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INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROGRAM DOCUMENT

FOR A PROPOSED LOAN

IN THE AMOUNT OF USD 250 MILLION

TO THE

REPUBLIC OF INDIA

FOR THE

FIRST PROGRAMMATIC ELECTRICITY DISTRIBUTION REFORM DEVELOPMENT POLICY LOAN FOR RAJASTHAN

March 3, 2016

Energy and Extractives Global Practice
South Asia Region

***INDIA* GOVERNMENT FISCAL YEAR**
April 1 – March 31

CURRENCY EQUIVALENTS
(Exchange Rate Effective as of December 24, 2015)

Currency Unit
INR 66 = US$1.00

ABBREVIATIONS AND ACRONYMS

ACS	Average Cost of Supply
AMR	Automated Meter Reading
APL	Above Poverty Line
ARR	Average Revenue Realized
AT&C Loss	Aggregate Technical and Commercial Loss
AVVNL	Ajmer Discom or Ajmer Vidyut Vitran Nigam Ltd.
BPL	Below Poverty Line
CGFA	Corporate Governance and Financial Accountability
CMRI	Common Meter Reading Instrument
CPS	Country Partnership Strategy
DELP	Domestic Efficient Lighting Program
DISCOM	Distribution Companies or Distribution Utilities
EESL	Energy Efficiency Services Limited
EPI	Employee Performance Incentive
FDI	Foreign Direct Investment
FM	Financial Management
FRBM	Fiscal Responsibility and Budget Management
FRP	Financial Restructuring Plan
FY	Fiscal Year
GDP	Gross Domestic Product
GoI	Government of India or Central Government
GoR	Government of Rajasthan
GSDP	Gross State Domestic Product
IBRD	International Bank for Reconstruction and Development
IFC	International Finance Corporation
IFMS	Integrated Financial Management System
IHDS	Indian Human Development Survey
IMF	International Monetary Fund
IT	Information Technology
JdVVNL	Jodhpur Discom or Jodhpur Vidyut Vitran Nigam Ltd.
JVVNL	Jaipur Discom or Ajmer Vidyut Vitran Nigam Ltd.
KPI	Key Performance Indicator
KRA	Key Results Area
LDP	Letter of Development Policy
MoP	Ministry of Power
MoU	Memorandum of Understanding

MTEF	Medium-Term Expenditure Framework
MU	Million Units
NSS	National Sample Survey
OFR	Operating Financial Requirement
O&M	Operations and Maintenance
PDO	Project Development Objective
PFA	Power for All
PFM	Public Financial Management
PPA	Power Purchase Agreement
PSIA	Poverty and Social Impact Assessment
RAPDRP	Restructured Accelerated Power Development and Reform Program
RBI	Reserve Bank of India or Central Bank
REDCL	Rajasthan Energy Development Corporation Ltd.
RERC	Rajasthan Electricity Regulatory Commission
RPCB	Rajasthan Pollution Control Board
RSEB	Rajasthan State Electricity Board
UDAY	Ujwal DISCOM Assurance Yojana (Program for the Financial Turnaround of DISCOMs)
VAT	Value Added Tax

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REPUBLIC OF INDIA

FIRST PROGRAMMATIC ELECTRICITY DISTRIBUTION REFORM DEVELOPMENT POLICY LOAN FOR RAJASTHAN

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SUMMARY OF PROPOSED LOAN AND PROGRAM

REPUBLIC OF INDIA

FIRST PROGRAMMATIC ELECTRICITY DISTRIBUTION REFORM DEVELOPMENT POLICY LOAN FOR RAJASTHAN

Borrower	Republic of India
Implementation Agency	Energy Department, Government of Rajasthan (GoR)
Financing Data	IBRD Loan. Amount: US$ 250 million
Operation Type	First in a series of two single-tranche programmatic development policy operations.
Pillars of the Operation And Program Development Objective(s)	The proposed programmatic operation would support the Government of Rajasthan (GoR)'s program for the turnaround of the distribution sector in Rajasthan under the 24x7 Power for All program. This first operation lays the foundation for legislative changes and institutional reforms to improve the sector's governance, supports the financial restructuring of the sector, and backs actions necessary to improve operational performance. The main areas of the GoR program that are supported by the proposed operation are: (a) Strengthening Governance in the Rajasthan Electricity Distribution Sector; (b) Financial Restructuring and Recovery; and (c) Improving Operational Performance of Distribution Utilities.
Result Indicators	• Appointment of Independent Directors in accordance with the clause No. 8 of the Ordinance/Act in each DISCOM: Baseline: 1 in FY15 Target: As per provisions of the Companies Act (Central Act No.18 of 2013) by March 2017 • Implementation of EPI scheme: Baseline: 0 in FY15 Target : Incentive for performance in FY17 disbursed (by June 2017) • Date of availability of audited annual accounts Baseline: December 31, 2015 (with a three month delay) Target: September 30, 2016 (within six months of end of FY) • % of outstanding debt (as on September 30, 2015) of DISCOMs taken over by GoR Baseline: 0 on September 30, 2015

	Target: 75% by March 2017 • Monthly Distribution Energy Audit reports generated and disclosed (expressed as % of total feeders); Baseline: 0 in FY15 Target: 90% by March 2017 • Gap between Average Revenue Realised (ARR) and Average Cost of Supply (ACS) Baseline: INR 3.00/kWh in FY15 Target: INR 0.70/kWh in FY17 • Power Purchases for DISCOMs managed by Rajasthan Energy Development Corporation Ltd. Baseline: 0 in FY15 Target: 90% by March 2017 • Aggregate Technical and Commercial (AT&C) losses (%) Baseline: 29.5% (Provisional) in FY15 Target: 23% i.e. reduction of 6.5 percentage points over baseline by FY17 • Number of consumers put on pre-paid/ AMI/ AMR meters Baseline: 0 in FY15 Target: 100,000 by March 2017 • Number of LED lamps distributed Baseline: 0 in FY15 Target: 15,000,000 by March 2017 • Number of IT staff appointed in DISCOMs Baseline: 0 in FY15 Target: 30 by March 2017 • Number of consumers put on unified billing system Baseline: 50% in FY15 Target: 100% by March 2017 • Number of villages remaining to be electrified Baseline: 495 villages in April 2015 Target: 25 villages by March 2017
Overall risk rating	Substantial
Operation ID	P157224

IBRD PROGRAM DOCUMENT FOR A

PROPOSED FIRST PROGRAMMATIC ELECTRICITY DISTRIBUTION REFORM DEVELOPMENT POLICY LOAN (DPL) FOR RAJASTHAN

TO REPUBLIC OF INDIA

1. INTRODUCTION: COUNTRY AND STATE CONTEXT (INCLUDING POVERTY DEVELOPMENTS)

1. **The proposed programmatic operation would support the Government of Rajasthan (GoR)'s program for the turnaround of the distribution sector in Rajasthan under the 24x7 Power for All program.** A financially sound power distribution sector is a necessary condition to accomplish the objective of the 24x7 Power for All (PFA) initiative, which aspires to provide continuous, reliable power supply to all households in Rajasthan by 2019. This operation would support the comprehensive reform program -- developed by the Government of India (GoI) and the State government—that will improve the performance of the electricity distribution utilities of Rajasthan. The proposed loan would be the first in a programmatic series of two operations and consists of an IBRD loan of US$250 million.

2. **Lifted by lower oil prices and prospects for implementation of critical structural reforms, India has become the world's fastest growing large economy.** Growth in real Gross Domestic Product (GDP) (market prices) increased from 5.1 percent in FY13 to 7.3 percent in FY15 before moderating slightly to 7.2 percent in the first half of FY16. [1] While the momentum was initially supported by private consumption (average growth of 6 percent during FY13-FY15), it has more recently benefited from a pick-up in investments (4.6 percent in FY15 and 5.8 percent in H1[2] FY16 vs. an average of 1.3 percent in the preceding two years). Non-farm activities continue to be the major drivers of growth. While trade and transport services still make the largest contribution to growth, manufacturing, construction and real-estate services have gained prominence and their combined contribution to growth increased to nearly 55 percent in FY15 from 45 percent in the previous two years.

3. **Growth is expected to accelerate further, albeit modestly, driven by a pick-up in investments.** In the near-term, India is relatively well-positioned to weather the recent global volatility. India has low trade exposure to China, while Indian financial markets (local bond markets in particular) are fairly closed. India's considerable foreign exchange reserves (9 months of retained imports) provide additional buffer. In the medium-term, however, the Indian economy is not immune to a slowdown in global demand and heightened volatility. India requires some measure of foreign capital inflows to finance both fiscal and current account deficits and ultimately the investments needed to spur growth. China's slowdown and its

[1] FY15 refers to the fiscal year ending March 31, 2015, and so on.

[2] H1 refers to first half of FY i.e. the period from April to September

reverberation in the global economy has led to further deterioration of the already weak export outlook. Although India may be able to achieve fast GDP growth without export growth for a short period (as suggested by the low year-to-year correlation between exports and GDP growth), sustaining high rates of GDP growth over a longer period will require a recovery of export growth.

4. **During the previous decade, Rajasthan's economy grew at 7.9 percent and poverty declined more rapidly than the national average.** Rajasthan is the sixth most populous state and the seventh largest state economy in the country. Despite large desert expanses, its economy grew faster than the all-India average and registered an annualized growth rate of 7.9 percent during 2004/05-2014/15, above the national growth of 7.6 percent.[3] Economic growth was much more effective at reducing poverty in Rajasthan than at the all-India level during 2005-2012 – one percent increase in growth was accompanied by 1.75 percent decline in the poverty rate, compared to the all-India responsiveness where similar growth resulted in 1.06 percent in decline in poverty.[4] The State's poverty rate declined by 19.7 percent (from 34.4 percent) to 14.7 during 2005-2012, while the all India poverty rate declined by 15.3 percent to 21.9 percent – resulting in a lower concentration of the poor in Rajasthan. The State Government aims to make Rajasthan a powerful, developed and prosperous State by 2020 (Vision 2020), with a targeted economic growth rate of 12 percent. The realization of this vision would be an important contribution to eliminating extreme poverty in India.

5. **Electric power sector in Rajasthan has expanded and improved over time, but is now facing serious financial challenges[5] that threaten the sustainability of supply going forward.** Rajasthan has a household electricity access rate of about 67 percent in 2011 (and with a target to provide 100 percent access by 2019) and better energy availability compared to most other States. However, a combination of high generation costs, inefficiencies in the distribution sector and an accumulation of long-delayed tariff adjustments (rates remained unchanged from 2005 to 2011), resulted in several years of continuing losses, requiring substantial financial support from the State. Distribution utilities have been increasing their borrowings to cover financial deficits over the years, while at the same time maintaining relatively good power supply. As a result, Rajasthan's distribution utilities have now reached unsustainable debt levels and exceedingly costly debt servicing obligations. Financial institutions are therefore now reluctant to extend further financing to the utilities, because continuing the financing of loss making utilities would increase the risk of non-performing loans that could spread beyond distribution utilities to generation and transmission companies. A broad financial restructuring, accompanied by structural and operational reforms, is now needed to secure the availability of power in the State and limit risks to the financial sector.

6. **The proposed operation focuses on institutional and operational reforms of the distribution utilities of Rajasthan aiming to restore the viability of the power sector.** The GoI has prepared a program of reforms aiming to address the deficiencies of distribution companies in the country and has made it available to the states. In turn, the Government of Rajasthan (GoR) has elaborated a plan of legislative, financial and institutional actions, which

[3] For comparison, all-India GDP growths have been calculated using the 2004-05 series.
[4] Poverty measured using the Tendulkar poverty line.
[5] Please refer to Annex 7 for a discussion of the financial situation of the electricity distribution sector in Rajasthan.

are aligned to GoI's plan and aim to: (i) strengthen the governance of the State-owned utilities; (ii) assist with the financial restructuring; and (iii) establish operational performance criteria and incentives for the recovery of the sector. The operation would support these efforts and contribute to reversing the financial degradation of the utilities and contribute to increasing access to power and the long-term stability of electric power supply.

7. **The proposed reform program supports the World Bank's twin goals of poverty reduction and shared prosperity.** The Country Partnership Strategy (CPS) for India FY13-17 (Report 76176-IN, discussed by the Executive Directors on April 11, 2013) focuses on assisting low income states, such as Rajasthan, while recognizing the importance of good quality electricity services to enable economic growth and fight poverty. A reformed power sector will require lower fiscal subsidies in the medium-term and result in reduced contingent liabilities that will create fiscal space for more poverty-targeted interventions. Improving the performance of the electricity distribution sector will ensure the provision of electricity and provide the necessary environment for further investments in the sector. Such investments will allow for funding to extend electrification to unserved rural and poor areas and further improve the quality of supply for a broader customer base, and commercial and industrial development.

8. **Nevertheless, the proposed operation faces substantial risks.** Reforms of power sector distribution companies are often difficult, because of the broad social and economic reach of electric power supply, with distribution utilities being the main interface between millions of customers and their power supply. Resistance to change can be found within the sector, as well as among some electricity users, who benefit from the weak governance and deficient operational practices of the companies. These risks are mitigated in this operation by the central and the State government's recent efforts to increase accountability and monitoring of the sector. In addition, bold reforms were agreed to allocate the sector's accumulated debt obligations explicitly on State budget. A more comprehensive approach, compared to previous reform attempts, is now decided, which includes coordination to reduce overall supply costs and increased transparency. Still, the State-ownership of distribution utilities in Rajasthan requires sustained political will, over a number of years, to maintain performance improvements and the focus on restoring financial sustainability.

2. MACROECONOMIC POLICY FRAMEWORK

2.1 RECENT ECONOMIC DEVELOPMENTS

9. **The GoI has been on a path of fiscal consolidation since FY12.** The fiscal deficit of the central government has declined consistently from 5.8 percent of GDP in FY12 to 4.0 percent of GDP in FY15. This was achieved primarily by rationalizing expenditure, which declined between FY13 to FY15 by more than 0.5 percent of GDP per year (largely on account of subsidy rationalization), whereas the average increase in revenue over the same period was less than 0.1 percent of GDP. The key features of the FY16 Budget were: (1) strengthening cooperative fiscal federalism by implementing the recommendations of the 14th Finance Commission to increase untied transfers to states; (2) boosting growth by increasing infrastructure spending; and (3) despite the higher outlays implied by (1) and (2), retaining the path of fiscal consolidation, albeit

at a slower pace than earlier envisaged, by capturing the benefits of lower oil prices through higher excise duties and lower subsidies.

10. **GoI is expected to remain on a path of consolidation in the medium-term, although headwinds will increase from FY17.** Authorities have committed to continuing to reduce the deficit going forward, in principle targeting a fiscal deficit of 3.5 and 3.0 percent of GDP in FY17 and FY18, respectively. Fiscal headwinds are likely to increase in FY17, however. On the one hand, the Government remains committed to maintain the pace of infrastructure investments and fiscal transfers to the states. Moreover, the 7th Pay Commission recommendations imply a significant (23 percent) increase in public sector pay, which would put further pressure on fiscal accounts. On the other hand, the benefits from lower oil prices in FY16 will be attenuated in FY17 as the recent decline in oil prices is of a smaller magnitude than that of FY16. Notwithstanding these challenges, it is highly likely that the government will continue to reduce the fiscal deficit in coming years, even if the precise path may be subject to revisions.

11. **The fiscal deficit of the general government (center and states) is also expected to decline in coming years.** Under the assumptions of the GoI's medium term fiscal framework, the general government deficit is expected to decline to 5.7 percent by FY17-18 from 6.4 percent in FY15-16, primarily on account of modest improvements in revenue buoyancy driven by tax reforms (such as replacing the high-effort low-yield wealth tax for high income individuals with a 2 percent cess, other measures to improve collections and the increase in fuel excise and service tax). States are expected to, on average, adhere to the deficit limits established in the Fiscal Responsibility and Budget Management (FRBM) Act. Fiscal consolidation and robust economic growth is likely to lead to continued decline in the General GoI debt.

12. **Inflationary pressures subsided during 2014/15 with retail inflation down to 5.9 percent from an average of 10.1 percent in the preceding two years.** Food inflation declined (6.5 percent during FY15 from an average of 11.8 percent in FY12-FY14), and upward revisions in minimum support prices have steadily declined as crop prices increased by an average of 17 percent during FY13 and by average of 2 percent in FY15. Most recently, inflation has been stable at 4.5 percent for the first five months of FY16. The recent decline in oil prices contributes to continued price stability going forward.

13. **The balance of payments improved.** The current account deficit, which remains closely tied to movements in the merchandise trade balance, improved significantly in the last year on account of the oil price decline. With an oil trade gap in excess of US$ 100 billion (8.8 percent of GDP) in FY13-14, the decline of the price of crude oil in the past 16 months represented a substantial positive terms-of-trade shock. Despite lower portfolio flows in early FY15-16, the financial account remained in surplus – Foreign Direct Investment (FDI) remained steady while portfolio flows receded in early FY15-16 after a strong showing the previous year. In the medium term the current account deficit is expected to widen from 1.3 percent of GDP in FY14-15 to 2.0 percent in FY17-18 as import growth overshoots export performance. Import growth is expected to accelerate in the later years in consonance with increased private consumption and to meet the investment requirements of the economy. Risks stem from further weakness in India's key sources of trade, investment and remittance flows; increased volatility in financial flows; and

higher global food prices. Renewed weakness in OECD economies and further weakening in China could further dampen external flows from trade and spill over to investment.

14. **India's public debt remains sustainable given manageable interest rate costs and continued recovery in the economy's growth rate.** Under the baseline, public debt-to-GDP ratio is forecast to decline gradually to about 58.5 percent of GDP in the medium term from the current level of 65.5 percent of GDP, with gross financing needs also declining slightly to about 11 percent of GDP in 2019/20. Negative growth shocks represent one of the major risks to the debt outlook. In addition, realization of contingent liabilities coming from bank recapitalizations and liabilities of infrastructure companies, including in the electricity sector, may also push the debt trajectory up to about 70 percent, before the debt-to-GDP ratio declines gradually in the medium term. On the other hand, the captive domestic investor base and resulting low levels of real interest rates is likely to mitigate the impact of any real interest rate shocks.

15. **Overall, India's macroeconomic policy framework is adequate for a DPL**.

STATE OF RAJASTHAN CONTEXT

Recent Economic Developments

16. **In the last decade, Rajasthan grew at a healthy rate and achieved more rapid poverty reduction than the national average.** Rajasthan has a population of about 75 million and a Gross State Domestic Product of about US$43 billion in 2012. The state has the largest territory in India, but is mostly covered by desert. Despite its challenging geography, economic growth was much more effective at reducing poverty in Rajasthan than at the all-India level during 2005-2012 – one percent increase in growth was accompanied by 1.75 percent decline in the poverty rate, compared to the all-India responsiveness where similar growth resulted in 1.06 percent in decline in poverty.[6] The GoR has developed its Vision 2020 that aims to make Rajasthan a "powerful, developed and prosperous State by 2020" targeting a 12 percent growth rate.

17. **Rajasthan's economy primarily relies on tourism-related services, mining and agriculture.** Economic growth in Rajasthan was supported largely by the services sector which accounted for about 44 percent of the Gross State Domestic Product (GSDP) and grew at an annualized rate of 9.3 percent during FY05-FY15. In particular, rapid economic growth was driven by the tourism sector and services related to trade, hotels and restaurants, which accounted for 14 percent of total output and grew by 16.4 percent every year during FY05-FY12. Rajasthan has at the same time remained dependent on agriculture and as a result overall growth has remained vulnerable to exogenous shocks to agricultural performance, often on account of variations in rainfall. The share of agricultural output in Rajasthan's GSDP increased from 24 percent in the five years prior to 2010 to 28 percent in the succeeding five years. Simultaneously, industrial activity, particularly manufacturing, lost ground – presenting a diverging trend from the rest of the country wherein economic transition out of agricultural and towards services and industry.

[6] Poverty measured using the Tendulkar poverty line.

18. **Public finances improved after the adoption of the Fiscal Responsibility and Budget Management (FRBM) rules in 2005, but lost momentum in recent years.** GoR's fiscal deficit, which stood at an average of 5.5 percent of GSDP in five years preceding FY06, gradually declined to an average of 2.4 percent in the seven years after enactment of the FRBM Act, 2005 – and largely met the targets prescribed in the law (with the exception of FY09 and FY10 on account of the global financial crisis).[7] However, in recent years the fiscal deficit has risen to an average of 2.9 percent during FY13-FY15 – reaching approximately 3.6 percent in FY15.[8] The recent deterioration of public finances can be explained by increased expenditures on the power sector which more than compensated for robust growth in own-tax revenues and petroleum royalties. In spite of this increase in the deficit, the debt to GSDP ratio, which had declined rapidly in the years following the enactment of the FRBM Act (from 47 percent in FY06 to 25.7 percent in FY12) remained broadly stable in subsequent years. The initial decline in the debt-GDP ratio was driven largely by rapid economic growth followed by fiscal consolidation by the State, and a brief period of high inflation and negative real interest rates (FY09-FY12). However in recent years a widening fiscal balance and moderating inflation (resulting in higher real interest costs) tempered some of this rapid decline.

19. **Revenue collections have shown an upward trend in recent years, improving from 13.4 percent of GDP in FY10 to 16.7 percent of GDP in FY15.** While the increase in untied grants recommended by the 14th Finance Commission is expected to boost revenue in the current fiscal year, the introduction of a State Value Added Tax (VAT) in 2003 and improvements in tax administration also helped increase revenue of the state.[9] Rajasthan is not as dependent on the GoI as other States– State's own revenues account for more than 60 percent of total receipts and state VAT is the single largest contributor to overall tax revenues. Buoyancy of tax collections has remained robust in recent years at around 1.2, compensating for fluctuations in transfers from the GoI. Simultaneously, the State has benefitted from petroleum royalties since 2010 after the discovery of oil in Thar Desert – with annual collections amounting to approximately 1 percent of GSDP. On account of implementation of the recommendations of the 14th Finance Commission, untied transfers are budgeted to increase to 4.4 percent of GSDP in FY16 compared to an average of 3.4 percent in the previous year – but will be more than offset through a decrease in tied grants from the GoI (from 4.1 percent of GSDP in FY15 to 3.0 in FY16).[10]

20. **Ongoing fiscal consolidation was disrupted by increased expenditures in recent years.** Since the adoption of FRBM, total expenditures declined gradually as a share of GSDP

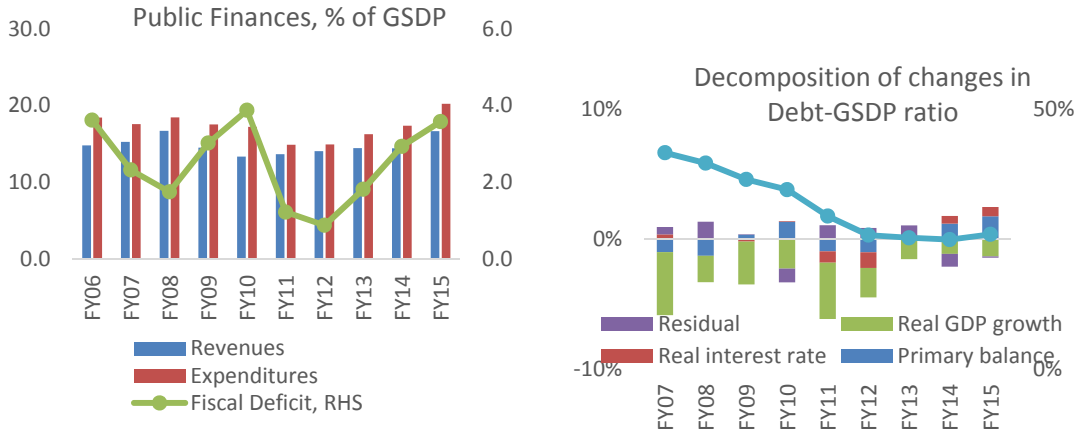
[7] The State Legislature enacted the FRBM Act in 2005 in order to ensure the prudent fiscal policy and pave the road to fiscal consolidation. The FRBM Act prescribes quantitative fiscal management targets on revenue deficit, overall fiscal deficit and outstanding debt as share of GSDP. The targets were updated in the subsequently enacted amendments. The currently applied targets include: revenue deficit at 0 percent of GSDP, fiscal deficit as GSDP at 3 percent, and a numerical ceiling for debt to GSDP at 36.5 percent in FY15.

[8] The 3.6 percent of GSDP deficit is based on World Bank estimates – this differs from the GoR's revised estimates of 4 percent in FY15, largely on account of lower budget execution particularly on capital expenditures. Actual capital spending is assumed at 90 percent of revised estimates, current spending at 97 percent of revised and revenue collections at 98 percent of revised.

[9] Total revenue receipts in 2014/15 and 2015/16 (budgeted) increased to 17 percent of GSDP and 16.3 percent resp., from 14.4 percent in the previous year – primarily due to an increase in grants from the GoI which were now reflected in the State's budget compared to the previous practice of direct transfers to implementing agencies.

[10] Following the recommendations of the 14th finance commission untied transfers to State government have increased – 42 percent of the central divisible pool of taxes will be devolved to States.

until 2012 – from an average 18.3 percent of GSDP in the five years preceding FY05 to 14.9 percent by FY12. This period of consolidation was driven by a decline in interest payments and capital expenditures – by 1.8 percent and 1.3 percent of GSDP respectively during FY06-FY12. Nearly two-thirds of current spending is on committed expenses such as salaries and pensions which continued to increase – including a 40 percent revision in the salaries bill following the recommendations of the 6th pay commission in FY09; and a 23 percent increase reflecting inflationary adjustments in 2014/15. However, since 2012, total expenditures rose to an average of 18.2 percent of GSDP during FY13-FY15 from 15.7 in the preceding three years – primarily as financial support to the power sector increased after the rollout of the Financial Restructuring Plan (FRP) in 2012.



21. **Support to the power sector, especially to distribution companies, is a burden to the State's finances**. In FY15, total support to the power sector amounted to 2.4 percent of GSDP. The distribution companies or utilities (DISCOMs) receive several forms of financial support from the State government including: (i) subsidies for supply of power to the agricultural sector; (ii) interest subsidies for loans taken by distribution companies; (iii) equity support for capital investments; and (iv) most recently financial bailouts and rebalancing of their debt-equity ratios. An attempt to restructure the debt of distribution companies took place in 2012 in an operation where the State government took over a part of the high-cost outstanding liabilities of loss-making utilities, thereby reducing their expenditures on debt servicing and overall losses. The FRP announced in 2012 allowed State governments to take over 50 percent of outstanding short-term liabilities of distribution companies. In Rajasthan, this amounted to INR 180 billion (3.8 percent of GSDP or ~US$3 billion) in March 2012 and the State gradually transferred this to its own balance sheet, while recapitalizing the companies through equity support. Consequently, the State's support to the power sector increased to an average 2.2 percent of GSDP during FY13-FY15 from 1.3 percent during FY10-FY12. Despite the support extended to distribution companies during this period (in the form of equity, loans and subsidies), they continued to accumulate losses, and as of September 2015 have consolidated outstanding liabilities in the amount of approximately US$ 13 billion.

