Report Number: ICRR0022620

1. Program Information

Country
India

Practice Area (Lead)
Energy & Extractives

Programmatic DPF

Planned Operations
0

Approved Operations
0

Operation ID
P157224

Operation Name
First Programmatic Electricity Distribut

L/C/TF Number(s)
IBRD-86050

Closing Date (Original)
31-Mar-2017

Total Financing (USD)
250,000,000.00

Bank Approval Date
25-Mar-2016

Closing Date (Actual)
31-Mar-2017

	IBRD/IDA (USD)	Co-financing (USD)
Original Commitment	250,000,000.00	0.00
Revised Commitment	250,000,000.00	0.00
Actual	250,000,000.00	0.00

Country
India

Practice Area (Lead)
Energy & Extractives

Operation ID
P159669

Operation Name
Rajasthan Electric Distribution Reform 2 (P159669)

L/C/TF Number(s)	Closing Date (Original)	Total Financing (USD)
IBRD-86050,IBRD-88690	30-Sep-2019	250000000.00
Bank Approval Date	**Closing Date (Actual)**	
05-Jul-2018	31-Oct-2019	

	IBRD/IDA (USD)	Co-financing (USD)
Original Commitment	250,000,000.00	0.00
Revised Commitment	250,000,000.00	0.00
Actual	250,000,000.00	0.00

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2. Program Objectives and Pillars/Policy Areas

a. Objectives

The Legal Agreements (Loan Agreements dated March 31, 2016 for the DPL1 and August 28, 2018 for the DPL2 did not include statements on the objectives of the Program.

Therefore, the program objectives used for the Implementation Completion and Results Report (ICR) are based on the Program Document (PD) of the Second Programmatic Electricity Distribution Reform Development Policy Loan which stated that "The proposed second operation of the program will continue to support the Government of the State of Rajasthan's (GoR) program for the turnaround of the distribution sector in Rajasthan under the 24x7 Power for All Program."

This program objective statement was also consistent with the GoR's letters of Development Policy dated February 16, 2016 (Annex 2, page 39 of the PD for the first DPL, DPL1) and April 4, 2018 (Annex 2, page 48 of the PD for second DPL, DPL2).

b. Pillars/Policy Areas

The Program Development Objectives to support the turnaround of the electricity distribution sector in Rajasthan was supported by reforms in the following three policy areas:

- Policy Area A: Strengthening the governance framework in the Rajasthan electricity distribution sector
- Policy Area B: Enhancing policies to restructure the finances of the electricity distribution sector

- Policy Area C: Improving the operational performance of distribution utilities

The wording of the three areas was modified in DPL2, more to provide nuance to certain aspects of the reforms than to indicate material changes in the substance of the reforms. The wording used in this evaluation is from the DPL2 Program Document (pages 17, 21 and 25). Nonetheless, the changes from DPL1 are described under each policy area.

Policy Area A: Strengthening the governance framework in the Rajasthan electricity distribution sector

This policy area was described as "Strengthening Governance in the Rajasthan Electricity Distribution Sector" in the PD of the DPL1 (page 16). The wording in DPL2 was amended to refer to the legal and institutional framework that was put in place as part of the reforms under DPL1. The policies and actions grouped under this policy area sought to strengthen corporate, managerial and employee accountability for performance in the distribution sector as well as to clarify the responsibilities and accountabilities of the State. There were three sub-areas for reform and complementary (non-policy) actions under this policy area, as follows:

A.1 Establishing a legal and institutional framework for enhanced performance, governance, and accountability

The Rajasthan State Electricity Distribution Management Responsibility (RSEDMR) Ordinance was passed in 2016 to create the enabling conditions for the introduction of new performance oversight arrangements and best practice utility management practices. These were to include annual performance Memoranda of Understandings (MOUs) between the distribution companies (DISCOMs) and the GoR, the submission by the GoR to the State Legislature of an annual report on the state of the sector, the introduction of independent directors to the utilities boards and adoption of other management practices that had worked well in the GoI "Central Public Sector Undertakings."

A.2 Enhancing employee performance incentives and performance management policies

The objective was to put in place *employee performance incentive schemes (*EPI) that would help to align corporate and employee performance goals, especially regarding the reduction of aggregate technical and commercial (AT&C) losses. In addition, developing advanced employee transfer, promotion, and performance management policies like those used with generally positive results in the GoI public sector agencies was expected to improve employee performance in the DISCOMs`.

A.3 *Completion of DISCOMs' Audited financial statements and implementation of corporate governance and financial accountability (CGFA) plans***.**

Since timely and quality financial information is important for decision making, transparency and accountability purposes, strengthening the sector's governance framework also required an improvement in the timelines of completion of audited financial statements which were being completed more than six months after the end of the FY (9 months in FY2015, base year). The improvement was to support the implementation of C*orporate Governance and Financial Accountability* (CGFA) plans, which were being developed for the DISCOMs.

Policy Area B: Enhancing policies to restructure the finances of the electricity distribution sector

This policy area was described as "Financial Restructuring and Recovery" in the PD of DPL1 (page 18). The wording was changed in DPL2 to remove references to 'recovery', which had been an important focus at the beginning of the program in 2016. The objective of this policy area was to stem the deterioration in the financial condition of the DISCOMs and to provide a solid foundation for a turnaround. Thus, the program design incorporated the actions required to implement the GoI's financial turnaround strategy for the electricity distribution sector under the Ujwal DISCOM Assurance Yojana (Program for the Financial Turnaround of DISCOMs) or UDAY – a joint program between the GoI and states/union territories that was developed in 2016 to support the financial turnaround of electricity distribution utilities. There were three sub-areas for reform and complementary (non-policy) actions under this policy area, as follows:

B.1 Enable implementation of the UDAY Program for the sectors' financial turnaround

Tripartite MoUs between the GoI, the State of Rajasthan and the DISCOMs were needed to enable the implementation of the UDAY program. Specifically, the program provided for measures to resolve the DISCOMs' current and potential issues by: (a) the GoR taking over 50% of their annual financial losses and 75% of their debts over two years; (b) DISCOMs and GoR taking measures to reduce the cost of power purchases; (c) DISCOMs implementing operational efficiency improvements, including smart metering, upgrading transformers and other efficiencies.

B.2 *Filing of annual revenue requirements and requests for tariff revisions.*

For many years the DISCOMs had been discouraged from filing their annual revenue requirements and tariff increases had not been granted between 2004 and 2012, a factor that had contributed to the deterioration of the sector's condition. The aim of this process action was to support the reduction in the revenue gap by encouraging the DISCOMs to file their annual revenue requirements and requests for tariff revisions with the Rajasthan Energy Regulatory Commission (RERC).

B.3 Establishing an entity to optimize power purchase costs on behalf of DISCOMs

The high cost of power purchases was one of the key performance drivers. As part of the measures to restructure the electricity distribution sector's finances a power procurement entity - the Rajasthan Energy Development Corporation (RUVNL – acronym derived from Rajasthan Urja Vikas Nigam Ltd was to be set up. The expectation was that this would help to narrow the revenue gap by addressing the cost side of the average cost of supply kWh – average realized revenue per kWh gap or the (ACoS-ARR) through a reduction of the bulk supply costs.

Policy Area C: Improving the operational performance of distribution utilities

This policy area was aimed at consolidating the benefits from the strengthening of governance and the financial restructuring measures under policy area A and B respectively with operational restructuring actions to support both short-term and long-term viability of the sector. Actions in this policy area were to be based on specific operational performance criteria derived from business plans prepared by the DISCOMs. There were two sub-areas for reform and complementary (non-policy) actions under this policy area, as follows:

C.1 Disclosure on DISCOMs' websites of periodic energy audits of feeders and use of results for load scheduling

The focus on reducing AT&C losses, a critical component of the electricity distribution sector's turnaround strategy was to measure losses on all feeders to properly target loss reduction measures.

C.2 Implementation of DISCOMs' business plans for operational improvements

The specific aims of the DISCOMs' business plans were to: (a) improve revenue generation using prepaid metering/advance metering infrastructure and automatic meter reading and through implementation of a unified

.billing system; (b) save energy by distributing LED lamps to replace CFLs and incandescent bulbs; and (c) achieve cost efficiencies through improved use of IT. An additional objective was to reduce the number of unelectrified villages and households in line with the 24x7 PFA program

c. Comments on Program Cost, Financing and Dates

Program Cost: The cost of the program series was US$ 500 million, US$250 million for each of the two DPLs.

Financing: IBRD Loans of US$250 million each were used to finance the program costs. The loans were provided to the Government of India, with the Department of Energy of the State of Rajasthan as the implementation agency for the Program. The loan was disbursed in a single tranche for each development policy operation.

Borrower Contribution: Neither the GoI nor the GoR contributed to the Program financing.

Dates: The Loan Effectiveness dates were May 13, 2016 and October 1, 2018 for the DPL1 and DPL2 respectively. The DPL1 Loan closed on March 31, 2017 as scheduled whereas the closing date for DPL2 was extended by one month to October 31, 2019. The extension was requested by the GoI to allow enough time to submit and have the withdrawal application processed by the Bank.

