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INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROGRAM DOCUMENT

FOR A PROPOSED LOAN

IN THE AMOUNT OF US\$250 MILLION

TO THE

REPUBLIC OF INDIA

FOR THE

SECOND PROGRAMMATIC ELECTRICITY DISTRIBUTION REFORM DEVELOPMENT
POLICY LOAN FOR RAJASTHAN

June 05, 2018

Energy and Extractives Global Practice
South Asia Region

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INDIA GOVERNMENT FISCAL YEAR

April 1–March 31

CURRENCY EQUIVALENTS

(Exchange Rate Effective as of April 20, 2018)

Currency Unit

INR 66 = US\$1.00

ABBREVIATIONS AND ACRONYMS

ACoS	Average Cost of Supply
AGM	Annual General Meeting
AMI	Advanced Metering Infrastructure
AMR	Automatic Meter Reading
ARR	Average Revenue Realized
AT&C Loss	Aggregate Technical and Commercial Loss
AVVNL	Ajmer DISCOM or Ajmer Vidyut Vitran Nigam Ltd.
BoD	Board of Directors
BPL	Below Poverty Line
CAD	Current Account Deficit
CGFA	Corporate Governance and Financial Accountability
CMD	Chairman and Managing Director
CPS	Country Partnership Strategy
CPSU	Central Public Sector Undertaking
DBTE	Direct Benefit Transfer of Electricity
DELP	Domestic Efficient Lighting Program
DFID	U.K. Department for International Development
DISCOM	Distribution Companies
DPL	Development Policy Loan
DT	Distribution Transformer
EBITDA	Earnings before Interest, Taxes, Depreciation, and Amortization
EPI	Employee Performance Incentive
ERP	Enterprise Resource Planning
FDI	Foreign Direct Investment
FRBM	Fiscal Responsibility and Budget Management
FRP	Financial Restructuring Plan
FY	Fiscal Year
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GoI	Government of India (Central Government)
GoR	Government of Rajasthan
GSDP	Gross State Domestic Product
GST	Goods and Services Tax
HH	Household
IMF	International Monetary Fund

IT	Information Technology
JdVVNL	Jodhpur DISCOM or Jodhpur Vidyut Vitran Nigam Ltd.
JVVNL	Jaipur DISCOM or Jaipur Vidyut Vitran Nigam Ltd.
KPI	Key Performance Indicator
LED	Light Emitting Diode
MD	Managing Director
MDB	Multilateral Bank
MoU	Memorandum of Understanding
MU	Million Units
OFR	Operating Financial Requirement
O&M	Operations and Maintenance
PBT	Profit before Tax
PFA	Power for All
PFM	Public Financial Management
PPA	Power Purchase Agreement
PSB	Public Sector Bank
PSIA	Poverty and Social Impact Assessment
R-APDRP	Restructured-Accelerated Power Development and Reform Program
RBI	Reserve Bank of India (Central Bank)
RERC	Rajasthan Electricity Regulatory Commission
RSPCB	Rajasthan State Pollution Control Board
RSEDMR Act	Rajasthan State Electricity Distribution Management Responsibility Act
RUVNL	Rajasthan Energy Development Corporation Ltd. or Rajasthan Urja Vikas Nigam Ltd.
RVUNL	Rajasthan Vidyut Utpadan Nigam Ltd
SCADA	Supervisory Control and Data Acquisition
SDL	State Development Loan
SLR	Statutory Liquidity Ratio
UDAY	Ujwal DISCOM Assurance Yojana (Program for the Financial Turnaround of DISCOMs)
VAT	Value Added Tax

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REPUBLIC OF INDIA
SECOND PROGRAMMATIC ELECTRICITY DISTRIBUTION REFORM DEVELOPMENT
POLICY LOAN FOR RAJASTHAN

TABLE OF CONTENTS

ABBREVIATIONS AND ACRONYMS	ii
SUMMARY OF PROPOSED LOAN AND PROGRAM	vi
1. INTRODUCTION: COUNTRY AND STATE CONTEXT (INCLUDING POVERTY DEVELOPMENTS)	1
2. MACROECONOMIC POLICY FRAMEWORK	3
2.1 RECENT ECONOMIC DEVELOPMENTS AND OUTLOOK.....	3
2.2 MACROECONOMIC OUTLOOK AND DEBT SUSTAINABILITY	8
2.3 INTERGOVERNMENTAL RELATIONS.....	14
3. THE GOVERNMENT OF RAJASTHAN’S PROGRAM.....	15
4. THE PROPOSED OPERATION	15
4.1 LINK TO GOVERNMENT OF RAJASTHAN PROGRAM AND OPERATION DESCRIPTION	15
4.2 PRIOR ACTIONS, RESULTS, AND ANALYTICAL UNDERPINNINGS.....	17
4.3 LINK TO CPS, OTHER BANK OPERATIONS AND THE WBG STRATEGY.....	33
4.4 CONSULTATIONS, COLLABORATION WITH DEVELOPMENT PARTNERS.....	33
5. OTHER DESIGN AND APPRAISAL ISSUES	34
5.1 POVERTY AND SOCIAL IMPACT	34
5.2 ENVIRONMENTAL ASPECTS.....	38
5.3 PFM, DISBURSEMENT, AND AUDITING ASPECTS	39
5.4 MONITORING, EVALUATION, AND ACCOUNTABILITY.....	40
6. SUMMARY OF RISKS AND MITIGATION	41
ANNEX 1: POLICY AND RESULTS MATRIX.....	44
ANNEX 2: LETTER OF DEVELOPMENT POLICY	46
ANNEX 3: FUND RELATIONS.....	53
ANNEX 4: ENVIRONMENT AND POVERTY/ SOCIAL ANALYSIS TABLE.....	59
ANNEX 5: MACROECONOMIC ANALYSIS: ASSUMPTIONS.....	61
ANNEX 6: MACROECONOMIC ANALYSIS: STATISTICAL TABLES AND SENSITIVITY ANALYSIS	63
ANNEX 7: POVERTY AND SOCIAL IMPACT ANALYSIS	67
ANNEX 8: OPERATIONAL AND FINANCIAL PERFORMANCE OF DISCOMS IN RAJASTHAN	76

ANNEX 9: FISCAL DEVELOPMENT IN RAJASTHAN DURING THE LAST DECADE.....	84
ANNEX 10: PROGRESS AGAINST THE RESULTS INDICATORS FROM THE FIRST PROGRAMMATIC ELECTRICITY DISTRIBUTION REFORM DPL FOR RAJASTHAN.....	86
ANNEX 11: KEY FEATURES OF UDAY AND RSEDMR ACT.....	88

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SUMMARY OF PROPOSED LOAN AND PROGRAM

REPUBLIC OF INDIA

SECOND 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	Second in a series of two single-tranche programmatic development policy operations.
Pillars of the Operation And Program Development Objective(s)	The proposed second operation of the program will continue to support the GoR's program for the turnaround of the distribution sector in Rajasthan under the 24x7 Power for All program. The Program Development Objectives are to support the turnaround of the electricity distribution sector in Rajasthan, by (a) strengthening the governance framework, (b) enhancing policies to restructure its finances, and (c) improving its operational performance.
Result Indicators	<ol style="list-style-type: none"> 1. Incentive for Performance during FY: Baseline: 0 in FY15 Target: Incentive for performance in FY19 disbursed (by September 2019) 2. Date of availability of audited annual accounts Baseline: December 31, 2015 (with a three-month delay) Target: September 30, 2019 (with zero-month delay) 3. Annual loss of DISCOMs to be taken over and funded by the State, as provided under UDAY Program Baseline: 0 in FY15 Target: 10% in FY19 4. Gap between Average Cost of Supply (ACoS) and Average Revenue Realised (ARR) Baseline: INR 3.00/kWh in FY15 Target: INR 0.70/kWh in FY19 5. Aggregate Technical and Commercial (AT&C) losses (%) Baseline: 29.5% in FY15 Target: 17% that is, reduction of 12.5 percentage points over baseline by FY19 6. Number of consumers put on pre-paid/ Automatic Meter Reading (AMR)/ Advanced Metering Infrastructure (AMI) meters Baseline: 0 in FY15 Target: 100,000 by September 2019 7. Number of LED lamps distributed Baseline: 0 in FY15 Target: 16,000,000 by September 2019 8. Percentage of positions filled in IT cadre in DISCOMs Baseline: 0 in FY15 Target: 75% by September 2019 (with gender disaggregated data and target of 15% share of females in filled up positions) 9. Number of unelectrified Households in State Baseline: 21,82,180 (as of October 10, 2017) Target: 7,50,000 by September 2019
Overall risk rating	Substantial
Operation ID	P159669

**IBRD PROGRAM DOCUMENT FOR A
PROPOSED SECOND PROGRAMMATIC ELECTRICITY DISTRIBUTION REFORM
DEVELOPMENT POLICY LOAN (DPL) FOR RAJASTHAN**

TO THE REPUBLIC OF INDIA

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

1. **This operation is the second in a series of two Development Policy Loans (DPLs) that supports the Government of Rajasthan (GoR)’s program for the turnaround of the distribution sector in Rajasthan under the 24x7 Power for All (PFA) program.** The program of the DPL series is aligned to the broader reform program —developed by the Government of India (GoI) and the state government—to improve the performance of the electricity distribution companies (DISCOMs) of Rajasthan. It will contribute to the state’s fiscal sustainability and the objectives of the 24x7 PFA initiative, which aspires to provide continuous, reliable power supply to all households (HHs) in Rajasthan by 2019.

2. **The operation supports the Government’s efforts to create a financially sustainable and commercially oriented electricity distribution sector.** The program will improve the credit worthiness of DISCOMs to support the Government’s goal of providing electricity access to all HHs, improve service delivery, and enable private investment of renewable energy.¹ At the same time, the state is also committed to ensure that reforms do not have an adverse impact on the below poverty line (BPL) consumers with limited monthly consumption by providing lifeline subsidized tariffs and energy efficient light bulbs.² Reduction in losses and improving the financial position of DISCOMs and investments in the sector will enable DISCOMs to increase access to electricity among the remaining unconnected HHs as well as provide round-the-clock quality power to all consumers.

3. **India has been one of the world’s fastest-growing large economies in a weak global environment.** In the past three decades, per capita incomes have quadrupled, illiteracy rates have tumbled, and health conditions have improved. Alongside the growth, the pace of poverty reduction accelerated threefold in 2005–12, relative to the previous decade, and India halved the share of the population in extreme poverty from 45 percent in 1994 to 22 percent in 2012. Based on the US\$1.90 per person a day line (in 2011 purchasing power parity [PPP]), India lifted more than 160 million people out of poverty in recent years.

4. **During the previous decade, Rajasthan’s economy grew at 7.9 percent and poverty declined faster than the national average.** Rajasthan is the eighth most populous state and the seventh largest state economy in the country. Despite large desert expanses, its economy grew faster than the national average and registered an annualized growth rate of 7.9 percent during

¹ DISCOMs are the main buyers of power from renewable energy.

² This reform initiative is also supplemented by the proposed India: Energy Efficiency Scale-up Program (P162849), a Program for Results project that has significant focus on distribution of energy efficient LED lamps nationally.

FY05–FY15, above the national growth of 7.6 percent.³ Economic growth was much more effective at reducing poverty in Rajasthan than at the national level during 2005–2012. The state’s poverty rate⁴ declined by 19.7 percentage points, from 34.4 percent to 14.7 percent between 2005 and 2012, while the national poverty rate declined by 15.3 percentage points 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).

5. The electricity sector in Rajasthan has expanded and improved over time, but was facing serious financial challenges in 2015 that threatened the sustainability of supply, going forward. The financial distress facing DISCOMs in Rajasthan in FY15 was not unique, though the state’s DISCOMs had the highest amount of debt among all of India’s DISCOMs.⁵ With a view to finding a sustainable solution to DISCOMs’ financial troubles, the GoI announced a financial restructuring and operational improvements plan in November 2015—UDAY or the Ujwal DISCOM Assurance Yojana— for DISCOMs.

6. The UDAY scheme aims to achieve long-term financial sustainability by addressing the source of DISCOM losses, which are largely operational. The UDAY scheme is centered around four initiatives: (a) improvement in operational efficiencies, including reduction of losses and revenue requirement adjustments; (b) reduction of power generation costs through the optimization of fuel logistics and pricing, as well as transparent competitive bidding; (c) reduction in interest cost of DISCOMs by requiring state governments to absorb and restructure about 75 percent of DISCOMs’ debt through longer-term and lower-cost bonds; and (d) enforcing fiscal discipline by converting the previously implicit liabilities to explicit liabilities of the state and financing DISCOM deficits by the states, while restricting further lending by financial institutions to finance DISCOM losses. To ensure that the incentives of the states and DISCOMs are aligned, UDAY anticipates that, from FY18, losses of DISCOM’s will be explicitly absorbed by the state’s budget (on a sliding scale) without further accommodation by the central government on the limits set in the Fiscal Responsibility and Budget Management (FRBM) Law (3 percent of Gross State Domestic Product [GSDP]).

7. The proposed operation builds upon UDAY and focuses on deepening the institutional and operational reforms launched in late 2015 or early 2016, and supported by the previous operation in the series. The reform program of the GoR and DISCOMs in the state is centered on two key frameworks: (a) UDAY, which Rajasthan joined in January 2016; and (b) the Rajasthan State Electricity Distribution Management Responsibility (RSEDMR) Act, enacted in March 2016, which aims to reform the governance of DISCOMs and brings more public accountability to DISCOMs and hence to the sector. The DPL program establishes the main building blocks of legislative, financial, and institutional actions to support the turnaround of the electricity distribution sector through (a) strengthening the governance framework of the state-owned utilities, (b) enhancing policies to restructure the finances of the electricity distribution sector, and (c) establishing operational performance criteria, financial conditions, and management incentives for the sustainable financial recovery of the sector. This operation contributes to (a) reversing the financial deterioration of the utilities; (b) increasing access to electricity and

³ For comparison, all-India gross domestic product (GDP) growth has been calculated using the 2004–05 series.

⁴ Poverty measured using the Tendulkar poverty line.

⁵ Across India, DISCOMs were 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.

improving services and (c) to achieving long-term reliability of electric power supply, with improved energy efficiency and its associated climate benefits.

8. **The proposed operation faces substantial risks.** Reforms of state power sector DISCOMs are often difficult because of the broad social and economic reach of electric power supply, combined with financial sensitivity, and significant future costs uncertainty. These risks are mitigated by the demonstrated commitment of the central and the state governments, as evidenced by their efforts to increase managerial and public accountability and detailed monitoring of the sector. Still, the largely state ownership of DISCOMs in Rajasthan implies that a sustained political will to follow through with the implementation of reforms, over the medium to long term, will be indispensable to maintain performance improvements and to restore financial sustainability.

2. MACROECONOMIC POLICY FRAMEWORK⁶

2.1 RECENT ECONOMIC DEVELOPMENTS AND OUTLOOK

Recent National Developments

9. **Economic growth slowed into FY17/18,⁷ but already shows signs of recovery.** One-time policy events—disruptions from demonetization in November 2016 and the administrative challenges of introducing the Goods and Services Tax (GST) in July 2017—slowed India’s economic momentum. Real GDP growth slowed to 7.1 percent in FY16/17 from 8 percent in FY15/16, and further to 5.7 percent in Q1 FY17/18, but picked up to 6.3 percent in Q2. Construction, real estate, and manufacturing were particularly affected by both policy events. Manufacturing production decelerated sharply pre-GST as producers ran down inventories, but recovered in Q2.⁸ Public and private consumption gained pace due to the implementation of the 7th central pay commission recommendations which increased salaries of civil servants and a revival in rural demand after a normal monsoon in FY16/17, but overall demand slowed as the earlier push to public investments started to wane and private investment remained feeble.

10. **Inflation has remained in check** and averaged 4.5 percent in FY16/17, slowing further in FY17/18. Subdued inflation was helped earlier by weak global commodity prices and more recently by slowing domestic demand and modest increases in domestic food prices due to two years of normal monsoons and moderate adjustments to administered prices. Further contributing to stable inflation, in FY16/17, the Reserve Bank of India (RBI) adopted an inflation target of 4 (+/-2) percent and established a monetary policy committee, boosting its credibility. Inflation has since moderated to an average 4.1 percent.

11. **External accounts are robust.** The current account deficit (CAD) narrowed significantly in recent years from 2.7 percent in FY13/14 to 0.7 percent in FY16/17. The trade deficit narrowed initially because of the oil price decline (the decline of the price of crude oil represented a large,

⁶ This information and analysis under this section is accurate as of December 15, 2017. Subsequent developments between that date and April 15, 2018 have not materially changed the macroeconomic framework.

⁷ FY17/18 refers to the fiscal year ending March 31, 2018, and so on.

⁸ Producers delayed purchasing new inputs since inventory before July 1 was not eligible for input tax credits under the GST regime.

positive terms-of-trade shock for India), but was supported later by a gradual recovery in merchandise exports. Capital flows significantly gained momentum in FY16/17, and foreign direct investment (FDI) comfortably exceeded the CAD by 1.3 percentage points of GDP. Foreign reserves rose to US\$386 billion or 8.5 months of imports. The Indian rupee appreciated by 5 percent in 2017, partly due to U.S. dollar weakening but also reflecting India's solid macroeconomic fundamentals.

12. Debt and deficit levels are relatively high, but the GoI has been on a path of fiscal consolidation and the deficit is comfortably financed from domestic sources. The fiscal deficit of the Central Government has declined consistently from a recent peak of 5.8 percent of GDP in FY11/12 to 3.5 percent of GDP in FY16/17; in the same period, the deficit of the general government declined from 8.1 percent of GDP to 6.0 percent of GDP. The reduction in the general government deficit was therefore driven by efforts at the Central Government and achieved primarily by boosting revenues, which increased between FY11/12 to FY16/17 by over 2 percentage points of GDP, helped by additional revenues from higher taxes on petroleum products, as well as service tax. The average increase in expenditures over the same period was only 0.2 percentage points of GDP, partly owing to a rationalizing of energy subsidies. The GoI implemented a major indirect tax reform by introducing GST in July 2017—in the medium term this is expected to improve tax compliance, broaden the tax base, and support interstate trade. Despite fiscal consolidation, relatively high deficits and the materialization of contingent liabilities, including from the power sector, led the debt-to-GDP ratio to edge up modestly from 68.1 percent in FY11/12 to 69.2 percent in FY16/17. Government deficits are financed overwhelmingly from domestic sources. Foreign borrowing by the Government is restricted to multilateral and bilateral loans, and foreign ownership of domestic debt is limited at less than 5 percent of the total outstanding.

Table 1. India: Selected Economic Indicators, FY13/14–FY19/20

Key Macroeconomic Indicators	FY14	FY15	FY16	FY17	FY18	FY19	FY20
	Act.	Act.	Act.	Act.	Est.	Est.	Est.
Real Economy	(Annual percentage change, unless otherwise indicated)						
Nominal GDP (local currency)	13.0	10.8	9.9	11.0	11.2	12.1	12.6
Real GDP	6.4	7.5	8.0	7.1	7.0	7.3	7.4
Per capita GDP (in US\$, Atlas Method)	1,520	1,560	1,600	1,680	..	..	..
Contributions to growth	(Percentage points)						
Consumption	4.2	4.5	3.8	6.8	6.2	5.7	5.5
Investment	0.5	1.1	2.1	0.7	0.8	1.5	1.9
Net exports	4.5	0.2	0.2	0.4	0.0	0.1	0.1
Unemployment rate	3.6	3.5	3.5	3.5	..	..	..
GDP deflator	6.2	3.1	1.8	3.6	4.4	4.8	4.7
Consumer Price Index (CPI) (average)	9.4	6.0	4.9	4.5	4.0	4.0	4.0
Fiscal Accounts (General Government)	(Percent of GDP)						
Revenues and grants	19.6	19.2	20.5	21.4	21.5	21.7	21.9
Expenditures and net lending	26.0	26.1	27.2	27.4	27.4	27.5	27.5
Overall balance	-6.5	-6.9	-6.8	-6.0	-5.9	-5.8	-5.6
Public debt	68.5	67.9	69.8	69.2	68.5	67.2	65.6
Selected Monetary Accounts	(Annual percentage change, unless otherwise indicated)						

Key Macroeconomic Indicators	FY14	FY15	FY16	FY17	FY18	FY19	FY20
	Act.	Act.	Act.	Act.	Est.	Est.	Est.
Base money	9.3	10.5	10.7	9.0	..	..	..
Credit to nongovernment	15.2	12.2	9.7	10.1	..	..	..
Interest rate (repo rate, period average)	7.5	8.0	7.2	6.5	..	..	..
Balance of Payments	(Percent of GDP, unless otherwise indicated)						
Current account balance	-2.7	-1.3	-1.1	-0.7	-0.9	-1.2	-1.4
Imports	30.2	27.2	23.3	20.9	20.6	20.3	20.1
Exports	25.2	23.8	20.3	19.0	20.0	19.7	19.6
FDI (net)	1.5	1.7	2.1	2.0	2.1	2.3	2.4
Gross reserves (in US\$, billion, eop)	304.2	341.6	360.2	370.0	385.0	410.0	430.0
In months of next year's imports	6.6	8.6	8.9	8.5	8.1	7.8	7.4
As % of short-term external debt	1.7	1.8	1.9	1.8	1.8	1.7	1.6
External debt	23.9	23.9	23.5	22.9	22.7	22.5	22.3
Terms of trade (FY2000 = 100)	60.0	58.0	72.0	..	..	..	..
Exchange rate (INR per US\$1, average)	58.5	61.0	64.1	67.2	64.4	64.4	64.4
Other Memo Items							
Nominal GDP in US\$ (billions)	1,856.7	2,035.4	2,111.8	2,263.5	2,539.8	2,834.0	3,176.7
Nominal GDP in INR (trillions)	112.3	124.4	136.8	151.8	169.2	189.7	213.6

Note: Act. = Actual; Est. = Estimate; eop = End of period.

Table 2. India: Selected Fiscal Indicators, FY13/14–FY19/20

Key Fiscal Indicators	FY14	FY15	FY16	FY17	FY18	FY19	FY20
	Act.	Act.	Act.	Act.	Budget	Proj.	Proj.
Central Government	(Percent of GDP)						
Overall balance	-4.5	-4.1	-3.8	-3.5	-3.2	-3.0	-3.0
Primary balance	-1.0	-0.7	-0.5	-0.3	-0.1	..	..
<i>Total Revenues (and grants)</i>	<i>12.3</i>	<i>12.0</i>	<i>13.0</i>	<i>13.9</i>	<i>13.6</i>	..	..
Tax revenues	10.1	10.0	10.6	11.3	11.3	..	..
Taxes on goods and services	2.9	2.9	3.6	4.2	4.0	..	..
Taxes on income and profits	5.6	5.5	5.4	5.6	5.8	..	..
Taxes on international trade	1.5	1.5	1.5	1.4	1.5	..	..
Other taxes	0.1	0.1	0.1	0.0	0.0	..	..
Nontax revenues	2.0	1.9	2.1	2.5	2.1	..	..
Recoveries of loans	0.1	0.1	0.2	0.1	0.1	..	..
<i>Expenditures</i>	<i>16.8</i>	<i>16.1</i>	<i>16.8</i>	<i>17.4</i>	<i>16.8</i>	..	..
Current expenditures	15.1	14.5	15.0	15.6	15.0	..	..
Interest payments	3.5	3.4	3.3	3.2	3.1	..	..
Others (salaries, supplies, and so on)	8.7	8.4	7.9	8.3	7.8	..	..
Transfers to states (including tax devolution)	2.9	2.7	3.7	4.1	4.1	..	..
Capital expenditures	1.7	1.6	1.8	1.9	1.8	..	..
<i>Central Government Financing</i>	<i>4.5</i>	<i>4.1</i>	<i>3.8</i>	<i>3.5</i>	<i>3.2</i>	<i>3.0</i>	<i>3.0</i>
External (net)	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Domestic (net)	4.4	4.0	3.7	3.4	3.2	2.9	2.9
States' Governments	(Percent of GDP)						
Overall balance	-2.2	-2.6	-3.6	-3.0	..	..	..

Key Fiscal Indicators	FY14	FY15	FY16	FY17	FY18	FY19	FY20
	Act.	Act.	Act.	Act.	Budget	Proj.	Proj.
Revenues	12.2	12.8	14.3	14.9	..	..	..
Expenditures and net lending	14.4	15.4	17.9	17.8	..	..	..
Public Debt	(Percent of GDP)						
Central Government	52.2	51.5	51.9	50.3	48.3	46.4	44.5
General Government	68.5	67.9	70.0	69.2	68.5	67.2	65.6

Recent Fiscal Developments in the State of Rajasthan

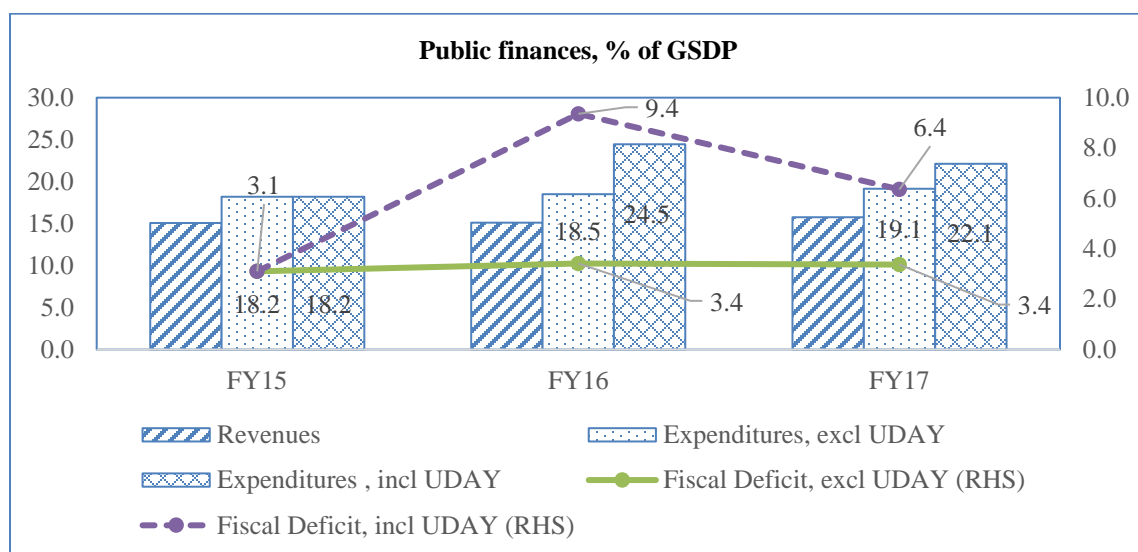
13. **The deterioration in Rajasthan’s finances since FY12 is due to higher spending on the power sector**, which exceeded growth in own-tax revenues and petroleum royalties (refer to annex 9 for details on finances in last decade). DISCOMs receive several forms of financial support from the state government including (a) subsidies for supply of power to the agricultural sector, (b) interest subsidies, (c) equity support for capital investments, and (d) occasional financial bailouts and rebalancing of their debt-equity ratios. An attempt to restructure the debt of DISCOMs took place in 2012 wherein the state government took over a part of outstanding liabilities of DISCOMs, thereby reducing their expenditures on debt servicing and overall losses.⁹ The state gradually transferred these liabilities 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 1.9 percent of GSDP during FY12/13–FY14/15 (2.0 percent in FY14/15), from 1.0 percent during FY09/10–FY11/12. Despite support in the form of equity, loans, and subsidies, DISCOMs continued to accumulate losses, because the financial restructuring was not accompanied by clear performance indicators and managerial accountability reforms.

14. **Rajasthan joined the UDAY scheme of the GoI to relieve the financial distress of DISCOMs.** Under UDAY, in FY15/16 and FY16/17, the state government took over 75 percent of DISCOMs’ liabilities outstanding as of September 30, 2015 (which total INR 805 billion or 9.0 percent of GSDP). This was accomplished through a transfer from the state to the DISCOMs of an amount equivalent to 50 percent of the total debt in FY15/16 (INR 405 billion or 6 percent of GSDP) and 25 percent in FY16/17 (INR 224 billion or 3 percent of GSDP). Under the UDAY scheme, the debt taken over by the state of Rajasthan is excluded from the calculation of fiscal deficit in FY15/16 and FY16/17 for the purposes of its FRBM targets—allowing the state to increase its borrowing authorization and maintain current levels of capital and social expenditures.¹⁰

⁹ The Financial Restructuring Plan (FRP) announced in 2012 allowed state governments to take over 50 percent of outstanding short-term liabilities of DISCOMs. In Rajasthan, this amounted to INR 180 billion (3.8 percent of GSDP or approximately US\$3 billion) in March 2012

¹⁰ According to the UDAY scheme, states will issue non-Statutory Liquidity Ratio (SLR) bonds (State Development Loan [SDL]) with a maturity period of 10–15 years with a moratorium on principal up to 5 years. 10-year bond pricing: 7.92 percent (according to the last RBI auction of SDL securities + 0.25 percent spread for non-SLR status on semiannual compounding basis

Figure 1. Trend in Public Finances



15. **Rajasthan’s fiscal indicators continued to deteriorate in FY15/16 and FY16/17, largely due to the implementation of UDAY.** The GoR’s fiscal deficit increased to 9.4 percent of GSDP in FY15/16 and 6.4 percent in FY16/17 due to the debt takeover under UDAY (refer figure 1). Rajasthan’s fiscal deficit excluding UDAY also exceeded the FRBM target of 3 percent of GSDP in both years—at 3.4 percent of GSDP in FY15/16 and FY16/17. In FY15/16, a higher allocation for relief from natural disasters and agriculture (as the state faced a second year of drought)—was largely responsible for the breach. Moreover, petroleum royalties came in below budgeted expectations as oil prices remained low. Support to the power sector excluding UDAY remained high at 2 percent of GDP in FY14/15–FY15/16, but declined subsequently to 1.1 percent in FY16/17. In FY16/17 the breach was sustained almost entirely due to a 0.6 percent of GSDP increase in the state’s interest burden (from 1.8 percent in FY15/16 to 2.4 percent in FY16/17), arising out of a sharp rise in total debt obligations from the UDAY debt takeover. Public debt increased to 31.8 percent of GSDP at the end of FY15/16 and further to 33.8 percent in FY16/17, from 24.4 percent pre-UDAY in FY14/15.