22. **The UDAY scheme has been put forward to reach a sustainable resolution to the DISCOMs' financial troubles.** The financial distress facing the DISCOMs in Rajasthan is not unique, though the State's DISCOMs have the highest amount of debt. Across India, the weakest link in the electricity value chain is distribution, with DISCOMs having accumulated losses of

approximately INR 3,800 billion and outstanding debt of approximately INR 4,300 billion (as of March 2015), with interest rates up to 14-15 percent. Financially stressed DISCOMs are not able to supply adequate power at affordable rates, which hampers quality of life and overall economic growth and development. Efforts towards 100 percent village electrification, 24x7 power supply and clean energy cannot be achieved without well performing DISCOMs. Power outages also adversely affect national priorities like "Make in India" and "Digital India". In addition, possible default on bank loans by DISCOMs has the potential to seriously impact the banking sector and the economy at large. With a view to finding a sustainable solution to the DISCOM financial troubles, GoI announced a financial bailout plan in November 2015 – UDAY or the Ujwal DISCOM Assurance Yojana – which entails States taking over 75 percent of DISCOMs' outstanding debt over two years – 50 percent in FY16 and 25 percent in FY17. Under the scheme, the debt taken over will be excluded from the calculation of fiscal deficit in FY16 and FY17 – allowing the State to maintain current levels of capital and social expenditures.[11]

23. **The UDAY scheme aims to achieve long-term financial sustainability by addressing the operations of DISCOMS.** The UDAY scheme is centered around four initiatives: (i) improving operational efficiencies, including reduction of losses and revenue requirement adjustments, of DISCOMs; (ii) reduction of cost of power generation through the optimization of fuel logistics and pricing, as well as transparent competitive bidding by the DISCOMs; (iii) reduction in interest cost of DISCOMs by requiring State governments to absorb and restructure about 75 percent of the DISCOMs debt through longer term and lower cost bonds; and (iv) enforcing financial discipline on DISCOMs through alignment with State finances through making the contingent liabilities of the States to the DISCOMs explicit and forcing financing of deficits by the States, while restricting further lending of financial institutions to finance DISCOM losses. To ensure that the incentives of the States and the DISCOMs are aligned towards increasing efficiency and reducing losses, UDAY anticipates that, from FY18, losses of DISCOM's will have to be absorbed by the State's budget without further accommodation by the central government on deficit constraints under the FRBM. The State of Rajasthan has proposed to go beyond what has been proposed in UDAY by taking over 100 percent of DISCOM's operating losses on budget starting in FY16 (termed Operating Financial Requirement or OFR support). This proposal further increases the State's incentives to work with DISCOMs to reduce their losses, but poses significant additional burden on the State's budget, especially considering that such OFR support would have to be accommodated within FRBM limits.

24. **The UDAY scheme is more comprehensive and deeper than previous financial restructuring plans for the sector.** Previous efforts (2001, 2011) were not successful because they did not pay adequate attention to operational improvements nor did they explicitly transfer responsibilities to the States. The UDAY scheme differs because it puts more responsibility on the States, explicitly prohibiting any future sector losses from being financed by commercial banks. This forces State governments to finance such losses, while imposing a hard budget constraint on the States within the FRBM limits. UDAY is more comprehensive as it also

[11] According to the UDAY scheme, States will issue non-SLR bonds (SDL) with maturity period of 10-15 years with a moratorium on principal up to 5 years. 10 year Bond Pricing: 7.92 percent (as per last RBI auction of State SDLs) + 0.25 percent spread for non-SLR status on semi-annual compounding basis (market driven, subject to cap of 10 yr. G-Sec + 50 + 25 bps)

involves an incentive scheme for States and DISCOMs to perform[12], and leverages the GoI centrally owned electricity companies and fuel resources to lower the cost of bulk electricity supply for the distribution companies. Furthermore, it prescribes an agreed trajectory of reduction of losses at circle level, supports specific policies to modernize metering and network monitoring, and provides incentives through grant financing schemes for the necessary investments. The financial restructuring actions alone are estimated to reduce costs for the distribution companies by about 10 percent during the first year and an additional 5 percent the second year. Should the operational targets for loss reduction be also met, distribution companies could reach financial break even status within about three to four years, with relatively moderate tariff increases. For operationalization of UDAY, a tripartite agreement has to be signed among the State government, DISCOMs, and GoI, describing responsibilities for each party with a mechanism for regular monitoring of progress.

2.2 MACROECONOMIC OUTLOOK AND DEBT SUSTAINABILITY

Medium-term outlook and fiscal sustainability

25. **The financial restructuring of the power sector will have important fiscal implications for Rajasthan.**

(1) Takeover of DISCOM's debt and associated interest burden. Under UDAY, in FY16 and FY17, the State Government has agreed to take over 75 percent of DISCOMs' liabilities outstanding as of September 30, 2015 (which total INR 805 billion or 12.1 percent of GSDP). This will be accomplished through a transfer from the State to the DISCOMs of an amount equivalent to 50 percent of the total debt in FY16 and 25 percent in FY17. As part of the UDAY scheme, the amount of the debt takeover will not be used to compute the State's fiscal deficit for the purposes of compliance with the 3 percent FRBM limit. However, since the State would have to borrow to finance this equity transfer, Rajasthan would bear an additional interest burden of 0.5 percent of GSDP in FY17.[13]

(2) The State's proposal to take over OFR and continued subsidies and other support to the power sector. The State's proposal to offer additional support to the DISCOMs by financing their operational losses starting immediately amount approximately to 1.4 percent of GSDP in FY16 and FY17 and lead to a deviation of the fiscal deficit from FRBM limits in FY16 (excluding the DISCOMs for debt takeover). In the later years, the State is expected to continue to subsidize agricultural electricity consumption, but plans to extend no additional equity support to the power sector. Altogether, recurrent support to the power sector is expected to decline from 1.9 percent of GSDP in FY17 to 1 percent of GSDP in FY22.

[12] States accepting UDAY and performing as per operational milestones will be given additional / priority funding through Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY), Integrated Power Development Scheme (IPDS), Power Sector Development Fund (PSDF) or other such schemes of Ministry of Power and Ministry of New and Renewable Energy

[13] In practice the transfer will take the form of an interest-free loan from the state to the DISCOMS, repayable over a five year period (FY16-20) through equal-sized equity injections. This structure is largely equivalent to pure equity transfers (since the State will be responsible for raising funds in the market, and for paying the interest on the debt taken over). Nevertheless, it allows the state to meet its FRBM target of running a zero revenue deficit, for which there is no exemption under UDAY.

26. **As the state implements UDAY and continues to finance losses in DISCOMs, public finances will deteriorate in FY16.** The fiscal deficit is expected to increase to 10.1 percent of GSDP in FY16, compared to the budgeted deficit of 3.6 percent of GSDP in FY15, and 5.7 percent in FY17 – when the state takes over 50 and 25 percent of the DISCOMs' outstanding liabilities in the respective years.[14] Excluding the take-over of DISCOMs' liabilities as allowed by UDAY the fiscal deficit is still estimated to be above the FRBM limits at 4 percent in FY16, but slide down to 3 percent of GSDP in FY17. After the initial shock from front-loaded debt take-over by the State, further stresses may emanate from the imminent revision of public salaries – postponing the incidence of any fiscal consolidation on other expenditures. (Refer to Annex 4 for a detailed listing of all assumptions underlying the baseline and Annex 5 for statistical tables).

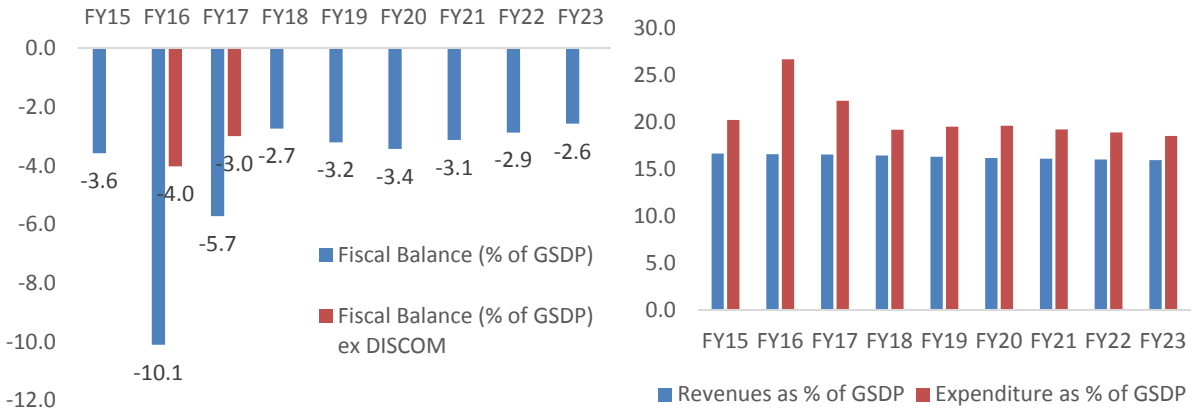
27. **In the following years, public finances are expected to improve, but only modestly.** The fiscal deficit is expected to decline to 2.7 percent in FY18, but rise in the subsequent two years upon imminent pay revisions to an average of 3.3 percent of GSDP due to the recommendations of the India Pay Commission. In subsequent years, the fiscal deficit is expected to gradually decline to 2.6 percent by FY23 and spending patterns will shift towards capital formation. The fiscal path under baseline scenario is largely driven by reduced support to the power sector – from an average of 2.2 percent in the three years preceding UDAY to 1 percent of GSDP during FY18-FY23. Expenditures excluding power, are also expected to increase moderately in the near-term, before they begin consolidating in FY21 – increasing to an average of 18.2 percent of GSDP in FY17-FY20, from 16.8 percent in FY16, partly due to increased interest burden and partly due to the salary revision. Following the GoI pay revisions announced from FY17, Rajasthan's wage bill is assumed to increase annually by 20 and 14 percent respectively in FY19 and FY20. In addition, capital spending, excluding power, is assumed to grow rapidly, in support of the GoR's ambitious development vision, at an annualized rate of 18 percent during FY18-FY23. At the same time, revenue is expected to remain buoyant and grow by 12 percent annually during FY18-FY23, partly reflecting rapid real growth assumed at an average of 8.2 percent during FY17-FY23.[15,16] Total transfers from the GoI are expected to decline as a share of GSDP over the forecasting period despite an increase in untied tax devolution to average 4.3 percent of GSDP during FY16-FY23 (vs. 3.6 percent in the preceding five years). This is due to the fact that Rajasthan's own share of tax devolution among other States has declined, and the increase in untied transfers is not expected to fully offset a fall in support from the GoI in the form of conditional grants (declines to 2.5 percent of GSDP during FY16-FY23 from 4.1 percent in FY15).[17]

[14] Budgeted fiscal deficit for FY16 at 3 percent of GSDP was estimated at the time of budget preparation assuming nominal GSDP growth of 20 percent. For the purposes of this fiscal sustainability analysis, nominal GSDP is assumed to grow by 15.3 percent in FY16 – which implies, ceteris paribus, a fiscal deficit of 3.1 percent of GSDP before UDAY.

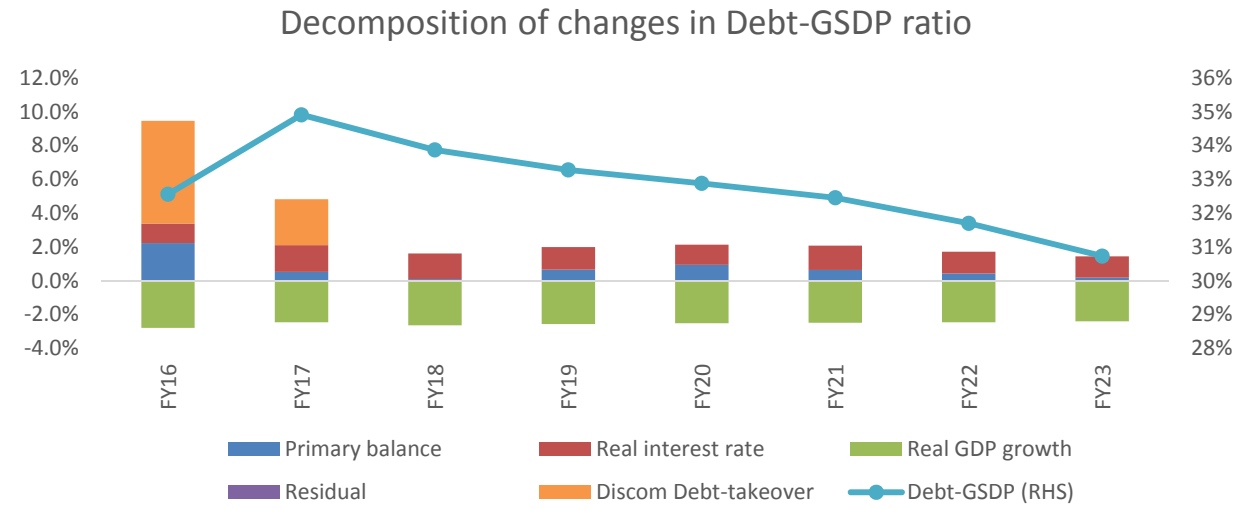
[15] Non-tax revenues face an upside risk from mining auctions that could result in higher loyalty collections for GoR

[16] Real GSDP growth is assumed to be an average of 8.2 percent annually during FY17-FY23. Refer Annex 4 and 5 for details.

[17] There is significant uncertainty as to the ultimate decline in conditional grants as Niti Aayog only recently came out with recommendations on restructuring centrally sponsored schemes.



28. **The public debt trajectory is projected to decline from FY18.** Debt-GSDP ratio is expected to increase from 25.9 percent of GSDP in FY15, to 32.6 percent in FY16 and further to 35 percent in FY17 as the GoR takes over liabilities of DISCOMs In subsequent years, the debt is expected to decline modestly, driven by rapid economic growth - and is expected to decline to 30.8 percent of GSDP by FY23.



29. **With healthy economic growth and fiscal prudence, the debt-to-GSDP ratio is expected to fall over the medium term, thus preserving the status of Rajasthan's macroeconomic and fiscal policy framework as broadly appropriate.** The largely positive medium-term outlook is, however, subject to several downside risks, and its realization is contingent on sustained reduction in losses incurred by DISCOMs as anticipated in this program, robust economic growth, and continued fiscal discipline by the GoR on non-committed current expenditures – particularly in the form of subsidies and other transfers. The most severe downside risks may arise from continued financing support to DISCOMs and an imminent revision in salaries by GoR – in either event the State's fiscal and debt trajectory could be affected adversely in the medium term but will remain sustainable in the long-term (refer to Annex 5 for details on sensitivity analysis). Active debt management will be crucial to minimize refinancing risks that could emerge due to the imminent spike in borrowings from the DISCOM debt takeover. In addition, medium-term fiscal strategies of the State will need to focus on prioritizing expenditures whilst managing the two spurts in inevitable expenditures – DISCOMs

debt and pay revisions – and maintain development expenditures at a level commensurate with the State's ambitious goals.

2.3 INTERGOVERNMENTAL RELATIONS

30. **India follows a federal system of government at the Union with clear separation of taxation and spending powers.** As enshrined in the Indian Constitution, the leadership of the executive is drawn from and is accountable to the legislative body. The Constitution has demarcated the taxation powers of both the levels of government, while the borrowing and foreign exchange entitlements are controlled by the Central Government i.e. GoI. The fiscal relationship between the Union and the States is reflected in the devolution of a share of central taxes and additional assistance in the form of grants from the Union to the States as follows:

- *Tax devolution (share of central taxes to States)* recommended by the different Finance Commissions. The States decide how much of this central revenue would supplement the resources of local governments.
- *Plan grants (to States):*
  - Centrally sponsored schemes designed by the Center but implemented at the State level
  - Plan assistance in the form of block grants for State plans;
  - Additional central assistance for special and other programs to States.
- *Non-plan grants (to States and local governments):* Non-plan grants recommended by the Finance Commission.

The Finance Commission is a constitutional body set-up every five years and its mandate is to define the Center-State fiscal relations. Its main task is to recommend the sharing allocation of tax revenues collected by the Centre between Central and States governments, and between each State – facilitating vertical and horizontal equalization. The 14th Finance Commission recommendations were submitted to the Parliament on February 2015 for a five-year period starting April 2015. The 14th Finance Commission recommended a significant increase in untied resources to state government (states' share in the central tax pool raised from 32 to 42 percent), and invoked greater horizontal equalization by compensating States with higher rates of in-migration, forest cover, and poor fiscal capacity (ability to raise its own revenues).

31. **Clear procedures for borrowings by the State government are laid out in the constitution.** Rajasthan is empowered to borrow "within the territory of India" and issue guarantees under the Constitution of India, after consent from the central government.[18] State's borrowing is constrained by the limit established in the annual budget approved by the State Assembly. The limit is strictly monitored and followed. Any additional borrowing needs to be authorized by the State Assembly and approved by the central government.

[18] The State should get consent from the Government of India (GoI) to raise loans if it is indebted to or granted guarantee by the GoI (The Constitution, Article 293(3))

3. THE GOVERNMENT OF RAJASTHAN'S PROGRAM

32. **Rajasthan's electric power distribution is carried out by three State owned distribution companies.** The electricity sector in Rajasthan is separated in the generation, transmission, and distribution sub-sectors, while an independent regulatory authority (Rajasthan Electricity Regulatory Commission or RERC) is responsible for approving tariffs and oversight of regulatory obligations of electricity companies. The distribution companies of Rajasthan, namely, Jaipur Vidyut Vitran Nigam Ltd (JVVNL or Jaipur Discom), Jodhpur Vidyut Vitran Nigam Ltd (JdVVNL or Jodhpur Discom) and Ajmer Vidyut Vitran Nigam Ltd (AVVNL or Ajmer Discom), collectively referred to as Rajasthan DISCOMs, were created as part of unbundling of Rajasthan State Electricity Board (RSEB) on July 19, 2000. These entities are licensees for distribution of electricity in specific areas in the State of Rajasthan and provide electricity to about 9.5 million customers. Transmission services within the State are provided by a state-owned transmission company. For generation, a mix of state-owned plants and private sector generators are available, along with electricity exchanges from other states.

33. **The Rajasthan DISCOMs are in poor financial health and have a weak operational performance with high Aggregate Technical and Commercial (AT&C) losses.** The annual revenue deficit of the DISCOMs in the State has increased by over 130 percent from INR 67.7 billion in FY09 to INR 156.45 billion in FY14 (INR 124.74 billion in FY15) and the accumulated revenue deficit increased by over 400 percent from INR 156.43 billion at the end of FY09 to INR 775.43 billion at end of FY14 (INR 814.11 billion in FY15 end). These losses have been largely funded by short term liabilities, thus leading to total outstanding debt of INR 780 billion as of July 2015. The DISCOMs are in serious financial distress and need support to come out of this financially unsustainable position (Annex 7 has a more detailed discussion of the financial situation of the sector).

34. **GoR and the DISCOMs have come up with a strategy and an action plan to turn the sector around.** The main features of the strategy are:

a. Target Area 1: Customer Service Strategy – This involves roll out of 24x7 reliable Power for All (PFA) and will cover 3 phase supply to all villages with population of more than 3,000; use of Information Technology (IT) to modernize services for new connections and online billing and payment; centralised customer care and call center; and better customer outreach.

b. Target Area 2: Loss reduction – This includes 100 percent metering for consumers and feeders; Automated Meter Reading (AMR) system for high value consumers; Energy audit and accounting at feeder level; introducing Distribution franchisee/ Public Private Partnership in identified areas; Network strengthening and optimization; Loss based feeder supply management; and Aggressive Vigilance drives.

c. Target Area 3: Cost Optimization – This includes review of long term and short term power procurement policy and procedures; improving operational efficiency of generation companies.

d. Target Area 4: Improved Revenue Realization – This includes reduced human intervention in metering, billing and collection, and updated IT implementation; Aggressive arrear recovery drives; Outsourcing the disconnection of defaulting consumers.

e. Target Area 5: Demand Side Management and Energy Efficiency – This includes launch of energy efficient street lighting program; replacement of incandescent bulbs with LEDs

through ESCO model; replacement of old agriculture pump sets with energy efficient ones; flattening of load curve; and introduction of Smart metering and Time of Day tariffs.

f. Target Area 6: Tariff Measures – This includes submitting to the RERC timely and adequate tariff revisions; and revising electricity duty from per unit to ad valorem basis.

g. Target Area 7: Asset Monetization – This includes exploring options like sale/ lease of land; and sale of unserviceable assets/ equipment's.

h. Target Area 8: Disinvestment and Private Participation – This includes options for strategic disinvestment of State-owned generation; and the sale of loss-making assets. In addition, selected areas of the distribution utilities will be offered to private sector entities under the Distribution Franchisee model, where a private operator undertakes the operational and maintenance responsibilities of the utility. GoR has initiated the process for three such areas expecting bids by March 2016 and could expand the approach to an additional five areas at a later stage.

i. Target Area 9: Employee Engagement – This includes preparing and implementing communication strategy to improve engagement; mapping of activities and Key Result Areas (KRAs) and Key Performance Indicators (KPIs) of all employees; assessment of training needs of employees and implementing capacity building programs; allocating loss reduction targets to field officers and making them accountable by linking target achievement with performance appraisal; and performance incentives.

j. Target Area 10: Sustained support from Government – Rely on GoR for continued financial support and GoI for a Financial Restructuring Plan (FRP).

4. THE PROPOSED OPERATION

4.1 LINK TO GOVERNMENT OF RAJASTHAN PROGRAM AND OPERATION DESCRIPTION

35. **The proposed programmatic operation would support the GoR's program for the turnaround of the distribution sector in Rajasthan under the 24x7 Power for All program.** This first operation lays the foundations for legislative changes and institutional reforms to improve the sector's governance, supports the financial restructuring of the sector, and backs actions necessary to improve operational performance. The main areas of the GoR program that are supported by the proposed operation are:

(A) *Strengthening Governance in the Rajasthan Electricity Distribution Sector*. The State's DISCOMs were established in the early 2000s, but their organizational and institutional structures have not followed the modernization and best practices of more successful Central Government owned enterprises in India. Distribution companies remain largely vulnerable to political influence and can therefore deviate significantly from balancing near-term service provision with long-term financial sustainability objectives. Clear performance targets and agreements between the management of DISCOMs and the GoR will provide the basis for better accountability in the sector. Measures in this area will provide more operational autonomy to the utilities, establish targets for reducing the gap between the cost of supply and revenues recovery, and institute employee accountability for utility performance.

(B) *Financial Restructuring and Recovery*. Actions to be supported in this policy area will: (i) address the immediate financial pressures of the DISCOMs by transferring a considerable amount of the debt of the DISCOMs to the State (recognizing its implicit responsibility as the

owner of the companies); (ii) bring a more disciplined approach to submissions by the DISCOMs to the regulatory commission for annual revenue requirements and tariff revisions; and (iii) better focus the DISCOMs efforts on increasing transparency and competition to reduce the costs of energy procurement.

(C) *Improving Operational Performance of Distribution Utilities*. Rajasthan DISCOMs need more thorough business plans for their financial and operational turnaround. Initiatives under this pillar will include key programs to modernize the monitoring and control of the distribution network, including the introduction of new technologies for efficiency gains (smart metering, pre-paid metering program and energy efficient lighting).

36. **The operation draws on previous experience in energy policy lending in India and elsewhere.** Key lessons learned relevant to this operation include the following:

- The performance of State-owned enterprises can be improved with better governance structures and specific and transparent performance contracts, accompanied with an incentive system for meeting targets.
- Energy sector reform programs require sustained intervention, backed by strong political will, over the long term. Reforms must be designed flexibly to allow assessment of progress and adaptation as the process evolves -- including leaving open the option to change indicative triggers or bring other instruments into play.
- Structural change must be complemented by behavior change among those who are affected, and they need space and time to recognize and adopt new ways of working; the Bank must calibrate its support so that it matches the pace of change government is able to accommodate. The challenge that most of the utilities face in India is that the utility staff has high average age and is not computer literate and thus there is a need to build capacity in the utility. Technical assistance and investment financing can support and complement these changes.
- A “One Size Fits All” approach does not work for sector reform. Different models in power sector are working well in India and other countries while the same approaches are not working well at other places. There exist a number of circumstantial and historical aspects that need to be factored in while carrying through the process of reforms and the solutions have to be located from within the sector and organization. Internal change management is a process which could be common but issues to be handled will vary for each case.
- Realistic Business Plan will yield satisfactory results. In the past, most of the States which undertook reforms of their power sector framed business plans which were over ambitious on assumptions for future tariff increases, AT&C loss reduction and load growth, thus often failing to achieve the desired results. Unrealistic assumptions on achieving quick financial turnaround, given the political economy challenge of tariff revision, slow efficiency gains, and growth in subsidized sales (domestic and agriculture, which is largely unmetered also), led to repeated bail-outs from government later on.
- Successful reforms need a participative and consultative process on internal and external stakeholder engagement and communication that goes a long way towards smooth implementation and avoiding communication gaps or distrust.
- Institutional building is a long term goal requiring stable and visionary management; without it the whole process is still susceptible to non-sustainability of short term gains.

4.2 PRIOR ACTIONS, RESULTS AND ANALYTICAL UNDERPINNINGS

Policy Area A: Strengthening Governance in the Rajasthan Electricity Distribution Sector

Prior action #1 for DPL 1:
Rajasthan has issued and notified the Electricity Distribution Management Responsibility Ordinance

Indicative Trigger for DPL 2:
Rajasthan has entered into MoUs with DISCOMs setting out targets for key performance indicators regarding: AT&C losses; Feeder metering and Consumer Indexing; Energy accounting and auditing; and performance evaluation for the DISCOMs for FY17-18

37. A**s a part of the turnaround strategy for electricity distribution in the State, GoR has enacted in January 2016, a State level ordinance**[19] **detailing the responsibilities of the State government and the DISCOMs for the sector's financial and operational turnaround, as well as the long-term sustainability of electricity distribution.** Rajasthan is the first Indian State to employ such a legal instrument, which should contribute to reducing political interference in the operations of DISCOMs and bring more public accountability to the sector. The notified ordinance provides for: financial restructuring, long term planning, corporate governance, regulatory compliances, and policy directives. The main elements are:

a. The State Government and the DISCOMs to enter into a Memorandum of Understanding (MoU) for setting key performance indicators and performance evaluations for each FY;
b. State Government to ensure that the Board of the DISCOMs has an optimum mix of functional, nominee and independent directors with the number of independent directors complying with the requirements of the Companies Act and in line with Guidelines on Corporate Governance for Public Sector Enterprises (GoI);
c. Setting up of financing vehicle to provide support based on Financial Restructuring Plan and to lower financing costs for DISCOMs;
d. Drawing up a short, medium and long term road map for development of the sector, including a road map for reducing the AT&C losses, energy accounting and auditing, completing metering and consumer indexing in a defined time frame;
e. Constitution of a monitoring mechanism to review the operational and financial performance of DISCOMs on a regular basis and reporting to the State's assembly on progress.

38. **While power sector companies owned by the GoI have for several years employed performance accountability mechanisms for their management, Rajasthan's utilities do not have such systematic practices.** Global experience with distribution utilities has shown that adequate mechanisms to increase the autonomy and accountability of management results in performance improvements. The approach is enshrined in the operation of power companies at the GoI level, but is not widely used at the State level. As a result, the utilities are more vulnerable to political interference and their overall management is less focused. Learning from this, the ordinance envisages signing of a MoU between GoR and the DISCOMs setting targets

[19] The ordinance will now be placed in front of the State legislature (for ratification) in the next session and the process should be completed within six months of its promulgation.

for key performance indicators for the management of distribution companies concentrating on reducing losses and improving the transparency and accountability across network operations. The DISCOMs and the GoR are in discussions over the targets for key performance indicators regarding AT&C loss reduction, feeder metering, consumer indexing, energy accounting and auditing and for performance evaluation of each DISCOM for FY16-17. The MoU will be a trigger for the second phase of the program.

Prior action #2 for DPL 1:
The DISCOMs have developed and obtained approvals for their Employee Performance Incentive (EPI) scheme

Indicative Trigger for DPL 2:
The DISCOMS have prepared and approved a revised transfer and promotion policy for its employees

39. **Effective employee engagement is critical for the success of the turnaround plan for the distribution companies.** Electricity distribution involves by its nature a large number of customers (millions) and correspondingly a large number of employees (tens of thousands). Improving performance therefore requires, beyond appropriate systems and processes, an effective mechanism to manage widely spread resources. To incentivize its employees to work towards AT&C loss reduction, GoR has in November 2015 approved the DISCOMs' proposal for an employee financial incentive scheme – GoR approval was required as per the Regulation of Appointments to Public Services and Rationalisation of Staff (RAPSAR) Act 1999. Under the scheme, all the employees of the Operation and Maintenance (O&M) sub-divisions are eligible for a financial incentive based on their performance on the single parameter of AT&C loss reduction in their respective sub-divisions.

40. **For the second operation of the series, it is proposed that a transfer and promotion policy is put in place to allow for the rotation of employees occupying critical positions on the basis of their performance.** Similar Performance management systems are being used by Central Public Sector Undertakings (CPSUs) in GoI, with generally positive results as they provide a deterrent in cases of non-performing staff.

Prior action #3 for DPL 1:
The DISCOMs have completed audited financial statements for FY14-15.