3. Relevance of Design

a. Relevance of Objectives

During the decade up to FY2015 Rajasthan's economy grew at an average annual rate of 7.9%, faster than the all-India average growth rate of 7.6% during the same period. The economic growth had a significant impact on poverty - resulting in Rajasthan having a lower concentration of poverty than most states. The GoR had also prepared its Vision 2020 strategy aimed at growing the economy at an average annual rate of 12% and transforming it into a powerful, developed, and prosperous state by 2020.

However, the state's electricity sector now faced major sustainability problems caused by long delayed retail tariff revisions, operational inefficiencies in the distribution system (including AT&C losses), high power generation costs, and unsustainable debt service obligations - resulting in several years of continuing financial losses. The financial sector had become reluctant to continue financing the sector's deficits and there was a risk that the DISCOM's non-performing loans could spread to generation and transmission companies.

Given these sector development constraints, there was a risk that Rajasthan's Vision 2020 could not be achieved without a fundamental turnaround in the energy sector. The Program objective to "support the GoR's program for the turnaround of the distribution sector in Rajasthan" was therefore relevant to the development needs of the State. Specifically, the Program supported the State and the GoI sector strategies as articulated in the following documents: (a) the State's Vision 2020 as mentioned above; (b) the GoI's 24x 7 Power for All (PFA) program which had the objective of providing reliable electricity supply for all by 2019;

and (c) the UDAY – a joint program between the GoI and states/union territories that was aimed at supporting the financial turnaround of electricity distribution utilities.

The first development policy loan prepared in 2015-16 was aligned to the Country Partnership Strategy (CPS) for India for FY2013-17. The CPS focused on three engagement areas: economic integration, transformation, and inclusion. Energy was covered under both the economic integration and inclusion pillars. Under the economic integration engagement pillar, Objective 1.2 – Improved inter-regional power connectivity - the CPS strategy was to promote financially sustainable access to electricity by addressing bottlenecks in generation, transmission, and distribution at both the state and national levels. The inclusion pillar included *"Improved access to electricity" under Objective 3.1 – access to electricity was incorporated in the business plans of the DISCOMs with specific results indicators under DPL2.*

At program closure, the series remained aligned to the Country Partnership Framework (CPF) for FY2018-22). The CPF had three pillars: for (a) promoting resource-efficient growth; (b) enhancing competitiveness and enabling job creation; and (c) investing in human capital. Energy was covered under the pillar on promoting resource- efficient growth, Objective 1.4 – Increase access to sustainable energy. The CPF states on page 16 that the WBG will support transmission and distribution "utility reforms and institutional strengthening to ensure increased access to reliable power in alignment with the GoI's 24x7 Power for All Program". It further elaborates that the "WBG will deepen its support to achieve results by first strengthening the institutional capacity and governance of the power T&D utilities to achieve improvements in financial and operational performance …"

The CPF also included the second DPL in the ongoing program at the time (page 54).

b. Relevance of Prior Actions

Rationale

The assessment of relevance is carried out as follows: (a) separately for each prior action (PA) or group of prior actions (PAs); (b) aggregating the PA relevance ratings at the policy area level; and (c) deriving an overall PA relevance rating. The rating of PAs considers the clarity and credibility of the PA/PAs in the theory of change for achieving the program objective of supporting a turnaround of the Rajasthan electricity distribution sector.

The prior actions as contained in the Program Documents (PD) are listed in Table 1 below under each policy area.

Table 1: List of Prior Actions by Policy Area and DPL

Policy Area A: Strengthening the governance framework in the Rajasthan electricity distribution sector	
DPL1	**DPL2**
PA #1: Rajasthan has issued and notified the Electricity Distribution Management Responsibility Ordinance	PA #2: 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.
PA #3: The DISCOMs have developed and obtained approvals for their Employee Performance Incentive (EPI*)*	*PA #4*: The DISCOMs have approved a Transfer Policy and Performance Management Policy for their employees.
PA #5: The DISCOMs have completed audited financial statements for FY14-15	PA #6: 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.
Policy Area B: Enhancing policies to restructure the finances of the electricity distribution sector	
PA #7: The Union Government, Rajasthan and the DISCOMs have entered into tri partite MoUs providing for the implementation of UDAY program	
PA #8: The DISCOMs have filed with RERC their annual revenue requirements and tariff petitions for *FY16*	PA #9: The DISCOMs have filed with RERC their annual revenue requirements and tariff petitions for FY17/18
PA #10*:* Rajasthan has set up the Rajasthan Energy Development Corporation Ltd (Rajasthan Urja Vikas Nigam Ltd.), a company aiming to bring transparency and optimize power purchases on behalf of DISCOMs	PA #11*:* Rajasthan Urja Vikas Nigam Ltd. ("RUVNL") is operational, and power purchases (including renewable energy purchases) for DISCOMs are made through RUVNL
Policy Area C: Improving the operational performance of distribution utilities	
PA #12: The DISCOMs have approved Business Plans for improved operational performance and initiated their implementation including on: (i) Pre-paid Metering Program for government consumers; and (ii) the Energy Efficiency Lighting Program	PA #13: 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
	PA #14: The DISCOMs have implemented a unified billing system including billing large and medium industrial consumers based on an automated meter reading system.
	PA #15: The DISCOMs have: (a) started implementation of their approved IT Roadmaps by preparing detailed project reports for ERP deployment; and (b) created an IT cadre and started mapping IT professionals accordingly.

Policy Area A: Strengthening the governance framework in the Rajasthan electricity distribution sector

A.1 Establishing a legal and institutional framework for enhanced performance, governance, and accountability.

The two prior actions aimed at establishing a legal and institutional framework for enhanced performance, governance and accountability were:

- *PA #1 (DPL1)* - Rajasthan has issued and notified the Electricity Distribution Management Responsibility Ordinance.
- *PA #2 (DPL2)* - 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.

The relevance of PAs #1 and 2 rating is **Satisfactory.** The satisfactory rating is on the basis that the Ordinance would create enabling conditions for enhanced distribution sector management autonomy and accountability, including enabling the use of MOUs between the State and the DISCOMs as an accountability mechanism. The ordinance and the MOUs would, thus, facilitate financial restructuring, corporate planning, and stronger sector governance. As the PD (DPL1, page 16) noted, global "...experience with distribution utilities has shown that adequate mechanisms to increase the autonomy and accountability of management result in performance improvements". In addition, the use of accountability mechanisms to achieve improved performance had achieved better results in GOI's power companies, but had not been employed at the State level

Prior to the DPL series, the DISCOMs lacked financial and managerial autonomy and there were no adequate accountability mechanisms for performance. The ordinance and the MoUs were intended to create an enabling legal and institutional framework for improved corporate performance and accountability. The prior action regarding the RSEDMR Ordinance was aligned with the Program objective of supporting the turnaround of the distribution utilities in a number of ways, including that the Ordinance: (a) detailed the responsibilities of the GoR and the DISCOMs in implementing the DISCOM's financial and operational turnaround; (b) was expected to reduce the level of political interference and enhance the GoR/ DISCOM's public accountability for performance by, for example, instituting a mechanism for regular performance monitoring and reporting of progress to the State Assembly; (c) provided for the conclusion of MoUs setting key performance indicators and targets for the DISCOMs (Prior action #2 under DPL2) on variables, such as AT&C losses, with high impact on the utilities' financial and operational turnaround; and (d) paved the way for strengthening utility corporate boards of directors through the introduction of independent directors. The expected outcome was the appointment of independent directors in accordance with the relevant clause in the RRSEDMR Act with the target number of independent directors based on the provision of the Companies Act (Central Act N. 18 of 2013).

A.2 Enhancing employee performance incentives and performance management policies

The two prior actions aimed at enhancing employee performance incentives and performance management were:

- PA #3 (DPL1): The DISCOMs have developed and obtained approvals for their Employee Performance Incentive (EPI)
- *PA #4 (DPL2):* The DISCOMs have approved a transfer policy and performance management policy for their employees*.*

*The relevance of PAs #3 and 4 is **Moderately Satisfactory** because of the weaknesses in the design of the EPI schemes, as described below.*

The DISCOMs employees had no incentives to improve their productivity and operational performance of the utilities which was essential for reducing operating costs and contributing to the financial turnaround of the sector. The aim of the EPI schemes was to support the alignment of corporate and employee performance goals, especially regarding the reduction of AT&C losses. The prior action required the DISCOMs to prepare and obtain approvals for their EPI schemes under DPL1. In 2015 the DISCOMs prepared and obtained GoR approvals for EPI schemes. The associated trigger for DPL2 was for the DISCOMs to prepare and approve a revised transfer and promotion policy for their employees. This evolved into prior action #4 under DPL2 with a modification to also include approval of a performance management policy. The transfer, promotion and performance management policies were being modelled on the experience of "Central Public Sector Undertakings" in the GoI - which were generally seen as successful in managing employee performance. The expected outcome was the disbursement of incentives in FY2016 (interim), FY2017 and FY2019 which would only be made provided the underlying performance targets were met. There was, theoretically, a strong linkage between the payment of EPI and the achievement of AT&C targets and improving the operational and financial performance of the DISCOMs. However, as the ICR indicates (ICR pages 17 and 18) there were two shortcomings in the design of the incentive scheme. First, the incentive was designed on a group basis, meaning that if the work group achieved the target, everyone in that group would receive the incentive. This might have had the unintended consequence of discouraging individual efforts, resulting in the groups failing to achieve their targets. Second, there was a problem of attribution, given that multiple factors, including those outside the control of the employees, could have an impact on the outcome of the targets. Third, there were no analytics presented in the Program documents illustrating the relationship between the quantum of the incentive payments and the reduction in AT&C losses.