Table 3. Rajasthan: Selected Fiscal Indicators, FY13/14–FY19/20

Key Fiscal Indicators	FY14	FY15	FY16	FY17	FY18	FY19	FY20
	Act.	Act.	Act.	Act.	Budget	Proj.	Proj.
	(Percent of GSDP)						
Overall balance (including UDAY)	-2.8	-3.1	-9.4	-6.4	-3.0	-2.9	-3.0
Overall balance (excluding UDAY)	-2.8	-3.1	-3.4	-3.4	-3.0	-2.9	-3.0
Primary balance	-1.1	-1.4	-7.6	-4.0	-0.6	-0.4	-0.5
Total Revenues	13.6	15.1	15.1	15.8	17.6	15.9	16.0
Devolution from the central government	5.0	6.4	6.9	7.6	7.4	7.4	7.5
Own tax revenues	6.1	6.3	6.3	6.3	6.6	6.6	6.7
Value added tax (VAT)	3.5	3.6	3.5	3.5	3.9	2.9	2.8
Other taxes	2.5	2.7	2.8	2.7	2.7	3.8	3.8
Own nontax revenues	2.5	2.2	1.6	1.7	1.8	1.8	1.8

Key Fiscal Indicators	FY14	FY15	FY16	FY17	FY18	FY19	FY20
	Act.	Act.	Act.	Act.	Budget	Proj.	Proj.
Recoveries of loans and advances	0.1	0.2	0.2	0.2	1.8	0.1	0.1
Expenditures	<i>16.4</i>	<i>18.2</i>	<i>24.5</i>	<i>22.1</i>	<i>20.5</i>	<i>18.7</i>	<i>18.9</i>
Current expenditures	13.7	15.4	15.8	17.9	17.4	16.3	16.4
Committed	9.1	9.9	10.0	10.7	10.6	11.0	11.0
Salaries and wages	3.7	3.8	3.8	4.2	4.2	4.4	4.3
Interest	1.6	1.7	1.8	2.4	2.4	2.4	2.3
Pensions	1.4	1.6	1.6	1.7	1.7	1.8	1.8
Subsidies	1.3	1.4	1.6	1.3	1.2	1.4	1.5
of which power sector	1.2	1.6	1.4	1.2	1.2	1.3	1.5
of which for agricultural users	0.96	0.96	1.01	1.14	1.04	1.00	1.01
Grants-in-aid for salaries	1.0	1.3	1.2	1.2	1.1	1.1	1.1
Non-committed	4.7	5.6	5.8	7.2	6.8	5.3	5.3
Capital expenditures	2.6	2.7	8.7	4.2	3.2	2.4	2.7
Support to the power sector	1.8	2.0	7.9	4.1	1.3	1.3	1.5
of which UDAY	..	..	5.9	3.0	..	..	..
Government Liabilities							
Direct debt	23.9	24.4	31.8	33.8	33.6	33.1	32.8
Guarantees by the state government	15.6	15.4	8.0	6.8	..	..	..
Rajasthan real GSDP growth	4.8	6.1	6.2	7.1	6.2	7.8	7.8
Deficit Financing	<i>2.8</i>	<i>3.1</i>	<i>9.4</i>	<i>6.4</i>	<i>3.0</i>	<i>2.8</i>	<i>2.8</i>
State bonds	1.5	1.6	1.9	2.1	1.6	1.5	1.5
UDAY bonds	..	..	5.6	3.0	..	..	..
Loans from Center (External Loans)	0.0	0.0	0.5	0.7	0.0	0.0	0.0
Provident Fund	0.5	0.5	0.5	0.5	0.3	0.3	0.3
Others	0.8	0.9	0.8	0.0	1.0	1.0	1.0

2.2 MACROECONOMIC OUTLOOK AND DEBT SUSTAINABILITY

National Outlook

16. **Growth is likely to remain subdued in FY17/18, but momentum will pick up in later years.** Evidence suggests that post-GST manufacturing and services contracted sharply during FY17/18. However, Q2 GDP data and high frequency indicators suggest that activity has stabilized—maintaining the annual GDP growth at 7.0 percent in FY17/18. Growth is projected to increase gradually to 7.4 percent by FY19/20, underpinned by recovery in private investments, which are expected to be crowded in by the increase in public infrastructure investments, and an improvement in the investment climate partly due to passage of GST, which will simplify tax payments, the Bankruptcy Code, and measures to attract FDI.

17. **Inflation and external accounts are expected to remain stable.** Two consecutive years of normal monsoons and improvement in supply conditions are expected to keep prices stable and offset increase in global oil prices. The CAD is expected to remain below 2 percent of GDP and to be fully financed by FDI inflows. Import growth is expected to accelerate with increased private

consumption and to meet the investment requirements of the economy. External risks stem from downside risks to the global economy—and accordingly to export growth and capital flows given the possibility of further monetary policy normalization in the United States. Further increases in oil prices could also provide a negative terms-of-trade shock.

18. 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 5.9 percent by FY17/18 from 6.8 percent in FY15/16, primarily because of modest improvements in revenue buoyancy driven by tax reforms (such as increases in the services and petroleum excise rates). Beyond FY17/18, revenue buoyancy is expected to rise as GST is implemented, expanding the tax base. States are expected to, on average, adhere to the deficit limits established in the FRBM Act. Fiscal consolidation and robust economic growth is likely to lead to a decline in the general government debt.

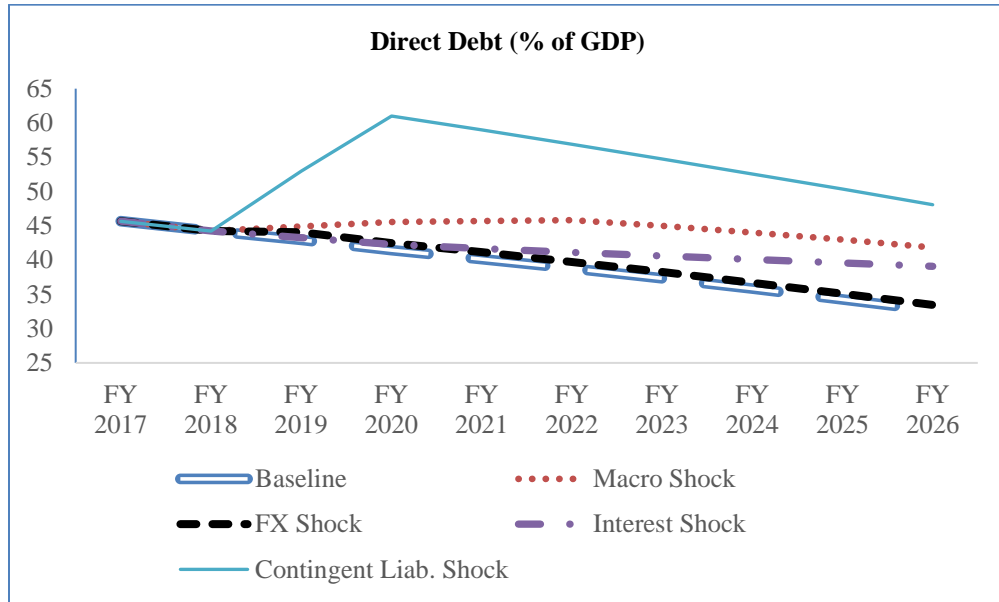
19. The GoI is expected to remain on a path of consolidation in FY17/18, although headwinds have increased. According to current FRBM rules, the fiscal deficit is expected to be reduced to 3 percent by FY18/19 from 3.5 percent in FY16/17. However, the Government remains committed to maintaining the pace of infrastructure investments and fiscal transfers to the states, and without the bounty of lower oil prices, large increases in tax collections will be more challenging. Requirements of bank recapitalization and stimulating the economy have introduced additional pressures on Central Government finances.¹¹ Notwithstanding, the Government is expected to continue to reduce the fiscal deficit in coming years, as recommended by the recently released FRBM review committee report.¹²

20. The GoI’s debt is sustainable under several scenarios. Supported by the center’s efforts at fiscal consolidation and by high real GDP growth, the Central Government’s debt levels have declined consistently over the last decade by more than 6 percentage points to under 50 percent of GDP. Under the baseline assumption of continued fiscal consolidation and sustained economic growth in the years ahead—the Center’s debt-GDP ratio is expected to decline further and close to 40 percent by FY21/22 (figure 2). The sustainability of the center’s debt is resilient to large shocks from the realization of contingent liabilities, or a sustained slowdown in economic growth.

¹¹ In late October, the GoI committed to recapitalizing public sector banks (PSBs) by about 1 percent of GDP through recapitalization bonds.

¹² The GoI has recently reviewed its fiscal rules (the FRBM Act), which foresee corrective measures in case the deficit deviates from its path toward a 3 percent medium-term target. Escape clauses are clearly defined, the quantum of deviation from fiscal targets is limited, and a path of returning to the baseline of fiscal consolidation toward a 3 percent deficit target must be specified.

Figure 2. Projected Trend in Central Government Debt



State Government Outlook

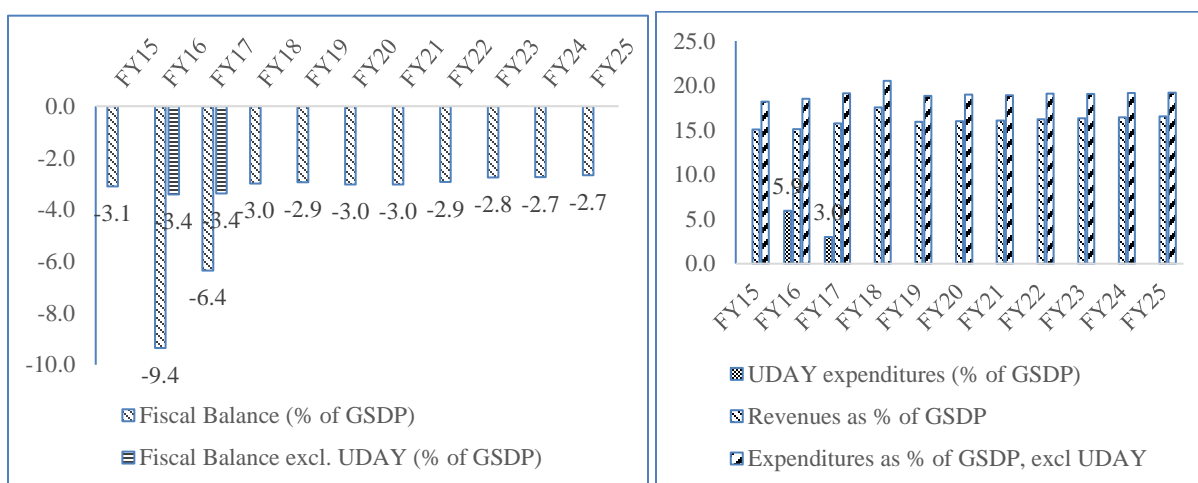
21. **The fiscal position of the GoR is expected to improve in FY17/18 and further into the medium term.** The reduction in the fiscal deficit in FY17/18 by 0.4 percent to FRBM-compliant levels (3 percent of GSDP) is based on increases in own-revenues, as other revenues and expenses are kept roughly constant as a share of GSDP (figure 3). Excluding an accounting transaction,¹³ support to the power sector is budgeted to increase marginally from 1.1 percent of GSDP in FY16/17 to 1.3 percent of GSDP in FY17/18. The fiscal deficit is expected to remain relatively high during FY18/19–FY19/20 to an average of 3 percent of GSDP due to the implementation of recommendations of the Rajasthan Pay Commission¹⁴ and a recently announced farm loan waiver.¹⁵ In subsequent years, the fiscal deficit is expected to stabilize to around 2.7 percent by FY24/25 and spending patterns will shift significantly toward capital formation.

¹³ DISCOMs were extended loans during FY17 to repay their outstanding liabilities. In FY18, the GoR budgeted to convert loans worth INR 150 billion (1.8 percent of GSDP) to equity and grants. This is reflected in the state’s budget as an accounting entry—credit to loans and recovery and debit to capital (INR 30 billion) and current (INR 120 billion) expenditures. This transaction affects the states asset position, but not cash flows.

¹⁴ Following the GoI pay revisions announced from FY16/17, Rajasthan’s wage bill is assumed to increase annually by 15 and 10 percent respectively in FY19 and FY20.

¹⁵ The GoR announced a waiver for farm loans amounting to approximately INR 200 billion. Details of implementation are not yet available. The expenditures associated with this are likely to be spread across several years.

Figure 3. (a) Projected Trend in Fiscal Balance; (b) Projected Trend in Revenues and Expenditures



22. **The fiscal path under the baseline scenario is largely driven by reduced support to the power sector**—from an average of 1.9 percent in the three years preceding UDAY to 1.3 percent of GDP during FY17/18–FY24/25. Under the UDAY scheme, losses incurred by DISCOMs are assumed to be absorbed by the state’s budget from FY18 onward on a sliding scale, eventually reaching 50 percent. Under the baseline scenario, the assumption of losses on budget is expected to average 0.1 percent of GDP during FY17/18–FY20/21, and DISCOMs are expected to break even by FY21/22. Therefore, trimming aggregate technical and commercial (AT&C) losses (see annex 8 for details) will be crucial to avoid a breach of FRBM targets and ensure the sustainable path in the baseline will be achieved. The remainder of the support is assumed to be in the forms of subsidies to agricultural users, which have always been on-budget. Reforms of agricultural subsidies, as has been discussed with a potential conversion of subsidies to direct transfers to HHs, would represent an upside risk to the fiscal path as this has not been assumed under the baseline.

23. **The state’s expenditure framework is adequate provided capital expenditures expand in the medium term.** Expenditures excluding support to the power sector are expected to increase moderately in the near term, partly due to increased interest burden and partly due to the salary revisions. To accommodate these additional expenditures, capital spending will be modestly reduced in the near-term from a budgeted 3.2 percent of GDP in FY17/18 to 2.7 percent in FY19/20. In subsequent years, capital spending, excluding support to power sector, is assumed to grow rapidly in support of the GoR’s development vision. Social spending has been increasing and is expected to remain on an upward trajectory as wage revisions partly benefit the social sectors.

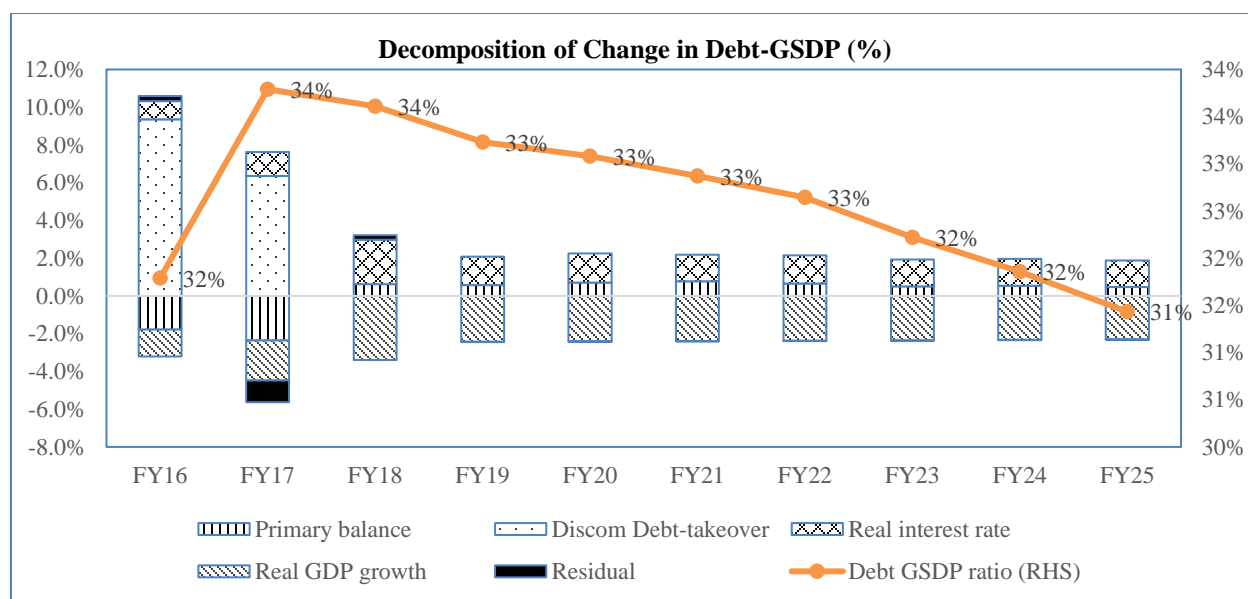
24. **Revenue performance is expected to improve modestly, partly due to higher transfers from GoI.** Revenue is expected to grow by 11.5 percent annually during FY17/18–FY24/25, partly reflecting rapid real growth.¹⁶ Total transfers from the GoI are expected to increase as a share of GDP over the forecast period due to an increase in untied tax devolution to average 4.7 percent

¹⁶ Nontax revenues face an upside risk from mining auctions that could result in higher royalty collections for the GoR. Real GDP growth is assumed to be an average of 7.8 percent annually during FY19–FY25. Refer annexes 5 and 6 for details.

of GSDP during FY17/18–FY24/25 (versus 3.6 percent in the preceding five years). Simultaneously, support from the GoI in the form of conditional grants is expected to decline to 2.8 percent of GSDP from 3.2 percent in FY14/15.¹⁷

25. **Because of declining deficits and rapid economic growth, the public debt trajectory is projected to decline from FY17/18.** The debt-GSDP ratio increased from 24.4 percent of GSDP in FY14/15, to 33.8 percent in FY16/17 as the GoR took over liabilities of DISCOMs. In subsequent years, the debt is expected to decline, driven by rapid economic growth and stable fiscal deficits—and is expected to decline to 31.4 percent of GSDP by FY24/25.

Figure 4. Decomposition of Projected Changes in Debt-GSDP Ratio



26. **The level of debt guaranteed by the state is moderate, and the state took measures to limit the expansion of guarantees.** Starting FY16/17, the GoR amended its FRBM Act to include a cap on outstanding state issued guarantees: it was set at 70 percent of total receipts in the consolidated fund at the end of FY16/17 and lowered to 60 percent in the following years. Guarantees to the energy sector accounted for 15 percent of GSDP and 92 percent of total guarantees at the end of FY15. Since the state government has taken over much of the guaranteed debt of DISCOMs, these declined to 5.7 percent of GSDP at the end of FY17, and total guarantees for the state stood at 33 percent of total receipts. Therefore, even if the state guarantees more than the 25 percent of DISCOM debt that is expected to remain in their balance sheets, the level of guarantees is expected to remain below the self-imposed cap.

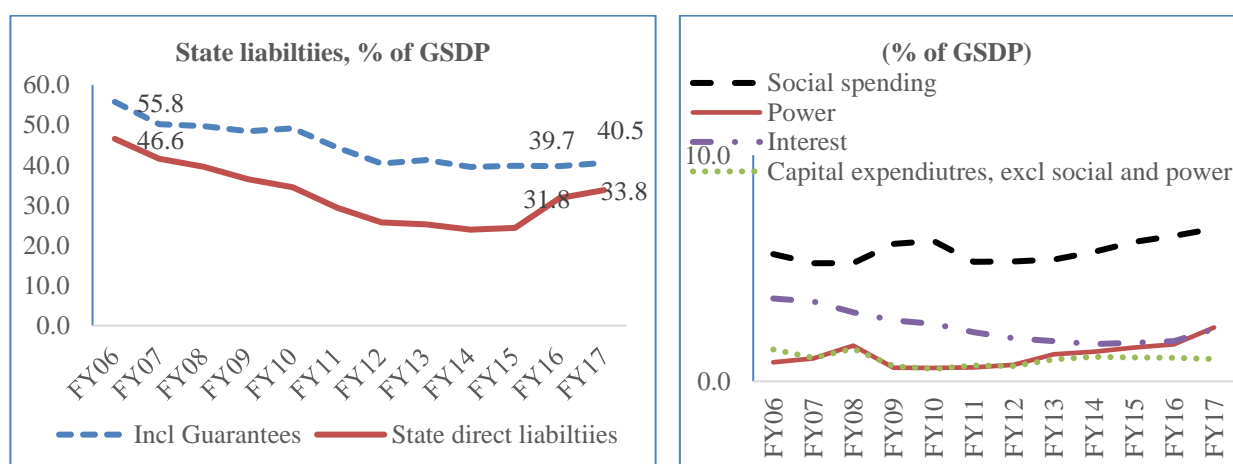
27. **Active debt management will be crucial to minimize refinancing risks that could emerge due to the imminent spike in borrowings from the DISCOM debt takeover.** In addition, medium-term fiscal strategies of the state will need to focus on prioritizing expenditures

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.

while 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.

28. **If the baseline reduction in losses is not achieved, the direct fiscal impact may be limited in the short term, although this situation could lead to a buildup of liabilities.** A lack of improvement in DISCOM finances will lead to a combination of three possible outcomes: (a) a buildup in contingent liabilities (losses in the balance sheets of DISCOMs or explicit guarantees), which may eventually require another financial restructuring; (b) higher risks of FRBM targets being breached; and (c) cuts in priority social and capital expenditures (see annex 5 and 6 for alternate scenarios). In the near term, much of the funding gap for DISCOMs is expected to be met through the issuance of bonds guaranteed by the state. These are incorporated in the dotted line in panel (a) of figure 5. The possibility of issuing guaranteed bonds relieves short-term pressures to reduce social spending as shown in panel (b). Given the exceptional nature of the UDAY scheme and the emphasis on improving DISCOM operational performance, the center is unlikely to authorize borrowing by the state to exceed its deficit target outside of extraordinary circumstances. Therefore, in the medium term, incentives are aligned to ensure better performance of DISCOMs.

Figure 5. Historical Trend of (a) State Liabilities; (b) Social and Capital Expenditures



Assessment of Macroeconomic Adequacy for the Operation

29. **Overall, India’s macroeconomic policy framework provides an adequate basis for the proposed operation.** India is an investment-grade economy with ample market access. Credit ratings were recently upgraded by Moody’s, reflecting the country’s solid credit position. India’s economic growth is robust, and ongoing reforms will ensure that growth is sustained into the medium term. Debt and deficit levels are relatively high, but deep capital markets ensure ample domestic funding is available. The Government has demonstrated a commitment to fiscal sustainability by reducing the deficit of the Central Government for four consecutive years and by generally keeping states to their mandated deficit targets through limiting borrowing authorizations. India’s commitment to fiscal sustainability was reinforced by the recent review of the FRBM Act, which suggested a continuation of fiscal consolidation. India’s exposure to external volatility is limited given high reserve levels (close to nine months of imports) and limited external financing needs. Macroeconomic risks are moderate, relating to the continued implementation of important reforms that will ensure investment-driven growth is sustainable, and to the management

of contingent liabilities such as DISCOM losses. In this respect, by supporting the UDAY program, this operation directly contributes to managing macroeconomic risks.

30. **Rajasthan's macroeconomic policy framework is also adequate.** With healthy economic growth, improved power sector performance due to the reforms supported in this operation, and fiscal prudence, the debt-to-GSDP ratio is expected to fall over the medium term. Moreover, debt service payments are almost entirely serviced by the RBI out of the state's fiscal transfer allocation from the center, effectively granting priority to debt service over other expenditures and virtually eliminating the risk of arrears on debt service payments. The state's record of economic growth and ongoing measures to manage contingent liabilities (as demonstrated by the cap on guarantees, which not all states have) and increase own-revenues provide further assurance of the adequacy of the state's macroeconomic policy framework.

2.3 INTERGOVERNMENTAL RELATIONS

31. **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 that is, the 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.¹⁸ 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.¹⁹

¹⁸ 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 Center between the Central and state 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 the 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 inadequate fiscal capacity (ability to raise its own revenues).

¹⁹ The distinction between plan and non-plan will be abolished from FY18.

3. THE GOVERNMENT OF RAJASTHAN'S PROGRAM

32. **The GoR's program focuses on development based on Vision 2020 and is centered around the three main pillars:** (a) first, encourage investment while accelerating economic development (that is, developing the basic economic framework through strengthening infrastructure facilities such as electricity, water, and roads); (b) second, generate employment opportunities and maintain good governance; and (c) third, social justice and citizen empowerment; with the aim to make 'Prosperous Rajasthan, Prosperous Rajasthani' a reality. Adopting the maxim of 'Our only effort is all-round development', different initiatives and innovations in key sectors including electricity have been adopted toward overall development of the state.

4. THE PROPOSED OPERATION

4.1 LINK TO GOVERNMENT OF RAJASTHAN PROGRAM AND OPERATION DESCRIPTION

33. **The proposed programmatic series will support the GoR's program for the turnaround of the distribution sector²⁰ in Rajasthan under the 24x7 PFA program.** This second operation builds upon the foundations for legislative changes and institutional reforms to improve the sector's governance that were laid during the first operation, carries further the financial restructuring of the sector, and deepens the reforms with actions on improving operational performance. The Program Development Objectives are to support the turnaround of the electricity distribution sector in Rajasthan, by (a) strengthening the governance framework, (b) enhancing policies to restructure its finances, and (c) improving its operational performance. The reform strategy of the GoR and DISCOMs in the state is centered on two key frameworks: UDAY, and the RSEDMR Act. The key features of both are provided in annex 11.

34. **Rajasthan has taken several steps toward implementing UDAY and the RSEDMR Act.** Among the key elements that already stand implemented include the following:

- (a) Taking over of 75 percent of the debt of DISCOMs by the GoR
- (b) Signing performance Memorandum of Understanding (MoUs) between the state government and DISCOMs for FY17/18
- (c) Inducting independent directors to the Board of Directors (BoD) of DISCOMs and laying a code of conduct for all members

²⁰ Electric power distribution in Rajasthan is carried out by three state-owned DISCOMs—Jaipur Vidyut Vitran Nigam Ltd (JVVN or Jaipur Discom), Jodhpur Vidyut Vitran Nigam Ltd (JdVVNL or Jodhpur Discom) and Ajmer Vidyut Vitran Nigam Ltd (AVVN or Ajmer Discom)—collectively referred to as Rajasthan DISCOMs. Transmission services within the state are provided by a state-owned transmission company (Rajasthan Vidyut Vitaran Nigam Ltd [RVVN]). For generation, a mix of state-owned plants (Rajasthan Vidyut Utpadan Nigam Ltd. [RVUNL]) and private sector generators are available, along with electricity exchanges from other states. Bulk power purchases on behalf of DISCOMs are now managed by Rajasthan Urja Vikas Nigam Ltd. (RUVNL). In addition, an independent regulatory authority (Rajasthan Electricity Regulatory Commission [RERC]) is responsible for approving tariffs and oversight of regulatory obligations of electricity companies.

- (d) Starting energy audit on 11 kV feeders
- (e) Preparing area-wise loss reduction target and assigning of responsibility
- (f) Restricting power supply in areas with high AT&C losses
- (g) Preparing Key Performance Indicators (KPIs) for each employee
- (h) Preparing annual accounts
- (i) Establishing centralized customer call center
- (j) Providing Light Emitting Diode (LED) lamps to consumers (with more than 14.5 million LED lamps already distributed)
- (k) Replacing street lights with LED lamps (with around 870,000 street lights already replaced)
- (l) Introducing additional bill payment avenues like online payment and wallets
- (m) Roping in NTPC for improving efficiency of some of the state generating plants
- (n) Undertaking regular monitoring

35. **The operation draws on previous experience in state power sector reform engagements in India and electricity distribution reform engagements across the world.** Key lessons learned that are relevant to this operation include the following:

- A ‘One Size Fits All’ approach does not work anywhere. Different models in power sector are working well in India and other countries while the same approaches are not working well at other places.
- 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.
- Successful reforms need a participative and consultative process on internal and external stakeholder engagement and a dialogue that can sustain a smooth implementation by avoiding communication gaps or distrust.
- Institutional building is a long-term goal requiring stable and visionary management; without which the whole process is still susceptible to reversal and non-sustainability of short-term gains.
- The performance of state-owned enterprises can be improved with better governance structures, specific and transparent performance contracts, accompanied with an incentive system for meeting targets and adequate regulatory oversight.

- Use of technology can support behavioral change.
- Deployment of smart metering, distribution automation, and advanced supervisory control and data acquisition (SCADA) systems as components of larger energy and distribution management systems can provide for significant improvements to the reliability, flexibility, efficiency, and sustainability of power grids as demonstrated by World Bank-supported projects in Brazil (Eletrobras Distribution Rehabilitation), Uzbekistan (Advanced Electricity Metering), Vietnam (Distribution Efficiency), Albania (Power Recovery), and Kenya (Electricity Modernization).