Indicative Triggers for DPL 2:
- *The DISCOMs have completed audited financial statements for FY15-16.*
- *The DISCOMs have started the implementation of their Corporate Governance and Financial Accountability Plan*

41. **Rajasthan's distribution utilities have for some years delayed the completion of their financial statements, while auditors have been expressing reservations on significant aspects of their reviews.** Nevertheless, a financial turnaround, more managerial accountability and better governance depend on the timeliness and quality of the financial reporting of the distribution companies. The GoR has therefore through its task force for the sector prioritized

this area and the recently completed audits for FY14-15 of the companies provide a "true and fair" representation with qualifications. This prior action will continue for the next operation in the series, as it is directly linked to the policy objectives of the GoR.

42. **In addition, to bring about an overall strengthening of the governance in the DISCOMS, a comprehensive assessment of the corporate governance in the DISCOMs is being undertaken and the gaps identified are aimed to be addressed through preparation of an action plan and its implementation in a time bound manner.** The said action plan, which will be well-sequenced and based on national and international best practices is referred to as Corporate Governance and Financial Accountability (CGFA) action plan. The implementation of the CGFA in the DISCOMs will help them in enhancing efficiency, accountability, transparency and professionalism in management to safeguard the interests of stakeholders and shall also facilitate to enhance the pace of their financial turnaround. The action plan once prepared would need to be adopted by the DISCOM's Board and implemented thereafter. In addition to the Board level reforms, some of the other areas on corporate governance where strengthening is needed are: Financial Management (FM) systems controls and procedures, assets valuation and registers, strengthening of internal controls. FM systems need to be computerized and integrated with the operating environment of the DISCOMs through a suitable software package. The said action plan would help the DISCOMs towards improving the quality and speed of preparation of financial statements and would also aim towards taking steps that would lead to having audit reports that are "true and fair" reducing any qualifications that have been identified by the auditors over time.

43. **The results under this pillar aim to capture the parameters that demonstrate strengthening of the governance arrangements**. This will be measured through (a) strengthening of the governing arrangements at the Board level in the DISCOMs through appointment of independent directors to the Board; (b) timeliness of preparation of the financial statements of DISCOMs i.e. the financial statements are prepared in time (within six months of the end of FY); (c) successful implementation of the EPI scheme.

Policy Area B: Financial Restructuring and Recovery

Prior Action #4 for DPL 1:
The Union Government, Rajasthan and the DISCOMs have entered into tri-partite MoUs providing for the implementation of UDAY program

Indicative Triggers for DPL 2:
The DISCOMS have:

- *combined losses (measured by Profit before Taxes) for the period from 1st April, 2015 to 31st March, 2016 that do not exceed INR 100 billion*
- *published complete monthly energy audits for 90% of their respective feeders at their websites and initiated the Loss-Based Load Scheduling program*

44. **The GoI has approved a new scheme, Ujwal DISCOM Assurance Yojna (UDAY) for the financial turnaround and revival of DISCOMs through a resolution of past as well as potential future issues of the sector.** The scheme, which Rajasthan is participating in, involves four main initiatives: (i) Improving operational efficiencies of DISCOMs – through measures on compulsory smart metering, upgrading of transformers and energy efficiency measures; (ii) Reduction of cost of power - through measures related to optimizing fuel costs and faster completion of transmission lines; (iii) Reduction in financing cost of DISCOMs - States shall take over 75 percent of DISCOM debt as on September 30, 2015 over two years – 50 percent of DISCOM debt shall be taken over in 2015-16 and 25 percent in 2016-17; (iv) Enforcing financial discipline on DISCOMs through alignment with State finances - States taking over and funding at least 50 percent of the future losses (if any) of DISCOMs in a graded manner. The DISCOMs, GoR and GoI have signed the tri-partite MoUs for implementation of UDAY program in January 2016.

45. **Under the second phase of the program, indicative triggers focus on ensuring improved financial performance and advancing measures to reduce system losses.** The indicative trigger on improved financial performance will focus on the combined losses of the DISCOMs in FY15-16, based on the audited financial statements of the DISCOMs. A key measure to reduce losses in the networks of the distribution companies concerns the implementation of technologies that enable accurate monitoring of the system to identify leaks and better focus investments and recovery actions. To identify feeder-wise losses, the utilities have initiated a feeder metering program, under which all feeders are planned to be equipped with three phase electronic meters at sub-stations from where the feeders originate. These feeder meters will measure the energy sent into the feeder which will be compared with the energy billed (information derived from the billing data) thus providing the exact estimate of AT&C loss in each feeder. Since the range of technical loss is known, it is possible to estimate the commercial loss on the feeder and identify 'high loss' feeders. This will help the utilities to implement their plan to do more 'load shedding' on high loss feeders, so as to dis-incentivize theft. To begin with, the feeder meters are being read using a hand held Common Meter Reading Instrument (CMRI) which downloads meter data which is then uploaded into a server for further processing. Going forward, the energy audit process is planned to be automated by acquiring the meter data remotely and processing it. Identification of exact pockets where loss is taking place on a particular feeder, would be facilitated better once metering of Distribution Transformers is also carried out, which the utilities plan to do in the near future. A trigger on implementing the key provision of UDAY regarding accurate metering of energy flows and attribution of energy consumption is included. This will contribute to more transparency regarding operational performance as the utilities will monitor losses across the system and will be publishing the results on their website. This approach should bring more accountability in the system and encourage the engagement of civil society and more social accountability for the distribution utilities.

Prior action #5 for DPL 1:
The DISCOMs have filed with RERC their annual revenue requirements and tariff petitions for FY16

Indicative Trigger for DPL 2:

The DISCOMs have filed with RERC their annual revenue requirements and tariff petitions for FY17

46. **The lack of regular submission by the utilities of revenue requirements and adjustments based on actual costs, as mandated by the Electricity Act of 2003, compounds the financial deficit of the sector.** Sharp and socially difficult increases are then needed to recover the financial losses in later years. It is therefore important for the DISCOMs to file tariff petitions regularly and in a timely manner. The proposed prior action and trigger for the program would ensure that utilities submit to the regulator appropriate tariff petitions, reflecting the objective of gradually eliminating the gap between average cost of supply and average revenue realized – as is also required under the UDAY initiative.

47. **End-customer average tariffs in Rajasthan were frozen for several years in the 2000s, but since 2012, meaningful adjustments to bring revenues closer to costs of supply are taking place**. Following a 10 percent increase in 2004, electricity rates in Rajasthan remained unchanged for the following seven years, as DISCOMs were discouraged from submitting tariff petitions. Nevertheless, since FY12, the cumulative tariff increase has been about 93 percent. Furthermore, the DISCOMs submitted a tariff petition in August 2015 to the regulator requesting an average increase of about 10 percent in FY16, and the same was admitted by the regulator for review and public consultation in December 2015. Normally, the DISCOMs are expected to file their annual revenue requirements and tariff petitions by November 30 of the previous fiscal year and the tariff increases are supposed to become effective at the start of the fiscal year (April). However, the submission for FY16 was delayed until August 2015, and the tariff increase has not yet come into effect. The regulator's decision is expected towards end of FY16 or start of FY17. This will have a consequent impact on the tariff petition submission and review process for FY17. The UDAY scheme allows for a quarterly tariff revision to offset fuel price fluctuations. In addition UDAY includes an explicit provision on the matter to eliminate the gap between average cost of supply and average revenue realized by FY19. In January 2016, GoI has issued an updated 'Tariff Policy Resolution' that has further strengthened the tariff framework for electricity distribution and outlines the responsibility of Regulators to provide reasonable but requisite tariffs necessary for the financial turnaround of utilities.

Prior action #6 for DPL 1:
Rajasthan has set up the Rajasthan Energy Development Corporation Ltd (Rajasthan Urja Vikas Nigam Ltd.), a company aiming to bring transparency and optimize power purchases on behalf of DISCOMs

Indicative Trigger for DPL 2:
Rajasthan Energy Development Corporation Ltd. is operational

48. **Rajasthan faces among the highest tariffs in India for purchases of wholesale power, but recent efforts have demonstrated that savings can be realized with a concentrated effort of optimizing purchases.** Rajasthan's geographic location poses logistics constraints and higher costs for fuel transport, while older and inefficient plants have long-term cost-plus power purchase agreements (PPAs) for the sale of power with the distribution companies. Nevertheless, during 2015 better cooperation among the utility companies and a more proactive assessment of

power purchase options have resulted in considerable savings for the procurement of energy[20]. The GoR wishes to formalize and professionalize power procurement and thus optimize costs for all distribution utilities and with that objective in mind has recently set up the Rajasthan Energy Development Corporation Limited (REDCL) or Rajasthan Urja Vikas Nigam Limited (RUVNL), to undertake power purchases on behalf of the DISCOMs in the State. In addition, the GoI under the UDAY scheme will be undertaking a series of operational and pricing measures to reduce the costs of power for States. This prior action will continue for the next operation in the series, with the focus on operationalization of REDCL through appointment of regular staff to the key positions. The initial focus of the REDCL will on optimizing short term power purchases and reviewing any long terms PPAs that may come up for renewal.

49. **The results under this pillar aim to capture the parameters that demonstrate optimization in costs** (power purchase as well as interest costs) and revenues through a series of initiatives and measures and will be measured through: (i) Percentage of outstanding debt (as on September 30, 2015) of DISCOMs that is taken over by GoR; (ii) targeted reduction in the gap between Average Revenue Realised (ARR) and Average Cost of Supply (ACS); and (iii) Percentage of Power Purchases (long term as well as short term) of DISCOMs managed through REDCL/ RUVNL.

Policy Area C: Improving the Operational Performance of Distribution Utilities

Prior action #7 for DPL 1:
The DISCOMs have approved Business Plans for improved operational performance and initiated their implementation including on: (i) Pre-paid Metering Program for government consumers; and (ii) the Energy Efficiency Lighting Program.

Indicative Triggers for DPL 2:

- *The DISCOMs have implemented a unified billing system including billing all Large and Medium Industrial consumers based on an Automated Meter Reading system.*
- *The DISCOMs have started implementation of their approved IT Roadmap including creation of an IT cadre and filling 50% of the posts with IT professionals*

50. **Since early 2015, the GoR and the DISCOMs have established a task force that elaborated specific measures to improve the performance of the distribution companies along with a regular monitoring and reporting mechanism to track progress.** The task force has demonstrated that with proper business planning, a monitoring mechanism and regular reporting to high levels of state authorities, performance has started to improve. Building on this approach, Business plans have been formulated for each DISCOM and approved by their Board of Directors. The Business plan establishes a series of measures and investments needs. For instance, reducing AT&C losses according to this plan by 7 percentage points in two years should yield savings of around US$ 350 million. Regular monitoring of the plan will ensure the longer term engagement and accountability of the key stakeholders of the sector.

[20] According to the distribution companies, about INR 1050 million were saved through better power procurement arrangements during the first half of 2015.

51. **Another key measure, under the business plans, to improve revenue collections, is the launch of the pre-paid metering program by the DISCOMs.** The program is significant in the sense that its initial focus is on public departments and public sector entities of GoR as there are maximum payment delays from this segment of consumers. There are around 95,500 government consumers - Out of these, around 40,000 consumers are of public health and drinking water entities, which contribute to revenue of around INR 12 billion per year. Hard wired pre-paid meters are being procured by the utilities. The timeline for completion is March 2017 for all government consumers. Furthermore, the distribution companies plan to initiate feeder-wide programs as pilots to gauge the effectiveness and cost-reduction potential of the technology for non-government consumers in the next phase of the DPL program. Further, under UDAY, DISCOMs have to undertake implementation of SMART meters (AMI/ AMR) for consumers in a phased manner, on which the DISCOMs will be working on in the coming year.

52. **As part of its initiatives to conserve energy as well as save on power purchase costs, GoR is a key participant in the program for replacement of Incandescent and CFL lamps with energy efficient LED lamps under GoI's Domestic Efficient Lighting Program (DELP).** This demand side management program is sponsored by Energy Efficiency Services Limited (EESL), a GoI company, and GoR is promoting its adoption across the State. The program has been launched in May 2015 in the State after the signing of a MoU between the DISCOMs and EESL. Under this program, upto three 7W LED lamps to every interested consumer is provided at an initial expense of only INR 10 and the rest of the cost of the lamp is recovered in 12 equal installments as part of the consumers' electricity bill. The consumer has also the option to make the full payment upfront. Subsequent to launch of the program, the availability of lamps has been increased to 10 LED lamps per consumer. The entire capital cost of the program is funded by EESL. According to the DISCOMs, this initiative, if adopted by entire 8.6 million domestic consumers in the State would lead to annual energy savings of ~734 million units or cost savings of ~ INR 2,304 million per year (calculated on FY14 Power Purchase cost levels of ~ INR 3.1/kWh). Till end of February 2016, close to around 9 million LED lamps have been provided to consumers in the State[21]. To speed up the distribution, EESL has also signed a MoU with the Department of IT (in the State) which has 30,000 e-Mitras in the State that will now also provide this distribution facility. This initiative benefits in particular lower income customers that use electricity primarily for lighting and whose bills have a higher percentage of costs for lighting services. In addition, the State has also launched Energy Efficient Street Lighting program under which all the urban municipal bodies are being covered and for which also a MoU with EESL has been signed.

53. **Use of modern Information Technology in power infrastructure is the way forward to efficiently manage large power distribution systems.** In the Indian context, IT systems are important to remove the manual interface, accurately measure consumption and increase transparency. Rajasthan was the first State in India to award the Restructured – Accelerated Power Development and Reform Program (R-APDRP)[22] Part-A contract in 2006. Also, the State

[21] Regular progress update is available on DELP website at www.delp.in

[22] Restructured – Accelerated Power Development and Reform Program (R-APDRP) of GoI which focuses on actual, demonstrable performance in terms of sustained loss reduction. The program is being carried out in two

decided to implement the program across all the sub-divisions rather than follow the specified criteria of restricting it to towns having population more than 30,000. Unfortunately, the program has run into contract management issues and the work remains only partially completed. Due to this, the DISCOMs have to deal with multiple systems, and carry out some critical commercial tasks manually. For example, the large industrial power (LIP) consumers, who contribute to more than 20 percent of the revenues, are still outside the unified billing system and are billed through a separate billing system. The program, instead of helping the utilities has become a bottleneck. Under the next phase of the DPL program, the DISCOMs will prepare and start implementation of an IT strategy and roadmap, analyzing how the commercial processes need to be streamlined. A unified billing system combined with advanced metering for large consumers will safeguard the significant revenues from such customers. In order to do so, the DISCOMs also need a team of IT and domain experts who can go into details of pending issues and decide the way forward. Like other traditional utilities, Rajasthan has been recruiting only power engineers. Under the proposed institutional reforms, the DISCOMs will create an IT cadre of employees. Since personnel would be required at all levels, the DISCOMs have sought approval of the State government to create an IT department in each DISCOM headed by a Chief Engineer supported by around 10 officials at different levels.

54. **The results under this pillar aim to capture the operational performance improvements in the DISCOMs and will be measured through**: (a) reduction in AT&C loss achieved by FY17 over the baseline; (b) start of the energy audit process at 11 kV feeders and publishing of the reports on website so that the DISCOMs (as well as all stakeholders) are able to clearly see where the losses are happening and can accordingly focus the attention and corrective measures on such places; (c) number of consumers for which pre-paid/ AMI/ AMR meters are in place; (d) number of LED lamps distributed to consumers in Rajasthan; (e) number of IT staff appointed; (f) percentage of consumers brought onto unified billing system; and (g) reduction in number of villages that remain to be electrified.

55. **Prior actions completed for the first phase will remain applicable throughout the program's period and are intended to be in place for the long-term to sustain turnaround efforts**. While prior actions 3 and 5 do not constitute a change in policy, they are nevertheless critical reinstatements of the necessary institutional practices for the turnaround of the DISCOMs. The GoI requested that the basis of discussion and preparation of the second phase of the Program will be contingent upon achievement of: (i) indicative triggers for second phase of the DPL; and (ii) interim results indicators (please refer to Annex 1).

Table 1: DPO Prior Actions and Analytical Underpinnings

Prior actions	Analytical Underpinnings
Operation Pillar 1: Strengthening Governance in the Rajasthan Electricity Distribution Sector	
Prior action #1: Rajasthan has issued and	More Power to India: The Challenge of Electricity

parts: (i) Part-A, which includes projects for the establishment of baseline data and IT applications for energy accounting/ auditing & IT based consumer services; and (ii) Part-B, which supports regular distribution strengthening or reinforcement projects.

Prior actions	Analytical Underpinnings
notified the Electricity Distribution Management Responsibility Ordinance	Distribution, 2014, The World Bank Governance of India State Power Utilities: An Ongoing Journey, 2014, The World Bank Power for All: Electricity Access Challenge in India, 2015, The World Bank
Prior action #2: The DISCOMs have developed and obtained approvals for their Employee Performance Incentive (EPI) schemes	GoR consultants' reports on the Distribution Sector Private Participation in the Indian Power Sector: Lessons from Two Decades of Experience, 2014, The World Bank
Prior action #3: The DISCOMs have completed the audited financial statements for FY 14-15	Governance of India State Power Utilities, January 2014, The World Bank
Operation Pillar 2: Financial Restructuring and Recovery	
Prior action #4: The Union Government, Rajasthan and the DISCOMs have entered into tri-partite MoUs providing for the implementation of UDAY program.	GoI and GoR consultants reports Beyond Crisis: The Financial Performance of India's Power Sector, 2015, The World Bank
Prior action #5: The DISCOMs have filed with RERC their annual revenue requirements and tariff petitions for FY16	DISCOM's consultancies for the preparation of tariff filing.
Prior action #6: Rajasthan has set up the Rajasthan Energy Development Corporation Ltd, a company aiming to bring transparency and optimize power purchases on behalf of DISCOMs	GoR consultants' reports on the Distribution Sector
Operation Pillar 3: Improving Operational Performance of Distribution Utilities	
Prior action #7: The DISCOMs have approved Business Plans for improved operational performance and initiated their implementation including on: a. Pre-paid Metering Program for government consumers b. The Energy Efficient Lighting Program.	GoR consultants' reports on the Distribution Sector Governance of India State Power Utilities: An Ongoing Journey, 2014, The World Bank Reducing technical and non-technical losses in the power sector, Working Paper, 2009, The World Bank Applications of advanced metering infrastructure in electricity distribution, 2011, The World Bank World Bank India Energy Efficiency Reports

4.3 LINK TO CPS, OTHER BANK OPERATIONS AND THE WBG STRATEGY

56. **The current Country Partnership Strategy for India focuses on states of low income and includes the energy sector under its economic integration and inclusion pillars.** The proposed operation supports the GoR plans for the sector under the 24x7 PFA program for the power sector and its objectives to reduce the financial losses and government subsidies to the sector. Rajasthan has been identified as a lower-income State, where the Bank's efforts would be more significant for poverty reduction and increasing shared prosperity. The project would support the economic 'integration' pillar (which includes support to the infrastructure sectors including removing inefficiencies in the power transmission and distribution) and the 'inclusion' pillar of the strategy by ensuring continued service delivery of electricity. The Bank is also preparing another investment operation to contribute to State of Andhra Pradesh's 24x7 PFA program and during implementation activities to exchange knowledge and experiences between the distribution sector in two States will take place. The proposed operation has also strong linkages to the Bank's proposed Public Financial Management (PFM) in Rajasthan Project (P156869) which is currently under preparation. The PFM project clearly shows the GoR's resolve and commitment to continue to strengthen its public finances and bring macrocosmic and fiscal stability in the State. Finally, trust-funded activities are currently underway to provide technical assistance to GoR and DISCOMs on the best practices for systems modernization for the duration of the program; if required these can be supplemented by a small size project.

4.4 CONSULTATIONS, COLLABORATION WITH DEVELOPMENT PARTNERS

57. **Government has made efforts to consult for the proposed operation.** The GoR has a track record of consulting with stakeholders, and during preparation of the proposed operation it has reached out to a number of groups. It has held a consensus building workshop on the different elements of its turnaround strategy and in particular around private sector participation in distribution operations aimed at ensuring all branches of government, related authorities and the companies themselves signed up to the process. The State's Task Force on the sector has held consultations with employees of the distribution companies, while further consultations are planned with several other stakeholders. Furthermore, the regulatory process requires broader consultations on tariff submissions that are carried out by the independent power regulator for the most recent tariff submission.

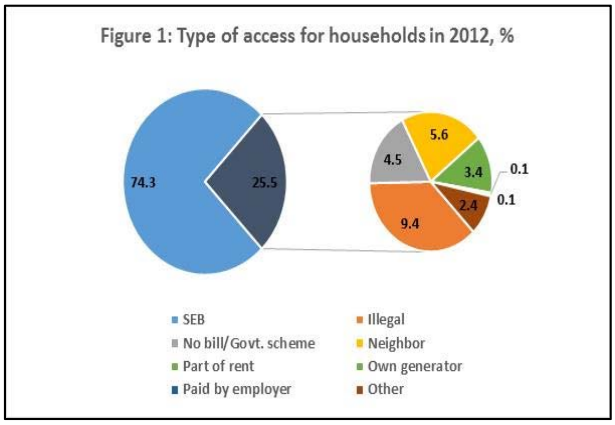
58. **Development partners in the power sector in Rajasthan have been primarily focusing on the promotion of renewable energy investments.** While the Bank will be financing this operation as a unique development partner, the financial sustainability of distribution utilities is a critical element for successful investments of power generation and renewable energy in particular, as the capital intensive nature of investments requires financially credible power off-takers to facilitate the raising of financing. Therefore, the key objective of this operation (financial sustainability of DISCOMs), would contribute positively in the increase of renewable energy projects in Rajasthan. Furthermore, under UDAY, the DISCOMs will undertake the obligation to comply with the Renewable Energy Purchase Obligations as prepared by the GoI and will support further the energy efforts of other development partners.

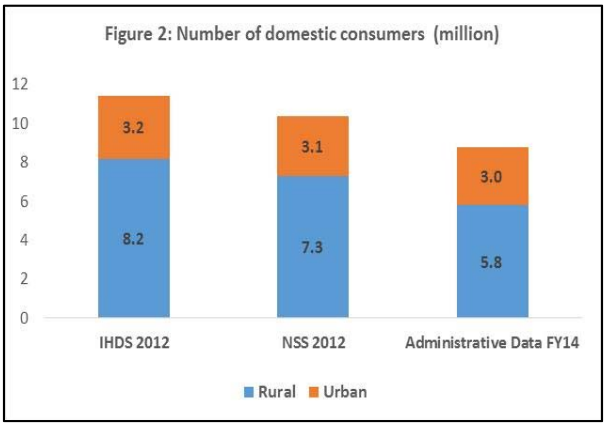
5. OTHER DESIGN AND APPRAISAL ISSUES

5.1 POVERTY AND SOCIAL IMPACT

59. **A Poverty and Social Impact Analysis (PSIA) carried out in support of the proposed operation identifies three ways in which the poor may be affected.** Firstly, the reform process could improve the reliability, quality and quantity of electricity supply. These improvements will be pro-poor as those not connected, or facing low-quality supply, are overwhelmingly the poorer and more vulnerable households in the state. However, there are two channels that may have minor negative impacts on the poor: (i) elimination of illegal/unmetered consumption due to activities aimed at the reduction of AT&C losses of the DISCOMs; and (ii) an increase in tariffs along the lines of the submitted tariff petitions, which are to be approved by an independent regulator.

60. **Reduction in AT&C losses achieved through efforts at metering, improved billing practices and crack-down on illegal connections should affect many households, some of whom are poor**. In 2012, about 25 percent of all households in Rajasthan did not pay directly to the DISCOMs. These mainly comprised of households who reported having illegal connections or those who did not receive a bill (figure 1). The discrepancy in the number of households with access to electricity in the survey data and the administrative data also points to the possibility of substantial number of illegal connections in Rajasthan (figure 2). The vigilance measures proposed under the DPL to reduce distribution losses such as smart and pre-paid metering, frequent energy audits, consumer indexing and effective employee engagement are likely to have the biggest impact on households with illegal connections. It is expected that the impact will be felt most in rural areas that account for majority of the illegal connections and where a large share of the poor live. Within rural areas however the impact may be similar for all income groups as the illegal connections are spread equally across them.

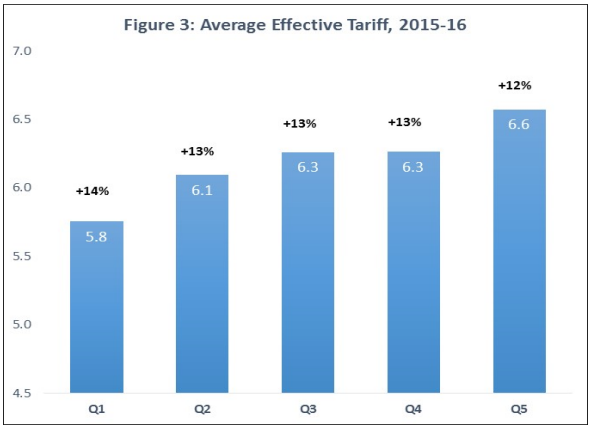


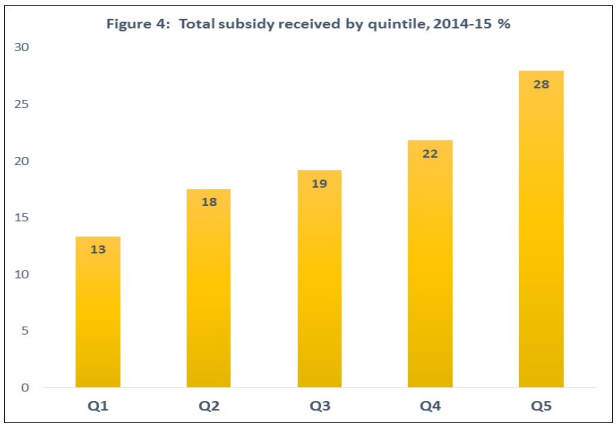


61. **The FY16 tariff petition submitted by the DISCOMs, if granted by the independent Regulator, will have a limited, but negative, impact on the poor.** The current tariff structure, on paper, is mostly progressive, as both fixed charges per month and energy charges per unit increase with consumption levels. In addition, GoR provides an explicit subsidy to 'Below-Poverty-Line' (BPL) households and to households with electricity consumption that is less than

50 kWh per month.[23] In practice however, the gains from the overall subsidy accrue largely to the richer households (figure 4), for two reasons. First, the criteria used for targeting the explicit subsidy are only moderately correlated with poverty levels -- many richer households report consuming less than 50 kWh per month and some also hold BPL cards. Second, and more importantly, as in other countries, richer households tend to consume more electricity, making them the prime benefactors of the economic subsidy, as measured by the gap between the cost of procuring power for the DISCOM and the effective tariff.

62. **In an effort to close the financing gap, the FY16 tariff petition proposes tariff increases (both fixed charges and energy charge) across the board.** The tariff petition envisions greater tariff increases for the BPL and low quantity consuming households, and as a result, the increase in average effective tariff is the highest for those at the bottom of the income distribution (figure 3). The incidence of subsidies will, therefore, continue to be regressive under the proposed 2015-16 tariff.





63. **Although tariff increases may somewhat affect the poor, given the current levels there is room to accommodate higher tariffs while still keeping electricity prices affordable**. The proposed tariffs, if awarded by the regulator, will make electricity more expensive, especially for the poor. Nevertheless it is expected to be affordable as the share of electricity expenditure in the household's total budget is estimated to remain below 6 percent and tariffs for lower consumption levels are subsidized. It is estimated that poor households' expenditures for electricity will be increased by less than 1 percent on average.

64. **To protect against future increases and save on electricity consumption, the DPL includes measures to promote the use of energy efficient lighting at subsidized rates.** To further address any concerns of affordability and mitigate the impact of higher tariffs, the promotion of energy efficient lighting is proposed. This measure would result in considerable savings in the form of reduced electricity consumption and, therefore, lower electricity expenditures especially for poor households that primarily use electricity for lighting. These, along with the proposed vigilance measures, would result in financially more stable DISCOMs

[23] A minimum monthly charge imposed on all customers renders the tariff structure regressive at very low levels of consumption.

with potential positive effects on improving access to electricity and the quality of power for the poor and vulnerable social groups such as the Scheduled Tribes.