A.3 *Completion of DISCOMs' Audited financial statements and implementation of corporate governance and financial accountability (CGFA) plans***.**

The two prior actions aimed at supporting the implementation of corporate governance and financial accountability plans were:

- *PA #5 (DPL1):* The DISCOMs have completed audited financial statements for FY14-15
- *PA #6 (DPL2):* 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.

*The relevance of PAs #5 (DPL1) and 6 (DPL2) is **Moderately Satisfactory** because of the equating of the completion of audited financial statements with the start of implementation of boards approved CGFA plans,* *whereas some core component(s) of the CGFA plans could have been used as prior action(s), to leverage deeper implementation.*

Since timely and quality financial information is important for decision making, transparency and accountability purposes, strengthening the sector's governance framework required an improvement in the timelines for publication of audited financial statements which was being done more than six months after the end of the FY (9 months in FY2015). The improvement was to support the implementation of Corporate Governance and Financial Accountability (CGFA) plans which were being developed for the DISCOMs. The objective was to ensure that DISCOMs published audited financial statements on time. The prior action under DPL1 was simply for the DISCOMs to have completed audited financial statements for FY2014-15. Two triggers, #3 and #4, required the DISCOMs to have completed their audited financial statements for 2015-16 and to have started implementation of their CGFA plans. The triggers were merged and reworded to require the DISCOMs to have started implementing their CGFAs, duly adopted by their boards of directors, by publishing audited financial statements for FY2017. The expected outcome for this policy action was the publication of the audited financial statements for FY2019 within 6 months of the end of the FY, i.e., by September 30, 2019.

Policy Area B: Enhancing policies to restructure the finances of the electricity distribution sector

B.1 Enable implementation of the UDAY Program for the sectors' financial turnaround

Prior Action #7 (DPL1): The Union Government, Rajasthan and the DISCOMs have entered into tri partite MoUs providing for the implementation of the UDAY program. This PA *was aimed at enabling implementation of the UDAY Program for the sector's financial turnaround.*

The relevance of PA# 7 (DPL1) is **Satisfactory.** This prior action was relevant to the objective of achieving a turnaround of the electricity distribution sector in Rajasthan because it allowed for the implementation of the UDAY – a joint program of the GoI and state governments - for fixing the financial and operational problems of the electricity distribution companies. Specifically, the MoUs provided for GOR to take over debts of the DISCOMs, limited the permissible level of financial losses that DISCOMs could incur and committed the companies to achieve other targets such as metering of distribution feeders which is an effective method of managing system power losses.

The prior action required signature of tripartite Memorandums of Understanding (MoUs) between the GoI, GoR and DISCOMs to enable the implementation of the UDAY program. There were two DPL2 triggers associated with this prior action; namely: (a) that combined losses before taxes for FY2016 would not exceed INR100 billion (DPL1 trigger #5); and (b) that DISCOMs would have published complete monthly energy audits for 90% of their respective feeders on their websites and initiated Loss-Based Load Scheduling programs (DPL1 trigger #6).The expected outcomes from this prior action were the percentage of DISCOMs' debt taken over by the state by March 2017, and the percentage of feeders on which monthly energy audits had been completed by March 2017, both of which were expected to meet specified targets. The DPL1 trigger (#5) requiring combined losses before taxes for FY2016 was exceeded and, hence there was no associated prior action incorporated under DPL2. Trigger 6 evolved into PA# 13 under Policy Area C in DPL2.

B.2 *Filing of annual revenue requirements and requests for tariff revisions.*

- *PA #8 (DPL1):* The DISCOMs have filed with RERC their annual revenue requirements and tariff petitions for FY16
- *PA #9 (DPL2):* The DISCOMs have filed with RERC their annual revenue requirements and tariff petitions for FY17/18*.*

The relevance of PA #8 (DPL1) and PA #9 (DPL2) is **Satisfactory.** The aim of the PAs was to institutionalize the filing of annual revenue requirements with the regulator by the DISCOMs, thus increasing the likelihood of increased electricity revenues. Increasing revenues was a critical component of the turnaround strategy for the electricity distribution sector*.*

For many years between 2004 and 2012 there were no tariff revisions which contributed significantly to the deterioration in the sector's financial condition as costs increased without commensurate revenue increases. Although the Electricity Law (2003) provided for periodic adjustments of tariffs based on submission of tariff petitions by operators the DISCOMs were discouraged from doing so, leading to the accumulation of financial losses. The aim of these prior actions was to encourage the DISCOMs to file their annual revenue requirements and to petition the RERC for revisions which, when granted, would support a narrowing of the gap between the Average Cost of Supply (ACoS) and the Average Revenue Realized (ARR), thus contributing to the Program objective of supporting the distribution sector's financial and operational turnaround.

B.3 Establishing an entity to optimize power purchase costs on behalf of DISCOMs

The two PAs aimed at reducing power purchase costs for the DISCOMS and thereby helping to enhance their financial viability were:

- *PA #10 (DPL1):* Rajasthan has set up the Rajasthan Energy Development Corporation Ltd (Rajasthan Urja Vikas Nigam Ltd.), a company aiming to bring transparency and optimize power purchases on behalf of DISCOMs
- *PA #11 (DPL2):* Rajasthan Urja Vikas Nigam Ltd. ("RUVNL") is operational, and power purchases (including renewable energy purchases) for DISCOMs are made through RUVNL*.*

The relevance of PA #10 (DPL1) and PA #11 (DPL2) is ***Satisfactory***. The aim of these prior actions was to help improve the financial performance of the DISCOMs by reducing bulk supply costs in line with the program objective of supporting a turnaround of the sector.

The aim of this PA was also to support the narrowing of the ACoS-ARR gap by addressing the cost side of the equation through a reduction of the bulk supply costs. The planned policy measure was the establishment of Rajasthan Energy Development Corporation (RUVNL – acronym derived from Rajasthan Urja Vikas Nigam Ltd.) - as the procurement agent of bulk power supplies for the DISCOMs, with the objective of promoting transparency and lower costs. The expected outcome was the routing of at least 90% of the total power purchases of the DISCOMs through RUVNL by March 2017. The trigger for DPL2 was to make the RUVNL operational and evolved into prior action #11 (DPL2), with the change that RUVNL would also include renewable energy in its power sales to the DISCOMs. There was no additional outcome specified for this PA, presumably because the percentage of purchases routed through RUVNL had already reached 100% by March 2017. Also, no outcome was specified for the renewable energy component of power purchases expected from PA #11 (DPL2).

Policy Area C: Improving the operational performance of distribution utilities

C.1 Disclosure on DISCOMs' websites of periodic energy audits of feeders and use of results for load scheduling

- *PA #13 (DPL2):* 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

The relevance of PA#13 is **Highly Satisfactory.** Segregating electricity distribution losses by feeder provides data on the incidence of losses in the system and, therefore, provides a solid platform for formulating loss reduction strategies. Reducing AT&C losses was a dominant variable for achieving performance turnaround of the DISCOMs which was the program objective.

This was initially a trigger under DPL1 prior action #7 but was moved to policy area C as prior action #13 for DPL2. Changes were made to the trigger to reflect that energy audits would be done on periodic basis rather than monthly and to require initiation of loss-based load scheduling. The expected outcomes were reductions in AT&C losses – one of the most important outcomes contributing to the Program objective of supporting a financial and operation turnaround of the distribution sector in Rajasthan.

C.2 Implementation of DISCOMs' business plans for operational improvements

The following three PAs are grouped together because they are part of the same series of revenue and operational efficiency improvements supporting the DISCOMs' turnaround strategy

- *PA #12 (DPL1):* The DISCOMs have approved Business Plans for improved operational performance and initiated their implementation including on: (i) Pre-paid Metering Program for government consumers; and (ii) the Energy Efficiency Lighting Program.
- *PA #14 (DPL2):* The DISCOMs have implemented a unified billing system including billing large and medium industrial consumers based on an automated meter reading system.
- *PA #15 (DPL2):* The DISCOMs have: (a) started implementation of their approved IT Roadmaps by preparing detailed project reports for ERP deployment; and (b) created an IT cadre and started mapping IT professionals accordingly

The relevance of PA #12 (DPL1), PA #14 (DPL2) and PA #15 (DPL2) is **Satisfactory.** This is because their linkage to revenue and operational efficiency improvements is clear and credible and their impact would be significant, if successfully carried out.

PA #12 (DPL1) required DISCOMs to approve and initiate implementation of business operational plans covering a prepaid metering program for government consumers and an energy efficiency lighting program for the distribution of LED lights. Based on the operational business plans indicative triggers for DPL2 and subsequent PAs were formulated. The two triggers were: (a) implementation of a unified billing system, including billing for all large and medium industrial consumers based on the automatic meter reading system; and (b) commencement of implementation of IT roadmaps for DISCOMs, including creation of an IT cadre and filling of 50% of the posts with IT professionals.