4.2 PRIOR ACTIONS, RESULTS, AND ANALYTICAL UNDERPINNINGS

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

36. **The state’s DISCOMs were established in the early 2000s, but their organizational and institutional structures have not followed the best practices of more successful Central Public Sector Undertakings (CPSUs) of the GoI.** While power sector companies owned by the GoI have for several years employed performance accountability mechanisms for their management, state utilities including in Rajasthan do not have such systematic practices. As a result, the state utilities remain largely vulnerable to political influence, can therefore deviate significantly from balancing near-term service provision with long-term financial sustainability objectives and their overall governance suffers. Global experience with distribution utilities has shown that establishing adequate mechanisms to increase the autonomy and accountability of management, results in performance improvements. A World Bank paper on ‘Some Options for Improving the Governance of State-Owned Electricity Utilities’ has looked at options the Government can use for improving the performance of state-owned utilities through strengthening corporate governance. A recent study by World Bank on ‘Governance of Indian State Power Utilities—An Ongoing Journey’ indicates that utilities that have developed information-driven processes, created sound mechanisms for performance management, and made their accounts and audits publicly available are the top performers. Measures supported under this pillar aim at providing more operational autonomy to the utilities, instituting managerial and employee accountability for utility performance, and strengthening corporate governance framework in the utilities.

Prior action #1: The Government of Rajasthan has entered into Memoranda of Understanding with each of the DISCOMs setting out targets for key performance indicators regarding: (a) AT&C losses; (b) energy accounting and auditing; (c) billing and collection efficiency; and (d) filing of revenue and/or tariff petitions for FY17/18.

37. **The GoR enacted in January 2016 a state-level ordinance detailing the responsibilities of the state government and DISCOMs, to ensure financial and operational turnaround and long-term sustainability of DISCOMs.** The ordinance was subsequently approved by the State Legislature on March 31, 2016 and the RSEDMR Act has been since notified. Rajasthan is the first Indian state to employ such an instrument, which aims to make the state government

accountable for its governance of DISCOMs and brings more public accountability to DISCOMs and hence to the sector. The main elements of the RSEDMR Act are the following:

- (a) The state government and DISCOMs to enter an MoU for setting KPIs and performance evaluations for each fiscal year
- (b) The state government to lay before the State Legislature in each financial year during the Budget Session, the State Electricity Distribution Strategy Statement and the State Electricity Distribution Performance Statement, mentioning (i) the targets for KPIs and detailing the policies and strategy of the state government to achieve the targets set for the following year and (ii) an assessment of the compliance by DISCOMS during the current year
- (c) The state government to ensure that the BoDs of 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)
- (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.

38. **DISCOMs and the GoR have signed an MoU setting targets for KPIs for the DISCOMs focused on reducing losses and improving transparency and accountability across network operations.** This is also in line with best practices of more successful CPSUs in India and global experience. The MoUs for FY17/18 were signed in May 2017, thereby signaling a beginning toward a culture of performance accountability. These annual performance MoUs provide for targets for KPIs on aspects such as AT&C loss reduction, energy accounting, energy auditing, billing and collection efficiency, recovery of arrears, filing of annual revenue requirement/ tariff petition, reviewing staffing pattern, and so on.

39. **Results.** Adopting another global practice, the RSEDMR Act also envisages including independent directors in the boards of DISCOMs to improve their functioning and provide strategic guidance. Therefore, the GoR and the DISCOMs have appointed two professionals as independent directors on the boards of the three DISCOMs. The boards of the DISCOMs have now nine directors, including two independent directors. The GoR has extended this good practice by appointing two independent directors for each of the other three state power utilities (RVVNL, RVUNL, and Rajasthan Energy Development Corporation Ltd. or Rajasthan Urja Vikas Nigam Ltd [RUVNL]).

40. **Climate change co-benefits.** Given the focus on development and implementation of the sectoral plan focused on initiatives such as AT&C loss reduction, energy auditing and regular revenue and tariff reviews for performance improvement, this prior action is well aligned with the multilateral development bank (MDB) list of eligible climate mitigation activities under Category 9.1 ‘Support to national, regional or local policy, through technical assistance or policy lending’²¹.

²¹ <http://pubdocs.worldbank.org/en/266191504817671617/2016-joint-report-on-mdbs-climate-finance.pdf>

Prior action #2: The DISCOMs have approved a Transfer Policy and Performance Management Policy, for their employees.

41. **Effective employee engagement is critical for the success of the turnaround plan for DISCOMs.** To incentivize its employees to work toward AT&C loss reduction, the GoR²² had in November 2015 approved the DISCOMs' proposal for a financial employee performance incentive (EPI) scheme. Under the scheme, all the employees of the operations and maintenance (O&M) subdivisions were eligible for a financial incentive based on their performance on the single parameter of AT&C loss reduction in their respective subdivisions. Based on the experience of EPI during FY16, the DISCOMs have revised the scheme from FY18 onwards to make disbursement of incentive to an O&M subdivision on achievement of targets contingent on 'Circle'²³ and DISCOM performance.

42. **Building upon the UDAY and RSEDMR Act framework, the GoR and the DISCOMs are now moving toward a KPI-based performance management system to institute accountability at the employee level.** Similar performance management systems are being used by CPSUs in the GoI, with generally positive results as they provide a deterrent in cases of nonperforming staff. Recently, the DISCOMs have also established a KPI-based performance management system for the employees to relate employee's performance and work achievements to the strategic and operational performance of the organization through quantifiable and measurable metrics. The KPI scores will be considered while awarding the final rating in the Annual Performance Appraisal Report for performance in FY starting from April 2018 onwards. A Transfer Policy has also been approved recently, to be implemented from April 2018, to provide for minimum and maximum tenures for an employee in a particular position.

43. **Results.** The revised EPI scheme for FY18 and subsequent years, after approval of the GoR, has been notified in March 2018. DISCOMs are now undertaking an assessment for the determination of incentive after which the incentive for performance in FY18 will be disbursed.²⁴

44. **Climate change co-benefits.** Given the focus on improving operational efficiency and service delivery of DISCOMs, by focusing on reducing AT&C losses, energy audits, improving HH electricity access, supporting energy efficiency initiatives, leveraging IT and so on, this prior action is well aligned with the MDB list of eligible climate mitigation activities under Category 9.1.

Prior action #3: The DISCOMs have started the implementation of their Corporate Governance and Financial Accountability Plans, duly adopted by their Boards of Directors, by publishing their audited financial statements for FY16/17.

45. **A well-sequenced and time-bound Corporate Governance and Financial Accountability (CGFA) action plan is under implementation to bring about an overall**

²² The GoR approval was required according to the Regulation of Appointments to Public Services and Rationalisation of Staff (RAPSAR) Act 1999.

²³ In the DISCOM geographical hierarchy, a circle comprises a number of subdivisions.

²⁴ The incentive for FY16 could not be disbursed because of underachievement in target of AT&C loss reduction at the state level.

strengthening of the governance in DISCOMs. The CGFA action plan builds upon the provisions under UDAY MoU, the RSEDMR Act, Companies Act (Central Act No. 18 of 2013) and Guidelines for Corporate Governance for Central Public Sector Enterprises 2010.²⁵ The CGFA action plan for the three DISCOMs has been approved by their BoD in May 2017. The adoption and implementation of the CGFA plan by the DISCOMs will help them in enhancing efficiency, accountability, transparency and professionalism in management to safeguard the interests of stakeholders and to enhance the pace of the DISCOMs' financial turnaround. The key elements of the action plan including progress made is provided below:

- (a) **Reconstitution of the BoD to bring balance between Government nominee, functional and independent directors.** As part of implementation, two independent directors have been appointed for each DISCOM
- (b) **Setting up of an audit committee.** The audit committee has been constituted since inception and terms of reference have been framed
- (c) **Developing/ revising codes of conduct for board members and senior management.** The code of conduct has been approved by the BoD and is being implemented from FY17/18
- (d) **Implementing the RSEDMR Act and UDAY MoU.** Establishing an Empowered Committee on receivables management—A policy for identification and write-off of arrears has been prepared and approved by the BoD in August 2017 for JVVNL
- (e) Timely finalization of annual accounts
- (f) Timely submission of revenue and true-up petitions to the regulator
- (g) Strengthening internal audit arrangements
- (h) Complete physical verification of fixed assets and prepare a fixed asset register

46. **Results.** These reforms supported above will contribute to improve the ability of DISCOMs to access capital markets through the issuance of bonds and ameliorate their debt management. The results aim to capture the parameters that demonstrate strengthening of the governance arrangements in DISCOMs. This will be measured through timeliness of preparation of the financial statements of DISCOMs that is, the financial statements are prepared in time (within six months of the end of FY). The GoR and DISCOMs had prioritized the area of finalization of financial statements given delays in the past.²⁶ The audited financial statements for FY16/17 for all three DISCOMs have been published on their websites.

²⁵ Issued by Department of Public Enterprises, GoI.

²⁶ The annual accounts for FY15 were delayed by three months. For the FY17, the annual accounts for all three DISCOMs were audited and approved by the BoD of the companies in September 2017 and have been adopted in the annual general meetings held in November 2017

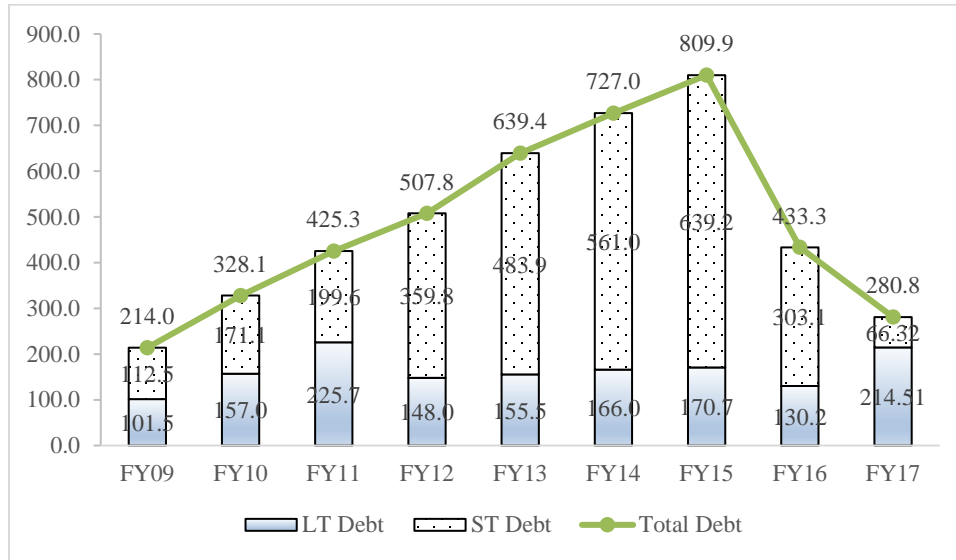
Policy Area B: Enhancing Policies to Restructure Finances of the Rajasthan Electricity Distribution Sector

47. **The policy reforms supported under this pillar are aimed at bringing financial sustainability and commercial orientation to the electricity distribution sector.** The accumulated revenue deficit of Rajasthan DISCOMs had reached a staggering INR 814.1 billion at end of FY15 with an annual revenue deficit of INR 124.74 billion in FY15. The revenue deficit was a result of combination of factors like high AT&C losses, non-revision of tariffs, high power purchase costs and high interest costs. Tariffs were not revised for more than 6 years between 2005 and 2011 even though the costs increased by over 48 percent during this period. During FY 2011-16, the DISCOMs borrowed significantly, especially short-term borrowings to fund the rising revenue deficit. Approximately INR 477 billion of short-term borrowings were added during this period. This resulted in a sharp increase in the interest costs, which were INR 95.5 billion in FY16 or 21.9 percent of the total cost of the DISCOMs (compared to a national average of around 7 percent) with the interest cost per unit of energy sold also increasing to approximately INR 1.98 per kWh in FY16 (from INR 0.55 per kWh in FY09).

48. **Measures supported under this pillar aim to bring revenues closer to the cost of supply for DISCOMs and improve their paying capacity and creditworthiness.** This is sought to be achieved through (a) reduction in interest costs of DISCOMs by transferring a considerable amount of the debt of DISCOMs to the state (recognizing its implicit responsibility as the owner of the companies); (b) bringing in a more disciplined approach to submissions of annual revenue requirements and tariff revisions by DISCOMs to the regulatory commission; and (c) improving the focus of the DISCOMs' efforts on increasing transparency and competition to reduce the costs of energy procurement.

49. **The GoR has restructured the outstanding debt of the DISCOMs in line with UDAY commitments.** The GoR took over INR 624.2 billion of debt (75 percent of the total outstanding debt of INR 805 billion at end of September 2015) from DISCOMs balance sheets, and passed on the amount to the DISCOMs in the form of equity (INR 87 billion), grants (INR 90 billion) and interest free loans (INR 447.2 billion) by March 31, 2017. The residual DISCOM debt (25 percent) will be restructured into longer-term maturities, which is work in progress.

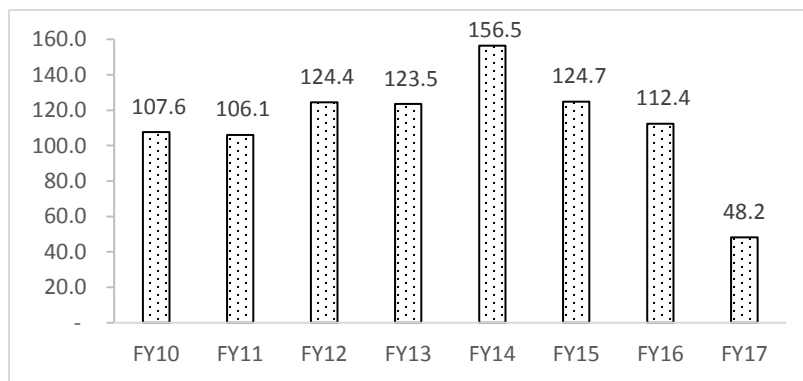
Figure 6. Debt Excluding the Interest-free Loan from the GoR (INR, billion)



Note: ST = Short term; LT = Long term.

50. **The second operation in the series focuses on ensuring improved financial performance and advancing measures to reduce system losses.** The DISCOMs’ combined financial losses for FY16 were INR 112.41 billion, about 12.5 percent higher compared to the target of INR 100 billion (as indicated in the first operation). The increase in the earlier appraised figure was because of (a) higher AT&C losses compared to assumptions used in the UDAY financial models and (b) higher late payment surcharge levied by Gencos, especially for periods before FY16. After accounting for the prior period expenses, the restated losses of the DISCOMs for FY16 stood at INR 106.7 billion which is approximately 6.7 percent higher than the target. For FY17, the DISCOMs have continued to improve their financial performance and the financial losses have been more than halved to around INR 48.12 billion.

Figure 7. Trend in Annual Losses/ Deficit of DISCOMs (INR, billion)



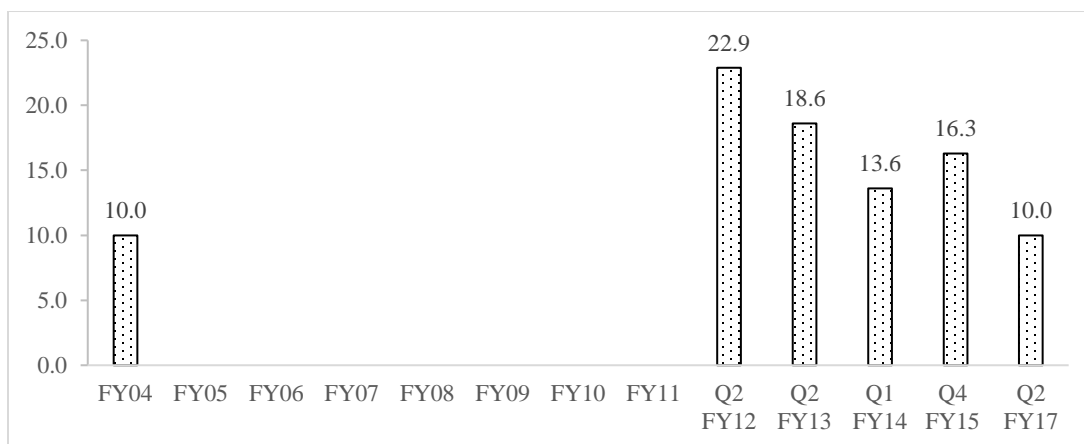
Prior action #4: The DISCOMs have filed with RERC their annual revenue requirements and tariff petitions for FY17/18

51. **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. In January 2016, the GoI 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. The proposed prior action supports and reinforces the provisions of UDAY MoU, RSEDMR Act, and the Tariff Policy to ensure that utilities submit to the regulator appropriate and timely revenue and tariff petitions, reflecting the objectives of gradually eliminating the gap between ACoS and average revenue realized and improving the paying capacity and credit worthiness of DISCOMs. The UDAY scheme allows for a quarterly tariff revision to offset fuel price fluctuations, which DISCOMs in Rajasthan are already being allowed by the regulator.

52. **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.** The DISCOMs had submitted a tariff petition in August 2015 to the regulator requesting an average increase of about 10 percent in FY16. Following the public consultations taken by the regulator on the tariff petition, the regulator notified the new tariff order on September 22, 2016 revising the tariffs by about an average of 9.6 percent from September 1, 2016.²⁷ The significant increases in tariffs in recent years demonstrate political and regulatory will to improve the sector finances.

Figure 8. Tariff in Rajasthan has Increased by More than 110% in Last Five Years



53. **Because of the delay in tariff order for FY16, DISCOMs had filed combined annual revenue requirement petition for FY17 and FY18 in January 2017.** Normally, DISCOMs are expected to file their annual revenue requirements and tariff petitions by November 30 of the previous fiscal year and the tariff revisions (if any) are supposed to become effective at the start of the fiscal year (April). The regulatory process for FY17 and FY18 was completed on November 2, 2017 with the issuance of the order by RERC in which the regulator accepted the proposal of the DISCOMs for maintaining tariff levels. The DISCOMs have filed the annual revenue requirement petition for FY19 in end November 2017.

²⁷ Subsequently, in February 2017, the GoR agreed to provide additional subsidy to absorb the increase in tariff for agricultural consumers.

54. **Climate co-benefits.** This prior action, which relates to encouraging DISCOMs to maintain discipline in regulatory filings and move toward efficient end user tariffs is well aligned with the MDB list of eligible climate mitigation activities under Category 9.1.²⁸

Prior action #5: Rajasthan Urja Vikas Nigam Ltd. (“RUVNL”) is operational, and power purchases (including renewable energy purchases) for DISCOMs are made through RUVNL

55. **Rajasthan faces among the highest tariffs in India for purchases of wholesale power, but efforts during FY15 demonstrated that savings²⁹ can be realized with a concentrated effort of optimizing purchases.** With the objective to formalize and professionalize power procurement and thus optimize costs for all distribution utilities, the GoR during FY15 had set up RUVNL, to undertake power purchases on behalf of DISCOMs in the State.

56. **RUVNL was operationalized from April 1, 2016 with dedicated staff on deputation from DISCOMs and appointment of officials to key posts.** Now all the power purchases, including renewable energy purchases of DISCOMs, are being handled by RUVNL (on behalf of DISCOMs). The reform supported under the prior action on operationalization of RUVNL is expected to facilitate higher renewable energy generation in the state. In the absence of adequate renewable energy capacity and poor financial health of DISCOMs, the DISCOMs were unable to increase renewable energy purchases (including to meet the Renewable Purchase Obligations).

57. **Rajasthan is one of the high renewable energy potential states, estimated at 142 GW for solar and 18.7 GW for wind.** The state has been on the forefront of supporting the development of renewable energy in the state. Under the Rajasthan Solar Policy, the state has a vision of 25 GW solar project development. In the last one and a half years, the state has seen renewable energy capacity addition in the form of solar by more than 1 GW (with capacity addition of around 543 MW in FY17 and 503 MW in FY18 till February 2018). A record low tariff of INR 2.44 per kWh was achieved for solar park auctions in the state in 2017.³⁰ Therefore, an increasing share of renewable energy will also help RUVNL in bringing down power purchase costs for DISCOMs.

58. **Results. The results under this pillar aim to capture the parameters that demonstrate improvement in credit worthiness and paying capacity of DISCOMs by optimization in costs** (power purchase as well as interest costs) and revenues as well as support to development of renewable energy through a series of initiatives and will be measured through (a) targeted reduction in the gap between ACoS and ARR—the same has reduced from a baseline of INR 3.00 per kWh in FY15 to INR 1.1 per kWh in FY17; (b) annual loss of DISCOMs to be taken over and funded by the state, as provided under the UDAY Program; and (c) percentage of power purchases (long term as well as short term) of DISCOMs managed through RUVNL—the target has been

²⁸ Support to national, regional, or local policy, through technical assistance or policy lending - efficient pricing of fuels and electricity.

²⁹ According to the DISCOMs, about INR 1,050 million was saved through better power procurement arrangements during the first half of 2015.

³⁰ Auction for 500 MW capacity at Bhadla Solar Park in May 2017 achieved a tariff of INR 2.44 per unit and INR 2.45 per unit. Auction for 500 MW capacity at Bhadla Solar Park Phase III and 250 MW capacity at Bhadla Solar Park Phase IV in December 2017 achieved a tariff at INR 2.47 per unit and INR 2.48 per unit respectively.

achieved and the percentage of power purchases of DISCOMs managed through RUVNL has now increased from a baseline of 0 percent in FY15 to 100 percent as on date. RUVNL is also managing renewable energy purchases on behalf of DISCOMs.

59. **Climate co-benefits.** This prior action, which relates to encouraging renewable energy in the energy mix of DISCOMs and encourages development of renewable energy in the grid is well aligned with the MDB list of eligible climate mitigation activities under Category 9.1.³¹

Policy Area C: Improving the Operational Performance of Distribution Utilities

60. **Modernizing the grid can help utilities address issues in service delivery such as reducing AT&C losses, promoting energy conservation, managing peak demand, improving reliability, and integrating high levels of distributed generation.** To harness these benefits, it is essential that well-designed plans be developed for the implementation of smart-grid goals and objectives.³² Measures supported under this pillar aim at improving the operational performance of DISCOMs through supporting programs using smart technology to improve transparency in energy consumption, reduce AT&C losses, 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).

Prior action #6: The DISCOMs have published completed periodic energy audits of 90% of their respective feeders at their websites and initiated, since December 2016, a Loss-Based Load Scheduling Program

61. **Implementation of technologies that enable accurate monitoring of the system to identify leaks and better focus investments and recovery actions can help reduce losses in the networks of DISCOMs.** The publication of detailed results brings transparency and introduces public accountability in the monitoring of the performance of the utilities. In this direction, the DISCOMs are undertaking 100 percent metering of 11 kV feeders and energy auditing, thereby supporting a better estimation of AT&C losses in each feeder. This will also assist in identification of 'high-loss' feeders which will help in implementation of UDAY and DISCOMs' plans to implement load shedding on high-loss feeders to disincentivize theft. The DISCOMs have started energy audit on all 11 kV feeders (around 25,000 in number) and are also publishing the information on national portal 'URJA' as well as on their websites. This approach should bring more accountability in the system and encourage the engagement of civil society and more social accountability for DISCOMs.

62. **The metering and start of regular energy audit at 11 kV feeder level have enabled DISCOMs to start identifying high loss-making feeders for making appropriate intervention to reduce the AT&C losses.** DISCOMs have from December 1, 2016 started the loss-based load scheduling program, with implementation in one feeder (having the highest AT&C loss) per subdivision being taken up and to be continued till the AT&C loss comes to 15 percent or less

³¹ Support to national, regional, or local policy, through technical assistance or policy lending - Energy sector policies and regulations leading to climate change mitigation or the mainstreaming of climate action such as ...renewable energy policies, power market reform to enable renewable energy.

³² Madrigal, M., and R. Uluski. 2015. *Practical Guidance for Defining a Smart Grid Modernization Strategy: The Case of Distribution*. Washington, DC: World Bank.

level. Under the program, single phase supply on selected feeders will be energized only between 5:00 a.m. to 9:00 a.m. and between 6:00 p.m. to 10:00 p.m. while three phase supply will be available according to a regular roster. Till date, the program has been implemented in 402 feeders across the three DISCOMs while around 14,900 feeders are already at 15 percent AT&C loss level. Given that AT&C losses are still high and need to be brought down, the loss-based scheduling program initiated since December 2016 is an important policy initiative that continues to be implemented.

63. **Results.** The results under this prior action aim to capture the operational efficiency performance improvement in DISCOMs as demonstrated by start of regular energy audit on 100 percent of the 11 kV feeders and reduction in AT&C loss achieved—DISCOMs have been able to reduce their AT&C losses from a baseline of 29.5 percent in FY15 to 28.36 percent in FY16 and further to 23.78 percent in FY17.

64. **Climate co-benefits.** Given the focus on improving operational efficiency of DISCOMs, by reducing AT&C losses through regular energy audits, this prior action is well aligned with the MDB list of eligible climate mitigation activities under Category 9.1.

Prior action #7: The DISCOMs have implemented a unified billing system including billing large and medium industrial consumers based on an automated meter reading system.

65. **Use of modern IT 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)³³ Part-A contract in 2006. The program which had run into contract management issues has finally moved forward. For example, since July 2016 all the consumers of DISCOMs have migrated to a unified centralized billing engine and are being billed through the same, thereby allowing the DISCOMs to start using metering and billing analytics for targeted interventions for AT&C loss reduction. In addition, the DISCOMs have also started billing the large industrial power consumers, who contribute to more than 20 percent of the revenues and medium industrial power consumers using AMR meters. This is a major milestone and achievement for the DISCOMs as a unified billing system combined with advanced metering will improve customer service and at the same time, safeguard significant revenues from such customers. Business plans establishing a series of measures and investment needs were also formulated under the first DPL for each DISCOM and their implementation initiated. This includes implementing initiatives such as launch of the prepaid metering program and providing energy-efficient LED lamps under the GoI's Domestic Efficient Lighting Program (DELP) to conserve energy as well as save on power purchase costs.

66. **Results.** The results under this prior action aim to capture the operational performance improvements in DISCOMs and will be measured through (a) number of consumers migrated to unified billing system—the target for this indicator from the first operation has been reached and

³³ R-APDRP of the GoI focuses on actual, demonstrable performance in terms of sustained loss reduction. The program is being carried out in two parts: (a) Part-A, which includes projects for the establishment of baseline data and IT applications for energy accounting/ auditing and IT-based consumer services and (b) Part-B, which supports regular distribution strengthening or reinforcement projects.

100 percent of the DISCOM consumers have been migrated to the unified billing system; (b) number of consumers for which prepaid/AMI/AMR meters are in place—by March 2018, the DISCOMs have installed more than 45,665 such meters on large and medium industrial power and government consumers (out of around 129,700 such consumers). The process has temporarily slowed down because of procurement challenges but new tenders have now been issued. In addition, challenges were faced in implementing prepaid metering for public water supply institutions and the GoR/DISCOMs have decided not to pursue prepaid metering for these consumers; (c) number of LED lamps distributed to consumers in Rajasthan (continuing action from the first operation to support energy efficiency initiatives)—as of April 26, 2018³⁴ more than 14.90 million LED lamps have been distributed across the state; and (d) number of HHs without electricity access—as on October 10, 2017, Rajasthan had 21,82,180 HHs without electricity access³⁵ and by the end of the DPL program in September 2019, this number is targeted to be reduced to 750,000.³⁶

67. **Climate co-benefits.** Given the focus on energy efficiency initiatives such as the distribution of LED lamps to consumers, this prior action is well aligned with the MDB list of eligible climate mitigation activities under Category 9.1.

Prior action #8: The DISCOMs have: (a) started implementation of their approved IT Roadmaps by preparing detail project reports for ERP deployment; and (b) created an IT cadre and started mapping IT professionals accordingly.

68. **Distribution automation can help DISCOMs and their customers by reducing outages and lowering capital and operating cost.** Investing in substation automation, SCADA systems, and advanced distribution management can help in increased system reliability and improved efficiency. Distribution automation can also provide the ability to increase the penetration of distributed energy resources—such as photovoltaic devices, demand response mechanisms, and so on. Given the fast-evolving nature of the distribution business and need to increase the use of automation and IT to improve the efficiencies, the DISCOMs have prepared an IT strategy and road map, analyzing how the automation initiatives can move DISCOMs toward a smart utility needs to be prioritized and commercial and operational processes need to be streamlined. For instance, the DISCOMs have prepared a Detailed Project Report for implementing ERP systems for better assets and inventory management and the same has been submitted to the GoI for approval of funding. The IT road map has been approved by the BoD for all three DISCOMs. To build upon the above initiatives, the DISCOMs also need a team of IT and domain experts who can consolidate all the IT measures being taken and help implement those in a streamlined manner. Similar to other traditional utilities, Rajasthan has been recruiting only power engineers. Under the proposed institutional reforms, the DISCOMs have undertaken a comprehensive benchmarking of the organizational structure with other power utilities and as part of overall restructuring of organization structure and manpower norms, proposed to the GoR, the creation of an IT cadre of employees. The GoR has recently given the approval for the overall restructuring of the organizational structure and manpower, including creation of an IT cadre, with three additional

³⁴ Regular progress update is available on <http://www.ujala.gov.in/>

³⁵ <http://saubhagya.gov.in/>

³⁶ The investments for providing electricity access to unconnected HHs will mainly come from the GoI's recently launched national program 'SAUBHAGYA' or Pradhan Mantri Sahaj Bijli Har Ghar Yojana and ongoing Deen Dayal Upadhyay Grameen Jyotikaran Yojana (DDUGJY)

levels of executive engineer, assistant programmer, and informatic assistant being sanctioned, which will provide a career path for the individuals being hired for IT work and allow DISCOMs to attract individuals with suitable IT qualifications. At present, the GoR has approved a limited number of positions at executive level and reduced the number of positions at non-executive level and the cadre is planned to be expanded in future. DISCOMs plan to fill the posts in IT cadre through a combination of redeployment of existing staff (with requisite IT skills, for which mapping of existing IT professionals in DISCOMs has already started) and external recruitment.