65. **Sustained improvements in electricity supply and progress with the Power for All program should benefit the lives of women and girls in Rajasthan.** Access to modern energy in general and electricity in particular, contribute to health, livelihood, and gender benefits. Women and girls are often primarily responsible for household activities that become substantially easier and less time-consuming when reliable electricity is available. Moreover, electricity facilitates increasing economic and empowerment opportunities for women, better education outcomes for girls, as well as overall better safety and health[24]. While this operation does not include gender-specific prior actions, it will contribute positively to gender issues, because of its overall objective of improving the quality of electricity supply and increased access. Various evaluation studies[25] of India' rural electrification program indicate that the program has made a significant difference to the lives of women in rural India and has empowered the rural women. In case of Rajasthan, the survey report states that 75 percent of women surveyed in Rajasthan stated that they are able to work in the fields after electricity reached their homes.

5.2 ENVIRONMENTAL ASPECTS

66. **There are no significant negative impacts of the current operation**. The proposed operation's objectives of improved operational performance, efficiency gains, and reduction of losses should have a positive environmental impact in Rajasthan. Losses in the distribution system encourage wasteful use of energy and therefore increased emissions from thermal power plants, which in Rajasthan are predominantly coal-based. With reduced losses, the project is expected to contribute to lower carbon dioxide emissions and reduced local pollutants. . Increased efficiency gains will have a positive impact on the emission of greenhouse gases (GHG) due to the encouragement to deployment of LED lamps and other related energy efficiency measures.

67. **Reduction in GHG emissions**. The program for replacement of existing lamps with LED will have clear benefits for the environment due to reduced electricity use for illumination. In the application to the RERC for approval of the scheme, preliminary estimates were made as per the table below:

S. No.	Particulars	Unit	Value
a	Number of LEDs offered under the scheme (3 each assuming 8.578 million domestic consumers)	Number	25,734,000
b	Average Wattage of existing bulb (2 CFL of 14W each and 1 incandescent of 60W i.e. 88W/3)	Watt	29.33
c	Wattage of LED	Watt	7

[24] See references in Annex 6

[25] http://pib.nic.in/newsite/PrintRelease.aspx?relid=102977

S. No.	Particulars	Unit	Value
d	Power saving [b - c]	Watt	22.33
e	Hours of usage	Hours/day	3.5
f	Operating days per year	Days/year	365
g	Energy saved per LED per day	kWh	0.07817
h	Energy saved per LED per year	kWh	28.531
i	Total Energy save per year	Million kWh (MU)	734.21

For the current GoR program, using a Combined Margin factor of 0.97 tCO_2/MWh[26] (ref. CEA 2014), it is anticipated that this would result in a reduction in emission of slightly over 710,000 tCO_2/year. In addition to this GHG mitigation, there will also be a corresponding decrease in emission of locally important pollutants like particulates and SO_2.

68. **Managing CFL lamps**. The handling of the discarded/not-in-use mercury bearing CFLs poses its own challenges. During the preparation, the dialog between the DISCOMs, the regulator - Rajasthan State Pollution Control Board (RSPCB) has been solution focused. Discussions are underway to demonstrate the feasibility of recycling in Alwar where the presence of a lamp manufacturer who can handle mercury removal process is an advantage. This should feed into the process of creating the policy(ies) for to encourage voluntary recycling of these potentially hazardous material, in line with extant guidelines of the Central Pollution Control Board, GoI.

69. **Handling obsolete equipment like transformers**. The upgrading of transformers has the potential to generate material that needs to be handled properly during transport and recycling. In line with GoI requirements, the DISCOMs will ensure that only those recyclers, who are accredited with the Central Pollution Control Board in conformity with Environment Protection Act stipulations, are involved in managing the waste transformer oil, wherever encountered. For other out-of-use equipment, like meters, disposal issues are not likely to arise.

70. **Safe Implementation of Distribution Network Improvements**. National regulation requires that the distribution network be installed with necessary clear distances (horizontal and vertical) from vulnerable receptors, like buildings, trees, and other utilities. Exposure to electromagnetic radiation is also limited by requiring these minimum distances to be maintained. The national requirements for safe handling of implementation activities is enshrined in the Electricity Code. Further guidance is issued by the Chief Electrical Inspector to Government (CIG), to ensure that maintenance is undertaken with due consideration of safety of the workers and general public. It would be useful for the DISCOMs to review the implementation capacity whenever large scale upgradation is planned.

5.3 PFM, DISBURSEMENT AND AUDITING ASPECTS

71. **The GoI and the GoR have financial management systems in place to monitor the adequate disbursement of funds.** GoR seeks to modernize and strengthen public financial

[26] Central Electricity Authority (2014): CO2 Baseline Database for the Indian Power Sector - User Guide (Version 10.0), December 2014; http://cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver10.pdf

management systems to improve the efficiency of public spending. An initial assessment of the Public Financial Management (PFM) systems in GoR was undertaken by the Bank as part of preparation of the Strengthening Public Financial Management in Rajasthan (SPFMR) Project (P156869). This assessment suggests that the framework for public financial accountability in GoR is generally sound, although there is need for modernization in several areas which GoR is in process of addressing. Its current strengths include the Integrated Financial Management System (IFMS) – which is a web based system for capturing government's financial transactions including budget planning, preparation, allocation and distribution, fund management, treasury operations and accounting . The General Government Budget is made available to the public both in printed form as well the website: http://finance.rajasthan.gov.in. The Rajasthan Transparency in Public Procurement (RTPP) Act, passed in May 2005, provided the framework for further strengthening procurement regulations. Quality of audit impact has been enhanced through development of IT database of audit reports and compliance that tracks responses on audit observations including. There is regular external audit, and timely availability of reports and legislative oversight over matters reported in audits through follow-up by the Public Accounts Committee. Further improvements in PFM architecture on fiscal, revenue and expenditure aspects are now proposed to be taken under the SPFMR project which will be implemented in close conjunction with this DPL.

72. **The Bank has reasonable assurance that the control environment for foreign exchange in the Reserve Bank of India (RBI, which is the Central Bank of India) is satisfactory for the purposes of this operation.** This assessment is based on the RBI audit report and the satisfactory outcomes of other operations, which have been disbursed and managed through the RBI. The International Monetary Fund (IMF) has not carried out a Safeguard Assessment of the central bank (RBI) so far. As part of the preparation for this operation, the RBI audit report and published annual financial statements for the year ended June 30, 2015, were reviewed by the Bank. The audit report has a clean, unqualified opinion, and was conducted by private firms of chartered accountants. The financial statements are prepared in accordance with the RBI Act, 1934, the notifications issued there under and in the form prescribed by the RBI General Regulations 1949, and the audit has been conducted following auditing standards generally accepted in India. Upon effectiveness of the loan, the borrower, i.e., the GoI will submit to the Bank a withdrawal application for the tranche. The Bank will disburse the US dollar proceeds to the loan of GoI's account with the RBI. This account is controlled by the Office of the Controller of Aid, Accounts, and Audit of the Department of Economic Affairs, GoI and is part of the GoI's general foreign exchange reserves. Upon receipt of the tranche of the loan proceeds, GoI will transfer the equivalent rupee amount to GoR as per the guidelines for the transfer of external assistance to the states. GoR will confirm to the Bank within 30 days, the receipt of the tranche and its credit into the Consolidated Fund of the State. The loan proceeds for this operation do not finance specifically agreed activities. The proceeds may be used for any purpose, in support of the Program, other than to finance excluded expenditures (as defined in the loan agreement for the operation). Pursuant to the legal agreements for this operation, India (in its capacity as the borrower of the IBRD loan) and Rajasthan will undertake not to use the proceeds to finance any excluded expenditures. If any amount of the loan proceeds are used to finance excluded expenditures, the legal agreements will authorize the Bank to require India or Rajasthan (through India) to refund the amount.

73. **Procurement Framework in State**. Rajasthan is the second State after Tamil Nadu, which has formed Rajasthan Transparency in Public Procurement Rules, 2013 and Rajasthan Public-Private Partnership Policy, 2008. It intended to safeguard integrity in the procurement process and for matters connected therewith or incidental thereto for enhancing public confidence in Public Procurement in pursuance of clause (3) of Article 348 of the Constitution of India. RTPP Act, 2012 has five chapters and 59 sections in it and the key features of Rajasthan Transparency in Public Procurement Act, 2012 includes transparency standards, Quality of contract management, Registration of vendors, Designing of the Bid document and Bid validity period, Rajasthan Government Preferential Policy, Grievance redressal mechanism, Performance of the Nodal Department for Public Procurement. The State Legislative framework also includes a) Rajasthan Transparency in Public Procurement Rules, 2013, b) Rajasthan Guaranteed Delivery of Public Services Act, 2011, c) Rajasthan Right to Hearing Act, 2012, d) Rajasthan Public Private Partnership Policy, 2008, and e) Public Private Partnership Guidelines, 2012.

5.4 MONITORING, EVALUATION AND ACCOUNTABILITY

74. **Monitoring and evaluation of the results of key actions is an integral part of the proposed operation.** The main objective of the project concerns performance improvements and key indicators have been agreed under the tripartite agreements stipulated in the GoI's UDAY initiative (prior action 4). Furthermore, advanced metering systems, pre-paid metering, and the performance incentive schemes elaborated under the GoR's program for management and employees, will contribute to continuous monitoring and evaluation of the program. Indeed, under current arrangements implemented with the GoR's task force[27] for the turnaround of the sector, regular progress meetings are held on a monthly basis that follow key operational milestones of the current action plan. In addition, the DISCOMs management review the performance on a regular basis. The distribution companies are therefore increasingly accustomed to regular monitoring and reporting procedures. This approach will be further strengthened through the prior actions envisaged under the proposed operation – for instance, under UDAY, a committee at national level with representatives from Ministry of Power and Ministry of Finance will also be reviewing the performance on regular basis. Further, additional monitoring systems under the Rajasthan State Electricity Distribution Management Responsibility Ordinance will also be put in place wherein the Chief Secretary of State will also be reviewing the performance on regular basis.

75. **Grievance Redress**. Communities and individuals who believe that they are adversely affected by specific country policies supported as prior actions or tranche release conditions under a World Bank Development Policy Operation may submit complaints to the responsible country authorities, appropriate local/national grievance redress mechanisms, or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address pertinent concerns. Affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond.

[27] A three member task force was constituted by the State Government in February 2015 to help the State in its efforts towards turning around the sector.

For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit http://www.worldbank.org/GRS. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

6. SUMMARY OF RISKS AND MITIGATION

76. **The overall risk for the proposed loan is Substantial.** Efforts to improve the performance of the distribution companies of Rajasthan will likely face considerable challenges. These utilities have not developed a performance culture, while processes and systems have been very slow to modernize. The companies are accustomed to running substantial cash flow deficits and receiving considerable State government subsidies. The political repercussions of service disruptions have been guaranteeing that the State would always seek to mobilize the needed funds whenever the financial gap became untenable. Furthermore, the lack of an accountability system has not provided the broad-based will to reform among company employees at all levels; sometimes the situation could provide opportunities for corrupt practices. Some of the reforms proposed in this operation –primarily related to governance-- could be reversed by subsequent actions – for instance, there is a risk that the employee performance incentive scheme may not be continued beyond the first year of its implementation.

77. **Electricity users, especially in the agriculture sector, have always enjoyed a tariff level substantially below the costs of supply, with the State subsidizing consumption for irrigation.** This inefficient approach to agricultural subsidies provides little motivation to farmers to preserve resources and invest in more efficient means of production. In addition, it discourages distribution utilities from accurately monitoring of electricity used for irrigation. GoR recognizes that the current system poses risks to the fiscal situation of the state and needs to be revisited, but taking into account the social and economic sensitivities of farmers regarding food production. The State intends to study the issue in the coming year and explore the possibilities of implementing the modern subsidy delivery systems that are currently expanding in Rajasthan. The energy auditing commitments at feeder levels under the reform program will contribute to a better understanding of needs and solutions on this issue. A reform of power subsidies for agriculture will eventually be needed, but would require innovative solutions, broad stakeholder's consultations, and political commitment to succeed.

78. **Another risk concerns the political alignment of GoI and GoR.** The DISCOMs in Rajasthan depend on GoI for: (i) the financing for investments through grants for access and modernization; (ii) coordinated approaches across States to reduce the wholesale cost of energy; and (iii) collaboration on relaxing fiscal targets and facilitation of State borrowing. Therefore, when the political objectives of central and State governments are misaligned, the sector may become a victim of delays and lack of resources. There does also exist a risk that the Electricity Distribution Management Responsibility Ordinance (Prior Action 1) could lapse after six months if not approved/ vetted at the State Assembly. However, as demonstrated by the preparation of UDAY, GoR and GoI have common political objectives and methods for the turnaround of the sector, which are unlikely to change until the completion of this programmatic operation.

79. **Stakeholder risk**. There is a risk of political, social and industrial opposition to further increases in the retail electricity tariff without corresponding improvement in operational performance (in terms of reduction in AT&C losses). Further, there is a risk that vested interest may oppose measures to improve commercial performance and increase accountability for which the State government is undertaking a direct engagement with the different stakeholders, particularly the political class and the employees of the DISCOMs.

80. **Finally, adverse weather might force the Rajasthan government to provide more energy than usual to secure agricultural production, which could delay the recovery efforts**. Rajasthan is a predominantly arid state, but with a significant agricultural and rural population, whose activities are quite sensitive to rainfalls. A drought year will imply additional financial burden on the DISCOMs for the power purchases for supplying the required power to the subsidized agriculture consumers. This exogenous risk will be partly mitigated by better energy auditing of energy to agriculture and the GoR initiatives to improve energy efficiency for pumping irrigation.

81. **The combination of the above factors argues for a substantial risk rating for the proposed operation.** Nevertheless, in contrast with similar initiatives of the past, Rajasthan has now a window of opportunity to mitigate and address some of the key risks. Firstly, State and Central governments are likely to have common political goals until the completion of this program after two to three years. Secondly, there is a broad consensus in Rajasthan, and throughout the country, that the financial losses of the distribution sector have now compounded to an amount that begins to threaten the overall sustainability of the sector, as distribution companies cannot service their debt obligations without unbearable tariff increases. Moreover, the financial distress of the distribution companies is raising questions about financial institutions with significant exposure to the utilities and/or other power sector projects that depend on the financial cash-flows of the distribution sector for their revenues. As a result, the UDAY scheme of the GoI is more comprehensive and detailed than previous efforts. The GoR has established a specific task force for the power sector, mobilized experienced advisors and capable management, and through its regular monitoring of task-force activities, some first steps towards a partial turnaround have already been realized. The distribution companies on their side have presented some initial improvements in 2015 (better quality of financial statements; cost reductions in the procurement of power supply; initial implementation of advanced metering and network monitoring technologies). Moreover, on the difficult issue of tariffs, submissions over the last few years have already raised tariffs significantly. Some of the more controversial price increases have therefore been front-loaded and less sharp adjustments should be needed going forward. The efforts are therefore correctly re-focused on operational efficiency gains.

82. **Sustaining initiatives for performance improvements and increasing the autonomy of the distribution companies will remain the main risks in the short-term.** To achieve the ambitious recovery targets, distribution utilities will need continuous efforts and investments for at least three years, so that modernization investments can materialize, new systems and procedures are put in place throughout the utilities, and better financial results can emerge. External technical assistance to assist the companies and the Government throughout the period is underway through trust-funded activities, while during the second phase of the program the Bank's support could include a small-scale technical assistance loan. The government is also

piloting three private participation initiation initiatives (covering areas of Ajmer, Bharatpur and Kota[28]) in distribution, involving a total of about 800,000 electricity consumers to gauge the possibility of delegating to the private sector the operation and maintenance of distribution areas (Distribution Franchisee model), under agreed performance improvements trajectories. Should these pilots prove successful, the scheme could be expanded to an additional eight areas covering about a quarter of electricity users of Rajasthan. This gradual approach is also expected to incite comparisons with the incumbent utilities and could result in overall improvements.

Table 2: Risks

Risk Categories	**Rating (H, S, M or L)**
1. Political and governance	S
2. Macroeconomic	M
3. Sector strategies and policies	S
4. Technical design of project or program	S
5. Institutional capacity for implementation and sustainability	S
6. Fiduciary	L
7. Environment and social	M
8. Stakeholders	S
9. Other – Hydrological/ Weather	S
Overall	S

[28] Technical bids for Bharatpur and Kota have been opened on February 16, 2016

ANNEX 1: POLICY AND RESULTS MATRIX

Proposed Prior Actions	Proposed Triggers for second phase of the DPL	Result Indicators
Policy Area A: Strengthening Governance in the Rajasthan Electricity Distribution Sector		
1. Rajasthan has issued and notified the Electricity Distribution Management Responsibility Ordinance	• Rajasthan has entered into MoUs with DISCOMs setting out targets for key performance indicators and performance evaluation for the DISCOMs for FY17-18.	• Appointment of Independent Directors in accordance with the clause No. 8 of the Ordinance/Act in each DISCOM: Baseline: 1 in FY15 Interim : 2 (September 2016) Target: As per provisions of the Companies Act (Central Act No.18 of 2013) by March 2017
2. The DISCOMs have developed and obtained approvals for their Employee Performance Incentive (EPI) schemes.	• The DISCOMs have approved a revised transfer and promotion policy for its employees	• Implementation of EPI scheme: Baseline: 0 in FY15 Interim : Incentive for performance in FY16 disbursed (by September 2016) Target: Incentive for performance in FY17 disbursed (by June 2017)
3. The DISCOMs have completed the audited financial statements for FY 14-15.	• The DISCOMs have completed the audited financial statements for FY 15-16. • The DISCOMs have started the implementation of their Corporate Governance and Financial Accountability Plan	• Date of availability of audited annual accounts Baseline: December 31, 2015 (delay of three months) Target: September 30, 2016 (within six months of end of FY)

Proposed Prior Actions	Proposed Triggers for second phase of the DPL	Result Indicators
Policy Area B: Financial Restructuring and Recovery		
4. The Union Government, Rajasthan and the DISCOMs have entered into tri-partite MoUs for the implementation of UDAY program.	• The DISCOMs' combined losses (measured by Profit before Taxes) for the period from 1st April, 2015 to 31st March, 2016 do not exceed INR 100 billion • The DISCOMs have published complete monthly energy audits for 90% of their respective feeders at their websites and initiated the Loss-Based Load Scheduling program	• % of outstanding debt (as of September 30, 2015) of DISCOMs taken over by GoR Baseline: 0 as on September 30, 2015 Interim: 50% by June 30, 2016 Target: 75% by March 2017 • Monthly Distribution Energy Audit reports generated and disclosed (expressed as % of feeders) Baseline: 0% in FY15 Interim : 20% by March 2016 Target: 90% by March 2017
5. The DISCOMs have filed with RERC their annual revenue requirements and tariff petitions for FY16.	• The DISCOMs have filed with RERC their annual revenue requirements and tariff petitions for FY17.	• Gap between ARR and ACS Baseline: INR 3.00/kWh in FY15 Interim : INR 2.40/kWh in FY16 Target: INR 0.70/kWh in FY17
6. Rajasthan has set up the Rajasthan Energy Development Corporation Ltd, a company aiming to bring transparency and optimize power purchases on behalf of DISCOMs	• Rajasthan Energy Development Corporation Ltd. is operational	• Power Purchases for DISCOMs routed through Rajasthan Energy Development Corporation Ltd. Baseline: 0 in FY15 Interim: 30% by September 2016 Target: 90% by March 2017

Proposed Prior Actions	Proposed Triggers for second phase of the DPL	Result Indicators
Policy Area C: Improving Operational Performance of Distribution Utilities		
7. The DISCOMs have approved Business Plans for improved operational performance and initiated its implementation, including on: a) Pre-paid Metering Program for government consumers; and b) The Energy Efficiency Lighting Program	• The DISCOMs have implemented a unified billing system including billing all Large and Medium Industrial consumers based on an Automated Meter Reading system. • The DISCOMs have started implementation of their approved IT Roadmap including creation of an IT cadre and filling 50% of the posts with IT professionals	• AT&C losses (%): Baseline: 29.5% (Provisional) in FY15 Interim: 28% i.e. reduction of 1.5 percentage points over baseline by FY16 Target: 23% i.e. reduction of 6.5 percentage points over baseline by FY17 • No. of consumers put on pre-paid/ AMI/ AMR meters Baseline: 0 in FY15 Interim: 20,000 by September 2016 Target: 100,000 by March 2017 • No. of LED lamps distributed Baseline: 0 in FY15 Interim : 10,000,000 by March 2016 Target: 15,000,000 by March 2017 • No. of IT staff appointed Baseline: 0 in FY15 Interim: 15 by September 2016 Target: 30 by March 2017 • Number of consumers put on unified billing system Baseline: 50% in FY15 Interim: 100% by December 2016 Target: 100% by March 2017 • Number of villages remaining to be electrified Baseline: 495 village (April 2015) Interim: 250 villages (October 2016) Target: 25 villages (March 2017)

ANNEX 2: LETTER OF DEVELOPMENT POLICY

GOVERNMENT OF RAJASTHAN
Department of Energy

No.F.15(21)Energy/2014/pt. Jaipur, Dated:16.02.2016

The President,
The World Bank,
1818 H Street, NW Washington, DC 20433
U.S.A.

Sub: Programmatic Electricity Distribution Reform Development Policy Loan for Rajasthan - Letter of Development Policy.

Dear Dr. Kim,

You would be aware that we had sent a request to the World Bank, through the Government of India (Department of Economic Affairs), for technical and financial assistance, to help the State in the financial and operational turnaround of our power distribution utilities.

I write to you this letter stating the *Development Policy for the Electricity Distribution Sector of the State,* in reference to this request for World Bank assistance.

We believe that we don't live in an economy but in a society; economic growth is an objective worthy of pursuit if, and only if, it benefits every citizen. Experience suggests that delivering social justice is not always possible without the resources that economic growth generates. Thus, in pursuit of our goal of holistic development in the state, we have conceived of a Rajasthan model of development anchored around three pillars: Social Justice, Effective Governance and Job Creation.

Rapid and self-sustainable growth of the power sector is a sine qua non for the successful implementation of this model of development. We have made significant progress over the last decade in adding power generation capacity and strengthening the transmission infrastructure, thereby becoming power surplus. Rajasthan also takes pride in promoting renewable energy and is the highest producer of solar energy in the country. 99% of our villages are electrified; urban consumers get 24X7 power and rural areas also get an average of about 22 hours of power supply every day for their domestic needs. We now aim to connect the remaining 29% households and provide 24X7 supply to all consumers of the state by FY 19, as per our "Power for All" Roadmap.

However, Rajasthan's Electricity Distribution Companies (Discoms) are facing a financial crisis. For the operational and financial turnaround of the Discoms, the Discoms have prepared Business Plans based on the Development Policy for the Electricity Distribution Sector of Rajasthan. I present the policy in brief here. For convenience, I have divided it into the following sections:

1. Background to the financial crisis of Rajasthan's Discoms
2. Key objectives of Policy on Electricity Distribution in Rajasthan
3. Key policy actions

1. Background to the financial crisis of Rajasthan's Distribution Utilities (Discoms)

Rajasthan's Discoms are in poor financial health. The Discoms' annual revenue deficit increased by over 130% - from Rs. 68 Bn in FY 2008-09 to Rs 156 Bn in FY14 (though it has decreased to Rs. 125 Bn in FY15 and is further set to decline to about Rs 90 Bn in this fiscal) - and the accumulated revenue deficit increased by over 400% from Rs. 156 bn at the end of FY 2008-09 to Rs. 821 bn at the end of FY15. These losses have been largely funded by short term liabilities, thus leading to total outstanding debt of Rs. 785 Bn as on July 2015. The main reasons for the poor financial health of the Discoms are:

a. High Aggregate Technical and Commercial losses of about 30%;
b. No revision in tariff between FY 2005 and FY 2012 - cost recovery fell to around 50%;
c. Interest costs on account of short term borrowings - interest cost per unit of energy sold was Rs. 1.81 per unit in FY14 (~ 20% of total cost); and
d. High input cost of power (Rs. 4.05/unit), because of high transportation cost of coal.

In addition, there are challenges related to governance structures, metering systems and low adoption of information technology, which are not in line with best practices.

2. Key objectives of Policy on Electricity distribution in Rajasthan Distribution Utilities

In January this year, the Government of Rajasthan (GoR) announced its plans for the Electricity Distribution sector, with the promulgation of an Ordinance with the objective of *"financial and operational turnaround and long-term sustainability of the State-owned Distribution Licensees to enable adequate electricity supply to consumers through financial restructuring, support on sustainable basis in the areas of long term planning, corporate governance, regulatory compliances, and laying down of policy directives and various other measures"*.

As mandated under the Ordinance, MoUs will be signed between the State Government and the Discoms each year. The MoUs will prescribe operational and financial targets for the Discoms and contain the obligations of the State Government and the support to be provided by it. In each financial year, the State Government shall present a State Electricity Distribution Management Statement to the Rajasthan Legislative Assembly, containing the measures taken by the State Government in relation to electricity distribution in the State. Specific components of this Statement will include:

- Strategy Statement mentioning the targets for the agreed upon key performance indicators (KPIs) and laying down the policies and strategies of the State Government for achieving the targets set for the KPIs, for the ensuing financial year. For example, aggregate technical and commercial losses will be reduced at least 3% per year, if losses are above 30%.
- Time-bound action-plan (short-term, medium-term, long-term) for KPI-improvement activities, monitoring mechanism, feedback loop for in/ mid-course corrections and other required actions (e.g., steps against defaulting officers, including disciplinary action).
- Long term Planning for sustainability of State Discoms: e.g., long-term demand-availability analyses (with accompanying long-term power purchase agreements), roadmap for Aggregate Technical and Commercial loss reduction, energy accounting and auditing of all 33 kV feeders and 11 kV feeders (along with consumer indexing and time bound metering of each category of consumer), declaring the quantum of subsidy to any consumer/ class of consumers in advance, etc.

Other major provisions of the Ordinance include:

Financial Support: The State Government shall provide following financial support to a financing vehicle - Rajasthan Rajya Vidyut Vitaran Vitt Nigam Ltd. - to facilitate raising of capital and/or lower cost borrowings for the State Discoms.

Corporate Governance: To ensure strong corporate governance, the State Government shall ensure that the Board of Directors of the State Discoms have an optimum combination of functional, nominee and independent directors. Also, the number of nominee Directors that can be appointed by the State Government have been restricted.

Regulatory compliance and tariff filings: Twice every year, the State Government shall evaluate the status of compliance by the State Discoms with the Electricity Act and associated rules and

regulations. The State Government shall ensure regular and timely filing of True-up petitions, Aggregate Revenue Requirement and Tariff Petitions.

3. Key Policy Actions

GoR has joined GoI's UDAY scheme, for the financial turnaround and revival of Discoms through a resolution of past as well as potential future issues of the sector. The scheme involves four main initiatives: (i) Improving operational efficiencies of Discom; (ii) Reduction of cost of power (iii) Reduction in interest cost of the Discoms; (iv) Enforcing financial discipline on Discoms by aligning it with State finances.