The first trigger evolved into PA #14 (DPL2) with a slight modification, so that the unified billing system would be "… for large and medium industrial consumers..." instead of "...for all large and medium industrial consumers…" The second trigger evolved into PA #15 as follows: "The DISCOMs have (a) started implementation of their approved IT roadmaps by preparing detailed project reports for Enterprise Resources Planning deployment, and (b) created an IT cadre and started mapping IT professionals accordingly. In the reformulation of the PA the number of posts for IT cadres filled was replaced with percentages.

There were 5 expected outcomes from this group of PAs as follows: (a) the number of customers placed on prepaid metering/ advance metering infrastructure and automatic meter reading; (b) the number of LED lamps distributed; (c) the number of IT staff appointed (DPL1) and the percentage of IT cadre with gender disaggregated data (DPL2); (d) the number of consumers placed on a unified billing system; and (e) the number of villages and of households remaining to be electrified.

These PAs were relevant to the Program objective in that the implementation of smart metering technology and the unified billing system was intended to help improve revenue collection, and of the efficient lighting program to save energy - thus reducing costs, especially for the poorest people. Improvements in IT were expected to improve operational efficiency. Reducing the number of unelectrified villages and households was consistent with the GoI and GoR's 24x7 Power for All Program.

Aggregation of relevance ratings of prior actions

The relevance ratings of individual PAs /groups of PAs, aggregated relevance ratings by policy areas and the overall relevance rating are summarized in Table 2 below. Numerical values are assigned to a six-point scale rating system (see the ratings legend below Table 2) and used to calculate the ratings at the policy area and the overall program levels. The approach followed for the rating is in accordance with the IEG Draft Guidance Manual for Evaluators: Implementation Completion and Results Report Reviews (ICRRs) for Development Policy Financing (DPF), August 2021.

Table 2: Relevance ratings of prior actions

Prior action	**PAs relevance rating**	**Relevance numerical ratings**	**Relevance rating by policy area**	**Overall relevance rating**
Policy Area A: Strengthening governance frameworks in the Rajasthan electricity distribution sector				
PA #1 (DPL1) -- Rajasthan has issued and notified the Electricity Distribution Management Responsibility Ordinance. PA #2 (DPL2): 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.	S	5		
PA #3 (DPL1): The DISCOMs have developed and obtained approvals for their Employee Performance Incentive (EPI)				

PA #4 (DPL2): The DISCOMs have approved a Transfer Policy and Performance Management Policy, for their employees	MS	4	4.33 (S)	
PA #5 (DPL1): The DISCOMs have completed audited financial statements for FY14-15 PA #6 (DPL2): 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	MS	4		
Policy Area B: Enhancing policies to restructure finances in the Rajasthan electricity distribution sector				
PA #7 (DPL1): The Union Government, Rajasthan and the DISCOMs have entered into tri partite MoUs providing for the implementation of the UDAY program.	S	5		
PA #8 (DPL1): The DISCOMs have filed with RERC their annual revenue requirements and tariff petitions for *FY16* PA PA#9 (DPL2): The DISCOMs have filed with RERC their annual revenue requirements and tariff petitions for FY17/18	S	5		4.94 (S)
PA #10 (DPL1*):* Rajasthan has set up the Rajasthan Energy Development Corporation Ltd (Rajasthan Urja Vikas Nigam Ltd.), a company aiming to bring transparency and optimize power purchases on behalf of DISCOMs PA #11(DPL2): Rajasthan Urja Vikas Nigam Ltd. ("RUVNL") is operational, and power purchases (including renewable energy purchases) for DISCOMs are made through RUVNL	S	5	5 (S)	
Policy Area C: Improving the operational efficiency of distribution utilities				
PA #13 (DPL2): 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	HS	6		
PA #12 (DPL1), PA #14 (DPL2) and PA #15 (DPL2): The DISCOMs have approved Business Plans for improved operational performance and initiated their implementation including on: (i) Pre-paid Metering			5.5 (HS)	

Program for government consumers; and (ii) the Energy Efficiency Lighting Program	S	5		

HS = Highly Satisfactory (6); S = Satisfactory (5); MS = Moderately Satisfactory (4); MU = Moderately Unsatisfactory (3); U = Unsatisfactory (2); HU = Highly Unsatisfactory (1)

HS = Highly Satisfactory (6); S = Satisfactory (5); MS = Moderately Satisfactory (4); MU = Moderately Unsatisfactory (3); U = Unsatisfactory (2); HU = Highly Unsatisfactory (1)

The overall relevance rating of prior actions is **Satisfactory**. The reason for the **Satisfactory** rating is because PAs for the policy area improving operational efficiency were Highly Satisfactory and those for policy B on enhancing policies to restructure the finances of the electricity distribution sector were **Satisfactory**. PAs for policy C are rated Highly Satisfactory because of the direct linkage and clarity of revenue enhancement measures (e.g., metering infrastructure, unified billing system) and cost efficiency measures (e.g., metering of feeders, implementation of IT systems) to the program objective of achieving a financial and operational turnaround of the electricity distribution sector in Rajasthan. There were, however, some shortcomings in the PAs for Policy Area A which is rated **Moderately Satisfactory**. The first shortcoming was that the employee performance incentive (EPI) was designed to reward groups of employees for achieving AT&C loss reduction targets which could have had adverse effects on individual effort and there was also the problem that loss reductions could not be unambiguously attributed to the EPI because of the joint effects of other variables outside the control of the employees. The second shortcoming was that while the aim of PA # 6 (DPL2) was not only to have audited accounts completed on time, but also to incentivize DISCOMs to start implementing their Corporate Governance and Financial Accountability (CGFA) plans, implementation of CGFA plans was equated to the completion of audited financial statements. Implementation of CGFA plans could have been linked to some of their core component(s) to leverage deeper implementation. Thus, except for the implied requirement to have CGFA plans approved by the DISCOMs boards, the PA #6(DPL2) was substantively no different from PA # 5(DPL1) which had simply required timely completion of audited accounts.

Rating

Satisfactory

4. Relevance of Results Indicators

Rationale

Table 3 lists all results indicators the associated prior actions and the baseline, target and actual values of the RIs.

Table 3: Listing of Results Indicators, Associated PAs, and Targets

Results Indicator	Associated PA (s)	Baseline and date	Target and date	Value as of Target date

Policy Area A: Strengthening the governance framework in the Rajasthan electricity distribution sector				
RI #1 (DPL1): Appointment of Independent Directors in accordance with the clause No. 8 of the Ordinance/Act in each DISCOM	PA#1 (DPL1)	1 2015	As per provisions of the Companies Act (Central Act No.18 of 2013) by March 2017	Actual (FY17) 2
*RI #2 (DPL1)***:** Implementation of EPI scheme	PA #3(DPL1)	0 2015	Incentive for performance in FY17 disbursed (by June 2017)	Actual (FY17) EPIs were not disbursed due to delayed approval of the EPI by the GOR
RI #3 (DPL2): Incentive for Performance during FY	PA #4 (DPL2)	0 2015	Incentive for performance in FY19 disbursed (by September 2019)	Actual (FY19) Two out three DISCOMs did not disburse the EPIs due to underachievement of targets
RI #4 (DPL1): Date of availability of audited annual accounts	PA #5 (DPL1)	Delay of three months December 31, 2015	September 30, 2016 (within six months of end of FY)	Actual Completed by September 2017
RI #5 (DPL2) Date of availability of audited annual accounts	PA #6 (DPL2)	Delay of three months December 31, 2015	September 30, 2019 (within six months of end of FY, i.e., zero-month delay)	Audited accounts for FY2019 were available before September 30, 2019
Policy Area B: Enhancing policies to restructure the finances of the electricity distribution sector				
*RI #6 (DPL1***)** % of outstanding debt of DISCOMs taken over by GoR	PA #7 (DPL1)	0 September 30, 2015	75% by March 2017	Actual (March 2017) 75%
RI #7 (DPL2**):** Annual loss of DISCOMs to be taken over and funded by State, as provided under UDAY program	PA #7 (DPL1)	0 FY15	10% FY19	Actual (FY19) 0%

RI #8 (DPL1) Monthly Distribution Energy Audit reports generated and disclosed (expressed as % of feeders)	PA #7 (DPL1)	0 FY2015	90% By March 2017	Actual (March 2017) 100%
RI #9 (DPL1): Gap between Average Cost of Supply (ACoS) and Average Revenue Realized (ARR)	PA #8 (DPL1)	INR 3.00/kWh FY15	INR 0.70/kWh FY17 (Updated in DPL 2 as RI #4)	Actual (FY17) INR 1.1/kWh
RI #10 (DPL2): Gap between ACoS and ARR	PA #9 (DPL2)	INR 3.00/kWh FY15	INR 0.70/kWh FY19	Actual (2019) INR 1.7/kWh
RI #11 (DPL1): Power Purchases for DISCOMs routed through Rajasthan Energy Development Corporation Ltd.	PA #10 (DPL1) PA #11 (DPL2)	0 FY15	90% By March 2017	Actual (FY17) 100% March 2017
Policy Area C: Improving the operational performance of distribution utilities				
RI #12 (DPL1): AT&C losses (%)	PA#7 (DPL1)	29.5% FY15	23% (i.e., 6.5% reduction over baseline) by FY17	Actual (FY17) 23.78%
RI #13 (DPL2): AT&C losses (%)	PA #13 (DPL2)	29.5% FY15	17% (i.e., 12.5% reduction over baseline) by FY19	Actual (FY19) 21.2%
RI #14 (DPL1): Number of consumers put on pre-paid/ Advanced Metering Infrastructure (AMI)/ Automatic Meter Reading (AMR) meters	PA #12 (DPL1)	0 FY15	100,000 by March 2017	Actual (FY17) Date revised to Sep 2019 under DPL2
RI #15 (DPL2) 6: Number of consumers put on pre-paid/ AMR/ AMI meters	PA #14 (DPL2)	0 FY15	100,000 September 2019	120,000 October 2019
RI #16 (DPL1): Number of LED lamps distributed	PA #12 (DPL1)	0 FY15	15,000,000 by March 2017	Actual (FY17) Date revised in DPL to Sep. 2019
RI #17 (DPL2): Number of LED lamps distributed	PA #12 (DPL1)	0	16,000,000	Actual (FY19)

