

[Articles (論説)]

Third Financial Bailout for India's State-owned Power Distribution Companies - and Why it Matters

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This paper sheds light on the potential positive impact of a recently launched financial bailout scheme, known as the UDAY scheme, on the largely in-debt state-owned power distribution companies (DISCOMs) in India. In the process, the case of Rajasthan is introduced to illustrate how the financial situation of DISCOMs is linked to the financial status of the States.

1. Status Quo of India's State-owned DISCOMs

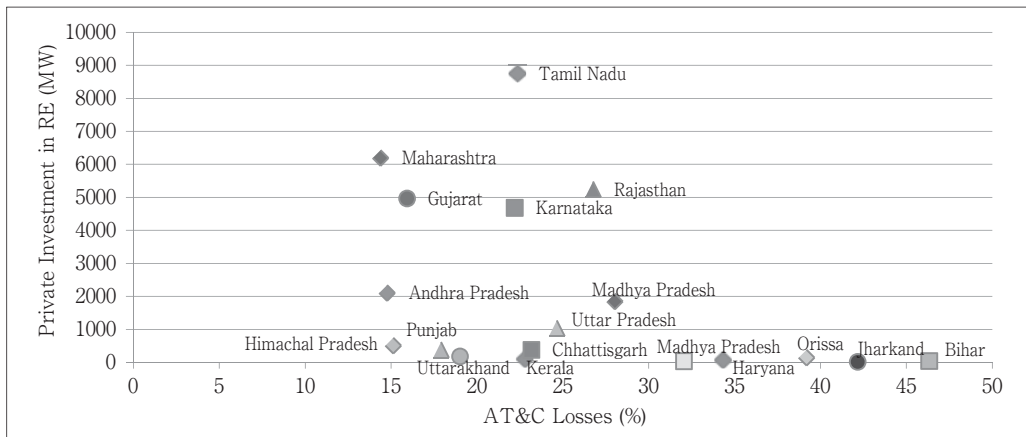
Financially healthy DISCOMs are vitally important for supplying adequate power at affordable rates, facilitating India's on-going efforts toward 100% village electrification, and achieving the renewable energy capacity target of 175 GigaWatts by 2022 in India (Ministry of New and Renewable Energy, 2015). However, due to legacy issues, India's state-owned DISCOMs are trapped in a vicious cycle; operational losses are being funded by short-term debt, which is making DISCOMs financially stressed. As of March 2015, DISCOM's in the country have accumulated operational losses of approximately Rs.3.8 lakh crore (US \$61.2 billion), and outstanding debt of approximately Rs.4.3 lakh crore (US \$69.2 billion) (Ministry of Power, 2015).

The increase in outstanding debt is particularly severe, which has almost doubled during the period 2011-12 to 2014-15. This financially stressed state of DISCOMs not only affects reliable power supply, but default on bank loans by DISCOMs has the potential to seriously impact the banking sector, power generation companies, and the economy at large.