The State Government has worked with the Discoms to prepare business plans that elaborate specific measures to improve the performance of the Discoms along with a regular monitoring and reporting mechanism to track progress. These plans are based on a 10-pronged strategy (10 SUTRAs) for financial turnaround of the Discoms. The main focus areas, along with the associated initiatives, are:

i. ***Customer Service*** – 24X7 reliable Power for All (PFA) including access to all remaining unconnected citizens is a goal that will be pursued through implementation of various schemes like the Deen Dayal Upadhyay Gramjyoti Yojana, Integrated Power Development Scheme, Feeder Improvement Programme and Sub-station Improvement Programme.

ii. ***AT&C Loss reduction*** – 100% metering for consumers and feeders; AMR system for high value consumers will help in improved revenue realization. Energy audit & accounting at feeder level are planned to identify areas of high losses for implementing Loss based feeder supply management and launching targeted and aggressive Vigilance drives. Feeder Improvement Programme will also help in reduction of technical losses. To reap benefits of private sector efficiencies, Distribution franchisee model will be attempted (with bids having been invited for three areas of Ajmer, Bharatpur and Kota in phase I and more planned in phase II).

iii. ***Cost Optimization*** – Measures proposed to be taken by GoI under UDAY, such as increased supply of cheaper domestic coal, coal linkage rationalization, liberal coal swaps from inefficient to efficient plants, coal price rationalization based on GCV (Gross Calorific Value), supply of washed and crushed coal, and faster completion of transmission lines will help reduce power costs. Further, GoR is committed to take over more than INR 60 bn of the debt of the Discoms, under UDAY, thereby decreasing their interest burden by about INR 7 bn annually. Enhancing operational efficiency of GenCo; improving inventory management; and reducing R&M expenses are some other measures that will help reduce cost.

iv. ***Enhanced Revenue*** – Apart from requesting Rajasthan Electricity Regulatory Commission (RERC) for timely and adequate tariff hikes, measures for improved metering, billing and collection; aggressive arrear recovery drives; and one-time settlement (OTS) schemes will be undertaken to increase revenue.

v. ***Demand Side Management and Energy Efficiency*** – Energy efficient street lighting program and scheme for replacement of incandescent bulbs with LEDs through ESCO model have already been launched. Replacement of old agriculture pumpsets with energy efficient ones is another measure on the anvil.

vi. ***Asset Monetization and Disinvestment*** - Options like sale/lease of surplus land and unserviceable assets, disinvestment of the Genco and sale of loss making power generation units are being vigorously explored to raise money, which would be used to retire high cost debts and fund investment programmes for improving efficiency.

vii. ***Employee Engagement*** – A number of initiatives have been taken or are proposed to be taken to improve employee engagement. These include mapping of activities and KRAs and

KPIs of all employees; introducing Incentive Schemes linking incentives to performance (in November 2015, GoR approved an Employee Financial Incentive Scheme, under which all employees of the O&M sub-divisions are eligible for a financial incentive of up to one month of their basic pay, based on their performance on AT&C loss reduction); improving performance appraisal system to reward outstanding officers with merit promotions; assessment of training needs of employees; implementing capacity building programs; and inducting fresh blood through lateral entry.

viii. ***Use of Information Technology*** - Information Technology will play a central role in improving performance in G2C as well as G2G services. Some of the areas where it will be used are Energy auditing, online billing, electronic payment, consumer services like new connection, dis-connection, load extension; Centralised Customer Care Centres Utilising; ERP for HR, inventory management and Finance; social media for better outreach.

ix. ***Communication***: Successful implementation of planned initiatives requires clear communication among all the stakeholders across the value chain, including employees and consumers at large. In line with this approach, Discoms are using multiple internal channels of communication to reach out to the different stakeholders and make them an important part of this process and journey.

x. ***Monitoring Framework*:** The State Government and the Discoms have also put in place a multi-tier institutional mechanism (including constitution of an independent task force as well as monthly monitoring at my level) that will be reviewing the implementation progress of the different initiatives as well as achievements against targets on a monthly basis to ensure that corrective actions are taken at the right time.

In conclusion, I would like to reiterate the commitment of the State Government to take the actions necessary to steer the operational and financial health of the distribution sector on a path of sustainable recovery and would request for your support in obtaining an early approval and disbursement of Programmatic Loan Assistance from the World Bank.

With warm regards,

Yours sincerely,

(C. S. Rajan)
Chief Secretary

Copy to: Secretary, DEA, GOI, New Delhi

ANNEX 3: FUND RELATIONS

IMF Press Release 16/85
March 2, 2016

IMF Executive Board Concludes 20016 Article IV Consultation with India

On February 12, 2016, the Executive Board of the International Monetary Fund (IMF) concluded the Article IV consultation with India.

The Indian economy is on a recovery path, helped by a large terms of trade gain (about 2.5 percent of GDP), positive policy actions, and reduced external vulnerabilities. Since late 2014, a collapse of global oil prices has boosted economic activity in India and underpinned a further improvement in the current account and fiscal positions, and engendered a sharp decline in inflation. A range of supply-side measures (including release of surplus grain buffer stocks) and an appropriate monetary stance have also contributed to the decline in inflation, from an average of about 9.5 percent during 2011–13 to 5.6 percent in December 2015. Due to its further-reduced vulnerabilities and improved growth prospects, India has experienced large foreign direct investment inflows in 2015. As a result, and in conjunction with the continued much-smaller current account deficit (largely due to continued low global commodity prices), international reserves have increased by $46.7 billion since end-March 2014, standing at US$350.4 billion at end-December 2015 (around 8 months of import cover). Nonetheless, persistently high household inflation expectations and large fiscal deficits remain key macroeconomic challenges, resulting in limited policy space to support growth through demand management measures. Furthermore, anemic exports as well as headwinds from weaknesses in India's corporate financial positions and public bank balance sheets weigh on the economy.

Growth is projected at 7.3 percent for fiscal year FY2015/16, picking up to 7.5 percent in FY2016/17 (at market prices), supported by stronger domestic demand. With the revival of sentiment and picking up of industrial activity, an incipient upturn in private investment is expected to help broaden the recovery. Higher public infrastructure investment and government initiatives to tackle supply-side bottlenecks and repair corporate and public bank balance sheets should also help crowd-in private investment. The Reserve Bank has achieved its inflation target to bring inflation below 6 percent by January 2016. Going forward, near-term headline consumer price inflation dynamics will continue to be underpinned by supply-side factors which, despite the subpar crop outlook, should help achieve the Reserve Bank of India's inflation goal of around 5 percent for March 2017. Notwithstanding the 125 basis points nominal policy rate cut in 2015, monetary conditions remain consistent with achieving the inflation target of 5 percent by March 2017. Despite the recent export slowdown, continued low global oil prices should help contain the current account deficit at around 1.5 percent of GDP in FY2016/17. The FY2015/16 Union budget deficit target of 3.9 percent of GDP (equivalent to about 4.25 percent of GDP in IMF terms) will likely be achieved.

While the balance of risks has improved, economic risks remain tilted to the downside. On the external side, despite the reduction in imbalances and strengthening of buffers, the impact from

intensified global financial market volatility could be disruptive, including from unexpected developments in the course of U.S. monetary policy normalization or China's growth slowdown. Absent disruptive global financial market volatility, slower growth in China would have only modest adverse spillovers to India, given weak trade linkages. Domestic risks include continued weaknesses in corporate financial positions and public bank asset quality, as well as setbacks in the reform process, which could weigh on growth, accelerate inflation and undermine sentiment. On the upside, further structural reforms could lead to stronger growth, as would a sustained period of low global energy prices.

Executive Board Assessment

Executive Directors commended the authorities for their appropriate policy actions that—along with favorable terms of trade—have underpinned India's improved economic performance and reduced external vulnerabilities. They welcomed in particular recent measures aimed at increasing public infrastructure spending, rationalizing subsidies, creating more flexible labor and product markets, and enhancing financial inclusion. Looking forward, Directors noted that global financial market volatility, a potential further deterioration in exports, and strains in bank and corporate balance sheets could weigh on India's growth prospects. Meanwhile, high fiscal deficits and upside risks to inflation constrain the scope for countercyclical policies.

Against this backdrop, Directors underscored the need for continued vigilance, growth-friendly fiscal consolidation, and sustained reforms to enhance the resilience of the economy and bolster potential growth. Addressing supply constraints and further improving the business environment remain important priorities. Progress in these areas would have a positive impact on poverty reduction.

Directors stressed the importance of preserving external stability. They noted that

India's international reserves are assessed to be adequate. Directors agreed that, in the event of a surge in global financial market volatility, exchange rate flexibility remains a key shock absorber, complemented by judicious foreign exchange intervention. They encouraged the authorities to sustain the reform momentum to further enhance investor confidence and attract foreign direct investment, while cautiously liberalizing external commercial borrowings by the private sector.

Directors welcomed the adoption of flexible inflation targeting and progress in enhancing monetary policy transmission. Given upside risks to inflation and still high household inflation expectations, Directors agreed that the monetary policy stance should remain appropriately targeted at ensuring durable reduction in inflation toward the medium-term target, supported by clear policy communication, continued fiscal consolidation, and measures to boost food supply. They encouraged the monetary authorities to stand ready to tighten the stance if warranted.

Directors welcomed the recent improvements in the quality and efficiency of public expenditure, as well as revenue-enhancing measures. They called on the authorities to articulate and implement credible measures that would underpin the achievement of the medium-term fiscal

deficit targets and increase fiscal space for priority capital spending and social expenditures. Crucial in this regard are further reforms of fertilizer and food subsidies, a well-designed goods and services tax, and improved tax administration.

Directors saw as priorities for the authorities to accelerate reforms to remove supply-side bottlenecks, especially in the agricultural and power sectors; and to facilitate land acquisition. Further reforms are also essential to boost employment in the formal sector, encourage female labor force participation, and enhance labor market flexibility more broadly.

While acknowledging that India's financial system is generally sound, Directors noted potential risks from weak corporate and bank balance sheets. They supported ongoing efforts to further enhance bank supervision, and encouraged the authorities to continue to strengthen prudential regulation for bank asset quality recognition, augment capital buffers and improve corporate governance at public sector banks, as well as enhance the bankruptcy and insolvency framework. A further deepening of capital markets would also facilitate financial intermediation.

ANNEX 4: MACROECONOMIC ANALYSIS: ASSUMPTIONS UNDERLYING THE BASELINE SCENARIO

Variable	Assumption
Nominal GSDP	Assumed to grow at the average rate observed in the three years preceding t-1 (14th finance commission formula)
Real GSDP	Estimated using the best fit from a log-lin time series regression, i.e. maintaining a constant growth rate in the forecasting years
Tax devolutions from central government (i.e. GoI)	Estimated using the average observed buoyancy during FY11-FY15 of 0.9
Grants from central government	Assumed 7 percent annual growth
Own tax revenues	Estimated using the average observed buoyancy during FY11-FY15 of 1.2
Own non-tax revenues (excluding interest receipts from DISCOMs)	Estimated using the best fit from a linear time series regression, i.e. maintaining a constant change in value every year
Recovery of loans and advances	Estimated as a 3-year moving average
Miscellaneous capital receipts (including disinvestments)	Estimated as a 3-year moving average
Salaries and wages	Assumed to grow by 20 percent and 14 percent in FY19, FY20 respectively, and at the rate of GSDP inflation in subsequent years
Pensions	Assumed to grow at the rate of GSDP inflation
Interest Payments	Calculated on outstanding debt at the end of last period at 8.5 percent interest
Grants in aid (excluding to power)[29]	Assumed to grow at the same rate as nominal GSDP, i.e. maintain constant the grants-in-aid (excluding power) and GSDP ratio
Capital Expenditures (excluding power)	Assumed to grow at 5 percent above nominal GSDP growth , i.e. Capex-to-GSDP ratio increases over time
Support to power sector	
• Subsidy against tariff revision	Assumption from DISCOM model (Refer Annex 7 for details)
• Grant adjustment of electricity duty	Securitization of Electricity Duty in FY16-FY17 ; INR528 every year in grants thereafter (Refer Annex 7 for details)
• Subsidy for revenue deficit	All DISCOM losses to be covered by the state government from FY16 onwards as OFR (Assumptions from the DISCOM model – Refer Annex 7 for details)
• Interest subsidy	Assumptions from the DISCOM model (Refer Annex 7 for details)
• Subsidy against compounding charges	Assumptions from the DISCOM model (Refer Annex 7 for details)
• Interest Subsidy for power	Assumptions from the DISCOM model (Refer Annex 7 for details)

[29] Committed spending - includes transfers to rural and urban local bodies

<table>
<tr><td>bonds (under 2012 FRP)</td><td></td></tr>
<tr><td>• Cash support</td><td>0 from FY17</td></tr>
<tr><td>• Plan grants</td><td>Spread over five years, as a combination of loans and grants
<table>
<tr><td>Total liabilities of DISCOMs (Sept 2015)</td><td>805,300</td><td colspan="4" rowspan="2">(All figures in INR million)</td></tr>
<tr><td>State to take over</td><td>603,970</td></tr>
<tr><td></td><td>FY16</td><td>FY17</td><td>FY18</td><td>FY19</td><td>FY20</td></tr>
<tr><td>Grant to DISCOMs</td><td>120,790</td><td>120,790</td><td>120,790</td><td>120,790</td><td>120,790</td></tr>
<tr><td>Loan to DISCOMs</td><td>281,850</td><td>80,530</td><td>-120,790</td><td>-120,790</td><td>-120,790</td></tr>
<tr><td>Total debt taken over</td><td>402,650</td><td>201,320</td><td>0</td><td>0</td><td>0</td></tr>
</table></td></tr>
<tr><td>• Equity grants for asset formation</td><td>0 from FY17</td></tr>
<tr><td>Cash Balances</td><td>Market borrowings capped to ensure cash balances don’t exceed INR 100 billion in the forecasting period</td></tr>
</table>

ANNEX 5: MACROECONOMIC ANALYSIS: STATISTICAL TABLES AND SENSITIVITY ANALYSIS

Summary Indicators

	FY06	*FY07*	*FY08*	*FY09*	*FY10*	*FY11*	*FY12*	*FY13*	*FY14*	*FY15*	*FY16*	*FY17*	*FY18*	*FY19*	*FY20*	*FY21*	*FY22*	*FY23*
Revenues as % of GSDP	14.8	15.3	16.7	14.5	13.4	13.7	14.1	14.5	14.4	16.7	*16.6*	*16.6*	*16.5*	*16.3*	*16.2*	*16.1*	*16.0*	*15.9*
Expenditure as % of GSDP	18.4	17.6	18.5	17.6	17.2	14.9	14.9	16.3	17.4	20.2	*26.7*	*22.3*	*19.2*	*19.5*	*19.6*	*19.2*	*18.9*	*18.5*
Interest as % of Revenues	24.7	21.8	18.3	18.5	19.1	15.9	13.6	12.3	12.1	11.0	*10.9*	*15.0*	*16.1*	*15.7*	*15.5*	*15.5*	*15.3*	*15.1*
Debt/GSDP Ratio	46.6	41.6	39.6	36.5	34.5	29.4	25.7	25.2	24.9	25.9	*32.6*	*34.9*	*33.9*	*33.3*	*32.9*	*32.5*	*31.7*	*30.8*
Fiscal Balance (% of GSDP)	-3.6	-2.3	-1.8	-3.0	-3.9	-1.2	-0.9	-1.8	-2.9	-3.6	*-10.1*	*-5.7*	*-2.7*	*-3.2*	*-3.4*	*-3.1*	*-2.9*	*-2.6*
Fiscal Balance (% of GSDP) *ex DISCOM*											*-4.0*	*-3.0*						
Power Sector Expenditures as % of GSDP	1.4	1.4	1.2	1.3	1.2	1.0	1.6	2.2	2.1	2.4	*9.9*	*4.4*	*1.2*	*1.1*	*1.1*	*1.1*	*1.1*	*1.0*
Capital Expenditures % GDP	3.3	3.0	3.5	2.7	2.1	1.6	2.0	2.8	2.8	3.2	*9.2*	*4.8*	*2.2*	*2.3*	*2.4*	*2.5*	*2.7*	*2.8*

Revenues

% of GSDP	***FY06***	***FY07***	***FY08***	***FY09***	***FY10***	***FY11***	***FY12***	***FY13***	***FY14***	***FY15***	***FY16***	***FY17***	***FY18***	***FY19***	***FY20***	***FY21***	***FY22***	***FY23***
Devolution from Central Government	5.8	6.2	6.9	6.3	5.4	5.6	5.4	5.2	5.3	7.6	7.4	7.2	7.0	6.9	6.7	6.6	6.4	6.3
Tax shares from centre	3.7	4.0	4.4	3.9	3.5	3.8	3.6	3.6	3.6	3.4	4.4	4.3	4.3	4.3	4.2	4.2	4.2	4.2
Grants from Central Government	2.1	2.2	2.5	2.4	1.9	1.8	1.8	1.5	1.7	4.1	3.0	2.9	2.7	2.6	2.5	2.4	2.2	2.1
Tax Revenues	6.9	6.8	6.8	6.5	6.2	6.1	6.1	6.5	6.5	6.9	7.1	7.1	7.2	7.4	7.6	7.8	8.0	8.2
Non-Tax Revenues	1.9	2.0	2.1	1.7	1.7	1.9	2.2	2.6	2.6	2.3	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5
Recovery of Loans and Advances	0.2	0.3	0.9	0.0	0.0	0.1	0.3	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total Revenues	14.8	15.3	16.7	14.5	13.4	13.7	14.1	14.5	14.4	16.7	16.6	16.6	16.5	16.3	16.2	16.1	16.0	16.0

Expenditures

% of GSDP	***FY06***	***FY07***	***FY08***	***FY09***	***FY10***	***FY11***	***FY12***	***FY13***	***FY14***	***FY15***	***FY16***	***FY17***	***FY18***	***FY19***	***FY20***	***FY21***	***FY22***	***FY23***
Current Expenditures	**15.1**	**14.6**	**15.0**	**14.8**	**15.1**	**13.3**	**13.0**	**13.5**	**14.6**	**17.0**	**17.5**	**17.5**	**17.0**	**17.2**	**17.2**	**16.7**	**16.2**	**15.8**
Committed	3.7	8.8	8.5	9.2	9.7	8.0	7.2	7.0	7.1	7.9	7.7	8.3	8.3	8.6	8.6	8.1	7.6	7.2
Salaries and wages	0.0	4.3	4.1	5.1	5.3	4.3	3.8	3.7	3.9	4.3	4.2	4.1	4.0	4.3	4.3	4.0	3.7	3.4
Pensions	0.0	1.2	1.3	1.4	1.8	1.5	1.4	1.5	1.5	1.7	1.7	1.6	1.6	1.7	1.7	1.6	1.5	1.4

% of GSDP	*FY06*	*FY07*	*FY08*	*FY09*	*FY10*	*FY11*	*FY12*	*FY13*	*FY14*	*FY15*	*FY16*	*FY17*	*FY18*	*FY19*	*FY20*	*FY21*	*FY22*	*FY23*
Interest	3.7	3.3	3.1	2.7	2.5	2.2	1.9	1.8	1.8	1.8	1.8	2.5	2.6	2.6	2.5	2.5	2.5	2.4
Grants-in-aid & other current	11.5	5.8	6.5	5.6	5.4	5.3	5.8	6.5	7.5	9.7	10.2	9.2	8.7	8.6	8.6	8.6	8.6	8.6
… of which power sector	0.8	1.0	1.6	0.6	0.6	0.6	0.7	1.2	1.4	1.6	2.6	1.7	1.2	1.1	1.1	1.1	1.1	1.0
Capital Expenditures	**3.3**	**3.0**	**3.5**	**2.7**	**2.1**	**1.6**	**2.0**	**2.8**	**2.8**	**3.2**	**9.2**	**4.8**	**2.2**	**2.3**	**2.4**	**2.5**	**2.7**	**2.8**
… of which power sector	0.4	0.4	0.5	0.6	0.6	0.4	0.6	0.8	0.8	0.8	7.2	2.7	0.0	0.0	0.0	0.0	0.0	0.0
Total Support to Power Sector	0.0	1.4	2.1	1.2	1.2	1.0	1.3	2.0	2.2	2.4	9.9	4.4	1.2	1.1	1.1	1.1	1.1	1.0
Total Expenditures	**18.4**	**17.6**	**18.5**	**17.6**	**17.2**	**14.9**	**14.9**	**16.3**	**17.4**	**20.2**	**26.7**	**22.3**	**19.2**	**19.5**	**19.6**	**19.2**	**18.9**	**18.5**

Support to the Power Sector

INR crore[30]	*FY11*	*FY12*	*FY13*	*FY14*	*FY15*	*FY16*	*FY17*	*FY18*	*FY19*	*FY20*	*FY21*	*FY22*	*FY23*
Support to the Power sector	**3,341**	**6,465**	**10,475**	**10,988**	**13,602**	**65,456**	**32,571**	**9,639**	**10,305**	**11,482**	**12,439**	**14,157**	**15,228**
Non-plan	*1,607*	*2,211*	*5,227*	*6,690*	*8,670*	*17,035*	*12,439*	*9,639*	*10,305*	*11,482*	*12,439*	*14,157*	*15,228*
Subsidy against tariff revision	644	1,000	2,445	5,261	5,896	7,478	8,263	9,102	9,770	10,948	11,911	13,629	14,700
Grant adjustment of electricity duty	781	945	1,150	624	1,175	1,437	528	528	528	528	528	528	528
OFR support	0	0	0	0	0	5,805	3,638	0	0	0	0	0	0
Loss subsidy under FRP 2012/2009	120	200	700	735	772	972	0	0	0	0	0	0	0
Interest Subsidy	62	66	59	57	54	69	*9*	*8*	*7*	*6*	*0*	*0*	*0*
Subsidy against theft	0	0	44	12	12	0	0	0	0	0	0	0	0
Interest subsidy for power bonds	0	0	829	0	761	1,275	0	0	0	0	0	0	0
Plan	*1,734*	*4,254*	*5,248*	*4,298*	*4,932*	*48,421*	*20,132*	*0*	*0*	*0*	*0*	*0*	*0*
Cash Support	400	800	400	420	441	463	0	0	0	0	0	0	0
Grant	0	0	0	0	0	0	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Loan	0	995	1,000	0	236	28,449	8,053	-12,079	-12,079	-12,079	0	0	0
Equity support	1,334	2,459	3,848	3,878	4,249	19,509	12,079	12,079	12,079	12,079	0	0	0
o/w bonds	0	0	1,930	1,410	1,806	14,779	*12,079*	*12,079*	*12,079*	*12,079*	*0*	*0*	*0*
o/w equity	1,334	2,459	1,918	2,468	2,443	4,730	*0*	*0*	*0*	*0*	*0*	*0*	*0*
…of which for discoms	560	468	833	1,402	1,054	1,239	*0*	*0*	*0*	*0*	*0*	*0*	*0*

[30] 1 crore = 10 million

SENSITIVTY ANALYSIS

Rajasthan's fiscal and debt trajectory was examined under different downside scenario. While some disturbances were observed in the medium-term, over a longer duration the debt-GDP ratio is expected to begin declining and fiscal deficit to be contained within FRBM targets.

Scenario 1: Real GSDP growth slips below the baseline by 1 percentage point every year

	FY16	*FY17*	*FY18*	*FY19*	*FY20*	*FY21*	*FY22*	*FY23*
Revenues as % of GSDP	*16.8*	*16.8*	*16.7*	*16.6*	*16.5*	*16.4*	*16.3*	*16.3*
Expenditure as % of GSDP	*26.9*	*22.6*	*19.6*	*20.0*	*20.2*	*19.9*	*19.6*	*19.3*
Interest as % of Revenues	*10.9*	*15.1*	*16.3*	*16.0*	*16.0*	*16.2*	*16.2*	*16.1*
Debt/GSDP Ratio	*32.8*	*35.6*	*34.9*	*34.7*	*34.7*	*34.7*	*34.4*	*33.9*
Fiscal Balance (% of GSDP)	*-10.2*	*-5.8*	*-2.9*	*-3.4*	*-3.7*	*-3.5*	*-3.3*	*-3.0*
Fiscal Balance (% of GSDP) ***ex DISCOM***	*-4.1*	*-3.1*						
Power Sector Expenditures as % of GSDP	*10.0*	*4.5*	*1.2*	*1.1*	*1.1*	*1.1*	*1.1*	*1.1*
Capital Expenditures % GDP	*9.3*	*4.9*	*2.2*	*2.3*	*2.4*	*2.6*	*2.7*	*2.8*
Real GSDP growth rate	*11.1*	*7.2*	*7.2*	*7.2*	*7.2*	*7.2*	*7.2*	*7.2*

Scenario 2: Real GSDP growth falls below the baseline in FY17 by 2 standard deviations of the distribution during FY06-FY15

	FY16	*FY17*	*FY18*	*FY19*	*FY20*	*FY21*	*FY22*	*FY23*
Revenues as % of GSDP	*16.6*	*16.8*	*16.6*	*16.5*	*16.3*	*16.3*	*16.2*	*16.1*
Expenditure as % of GSDP	*26.7*	*23.1*	*19.8*	*20.1*	*20.2*	*19.8*	*19.5*	*19.1*
Interest as % of Revenues	*10.9*	*15.8*	*17.0*	*16.7*	*16.6*	*16.7*	*16.6*	*16.4*
Debt/GSDP Ratio	*32.6*	*37.4*	*36.5*	*36.0*	*35.8*	*35.5*	*34.9*	*34.0*
Fiscal Balance (% of GSDP)	*-10.1*	*-6.3*	*-3.1*	*-3.6*	*-3.9*	*-3.6*	*-3.3*	*-3.0*
Fiscal Balance (% of GSDP) ***ex DISCOM***	*-4.0*	*-3.4*						
Power Sector Expenditures as % of GSDP	*9.9*	*4.7*	*1.2*	*1.1*	*1.1*	*1.1*	*1.1*	*1.0*
Capital Expenditures % GDP	*9.2*	*5.0*	*2.2*	*2.3*	*2.4*	*2.5*	*2.7*	*2.8*
Real GSDP growth rate	*12.1*	*1.7*	*8.2*	*8.2*	*8.2*	*8.2*	*8.2*	*8.2*

Scenario 3: Salaries and pensions grow by 35 percent in FY17 following recommendations of the central pay commission

	FY16	*FY17*	*FY18*	*FY19*	*FY20*	*FY21*	*FY22*	*FY23*
Revenues as % of GSDP	*16.6*	*16.6*	*16.5*	*16.3*	*16.2*	*16.1*	*16.0*	*16.0*
Expenditure as % of GSDP	*26.7*	*23.6*	*20.2*	*19.7*	*19.3*	*18.9*	*18.6*	*18.2*
Interest as % of Revenues	*10.9*	*15.0*	*16.7*	*16.7*	*16.4*	*16.2*	*15.7*	*15.2*
Debt/GSDP Ratio	*32.6*	*36.2*	*36.0*	*35.4*	*34.4*	*33.5*	*32.2*	*30.9*
Fiscal Balance (% of GSDP)	*-10.1*	*-7.0*	*-3.7*	*-3.4*	*-3.1*	*-2.8*	*-2.5*	*-2.2*
Fiscal Balance (% of GSDP) *ex DISCOM*	*-4.0*	*-4.3*						
Power Sector Expenditures as % of GSDP	*9.9*	*4.4*	*1.2*	*1.1*	*1.1*	*1.1*	*1.1*	*1.0*
Capital Expenditures % GDP	*9.2*	*4.8*	*2.2*	*2.3*	*2.4*	*2.5*	*2.7*	*2.8*

Scenario 4: Higher OFR support to DISCOMs compared to the baseline (based on the DISCOMs model)

	FY16	*FY17*	*FY18*	*FY19*	*FY20*	*FY21*	*FY22*	*FY23*
Revenues as % of GSDP	*16.6*	*16.6*	*16.5*	*16.3*	*16.2*	*16.1*	*16.0*	*16.0*
Expenditure as % of GSDP	*27.3*	*22.3*	*19.4*	*19.6*	*19.7*	*19.3*	*19.0*	*18.6*
Interest as % of Revenues	*10.9*	*15.3*	*16.3*	*16.0*	*15.8*	*15.8*	*15.6*	*15.3*
Debt/GSDP Ratio	*33.2*	*35.5*	*34.6*	*34.0*	*33.5*	*33.1*	*32.3*	*31.3*
Fiscal Balance (% of GSDP)	*-10.7*	*-5.7*	*-3.0*	*-3.3*	*-3.5*	*-3.2*	*-2.9*	*-2.6*
Fiscal Balance (% of GSDP) *ex DISCOM*	*-4.6*	*-3.0*						
Power Sector Expenditures as % of GSDP	*10.5*	*4.4*	*1.3*	*1.1*	*1.1*	*1.1*	*1.1*	*1.0*
Capital Expenditures % GDP	*9.2*	*4.8*	*2.2*	*2.3*	*2.4*	*2.5*	*2.7*	*2.8*
OFR support (INR crore)	11,398	3,324	1,548	0	0	0	0	0

ANNEX 6: POVERTY AND SOCIAL IMPACT ANALYSIS

1. **The program of reforms supported by this DPL aims at improving the financial health and viability of the power sector in Rajasthan.** The reforms supported by this operation focus on three objectives: improvement in the operational efficiency, strengthening of the governance of electricity distribution and the financial restructuring of the sector. The envisioned actions to realize these objectives are to bring down the operational losses, optimize cost, improve the realization of revenue, improve employee engagement and introduce adequate tariff measures, among others. The objective of this PSIA is to identify the potential effects of these proposed actions on 'below poverty line' (BPL[31]) and other vulnerable households in Rajasthan.