69. **Results.** The results under this pillar aim to capture the operational performance improvements in DISCOMs using IT and will be measured through percentage of positions filled in IT cadre (with gender disaggregated data) with a target of achieving a 15 percent share of females in IT cadre by September 2019.

70. **Climate co-benefits.** Given the focus on drawing up a road map of measures for introducing new information and communication technology that will allow DISCOMs to improve reliability, integrate renewable energy, and implement demand side management measures, this prior action is well aligned with the MDB list of eligible climate mitigation activities under Category 1.3³⁷ and Category 9.1.

71. **Out of ten triggers, nine have been retained as eight prior actions.** Table 4 summarizes the changes between triggers envisaged in DPL1 and prior actions for this Operation.

Table 4. Explanation of Changes between DPL1 Triggers and DPL2 Prior Actions

DPL1 Triggers	DPL2 Prior Actions	Explanation of Changes
Trigger 1: Rajasthan has entered into MoUs with DISCOMs setting out targets for key performance indicators and performance evaluation for the DISCOMs for FY17/18.	Prior action 1: The Government of Rajasthan has entered into Memoranda of Understanding with each of the DISCOMs setting out targets for key performance indicators regarding:(a) AT&C losses; (b) energy accounting and auditing; (c) billing and collection efficiency; and (d) filing of revenue and/ or tariff petitions for FY17-18	Change in the text to elaborate/clarify on the key aspects of the MoU.
Trigger 2: The DISCOMs have approved a revised transfer and promotion policy for its employees.	Prior action 2: The DISCOMs have approved a Transfer Policy and Performance Management Policy, for their employees.	Change in the text to strengthen the prior action to indicate that a transfer and KPI-based performance management system is being put in place for employees.
Trigger 3: The DISCOMs have completed the audited financial statements for FY15/16.	Prior action 3: The DISCOMs have started the implementation of their Corporate Governance and	Triggers 3 and 4 have been now merged and the language has been strengthened to reflect that the

³⁷ Measures to facilitate integration of renewable energy into grids.

DPL1 Triggers	DPL2 Prior Actions	Explanation of Changes
Trigger 4: The DISCOMs have started the implementation of their Corporate Governance and Financial Accountability Plan.	Financial Accountability Plans, duly adopted by their Boards of Directors, by publishing their audited financial statements for FY16-17.	CGFA Plan has been duly adopted by the BoDs and that its implementation has been initiated by not only completing the audited financial statements for the latest FY but also their publication (and this is also one of the actions under the CGFA plan).
Trigger 5: 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.		This trigger was kept during Phase I approval to ensure that DISCOMs' financial performance progresses in a positive direction and it provides one of the criteria for preparation of Phase II. However, it is not relevant as a prior action since the DISCOM's financial performance has continued to improve with the combined financial losses in FY17 reduced to INR 48.12 billion.
Trigger 6: The DISCOMs have filed with RERC their annual revenue requirements and tariff petitions for FY17.	Prior action 4: The DISCOMs have filed with RERC their annual revenue requirements and tariff petitions for FY17-18.	Change to reflect that petition for FY18 has been filed.
Trigger 7: Rajasthan Energy Development Corporation Ltd. is operational.	Prior action 5: Rajasthan Urja Vikas Nigam Ltd. ("RUVNL") is operational, and power purchases (including renewable energy purchases) for DISCOMs are made through RUVNL.	Change in text to reflect the name of the company and strengthen the prior action to reflect that the power purchases, including the focus toward greening the energy mix, for DISCOMs are being managed by RUVNL.
Trigger 8: 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.	Prior action 6: The DISCOMs have published completed periodic energy audits of 90% of their respective feeders at their websites and initiated, since December 2016, a Loss-Based Load Scheduling Program	Change to reflect that energy audits will be done periodically and indicating when the loss-based load scheduling scheme has been initiated.
Trigger 9: The DISCOMs have implemented a unified billing system including billing all Large and Medium Industrial consumers based on an Automated Meter Reading system.	Prior action 7: The DISCOMs have implemented a unified billing system including billing large and medium industrial consumers based on an automated meter reading system.	The billing of large and medium industrial consumers has been started on an AMR system.
Trigger 10: 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.	Prior action 8: The DISCOMs have: (a) started implementation of their approved IT Roadmaps by preparing detail project reports for ERP deployment; and (b) created an IT cadre and started mapping IT professionals accordingly.	Change to reflect how the start of implementation of IT road map is being demonstrated and filling up of posts to be assessed as part of the results indicator

72. **This operation is underpinned by systematic analytical work.** A DPL, when combined with hands-on capacity support, is expected to yield stronger results of key reforms. The prior actions of this Operation are supported by past and existing analytical works by the World Bank

and complemented with those by the Government. In particular, the analytical pieces under ‘More Power to India: The Challenge of Electricity Distribution (2014),’ the institutional and IT diagnostic work undertaken with DISCOMs are informative. DISCOMs have been using the results of World Bank’s analytical works and technical assistance to undertake institutional and policy reforms.

Table 5. DPO Prior Actions and Analytical Underpinnings

Prior Actions	Analytical Underpinnings
Operation Pillar 1: Strengthening the Governance Framework in the Rajasthan Electricity Distribution Sector	
<i>Prior action #1:</i> The Government of Rajasthan has entered into Memoranda of Understanding with each of the DISCOMs setting out targets for key performance indicators regarding: (a) AT&C losses; (b) energy accounting and auditing; (c) billing and collection efficiency; and (d) filing of revenue and/ or tariff petitions for FY17/18	<ul style="list-style-type: none"> • World Bank. 2004. <i>Some Options for Improving the Governance of State-Owned Electricity Utilities.</i> • World Bank. 2014. <i>More Power to India: The Challenge of Electricity Distribution.</i> • World Bank. 2014. <i>Governance of India State Power Utilities: An Ongoing Journey, 2014</i> • World Bank. 2015. <i>Power for All: Electricity Access Challenge in India.</i>
<i>Prior action #2:</i> The DISCOMs have approved a Transfer Policy and Performance Management Policy, for their employees	<ul style="list-style-type: none"> • GoR consultants’ reports on the distribution sector • World Bank. 2014. <i>Private Participation in the Indian Power Sector: Lessons from Two Decades of Experience</i>
<i>Prior action #3:</i> The DISCOMs have started the implementation of their Corporate Governance and Financial Accountability Plans, duly adopted by their Boards of Directors, by publishing their audited financial statements for FY16/17	World Bank. 2014. <i>Governance of India State Power Utilities</i>
Operation Pillar 2: Enhancing Policies to Restructure the Finances of the Rajasthan Electricity Distribution Sector	
<i>Prior action #4:</i> The DISCOMs have filed with RERC their annual revenue requirements and tariff petitions for FY17/18	DISCOM’s consultancies for the preparation of tariff filing.
<i>Prior action #5:</i> Rajasthan Urja Vikas Nigam Ltd. (“RUVNL”) is operational, and power purchases (including renewable energy purchases) for DISCOMs are made through RUVNL	GoR consultants’ reports on the distribution sector
Operation Pillar 3: Improving Operational Performance of Distribution Utilities	
<i>Prior action #6:</i> The DISCOMs have published completed periodic energy audits of 90% of their respective feeders at their websites and initiated, since December 2016, a Loss-Based Load Scheduling Program	World Bank. 2014. <i>More Power to India: The Challenge of Electricity Distribution</i>
<i>Prior action #7:</i> The DISCOMs have implemented a unified billing system including billing large and medium industrial consumers based on an automated meter reading system.	<ul style="list-style-type: none"> • GoR consultants’ reports on the distribution sector • World Bank. 2014. <i>Governance of India State Power Utilities: An Ongoing Journey.</i> • World Bank. 2009. “Reducing Technical and Non-technical Losses in the Power Sector.” Working Paper. • World Bank. 2011. <i>Applications of Advanced Metering Infrastructure in Electricity Distribution.</i>

Prior Actions	Analytical Underpinnings
<p><i>Prior action #8:</i> The DISCOMs have: (a) started implementation of their approved IT Roadmaps by preparing detail project reports for ERP deployment; and (b) created an IT cadre and started mapping IT professionals accordingly</p>	<ul style="list-style-type: none"> World Bank. 2015. "Mapping Smart-Grid Modernization in Power Distribution Systems." Live Wire 2015/44, World Bank. 2016. "Can Utilities Realize the Benefits of Advanced Metering Infrastructure? Lessons from the World Bank's Portfolio." Live Wire 2016/66. World Bank. 2016, "Managing the Grids of the Future in Developing Countries: Recent World Bank Support for SCADA/EMS and SCADA/DMS Systems." Live Wire 2016/67. World Bank. 2016. "Automating Power Distribution for Improved Reliability and Quality." Live Wire 2016/68 World Bank. "Smartening the Grid in Developing Countries: Emerging Lessons from World Bank Lending." Live Wire 2016/69

73. Working under the above strategy, the GoR has been able to affect important improvements in the power sector:

- (a) The performance of DISCOMs at the earnings before interest, taxes, depreciation and amortization (EBITDA) level has improved significantly over the last three financial years, wherein all the three DISCOMs have turned EBITDA positive in FY17. Improvements have been achieved primarily through discipline in the average power purchase costs, reduction in AT&C losses, and tariff revisions. While average power purchase costs have increased by only 3.4 percent as compared to FY14 peaks, tariff has increased by 110 percent over the last five years. In addition, the annual financial losses were reduced by more than 60 percent in the last three years.

Figure 9. Trend in EBITDA level Performance of DISCOMs (INR billion)

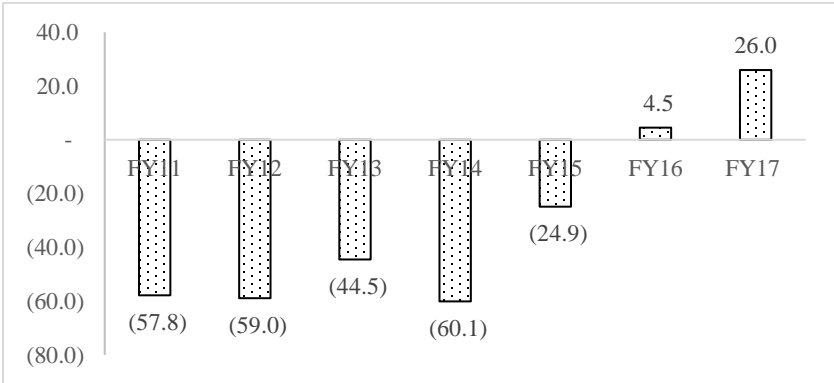


Figure 10. Trend in Power Purchase Costs (including Transmission Charges) of DISCOMs, INR per kWh

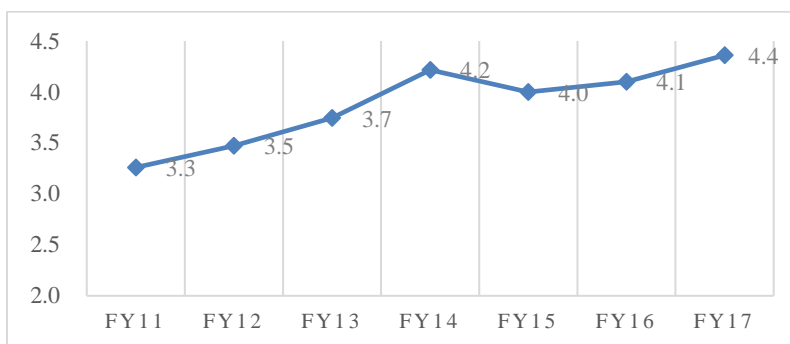
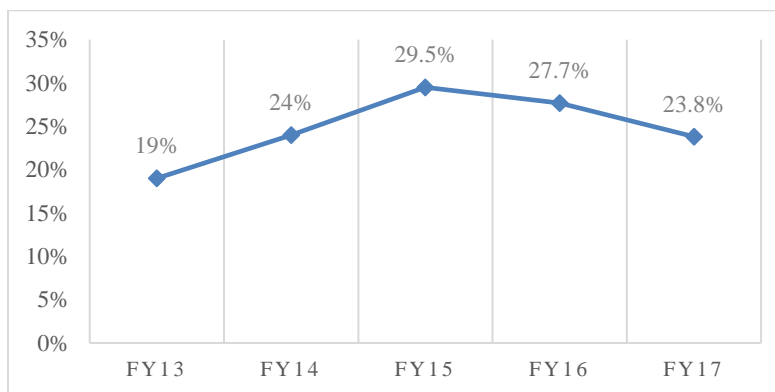


Figure 11. Distribution Losses for DISCOMs in Rajasthan



- (b) **Private participation in electricity distribution.** Rajasthan is the main Indian state that has during the last two years introduced private participation in the distribution sector, under the input-based distribution franchise model. Four cities (urban areas) have been awarded to private entities—Kota and Bharatpur (under Jaipur DISCOM) in June 2016; Bikaner (under Jodhpur DISCOM) in February 2017 and Ajmer (under Ajmer DISCOM) in March 2017. This covers around 5 percent of the around 11.60 million consumer base of the DISCOMs. In addition, a Metering, Billing, and Collection model pilot for Bhilwara City (under Ajmer DISCOM) has been awarded to a private sector undertaking in October 2017. Preliminary reports indicate that this approach is showing already encouraging results, while it has had a secondary effect of influencing positively the performance of the state-owned DISCOMs in neighboring areas.
- (c) Additional measures to reduce power supply costs for distribution sector include the following:
- Cost optimization initiatives in State Genco (RVUNL) such as (a) appointing a professional industry expert as the head of RVUNL and (b) signing of an MoU between RVUNL and NTPC for transfer of Chhabra Thermal Power Plant (1 GW under operation and 1.32 GW under construction—about 20 percent of total installed capacity in the state) to help bring in efficiency in operations and reduce generation costs from the plant and

- Efficiency improvement measures in the State Transco (RVPNL) such as (a) outsourcing of O&M activities in 108 Nos. 132 kV substations has been initiated that is expected to result in annual savings of INR 3 million per substation, (b) implementation of ERP-SAP in the company, and (c) implementing one project under Tariff-Based Competitive Bidding and two projects under Viability Gap Funding.

74. **Direct Benefit Transfer of Electricity (DBTE) subsidy for agriculture consumers.** The GoR in partnership with Jameel Poverty Action Lab has also initiated a pilot for DBTE subsidy for agriculture consumers (farmers). The current subsidy delivery mechanism of providing subsidy to DISCOMs and charging subsidized tariffs to agriculture consumers, faces challenges of (a) poor accounting of electricity consumption by agricultural consumers and (b) no incentive for the farmer to conserve electricity leading to an adverse impact on the groundwater table in a water-stressed state. The World Bank is proposing Energy Sector Management Assistance Program technical assistance to this pilot for DBTE subsidy for agriculture consumers.

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

75. **The proposed reform program supports the World Bank's twin goals of poverty reduction and shared prosperity.** The proposed Operation is consistent with the World Bank Group (WBG)'s Performance and Learning Review of the Country Partnership Strategy for India (Report No. 99283-IN), discussed by the Executive Directors on October 20, 2015. The operation is aligned with the findings of the Systematic Country Diagnostic for India, which emphasizes that India need to focus on a more resource-efficient growth path and better performing public sector to meet its increasing demands for energy. 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 growth-enhancing and 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 facilitate commercial and industrial development.

76. **The World Bank is also supporting the state of Andhra Pradesh's 24x7 PFA program (P155038) and during implementation, activities to exchange knowledge and experiences between the distribution sector in the two states will take place.** The proposed operation has also strong linkages to the World Bank's proposed Strengthening Public Financial Management in Rajasthan Project (P156869) that clearly shows the GoR's resolve and commitment to continue to strengthen its public finances and bring macrocosmic and fiscal stability in the state. The World Bank has recently also prepared a Rajasthan-Inclusive and Sustained Growth Report (P159005), which confirms the importance of freeing up resources from power sector subsidies toward higher-priority spending on human and physical capital accumulation.

4.4 CONSULTATIONS, COLLABORATION WITH DEVELOPMENT PARTNERS

77. **The GoR has consulted broadly for the proposed operation.** The GoR has a track record of regularly consulting with stakeholders, and during preparation of the proposed program, it has reached out to several groups. It has held consensus building workshops on the different elements

of its turnaround strategy, and around private sector participation in distribution ensuring that all branches of government, related authorities, civil society, and the companies provided input to the process. The state's task force on the sector has also held consultations with employees of DISCOMs, and several other stakeholders. Furthermore, the regulatory process requires broader consultations on tariff submissions. These consultations are carried out by RERC.

78. Development partners in the power sector in Rajasthan have been primarily focusing on the promotion of renewable energy investments. The Asian Development Bank is providing a multi-tranche facility of US\$500 million to the state transmission utility for supporting the building of transmission infrastructure associated with the solar projects being built with private participation. The financial sustainability of DISCOMs is a critical element for supporting investments in power generation and encouraging 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), contributes in the increase of renewable energy projects in Rajasthan. Furthermore, under UDAY, DISCOMs will undertake the obligation to comply with the Renewable Energy Purchase Obligations as prepared by the GoI and will support further the efforts of other development partners. In addition, U. K. Department for International Development (DFID), in 2017, launched a five-year technical assistance program to support power sector reform in India with a focus to support the GoI with design and implementation of faster, better-targeted reforms to the power sector, at central level and in up to three states—Rajasthan has been selected as one of the priority states for this program and the World Bank will be closely working with DFID in this area.

5. OTHER DESIGN AND APPRAISAL ISSUES

5.1 POVERTY AND SOCIAL IMPACT

79. A Poverty and Social Impact Analysis (PSIA) has been carried out in support of the proposed program. The PSIA seeks to identify the potential impacts of the proposed prior actions on the poor and vulnerable HHs (interchangeably referred to as BPL HHs and HHs in the bottom quintile) in Rajasthan. The analysis uses data from a primary survey of residential electricity consumption conducted in two districts of Rajasthan to study the potential impacts on the poor. The PSIA identifies the channels which can have direct impacts on the welfare of the poor: (a) improvements in access and supply quality, (b) the control on informal connections, and (c) price incentive according to the tariff order for FY17/18. The impact of these can be analyzed by broadly categorizing them along the three dimensions of access, affordability, and quality of power.

80. Access to electricity is high in the state of Rajasthan with the primary survey data revealing 99 percent of urban HHs and over 92 percent of the rural HHs connected to electricity in the two districts (refer annex 7, table 7.1). According to the survey data, 90 percent and 98 percent of rural HHs in the bottom and top quintiles respectively access electricity for domestic use. Meanwhile, 99 percent and 100 percent of the urban HHs in the bottom and top quintiles respectively are connected to electricity for domestic use. The National Family Health Survey of 2015–2016 reflects these findings, reporting a 91 percent electrification rate (99 percent urban, 88 percent rural) in the entire state. A financially sustainable and commercially oriented electricity distribution sector because of this DPL will increase access to electricity along the remaining 10

percent of the poorest HHs in the sampled rural areas and approximately 12 percent of rural HHs in the entire state.

81. **The tariff schedule is progressive in nature.** The tariff schedule in Rajasthan follows an increasing block tariff structure where high consumption HHs are charged a higher energy cost to incentivize energy conservation. The application of fixed charges in the tariff schedule, however, increases the average price of electricity for low consumption HHs, which also tend to be the poorest. To mitigate the high average price for the poorest HHs, the utility provides an energy cost subsidy of INR 1.9 per kWh and INR 1.3 per kWh and fixed cost subsidy of INR 30 per connection for BPL and above poverty line HHs consuming less than 50 units per month. This price incentive renders the regressive nature of fixed costs on the overall tariff schedule neutral, resulting in an average price per unit of approximately INR 6.7 across the income quintiles.

82. **Affordability of electricity is moderately high under the current tariff schedule.** While the tariff schedule is progressive over the income distribution, the price incentives provided in the tariff schedule combined with the fixed and energy charges, implies that the share of electricity expenditures on HH's income is about 10.7 percent for the poorest HHs (refer annex 7, figure 7.6). According to Foster and Yepes (2006),³⁸ electricity is globally considered affordable if the share of electricity expenditure is about 6 percent to 8 percent of the income. Based on this benchmark, electricity is moderately affordable.

83. **To further mitigate the price effects on the poorest HHs, the DPL includes measures to promote the use of energy-efficient lighting, including distribution of free LED lamps to BPL consumers.** This measure would result in considerable savings in the form of reduced electricity consumption and, therefore, lower electricity expenditures especially for poor HHs that primarily use electricity for lighting. One of the key objectives of UDAY is to promote energy efficient solutions. According to the 'Rajasthan 24x7 PFA' report (2014), the use of energy efficient lamps is likely to reduce the state's electricity consumption significantly.

84. **Higher costs toward taking formal connections, as DISCOMs tighten controls, are mitigated by better supply quality.** HHs with potentially informal connections³⁹ belong to the bottom two quintiles of income distribution in the two districts (refer annex 7, figure 7.7) and tend to possess BPL cards more than formally connected HHs in their region (refer annex 7, figure 7.8). As DISCOMs start tightening informal connections, HHs in these informal categories can potentially find electricity prices to be unaffordable. However, based on their appliance ownership and the reported daily usage (refer annex 7, figure 7.9), the total electricity usage of these HHs is currently quite low—implying that their share of expenditures on electricity under current prices will be low as well. Moreover, improved quality of supply through a formal electrical connection may lead to an overall increase in HH income. Chakravorty, Pelli, and Marchand (2013)⁴⁰ show that a rise in quality of power in Indian HHs results in an increase of 28.6 percent HH income over 11 years (implying an annual increase of 2.6 percent in HH income on average). The higher price

³⁸ Foster, V., and T. Yepes. 2006. "Is Cost Recovery a Feasible Objective for Water and Electricity? The Latin American Experience." Policy Research Working Paper 3943, World Bank, Washington, DC.

³⁹ Refer to annex 7, section 10 for a description of these HHs.

⁴⁰ Chakravorty, U., Pelli, M., & Marchand, B. U. (2014). Does the quality of electricity matter? Evidence from rural India. *Journal of Economic Behavior & Organization*, 107, 228-247.

of formal connections can, therefore, be mitigated by income increases due to higher supply quality.⁴¹

85. Affordability for the poor will not be affected by increases in fixed costs and non-salient price incentives. The increase in fixed cost charges for new connections from INR 100 (fixed cost for small domestic) to INR 200 (fixed cost for general domestic) according to the regulator’s tariff order for FY17/18⁴² is not expected to adversely affect the affordability of poor HHs seeking a new connection or informally connected HHs applying for a formal line—as long as their consumption remains below 50 units.

86. Improvements in supply quality will improve welfare outcomes of all HHs, including poorer ones. Lower quality of supply in the form of power cuts affects welfare by adversely affecting children’s education more than other HH activities (refer annex 7, table 7.2). Approximately 5 percent to 6 percent of the HHs reported suspending children’s educational activities for the entire day when faced by these cuts (refer annex 7, figure 7.2). Improvements in supply quality will, therefore, positively affect these HHs the most. Moreover, the percentage of HHs reporting an adverse impact on education due to power cuts is highest in the lowest quintiles of the income distribution—potentially reflecting the limited coping strategies available to poorer HHs to deal with these power cuts (refer annex 7, figure 7.1). Thus, improvements in supply quality will result in positive impacts for all HHs affected by power cuts, but the intensity of the effect will be potentially higher for the poorer HHs.

87. Gender. Sustained improvements in electricity supply and progress with the PFA program should benefit the lives of women and girls in Rajasthan. Access to modern energy and electricity contribute to health, livelihood, and gender benefits. Women and girls are often primarily responsible for HH activities that become substantially easier and less time consuming when reliable electricity is available. Better supply quality can also enhance efficient intra-household allocation of labor and capital in economic activities—for example allowing HHs to make use of electromechanical appliances. Moreover, electricity facilitates increasing economic and empowerment opportunities for women, better education outcomes for girls, as well as overall better safety and health. Thus, this operation is expected to help address gender-specific issues, because of its overall objective of improving the quality of electricity supply.

88. Gap 1 identified and assessment. The PSIA survey done for the operation identifies Access and Quality of Access as a gap. According to the survey, female-headed HHs, on average,

⁴¹ However, a different study using the same dataset, Khandker, Barnes, and Samad (2012), finds that electrification access increases school enrollment by about 6 percent for boys and 7.4 percent for girls. In addition, electrification also increases weekly study time by more than an hour, more so for girls than boys. This is reflected in educational outcomes: owing to HH electrification, the average completed schooling year increases by about 0.3 and 0.5 for boys and girls, respectively. The study also finds a greater positive impact of electricity access on female labor supply relative to men: HH access to electricity increases employment hours by more than 17 percent for women and only 1.5 percent for men (Khandker, S., Barnes, D., & Samad, H. (2012). *The Welfare Impacts of Rural Electrification in Bangladesh*. *The Energy Journal*, 33(1), 187-206. Retrieved from <http://www.jstor.org/stable/41323350>)

⁴² Only for consumers with monthly consumption above 50 units, as indicated in tariff order for FY16/17 and FY17/18 issued by the RERC in November 2017.

report a higher effect of power cuts on HH daily chores such as cooking and washing or cleaning (refer annex 7, figure 7.3).

89. **Potential gender-specific action.** Under the 24x7 PFA program, the GoR and DISCOMs aim to provide universal access and 24x7 power to all (except agriculture consumers) by 2019. Improvements in supply quality and reduction in power shortages as part of the priority reforms #1, 2, and 6 will support DISCOMs in providing universal access and improving quality of electricity supply which may free female members of the HH from domestic chores and, thus alleviate the problems faced by female-headed HHs in relation to these tasks.

90. **Potential gender indicators.** Various evaluation studies⁴³ of India's rural electrification program have also indicated that the program has made a significant difference to the lives of women in rural India and has empowered the rural women. In the case of Rajasthan, the survey report states that 75 percent of women surveyed in Rajasthan stated that they can work in the fields after electricity reached their homes and accordingly the 24x7 PFA objective will benefit the lives of females. Given that flow and provision of electricity does not make a distinction based on gender, the results will be measured through a proxy indicator on number of HHs in the state provided with electricity access that can then benefit the lives of females. The progress of the same will be tracked from the national level dashboard available at <http://saubhagya.gov.in/saubhagya/>.

91. **Gap 2 identified and assessment.** Low participation of women in the DISCOM workforce (Access to Jobs). Women are traditionally underrepresented in the power sector, across the globe. According to a United States Agency for International Development study on "Engendering Utilities: Improving Gender Diversity in Power Sector Utilities, 2016", women's employment within power distribution utilities in a sample survey across 14 utilities in Eastern Europe, South Asia, the Middle East, and Africa averages only 13 percent of the workforce. The Rajasthan DISCOMs have a similar situation, and the female participation in the workforce has remained lower than the males (as in most of the other Indian states). The three DISCOMs together have 4.2 percent working female employees in a total working employee and officer strength of around 44,400.⁴⁴ With a view to encouraging female participation in the workforce, DISCOMs have a policy providing for a 30 percent reservation for females in case of direct recruitment for vacant posts. The DISCOMs will be paying special attention to this area, particularly under the policy reforms on the creation of an IT cadre, to increase the proportion of women employed at the DISCOM in IT functions.

92. **Potential gender-specific actions.** DISCOMS will undertake outreach and training programs that support building the skills of existing female staff and/or entry of females into the DISCOM workforce.

93. **Potential gender indicators.** The gender disaggregated percentage of positions filled in IT cadre in DISCOMs with a baseline of 0 in FY15 has a target of reaching 15 percent share of females by September 2019.

⁴³ <http://pib.nic.in/newsite/PrintRelease.aspx?relid=102977>.

⁴⁴ The percentage of female employee varies from 3.43 percent in JdVVNL to 3.90 percent in JVVNL and 5.27 percent in AVVNL.

5.2 ENVIRONMENTAL ASPECTS

94. **The reforms supported by this operation are not likely to have adverse effects on the environment and natural resources.** The proposed reforms to improve operational performance, efficiency gains, and reduction of losses should have a positive environmental effect 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 measures to encourage the development of renewable energy and reduce losses, the project is expected to contribute toward slowing down the rate of growth of carbon dioxide emissions and reducing local pollutants.

95. **The Ministry of Environment, Forests, and Climate Change is responsible for the management of environmental resources in the country.** India has a well-established system for consideration of environmental impacts of development activities. This Environmental Clearance system functions under the Environment Protection Act, 1986 with a special instrument—Environmental Impact Assessment notification, which has been revamped in 2006, and continues to be modified to handle new situations as they arise. It is focused on 36 categories of project activities—which in the electricity sector pertain to generation of power. Other aspects—transmission and distribution (which is the focus of the program in Rajasthan) are less regulated except when forest land is involved. Statutory clearance is required for change of land use from forest to non-forest. This requirement is formalized under the Forest Conservation Act, 1980.

