharge when they hit performance targets. Claims for higher tariffs based on losses that are above target levels have been disallowed; but this has the effect of worsening the financial condition of the discoms. The UPERC has been hampered by the UPPCL and the discoms often being non-cooperative. ARRs are regularly not filed on time,[103] and orders for 100 percent metering to be done have not been complied with. One former regulator at the UPERC spoke of how the regulator is like a doctor who prescribes the medicine. "The patient has to want to take it — but they are not taking it, even if it is being given free." The UPERC is viewed by many as lacking the technical and legal expertise to do its job

[101] UDAY MOU. "Uday (Ujwal Discom Assurance Yojana) Scheme for Operational and Financial Turnaround of Power Distribution Companies (Discoms)." 2016.
[102] Noida Power Company website. Source: http://www.noidapower.com/AboutUs/CompanyProfile.aspx
[103] GoUP. "Report of the Comptroller and Auditor General of India (Public Sector Undertakings) for the Year Ended 31 March 2013." Lucknow: Government of Uttar Pradesh, 2014.

effectively or to carry out enforcement; one problem is that many staff are seconded to the commission from the UPPCL.[104]

The public hearings process run by the UPERC was set-up in order that public and industry voices could have their concerns heard, and gain influence. The UPERC has been actively trying to support consumer and industry interests and voices. Consumer and industry groups have been successful in raising cases of non-compliance with regulations by the discoms, and have in recent years successfully challenged some regulatory surcharges in the state, have sought to challenge the Torrent franchisee agreement in Agra, and various charges and practices of the UPPCL and discoms. Consumer and industry representatives view the UPERC as a very important forum for them to have their voices heard, seeing it as a middleman between them and the UPPCL and discoms.[105] Public hearings are widely attended. However, their influence has been limited. Industry groups have not been able to force the discoms to improve their performance, and have had no success in challenging high cross-subsidisation. Additionally, Uttar Pradesh does have a number of informed and influential individuals who speak as consumer representatives. However, it not have formal consumer groups with the institutional capacity to take up consumer issues in a systematic manner.

OA regulations have also yet to be an important dynamic in the Uttar Pradesh context. Discoms have largely not allowed their industrial consumers to opt for OA, arguing that it would place a strain on the state's transmission infrastructure and because they cannot afford to lose key industrial customers. The UPERC has not enforced the provision of OA, and the number of customers taking OA remains very low in the state. Similarly, the RPO system has also had little impact in Uttar Pradesh. Since RPO levels were first set in 2010, no further targets have been set. As of December 2015, discoms in Uttar Pradesh had not provided the Uttar Pradesh New & Renewable Energy Development Agency (UPNEDA) with a list of captive users and OA consumers obligated to meet RPO targets, nor had they submitted information on their estimated consumption of electricity and their proposed purchases from renewable sources, despite being required to. In 2015 UPERC carried out a suo-moto proceeding to order that the discoms do this;[106] however, RPO regulations are yet to be effectively enforced. Further, the recently signed UDAY MOU now allows discoms to delay complying with RPO levels until three years after they have managed their financial turnarounds, which is projected to happen by the end of this decade.

There has been a strong move towards promoting renewables in Uttar Pradesh over the last few years, and this does open the possibility that the dynamics within the distribution sector will change in the coming years, if industry and paying consumers opt for renewables and deprive the discoms of key revenue, and if the energy base available to discoms changes. In 2013 a UP Solar Power Policy was launched, with the target of achieving 500 MW of grid connected solar power by March 2017.[107] Recently, 200 MW of new on-grid solar power was sanctioned by UPNEDA. In 2015 a rooftop solar power and net metering policy was introduced.[108] A policy to promote microgrids has also been launched.[109] To

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[104] Interviews with consultants who have worked with UPERC and regulators at UPERC.
[105] Interviews with industry groups.
[106] "Suo-Moto Proceedings to Review the Regulatory Obligation of Purchase of Quantum of Energy from Renewable Resources Achieved by Obligated Entities Viz Distribution Licensees, Captive Users and Open Access Consumers." Lucknow: Uttar Pradesh Electricity Regulatory Commission, 2015.
[107] UPNEDA. "Solar Power Policy Uttar Pradesh 2013." Lucknow: Uttar Pradesh New and Renewable Energy Development Agency, 2013.
[108] UPERC. "UPERC (Rooftop Solar PV Grid Interactive Systems Gross / Net Metering) Regulations, 2015." Lucknow: Uttar Pradesh Electricity Regulatory Commission, 2015.
[109] "Uttar Pradesh Electricity Regulatory Commission (Mini-Grid Renewable Energy Generation and Supply) Regulations, 2016." Lucknow: Uttar Pradesh Electricity Regulatory Commission, 2016.