High Aggregate Technical & Commercial (AT&C) losses, which include

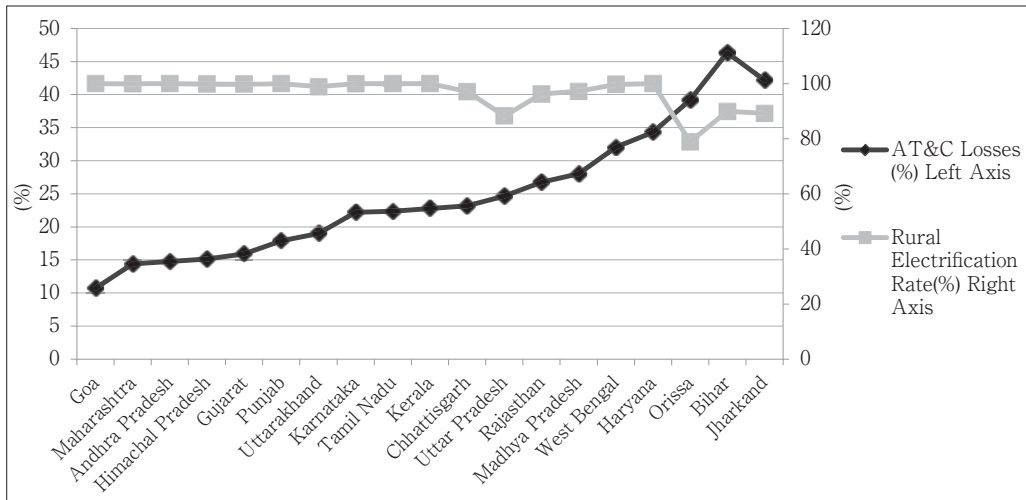
technical and commercial losses (theft of electricity, deficiencies in metering etc.), have been one of the factors behind the increasing operational losses and outstanding debt of DISCOMs. As Figure 1 depicts, states with higher AT&C losses attract less private investment in renewable energy. Furthermore, states with lower AT&C losses tend to have higher electrification ratios (Figure 2). Hence, reducing AT&C losses and improving overall operational efficiencies are not only important for improving the financial status, but for the performance and perceived risk of DISCOMs, which greatly affect investment decisions by private investors and impact the capacity to meet the Government’s target of 100% electrification.

Figure 1 AT&C losses and private investments in renewable energy by states.



Source: Power Finance Corporation, 2015; Planning Commission of Government of India, 2014

Figure 2 AT&C losses and rural electrification rate by states.



Source: Planning Commission of Government of India, 2014

2. UDAY Scheme – Background of the Financial Bailout Package

The Indian power sector is a concurrent subject under Article 246 of the Indian Constitution, which gives the state governments major roles in power supply. This framework has been instrumental in promoting industrialization to a certain degree since independence, however, severe problems such as frequent power outages, power shortages, and low electrification ratios in rural areas have been pointed out repeatedly over the decades (Fukumi, 2016).

The deteriorated financial status of the power utilities, especially the distribution sector, has been the most crucial factor underlying the bottleneck in India's power infrastructure. The distribution sector has accumulated huge financial debt due to low recovery ratios, thus proper reform of the distribution sector will hold the key to the financial improvement of the power utilities going forward.

The Government of India (GoI) has approved a scheme called UDAY (Ujwal DISCOM Assurance Yojana) on November 5th, 2015 with an objective of financial turnaround of state owned DISCOMs. The three pillars of the scheme include the followings:

- 1) Financial re-structuring of DISCOMs
- 2) Improve operational efficiency of DISCOMs
- 3) Reduce cost of power generation

The scheme envisages significant state government support mainly in the form of a) taking over of 75% of DISCOM debt (50% in FY 2016 & 25% in FY 2017) by the respective State Governments and b) reduction in interest rates for the remaining 25% of DISCOM debt, which may be done through issuing DISCOM bonds backed by State Government Guarantee. The scheme also envisages the states taking over the future losses of DISCOM from FY 2016-17 onwards in a graded manner. Taking into consideration other support and reforms that are party of the UDAY program, the potential positive impact of the scheme is examined in the following sections. First, by focusing on the DISCOMs of Rajasthan, which hold the largest accumulated outstanding debt of all states, and next with the case of cost of power generation reform of NTPC, the largest power generation company in India.

3. The Case of Rajasthan

3.1. General Information of Rajasthan



Rajasthan is the largest state in the country, area-wise, covering 10.4% of India's land area. It however, accounts for just 5.7% (2011) of the country's population, with a contribution of around 4.5% (2014-15) to India's GDP; largely through the primary sector. An overview of the state is presented in the table below.