		FY15	by September 2019	16, 164 048 By March 2019
RI #18 (DPL1): Number of IT staff appointed	PA #12 (DPL1)	0 FY15	30 by March 2017	Actual (FY17) 30
RI #19(DPL2): Percentage of positions filled in IT cadre in DISCOMs	PA #15 (DPL2)	0 FY15	75% by Sep. 2019 (with 15% share of females in filled up positions)	Actual (September 2019) 83.9%, 24.7% of which were female employees
RI #20 (DPL1): Number of consumers put on unified billing system	PA #12 (DPL1)	0 FY15	100% by March 2017	Actual (FY17) 100%
RI #21 (DPL1: Number of villages remaining to be electrified	PA #12 (DPL1)	495 April 2015	25 March 2017	Actual (FY17) 0
RI #22 (DPL2): Number of unelectrified Households in State	PA #12 (DPL1)	2,182,180 October 2017	750,000 by September 2019	Actual (October 2019) 0

The assessment of the relevance of results indicators is carried out as follows: (a) separately for each result indicator (RI) or group of result indicators (RIs); (b) aggregating the RI relevance ratings at the policy area level; and (c) deriving an overall RI relevance rating. The rating of RIs considers the extent to which the indicator measures the impact of the associated prior action(s) and the importance of the RIs in making progress towards the achievement of the program objective of supporting an operational and financial turnaround of the electricity distribution sector in Rajasthan.

Policy Area A: Strengthening the governance framework in the Rajasthan electricity distribution sector

- RI #1(DPL1) *from PA #1 (DPL1)*: *The relevance of RI #1 is* ***Satisfactory.*** *The indicator measures the availability of expertise on strategy, policy and commercial business aspects on utility boards. Global experience indicates that strengthening utility boards can help to improve governance, operational and financial performance. This is expected to contribute to a turnaround of the distribution sector in Rajasthan.*

- *RI #2 (DPL1)) from PA #3 (DPL1) and RI #3 (DPL2) from PA #4 (DPL2). The relevance of these results indicators is **Moderately Satisfactory** because of the difficulty of measuring the impact of the incentives on the AT&C losses or attributing the improvements in the performance target to the EPI.* The disbursement of incentive payments to employees were designed to measure the improved performance on AT&C loss reduction and other operational areas, thus contributing to the operational and financial turnaround objective of the Program. However, losses could be influenced by other factors other than employee efforts (e.g., distribution system constraints) thus making the attribution of the reductions to employee efforts difficult to assess.
- *RI #4 (DPL1) from PA #5 (DPL1) and RI #5 (DPL2) and PA #6 (DPL2). The relevance of these results indicators is **Moderately Satisfactory** because the indicator does not fully capture the associated PA's intent to have the implementation of the CGFA plans started. Instead, the RI equates the availability of audited accounts with the implementation of the CGFA plans. Strengthening* the governance of the distribution sector required the availability of timely and quality financial information to support decision making. Thus, reducing the time elapsed between FY end and availability of audited financial statements to six months or less was an important measure. Reducing delays was considered to be initiating the implementation of CGFA plans but no specific component of the plans was included in the RIs which could have strengthened the linkage to the policy area and program objective.

Policy Area B: Enhancing policies to restructure the finances of the electricity distribution sector

- *RI #6 (DPL1) from PA #7 (DPL1) and RI #7 (DPL2) from PA #7 (DPL1). The relevance of these results indicators is **Satisfactory** because they flow from the policy actions and directly address the objective of supporting a turnaround of the performance of the distribution sector. The takeover and funding of* annual losses and a % of the outstanding debt of the DISCOMs were commitments under the all-India UDAY program for the financial turnaround of distribution utilities. Both variables were measurable and verifiable.
- RI #8 (DPL1) from PA #7(DPL1). The relevance of this result indicator was **Satisfactory**. The indicator measures the percentage of a DISCOM’s feeders that was metered, thus enabling the measurement of losses by feeder. This was to enable identification of the feeders with the highest losses and to target loss reduction measures accordingly. The reduction in losses would result in reduced cost of power purchases to meet the same level of demand, thus contributing to the operational and financial turnaround of the DISCOMs.
- RI #9 (DPL1) from PA #8 (DPL1) and RI #10 (DPL2) from PA #9 (DPL2) - Gap between Average Cost of Supply (ACoS) and Average Revenue Realized (ARR): *The relevance of these results indicators is **Moderately Satisfactory** because, while annual revenue requirements and requests for tariff revisions are necessary steps for enhancing of revenues by utilities, they do not necessarily lead to increased revenues.* Since DISCOMs had not routinely filed their annual revenue requirements and tariff petitions this action was intended to encourage behavioral change with possible substantive implications for the turnaround of the sector.
- RI #11 (DPL1) from PA #10 (DPL1) and PA #11 (DPL2) - Power Purchases for DISCOMs routed through Rajasthan Energy Development Corporation Ltd. These indicators measure the proportion of power purchases made through more cost-effective bulk supply arrangements. Generation costs and high costs of wheeling power from great distances were key drivers in the financial imbalances in the distribution sector and so were non-optimal power purchase practices by individual DISCOMs. Establishment of a common purchasing agent for the DISCOMs was expected to result in more transparent and efficient procurement. The relevance of these results indicators is **Satisfactory**

because they were designed to optimize power purchase costs and thereby contributing to the objective of turning around the operational and financial performance of the sector.

Policy Area C: Improving the operational performance of distribution utilities

- RI # 12 (DPL1) from PA #7 (DPL1) and RI #13C (DPL2) from PA # 13 (DPL2) RI #8 – Aggregate technical and commercial losses. Aggregate technical and commercial losses measure energy lost during transmission, distribution and supply to consumers due to a variety of technical, billing, collection and unauthorized uses. The metering of feeders and the use of loss-based load scheduling approaches are sound utility practices. The relevance of this RIs is **Highly Satisfactory** because the indicators fully measure the impact of the prior action. In addition, the electricity savings measured by the results indicator would reduce power purchase costs and/or increase electricity available to consumers, thus making a significant contribution to the objective of improving the financial and operational performance of the distribution utilities.

Other operational efficiency results indicators

The following results indicators are grouped together for evaluation as they either were aimed at measuring the impacts of revenue enhancement or of cost efficiency measures

- RI #14 (DPL1) from PA #12 (DPL1) and RI # 15 (DPL2) from PA #14 (DPL2) - Number of consumers put on pre-paid /advanced metering infrastructure (AMI/Automatic Meter Reading (AMR) meters
- *RI #16 (DPL1 from PA 12 (DPL1) and RI #17 (DPL2) from PA #12):* Number of LED lamps distributed
- *RI #18 (DPL1*) from PA #12 (DPL1): Number of IT staff appointed
- RI #19 (DPL2) from PA #15 (DPL2): Percentage of positions filled in IT cadre in DISCOMs
- RI # 20 (DPL1) from PA #12 (DPL1): Number of consumers put on unified billing system

These RIs were directly related to revenue enhancement or cost savings and efficiency gains. However, the revenue collection impacts of the unified billing system and the smart metering programs were dependent on the profile of customers included in the RIs, but the RIs did not provide the disaggregated data. *Due to this shortcoming the relevance of this group of results indicators is rated **Satisfactory** instead of Highly Satisfactory*.

Electrification access results indicators

1. RI #21 (DPL1) from PA #12 (DPL1) - Number of villages remaining to be electrified
2. RI #22 (DPL2) from PA # 12 (DPL1) - Number of unelectrified Households in the State

The number of villages and or households remaining to be electrified measures the outcome of the GoR policy objective of the 24x7 Power for All Program. However, since the impact of expansion of electrification on the operational and financial turnround of the DISCOMs is ambiguous, the RIs are not rated for relevance. The relationship between electrification expansion and utility operational and financial performance improvement is ambiguous because expansion can result in higher investment and operational costs if the expansion is reaching into less densely populated areas and/or less revenues per customer if the expansion is into less affluent areas.

Aggregation of relevance ratings for results indicators

The relevance ratings of individual RIs /groups of RIs are shown in Table 4. The Table also shows the achievement ratings for the individual RIs, their aggregation by policy area and the overall efficacy rating.