96. **Any diversion of forest land requires payment of charges for compensatory afforestation, and net present value of land diverted to non-forest use, by the user agency.** The penalties for noncompliance are quite strict and can lead to prosecution. Higher level of protection is offered to wildlife havens and recognized protected areas require elaborate scrutiny, that could go up to the National Board of Wildlife, depending on the issues involved. The Supreme Court of India has constituted an Empowered Committee to oversee such diversion and confirms that the stipulations made by the committee will be implemented throughout the project implementation period and beyond, if appropriate.

97. **On the management of hazardous substances, which may be used in transformers (for example oil), and in bulbs, specific rules have been enacted under the Environment Protection Act, 1986.** As recently as 2016, these have been updated⁴⁵ and have specific requirements, including recycling certification, and in some cases extended producer responsibility, to handle such waste material. Construction-related issues such as local/temporary water pollution and air pollution due to construction equipment, are the contractor's responsibility and are covered under specific legislation focused on protecting their quality. These functions have been delegated to Rajasthan State Pollution Control Board (RSPCB) as an organ of the state government. It monitors these through its regional offices spread across the state. The capacity of the RSPCB is periodically strengthened by the training programs covering specific aspects, including those for energy-related impacts. It has a long track record of managing the Environmental Impact Assessment process and issuing various guidelines. Recently, the guidelines for handling compact fluorescent lamps have also been issued by the Central Pollution

⁴⁵ http://www.epcb.nic.in/upload/Latest/Latest_135_GUIDELINES-E-WASTE_RULES_2016.pdf.

Control Board, GoI, which would be operationalized in the context of each state, including in Rajasthan by the RSPCB.

98. **The tariff reforms to improve the financial performance of the distribution sector do not pose risk of poor HHs switching to solid fuels as electricity is not a key source of cooking in India.** In fact, with increased access to electricity, there may be reduced dependence on solid fuels. Increased access to clean cooking (with positive impact on the health of women and children) by providing clean cooking fuel, liquefied petroleum gas (LPG) is also under way as part of the GoI's Pradhan Mantri Ujjwala Yojana, where Rajasthan is a major beneficiary. Until now, more than 2.46 million new BPL connections under this scheme have been provided in the state with total number of HHs with access to gas now at more than 83 percent.

99. **Reduction in greenhouse gas (GHG) emissions.** Energy efficiency measures will decrease the emission of GHGs. Based on the 15.34 million LED lamps distributed till June 5, 2018 in the state, it is estimated that the state has saved more than 1,992,546 MWh of energy annually, avoided around 399 MW of peak demand, and saved around 1,613,962 ton of carbon dioxide (tCO₂) emissions annually.⁴⁶ In addition to this GHG mitigation, there will also be a corresponding decrease in emission of locally important pollutants like particulates and SO₂. In addition, the state has also launched the Energy Efficient Street Lighting Program under which all the urban municipal bodies are being covered. Under this program, 919,229 streetlights⁴⁷ have been replaced so far, resulting in 61.93 MW of avoided peak capacity and GHG emission reduction of about 206,373 tCO₂.

5.3 PFM, DISBURSEMENT, AND AUDITING ASPECTS

100. **The GoI and the GoR have adequate financial management systems.** An initial assessment of the public financial management (PFM) systems in the GoR was undertaken by the World Bank as part of preparation of the Strengthening Public Financial Management in Rajasthan Project (P156869). This assessment suggests that the framework for public financial accountability in the GoR is generally sound, although there is need for modernization in several areas which the GoR is in process of addressing. Its current strengths include the Integrated Financial Management System—which is a web-based system for capturing the 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 and the website: <http://finance.rajasthan.gov.in>. The Rajasthan Transparency in Public Procurement Act, passed in May 2005, provides the framework for further strengthening procurement regulations. The quality of an audit impact has been enhanced through the development of an IT database of audit reports and compliance that tracks responses on audit observations. There are regular external audits 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 Strengthening Public Financial Management in Rajasthan Project, which will be implemented in close conjunction with this DPL program.

⁴⁶ <http://ujjala.gov.in/state-dashboard/rajasthan>

⁴⁷ Regular progress update is available on <http://www.eeslindia.org/slnp/>

101. **The World Bank has reasonable assurance that the control environment for foreign exchange in the 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's audit report and published annual financial statements for the year, that ended in June 30, 2017, were reviewed by the World 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 are 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, that is, the GoI will submit, to the World Bank, a withdrawal application for the loan. The World Bank will disburse the U.S. dollar proceeds of the loan to the 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 loan proceeds, the GoI will transfer the equivalent Indian rupee amount to the GoR according to the guidelines for the transfer of external assistance to the states. The GoR will confirm to the World 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 is used to finance excluded expenditures, the legal agreements will authorize the World Bank to require India or Rajasthan (through India) to refund the amount. The amounts so refunded shall be cancelled from the loan.

5.4 MONITORING, EVALUATION, AND ACCOUNTABILITY

102. **Strengthening the monitoring and evaluation systems is an integral part of the proposed operation.** The main objective of the operation concerns performance improvements and that key indicators have been agreed under the tripartite agreements stipulated in the GoI's UDAY initiative. Furthermore, advanced metering systems, pre-paid metering, and the performance incentive schemes, KPI-based performance management system 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 force⁴⁸ for the turnaround of the sector, regular progress meetings are held monthly to follow key operational milestones of the current action plan. In addition, the DISCOMs' management reviews the performance indicators regularly. DISCOMs are, therefore, increasingly accustomed to regular reporting procedures. This approach has been further strengthened through the prior actions envisaged under the proposed program—for instance, under UDAY, a committee at national level with representatives from Ministry of Power and Ministry of Finance is now regularly reviewing the performance on regular basis and a national level portal (www.uday.gov.in) has been established that collates data from all states, which have joined UDAY, and provides relative

⁴⁸ A three-member task force was constituted by the state government in February 2015, to help the state in its efforts toward turning around the sector.

ranking in improvements made. Further, additional monitoring systems under the RSEDMR Act have also been put in place wherein the Chief Secretary of State also reviews the performance on regular basis. These measures contribute to increasing the sector's transparency and public accountability.

103. **Citizen engagement.** In line with the provisions of the UDAY MoU and as part of their broader outreach efforts, DISCOMs have taken a number of initiatives to actively engage with the consumers and get their feedback. Centralized toll free, 24x7 call centers have been established in each DISCOM with defined service levels, auto escalation, SMS alerts, and online monitoring. These call centers handle complaints regarding supply failures, delay in replacement of burnt transformers, information on accident prone points, energy theft, misbehavior by DISCOM employee, and other technical grievances. The setting up of call centers has facilitated handling of the complaints expeditiously and has reduced the redressal time. DISCOMs are also creating a database of mobile number of all their consumers to provide SMS alerts and seek real-time feedback. Mobile numbers of more than 90 percent of the 11.6 million consumers have been collected. To redress the consumer grievances quickly, biweekly *chaupals* are being organized at all subdivisions and for release of electricity connections, biweekly camps are being organized. In addition, the publication of detailed results of energy audits at the feeder level and financial statements are introducing public accountability in the monitoring of the performance of the utilities. Further, the state regulator has a mechanism to seek public feedback on different proposals of DISCOMs that come for regulatory approval through the public comments/consultation process.

104. **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. 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

105. **The overall risk for the proposed loan is Substantial.**

106. **Technical design and institutional capacity risk.** Efforts to improve the performance of the DISCOMs of Rajasthan will likely face considerable challenges. A performance culture has not been encouraged in the past for these utilities, 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. Furthermore, the lack of an accountability system in the past results in the absence of broad-based will to reform among company employees,

at all levels. The initiatives and approaches being taken to address operational inefficiencies under the program involve complex technical issues around energy auditing, metering, use of IT, and behavioral changes through putting in place a performance accountability culture. Some of the reforms proposed in this operation—primarily related to governance or employee accountability—could be either delayed or reversed by subsequent actions. However, the notification of the RSEDMR Act and UDAY implementation show political commitment to implement the reforms.

107. **Political and governance risk.** 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 for farmers to preserve resources and invest in more efficient means of production. In addition, it discourages DISCOMs from accurately monitoring the electricity used for irrigation. The GoR recognizes that the current system poses risks to the fiscal situation of the state and needs to be revisited, but any change in current system should consider the social and economic sensitivities of farmers regarding food production. A reform of power subsidies for agriculture, however, requires innovative solutions, broad stakeholder’s consultations, and political commitment to succeed. The state has started considering the issue and is undertaking a pilot project on direct delivery of energy subsidies to agriculture consumers, implementing the modern subsidy delivery systems that are currently expanding in the other sectors in Rajasthan.

108. **A related risk concerns the political alignment of the GoI and the GoR.** DISCOMs in Rajasthan depend on the GoI for (a) the financing for investments for access and modernization through grants and (b) coordinated approaches across states to reduce the wholesale cost of energy. Therefore, when the political objectives of Central and state governments are misaligned, the sector may become a victim of delays and lack of resources. However, as demonstrated by the preparation and UDAY implementation in recent years, the GoR and the 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.

109. **Stakeholder risk.** There is a risk of political, social, and industrial opposition to further increases in the retail electricity tariff without corresponding improvements in the quality of service. For instance, after protests by farmers against the announced increase in tariff order of September 2016, the GoR agreed to provide additional subsidy in February 2017, and absorb the tariff increase for agricultural consumers. Considering this risk, the GoR and DISCOMs have maintained tariff levels and are focusing all their efforts toward reducing losses and optimizing costs. Further, there is a risk that vested interest may oppose measures to improve commercial performance and increase accountability. The state government is undertaking direct engagement with the different stakeholders, particularly the political class and the employees of DISCOMs, to improve transparency and reduce corrupt practices in the sector. In addition, DISCOMs are also undertaking consumer outreach programs to address their concerns and seek their cooperation in reducing losses.

110. **Sector strategies and policies risk.** Sustaining initiatives for performance improvements and increasing the autonomy of DISCOMs will remain the main short-term risks. To achieve the ambitious recovery targets, DISCOMs will need continuous and sustained focus on performance improvements. The Government and DISCOMs have shown commitment to move in that direction as demonstrated by declining trend in AT&C losses and the award of four cities to private players

under distribution franchisee initiative with encouraging initial results. Under the initiative, the private sector has been delegated the O&M of distribution areas, under agreed performance improvements trajectories. The GoR and DISCOMs are further working to pilot alternative models to involve the private sector in distribution sector operations. This gradual approach is also expected to incite comparisons with the incumbent utilities and could result in overall improvements.

111. **Hydrological/weather risk.** Finally, adverse weather might force the GoR 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 majority of agricultural and rural population, whose activities are quite sensitive to rainfalls. A drought year will imply additional financial burden on DISCOMs for power purchases to supply more power to agriculture consumers. This exogenous risk will be partly mitigated by better auditing of energy supply to agriculture and the GoR initiatives to improve energy efficiency.

112. **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 a window of opportunity to mitigate and address some of the key risks. As shown by number of states⁴⁹ joining the UDAY program, there is a broad consensus in Rajasthan, and throughout the country, on measures to deal with operational and financial losses of the distribution sector. The approach is underpinned by the significant exposure of financial institutions and capital markets to utilities and other power sector entities that depend ultimately on healthy financial cash flows of the distribution sector for their revenues.

Table 6. 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

* H: High; S: Substantial; M: Moderate; and L: Low

⁴⁹ A total of 32 states/union territories have joined the UDAY Program till date.

ANNEX 1: POLICY AND RESULTS MATRIX

Prior Actions for First Operation in the Series	Proposed Prior Actions for Second Operation in the Series	Result Indicators
Policy Area A: Strengthening the Governance Framework in the Rajasthan Electricity Distribution Sector		
1. Rajasthan has issued and notified the Electricity Distribution Management Responsibility Ordinance	1. The Government of Rajasthan has entered into Memoranda of Understanding with each of the DISCOMs setting out targets for key performance indicators regarding: (a) AT&C losses, (b) energy accounting and auditing, (c) billing and collection efficiency, and (d) filing of revenue and/ or tariff petitions for FY17/18.	
2. The DISCOMs have developed and obtained approvals for their Employee Performance Incentive (EPI) schemes.	2. The DISCOMs have approved a Transfer Policy and Performance Management Policy, for their employees.	<ul style="list-style-type: none"> • Incentive for Performance during FY Baseline: 0 in FY15 Target: Incentive for performance in FY19 disbursed (by September 2019)
3. The DISCOMs have completed the audited financial statements for FY14/15.	3. The DISCOMs have started the implementation of their Corporate Governance and Financial Accountability Plans, duly adopted by their Boards of Directors, by publishing their audited financial statements for FY16/17	<ul style="list-style-type: none"> • Date of availability of audited annual accounts Baseline: December 31, 2015 (delay of three months) Target: September 30, 2019 (within six months of end of FY)
Policy Area B: Enhancing Policies to Restructure the Finances of the Rajasthan Electricity Distribution Sector		
4. The Union Government, Rajasthan and the DISCOMs have entered into tri-partite MoUs for the implementation of UDAY program.		<ul style="list-style-type: none"> • Annual loss of DISCOMs to be taken over and funded by State, as provided under UDAY program Baseline: 0 in FY15 Target: 10% in FY19
5. The DISCOMs have filed with RERC their annual revenue requirements and tariff petitions for FY16.	4. The DISCOMs have filed with RERC their annual revenue requirements and tariff petitions for FY17/18.	<ul style="list-style-type: none"> • Gap between ACoS and ARR Baseline: INR 3.00/kWh in FY15 Target: INR 0.70/kWh in FY19
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	5. Rajasthan Urja Vikas Nigam Ltd. ('RUVNL') is operational and power purchases (including renewable energy purchases) for DISCOMs are made through RUVNL	

Prior Actions for First Operation in the Series	Proposed Prior Actions for Second Operation in the Series	Result Indicators
Policy Area C: Improving Operational Performance of Distribution Utilities		
	<p>6. The DISCOMs have published completed periodic energy audits of 90% of their respective feeders at their websites and initiated, since December 2016, a Loss-Based Load Scheduling Program</p>	<ul style="list-style-type: none"> • AT&C losses (%): Baseline: 29.5% in FY15 Target: 17% that is, reduction of 12.5 percentage points over baseline by FY19
<p>7. The DISCOMs have approved Business Plans for improved operational performance and initiated its implementation, including on:</p> <p>a) Pre-paid Metering Program for government consumers; and</p> <p>b) The Energy Efficiency Lighting Program</p>	<p>7. The DISCOMs have implemented a unified billing system, including billing large and medium industrial consumers based on an automated meter reading system.</p> <p>8. The DISCOMs have (a) started implementation of their approved IT Roadmaps by preparing detail project reports for ERP deployment and (b) created an IT cadre and started mapping IT professionals accordingly</p>	<ul style="list-style-type: none"> • Number of consumers put on pre-paid/ Automatic Meter Reading (AMR)/ Advanced Metering Infrastructure (AMI) meters Baseline: 0 in FY15 Target: 100,000 by September 2019 • Number of LED lamps distributed Baseline: 0 in FY15 Target: 16,000,000 by September 2019 • Percentage of positions filled in IT cadre in DISCOMs Baseline: 0 in FY15 Target: 75% by September 2019 (with gender disaggregated data) • Number of unelectrified Households in State Baseline: 21,82,180 (as of October 10, 2017) Target: 7,50,000 (by September 2019)

ANNEX 2: LETTER OF DEVELOPMENT POLICY

सुभाष चन्द्र गर्ग, भा.प्र.से.
सचिव
Subhash Chandra Garg, I.A.S.
Secretary



भारत सरकार
वित्त मंत्रालय
आर्थिक कार्य विभाग
Government of India
Ministry of Finance
Department of Economic Affairs

D.O. No. 06/07/2015-FB-VIII

Date: 16.04.2018

Dear Dr. Kim,

I am attaching a letter of Development Policy dated 04th April, 2018, from Chief Secretary, Government of Rajasthan. The letter outlines the policies and related actions through which the Government of Rajasthan proposes to promote inclusive economic growth and rapid self-sustainable development of the power sector in the State of Rajasthan. These are an ambitious set of policies and related actions towards sustainability across the key engines of holistic growth in the State.

2. For this purpose, the State Government of Rajasthan has sought an external assistance of USD 250 million is proposed for financing through IBRD loan.

3. Government of India supports this continued initiative and commends the proposal of USD 250 million as a Development Policy Loan for consideration of the World Bank.

Encl: As above.

Yours sincerely,


(Subhash Chandra Garg)

Dr. Jim Yong Kim
President
The World Bank
1818 H Street, NW
Washington DC 20433
USA.



सत्यमेव जयते

Nihal Chand Goel
Chief Secretary



GOVERNMENT OF RAJASTHAN
Government Secretariat, Jaipur-302 005

DO No. F.15(21)Energy/2014/Pt.
04 April, 2018

**Sub: Second Programmatic Electricity Distribution Reform
Development Policy Loan for Rajasthan - Letter on
Development Policy**

Dear Subhash,

You would be aware that the Government of Rajasthan had requested Development Policy Loan of US\$ 500 million with technical and financial assistance of the World Bank, to support the State in the financial and operational turnaround of its power distribution utilities. In the above context, several rounds of discussions were held with the World Bank team, and it was agreed to split the loan into two phases of US\$ 250 million each and a list of prior actions for both phases of the loan were mutually finalized. The first phase of the loan was approved in March 2016, fully disbursed in June 2016 and closed satisfactorily in March 2017. The State Government is now seeking support of Ministry of Finance for availing the second phase of the Development Policy Loan.

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

We believe that 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. The State is rapidly moving towards connecting the remaining unelectrified households and provide 24x7 power supply to all consumers of the state by FY19, as per our “Power for All” roadmap.

However, Rajasthan Electricity Distribution Companies (Discoms) were facing a severe financial crisis in 2014-15 when Rajasthan started working with Government of India and the World Bank on policy and institutional reforms for the turnaround and ensuring financial sustainability of the sector. I present the policy in brief here:

In early 2016, the Government of Rajasthan (GoR) announced its plans for the Electricity Distribution sector, with the notification of Rajasthan State Electricity Distribution Management Responsibility (RSEDMR) Act having 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 directive and various other measures.”*

- **Performance MoUs:** As mandated under the RSEDMR Act, the State Government and the Discoms have started signing annual performance MoUs from FY16-17 onwards. [The MoUs for FY18-19 are expected to be signed shortly]. The MoUs 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 of the State. First such Statement was presented to the State Legislative Assembly in the month of March 2017.
- **Corporate Governance:** To ensure strong corporate governance, the RSEDMR Act also mandates that the State Government shall

ensure that the Board of Directors of the State Discoms have an optimum combination of functional, nominee and independent directors. In this regard, the State has already moved ahead and appointed reputed experts in June 2017 as independent directors not only on the board of the Discoms but also on the other state power companies.

- **Employee Engagement:** Several initiatives have been taken to improve employee engagement. This includes mapping of activities and KRAs and KPIs of all employees; introducing a KPI based performance appraisal system from FY17-18 onwards; introducing an Employee Performance Incentive Scheme linking incentives to performance (with the scheme being modified recently); assessment of training needs of employees and implementing capacity building programs; and inducting fresh blood through lateral entries.
- **AT&C Loss reduction:** 100% of the DISCOM consumers have been migrated to a unified centralized computerized billing system since July 2016 and 100% energy audit of 11 kV feeders has been started. Loss based Supply Management program has been started from December 2016 with implementation in one feeder (having the highest AT&C loss) per sub-division being taken up and this is planned to be continued till the AT&C loss comes down to the level of 15 percent or less. At present, more than 14,000 feeders out of around 20,000 feeders in the State have been brought under this level.
- **Customer Service:** Centralised toll free, 24x7 call centres have been established in each DISCOM with defined service levels, auto escalation, SMS alerts and online monitoring. Mobile numbers of more than 90% of the 11.5 million Discom consumers have been collected and fed into a central database.
- **Demand Side Management and Energy Efficiency:** The State has taken initiatives like launch of energy efficient street lighting program under which all the urban municipal bodies are being covered and more than 0.77 million streetlights have been

replaced; replacement of incandescent bulbs with LEDs with more than 14.5 million LED lamps being distributed in the State.

- **Building Partnerships with Private Players:** The Discoms have awarded four towns to established private players on distribution franchise model - Kota and Bharatpur (under Jaipur DISCOM) in June 2016; Bikaner (under Jodhpur DISCOM) in February 2017 and Ajmer (under Ajmer DISCOM) in March 2017. This covers around 5 percent of the consumer base of the DISCOMs and the model has given encouraging positive results.
- **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 is being used/ will be used are energy auditing, online billing, electronic payment, centralised customer care, ERP (already implemented in Transco and DPR ready for Discoms); social media for better outreach. The Discom Boards have also recently approved IT roadmaps that provide short, medium and long term direction to the IT initiatives. Recognizing the importance IT will play in the future business operations, the State government has also recently approved the creation of an IT cadre for the Discoms that will allow them to build adequate and professional skills in this critical area.
- **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 channels of communication to reach out to different stakeholders on regular and continuous basis and make them an important part of this process and journey.
- **Cost optimization:** Rajasthan Urja Vikas Nigam has been made operational in April 2016 and 100% of the power purchases of the DISCOMs are being managed by it and the same has helped in keeping power purchase costs low. As against a power

purchase cost of Rs.4.20/kwhr in FY 2013-14, it is expected to remain about Rs. 4.36 in FY 2017-18.

- **Asset Monetization and Disinvestment:** The State Genco has signed an agreement with NTPC for transfer of Chhabra Thermal Power Plant (1000 MW under operation and 1320 MW under construction) to help bring in efficiency in operations and reduce generation costs from the plant.
- **GoR sustained commitment:** As per the commitments made by the State Government and Discoms under the tri-partite MoUs signed with GoI for the implementation of UDAY program, GoR has taken over Rs. 624.22 billion debt (75% of the total outstanding debt) of DISCOMs in FY16 and FY17.
- **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 reviews the implementation progress of the different initiatives as well as achievements against monthly targets to ensure that corrective actions are taken at the right time.

The different initiatives have started showing results and the combined financial loss of the Discoms has reduced from Rs. 156 billion in FY14 to Rs 52 billion in FY17 and is expected to further go down in FY18. The aggregate technical and commercial (AT&C) losses of the Discoms have declined from 29.5% in FY15 to 23.81% in FY17 and are expected to further go down to 20% in FY18. Further, the gap between Average Cost of Supply and Average Revenue Realized has come down from Rs 3.65 in FY14 to Rs 1.02 in FY17.

The State has also recently met all the prior actions that were required for availing the second phase of the DPL. In conclusion, I would like to reiterate the commitment of the State Government to take the actions necessary to bring the operational and financial health of the distribution sector on a path of sustainable recovery and would request your support for

an early approval and disbursement of the second phase of US\$ 250 million under the programmatic loan assistance from the World Bank.

With regards,

Yours sincerely,



(Nihal Chand Goel)

Shri Subhash Chandra Garg,
Secretary,
Department of Economic Affairs,
Government of India,
New Delhi.

ANNEX 3: FUND RELATIONS

January 12, 2018

1. **This note provides the International Monetary Fund (IMF) staff's current assessment of India's macroeconomic conditions, prospects, and policies.** The assessment has been requested in relation to a proposed program loan to India to be considered by the World Bank.
2. **Overview.** The Indian economy has recorded strong growth in recent years, helped by a large terms of trade gain, positive policy actions including implementation of key structural reforms, a return to normal monsoonal rainfall, and reduced external vulnerabilities. However, growth began to slow in Fiscal Year (FY) 2016/17, and the balance of risks remains tilted to the downside.
3. **Growth.** Following a period of sustained strong performance, real Gross Domestic Product (GDP) growth slowed to 7.1 percent in FY2016/17 and decelerated further to 6 percent in the first half of FY2017/18. The slowdown is explained by structural weaknesses related to the twin balance sheet problems in the corporate and banking sectors, the dissipation of the earlier terms of trade gains, a transitory shock from the November 2016 currency exchange initiative, and ongoing implementation difficulties related to the July 2017 Goods and Services Tax (GST) rollout. With high-frequency economic indicators showing signs of a gradual rebound in recent months, growth is expected to recover in the second half of the current fiscal year and reach 6.7 percent in FY2017/18 and 7.4 percent in FY2018/19. Near-term growth remains underpinned by robust private consumption, while private investment is still constrained by weak corporate and public sector banks' balance sheets, still-low capacity utilization in core sectors, and supply-side bottlenecks
4. **Risks.** Economic risks are tilted to the downside. On the external side, rising oil prices could dampen domestic purchasing power and private consumption growth. Despite reduced external imbalances and strengthened reserve buffers, tighter global financial conditions could be disruptive. Domestic risks include delayed economic recovery due to significant uncertainty regarding the duration and persistence of the impact from GST implementation issues and further weakening of bank and corporate balance sheets. Moreover, uncertainty around state elections could derail the reform agenda. Nevertheless, enhanced investor confidence from further structural reforms are upside risks for India.
5. **External position.** The current account deficit (CAD) is expected to widen to 1.6 percent and 1.9 percent of GDP, respectively, in FY2017/18 and FY2018/19, on the back of rising oil prices and imports. Foreign Direct Investment (FDI) inflows have increased significantly in recent years, rising from US\$27 billion in FY2012/13 to US\$36 billion in FY2016/17, and are expected to continue to support financing of the CAD. Gross international reserves stood at about US\$400 billion in late-November 2017 (around eight months of import cover), an all-time high. As noted in the IMF's 2017 External Sector Report, the external sector position appears broadly consistent with medium-term fundamentals and desirable policy settings, with the rupee assessed to be broadly in line with fundamentals.

6. **Fiscal policy.** Consolidation continues with the FY2017/18 Budget targeting a deficit of 3.2 percent of GDP, in line with IMF recommendation. Nonetheless, the risk of fiscal slippage is mounting, mainly due to lower nontax revenue, recent cuts in GST rates and in the fuel excise tax, and uncertainty around GST revenues. In addition, states' farm loan waivers that may amount to 0.5 percent of GDP could result in lowering the quality of public spending, crowding out private sector borrowing, and adding to inflation. Going forward, further rationalization of the rate structure and improvements in the GST infrastructure and procedures would help increase the tax's efficiency and reduce compliance costs. Over the medium term, further reductions in fuel and food subsidies and tax reforms are needed to support the consolidation plans. India's public debt (about 70 percent of GDP at end-March 2017) is relatively high, but owing to a favorable growth-interest differential, debt is projected to remain sustainable (including under stress scenarios).
7. **Monetary policy.** Headline 12-month Consumer Price Index (CPI) inflation increased to 4.9 percent in November 2017 on rising food and oil prices, and a pick-up in core inflation, including due to housing allowance increases for public employees. Inflation is expected to remain around 5 percent in rest of the fiscal year, thus averaging about 3¾ percent in FY2017/18, reflecting low inflation in the first half. In the medium term, inflation is expected to rise further due to food supply constraints and sticky household inflation expectations, but should remain within the Reserve Bank of India's (RBI) medium-term inflation target band (4 percent CPI inflation \pm 2 percent). The current monetary policy stance of maintaining positive real interest rates is consistent with achieving the inflation target. Supply-side reforms, particularly in agriculture, continued fiscal consolidation, and relieving impediments to monetary transmission are prerequisites for ensuring low inflation in the medium term.
8. **Financial sector.** The completion of the asset quality review initiated by the RBI in March 2017 led to a large-scale recognition of distressed bank loans, primarily in public sector banks (PSBs), and contributed to a sharp increase in banks' loan loss provisions. The Government of India's recapitalization plan for the PSBs announced in October 2017 is a welcome step. The announced capital injections would likely be sufficient to address the capital requirements of the PSBs—including as estimated in the joint IMF-World Bank 2017 Financial Sector Assessment—and enhance banks' ability to lend and support the economy. Nevertheless, more details on the restructuring plans and conditions are needed to fully assess their implications. The implementation of the new Insolvency and Bankruptcy Law and additional debt recovery mechanisms should also help bridge critical gaps in the resolution of bank asset quality distress and enhance financial stability. Over the medium term, a broader strategy to improve PSB governance, further restructure PSBs, and reduce the role of public sector in the financial system would be crucial. In addition, a gradual reduction of the statutory liquidity requirement and priority sector lending would help intermediate funds more efficiently toward productive activities.
9. **Structural agenda.** India has made considerable progress on both the pace and the composition of structural reforms in recent years, including as evidenced by India's recent improvement in the World Bank's Doing Business Indicators. Important measures introduced include power sector reforms (coal mining, electricity distribution); further easing of FDI sectoral ceilings; enhancements to financial inclusion; and some limited steps to create more flexible labor and land markets (particularly at the state level). More needs to be done to

address long-term structural bottlenecks, particularly enhancing flexibility in labor markets, tackling obstacles to female labor force participation, land reforms, and product market and agricultural sector reforms.

10. **Medium-term challenges.** India's growth is expected to strengthen over the medium term, benefiting from productivity improvements following GST implementation. The structural reform agenda is promising and should translate into higher investment and employment. Failure to continue implementation of reforms would keep growth below its full potential.
11. **IMF relations.** On January 25, 2017, the IMF's Executive Board concluded the 2017 Article IV Consultation. The next Article IV consultation is expected to take place in May 2018. A joint IMF-World Bank Financial Sector Assessment was completed and published in late 2017.