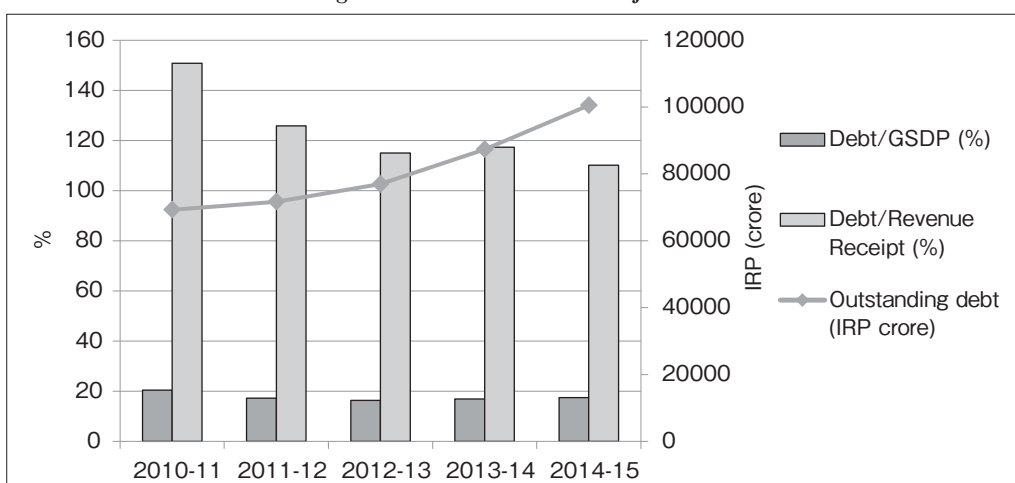
Table 1 General data of Rajasthan.

	Rs (Crore)	USD (billion)
Population (2011)	68.5 (mil)	
GSDP (2014-15)	5,74,549	96
GSDP CAGR (2005 to 2014)	16.78%	
Total Revenue (2014-15)	92,346	15
Total Expenditure (2014-15)	1,11,346	19
Public Debt Receipts (2014-15)	18,141	3

Source: GoR, 2016

As depicted in Figure 3, although the debt/GSDP ratio and debt/revenue ratio have been slightly improving, Rajasthan had a large fiscal debt of almost US \$17 billion, 8th in terms of volume of the debt among all states, at the end of the fiscal year 2014.¹ The power sector is considered to hold a key for future financial

Figure 3 Trends in debt of Rajasthan.



Source: Government of Rajasthan, 2016

¹ In India, the government's financial year runs from 1 April to 31 March midnight.

and economic advancements of the state.

3.2. Power Sector in Rajasthan and the Impact of the UDAY Scheme

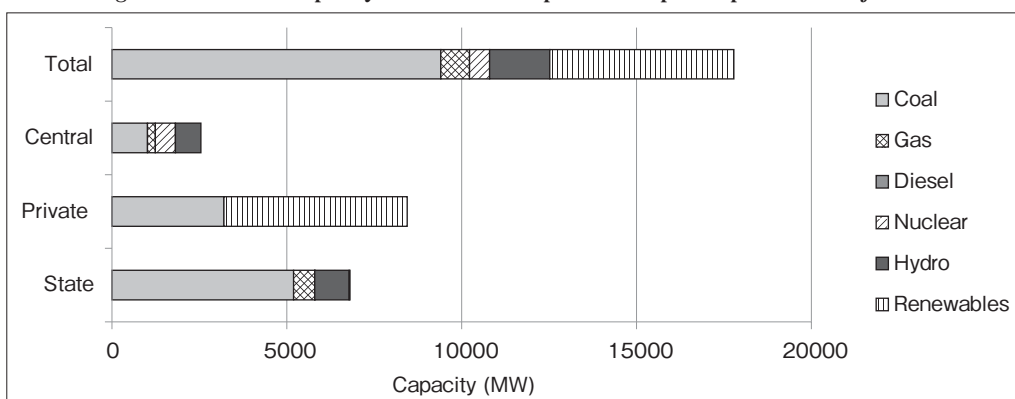
Total installed capacity in Rajasthan and its owner composition is summarized in Figure 4. The total capacity installed in Rajasthan is 17,783 MW, with a contribution of about 6.0% to the total capacity in India. As shown in the Figure 4, coal holds the biggest capacity, and investment into renewable energy is mostly conducted by the private sector.

In Rajasthan, there are three state-owned DISCOMs: Jaipur Vidyut Vitran Nigam Limited (JVVNL), Ajmer Vidyut Vitran Nigam Limited (AVVNL), and Jodhpur Vidyut Vitran Nigam Limited (JoVVNL). In the Integrated Rating of 40 state-owned DISCOMs developed by Ministry of Power (MoP), JVVNL and AVVNL received ratings of C+ (worst 10 DISCOMs among the 40 covered), and AVVNL received B (Ministry of Power, 2015).