The aggregated relevance ratings for results indicators by policy area relevance are: (a) **Moderately Satisfactory** for Policy Area A - Strengthening the governance framework in the Rajasthan distribution electricity sector; (b) **Satisfactory** for Policy Area B - Enhancing policies to restructure the finances of the electricity distribution sector; and (c) **Satisfactory** for Policy Area C - Improving operational efficiency of distribution utilities. The overall relevance rating of the results indicators is **Satisfactory**

Table 4: Summary of relevance ratings for results indicators and for efficacy

Result Indicator	**RI relevance rating**	**Achievement rating**	**Efficacy Rating by Pillar/ Policy Area**	**Overall Efficacy Rating**
***Policy Area A:* Strengthening the governance framework in the Rajasthan electricity distribution sector**				Moderately Satisfactory
RI #1(DPL1) *from PA #1 (DPL1 - Appointment of Independent Directors in accordance with the clause No. 8 of the Ordinance/Act in each DISCOM*	S	Substantial	Moderately Satisfactory	
RI #2 (DPL1) and RI #3 (DPL2) - *Implementation of EPI scheme and Incentive for Performance during FY)***:** *Implementation of EPI scheme*	MS	Modest		
RI #4 (DPL1) and RI #5 (DPL2**)** - *Date of availability of audited annual accounts*	MS	Modest		
Policy Area B: Enhancing policies to restructure finances for the electricity distribution sector				
RI #6 (DPL2) and RI #7 (DPL1) **-** Proportion of debt and annual loss of DISCOMs and taken over by GOR as provided for under the UDAY program	S	Substantial	Moderately Satisfactory	
RI #8 (DPL1) - Monthly Distribution Energy Audit reports generated and disclosed (expressed as % of feeders)				
RI #9 (DPL1) - Gap between Average Cost of Supply (ACoS) and Average Revenue Realized (ARR)	MS	Modest		

RI #10 (DPL2) - Gap between Average Cost of Supply (ACoS) and Average Revenue Realized (ARR)				
RI #11 (DPL1) - Power Purchases for DISCOMs routed through Rajasthan Energy Development Corporation Ltd.	S	Substantial		
Policy Area C: **Improving operational efficiency of distribution utilities**				
RI #12 (DPL1) and RI # 13 (DPL2): - AT&C losses	HS	Modest	Moderately Satisfactory	
RI #14 (DPL1) and RI # 15 (DPL2) - Number of consumers put on pre-paid /advanced metering infrastructure (AMI/Automatic Meter Reading (AMR) meters	S	Substantial		
RI #16 (DPL1) and RI #17 (DPL2) - Number of LED lamps distributed				
RI #18(DPL1) - Number of IT staff appointed and RI #19 (DPL2) - Percentage of positions filled in IT cadre in DISCOMs				
RI #20 (DPL1): Number of consumers put on unified billing system				

HS = Highly Satisfactory (6); S = Satisfactory (5); MS = Moderately Satisfactory (4); MU = Moderately Unsatisfactory (3); U = Unsatisfactory (2); HU = Highly Unsatisfactory (1)

Rating

Satisfactory

5. Achievement of Objectives (Efficacy)

OBJECTIVE 1

Objective

".. 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 "

Rationale

The DPL series had one program development objective: "to support the GoR's program for the turnaround of the distribution sector in Rajasthan under the 24x7 Power for All programs." (program summary page of the DPL2 PD). The PDO was to be achieved through implementation of policy and other actions organized in three groups as follows:

- Policy Area A: Strengthening the governance framework in the Rajasthan electricity distribution sector
- Policy Area B: Enhancing policies to restructure the finances of the electricity distribution sector
- Policy Area C: Improving the operational performance of distribution utilities

The efficacy ratings have been assessed by: (a) assessing the extent to which each RI or group of RIs were achieved and rating it on a four point scale (High, Substantial, Modest and Negligible); (b) assigning ratings to the RIs at the policy area level using a six point scale (Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory and Highly Unsatisfactory); and (c) using a numerical rating scale to aggregate the policy area results to an overall efficacy rating. The results are described in the paragraphs below and shown in Table 4 above.

Policy Area A: Strengthening the governance framework in the Rajasthan electricity distribution Sector

The DPL operations have contributed to some significant improvements in the state of Rajasthan's electricity distribution sector by supporting the creation of conditions for its operational and financial performance turnaround. The policy actions under the strengthening of governance frameworks in Rajasthan's electricity distribution sector have introduced best practice standards for performance management and accountability, based on "state of the art" instruments and methods such as corporate governance and financial accountability plans, MOUs with clear accountabilities and explicit key performance targets, public accountability through publication of important data on websites, annual reporting to the State Legislature, employee performance incentives and performance practices, and the incorporation of independent members in utility boards to strengthen policy and oversight processes.

The appointment of independent board members (RI #1 (DPL1) has been fully achieved and is therefore rated **Substantial** for efficacy. The improvement in the completion of audited financial statements to within 6 months of the end of the fiscal year (RI #4, DPL1) and the start of implementation of the CGFA plans (RI #5, DPL2) - have been partially achieved and is rated **Modest.** The Modest rating is due to the weak alignment between RI #5 (DPL2) and start of implementation of CGFA plans. The disbursement of employee performance incentives based on measured reductions in AT&C losses (RI #2, DPL1 and RI #3, DPL2) was only partly achieved and is therefore rated **Modest** for efficacy. The efficacy rating for this policy area is **Modest.**

Policy Area B: Enhancing policies to restructure the finances of the electricity distribution sector

Regarding the enhancement of policies to restructure the sector's finances, important progress has been made in reducing the gap between average cost of distributed power per kWh and the average realized revenue per kWh (RI #9, DPL1 and RI #10, DPL2), which is a critical financial performance indicator. Despite this, the gap remains at a level that is more than double the target. The shortcoming reflects the challenges encountered in addressing both sides of the net revenue/loss equation, specifically the lack of progress in implementing tariff increases and the slower-than-expected progress in reducing AT&C losses (RI # 12, DPL1 and RI #13, DPL2). Having said that, both the AT&C levels and the net revenue gap have been trending in the right direction as the ICR observes. Another positive result is the routing of 100% of the DISCOMs' power purchases (90% was the target) through RUVNL- the special purpose corporation created for the purpose (RI #11, DPL1). Although there is no mention in the ICR of specific realized benefits to-date, the expectation is that such a pooling arrangement would generate some gains in reduced power purchases by the distributors.

While the enabling conditions for implementation of the GoI/GoR UDAY program for the operational and financial turnaround of the electricity distribution sector have been put in place and implemented – the signing of tripartite MOUs between the GoI, the GoR and the DISCOMs, the filing of annual revenue requirements and tariff petitions, and the establishment and operation of RUVNL - the GoR has not assumed any of the DISCOM's financial losses (RI #7, DPL1) that it was obligated to take over and is seeking a relaxation of this particular provision of the Program. In addition, while the Rajasthan Energy Regulatory Commission authorized a 10% average tariff increase in September 2016 in line with the National Tariff Policy the GoR but had to roll back the 5.5% increase for agriculture in the face of farmer protests and to provide an additional subsidy of INR 5 billion to the DISCOMs.

Overall, the RIs under this policy area are rated **Modest** for efficacy because while three out of 5 RIs were fully achieved, two critical RIs for the turnaround strategy of the sector – the takeover of annual losses of the DISCOMs by the GoR (RI #7, DPL1) and closing of the revenue gap (RI #9, DPL1 and RI #10 DPL2) were not achieved.

Policy Area C: Improving the operational performance of distribution utilities

The DISCOMs' business plans for improving operational performance have met or exceeded targets almost entirely across the board (except for AT&C losses) regarding implementation of smart metering, unified billing systems and IT roadmaps; distribution of LED lamps; and completion of the electrification of remaining villages and households (RI #14-20). The original target dates for achieving the number of customers on smart meters and the number of LED lamps distributed under DPL1 were revised from March 2017 to September 2019. Both targets were exceeded by the revised date. The business plans were an important support instrument for the PDO of supporting the financial and operational turnaround of the sector. However, AT&C losses were reduced from the baseline value of 29.5% in FY15 to 21.2 % compared to the target of 17% by FY19. The reduction in FY17 brought the AT&C losses to 23.78% compared to the target of 23%. Thus, progress was good in the first year but much slower in FY18 and FY19. This was due to changes in the political environment which led to a reduction in fines and lax enforcement of power theft penalties, thus encouraging reestablishment of illegal connections and placement of illegal transformers. Given the lower-than-expected reduction in AT&C losses – a key component of the turnaround strategy for the distribution utilities (RI #12 (DPL1) and RI # 13 (DPL2)) the overall efficacy for this policy area is rated **Modest**.

The efficacy rating for each policy area is **Moderately Satisfactory** and the efficacy rating for Objective 1 is also **Moderately Satisfactory**.