Table 3.1. India: Selected Economic Indicators, 2013/14–2018/19 ¹

I. Social Indicators						
GDP (2016/17)						
Nominal GDP (in billions of U.S. dollars):	2,263			Poverty (percentage of population)		
GDP per capita (U.S. dollars):	1,726			Headcount ratio at US\$1.90 a day (2011):	21.2	
Population characteristics (2016/17)				Undernourished (2015):	15.2	
Total (in billions):	1.3			Income distribution (2011,		
Urban population (percent of total):	33			World Development Indicators)	29.8	
Life expectancy at birth (years):	68			Richest 10 percent of households:		
				Poorest 20 percent of households:	8.3	
				Gini index (2011):	35.2	
II. Economic Indicators						
	2013/14	2014/15	2015/16	2016/17 Preliminary	2017/18 Projected	2018/19 Projected
Growth (in percent)						
Real GDP (at market prices)	6.4	7.5	8.0	7.1	6.7	7.4
Industrial production	3.0	4.0	3.3	4.6	...	...
Prices (percent change, period average)						
Consumer prices – Combined	9.4	5.8	4.9	4.5	3.8	4.9
Saving and investment (percent of GDP)						
Gross saving ²	33.0	33.0	31.8	29.7	28.4	27.9
Gross investment ²	34.0	34.2	32.9	30.4	30.0	29.6
Fiscal position (percent of GDP) ³						
Central government overall balance	-4.7	-4.5	-4.1	-3.6	-3.5	-3.3
General government overall balance	-7.0	-7.2	-7.1	-6.6	-6.5	-6.3
General government debt ⁴	68.4	68.4	69.4	69.4	68.7	67.3
Structural balance (% of potential GDP)	-6.8	-7.1	-7.0	-6.4	-6.3	-6.2
Structural primary balance (% of potential GDP)	-2.1	-2.4	-2.3	-1.6	-1.4	-1.4

Money and credit (year-on-year percent change, end-period)

Broad money	13.4	10.9	10.1	10.6	8.9	14.4
Credit to private sector	13.7	9.4	10.7	8.0	5.4	14.8
Financial indicators (percent, end-period)						
91-day treasury bill yield (end-period) ⁵	8.9	8.3	7.3	5.9	...	...
10-year government bond yield (end-period) ⁵	8.8	7.8	7.5	6.8	...	...
Stock market (year-on-year percent change, end-period) ⁶	18.7	24.9	-9.4	16.8	...	...
External trade ⁷						
Merchandise exports (in billions of U.S. dollars)	318.6	316.5	266.4	280.1	313.4	343.1
(Annual percent change)	3.9	-0.6	-15.9	5.2	11.9	9.5
Merchandise imports (in billions of U.S. dollars)	466.2	461.5	396.4	392.6	457.0	504.8
(Annual percent change)	-7.2	-1.0	-14.1	-1.0	16.4	10.5
Terms of trade (Goods & Services, annual percent change)	2.1	3.0	6.0	1.4	-2.2	-0.6
Balance of payments (in billions of U.S. dollars)						
Current account balance	-32.3	-26.8	-22.1	-15.2	-39.1	-45.9
(In percent of GDP)	-1.7	-1.3	-1.1	-0.7	-1.6	-1.7
Foreign direct investment, net ('-' signifies inflow)	-21.6	-31.3	-36.0	-35.6	-40.7	-47.1
Portfolio investment, net (equity and debt, '-' signifies inflow)	-4.8	-42.2	4.1	-7.6	-9.8	-8.5
Overall balance	-15.5	-61.4	-17.9	-21.6	-27.9	-27.9
External indicators						
Gross reserves (in billions of U.S. dollars, end-period)	304.2	341.6	360.2	370.0	397.9	425.8
(In months of imports) ⁸	6.7	8.5	8.9	7.9	7.7	7.5
External debt (in billions of U.S. dollars, end-period)	446.2	474.7	485.0	511.8	552.5	597.5
External debt (percent of GDP, end-period)	24.0	23.3	23.2	22.6	22.6	22.4
<i>Of which: Short-term debt</i> ⁹	9.9	9.1	9.2	9.2	9.0	9.3
Ratio of gross reserves to short-term debt (end-period) ⁸	1.7	1.8	1.9	1.8	1.8	1.7
Debt service ratio ¹⁰	5.9	7.6	8.8	7.8	7.9	8.3
Real effective exchange rate (percent change) ¹¹						

(based on annual average level)	-2.0	7.0	5.9	1.7	...	...
Exchange rate (rupee/U.S. dollar, end-period) ⁵	58.4	59.7	63.9	68.6	...	...
Memorandum item (in percent of GDP)						
Fiscal balance under authorities' definition	-4.4	-4.1	-3.9	-3.5	-3.3	-3.0

Sources: Data provided by the Indian authorities; CEIC Data Company Ltd; Bloomberg L.P.; World Bank, World Development Indicators; and IMF staff estimates and projections.

Note:

1. Data are for April–March fiscal years.
2. Differs from official data, calculated with gross investment and current account. Gross investment includes errors and omissions.
3. Divestment and license auction proceeds treated as below-the-line financing.
4. Includes combined domestic liabilities of the center and the states, and external debt at year-end exchange rates.
5. For 2016/17, as of March 31, 2017.
6. For 2016/17, year-to-date as of March 31, 2017.
7. On balance-of-payments basis.
8. Imports of goods and services projected over the following 12 months.
9. Short-term debt on residual maturity basis, including estimated short-term nonresident Indian deposits on residual maturity basis.
10. In percentage of current account receipts, excluding grants.
11. For 2016/17, year-to-date as of November 2016

ANNEX 4: ENVIRONMENT AND POVERTY/ SOCIAL ANALYSIS TABLE

Prior Actions	Significant Positive or Negative Environment Effects (yes/no/to be determined)	Significant Poverty, Social, or Distributional Effects Positive or Negative (yes/no/to be determined)
Operation Pillar 1: Strengthening the Governance Framework in the Rajasthan Electricity Distribution Sector		
<i>Prior action #1:</i> The Government of Rajasthan has entered into Memoranda of Understanding with each of the DISCOMs setting out targets for key performance indicators regarding: (a) AT&C losses; (b) energy accounting and auditing; (c) billing and collection efficiency; and (d) filing of revenue and/ or tariff petitions for FY17/18	Adverse environmental effects are not expected. The MoU KPIs relate to improving operational and commercial functioning of DISCOMs.	In the near term, some HHs may be negatively affected due to tariff increases and the tightening of illegal/informal connections. Financial implications are likely to be small, as electricity remains affordable. Improvements in supply quality will affect all HHs, but poorer HHs will benefit more because they potentially have less opportunities currently to cope with power cuts.
<i>Prior action #2:</i> The DISCOMs have approved a Transfer Policy and Performance Management Policy, for their employees.	Adverse environmental effects are not expected. This action focuses on human resources-related performance enhancement measures	Yes. The performance management system can potentially have second order effects on poor HHs by tightening informal connections and improving the supply quality.
<i>Prior action #3:</i> The DISCOMs have started the implementation of their Corporate Governance and Financial Accountability Plans, duly adopted by their Boards of Directors, by publishing their audited financial statements for FY16/17	Adverse environmental effects are not expected. This action is about financial discipline of current operations and housekeeping in the finances of DISCOMs.	Adverse poverty and social impacts are not expected
Operation Pillar 2: Enhancing Policies to Restructure the Finances of the Rajasthan Electricity Distribution Sector		
<i>Prior action #4:</i> The DISCOMs have filed with RERC their annual revenue requirements and tariff petitions for FY17/18	While this pertains to regulatory functioning with sector regulator, there could be indirect implications if tariff increase, rather than recovery, becomes the focus. In case of poorest customers, this could potentially lead to some switching of fuel for lighting in absence of subsidies. This risk is mitigated by the subsidy support of INR 1.90 per kWh on energy charge and INR 30 connection on fixed charge for BPL consumers with monthly consumption less than 50 kWh) being provided by the GoR.	Yes. Marginal changes in affordability expected due to changes in fixed costs for new connections (HHs with monthly consumption more than 50 units) and small distributional changes expected due to greater incentives provided for early payment of bill.

Prior Actions	Significant Positive or Negative Environment Effects (yes/no/to be determined)	Significant Poverty, Social, or Distributional Effects Positive or Negative (yes/no/to be determined)
<i>Prior action #5:</i> Rajasthan Urja Vikas Nigam Ltd. (“RUVNL”) is operational, and power purchases (including renewable energy purchases) for DICSOMs are made through RUVNL	Adverse environmental effects are not expected	Adverse poverty and social impacts are not expected
Operation Pillar 3: Improving Operational Performance of Distribution Utilities		
<i>Prior action #6:</i> The DISCOMs have published completed periodic energy audits of 90% of their respective feeders at their websites and initiated, since December 2016, a Loss-Based Load Scheduling Program	Adverse environmental effects are not expected. This is about making relevant information public. If anything, it may reduce wastage and have positive implications on energy saving.	Yes. The auditing process can potentially have second order effects on poor HHs by tightening informal connections and improving the supply quality.
<i>Prior action #7:</i> The DISCOMs have implemented a unified billing system including billing large and medium industrial consumers based on an automated meter reading system.	Adverse environmental effects are not expected. This action will improve accuracy of data collection and reduce any unbilled consumption by customers with capacity to pay.	Adverse poverty and social impacts are not expected
<i>Prior action #8:</i> The DISCOMs have: (a) started implementation of their approved IT Roadmaps by preparing detail project reports for ERP deployment; and (b) created an IT cadre and started mapping IT professionals accordingly	Adverse environmental effects are not expected	Adverse poverty and social impacts are not expected

ANNEX 5: MACROECONOMIC ANALYSIS: ASSUMPTIONS

Table 5.1. Assumption 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-linear time series regression, that is, maintaining a constant growth rate in the forecasting years										
Tax devolutions from central government (that is, GoI)	Estimated using the average observed buoyancy of central collections of 2.1 and Rajasthan's share of 5 percent during FY11–FY15										
Grants from Central Government	Assumed 10 percent annual growth										
Own tax revenues	Estimated using the average observed buoyancy during FY11–FY15 of 1.1										
Own nontax revenues (excluding interest receipts from DISCOMs)	Estimated to grow at the same rate as nominal GSDP thus maintaining a constant share of GSDP.										
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 15 percent and 10 percent in FY19, FY20 respectively due to pay revisions, and at the rate of GSDP inflation in subsequent years										
Pensions	Same as salaries and wages										
Interest Payments	Calculated on outstanding debt at the end of last period at a 3-year moving average interest rate										
Grants in aid (excluding to power) ^a	Assumed to grow at the same rate as nominal GSDP, that is, maintain constant the grants-in-aid (excluding power) and GSDP ratio										
Grants in aid for salaries	Same as salaries and wages										
Capital Expenditures (excluding power)	Estimated using the best fit from a log-linear time series regression, that is, maintaining a constant growth rate in the forecasting years—that is, business as usual										
Support to power sector											
• Subsidy against tariff revision	Assumption from DISCOM model (refer annex 8 for details)										
• Grant adjustment of electricity duty	Assumption from DISCOM model (refer annex 8 for details)										
• Subsidy for revenue deficit	DISCOM losses to be covered by the state government from FY18 onward as Operating Financial Requirement (OFR) (Assumptions from the DISCOM model – refer annex 8 for details) as specified under UDAY <table border="1" style="width: 100%; margin-top: 5px;"> <thead> <tr> <th></th> <th style="text-align: center;">FY18</th> <th style="text-align: center;">FY19</th> <th style="text-align: center;">FY20</th> <th style="text-align: center;">FY21</th> </tr> </thead> <tbody> <tr> <td>% of previous years losses</td> <td style="text-align: center;">5</td> <td style="text-align: center;">10</td> <td style="text-align: center;">25</td> <td style="text-align: center;">50</td> </tr> </tbody> </table>		FY18	FY19	FY20	FY21	% of previous years losses	5	10	25	50
	FY18	FY19	FY20	FY21							
% of previous years losses	5	10	25	50							
• Interest subsidy	Assumptions from the DISCOM model (refer annex 8 for details)										

Variable	Assumption
• Subsidy against compounding charges	Assumptions from the DISCOM model (refer annex 8 for details)
• Interest subsidy for power bonds (under 2012 FRP)	Assumptions from the DISCOM model (refer annex 8 for details)
• Cash support	0 from FY17
• Plan grants	Spread over five years, as a combination of loans and grants Assumptions from the DISCOM model (refer annex 8 for details)
• Equity grants for asset formation	0 from FY17
• Cash balances	Market borrowings capped to ensure that cash balances do not exceed INR 100 billion in the forecasting period

Note: a. Committed spending—includes transfers to rural and urban local bodies.

ANNEX 6: MACROECONOMIC ANALYSIS: STATISTICAL TABLES AND SENSITIVITY ANALYSIS

Table 6.1. Summary Indicators

	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
Revenues as % of GSDP	16.7	14.5	13.4	13.7	14.1	14.5	13.6	15.1	15.1	15.8	17.6	15.9	16.0	16.1	16.2	16.3	16.4	16.5
Expenditure as % of GSDP	18.5	17.6	17.2	14.9	14.9	16.3	16.4	18.2	24.5	22.1	20.5	18.8	19.0	18.9	19.1	19.0	19.2	19.2
Interest as % of revenues	18.3	18.5	19.1	15.9	13.5	12.3	12.1	11.3	11.8	15.0	13.5	14.8	14.5	13.9	14.0	13.7	13.4	13.2
Debt/GSDP ratio	39.6	36.5	34.5	29.4	25.7	25.2	23.9	24.4	31.8	33.8	33.6	33.2	33.0	32.6	32.3	31.9	31.5	31.1
Fiscal balance (% of GSDP)	-1.7	-3.0	-3.9	-1.2	-0.9	-1.8	-2.8	-3.1	-9.4	-6.4	-3.0	-2.9	-3.0	-2.8	-2.9	-2.7	-2.7	-2.6
Fiscal balance (% of GSDP) ex DISCOM									-3.4	-3.4								
Power sector expenditures as % of GSDP	3.5	2.7	2.1	1.6	2.0	2.8	2.6	2.7	2.7	1.2	1.3	1.3	1.4	1.3	1.3	1.2	1.3	1.2
Capital expenditures % GDP	3.5	2.7	2.1	1.6	2.0	2.8	2.6	2.7	8.7	4.2	3.2	2.6	2.7	2.8	2.9	3.0	3.1	3.2

Table 6.2. Revenues

<i>% of GSDP</i>	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
Devolution from Central Government	6.9	6.3	5.4	5.6	5.4	5.2	5.0	6.4	6.9	7.6	7.4	7.4	7.5	7.5	7.6	7.6	7.7	7.8
Tax shares from center	4.4	3.9	3.5	3.8	3.6	3.6	3.4	3.2	4.1	4.5	4.5	4.6	4.6	4.7	4.8	4.9	4.9	5.0
Grants from Central Government	2.5	2.4	1.9	1.8	1.8	1.5	1.6	3.2	2.8	3.1	2.9	2.9	2.8	2.8	2.8	2.8	2.8	2.8
Tax revenues	6.8	6.5	6.2	6.1	6.1	6.5	6.1	6.3	6.3	6.3	6.6	6.6	6.7	6.7	6.8	6.9	6.9	7.0
Nontax revenues	2.1	1.7	1.7	1.9	2.2	2.6	2.5	2.2	1.6	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Recovery of loans and advances	0.9	0.0	0.0	0.1	0.3	0.2	0.1	0.2	0.2	0.2	1.8	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total revenues	16.7	14.5	13.4	13.7	14.1	14.5	13.6	15.1	15.1	15.8	17.6	15.9	16.0	16.1	16.2	16.3	16.4	16.5

Table 6.3. Expenditures

<i>% of GSDP</i>	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
Current expenditures	15.0	14.8	15.1	13.3	13.0	13.5	13.7	15.4	15.8	17.9	17.4	16.3	16.3	16.1	16.2	16.0	16.0	16.0
Committed	10.1	9.8	10.2	8.6	8.6	9.2	9.1	9.9	10.0	11.9	12.0	10.9	11.0	10.8	10.9	10.7	10.7	10.6

<i>% of GSDP</i>	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
Salaries and wages	4.1	5.1	5.3	4.3	3.8	3.7	3.7	3.8	3.8	4.2	4.2	4.4	4.3	4.3	4.3	4.3	4.3	4.3
Pensions	3.1	2.7	2.5	2.2	1.9	1.8	1.6	1.7	1.8	2.4	2.4	2.4	2.3	2.2	2.3	2.2	2.2	2.2
Interest	1.3	1.4	1.8	1.5	1.4	1.5	1.4	1.6	1.6	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Subsidies	1.6	0.6	0.6	0.6	0.8	1.2	1.3	1.4	1.6	2.5	2.7	1.3	1.4	1.3	1.4	1.3	1.3	1.2
... of which power sector	0.0	0.0	0.5	0.6	0.7	1.1	1.2	1.4	1.4	2.4	2.6	1.3	1.4	1.3	1.3	1.2	1.3	1.2
Capital expenditures	3.5	2.7	2.1	1.6	2.0	2.8	2.6	2.7	8.7	4.2	3.2	2.6	2.7	2.8	2.9	3.0	3.1	3.2
Total Support to Power Sector	1.2	1.3	1.2	0.8	1.1	2.0	1.8	2.0	7.9	4.1	1.3	1.3	1.4	1.3	1.3	1.2	1.3	1.2
Total expenditures	18.5	17.6	17.2	14.9	14.9	16.3	16.4	18.2	24.5	22.1	20.5	18.8	19.0	18.9	19.1	19.0	19.2	19.2

Table 6.4. Support to the Power Sector

INR crore ^a	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23
Support to the power sector	2,544	4,449	9,488	9,899	12,191	53,297	30,449	10,880	11,737	14,127	14,456	16,725	16,908
<i>Non-plan</i>	1,584	2,186	5,205	6,667	8,649	10,088	9,641	10,880	11,737	14,127	14,456	16,725	16,908
Subsidy against tariff revision	644	1,000	2,445	5,261	5,896	6,788	8,139	8,608	9,296	10,521	11,434	13,227	14,355
Grant adjustment of electricity duty	781	945	1,150	624	1,175	1,273	1,493	1,595	1,740	1,910	2,101	2,316	2,553
Subsidy for revenue deficit	120	200	700	735	772	810	0	252	393	1,142	765	1,096	0
Interest subsidy	39	41	36	35	33	10	9	8	7	6	0	0	0
Subsidy against compounding charges	0	0	44	12	12	19	0	0	0	0	0	0	0
Interest subsidy for power bonds	0	0	829	0	761	1,186	0	0	0	0	0	0	0
Takeover of DISCOM losses under UDAY	0	0	0	0	0	0	0	416	302	548	155	86	0
<i>Plan</i>	960	2,263	4,283	3,232	3,543	43,209	20,807	0	0	0	0	0	0
Cash Support	400	800	400	420	441	463	0	0	0	0	0	0	0
Grant	0	0	120	0	0	0	0	0	0	0	0	0	0
Loan	0	995	1,000	0	236	34,586	8,590	0	0	0	0	0	0
Equity support	560	468	2,763	2,812	2,860	7,753	12,217	0	0	0	0	0	0
o/w bonds	0	0	1,930	1,410	1,806	2,700	0	0					
o/w equity	560	468	833	1,402	1,054	5,053	12,217	0	0	0	0	0	0
Others	2,544	4,449	9,488	9,899	12,191	53,297	30,449	10,880	11,737	14,127	14,456	16,725	16,908

Note: a. 1 crore = 10 million.

Sensitivity Analysis

Rajasthan's fiscal and debt trajectory was examined under different downside scenarios. 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.

Table 6.5. Scenario 1: Real GSDP Growth Slips Below the Baseline in FY18 and FY19 by 2 Standard Deviations of the Distribution During FY07–FY16

	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
Revenues as % of GSDP	15.1	15.8	17.6	15.9	16.0	16.1	16.2	16.3	16.4	16.5
Expenditure as % of GSDP	24.5	22.1	20.5	18.8	19.0	18.9	19.1	19.0	19.2	19.2
Interest as % of revenues	11.8	15.0	13.5	14.8	14.5	13.9	14.0	13.7	13.4	13.2
Debt/GSDP ratio	31.8	33.8	33.6	33.2	33.0	32.6	32.3	31.9	31.5	31.1
Fiscal balance (% of GSDP)	-9.4	-6.4	-3.0	-2.9	-3.0	-2.8	-2.9	-2.7	-2.7	-2.6
Fiscal balance (% of GSDP) ex DISCOM	-3.4	-3.4								
Power sector expenditures as % of GSDP	2.7	1.2	1.3	1.3	1.4	1.3	1.3	1.2	1.3	1.2
Capital expenditures % GDP	8.7	4.2	3.2	2.6	2.7	2.8	2.9	3.0	3.1	3.2
Real GSDP growth rate	6.2	7.1	1.1	1.1	7.8	7.8	7.8	7.8	7.8	7.8

Table 6.6. Scenario 2: Salaries and Pensions Grow by 40 Percent in FY19 Following Recommendations of the Central Pay Commission

	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
Revenues as % of GSDP	15.1	15.8	17.6	15.9	16.0	16.1	16.2	16.3	16.4	16.5
Expenditure as % of GSDP	24.5	22.1	20.5	20.4	20.7	20.7	21.0	21.0	21.2	21.4
Interest as % of revenues	11.8	15.0	13.5	14.8	15.2	15.3	15.9	16.2	16.5	16.9
Debt/GSDP ratio	31.8	33.8	33.6	34.8	36.1	37.2	38.3	39.3	40.3	41.2
Fiscal balance (% of GSDP)	-9.4	-6.4	-3.0	-4.5	-4.6	-4.6	-4.8	-4.7	-4.8	-4.8
Fiscal balance (% of GSDP) ex DISCOM	-3.4	-3.4								
Power sector expenditures as % of GSDP	2.7	1.2	1.3	1.3	1.4	1.3	1.3	1.2	1.3	1.2
Capital expenditures % GDP	8.7	4.2	3.2	2.6	2.7	2.8	2.9	3.0	3.1	3.2

Table 6.7. Scenario 3: Support to DISCOMs Continues to Grow at Business as Usual (forecasted using log-lin regression)

	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
Revenues as % of GSDP	15.1	15.8	17.6	15.9	16.0	16.1	16.2	16.3	16.4	16.5
Expenditure as % of GSDP	24.5	22.1	20.5	19.5	19.5	19.6	19.8	20.0	20.1	20.3
Interest as % of revenues	11.8	15.0	13.5	14.8	14.7	14.4	14.7	14.7	14.6	14.7
Debt/GSDP ratio	31.8	33.8	33.6	33.8	34.1	34.3	34.6	34.9	35.3	35.6
Fiscal balance (% of GSDP)	-9.4	-6.4	-3.0	-3.5	-3.5	-3.5	-3.6	-3.7	-3.7	-3.8
Fiscal balance (% of GSDP) ex DISCOM	-3.4	-3.4								
Power sector expenditures as % of GSDP	1.4	0.7	1.3	1.8	1.9	2.0	2.2	2.3	2.5	2.6
Capital expenditures % GDP	8.7	4.2	3.2	3.5	3.5	3.6	3.7	3.7	3.8	3.9

ANNEX 7: POVERTY AND SOCIAL IMPACT ANALYSIS

1. **The reforms supported by this DPL program aim to improve the financial health and viability of the electricity distribution sector in Rajasthan.** These reforms focus on improving operational efficiency, strengthening of governance, and restructuring the finances of the distribution sector. The actions proposed 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. This PSIA seeks to identify the potential effects of these actions on poor and vulnerable HHs (interchangeably referred to as BPL⁵⁰ HHs and HHs in the bottom quintile) in Rajasthan. The analysis is based on a primary survey representative of urban and rural HHs in the Alwar and Jaipur districts of Rajasthan.⁵¹

2. **In the short term, the poor will be affected by two priority reforms proposed under this program.** The analysis identified the following two channels that may have potential impacts on the poor and the overall distribution:

- Improvements in supply quality and a concentrated effort to remove illegal/informal connections (Prior actions # 1, 2, and 6)
- Price incentives for mitigating the per unit costs of electricity for the poorest HH.

3. **Improvements in access and supply quality of power can improve the lives of the poor.** The survey reveals a high electrification rate in these two districts (table 7.1) with near complete electrification in the urban areas. According to the survey data, 90 percent and 98 percent of rural HHs in the bottom and top quintiles respectively access electricity for domestic use. Meanwhile, 99 percent and 100 percent of the urban HHs in the bottom and top quintiles respectively are connected to electricity for domestic use. The National Family Health Survey of 2015–2016 reflects these findings, reporting a 91 percent electrification rate (99 percent urban, 88 percent rural) in the entire state. Improvements in HH access under the DPL is, therefore, expected to be along the remaining 10 percent of the poorest HHs in rural areas.

Table 7.1. Electrification Rates in Surveyed Districts

	Rural	Urban
Alwar (%)	92	99
Jaipur (%)	94	99

⁵⁰ BPL HHs in this PSIA refer to those that possess a government-issued poverty card.

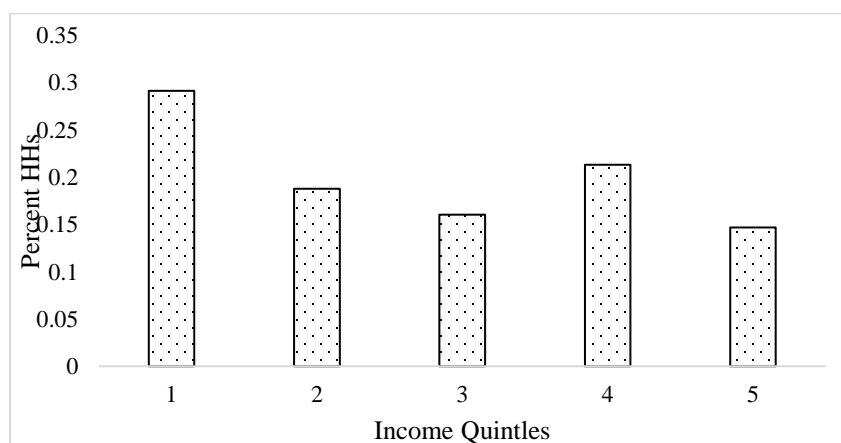
⁵¹ The survey enumerated approximately 2,000 HHs in rural and urban areas and is representative at the district level. All HHs in these districts are served exclusively by JVVNL. It included questions on HH members, income sources, appliance ownership, electrical connectivity, supply, billing, and metering. The survey also incorporated behavioural questions to quantify a HH’s response to tariff changes, load-shedding, and alternate payment modes. The survey fills a key data gap in understanding trends in residential electricity consumption, given limited surveys in this area, but is limited in its geographical scope to the two sampled districts. Therefore, the outputs presented in this PSIA, if strictly interpreted, are limited to these two districts—but the overall poverty and distributional trends observed in these districts may be emblematic of the entire state. The survey was conducted by Jameel Poverty Action Lab on behalf of the World Bank.

4. **The welfare benefits of high electrification to the poor can be low, if the supply quality of electricity is low.** Studies suggest that gaining access to electricity combined with a reliable power supply is associated with a 17 percent increase in income in India but gaining access to electricity alone is associated with only a 9.6 percent increase in income.⁵² The PSIA's primary survey in Rajasthan is indicative of the effects of supply quality on HH welfare.⁵³ Table 7.2 depicts the percentage of HHs that reported shortages affecting various HH tasks. While some HHs responded that power cuts have had no effect, a large fraction of HHs reported their children's education to have been most affected by the quality of power. Figure 7.1 shows that the percentage of HHs reporting an adverse impact on education due to power cuts is highest in the lowest quintiles of the income distribution. This potentially reflects the limited coping strategies available to poorer HHs to deal with these power cuts.

Table 7.2. Percentages of HHs Affected by Power Cuts

Activity	Alwar Rural (%)	Alwar Urban (%)	Jaipur Rural (%)	Jaipur Urban (%)
Children's education	35	15	34	9
Cooking	18	18	12	18
No effect	16	28	13	18
Sleeping	15	13	6	15
Charging phone	10	9	25	24
Watching TV/radio	4	8	6	10
Socializing, chatting	1	1	4	2
Washing and cleaning	1	7	1	3
Working on laptop	0	0	0	1

Figure 7.1. Percent HHs Reporting Children's Education Adversely Affected by Power Cuts

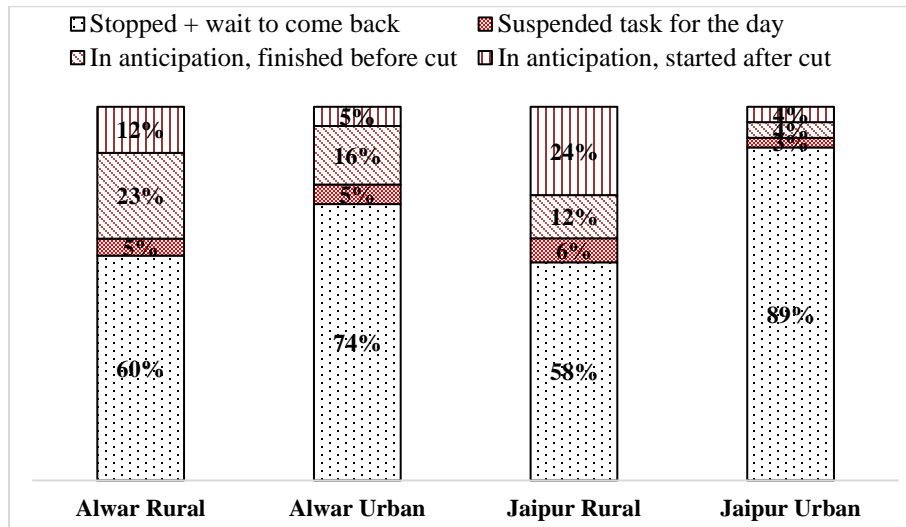


⁵² Samad, H.; Zhang, F. (2016). Benefits of Electrification and the Role of Reliability: Evidence from India. Policy Research Working Paper No. 7889, World Bank, Washington, DC.