Although the state electricity regulatory authority was established in the year 2000, tariffs have not been revised for any of the three DISCOMs during the period 2005 to 2011, which created a large gap between cost of supply and revenue. The revenue gap was funded by way of short-term loans, which ultimately resulted in a sharp increase in outstanding debt levels.

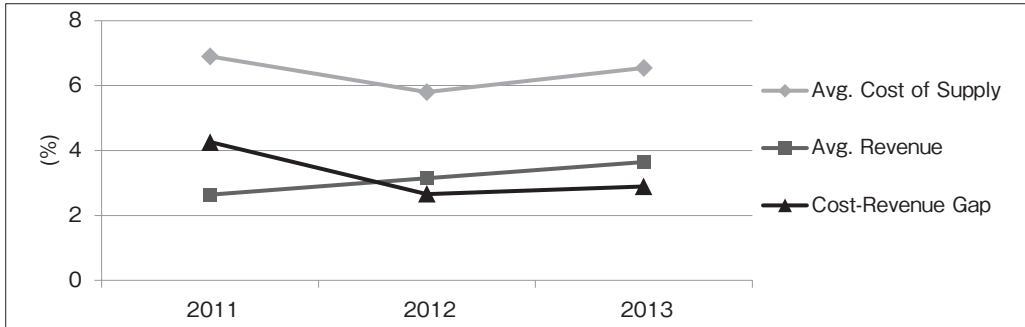
As of August 2015, cost coverage is still below unity even after three tariff hikes (Figure 5). Furthermore, all three DISCOMs have fairly high AT & C losses of almost 27% on average (Power Finance Corporation, 2015).

Figure 4 Installed capacity and owner composition of power plants in Rajasthan



Source: Power Finance Corporation, 2015

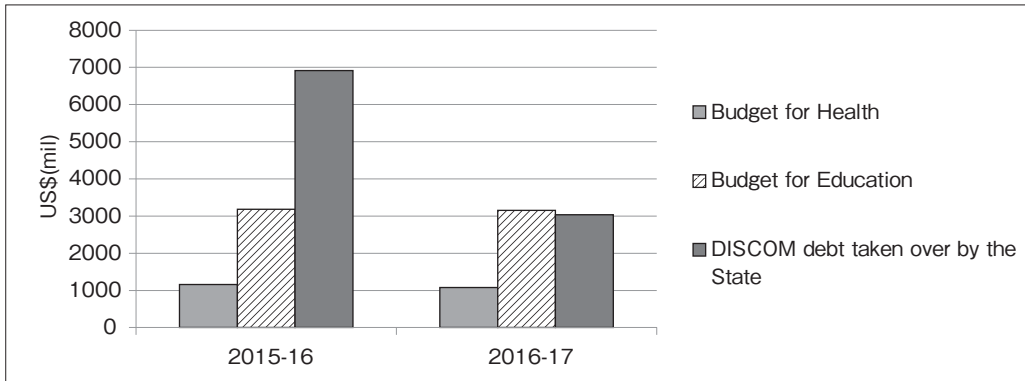
Figure 5 Average cost of supply and average revenue, and cost - revenue gap of DISCOMs in Rajasthan



Source: Power Finance Corporation, 2015

As of September 2015, the outstanding debt of the DISCOMs stands at Rs.80,500 crore, or about US\$14 billion, which is around 12% of estimated GSDP in 2015 - and close to the amount of outstanding debt of the state in 2014, which is Rs.100,511 crore or almost US\$17 billion. 75% of this outstanding debt would be taken over by the State under the UDAY scheme. 50% of the debt, Rs.42,964 crore, or about US\$7 billion, were taken over by the State in FY 2015-16, and 25% of the debt, Rs.20,133 crore about US\$3 billion, in FY 2016-17. The figure below Compares the volume of SEBs debt to the budget of Rajasthan for Education and Health in FY 2015-16 and FY 2016-17.