Rating

Moderately Satisfactory

Overall Achievement of Objectives (Efficacy)

Rationale

Overall, the DPL series is rated **Moderately Satisfactory** for efficacy. There was good progress towards achieving a turnaround of the distribution sector in Rajasthan but also some shortfalls in areas that are critical for a successful turnaround of the sector. Significant achievements were made regarding:

- Establishment of regulatory and institutional arrangements for enhanced governance, performance and accountability in the sector – specifically the introduction of independent directors on utility boards (RI #1 (DPL1), the introduction performance targets for utilities through a framework of MOUs with the State and with the Federal Government under the UDAY program, the introduction of operational efficiency improvement management measures (IT enhancements, bulk power purchase arrangements; etc.)
- About 120,000 customers were put on smart meters (advanced metering infrastructure/prepaid meters compared to the target of 100,000 to improve billing, revenue collection commercial operations
- 100% of customers put on a unified billing system as planned, thus improving commercial operations
- More than the planned 16 million LED lamps were distributed to conserve electricity usage
- Electrification of villages and households exceeded targets such that no village or household remained unelectrified by the program closing date.

However, some important shortcomings meant that the program objective was only partially achieved. These included:

- lower than targeted reduction in AT&C losses of 8.5 % to 21.2 % at program closure instead of the targeted reduction of 12.5%.
- The ACOS gap (difference between average realized revenue and cost /kWh of electricity supply remained at about INR1.7/kWh instead of the targeted INR0.70/kWh at the end of the Program. The scope for narrowing the net revenue gap was constrained by the slow reduction in AT&C losses and non-realization of expected tariff increases due to social, economic and political constraints.
- non-compensation of the DISCOMs for at least 50% annual financial losses as provided for under the UDAY program

Hence the overall efficacy rating is Moderately satisfactory.

Overall Efficacy Rating

Moderately Satisfactory

6. Outcome

Rationale

The Program's prior actions and results indicators are both rated **Satisfactory** for relevance The overall efficacy rating is Moderately Satisfactory.

All the prior actions except two on the employee performance incentive and employee transfer and performance management policy and two on audited accounts, have relevance ratings above Moderately Satisfactory. The efficacy achievements related to corresponding results indicators are modest. The overall efficacy rating of Moderately Satisfactory has a significant down pull on the outcome rating through the less than expected narrowing of the net revenue or ACOS gap (RI #9 (DPL1) and RI #10 (DPL2), the non-takeover of at least 50% of the DISCOMs' annual losses by the GOR as committed under the UDAY and the less than targeted reduction in AT&C losses (RI #12 (DPL1) and RI #13 (DPL2) The ACOS gap and the AT&C loss reduction were critical components with the most direct impact on the financial and operational turnaround strategy. The ACoS-ARR gap was INR 1.7/kWh in 2019 instead of the targeted level of INR0.70/kWh. AT&C losses had reduced from 29.5 % in 2017 to 21.2 % in 2019 but remained above the target of 17%.

Besides these factors significant achievements were made in a number of areas which contributed to the turnaround of the sector, especially improvements in the regulatory and institutional foundations for sector governance, accountability, performance management and monitoring, information technology for operational efficiency, amongst other areas. Other improvements were achieved in the tariff regulatory processes. Although the extent to which they have been institutionalized is not yet clear.

Thus, overall outcome rating is **Moderately Satisfactory**.

a. Rating

Moderately Satisfactory

7. Risk to Development Outcome

There are significant risks to the development outcomes that have been achieved by the DPL series. These relate to possible persistent or increased net revenue shortfalls. While the ACoS- ARR (net revenue) gap has been trending downwards continued delays in tariff adjustments due to political economy constraints, and the negative impact of the Covid -19 pandemic on DISCOMs' revenues, AT&C losses and revenue collection could reverse the trend resulting in higher financial losses for the distribution utilities. Since the utilities are not allowed to borrow from financial institutions, the GoR would need to cover the financial losses - which it is not currently doing - contrary to the requirements of the UDAY program. Non-coverage of the financial losses of the DISCOMs would compromise their ability to continue providing reliable and quality services leading to increased

AT&C losses, reduced revenues and collections, difficulties in justifying tariff adjustments and further increases in financial losses – a virtuous cycle.

The impact of the strengthened governance framework on the DISCOMs' performance is not yet fully visible (the ICR notes, p.22, that these would take time to yield results). In particular, the ability of the DISCOMs to achieve performance targets depends on the GoR meeting its commitments under its MoUs with the DISCOMs as well as the UDAY MoUs with the GoI. The GoR's apparent preparedness to jettison the UDAY provision on coverage of DISCOMs' financial losses, mentioned above, which is a risk to the integrity of the turnaround strategy, could also affect the effectiveness of the overall governance and accountability framework.

8. Assessment of Bank Performance

a. Bank Performance – Design

Rationale

The Program's design was based on (a) an early assessment of the GoR's commitment to undertake systematic reforms for putting the electricity sector on a sustainable path of reform towards the sector's operational and financial turnaround; (b) the GoR's ongoing work with the DISCOMs for the recovery of the sector as well as the GoI's UDAY program; (c) pragmatic reforms that took due account of the political economy issues related to tariff revisions, private sector participation and the nexus of power, agriculture and water; and (d) the lessons of experience from reforms of states distribution sectors in India and the Bank's global experience with reforms of the distribution utilities. Specific World Bank analytical work that informed the design of the program included, amongst others: (i) Reducing technical and non-technical losses in the power sector, Working Paper, 2009, The World Bank; (ii) Applications of advanced metering infrastructure in electricity distribution, 2011, The World Bank; (iii) Beyond Crisis: The Financial Performance of India's Power Sector, 2015, The World Bank; and (iv) Governance of India State Power Utilities, January 2014, The World Bank.

The Bank's ascertainment of the GoR's commitment to undertake substantive sector reforms was undertaken at the highest level of Government before serious preparation of the DPL series began in mid-2015. The program design drew on the GoI's UDAY program which was under preparation with the objective of supporting the financial turnaround of state distribution utilities and had, unlike earlier bailouts, deeper operational components to sustain the financial reforms. It was designed to support the UDAY program and to build upon it by incorporating components "...on corporate governance and performance management of utilities that make it 'UDAY plus'" (ICR, page 28).

Thus, the selection of prior actions and triggers was aligned with the UDAY program. A potentially important action under the UDAY program, which was incorporated in the DPL, was the assumption by the GoR of financial losses of DISCOMs – this was considered as providing an incentive for the GoR to constrain the DISCOMs' losses. The impact is yet to be realized as the GoR is currently reluctant to implement this action.

The DPL design also drew on the 10 "Target Areas" that formed the main strategy between the GoR and the DISCOMs (ICR, page 28). Lessons were also drawn from a wide range of analytical work done by the Bank and others on reforms of electricity distribution sectors in India as well as globally (page 32 of the DPL2 PD).

The Bank identified several risks to the achievement of the program development objective. These included the risk of political and social opposition to tariff increases without corresponding quality of service improvements. To manage this risk the program lay emphasis on efficiency improvement as a means of simultaneously reducing costs and improving the quality of service. A second concern was the possible opposition to commercialization accountability reforms by vested interests. Improved transparency, through public availability of data, including reports to the State Legislature on the distribution sector and timely provision of audited accounts were measures designed to manage this risk. Another risk was sustaining the performance improvements in the DISCOMs, including their autonomy over the long-term. This risk was being managed by the GoI and the GoR by piloting private sector interventions as O&M franchises and looking at other options for involving more private sector participation.

The Bank also considered other options in the design of the operation, including revision of tariffs, private sector participation and addressing the nexus between power, agriculture, and water i.e., the high consumption of subsidized of electricity by the agriculture sector which makes it central to the financial viability problems of India’s power distribution sector and encourages high levels of water usage in agriculture. The decisions made to exclude these aspects were pragmatic and informed by a careful analysis of the political economy surrounding these issues in India as well as lessons from the Bank’s analytical work, but they also illustrate the limitations of the DPL series, if not accompanied or followed by other support instruments.

Specifically, on tariff revisions the increases that had taken place since 2012 had resulted in Rajasthan having some of the highest tariffs in India and further increases advocated by the Bank through the DPL could have caused a backlash, especially in an election year, amongst other reasons. Thus, instead of having a tariff increase as a prior action, the choice was made to support revenue enhancement by supporting efficiency improvements that have the same effect, especially reductions in AT&C losses. No prior actions related to private participation or resolving power-agriculture-water nexus issues were included in the program design based on similar considerations.

A DPL series was the appropriate instrument to support the broad range of reforms that was important to leverage and add value to the GoI and GoR own reform actions.

During the design of the program the GoR consulted with a broad range of stakeholders. Consensus building workshops were held with different government agencies and authorities and with civil society and employees of the DISCOMs were consulted. The consultation mode is deeply embedded in the regulatory process for electricity pricing revisions. In addition, customers were consulted on tariff revisions and the impact on the poor during the Poverty and Social Impact Assessment.

There were some shortcomings in the program design. The first was the limitation of the series to two operations without a follow up instrument to deepen the Bank’s support for further reforms. It’s not usual, if ever the case, that the gains of substantive reforms such as these can be sustained without additional external support. Second, there were some weaknesses in the design of prior actions and accompanying results, including: (a) the EPI which did not take into account the multiple causality of AT&C losses and the appropriateness of a group incentive scheme to effect AT&C loss reductions; (b) given the centrality of revenue generation in the cost to the financial turnaround, the filing of annual revenue requirements and petitions by DISCOMs, although an important process prior action, was not adequate on its own, and as it turned out, did not lead to expected tariff increases – one or more financial metrics directly relevant to financial performance improvement could have been considered for prior actions; and (c) more leverage could have been secured for implementation of the CGFA plans by selecting at least one prior action related to the implementation of a core component of the CGFA plans beyond the completion of audited financial statements.