⁵³ The PSIA is unable to capture the number of hours of outages or voltage fluctuations faced by the HHs and is therefore unable to validate the level of the quality of supply faced by a HH. The analysis restricts itself to studying the self-reported response of the HHs when faced by a power cut and the potential implication of these actions on HH welfare.

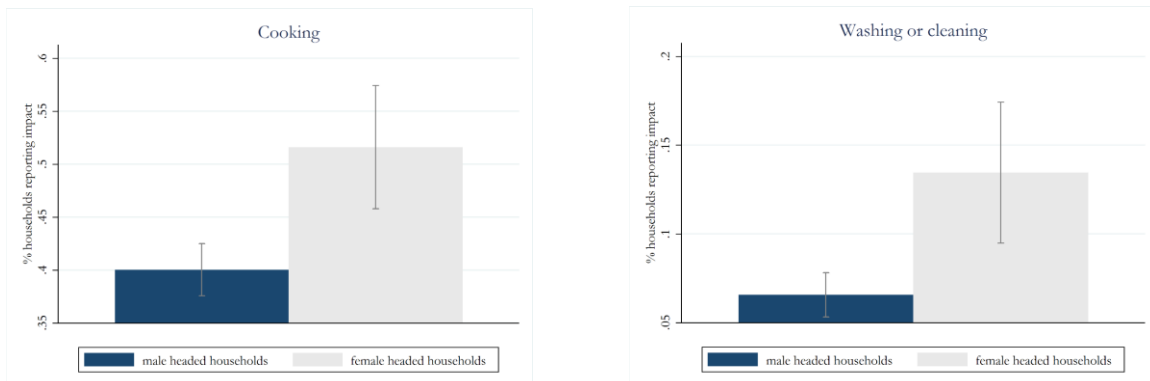
5. Figure 7.2 shows the HH’s response to children’s education when faced with a power cut. For most families, the power cut is unanticipated and children have had to suspend their studies while waiting for power to come back. For some families (5 percent and 6 percent in rural areas of Alwar and Jaipur), the power cuts can have large negative impacts by way of education—these families reported suspending the task for the entire day after power cut occurs. In this, and other ways, therefore, the quality of supply affects HH welfare for all HHs, but potentially more so for HHs in the lowest quintiles because of their limited ability to cope with these cuts.

Figure 7.2. HHs’ Response to Education in the Face of a Power Cut



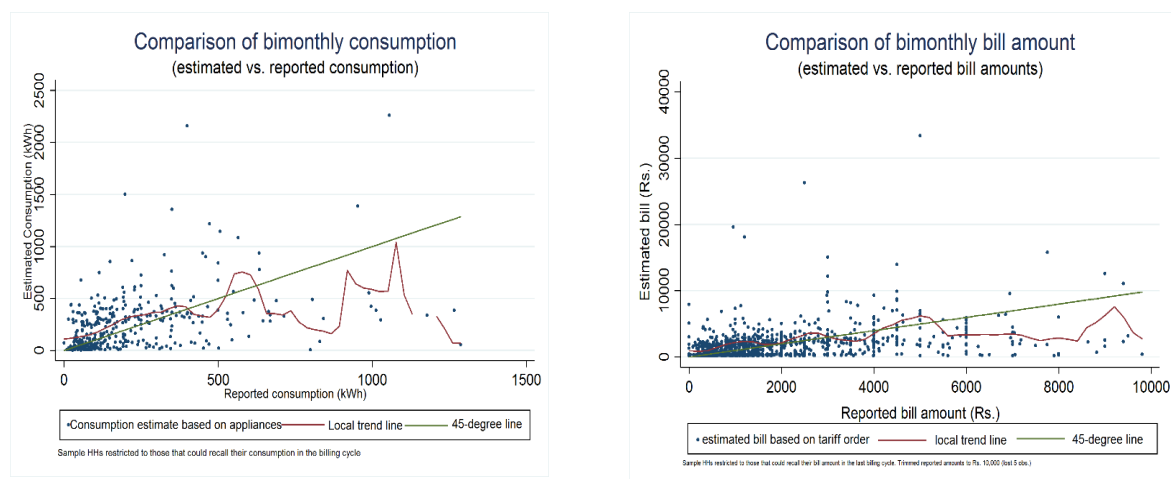
6. Figure 7.3 shows the proportion of HHs reporting an adverse effect of power cuts on HH activities. The confidence intervals indicate that female-headed HHs, on average, report a higher effect of power cuts on HH daily chores such as cooking and washing or cleaning. Improvements in supply quality and reduction in power shortages, as part of the priority reforms #1, 2, and 6, is expected to alleviate the problems faced by female-headed HHs in relation to these tasks. Independently, other evaluation studies of India’s rural electrification program indicate that the program has made a significant difference to the lives of women in rural India and has empowered rural women. Thus, while this operation does not include gender-specific prior actions, it is expected to address gender-specific issues, because of its overall objective of improving the quality of electricity supply.

Figure 7.3. Impact of Power Cut on HHs by Gender



7. **The tariff schedule is progressive in nature.** To estimate the price per unit of electricity paid across the income quintile, the PSIA first simulates the annual residential energy demand by using data on the number of appliances owned by HHs, the wattage of these appliances, the seasonal usage patterns, and the number of hours of usage in a day.⁵⁴ The analysis then applies the latest tariff order (FY17/18) on the simulated demand to arrive at an estimate of total annual electricity bill.⁵⁵ A comparison of estimated consumption and reported consumption is shown in figure 7.4. The figure indicates that the estimation procedure overstates consumption below 500 units. In terms of the billing amounts, the estimates are, on average, close to the reported figure below INR 5,000 but underestimated at higher values.

Figure 7.4. Comparing Estimated Values to Reported Figures[#]



Note: [#]The reported consumption amount and billing data is limited to HHs that could recall and report these figures during the survey.

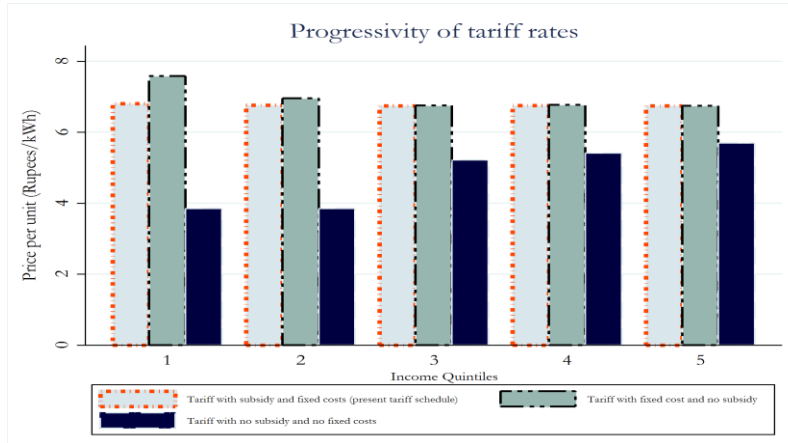
8. The tariff schedule in Rajasthan follows an increasing block tariff structure where high consumption HHs are charged a higher energy cost to incentivize energy conservation. The application of fixed charges in the tariff schedule, however, increases the average price of electricity for low consumption HHs, which also tend to be the poorest (figure 7.5). To mitigate the high average price for the poorest HHs, the utility provides an energy cost subsidy of INR 1.9

⁵⁴ The PSIA uses the Government’s recommended wattage figure for common HH appliances available at <http://www.tangedco.gov.in/load%20calculator.htm>. The total energy consumed by an appliance (kWh) in a year is its wattage * number of hours used in the day*0.365. This number is scaled by the number of appliances and the number of months that the HH regularly uses the appliance in a year to arrive at an annual figure. The PSIA simulates a HH’s electricity demand rather than use its reported consumption for three reasons: (a) informally connected HHs do not report their total energy consumed according to the survey design, (b) a sizable proportion of HHs could not recall their total energy consumed even in the most recent billing cycle during the survey and, (c) even when a HH does respond to billing questions, the measure is significantly imprecise. HHs tend to round their figures to the closest hundredth or thousandth figure—as visible in figure 7.4—panel 2, with columns of scatter dots concentrated around INR 2000, INR 4000, INR 6000, and so on.

⁵⁵ The estimated annual bill is estimated by applying the increasing block tariff structure to the estimated demand. The estimates are based on the fixed and energy charges and the incentives offered to rural and BPL customers as provided in the tariff order. However, the estimation is unable to model other features of the tariff order such as, application of the fixed cost tariff based on the last six months’ average HH consumption, discounts for maintaining power factors, delayed payment surcharges, incentives for prepayment of bills, and so on—due to limitations in data collected during the survey stage.

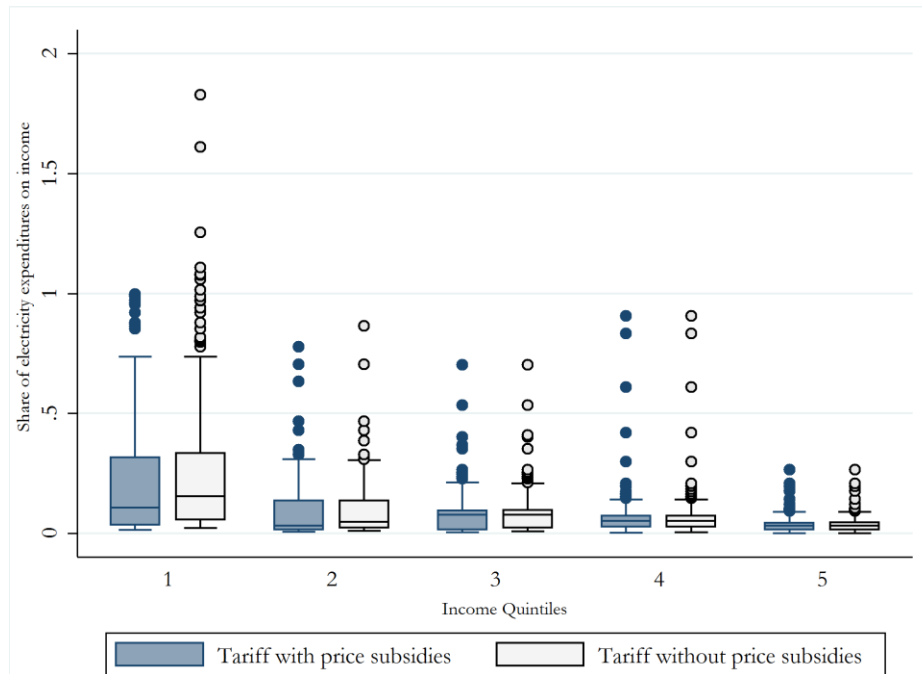
per kWh and INR 1.3 per kWh and fixed cost subsidy of INR 30 per connection for BPL and above poverty line HHs consuming less than 50 units per month. This price incentive renders the overall tariff schedule progressive with an average price per unit of approximately INR 6.7 across the income quintiles.

Figure 7.5. Fixed Charges Make the Tariff Schedule Regressive; Subsidies for Poor HHs Neutralize the Regressive Effect of Fixed Charges



9. **Affordability of electricity is moderately high under the current tariff schedule.** While the tariff schedule is progressive over the income distribution, the price incentives provided in the tariff schedule combined with the fixed and energy charges, imply that the share of electricity expenditures on HH’s income is about 10.7 percent for the poorest HHs (figure 7.6). Figure 7.6 also shows the impact of the price mitigation subsidies in making electricity affordable for the poor—in the absence of which—the median share of electricity expenditure on the poorest HHs would have been 12 percent to 13 percent, compared to a share of 5 percent for the top quintile.

Figure 7.6. Impact of Price Subsidies on Affordability of Electricity Prices for the Poor



10. **To further mitigate the price effects on the poorest HHs, the DPL includes measures to promote the use of energy-efficient lighting, including distributing free LED lamps to BPL consumers.** This measure would result in considerable savings in the form of reduced electricity consumption and, therefore, lower electricity expenditures especially for poor HHs that primarily use electricity for lighting. One of the key objectives of UDAY is to promote energy efficient solutions. According to the ‘Rajasthan 24x7 PFA’ report (2014), the use of energy efficient lamps is likely to reduce the state’s electricity consumption significantly.

11. **Informal electricity connections are strongly correlated with measures of poverty.** Quantifying the informality of connections through survey instruments is challenging due to reticence of respondents toward such sensitive questions (Kararashvili, Kraay, and Murrell 2018)⁵⁶. The current survey, therefore, follows a structural design—moving the line of questioning from accessibility and payment status of the HHs to arrive at potential cases of nonpaying connections.

- (a) Of those electrified, a high proportion preferred to pay their bills directly to the utility (Table 7.3), except those in urban areas of Jaipur, where half of the HHs made payments through official e-mitra centers associated with the JVVNL.

⁵⁶ Karalashvili, N., Kraay, A., & Murrell, P. (2018). Doing the survey two-step: the effects of reticence on estimates of corruption in two-stage survey questions. In *Institutions, Governance and the Control of Corruption* (pp. 335-387). Palgrave Macmillan, Cham.

Table 7.3. Payment Mechanisms of HHs for Utility Bills

	Alwar Rural (%)	Alwar Urban (%)	Jaipur Rural (%)	Jaipur Urban (%)
Linesman/meter reader	0	0	0	0
Landlord	1	10	1	14
Neighbor	3	1	2	2
Included in rent	1	7	0	1
Utility	85	62	80	29
Franchise	1	0	3	0
E-mitras	2	14	11	50
Did not pay	7	5	3	4

- (b) Between 3 percent and 7 percent of HHs in these areas, however, did not pay for their electricity. These HHs were further quizzed on the sources of their electrical connection (table 7.4). With low self-generation in the area, a large proportion of these families reported ‘borrowing electricity from their neighbors’ with and without their knowledge. These families may be interpreted to be at a high risk of being nonpaying customers (hereafter referred to as ‘informal’ cases);

Table 7.4. Sources of Electricity for HHs Who did not Pay

	Alwar Rural (%)	Alwar Urban (%)	Jaipur Rural (%)	Jaipur Urban (%)
Self – generation	3	0	0	3
Borrow with neighbor knowledge	77	61	81	89
Borrow without neighbor knowledge	20	39	19	8

- (c) Another category of potential high-risk informal cases of HHs are those that reported not having an electrical connection but have reported regularly using an electrical appliance elsewhere in the questionnaire. Figure 7.7 illustrates that these HHs are concentrated in the bottom two quintiles of the income distribution. Figure 7.8 shows that HHs possessing a BPL card are more likely to be informal HHs than other HHs in the same area (panel 1). These HHs have significantly lower average monthly per capita income (panel 2) than other HHs in the same region. As DISCOM’s tighten their billing and billing systems, some of these poorer HHs are expected to start facing a cost for their electricity consumption. The impact of these cost on their overall ability to pay is tested further in the analysis.

Figure 7.7. Type of Connections Over the Income Decile

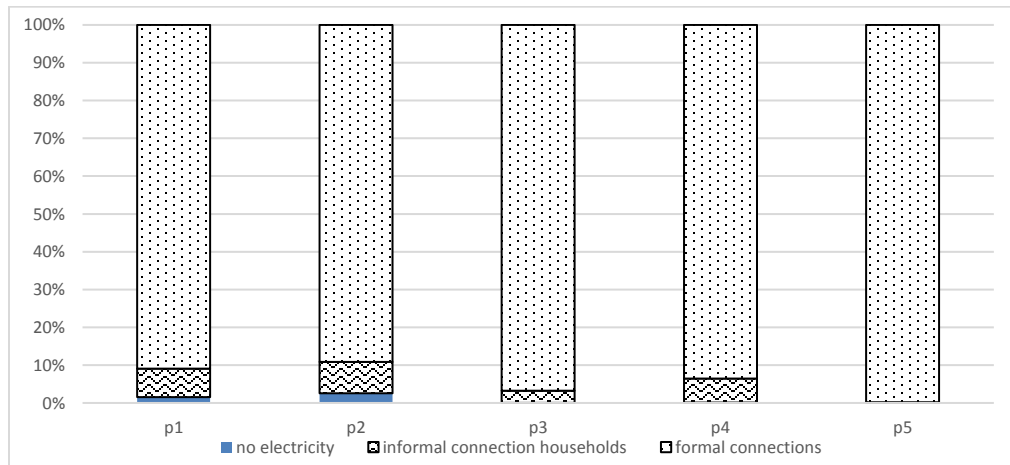
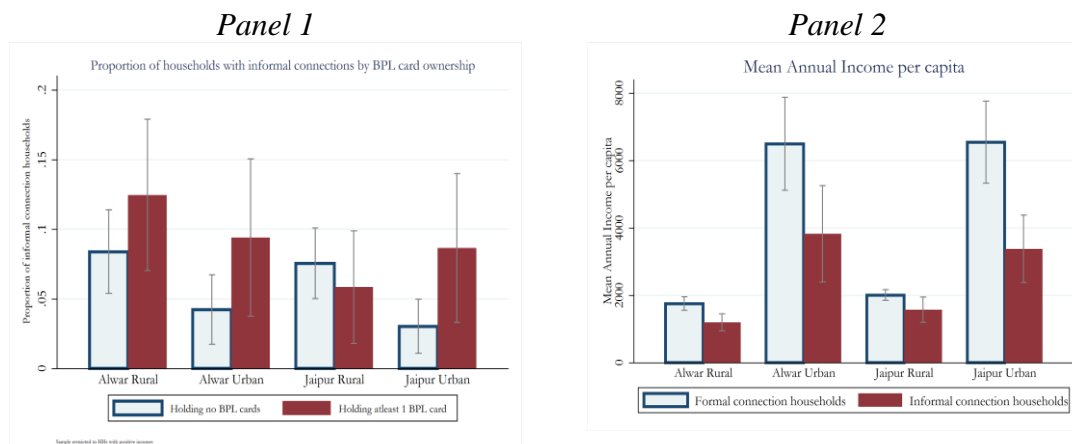


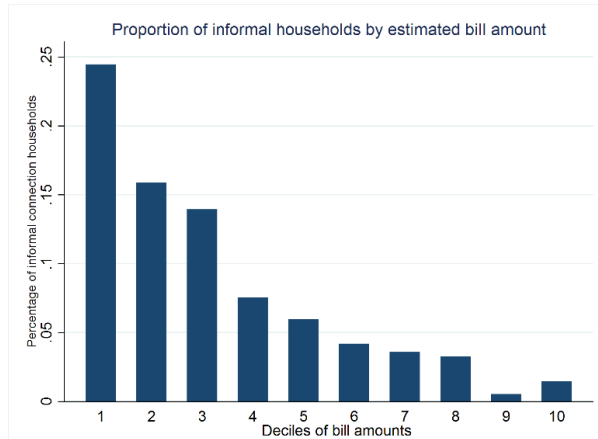
Figure 7.8. Poverty Profile of Informal Cases



12. **The impact of the current tariff schedule on informally connected HHs will be mitigated by their low consumption and higher incomes due to improvements in supply quality.** Using these estimated consumption and billing amounts, figure 7.9 plots the proportion of informal HHs by deciles of the predicted bill amounts. The largest share of such HHs belongs to the lowest two deciles, highlighting the fact that the informal HHs are small consumers with less appliance ownership and, therefore, low energy consumption. Based on their appliance ownership and the reported daily usage, the total electricity usage of these HHs is currently quite low—implying that their share of expenditures on electricity under current prices will be low as well. Moreover, the improved quality of supply through a formal electrical connection may lead to an overall increase in HH income. Chakravorty, Pelli, and Marchand (2013)⁵⁷ show that a rise in quality of power in Indian HHs results in an increase of 28.6 percent HH income over 11 years (implying an annual increase of 2.6 percent in HH income on average). The higher price of formal connections can, therefore, be mitigated by income increases due to higher supply quality.

⁵⁷ Chakravorty, U., Pelli, M., & Marchand, B. U. (2014). Does the quality of electricity matter? Evidence from rural India. *Journal of Economic Behavior & Organization*, 107, 228-247

Figure 7.9. Estimated Tariff Profile of Informal HHs



13. **Affordability for the poor will not be affected by increases in fixed costs and non-salient price incentives.** The increase in fixed cost charges for new connections from INR 100 (fixed cost for small domestic) to INR 200 (fixed cost for general domestic) according to the regulator’s tariff order for FY17/18⁵⁸ is not expected to adversely affect the affordability of poor HHs seeking a new connection or informally connected HHs applying for a formal line—as long as their consumption remains below 50 units.

⁵⁸ Only for consumers with monthly consumption above 50 units as indicated in tariff order for FY16/17 and FY17/18 issued by the RERC in November 2017.

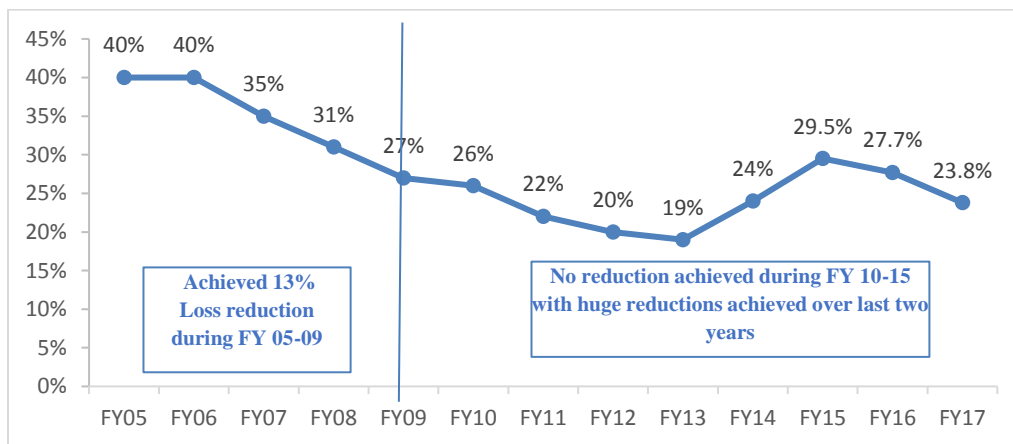
ANNEX 8: OPERATIONAL AND FINANCIAL PERFORMANCE OF DISCOMS IN RAJASTHAN

1. **While DISCOMs have been losing substantial amounts annually over the past decade (leading to accumulated losses of more than INR 926 billion in FY16), the trend has reversed over the last three years.** From a peak loss of INR 156.5 billion in FY14, DISCOMs have reported a loss of INR 48.12 billion (adjusted for grants under UDAY) in FY17 (figure 7 in the main text). The performance of DISCOMs at the EBITDA level has improved significantly over the last three financial years, wherein all the three DISCOMs have turned EBITDA positive in FY17 (figure 9 in main text). Even when adjusted for revenue subsidies, the DISCOMs have reported positive EBITDA in FY17.

2. **The EBITDA level improvement has been achieved primarily through discipline in the average power purchase costs, reduction in AT&C losses, and tariff revisions (achievements supported by the prior actions of the series).** While average power purchase costs have increased by only 3.4 percent as compared to FY14 peaks,⁵⁹ tariffs have increased by 110 percent over the last five years. However, the timing of tariff hikes has been irregular. Due to delays with regulatory procedures, the tariff adjustment for FY15 was received only in Q4 of the fiscal year, while the subsequent tariff rates have materialized only in Q2 FY17.

3. **The DISCOMs have made significant improvement in AT&C losses over the last two years.** Furthermore, the quality of data on losses has improved over the last years because of improvement in energy audit practices and capabilities.

Figure 8.1. Distribution Losses for DISCOMs in Rajasthan

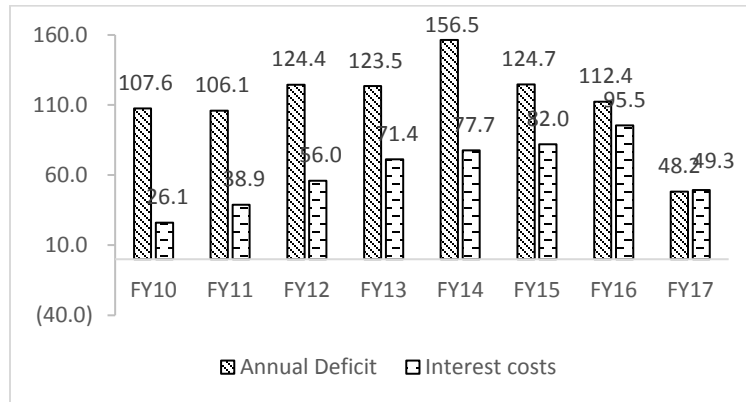


4. The outstanding total debt at end of September 2015 (cutoff date for the UDAY Program) of Rajasthan DISCOMs stood at INR 805 billion, with about 75 percent of it under short-term nature, raised to meet the operational expenses of the DISCOMs and costing high interest rates. During FY11–16, the DISCOMs substantially increased their borrowings, especially short term, to fund their rising power purchase costs. This resulted in sharp increase in the interest costs, which were INR 95.5 billion in FY16 or 21.9 percent of the total cost of the DISCOMs (compared to a

⁵⁹ Rajasthan DISCOMs have high power purchase costs (INR 4.1 per kWh, excluding transmission charges) as against a national average of INR 3.22 per kWh (FY14).

national average of around 7 percent). The interest cost per unit of energy sold also increased from INR 0.55 per kWh in FY09 to approximately INR 1.98 per kWh in FY16. The debt takeover by the GoR under UDAY has lowered the interest costs considerably in FY17 to INR 49.2 billion. As the first round of debt takeover by the GoR under UDAY took place only on the last day of the FY16, the interest savings from UDAY are reflected only in financial performance for FY17.

Figure 8.2. Trend in Annual Deficit and Interest Cost of DISCOMs (INR, billion)



5. The DISCOMs face challenges with timely payments for power purchases. The situation has been deteriorating over the last few years as can be seen from the figure 8.3. The total overdue payments for power purchase presently stand around INR 135 billion or over 160 days payables. These have a negative impact on DISCOMs’ financials due to late payment surcharges (as was witnessed in FY16 numbers). However, the DISCOMs plan to issue long-term bonds to pay off the generators in FY18.

Figure 8.3. Number of Days of Payables Outstanding to Power Producers

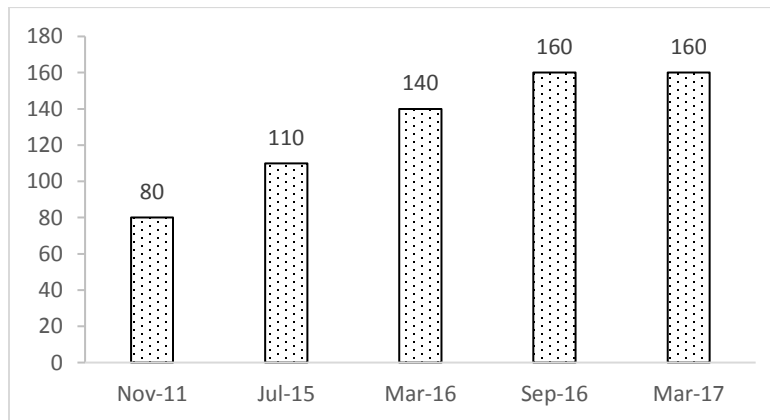


Figure 8.4. Number of Days of Receivables from Sale of Power to Consumers

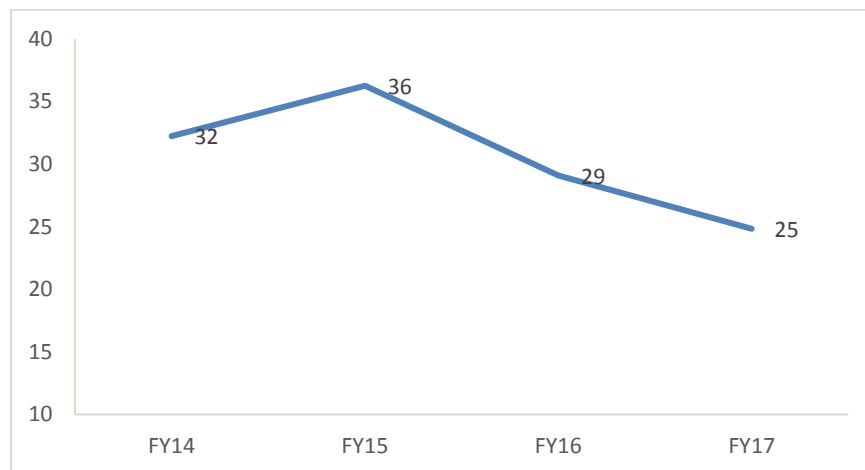
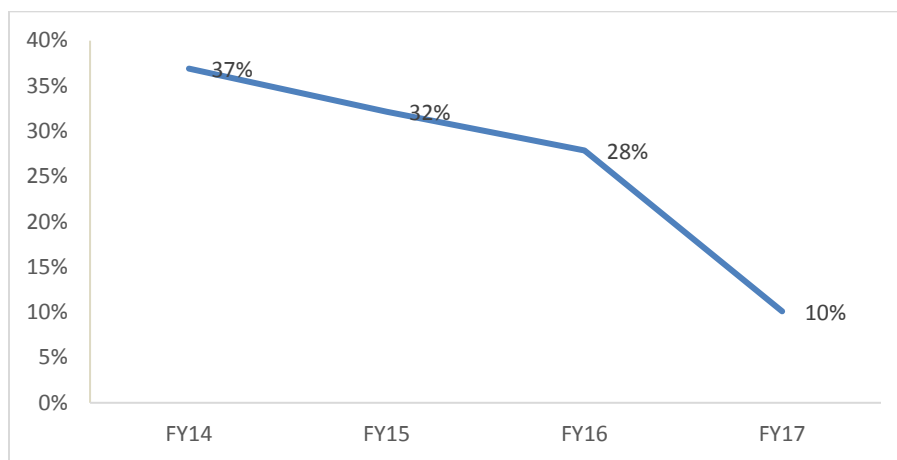


Figure 8.5. Receivables from State Government (% of Sales)



6. Table 8.1 summarizes the impact of costs on financial position of Rajasthan DISCOMs for FY12–17. This shows an improving trend, where the cost recovery for DISCOMs has now increased to 88 percent in FY17 versus only 55 percent in FY12.