Figure 6 Budget for education and health, and DISCOM debt taken over by the State



Source: PRS Legislative Research, 2016

The UDAY scheme also provides for the balance debt of Rs.20,000 crore, about US\$3.2 billion to be re-priced or issued as State guaranteed DISCOM bonds, at coupon rates around 3% less than the average existing interest rate for the DISCOMS. Through reduction of debt and reduced interest rates on the balance debt, the Rajasthan DISCOMs would have savings of about Rs,3,000 crore (US \$483 mil) in annual interest cost.

Adding to the debt relief, the UDAY scheme lays stress on improving operational efficiencies of the DISCOMs. Under the scheme, DISCOMs have committed to improving operational efficiencies through reduction in AT&C losses and transmission losses to 15% and 3.5% respectively, which would bring additional revenue of around Rs.7,300 crore; or almost US\$1.2 billion to the three DISCOMs till FY 2018-19.

Demand side interventions under UDAY such as usage of energy-efficient LED bulbs, agriculture pumps, and efficient industrial equipment would help in reducing peak-load, flattening the load curve. The gain through this demand side intervention is expected to be around Rs.2,000 crore (US\$322 mil) till FY 2018-19.

Finally, coal reforms (coal swapping, coal rationalization, correction in coal grade slippage, availability of 100% washed coal, etc.) would bring additional savings of Rs.3,000 crore (US\$483 mil). Coal reforms would reduce the generation costs and thereby reducing the power purchasing costs of the DISCOMs, narrowing the differential between average cost of supply and revenue. The summary of expected annual savings for the DISCOMs is summarized in Table 2.

Table 2 Rajasthan DISCOMs Annual Savings under UDAY scheme

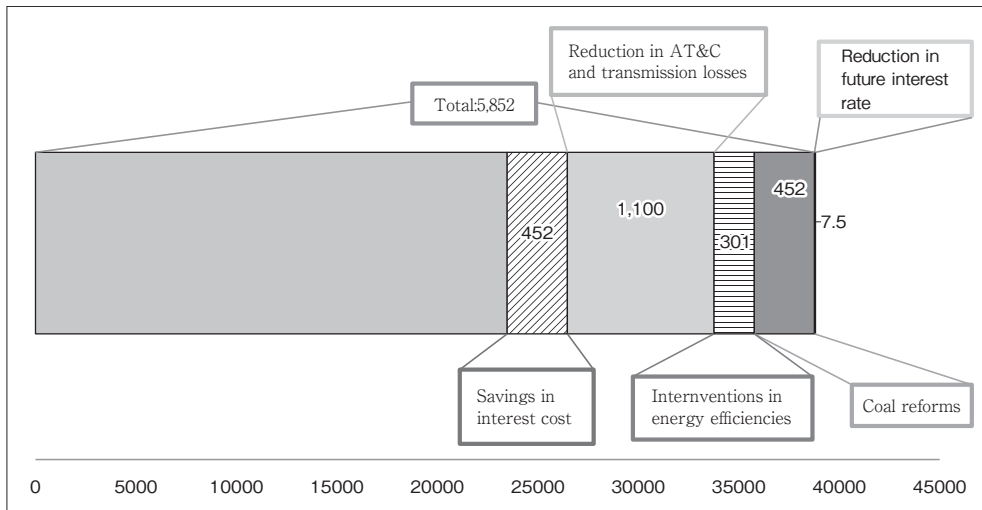
	Savings in interest cost	Reduction in AT&C and transmission losses	Interventions in energy efficiencies	Coal reforms	Improved rating of the DISCOMs and reduction in future interest cost	Total
(Rs. crore)	3000	7300	2000	3000	50	15350
(\$ mil)	483	1175	322	483	8	2471

The total expected savings is equivalent to 39.5% of the sum of total expenditure of the three DISCOMs in 2013-14, which was Rs.38,826 crore, or about US\$7.2 billion. The savings will bring down the average cost of supply from 6.54 (Rs./kWh) to 3.95 (Rs./kWh), narrowing the Cost-Revenue Gap from 2.89 (Rs./kWh) to 0.30 (Rs./kWh).²

Figure 7 depicts the impact of potential savings under the UDAY scheme on the total expenditure of the three DISCOMs.