Rating

Satisfactory

b. Bank Performance – Implementation

Rationale

The GOI and states/territories were already working on the UDAY program when the Bank's involvement in Rajasthan's electricity distribution sector started. The Bank realized that its added value lay, amongst other things, in supporting implementation of monitoring arrangements for the program and supporting additional features such as corporate governance and performance management of utilities that made the program 'UDAY plus' (ICR, page 28). The monitoring framework for the DPL series included a UDAY Monitoring Committee of the GOI's Ministries of Planning and Finance, the GoR task force monthly review meetings, and DISCOM's management performance reviews. The ICR, however, points to (page 30) some limitations of the monitoring arrangements in that: (a) there was no provision of an independent monitor; and (b) the GOT task force lost its gravitas after the 2018 elections. On its part, the Bank closely monitored implementation of prior actions and results indicators and adjusted triggers as they evolved into prior actions for DPL2 and adjusted dates for the achievement of targets based on actual results. Examples include use of percentages to monitor progress in filling IT staff positions instead of absolute numbers and including disaggregation by gender to better monitor progress on this prior action. Dates were revised for the achievement of targets for customers on advanced metering infrastructure/automatic meter readers and for the number of distributed LED lamps to take account of problems encountered in procurement processes.

There are two ISRs in the operations portal, one for each DPL operation. There are indications that the DPLs were both intensively and extensively supervised from: (a) the documentation (reports, correspondence, and memos) in the operations portal; and (b) Annex 2 to the ICR which shows the human and financial resources employed in both the preparation and implementation stages of the program. The implementation support budget totaled about US$600, 000 for a 3 ½ years effort i.e., about U$171,000 per year which appears reasonable for a DPL program.

Rating

Satisfactory

c. Overall Bank Performance

Rationale

Overall Bank performance was strong during both the design and implementation phases. The program was strongly anchored in the GoI and GoR priorities and was based on solid analytical work and lessons of experience on reforming electricity distribution sectors from both India and more globally. Appropriate risks and mitigation measures were identified. A framework for program monitoring was in place on the part of the GoI and the GoR. The Bank also closely monitored the program and adjusted triggers and results indicators appropriately. There were, nonetheless, a few shortcomings as described above. These included shortcomings on the prior actions on employee performance incentive scheme and on audit completions; the absence of a longer-term engagement plan at the outset of the program, the absence of an independent monitor during implementation and the apparent lack of reporting on environmental outcomes by the Bank during implementation and in the ICR. Despite these shortcomings because of the strong quality of design and implementation support, Bank performance is rated **Satisfactory.**

Overall Bank Performance Rating

Satisfactory

9. Other Impacts

a. Social and Poverty

The PDs describe the Poverty and Social Impact Analysis that was carried out to determine the program's impact on the poor.

By eliminating illegal connections, the poor neighborhoods, where high loss feeders are predominant, would be negatively impacted. However, the expected improvements in the DISCOMs commercial and financial viability were expected to enable them to extend reliable and affordable electricity to all neighborhoods at prices affordable to the lowest income groups via legal connections.

A Poverty and Social Impact Assessment (PSIA) was prepared to assess the impact of the program on the poor. The PSIA assessed that Rajasthan's increasing block structure (i.e., with increasing rates charged at blocks of higher consumption) such that tariffs for the poorest and those consuming below 50kWh per month were protected by a GoR subsidy, although this was to some extent offset by a fixed charge that affected low-income households disproportionately. Nonetheless, the assessment also showed that electricity expenditure made up about 10.7 % of household budgets among the poor and was considered "moderately affordable." Therefore, the expected increases were not expected to make electricity unaffordable to the poorest households. In addition, the distribution LED lamps under the program was going to be supported by a subsidy to offset the impact of expected tariff increases on the poor.

Other expected social benefits of reliable and adequate power would be the ability to use electrical appliances by girls and women, thus, reducing the burden of household chores; improved opportunities for economic activities and education for girls; and improved health and safety outcomes.

b. Environmental

During preparation the potential impacts of the program activities on the environment were assessed with reference to relevant codes and regulations in India. The conclusions were that the action supported by the Program would result in operational performance improvements, efficiency gains, and reduction of losses – all of which would have a positive environmental effect in Rajasthan.

These included:

- contribution of AT&C losses reduction to a slowdown in the rate of growth of green gas emissions (GHG) due to lower amount of power generation required for a given level of demand since power generation in Rajasthan is predominantly coal based.
- Contribution of LED lamps and energy efficient street lighting to reduced peak power plant capacity and reduction of GHG emissions and local pollution
- Fuel switching from electricity as result of tariff increases arising from filing of revenue requirements by utilities - this was not viewed as a major risk given that electricity is not a key fuel for cooking in India.

These potential impacts were summarized in the PDs, including quantification of GHG reductions (pages 38 and 39, PD for DPL2). However, there was no indication that they would be monitored and reported on, and the ICR has not provided any qualitative or quantitative data on the actual outcomes.

c. Gender

The PSIA had several recommendations on gender actions for incorporation into the program design. The prior action on the DISCOMs IT roadmap (prior action #8, DPL2) set 75% (RI #8, DPL2) as a target level of appointed IT staff by September 2019 of for which women were to be 15%. The actual total % was 83.9 of which 24.7% were women.

d. Other

According to the ICR (page 27) the relationships built during the preparation and implementation of the DPL have enabled the Bank to engage on a deeper dialogue with the client of the difficult issue of the power, agriculture and water nexus - the source of high electricity subsidies to the agriculture which impose a severe challenge to the health of the electricity distribution sector. The Bank has carried out an analysis on four feeders to develop innovative business models for financially and economically viable solutions to address the problems posed by the nexus issues.

10. Quality of ICR

Rationale

The ICR is well written, comprehensive, and consistent with the Bank's guidelines for preparation of ICRs. At the outs
the program, its objective and the policy areas that underpin it. A matrix (ICR pages 11-16) then provides a summary
to the results indicators and targets. The triggers for DPL2 are included with their evolution into prior actions, and char

The text description of the prior actions tallies with the design matrix and the theory of change (ICR 20 page) thus faci understanding the outcomes for groups prior actions for each policy area. The lessons are derived directly from the ex practical lessons which may have broader applicability for DPL operations in other Indian states and elsewhere. The s the outcomes, especially with respect to expected impacts on GHG emissions and peak capacity reduction due to the

a. Rating

Substantial

11. Ratings

Ratings	ICR	IEG	Reason for Disagreement/Comments
Outcome	Moderately Satisfactory	Moderately Satisfactory	
Bank Performance	Satisfactory	Satisfactory	
Relevance of Results Indicators	---	Satisfactory	
Quality of ICR	---	Substantial	

12. Lessons

IEG derives the following lessons drawn from the ICR:

1. Impactful World Bank-supported electricity distribution sector reforms require long-term engagement. *An important lesson from this DPL series is that a holistic package of policy, regulatory, operational and financial measures supported by a long-term engagement plan is critical for a distribution sector performance turnaround*. Lessons learnt from previous reform efforts in India and elsewhere indicated that financial bailouts of distribution companies alone without deep reforms in other areas do not provide long-term sustainable solutions. Hence the design of this Program included fundamentals of sound distribution sector performance - cost recovery tariffs, good governance and management accountability and operational efficiency improvements. bare subject to political economy influences and, therefore, often require time to address effectively. Such deep and comprehensive reforms require external support over an extended period of time and hence need long-term engagement plans involving the government and other stakeholders.

2. Options for reforms need to be synchronized to the country context. *Another important lesson is that reforms may need to be incremental while relationships and consensus are built to create the necessary conditions for progress on deeper and more difficult reforms.* The Bank was sensitive to the country's socio-political context in selecting pragmatic reform options. It thus emphasized operational efficiency improvements, improving governance and performance management and accountability instead of tariff increases and private sector participation. This enabled the Bank to build relationships and trust – attributes that paved the way for engaging constructively with stakeholders on exploring options for private sector participation in the electricity distribution sector and for strengthened engagement on the electricity-water-agriculture nexus.

3. Identifying windows of opportunity is critical for reforms to succeed. *Another important lesson from this DPL series is the importance of choosing the right timing for reforms and fully capitalizing on the moment*. The Bank chose to support the GoR in implementing reforms at an opportune time when there was a strong alignment between the GoI and the GoR on electricity distribution sector reform issues. The GoI and the states/territories were preparing the UDAY program to address the electricity distribution sector's financial and operational performance problems. The GoR needed to resolve electricity sector constraints to its 2020 Vision economic growth strategy. The Bank moved quickly to prepare the DPL series at a time when the appetite for reforms was strong in Rajasthan and India. *However, the Bank did not take full advantage of the propitious moment to lock in an engagement plan although it was fully understood at that time that the reforms would need to be sustained through an engagement over time*. Later when the Bank explored complementing the DPL series with additional technical assistance after the 2018 state elections, there had been a change in priorities of the state government due to other emerging challenges, and this foreclosed the possibility of a third phase of the DPL series.

13. Project Performance Assessment Report (PPAR) Recommended?

No