date, discoms have viewed renewables with caution, with officers expressing the view that they are a threat to grid stability.[110] Further, bids for solar power in Uttar Pradesh over recent years have been higher than in other states.[111] Uttar Pradesh has been signing expensive long-term PPAs for the purchase of solar power, which will add to the financial pressures on discoms in the coming years. The rooftop solar policy and microgrid policy are both still very new. The rooftop policy is only just beginning to see uptake, in particular from small businesses, and large upfront capital costs and a complicated procedure for the scheme have put off consumers. Further, the feed-in tariff for rooftop solar remains low, and new consumers were being forced by the discoms to take larger connections then are necessary, which are more expensive.[112] There has also been limited focus on energy efficiency and demand reduction measures. A scheme to distribute LED light bulbs in the state has been very successful.[113]

Conclusion

For 30 years, Uttar Pradesh's electricity distribution sector has struggled with poorly performing, debt-laden public discoms failing to meet demand. In response to this, starting in 1999 structural reforms saw the former UPSEB broken up, and five public discoms created. The intention was that these should operate independently and on a commercial basis, and should be quickly privatised. Reforms also aimed to depoliticise tariff setting in the state. However, reform largely stalled in the years following 1999, and while further attempts at privatisation were made and programmes were introduced to improve the performance of the state's discoms, public discoms continued to see political interference, their performance did not improve, and tariff setting remained rooted in politics. The introduction of a public regulator, OA, and RPOs as mechanisms to bring competition and reform to the electricity sector in Uttar Pradesh has not worked. The biggest change that has occurred in the state has been a big increase in generation capacity. This paper has traced how the failure of reforms, and the continued poor performance of public discoms, can be linked the politically populist approaches of successive governments, and an unwillingness by governments to commit to hard reforms or oversee a crackdown on electricity theft. Opposition to the privatisation of discoms from unions has also been significant. This paper has furthermore highlighted how the structural transformation of the consumer bases of Uttar Pradesh's five public discoms over recent decades, with the addition of large numbers of domestic consumers and a flatlining of industrial consumption, has created a context where financial turnaround is difficult.

The findings of this paper suggest that in the near furture it will be difficult to improve the financial performance of Uttar Pradesh's public discoms. First, the political competitive situation in the state over the last 30 years, which has been unfavourable for any reforms that might financially hit key electoral groups in the state, is still in place. There is little evidence that this context will change imminently. Second, rural electrification and increasing hours of supply has become electorally crucial for all parties in Uttar Pradesh. Yet, the difficult question of how rural, agricultural, and domestic consumers are to be subsidised in the coming years has not been answered by any political party. If political parties in power are not willing to fully finance subsidies, then it will be difficult for discoms in Uttar Pradesh to become financially self-sustaining, unless their power input costs fall significantly, or a large industrial base is

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[110] Interviews at the UPPCL and with discoms.
[111] Shah, P. "Torrent to Handle Power Distribution in Kanpur." *The Times of India*, 2012.
[112] Interviews at the UPPCL, with discoms, and with industry groups.
[113] "Electricity Regulatory Commission (Demand Side Management) Regulations 2014." Lucknow: Uttar Pradesh Electricity Regulatory Commission, 2014.

developed in the state that can be used to cross-subsidise agricultural and domestic consumers. Third, the consumer mix served by Uttar Pradesh's public discoms is unfavourable for any attempts to improve the performance of discoms. The relative success of the Noida Power Company, and of neighbouring Uttarakhand's public discom, suggest that a high industrial load is key for discoms to financially do well, whether private or public. Strikingly, while a very large industrial base and plentiful cheap hydro power in Uttarakhand has meant that the state's discom is financially performing well, beyond its large industrial consumers, Uttarakhand's discom has problems of high AT&C losses very similar to those faced by Uttar Pradesh. Uttar Pradesh is in the unenviable position where it is a high-tariff state with low industrial demand.