² The calculation is based on the most recent available data (2013) of Total Expenditure and Total generation of the three DISCOMs. Source: Power Finance Corporation, 2015

Figure 7 Total expenditure of the three DISCOMs and potential savings under the UDAY scheme (US\$ million)



Source: Power Finance Corporation, 2015

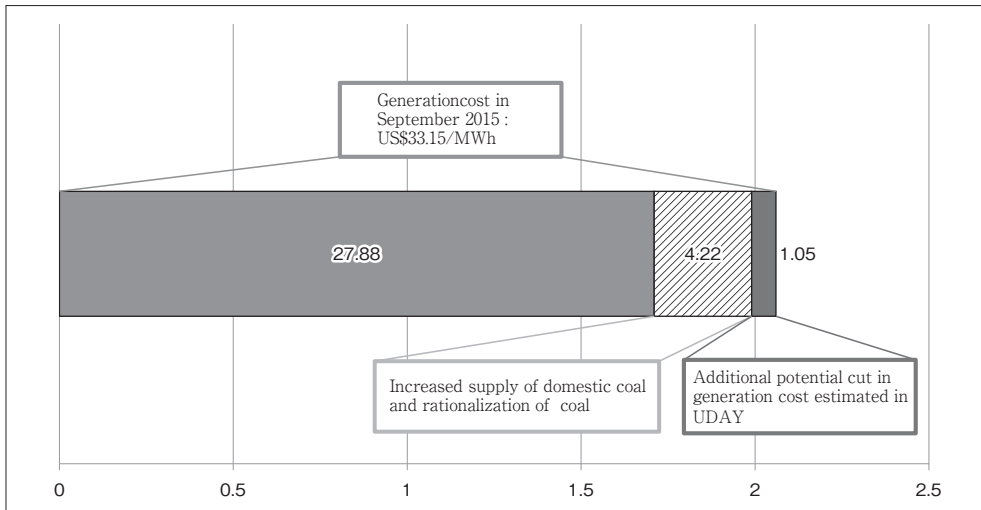
4. Reduction in Cost of Power Purchase – NTPC

The case of NTPC is a great example of how the cost of power generation could be reduced under the UDAY scheme. NTPC is the largest power company in India with a power generating capacity of 47,178 MW, with 18 coal based, 7 gas based stations and 1 Hydro based station. NTPC has been operating its plants at high efficiency levels. The company owns close to 18% of the total national capacity, but it contributes 24% of total power generation due to its focus on high efficiency (NTPC, 2016).

Under the UDAY scheme, reduction of cost of power generation would be achieved through measures such as increased supply of cheaper domestic coal, coal linkage rationalization, and liberal coal swaps from inefficient to efficient plants.

The UDAY project estimates that NTPC is expected to save Rs.0.35/kWh through implementation of the above measures. In fact, generation cost of NTPC’s coal power plants have gone down to Rs.1.78/kWh by December from the September 2015 level of Rs.2.06/kWh; a 13.6% decrease) through increased supply of domestic coal and rationalization of coal delivery process. Figure 8 provides a breakdown of the contribution of each measure to the reduction in generation cost.

Figure 8 Generation cost of coal power plants owned by NTPC (US\$/MWh)



Source: The Economic Times, 2016

5. Conclusion

A healthy power distribution sector is key to ensuring the supply of adequate power at affordable rates, facilitating India's on-going efforts toward 100% village electrification, and achieving the Government's renewable energy target. The Government of India is cognized of the precarious financial status of the country's distribution sector and has designed and launched the comprehensive and innovative UDAY scheme. Successful implementation of the UDAY schemes depends on the close cooperation between the Central and state governments. This paper uses the case of Rajasthan and NTPC to highlight the various ways to improve financial status and operational efficiency of power distribution companies by reducing AT&C losses, rationalizing the coal delivery process, enhancing energy efficiencies, reduction of interest cost etc. The UDAY Scheme is a great example of the joint efforts undertaken by the Centre and the States to transform the power distribution companies.

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