2. **The poor will be affected through three channels.** The analysis identified two channels that will have minor *negative* impacts on the poor: elimination of illegal/ unmetered consumption due to activities aimed at the reduction of Aggregate Technical and Commercial (AT&C) losses of the DISCOMs, and a *potential* increase in tariffs along the lines of the submitted tariff petitions, which are to be approved by an independent regulator. The analysis finds that electricity is still affordable and it is possible to protect the poor against the consequences of a change in the cost of electricity through the introduction of energy efficient lighting. Another factor counter-balancing these short-term negative impacts is that the reform process will improve the reliability and quantity of electricity supply in the long run. These improvements will be pro-poor as those not connected are overwhelmingly the poorer and more vulnerable households in the state.

3. **Improving the financial health of the DISCOMs would improve access for the poor and the Scheduled Tribes.** Electricity access[32] in Rajasthan has improved over time but gaps remain for certain vulnerable groups. Figure 1 shows that, according to National Sample Survey (NSS) 2011-12, access is lower in rural areas and among poorer households and scheduled tribes. Spatial analysis using Census of India (2011) also demonstrates heterogeneity in access across Rajasthan's districts (refer to Figure A3 in the Appendix). Availability[33], on the other hand, is nearly universal across groups. This implies that even though the village is connected to the electricity grid, not all households in a village have access. Access to electrification has been shown to have a positive impact on households' consumption and income (Chakravorty et al., 2014; van de Walle et al., 2015). In addition, electrification has been shown to encourage market work among women by freeing up time spent in collecting and preparing fuel (Dinkelman 2011; Kohlin et al. 2011) or through the introduction of electrical appliances and increasing women's productivity in domestic chores (Grogan and Sadanand, 2012).

Figure 1: Availability and Access of Electricity, 2012 (%)

[31] Refer to the Part B of Appendix for the definition of BPL households.
[32] Access is defined as the percentage of households with electricity as the main lighting source.
[33] Availability is defined as the percentage of households living in villages where at least one household uses electricity as the main lighting source.

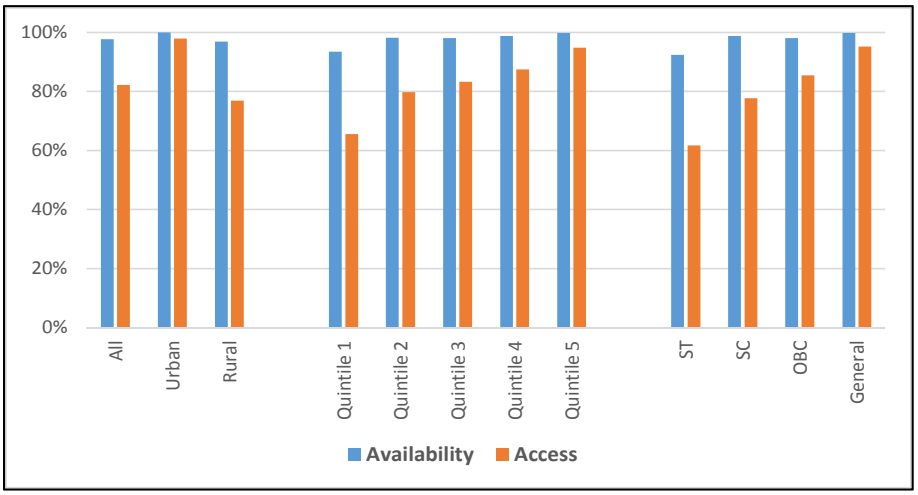
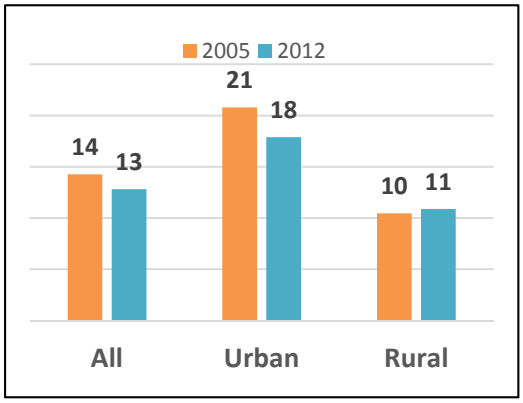


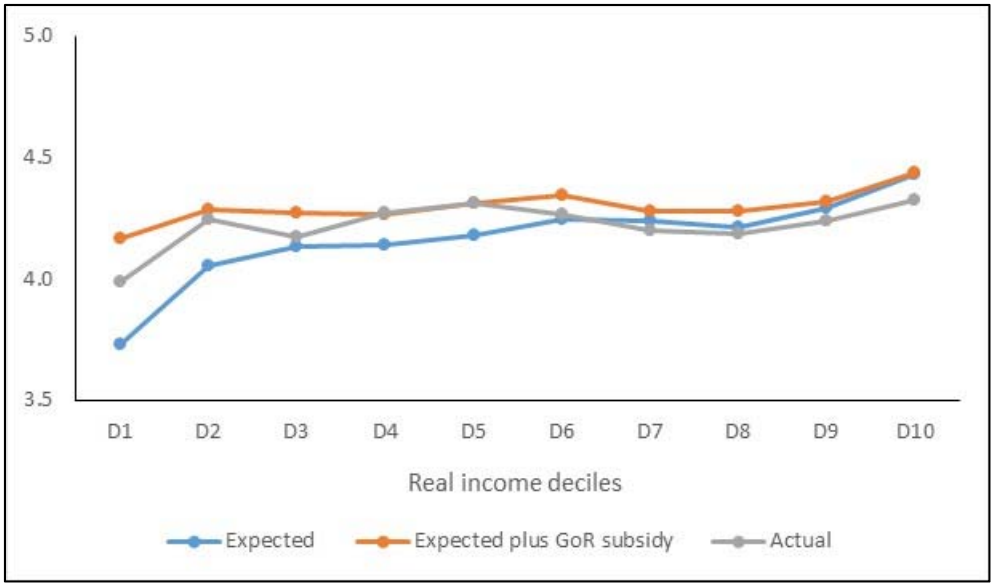
Figure 2: Hours of electricity per day



4. **Quality of electricity supply should improve as well.** A mixed picture prevails on the quality of power available for domestic consumption. Data shows that in rural areas, the number of hours of electricity per day has improved over time and a better financial health of the DISCOMs would continue to ensure a reliable access to electricity. Households in urban areas, however, received three hours less per day in 2012 versus 2005. Spatial analysis also reveals less reliable power in the border districts of Rajasthan especially during the summer months. Another telling piece of information relates to the quality of power for firms. Based on Figure A4 of Appendix, it is evident that even though there are lesser number of power outages in Rajasthan compared to firms across India, the length of the power outage is considerably longer (3 hours and 10 minutes in Rajasthan versus 1 hour and 10 minutes in India).

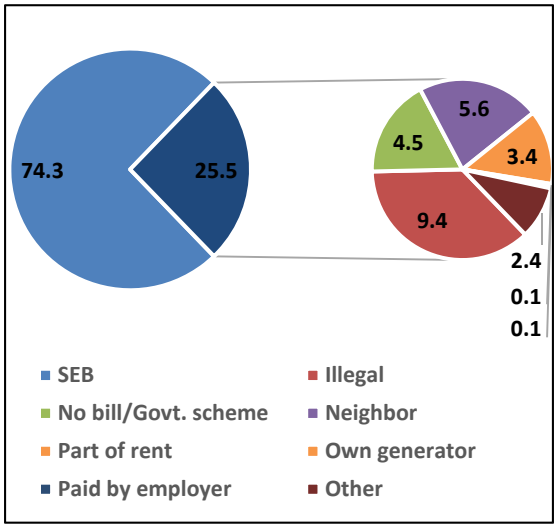
5. **Reduction in AT&C losses achieved through efforts such as metering, improved billing practices and effective employee management will affect many households, some of whom are poor.** According to survey data, households report that they pay what is expected for the electricity that they consume (Figure 3). To the extent that the billing is efficient, this may imply high collection efficiency of the DISCOMS as far as domestic consumers are concerned. However, this does not reveal anything about households that are not billed, have defective meters or those that have illegal connections and are not paying directly to the State Electricity Boards (SEB). The tightening of vigilance, as part of the reforms, will address these concerns.

Figure 3: Expected and actual expenditure for households, 2012 (INR/kWh)

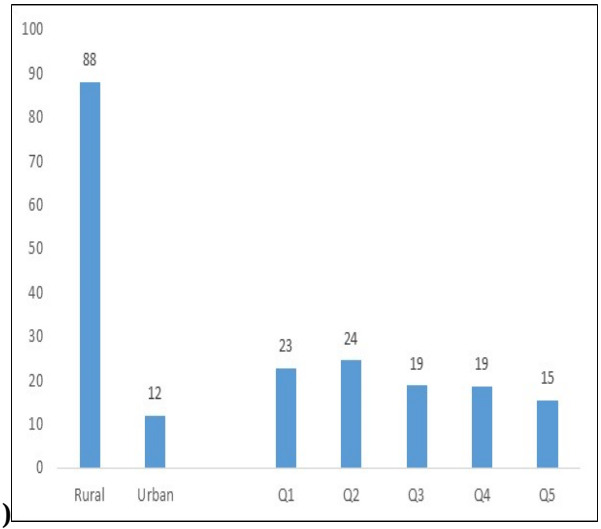


6. **In 2012, about 25 percent of all households in Rajasthan did not pay directly to the DISCOMs.** These mainly comprised of households who reported having illegal connections or those who did not receive a bill at all, as seen in Figure 4. In addition, among households that acquired electricity access between 2005 and 2012, 15 percent claimed to have an illegal connection (Figure A1 in Appendix) demonstrating an increase in the take up of illegal electricity connections. Thirdly, the discrepancy in the number of households with access to electricity in the survey data (NSS 2012 and IHDS 2012) and the administrative data also points to the possibility of substantial number of illegal connections in Rajasthan (Figure A2 in Appendix). Finally, as shown in Figure 5, illegal connections are spread across income groups and thus, the impact will be felt by all of them. It would also be felt most in rural areas that account for 88 percent of all illegal connections.

Figure 4: Type of access for households, 2012(%) **Figure 5: Households with illegal and illegal**



+ connections, 2012(%)



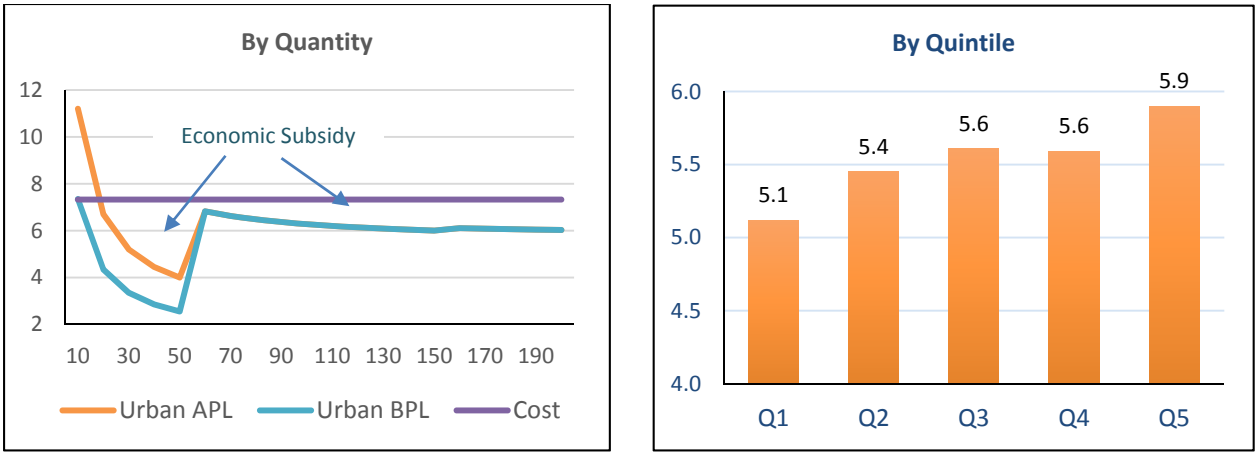
7. **The current tariff structure (in 2014-15) is mostly progressive[34].** This is because both fixed charges per month and energy charges per unit, increase with consumption levels. Explicit subsidies by the GoR (hereafter referred to as explicit subsidy) are allocated based on consumer type ('below poverty line' consumers) and electricity use. A concessional tariff is provided to households consuming less than 50 kWh per month as shown in Table 1, below the rate paid by other consumer types. Such concessions are awarded in many countries (e.g. Ghana, Vietnam) to help the poor afford a subsistence amount of electricity. As shown in the left panel of Figure 6, at lower levels of consumption, the tariff paid per unit or the average effective tariff[35] drops quickly until the 50th unit before increasing again and then flattens out. The right hand panel of Figure 6 shows that richer households[36] pay higher tariff per unit of electricity consumption on an average, pointing to a progressive tariff structure.

[34] The analysis uses the tariff structure of 2014-15 and applies it to the quantity of electricity consumed as reported in the NSS 2011-12 (refer to more details in Part B of appendix).
[35] Please refer to the Part B in the appendix for details on the construction of average effective tariff.
[36] In the absence of income data in the NSS, the analysis uses consumption expenditure that is corrected for cost of living differences between rural and urban areas using the Tendulkar poverty lines to create quintiles.

Table 3: Tariff Schedule for Urban Households in 2014-15

kWh/month	Category	Fixed Charges (INR)	Effective Fixed Charges (INR)		Energy Charges (INR/kWh)	Effective Energy Charges (INR/kWh)	% increase in fixed charges in 2015-16	% increase in Energy charges in 2015-16
0-50	BPL/Astha	90	60		3.25	1.35	17%	19%
	Small DL[37]	90	90		3.50	2.20	11%	16%
0-50	General DL	--	--		3.50	3.50	--	10%
51-150	General DL	180	180		5.45	5.45	11%	12%
151-300	General DL	200	200		5.70	5.70	10%	12%
301-500	General DL	240	240		6.00	6.00	10%	12%
501+	General DL	260	260		6.40	6.40	10%	12%

Figure 6: Average Effective Tariff, 2014-15 (INR/kWh)



8. However, the incidence of subsidies is regressive. The top 40 percent households receive about half of all the economic subsidy (Figure 7), where the economic subsidy (hereafter referred to as subsidy) is calculated as the difference between the average cost of power and the tariff paid for each unit and then added up over all units consumed. Richer households receive more subsidies due to three reasons. First, richer households tend to consume more electricity, making them the prime benefactors of the subsidies (Figure 9). Second, the criteria used for targeting the explicit subsidy are only moderately correlated with poverty levels, so that many non-poor households are low end consumers of electricity. For example, as shown in Figure 9, 21 percent of the households in the second highest quintile consume between 0-50 kWh per month. Third, some rich households own 'BPL' ration cards which entitle them to receive explicit subsidies (Figure 10).

[37] DL means Domestic Lighting

Figure 7: GoR explicit subsidy received by each quintile, FY15 (%)

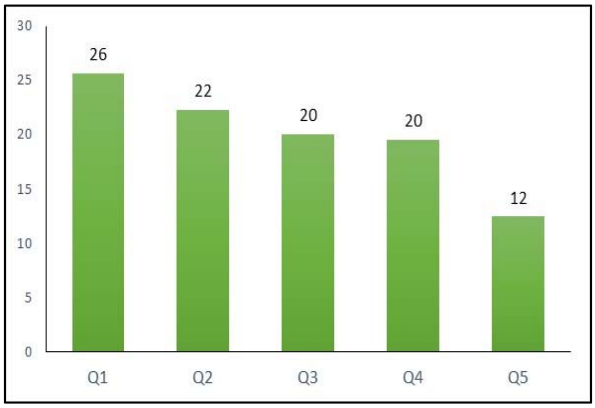


Figure 8: Total subsidy received by each quintile, FY15 (%)

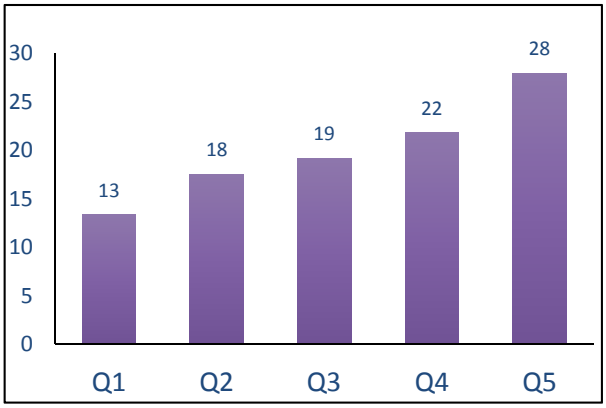


Figure 9: Distribution of quantity consume slab and quintile, 2012 (%)

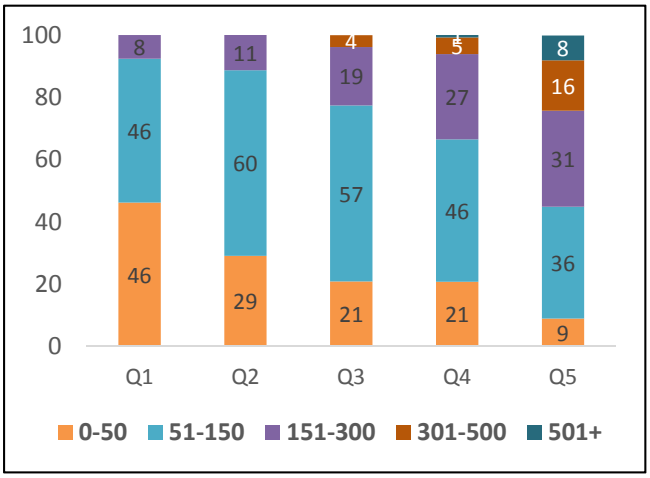
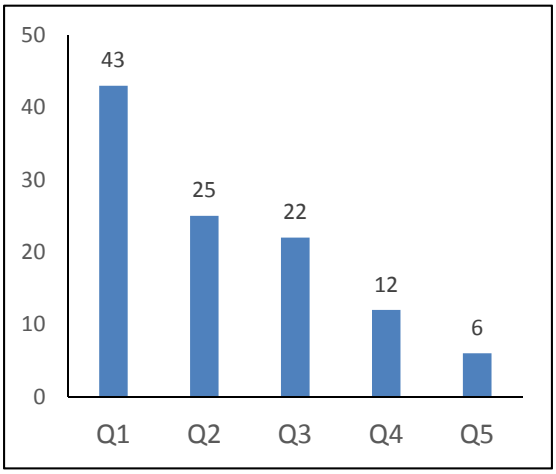


Figure 10: BPL card holders by quintile 2012 (%)



9. **The FY16 proposed tariff petition, if granted by the independent Regulator, will have a limited, but negative, impact on the poor.** The proposed tariff petition[38] envisions both higher fixed charges and unit energy charges paid by low end consumers as compared to other consumers, as shown in Table 1. As a result, the increase in the average effective tariff as compared to baseline scenario is highest for poorest consumers (14 percent), as shown in Figure 11. The incidence of subsidies will, therefore, continue to be regressive under the proposed 2015-16 tariff (Figure 12). Energy auditing and effective metering would allow regular availability of slab wise data on the quantity of electricity consumed and this could feed into tariff petitions in future to design a more progressive tariff structure.

[38] The analysis uses the tariff structure of 2015-16 and applies it to the quantity of electricity consumed as reported in the NSS 2011-12 (refer to more details in Part B of appendix).

Figure 11: Increase in Average Effective Tariff from FY15 to FY16, (INR/kWh) %

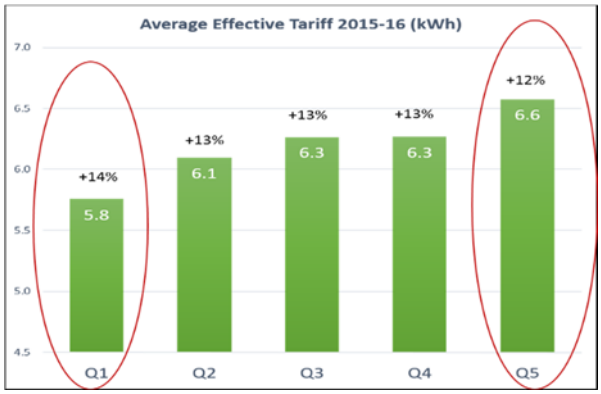
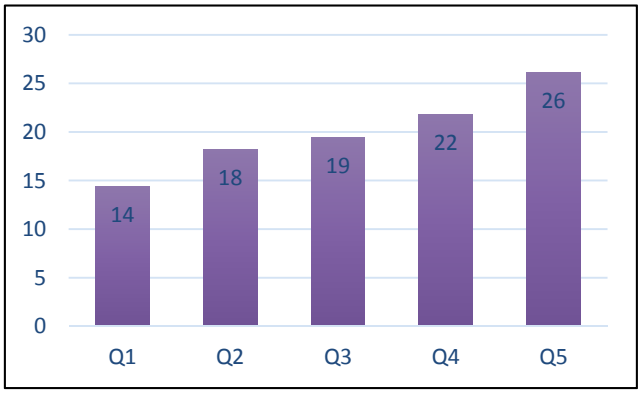
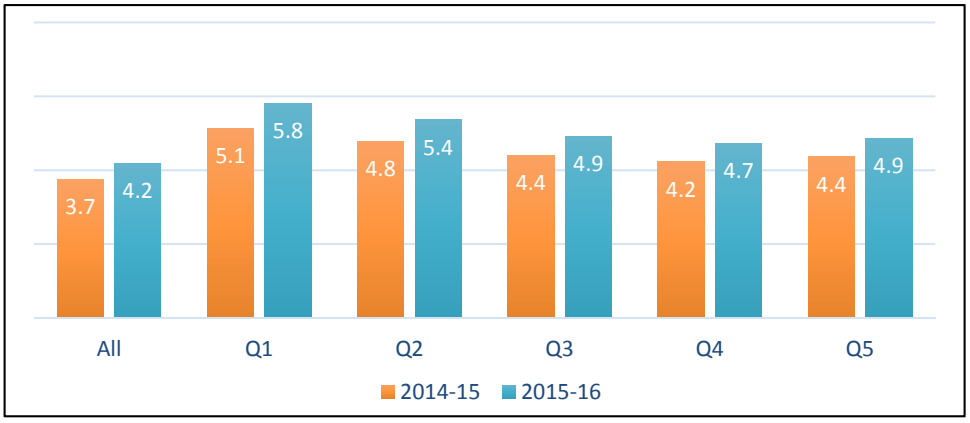


Figure 12: Total subsidy received by each quintile, FY16 (%)



10. **Although the proposed tariff increases will hurt the poor, electricity expenditures will continue to remain affordable.** The affordability[39] of electricity may not be a concern as electricity expenditure is expected to remain less than 6 percent of the household's budget. The share of electricity expenditure for households was below 6 percent across all income quintiles in 2012. Simulations using the FY15 and the proposed FY16 tariffs on updated consumption expenditure show that this is unlikely to change[40]. As a result, even a 14 percent increase will only increase the electricity expenditures of poor households by less than 1 percent.

Figure 13: Affordability or Share of electricity expenditure in total, (%)



11. **To mitigate the negative effects of increases in tariffs, the DPL includes measures to promote the use of energy efficient lighting at subsidized rates.** One of the key objectives of the national scheme entitled UDAY is to promote energy efficient solutions. According to the 'Rajasthan 24x7 Power for All' report (2014), the use of energy

[39] Affordability is defined as the ratio of electricity expenditure to total consumption expenditure of the household.

[40] Consumption expenditure from the NSS 2012 is updated by applying the average GSDP per capita growth rate between 2012 and 2015, adjusted for the gap in consumption expenditure in the NSS surveys and the National Accounts.

efficient lamps and pump sets is likely to reduce the state's electricity consumption significantly. As such, these lowered electricity burdens are likely to benefit domestic consumers in the form of higher subsidies. Agoramoorthy and Hsu (2009) find that households in Gujarat earning an income of US$ 150–250 per annum saved US$ 91.55 in energy costs annually due to the introduction of solar lanterns costing US$ 87.50. They also found that BPL households used significantly less electricity as compared to Above Poverty Line (APL) households.

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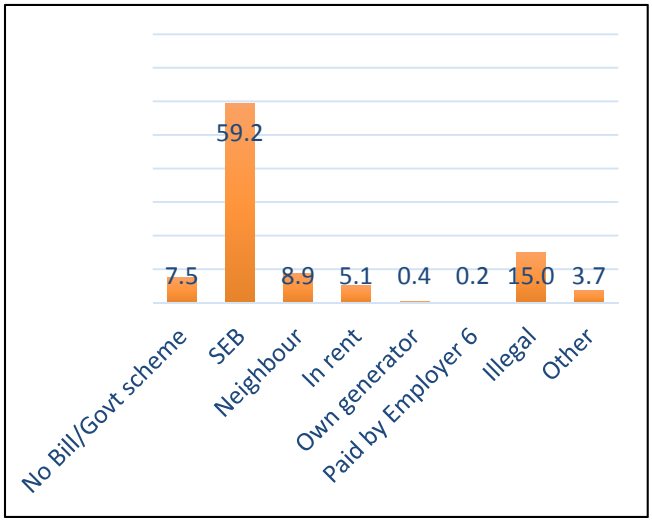
Poverty and Social Impact Analysis -- Appendix

Part A: Figures and Tables

Table A1: Tariff Schedule for Urban Households in 2015-16

kWh/month	Category	Fixed Charges (INR)	Effective Fixed Charges (INR)	Energy Charges (INR/kWh)	Effective Energy Charges (INR/kWh)	% Increase in Fixed Charges	% Increase in Energy Charges
0-50	BPL/Astha	100	70	3.50	1.60	17	19
	Small DL	100	100	3.85	2.55	11	16
0-50	General DL 1	200	200	3.85	3.85	11	10
51-150	General DL 1	200	200	6.10	6.10	11	12
0-50	General DL 2	220	220	3.85	3.85	10	10
51-150	General DL 2	220	220	6.10	6.10	10	12
151-300	General DL 2	220	220	6.40	6.40	10	12
0-50	General DL 3	265	265	3.85	3.85	10	10
51-150	General DL 3	265	265	6.10	6.10	10	12
151-300	General DL 3	265	265	6.40	6.40	10	12
301-500	General DL 3	265	265	6.70	6.70	10	12
0-50	General DL 4	285	285	3.85	3.85	10	10
51-150	General DL 4	285	285	6.10	6.10	10	12
151-300	General DL 4	285	285	6.40	6.40	10	12
301-500	General DL 4	285	285	6.70	6.70	10	12
501+	General DL 4	285	285	7.15	7.15	10	12

Figure A1: Type of access for households that acquired electricity by 2012 but did not have electricity in 2005, %



Source: IHDS (2005 and 2012)

Figure A2: Number of Domestic Consumers (in millions)