Table 8.1. Key Financial Numbers of the Three DISCOMs Combined Expressed as Per Unit of Sales (INR per kWh)

Particulars	FY12	FY13	FY14	FY15	FY16	FY17
A. Revenue (Including tariff subsidy and nontariff income)	3.49	4.15	5.08	5.77	6.46	6.92
B. Costs	7.24	7.62	8.87	8.83	9.20	8.11
Power purchase costs	4.58	4.91	5.81	5.92	6.00	5.94
Interest costs	1.48	1.69	2.03	1.77	1.98	0.97
Employee costs	0.82	0.69	0.68	0.63	0.63	0.59
Other O&M costs	0.11	0.14	0.11	0.11	0.11	0.12
Depreciation	0.18	0.18	0.21	0.31	0.33	0.35
Other costs	0.07	0.00	0.22	0.08	0.12	0.14
Revenue deficit (before cash support)	3.75	3.46	3.79	3.05	2.99	1.19

Particulars	FY12	FY13	FY14	FY15	FY16	FY17
Cash support (except tariff subsidy)	0.46	0.53	0.15	0.36	0.37	0.25
Revenue deficit (after cash support)	3.28	2.93	3.65	2.70	2.36	0.95
<i>Cost Coverage (w/o cash support) (%)</i>	48	55	57	65	68	85
<i>Cost Coverage (with cash support) (%)</i>	55	62	59	69	74	88

Financial Projections

7. The Project Document for the First Programmatic Electricity Distribution Reform Development Policy Loan for Rajasthan provided a detailed financial analysis of the impact of the state government's reform program, on DISCOMs' financials and on the state's fiscal health (discussed earlier in the section on macro-economic policy framework). The model of the first operation used the operating assumptions agreed for the MoU signed by the DISCOMs under UDAY and presented various sensitivity scenarios as well.

8. This section updates that analysis and modifies some of the assumptions in the light of actual data and decisions taken on the implementation of UDAY, actual profit and loss, and balance sheet positions at the end of FY17, and provisional numbers for some key operating assumptions such as AT&C losses, tariff increases, cost of power purchases and so on for FY18. The key assumptions used are shown in table 8.2.

Table 8.2. Operational Assumptions for Base Case Scenario

	FY15	FY16 (base year)	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24
AT&C losses (%)	29.5	27.7	23.8	20.5	17	15.0	14.0	13.0	13.0	13.0
Tariff increase (excl. agricultural tariff) (%)	-*	16.3*	10.0 [#]	0.0	0.0	8.0	6.0	4.0	4.0	4.0
Agricultural tariff increase (%)	-*	14.5*	6.0 [#]	0.0	0.0	4.8	3.6	2.4	2.4	2.4
Increase in total sales (%)	7.9	2.9	7.1	6.1	8.5	8.5	9.4	9.2	8.1	8.3
Increase in average power purchase costs (incl. transmission charges) (%)		1.7	6.0	3.2	2.7	2.1	2.5	4.0	3.7	2.7

Note: * =Tariff increase for year FY15 was effective from February 1, 2015 and hence the majority of its impact was available only in FY16. Consequently, the effect has been shown only in FY16.

= Tariff increase for FY16 was effective only from September 2017, and hence has been shown in FY17 in the table.

- (a) **AT&C losses.** As noted in the Project Document for the First Programmatic Electricity Distribution Reform Development Policy Loan, the financial analysis had assumed an aggressive AT&C loss reduction agreed between the GoI, GoR, and DISCOMs under the UDAY MoU. However, based on the actual performance of DISCOMs over the last two financial years, the assumptions for AT&C loss reduction trajectory has been revised to 20.5 percent for FY18 (or 3.3 percent lower than FY17)

and 17 percent in FY19 (or 3.5 percent lower than FY18). This compares with the 15 percent AT&C losses in FY19 that were agreed under UDAY MoU.

- (b) Debt restructuring program - UDAY:
- (i) According to the UDAY MoU, 75 percent of the outstanding debt of DISCOMs as on September 30, 2015 is to be taken over by the GoR - 50 percent by March 31, 2016, and the rest 25 percent by July 1, 2017; 25 percent of the residual debt will be restructured into longer term maturities.
 - (ii) As on March 31, 2017, the GoR has taken over INR 624.2 billion of debt from DISCOMs balance sheets and passed on the amount to the DISCOMs in the form of equity (INR 87 billion), grants (INR 90 billion), and interest-free loans (INR 447.2 billion).
 - (iii) In FY17, DISCOMs have additionally borrowed INR 29 billion from domestic financial institution as working capital loan (primarily used to pay off the power purchase dues to the central sector generating stations). This borrowing was as agreed under the UDAY Program (where working capital loan were capped at 25 percent of the revenues). In FY18, INR 12 billion has been borrowed by Jaipur DISCOM for similar purposes.
 - (iv) **OFR.** Under the UDAY MoU, the GoR had also agreed to provide OFR support to the DISCOMs to finance their cash requirement during the transition period. While the analysis under Project Document for First Programmatic Electricity Distribution Reform Development Policy Loan had assumed 100 percent OFR funding from the GoR, based on the recent discussions between the GoR and DISCOMs, the model now assumes that DISCOMs would raise additional bonds for financing the cash deficit (with explicit state government guarantee). While this approach directs DISCOMs to capital markets, the additional interest burden affects the companies' financial situation.
 - (v) **Funding of future losses of the state.** The model does assume partial loss reimbursement support (as interest-free loan) from the GoR to DISCOMs according to the UDAY trajectory of 5 percent of previous year's losses in FY18, 10 percent in FY19, 25 percent in FY20, and 50 percent in FY21.
 - (vi) Further, the model also assumes that cash support and reimbursement of losses from the GoR (as committed in the 2012 FRP) will be stopped from FY17 onward. However, the GoR would continue with reimbursement of electricity duty collected by DISCOMs (shown as revenue subsidy in the reported financials)
- (c) **Tariff revisions.** RERC has issued a tariff order in September 2016, for a tariff increase of 10 percent (6 percent for agriculture). Although the tariff hike was for FY16, the impact on financial numbers would only be seen from Q2 FY17 (effective September 1, 2016). Further, the model does not assume any tariff adjustments in FY18 and FY19. The model assumes a tariff adjustment of 8 percent in FY20 (for

nonagricultural consumers) and a 6 percent (for nonagricultural consumers) for FY21. From FY22 onward the model assumes a normative tariff increase of only 4 percent for non-agricultural consumers (to balance the increase in costs of power purchase, employee costs, and O&M costs).

- (d) **Energy sales.** Based on historical trends, the energy sales have been modelled for the three DISCOMs separately to account for the load growth and higher billing rates. Annual increase of energy sales is shown in table 8.2. One important trend assumed for sales in FY18 concerns sales from industrial consumers because of open access charges that the state regulator has allowed as distribution revenue in later part of FY17.
- (e) **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 DISCOMs.
- (f) **Employee costs.** Rajasthan has announced the implementation of 7th pay commission recommendation in October 2017. While the details of the increases are yet to be known, the model assumes a 15 percent hike in the employee costs spread over FY18 and FY19 (including an increase in provisions for funding terminal benefits).

9. **Results of financial analysis.** The model outputs are shown in table 8.3. The key results are the following:

- (a) The DISCOMs' EBITDA is expected to increase from current levels of INR 26 billion in FY17 to INR 39 billion in FY18 and INR 72 billion in FY20. Tariff increase in September 2016 (full impact of which would be seen in FY18 numbers), reductions in AT&C losses, and better industrial sales contribute to EBITDA growth.
- (b) At the net income level, the DISCOMs are expected to continue to reduce losses (except in FY19 due to the assumption of no tariff revisions in two consecutive years) and are expected to register a turnaround by FY21. From FY22 onward, the DISCOMs would need only normative tariff adjustments to sustain profits.
- (c) The tariff subsidy burden on the state will continue to rise and is estimated to increase to INR 86 billion in FY18 and further to INR 112 billion by FY22 (from INR 85.6 billion in FY17), because of rising sales to agriculture consumer category—subsidized by the GoR. This is an area that needs attention and coordinated policy reforms in the future.

10. **Sensitivity analysis.** A sensitivity analysis on the two key parameters of AT&C loss reduction and tariff assumptions is presented in table 8.4. Under a more conservative loss reduction scenario, the DISCOMs would incur a loss of INR 41.4 billion in FY19 and approximately INR 20.1 billion in FY20. In FY20, the GoR would have to absorb losses of INR 10.3 billion and the DISCOMs would still have cash deficit of INR 5.2 billion (versus nil in base case), which would have to be financed through additional borrowings. Under an alternative, in which if the DISCOMs receive a lower tariff hike of 5 percent in FY20, the DISCOMs would make a loss of INR 19.3 billion in FY20 and have a cash deficit of INR 5.3 billion (versus nil in base case).

Table 8.3. Summary Financial Projections for the Three DISCOMs Combined (INR, million)

	FY15	FY16	FY17	FY18E	FY19E	FY20E	FY21E	FY22E	FY23E	FY24E
Revenue (including tariff subsidy and nontariff income)	266,877	307,601	352,284	384,840	412,655	469,946	531,826	596,470	658,276	732,407
Revenue subsidy	16,477	17,841	12,636	14,807	16,237	17,762	19,622	21,602	23,790	26,255
Total Costs	283,354	325,442	364,920	399,647	428,892	487,708	551,448	618,072	682,066	758,662
<i>Power purchase costs</i>	<i>273,854</i>	<i>285,579</i>	<i>302,805</i>	<i>321,470</i>	<i>342,753</i>	<i>370,580</i>	<i>410,228</i>	<i>460,287</i>	<i>518,578</i>	<i>576,053</i>
<i>Employee costs</i>	<i>29,181</i>	<i>30,188</i>	<i>29,883</i>	<i>32,716</i>	<i>36,109</i>	<i>37,079</i>	<i>38,097</i>	<i>39,167</i>	<i>40,292</i>	<i>41,473</i>
<i>O&M and other costs</i>	<i>5,173</i>	<i>5,150</i>	<i>6,266</i>	<i>6,744</i>	<i>7,316</i>	<i>7,939</i>	<i>8,618</i>	<i>9,358</i>	<i>10,165</i>	<i>11,044</i>
EBITDA	(24,854)	4,524	25,966	38,718	42,715	72,111	94,505	109,260	113,031	130,091
Depreciation	14,215	15,681	17,659	19,052	20,454	21,666	22,878	24,090	25,302	26,514
Interest costs	82,000	95,530	49,339	43,092	48,230	53,106	56,694	58,387	59,379	60,217
Profit before tax (PBT)	(124,736)	(112,408)	(48,160)	(30,041)	(32,651)	(9,413)	8,107	19,879	21,364	36,288
Tariff subsidy	58,957	67,885	85,600	86,325	91,744	102,782	111,825	127,920	137,127	153,849
Gross energy input (MUs)	67,673	69,395	69,385	71,412	74,160	78,550	84,828	91,498	99,361	107,520
Sales (MUs)	46,238	47,580	50,943	54,061	58,631	63,594	69,579	75,993	82,151	89,003
ARR (INR/kWh) excluding revenue subsidy (a)	5.8	6.5	6.9	7.12	7.04	7.4	7.6	7.8	8.0	8.2
ARR (INR/kWh) including revenue subsidy (b)	6.1	6.8	7.2	7.4	7.3	7.7	7.9	8.1	8.3	8.5
ACoS (INR/kWh), excludes other debits (c)	8.7	9.1	8.0	7.8	7.8	7.7	7.7	7.8	8.0	8.0
Gap {c-a} (INR/kWh)	3.0	2.6	1.1	0.7	0.7	0.3	0.1	(0.1)	(0.1)	(0.2)

Table 8.4. Sensitivity Analysis on Key Operational Parameters

Sensitivity Parameter					Distribution Losses				Non-agri Tariff Increases (shown as per year of application)			
					FY17	FY18	FY19	FY20	FY17	FY18	FY19	FY20
Base case (%)					23.8	20.5	17.0	15.0	10	0	0	8
Trajectory for sensitivity (%)					23.8	21.0	20.0	18.0	10	0	0	5
INR, million	Numbers under base case				Numbers under various sensitivity scenario							
	FY17	FY18	FY19	FY20	FY17	FY18	FY19	FY20	FY17	FY18	FY19	FY20
EBITDA	25,966	38,718	42,715	72,111	25,966	37,376	34,458	62,542	25,966	38,718	42,715	62,384
PBT	(48,160)	(30,041)	(32,651)	(9,413)	(48,160)	(31,383)	(41,397)	(20,083)	(48,160)	(30,041)	(32,651)	(19,353)
Absorption of losses by the GoR	n.a.	991	3,004	8,163	n.a.	991	3,138	10,349	n.a.	991	3,004	8,163
OFR	n.a.	32,587	6,313	0	n.a.	33,904	14,781	5,228	n.a.	32,587	6,313	5,394

ANNEX 9: FISCAL DEVELOPMENT IN RAJASTHAN DURING THE LAST DECADE

1. **Public finances improved after the adoption of the FRBM rules in 2005.**⁶⁰ The 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—and largely met the targets prescribed in the law (except for FY09 and FY10 on account of the global financial crisis). The debt-to-GSDP ratio declined rapidly in the years following the enactment of the FRBM Act from 47 percent in FY06 to 25.7 percent in FY12. 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 the fiscal deficit has risen to an average of 2.69 percent during FY13–FY15—reaching 3.1 percent in FY15. The recent deterioration of public finances can be explained by increased expenditures in the power sector, which more than compensated for robust growth in own-tax revenues and petroleum royalties. Fiscal indicators deteriorated further in FY16 and FY17, largely due to the implementation of UDAY.

2. **Revenue collections have shown an upward trend in recent years, improving from 13.4 percent of GSDP in FY10 to 16.1 percent of GSDP in FY16.** The increase in tax devolution recommended by the 14th Finance Commission helped boost revenues from 15.1 percent in FY15. Simultaneously, the state has benefited from petroleum royalties since 2010, after the discovery of oil in Thar Desert—with annual collections amounting to approximately 1 percent of GSDP. Lower oil prices have led to a decline in this revenue source in FY16/17. Because of implementation of the recommendations of the 14th Finance Commission, transfers from the center have increased to 6.9 percent of GSDP in FY16 and further to 7.6 percent in FY17, compared to an average of 5.5 percent in the previous five years.⁶¹

3. **The 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 between 2000 and 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 (as debt levels declined) and capital expenditures. Nearly two-thirds of current spending is on committed expenses such as salaries and pensions, which continued to increase. However, since 2012, total expenditures rose primarily as financial support to the power sector increased after the rollout of the FRP in 2012.

⁶⁰ The State Legislature enacted the FRBM Act in 2005, to ensure 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.

⁶¹ Following the recommendations of the 14th Finance Commission untied transfers to the state government have increased—42 percent of the central divisible pool of taxes will be devolved to the states.

Table 9.1. Public Finances

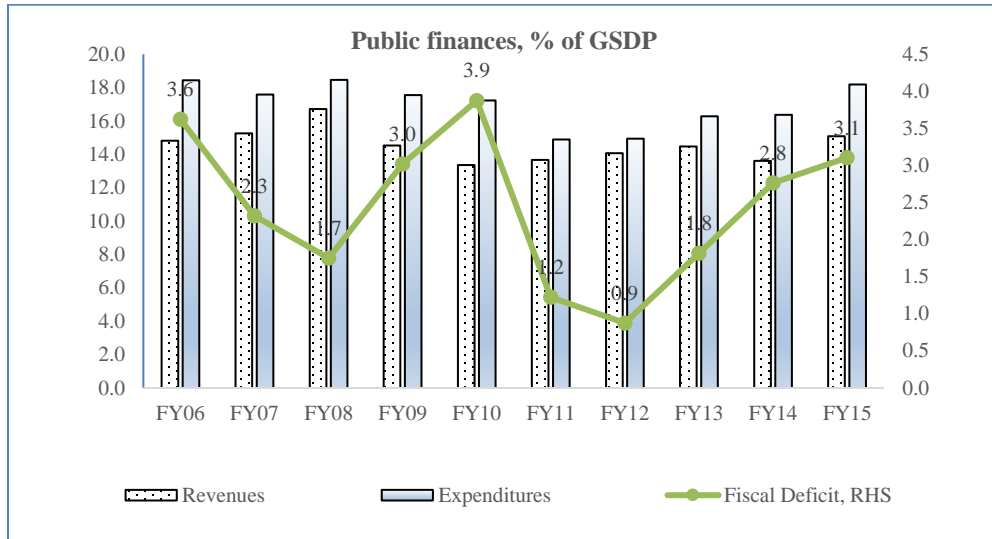
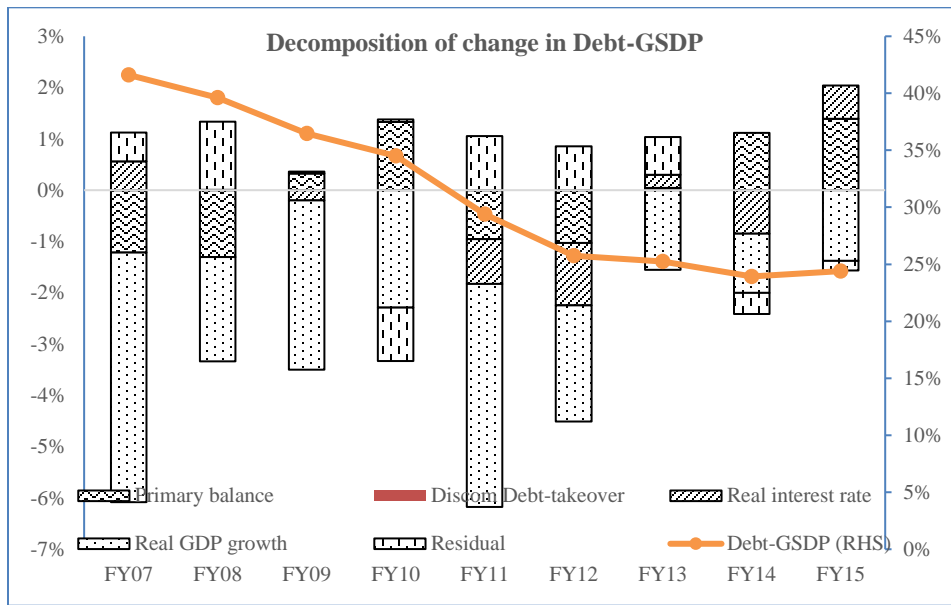


Table 9.2. Decomposition of Change in Debt-GSDP



ANNEX 10: PROGRESS AGAINST THE RESULTS INDICATORS FROM THE FIRST PROGRAMMATIC ELECTRICITY DISTRIBUTION REFORM DPL FOR RAJASTHAN

S. No.	Results Indicator	Baseline	Target (from DPL1)	Present Status (with Remarks)
1	Appointment of Independent Directors in accordance with the clause No. 8 of the Ordinance/Act in each DISCOM	1 in FY15	According to provisions of the Companies Act (Central Act No. 18 of 2013) by March 2017	2 (Achieved)
2	Implementation of EPI scheme	0 in FY15	Incentive for performance in FY17 disbursed (by June 2017)	The incentive for FY16 could not be disbursed because of under achievement in target of AT&C loss reduction at the state level. The EPI scheme for FY17 was not approved by the GoR as the scheme was notified late. A revised EPI scheme for FY18 (and subsequent years) has been notified by the GoR in March 2018.
3	Date of availability of audited annual accounts	December 31, 2015 (with a three-month delay)	September 30, 2016 (i.e. within six months of end of FY)	Achieved (audited annual accounts for DISCOMs for FY17 were available before September 30, 2017)
4	% of outstanding debt (as on September 30, 2015) of DISCOMs taken over by GoR	0 on September 30, 2015	75% by March 2017	Achieved (75% of DISCOM debt has been taken over by the GoR)
5	Gap between ACoS and ARR	INR 3.00 per kWh in FY15	INR 0.70/kWh in FY17	INR 1.1 per kWh in FY17
6	Power Purchases for DISCOMs managed by Rajasthan Energy Development Corporation Ltd	0 in FY15	90% by March 2017	Achieved (100% power purchases being managed by RUVNL)
7	Monthly Distribution Energy Audit reports generated and disclosed (expressed as % of total feeders)	0 in FY15	90% by March 2017	Achieved (energy audit started on 100% feeders)
8	Aggregate Technical and Commercial (AT&C) losses (%)	29.5% (Provisional) in FY15	23% that is, reduction of 6.5 percentage points over baseline by FY17	23.78% at the end of FY17
9	Number of consumers put on pre-paid/ AMI/ AMR meters	0 in FY15	100,000 by March 2017	45,665 (as of March 2018) - Delayed due to contractual issues and new tender issued.

S. No.	Results Indicator	Baseline	Target (from DPL1)	Present Status (with Remarks)
10	Number of LED lamps distributed	0 in FY15	15,000,000 by March 2017	15,342,971 (as on June 5, 2018)
11	Number of consumers put on unified billing system	50% in FY15	100% by March 2017	100% (Achieved)
12	Number of IT staff appointed in DISCOMs	0 in FY15	30 by March 2017	30 (Achieved)
13	Number of villages remaining to be electrified	495 villages in April 2015	25 villages by March 2017	0 (Achieved, all villages except 68 uninhabited villages electrified)

ANNEX 11: KEY FEATURES OF UDAY AND RSEDMR ACT

Focus Area	UDAY MoU	RSEDMR Act of GoR
Financial Sustainability	<p>The GoR to take the following measures:</p> <ul style="list-style-type: none"> (a) Take over 75 percent of the debt of DISCOM as on September 30, 2015 (b) Take over the future losses of the DISCOM in graded manner from FY18 onwards (c) Guarantee repayment of principal and payment of interest for the balance debt remaining with DISCOM/bonds issued by the DISCOM (d) Pay all outstanding dues from the state government departments to the DISCOM for supply of electricity (e) The DISCOM shall endeavor to eliminate the gap between ACoS and ARR by FY19 	<p>The GoR to take following measures:</p> <ul style="list-style-type: none"> (a) Set up a financial vehicle to facilitate raising of capital and/or lower-cost borrowings for DISCOMs. (b) To provide following financial support to the financing vehicle from FY16/FY22: <ul style="list-style-type: none"> • Amount equal to electricity duty collected by the state; • Amount equal to compounding charges collected under the Electricity Act. (c) Create annual budgetary provision and also timely release of subsidies, if committed. (d) Ensure that there are no arrears of electricity charges for electricity supplied to various departments and institutions of the state government on or before the date of coming into force of this act and in case of failure to do so it shall be adjusted against the budgetary grant. (e) Ensure that DISCOMs establish, within six months from the date of notification of the act, an Empowered Committee to ensure identification, provisioning and write-off of receivables, and bad and doubtful debts in the books of accounts of DISCOMs.
Loss reduction	<ul style="list-style-type: none"> (a) The DISCOM shall endeavor to reduce AT&C losses according to the trajectory agreed in UDAY MoU (b) The DISCOM shall restrict power supply in areas with high or increasing AT&C losses from April 1, 2016 (c) Undertake 'name and shame' campaign to control power theft (d) Prepare loss reduction targets at division/circle/zonal level and making concerned officers responsible for achieving the loss reduction targets (e) Implement performance management information system for tracking meter replacement, loss reduction, and day-to-day progress for reporting to top management 	<p>The DISCOM prepares, with the approval of RERC, a time-bound road map for AT&C loss reduction.</p>

Focus Area	UDAY MoU	RSEDMR Act of GoR
Metering and Energy Audit	<p>The DISCOM shall take the following measures for loss reduction:</p> <ul style="list-style-type: none"> (a) Achieve 100 percent distribution transformer metering (b) Achieve 100 percent feeder metering (c) Undertake energy audit up to 11 kV level in rural areas (d) Undertake physical feeder segregation (e) Install AMR meters for all consumers with consumption above 500 units per month and for other consumers with consumption above 200 units per month, subject to cost-benefit analysis 	<p>The DISCOM to undertake energy accounting and auditing of all 33 kV and 11 kV feeders along with consumer indexing and time-bound metering of each category of consumers</p>
Demand Side Management and Energy Efficiency	<ul style="list-style-type: none"> (a) The DISCOM to provide LED lamps for domestic consumers under DELP (b) The GoR shall ensure replacement of street lights with LED lamps in all municipal towns through urban local bodies (c) The GoR shall take measures to promote Perform, Achieve, Trade (PAT) scheme of the Bureau of Energy Efficiency for improving energy efficiency in industries 	
Tariff Measures	<p>The DISCOM shall undertake the following tariff measures:</p> <ul style="list-style-type: none"> (a) Quarterly tariff revision particularly to offset fuel price increase (b) Timely filing of tariff petition before the RERC (c) Timely preparation of annual accounts of the DISCOM 	<ul style="list-style-type: none"> (a) The state government shall ensure regular and timely filing of true-up petitions, ARR and tariff petitions, and petitions for adjustments on account of fuel and cost of power purchased. (b) The state government shall ensure that DISCOMs shall take necessary steps to liquidate regulatory assets within a period of 5 years from their date of existence or within such period stipulated by the RERC.
Employee Engagement	<p>The DISCOM shall</p> <ul style="list-style-type: none"> (a) Initiate capacity building of employees to enhance technical, managerial, and professional capabilities at induction level and in subsequent refresher trainings and (b) Devise KPIs for each officer in charges on areas of AT&C loss reduction and improvement in metering/billing/collection efficiency. The performance of officer-in-charge shall be linked to KPIs achieved and will attract incentive/penalty. 	<p>State Electricity Distribution Management Statement shall comprise a time-bound action plan, on long-term, medium-term, and short-term basis including activities to achieve targets for KPIs, monitoring mechanism, feedback loop and steps, including disciplinary action against defaulting officers, for eliminating/minimizing deviation in actual performance and targets for KPIs.</p>

Focus Area	UDAY MoU	RSEDMR Act of GoR
Customer Service	<p>The DISCOM shall implement the following:</p> <ul style="list-style-type: none"> (a) Providing electricity access to 3.3 million unconnected HHs as per PFA document by FY19 (b) Setting up of centralized customer call for timely resolution of complaints (c) Introducing more avenues to consumers for bill payment 	<p>The state government to lay, before the State Legislature, a State Electricity Distribution Management Statement (mentioning KPIs) on the measures taken by the state government in relation to electricity distribution in the state, including in the areas of long-term planning, consumer protection, regulatory compliance, corporate governance, financial restructuring of DISCOMs, to bring about the operational and financial viability of DISCOMs on sustainable basis.</p>
Power Purchase Cost Optimization	<ul style="list-style-type: none"> (a) The GoR to take steps for improving efficiency of generating plants of RVUNL, for which NTPC would hand-hold (b) The DISCOM shall procure power through transparent process of competitive bidding 	<p>That the DISCOM estimates the demand and availability of electricity on long term basis and signs long-/medium-/short-term agreements, with the approval of the RERC, for purchase of power to meet the demand</p>
Corporate Governance	<p>Implement Enterprise Resource Planning (ERP) system for better and effective inventory management, personnel management, accounts management and so on to reduce costs and increase efficiencies</p>	<ul style="list-style-type: none"> (a) The state government shall ensure that the BoD of DISCOMs has an optimum combination of functional, nominee and independent directors. (b) The state government shall lay down a code of conduct for all board members and senior management of DISCOMs. (c) The state government shall ensure that DISCOMs complete physical verification and prepare fixed assets register as per accounting standards within two years of the enactment of this Act.
Monitoring Mechanism	<p>Chairman and Managing Director (CMD)/ Managing Director (MD) of the DISCOM shall monitor performance of the DISCOM monthly.</p>	<ul style="list-style-type: none"> (a) The state government and the DISCOM to enter into an MoU for setting targets for KPIs and performance evaluation of the DISCOM for each fiscal year (b) The state government shall establish a committee for effective implementation of this Act, consisting of the following: Chief Secretary, Secretary (Finance), Secretary (Energy), MD of each DISCOM, MD of RVUNL, MD of RVPNL and representatives of the nodal bank and three major lenders of DISCOMs. (c) The DISCOM shall submit, every six months, a report to the GoR on its operational and financial performance.