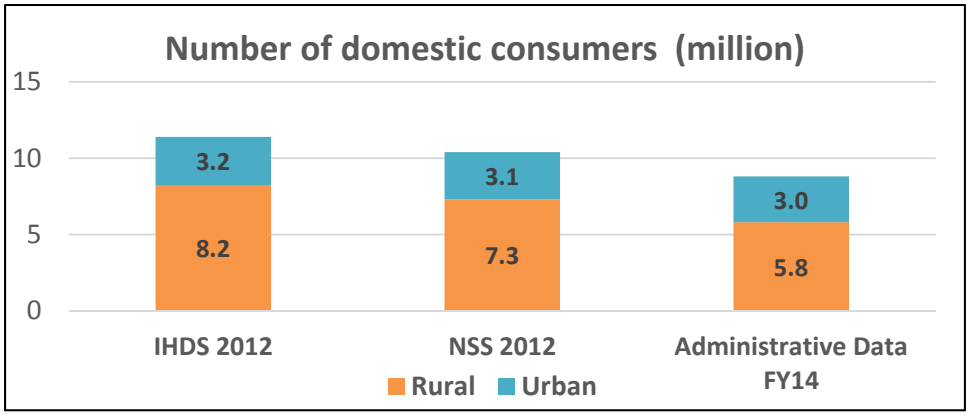
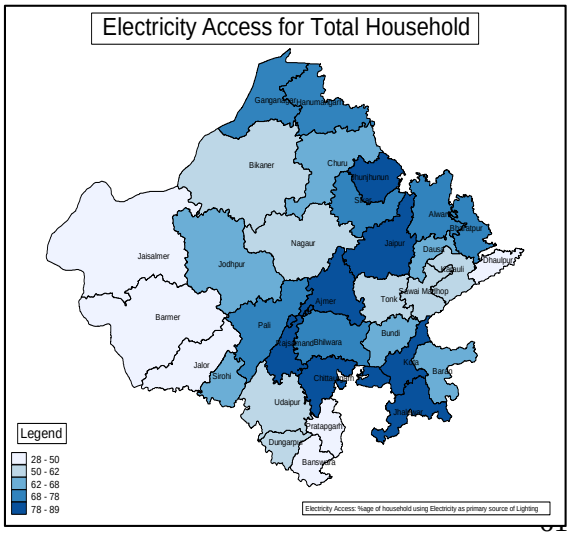
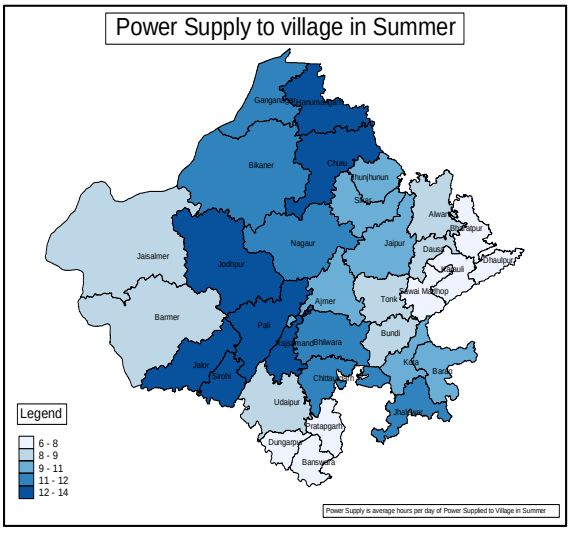


Figure A3: Electricity Access and Hours of power supply to villages





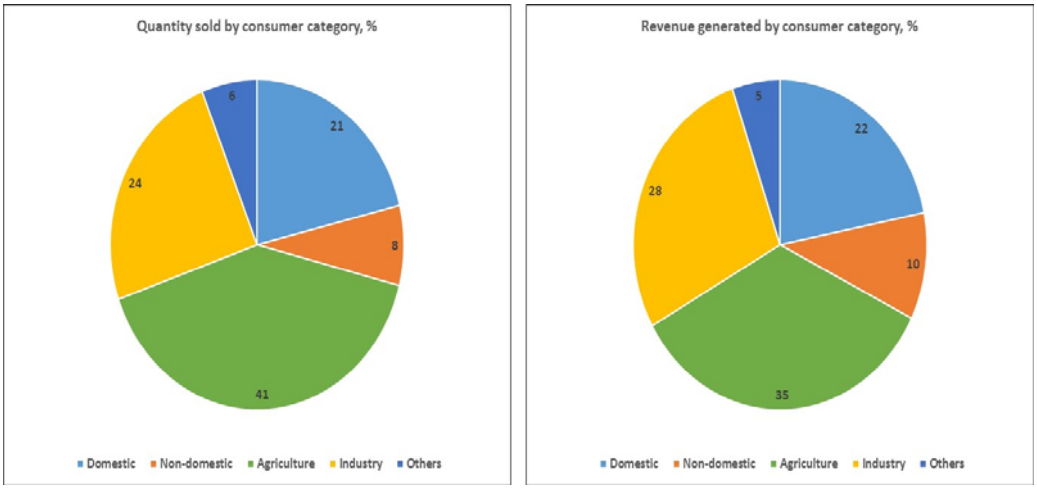
Source: Census of India (2011)

Figure A4: Quality of power for firms

	All India	Rajasthan
Firms experience of power outages	35%	29%
Number of outages per month	14	9
Length of power outage	1 hour, 10 min	3 hours, 10 min
Firms that own a generator	61%	65%

Source: World Bank Enterprise Survey (2014)

Figure A5: Quantity and Revenue of DISCOMS by Consumer Category, 2015



Part B: Data Description and Methodology

This analysis uses several data sources: (i) the Power Finance Corporation's (PFC) report "Performance of State Power Utilities for the year 2014-15", (ii) tariff schedules from the electricity regulatory commissions in in Rajasthan, (iii) the National Sample Survey (NSS) from 2011-12 (Round 68) and (iv) Indian Human Development Survey (IHDS) from 2005 and 2012, (v) Census of India (2011) and (vi) World Bank Enterprise Survey (2014).

Item (i) provides data on the average cost of power, calculated as the ratio of total expenditure incurred by the utility to provide electricity and the net energy sold. Item (ii) provides the electricity tariff schedule in Rajasthan for the years 2011-12, 2014-15 and proposed tariff petition for 2015-16 (more information on these in this appendix). Items (iii) and (iv) contain the households in Rajasthan that form the basis of the analysis in this report. Item (v) is used to conduct spatial analysis using district level data, and item (vi) provides information regarding the quality of power in Rajasthan's firms.

The National Sample Survey Organization (NSSO) conducts regular consumer expenditure surveys in 'rounds' of a year's duration each. The surveys are conducted through household interviews, using random samples of households from across the country. In the surveys, households report the quantity and value of household consumption over the 'last 30 days' prior to the surveys. The electricity expenditure information is located in the household consumer expenditure schedule ("Schedule 1.0") of the surveys, as is all of the other NSS data used in this analysis. The 2011-12 NSS includes 4128 households in Rajasthan. The sample is representative at the state-level.

This data is used to calculate numbers on availability of and access to electricity. The analysis on scenarios using electricity tariffs in this report also relies on this data. The key step using this data is that of matching households with the appropriate tariff rates. The next few paragraphs describe the assumptions made in the matching process, the limitations of these assumptions, and then defines the various terms and variables used in this report.

For the 4128 households in Rajasthan in NSS 2011-12, this analysis uses reported quantity (in kWh) of monthly electricity consumption and combines that with tariff data (of 2014-15 and 2015-16 separately) to impute per-kWh and total electricity expenditures[41]. An alternative would be to use reported monthly electricity expenditures (in Rupees) and combine that with tariff data to impute consumption quantity, then use that to impute per-unit expenditures. Although reported expenditures are often more accurate than reported consumption, reported consumption is preferable for this analysis. This is because it allows a more accurate application of tariffs to households, as tariffs vary with consumption in a variety of ways; and reported expenditures can include more than just the payment due for electricity consumption in a given month (for example, missed payments from other months, meter rent, etc.). In addition to reported quantity of electricity consumption, this report uses location (urban vs. rural) and poverty status to determine which tariffs apply to them.

Another crucial assumption that is made is that all electricity consumption is billed as exactly indicated in the tariff schedule. This also implies that all electricity consumption is paid for. If bills are systematically under-collected from certain types of households, this would have led to the underestimation of the subsidy those households receive; however, there is no evidence if and/or to what extent this might be the case.

The baseline scenario uses quantity of electricity consumed in NSS 2011-12 and the tariff schedule of 2014-15 to calculate imputed expenditures on electricity and consequently the amount of subsidies. For the simulated scenario, we use the quantity of electricity consumed in NSS 2011-12 and the proposed tariff schedule of 2015-16 to calculate imputed expenditures on electricity and consequently the amount of subsidies. This is an important assumption as it is plausible that the quantity of electricity consumed in the years after 2011-12 has increased.

[41] We follow the methodology used by the Kristy et. al (2015).

'Below Poverty Line' households are defined as those which own BPL ration cards. Studies suggest, however, that some non-poor households also own these cards.

We use consumption expenditure that is corrected for cost of living differences between rural and urban areas using the Tendulkar poverty lines.

Construction of Variables

Access is defined as the percentage of households with electricity as the main lighting source.

Availability is defined as the percentage of households living in villages where at least one household uses electricity as the main lighting source.

Household Expenditures- To calculate *household expenditures*, this analysis takes as given households' reported quantity (in kWh) of monthly electricity consumption. Each household's expenditure is imputed by computing the per-unit charges and adding to that the applicable fixed charges based on the tariff schedule matched to that household. For example, if an urban APL household consumes 60 kWh per month in 2014-15, then the household pays INR 180 in fixed charges and INR 229.5 ((3.50*50) + (5.45*(60-50))) in per unit charges. Thus, the total monthly electricity expenditure for this household is INR 409.5.

Average Effective Tariff- There are two set of calculations used to construct this variable:

1. The '*average effective tariff*' is computed by dividing each household's total expenditure by its total consumption. This is equivalent to taking a consumption-weighted average of the effective tariffs. For the above household, the average effective tariff is INR 6.83 (409.5/60).
2. Average effective tariff for a group (such as BPL households, first quintile etc.) is calculated by adding up the imputed electricity expenditure of all households in a group and divided by the sum of total quantity consumed by all households in the group.

Effective tariff is the price charged for a particular consumption unit plus the average fixed charge paid by the household over all of its units of consumption. In the example given above, the effective tariff on the first 50 kWh of consumption would be 3.50 + (180/60) = INR 6.5/kWh, and the effective tariff for the 51st kWh would be 5.45 + (180/60) = INR 8.45/kWh.

Subsidy on Electricity Unit is calculated by subtracting the effective tariff paid by a household for that unit from the average cost of power.

Household Subsidy is estimated by aggregating the subsidy received on subsidized units for each household.

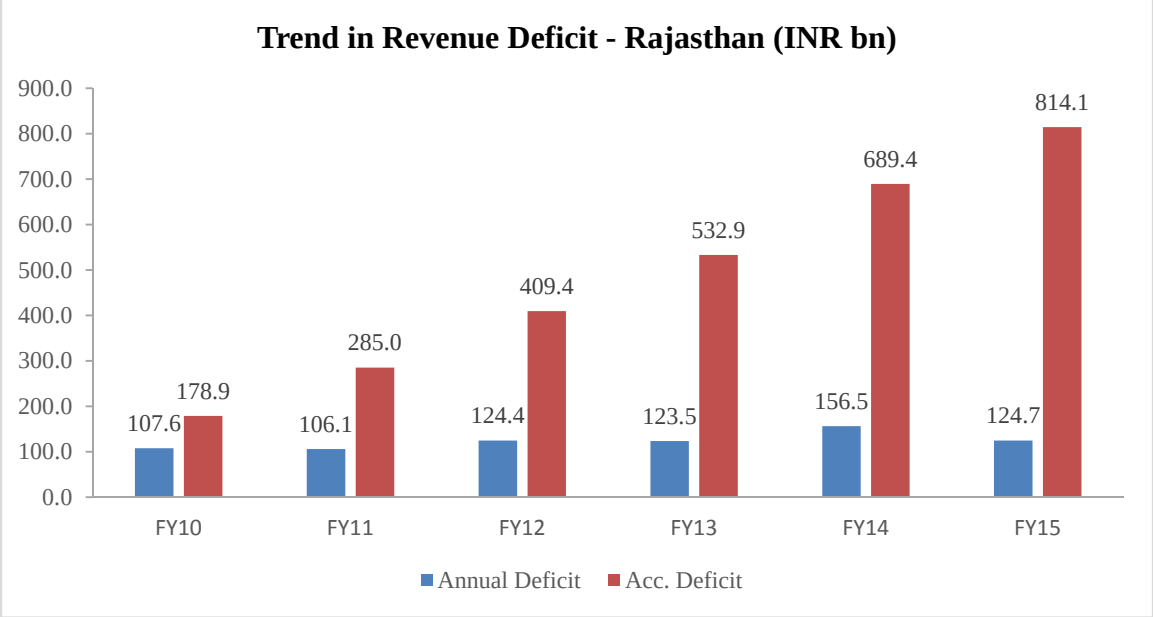
Actual expenditure is calculated as the ratio of the expenditure reported in the NSS 2011-12 and the quantity of electricity consumed.

Affordability is defined as the share of electricity expenditure in total expenditure. For the baseline, we use imputed electricity expenditure in 2014-15 (as discussed above) as the numerator. To calculate the denominator or total expenditure in 2014-15, we inflate the real consumption expenditure of each household in NSS 2011-12 using the GSDP per capita growth rate that is adjusted for the gap in consumption expenditure between the NSS surveys and the national accounts. Similarly, for 2015-16, we use the imputed electricity expenditure of the year as the numerator and the total expenditure of 2014-15 as the denominator.

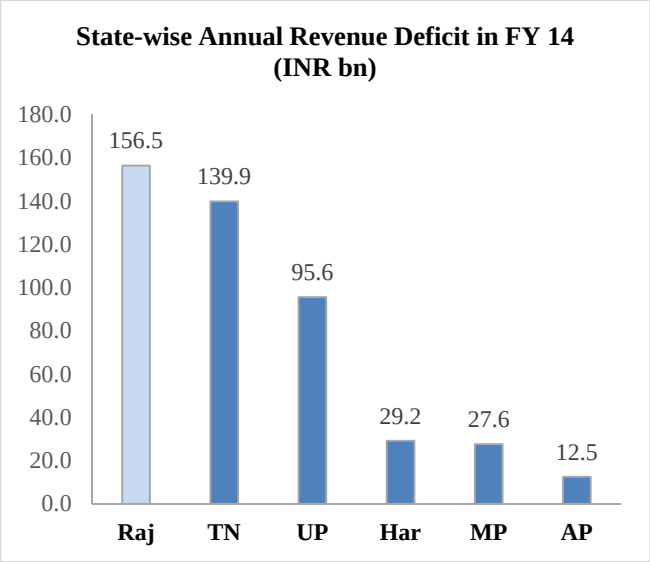
ANNEX 7: OPERATIONAL AND FINANCIAL PERFORMANCE OF THE DISCOMs IN RAJASTHAN

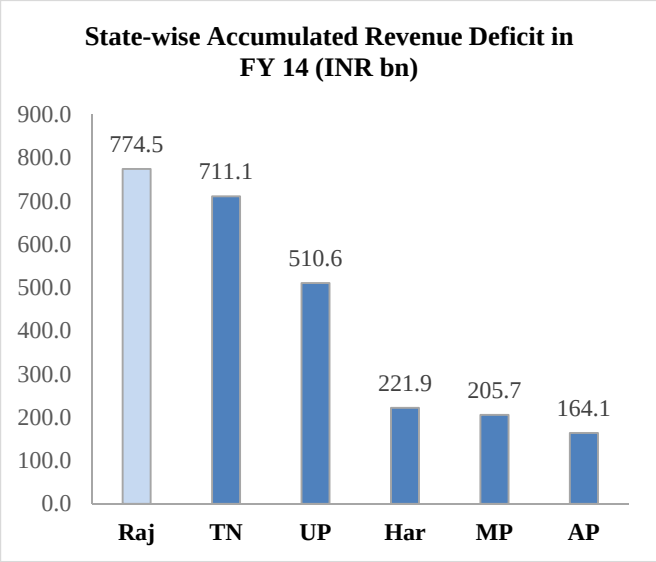
I. BACKGROUND

1. The Rajasthan DISCOMs reported an annual revenue deficit of INR 124.74 billion in FY15. Although the utilities have shown a slight improvement in FY15 over the previous year, the accumulated revenue deficit of Rajasthan DISCOMs has also reached a staggering INR 814.1 billion at end of FY15.

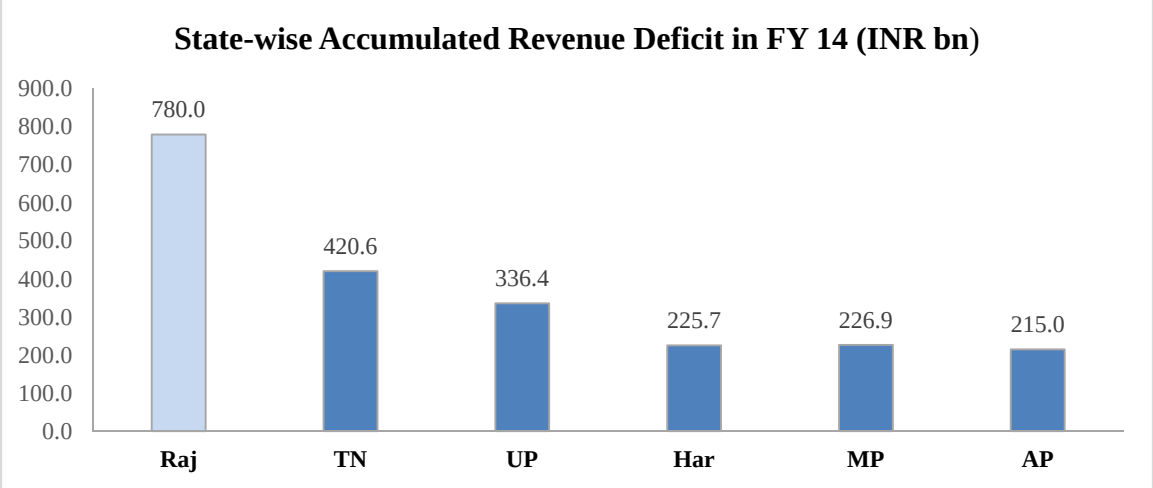


Moreover, in comparison to other states, Rajasthan DISCOMs have the highest annual and accumulated revenue deficit in FY14 as shown in figures below.

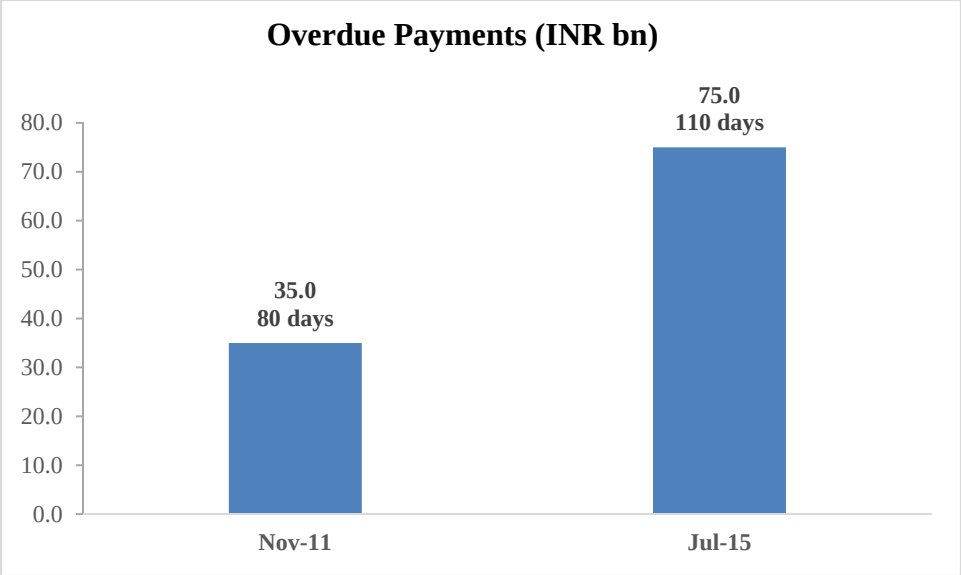




2. Outstanding total debt at end of July 2015 of Rajasthan DISCOMs stood at INR 780 billion, with about 75 percent of short-term nature raised to meet the operational expenses of the DISCOMs and having high rate of interest. In comparison to other states, Rajasthan DISCOMs have the highest outstanding total debt in absolute terms as shown below.

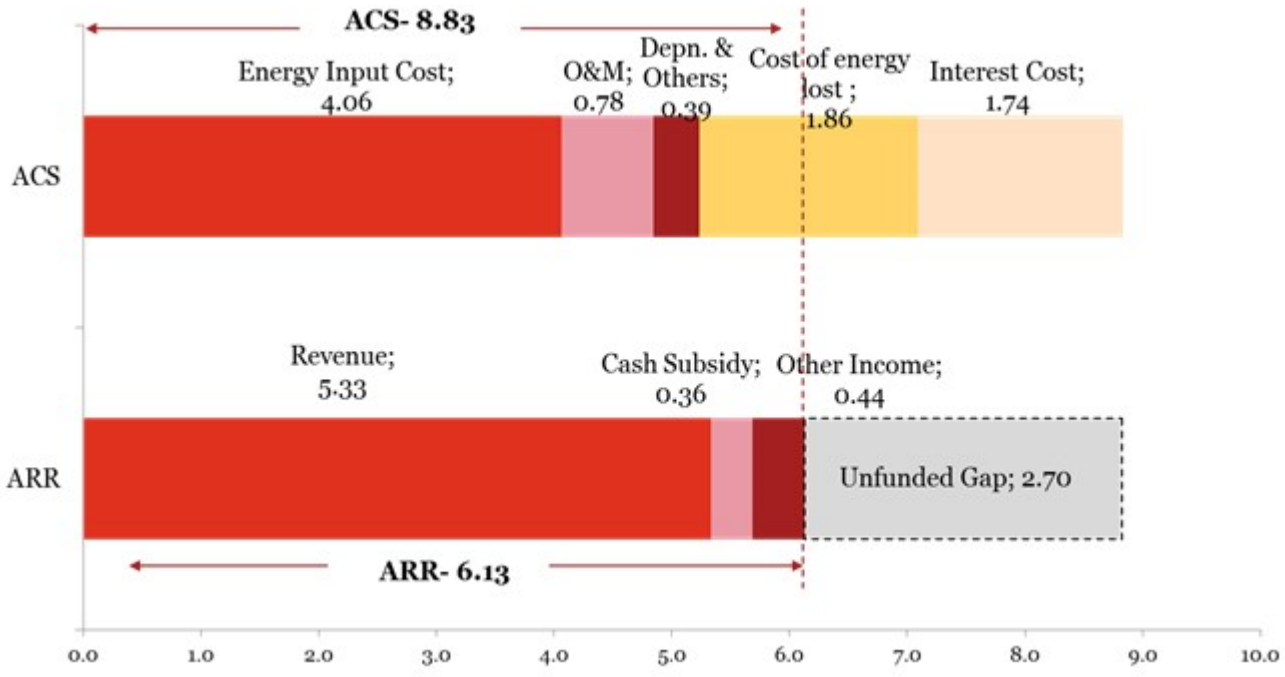


3. Besides the rising financial deficit and borrowings, the DISCOMs also face immediate challenge of meeting payments for power purchase and interest liability. The situation has deteriorated to such acute levels that at end of July 2015, the DISCOMs have total overdue payments amounting to INR 75 billion or over 110 days payables.

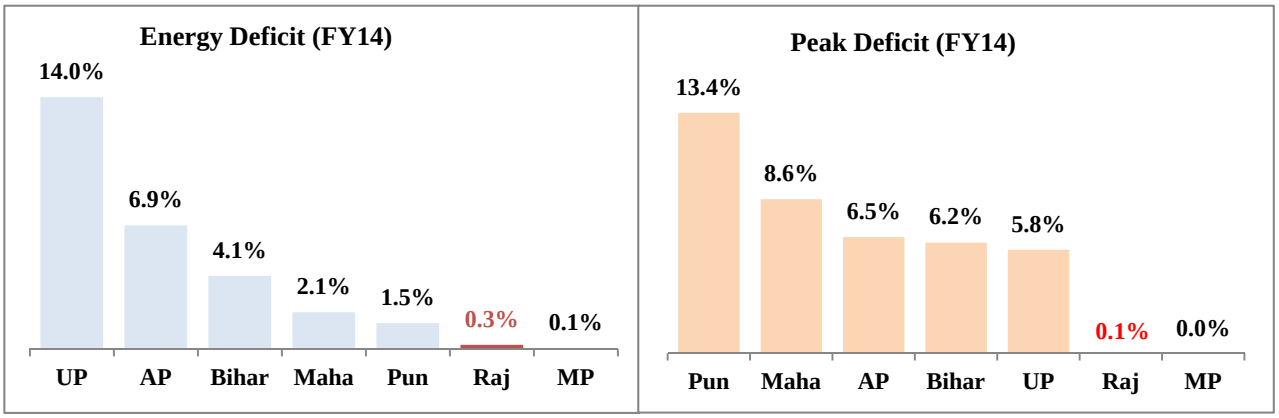


4. During FY15, Rajasthan DISCOMs lost approx. INR 3.14 per unit on each unit of energy sold (excluding cash support from the State Government). The State Government also provides tariff subsidy for Below Poverty Line (BPL)/ Domestic consumers and agricultural consumers with total tariff subsidy estimated for FY15 being INR 56.4 billion.

Comparison of ACS vs ARR of Rajasthan Discoms during FY 2014-15

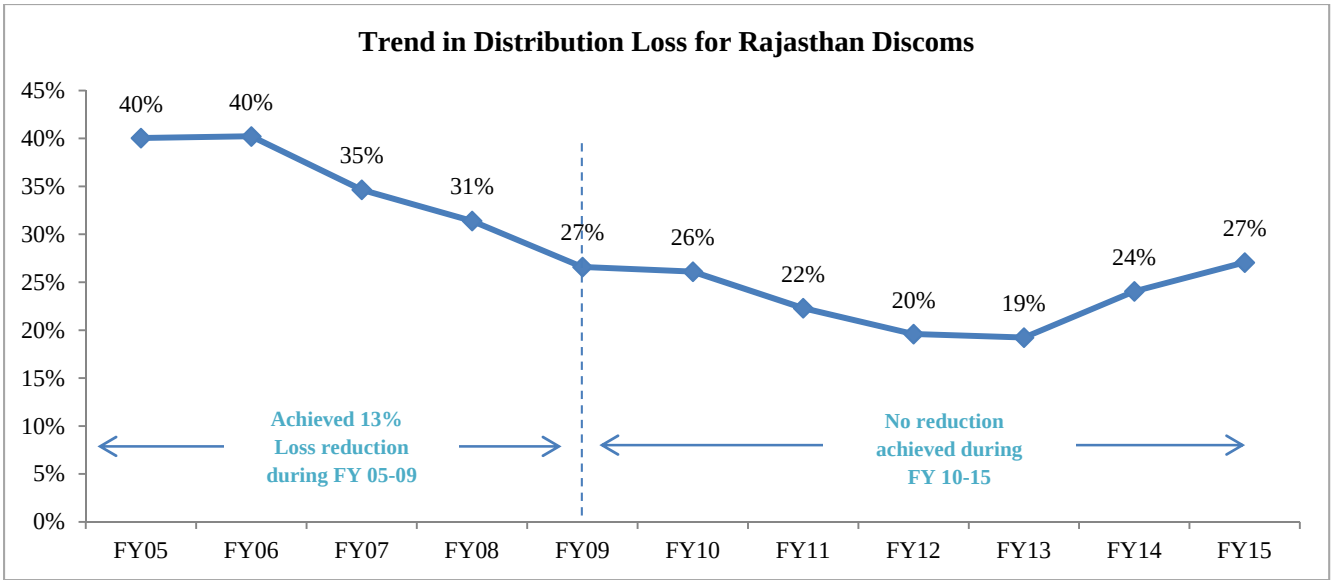


5. Despite the financial position of Rajasthan DISCOMs and losing more money per unit than most of the other States, Rajasthan continues to have one of the lowest power deficits (both energy and peak) in the country. Unlike some other States, Rajasthan has not resorted to increased load shedding to cut losses – which could have adverse impact on the industries/agriculture and hamper the economic growth even though it has come at the cost of financial viability of the DISCOMs.

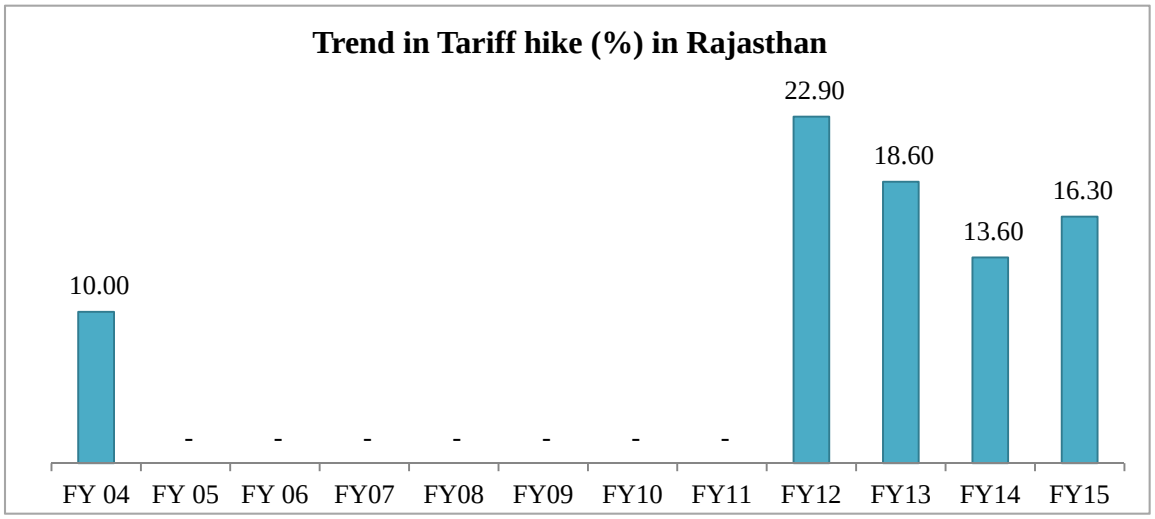


6. There are a number of reasons that are responsible for the current financial distress in the distribution sector in Rajasthan:

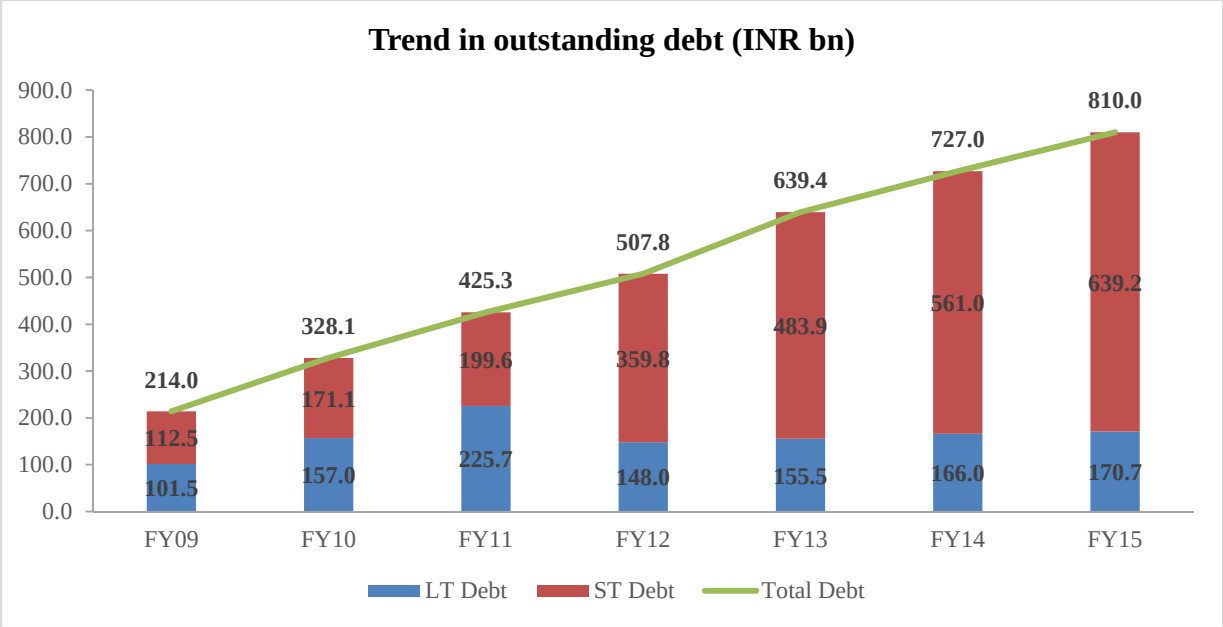
a. *High Distribution Losses*: Despite making best efforts in the past to reduce distribution losses and managing to reduce losses to 27.6 percent in FY09 from more than 40 percent in FY05; losses have remained almost stagnant and not reduced further. During FY15, distribution losses were 27 percent. The DISCOMs lose approx. INR 1.86 per unit on every unit of energy sold on account of high loss level.

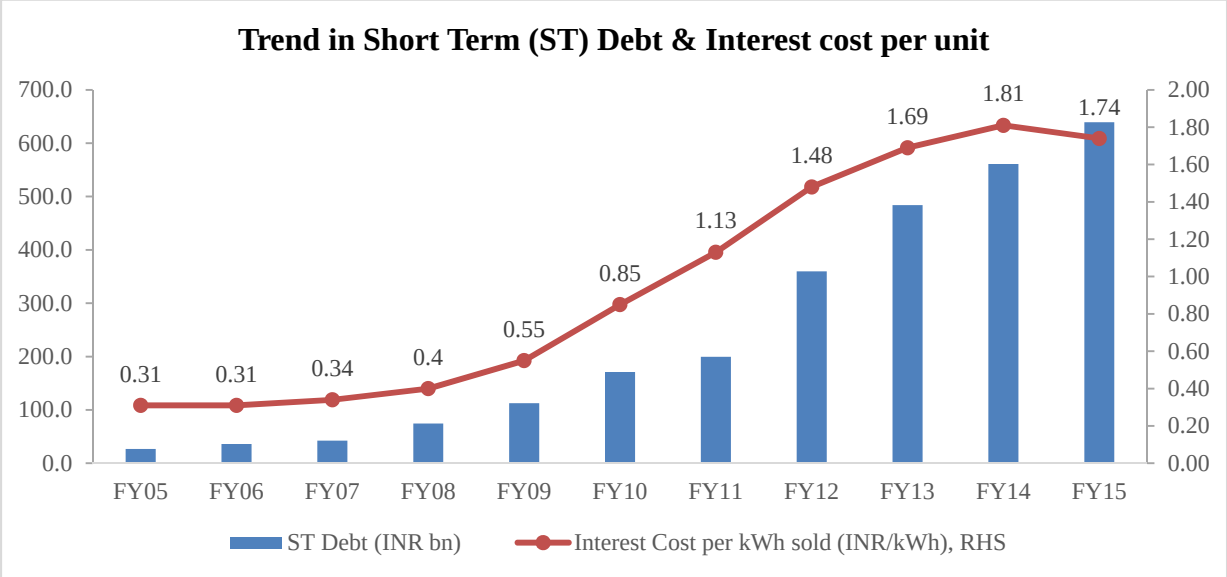


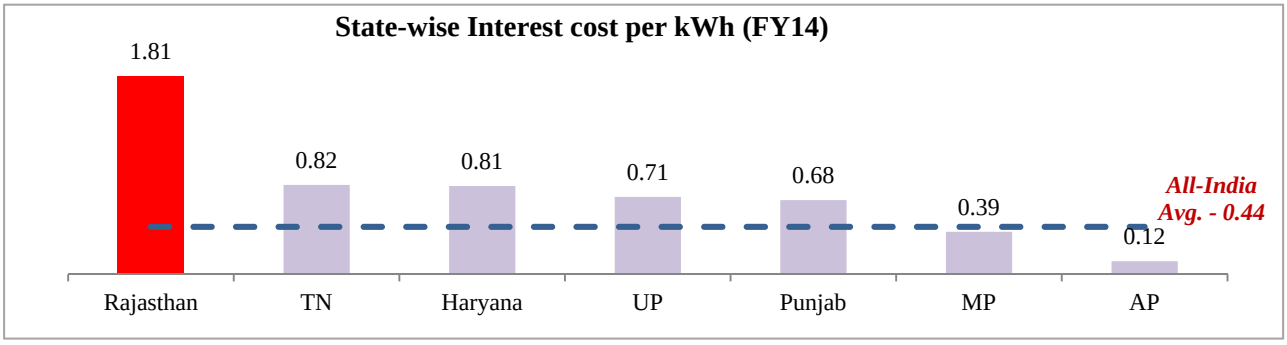
b. *Non-revision in tariffs*: This is one of the key reasons for the financial distress in case of Rajasthan DISCOMs. Tariffs were not revised for a period more than 6 years between 2005 and 2011 even though the costs increased by over 48 percent during this period. However, learning from the mistake Rajasthan DISCOMs have already received a tariff increase of 92.5 percent since FY12. The last tariff hike for FY15 was received in February 2015 and hence its full impact would only be factored in FY16 financial numbers.

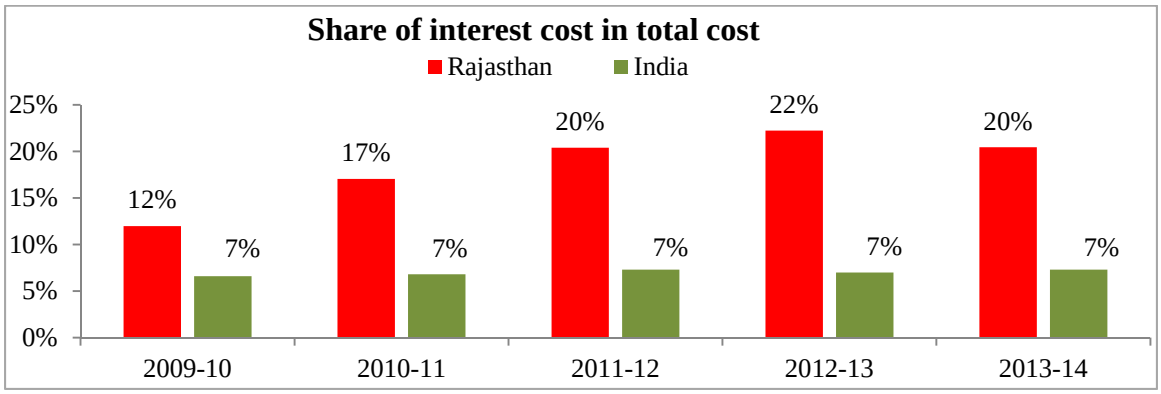


c. *High Interest Costs*: The DISCOMs have made substantial increase in borrowings especially short term (ST) borrowings to fund the rising revenue deficit. during 5 year period from FY 2010-15, approx. INR 470 billion were added from short term borrowings alone to fund revenue deficit of INR 635.20 billion incurred during this period, while during FY 2005-10, short term debts for approx. INR 140 billion only were added (the revenue deficit during this period was INR 130.20 billion only). During FY 2010-15, total borrowings increased by approx. 150 percent - outstanding total debt at end of FY15 stood at INR 810 billion, whereas it was only INR 214.04 billion at end of FY09. Increase in short term borrowings, resulted in sharp increase in cost of borrowings during FY 2010-15 (approx. 200 percent) in total interest cost – in FY10, the interest cost was INR 26.12 billion only, whereas it reached INR 80.45 billion in FY15. The interest cost per unit of energy sold also increased from INR 0.55 per unit in FY09 to INR 1.74 per unit in FY15. During FY14, the per unit interest cost was highest in case of Rajasthan DISCOMs in comparison to other states. There was approx. 230 percent increase in interest costs of Rajasthan DISCOMs during period FY09-14 itself due to substantial increase in short term loans to fund the revenue deficit. Similar conditions were also prevalent in other states, and during FY09-14, interest costs across states increased by approx. 100 percent with some states witnessing increase of over 300 percent (Haryana). Share of interest cost in total cost has been consistently high in case of Rajasthan (20 percent) in comparison to national average of only 7 percent.

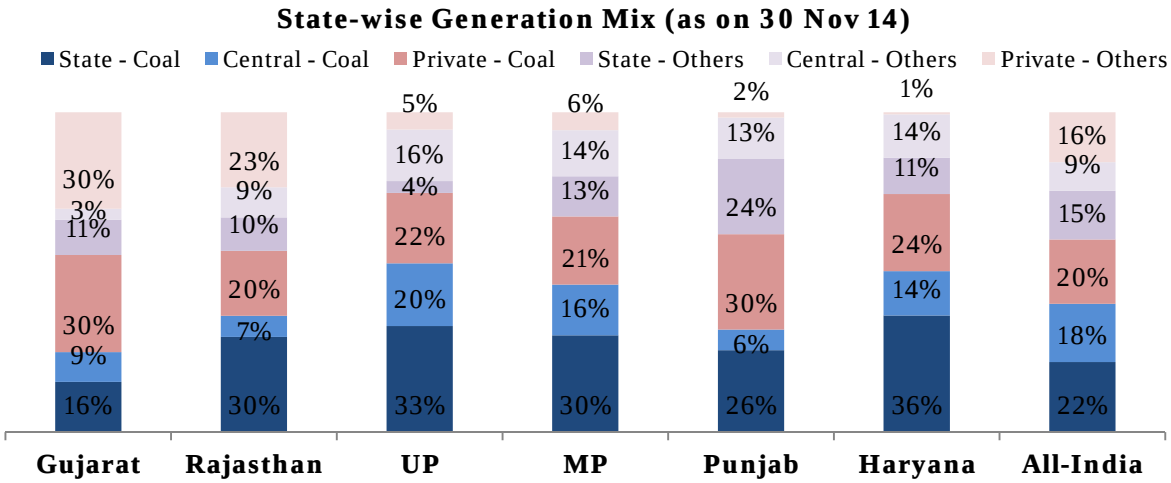

Trend in outstanding debt (INR bn)
900.0
800.0
700.0
600.0
500.0
400.0
300.0
200.0
100.0
0.0
214.0
328.1
425.3
507.8
639.4
727.0
810.0
112.5
171.1
199.6
359.8
483.9
561.0
639.2
101.5
157.0
225.7
148.0
155.5
166.0
170.7
FY09
FY10
FY11
FY12
FY13
FY14
FY15
LT Debt
ST Debt
Total Debt


Trend in Short Term (ST) Debt & Interest cost per unit
700.0
600.0
500.0
400.0
300.0
200.0
100.0
0.0
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
0.31
0.31
0.34
0.4
0.55
0.85
1.13
1.48
1.69
1.81
1.74
FY05
FY06
FY07
FY08
FY09
FY10
FY11
FY12
FY13
FY14
FY15
ST Debt (INR bn)
Interest Cost per kWh sold (INR/kWh), RHS

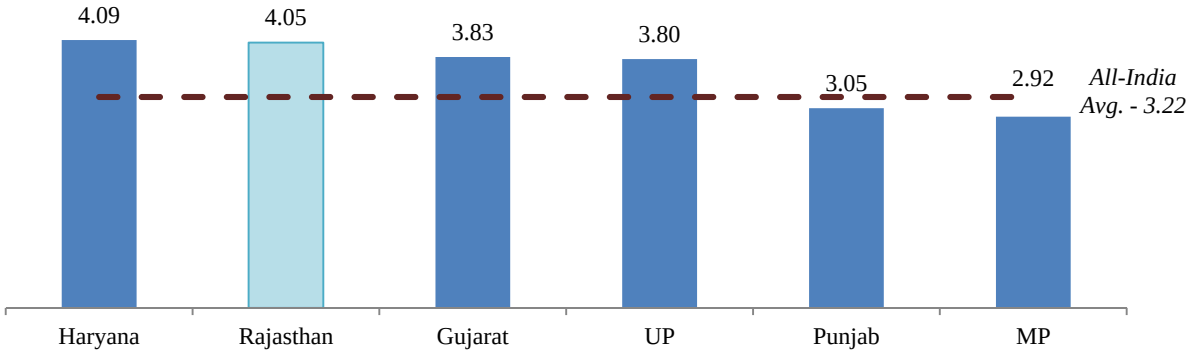

State-wise Interest cost per kWh (FY14)
1.81
0.82
0.81
0.71
0.68
0.39
0.12
All-India
Avg. - 0.44
Rajasthan
TN
Haryana
UP
Punjab
MP
AP



d. *High Input cost of Power*: Approx. 57 percent of Rajasthan's generation capacity is coal based thermal plants – considering lack of coal resources in Rajasthan, state has to transport coal from long distance involving high transportation and logistics cost. The average cost of coal transportation from source to State GENCO (RVUN) stations is INR 1.15 per unit (FY14). Power from cheap hydro sources constitute less than 10 percent of total generating mix, against some other states like Punjab (30 percent), Madhya Pradesh (23 percent), etc. and national average of 16 percent. Owing to above, Rajasthan DISCOMs have high power purchase costs (INR 4.05 per unit) as against national average of INR 3.22 per unit (FY14).



State-wise Avg. Power Purchase Rate in FY14 (INR/kWh)



7. All the above factors have contributed to the significant increase in the annual revenue deficit and the accumulated revenue deficit of the DISCOMs in Rajasthan. The DISCOMs are unable to meet costs; cost recovery is only 69 percent (FY15), which is quite low in comparison to other states like Gujarat (100 percent), Madhya Pradesh (99 percent), etc. as well as national average of 82 percent (FY14). It has increased from 51 percent (FY10) due to back to back tariff increases in FY12-FY14 and subsequently in FY15 (February 2015). The following table summarises the impact of costs on financial position of Rajasthan DISCOMs for period FY 2010-15:

(All figures in INR/kWh)

Particulars	FY10	FY11	FY12	FY13	FY14	FY15
A. Revenue (Incl. tariff subsidy & Non-Tariff Income)	**3.24**	**3.20**	**3.49**	**4.15**	**5.08**	**5.77**
B. Costs	**7.12**	**6.63**	**7.24**	**7.62**	**8.87**	**8.83**
Power purchase costs	5.31	4.45	4.58	4.91	5.81	5.92
Interest costs	0.85	1.13	1.48	1.69	1.81	1.74
Employee costs	0.80	0.67	0.82	0.69	0.68	0.63
Other O&M costs	0.11	0.11	0.11	0.14	0.14	0.15
Depreciation	0.16	0.18	0.18	0.18	0.21	0.31
Others costs	-0.11	0.09	0.07	0.00	0.22	0.08
Revenue deficit (before cash support)	**3.88**	**3.43**	**3.75**	**3.46**	**3.79**	**3.05**
Cash support (except tariff subsidy)	0.36	0.35	0.46	0.53	0.15	0.36
Revenue deficit (after cash support)	**3.51**	**3.08**	**3.28**	**2.93**	**3.65**	**2.70**
Cost Coverage (w/o cash support)	*46%*	*48%*	*48%*	*55%*	*57%*	*65%*

Particulars	FY10	FY11	FY12	FY13	FY14	FY15
Cost Coverage (with cash support)	*51%*	*54%*	*55%*	*62%*	*59%*	*69%*

II. FINANCIAL PROJECTIONS:

8. A detailed financial analysis has been undertaken to understand the impact of the State Government's reform program supported by the Bank, on the DISCOM financials and also on the state's fiscal health (discussed earlier in the section on macro-economic policy framework). The model uses the operating assumptions same as has been agreed for the MoU signed by the DISCOMs under UDAY and a sensitivity has been presented in Table 7 of this Annex. The assumptions used and the resulting impact on the financials is explained below:

Assumption:

Table 4: Operating assumption for the three DISCOMs combined

	FY15 (base year)	FY16	FY17	FY18	FY19	FY20	FY21	FY22
AT&C losses	27.2%	24.6%	20.1%	17.6%	15.0%	14.0%	13.5%	13.0%
Tariff increase (excluding agricultural tariff)	-*	16.3%*	10.0%#	8.0%#	0.0%	8.0%	5.0%	5.0%
Agricultural tariff increase	14.5%	6.0%	4.8%	0%	0.0%	4.8%	3.0%	3.0%
Increase in total Sales	7.9%	5.0%	7.1%	8.0%	9.0%	8.9%	9.8%	9.5%
Increase in average power purchase costs (incl. transmission charges)		3.2%	5.2%	5.2%	4.1%	7.6%	6.8%	5.3%

**=Tariff hike for year FY15 was effective from 1st Feb, 2015 and hence the majority of its impact was available only in FY16. Consequently, the hike has been shown only in FY16.*

#= Tariff hike for FY16 as filed by the DISCOMs is expected to be effective only by the end of the FY16 (expected end March) and hence, their effect is only seen in FY17 numbers and hence, the hike has been shown in FY17 in the table. Same logic has been used for FY18

i. *AT&C losses:* The model assumes, AT&C loss reduction trajectory agreed between the DISCOMs, GoR and GoI's Ministry of Power (MoP). The model assumes an aggressive reduction in AT&C losses from a base year FY15 value of 27.2 percent to 17.6 percent by FY18 and onto a normative value of 12.5 percent from year FY23 onwards. Sensitivity analysis on lower operational performance parameters has been presented at Table 7 of this Annex.

ii. *Debt restructuring program- UDAY:* GoI has come-up with a debt management plan for the distribution companies in order to relieve the DISCOMs of the high interest burden. While the details of the program are still being discussed between GoI and GoR, the model assumes the following:

a. 75 percent of the outstanding debt of the DISCOMs as on September 30, 2015 is taken over by GoR, 50 percent by 31st, March, 2016 and the rest 25 percent by 1st July, 2017. The model assumes that the debt taken over by the state will be passed on to the DISCOMs in the form of grant and

interest free loan to manage the revenue deficit of the state (net result on DISCOM books would be neutral);

b. 25 percent of the residual debt will be restructured into longer term maturities with an interest burden of 9.7 percent;
c. For the year FY16 and FY17, 100 percent of the OFR (or operating cash deficit) will be provided by GoR as interest free loan (although the state may defer some of the OFR support for FY16 to FY17 while ensuring that there would not be any new commercial borrowing)
d. Further, the model also assumes that cash support and loss support from GoR (as committed in the 2012 FRP) will be stopped from FY17 onwards. However, GoR would continue with re-imbursement of Electricity Duty collected by the DISCOMs.

iii. *Tariff revisions:* RERC had issued the last tariff revision order in February 2015 (with an average increase of ~16 percent in tariffs), full effect of which has been considered in FY16. Further, taking into account the difficulty of tariff revisions in short time frames the model assumes tariff revisions for FY16 as being effective only from March, 2016 and but underlying a conservative approach assumes the impact of the tariffs only from 1st April, 2016 and hence in FY17. Similarly, it assumes the impact of tariff increase for FY17 in FY18.

iv. The model also assumes modest tariff revisions for agricultural metered and un-metered sales at 60 percent of the rest of the revisions (based on historical trends in FY15 Tariff Order and FY16 tariff petition).

v. *Sales:* Based on the historical trends, the sales have been modelled for the three DISCOMs separately to account for the load growth and higher billing rates. Annual increase of sales is shown in the table above.

vi. *Power Purchase costs:* Based on demand projections for the three DISCOMs, plant wise availability from existing and new plants, and the merit order dispatch, power purchase costs have been modelled for each of the DISCOMs.

9. Results of Financial Analysis: The model outputs are shown in Table 6. The key results are:

1. Turnaround, as defined as when no OFR support will be required from GoR, can be expected in FY18, based on UDAY MoU assumptions. However, please refer to the sensitivity analysis at Table 7 of this annex for OFR support required in case of lower than expected performance on operational parameters.
2. Difference between ARR and ACS in FY18 will be reduced to INR 0.1/kWh vs. INR 3/kWh in FY15 (both numbers exclude revenue subsidy but include tariff subsidy) based on UDAY MoU assumptions.
3. Major benefit of the UDAY scheme is expected in FY17 while the full benefit of UDAY will be realized in FY18 when the 75 percent of the debt (outstanding as on 30th September, 2015) would be taken over by the state.
4. However, on the negative side, tariff subsidy burden on the state will continue to rise and is estimated to increase to INR 9.1 billion in FY18 and further to INR 13.7 billion by FY22 (from INR 7.5 billion in FY16) on account of rising sales in agriculture category which is expected to be subsidized by the GoR.

10. **Sensitivity Analysis:** While the numbers presented above are based on ATC loss reduction targets set by the DISCOMs for themselves under UDAY scheme and based on certain tariff assumptions, sensitivity analysis has also been conducted on these two key parameters (AT&C loss reduction and tariff assumptions) to understand a more pessimistic scenario. The key numbers and the trajectory are presented in Table 7.

11. As can be seen from Table 7, under a more pessimistic loss reduction scenario and lower tariff hike approvals by the regulator, the DISCOMs would incur an estimated loss of INR 24.6 billion (compared to FY15 loss of INR 124.8 billion) and still need loss financing support (OFR) from the State government estimated at INR 4.8 billion.

12. Further to the sensitivity analysis, a switching value analysis has also been conducted on the key parameters of AT&C losses and tariffs. As can be seen from the analysis in Table 8, in case the AT&C loss reduction trajectory is achieved, the need for a tariff revision in FY18 will be minimal (~1 percent) to ensure that no OFR support from state is required. However, in the scenario that the DISCOMs are not able to achieve AT&C loss reduction targets, a 6 percent tariff revision would be required to maintain zero OFR support level. This analysis is based on the cost assumptions as presented under UDAY MoU. Similarly, in case the tariff revisions that DISCOMs may receive are lower at 6 percent and 4 percent in FY17 and FY18 respectively, the DISCOMs AT&C losses reduction will need to follow a trajectory that leads to AT&C loss levels of 19.7 percent vs. FY15 base case of 27.2 percent but vs. FY18 base case target of 17.6 percent.

Table 6: Summary Financial Projections for the Three DISCOMs combined (Figures in INR million)								
Analysis	**FY15**	**FY16E**	**FY17E**	**FY18E**	**FY19E**	**FY20E**	**FY21E**	**FY22E**
Revenue (including tariff subsidy and non-tariff income)	266,877	316,282	365,299	418,581	455,166	529,344	605,164	691,357
Revenue subsidy	16,477	19,441	15,851	17,066	18,634	20,455	22,457	24,751
Total Costs	283,354	335,723	381,150	435,647	473,800	549,798	627,621	716,108
Power Purchase costs	*273,854*	*282,822*	*299,949*	*327,539*	*358,937*	*415,866*	*485,009*	*554,934*
Employee costs	*29,181*	*30,253*	*37,671*	*37,159*	*39,308*	*41,671*	*44,268*	*47,121*
O&M and other costs	*5,173*	*5,690*	*6,259*	*6,885*	*7,573*	*8,331*	*9,164*	*10,080*
EBITDA	**(24,854)**	**16,958**	**37,272**	**64,064**	**67,981**	**83,931**	**89,181**	**103,972**
Depreciation	14,215	15,562	16,858	17,586	18,117	18,701	19,344	20,051
Interest costs	82,000	96,507	36,837	32,281	34,923	37,663	39,900	40,765
Profit Before Tax (PBT)	(124,736)	(96,111)	(17,474)	13,095	13,784	26,351	28,661	41,816
Tariff subsidy received	58,957	75,000	82,630	91,022	97,700	109,485	119,113	136,289
Energy Input (after transmission losses) (MUs)	67,673	67,720	68,278	70,848	74,602	80,322	87,681	95,235
Sales (MUs)	46,238	48,533	51,821	55,450	60,193	65,502	71,843	78,631
ARR (INR/kWh)	5.8	6.5	7.0	7.5	7.6	8.1	8.4	8.8
ARR (INR/kWh) including revenue subsidy	6.1	6.9	7.4	7.9	7.9	8.4	8.7	9.1
ACS (INR/kWh)	8.7	8.9	7.7	7.6	7.6	8.0	8.3	8.6

Table 7: Sensitivity Analysis on Key Operational Parameters

Sensitivity Parameter				Distribution losses			Non-agriculture tariff increases (shown as per year of application)			Distribution loss trajectory and tariffs (non-agriculture) hike scenario taken together		
				FY16	FY17	FY18	FY16	FY17	FY18			
Base case trajectory				24.6%	20.1%	17.6%	16%	10%	8%	Same as in the previous columns		
Trajectory for sensitivity				26.2%	24.2%	21.2%	16%	8%	4%	Same as in the previous columns		
	Numbers under base case			Numbers under various sensitivity scenario								
INR million	**FY16**	**FY17**	**FY18**	**FY16**	**FY17**	**FY18**	**FY16**	**FY17**	**FY18**	**FY16**	**FY17**	**FY18**
EBITDA	16,958	37,272	64,064	11,375	24,250	51,943	16,958	26,171	38,523	11,375	13,149	26,401
PBT	(96,111)	(17,474)	13,095	(101,693)	(30,495)	974	(96,111)	(28,574)	(12,446)	(101,693)	(41,596)	(24,568)
Gross OFR + loss/cash support	131,392	13,203	0	136,975	26,225	0	131,392	22,871	0	136,975	35,893	4,784

Table 8: Switching Value Analysis - on FY18 numbers at which OFR support required from GoR would be nil

Parameters	FY18 base case	Switching values
FY18 Tariff revision (while assuming base case distribution loss reduction trajectory and 6% tariff revision in FY17)*	8.0%	1.0%
FY18 Tariff revision (while assuming distribution losses as 26.2%, 24.2% and 21.2% in FY16, FY17, FY18 and FY17 tariff revision as 6%)*	8.0%	6.0%
FY18 AT&C losses (Assuming tariff revision of 6% and 4% effective in FY17 & FY18)*	17.6%	19.7%

** all tariff hikes are as per year of effectiveness*