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The World Bank

Report No: ICR00002854

IMPLEMENTATION COMPLETION AND RESULTS REPORT
(IBRD-7560-DO)

ON A

LOAN

IN THE AMOUNT OF US\$ 42 MILLION

TO

DOMINICAN REPUBLIC

FOR A

ELECTRICITY DISTRIBUTION REHABILITATION PROJECT

February 28, 2014

Sustainable Development Department
Caribbean Country Management Unit
Latin America and the Caribbean Region

CURRENCY EQUIVALENTS
(Exchange Rate Effective: February 9, 2014)
Currency Unit = Dominican Republic Peso (DR\$)
DR\$1.00 = US\$0.02311
US\$1.00 = DR\$42.0920
FISCAL YEAR
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

CDEEE	Corporacion Dominicana de Empresas Electricas y Estatales
CNE	Comision Nacional de Energia
CRI	Cash Recovery Index
EDEs	Empresas Distribuidoras de Electricidad
EdeEste	Empresa Distribuidora de Electricidad del Este S.A.
EdeNorte	Empresa Distribuidora de Electricidad del Norte S.A.
EdeSur	Empresa Distribuidora de Electricidad del Sur S.A.
GDP	Gross Domestic Product
IPP	Independent Power Producer
LAC	Latin America and Caribbean
OC	Organismo Coordinador del Sistema Electrico Interconectado
PIU	Project Implementation Unit
PROTECOM	Oficina de Proteccion al Consumidor de Energia Electrica
SIE	Superintendencia de Electricidad
TA	Technical Assistance

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**DOMINICAN REPUBLIC
ELECTRICITY DISTRIBUTION REHABILITATION PROJECT**

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A. Basic Information			
Country:	Dominican Republic	Project Name:	Electricity Distribution Rehabilitation Project
Project ID:	P089866	L/C/TF Number(s):	7560-DO
ICR Date:	15/02/2014	ICR Type:	Core ICR
Lending Instrument:	IBRD	Borrower:	GOVERNMENT OF DR
Original Total Commitment:	DOP 1,804,950,210.00	Disbursed Amount:	DOP 1,781,586,502.58
Environmental Category: B			
Borrower: CDEEE, Dominican Republic			
Implementing Agency: EdeNorte, EdeSur, EdeEste (Dominican Republic)			
Co-financiers and Other External Partners: Borrower and other financiers (not specified)			

B. Key Dates				
Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	03/07/07	Effectiveness:	18/06/09	
Appraisal:	04/02/08	Restructuring(s):		
Approval:	05/20/08	Mid-term Review:		
		Closing:	12/31/2012	09/30/2013

C. Ratings Summary	
C.1 Performance Rating by ICR	
Outcomes:	Moderately Satisfactory
Risk to Development Outcome:	Moderate
Bank Performance:	Moderately Satisfactory
Borrower Performance	Moderately Satisfactory

C.2 Detailed Ratings of Bank and Borrower Performance (by ICR)			
Bank	Ratings	Borrower	Ratings
Quality at Entry:	Moderately Unsatisfactory	Government:	Moderately Unsatisfactory
Quality of Supervision:	Satisfactory	Implementing Agency / Agencies:	Satisfactory
Overall Bank Performance:	Moderately Satisfactory	Overall Borrower Performance:	Moderately Satisfactory

C.3 Quality at Entry and Implementation Performance Indicators			
Implementation Performance	Indicators	QAG Assessments (if any)	Rating
Potential Problem Project at any time (Yes/No):	Yes	Quality at Entry (QEA):	None
Problem Project at any time (Yes/No):	No	Quality of Supervision (QSA):	None
DO rating before	Satisfactory		

Closing/Inactive status:			
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D. Sector and Theme Codes		
	Original	Actual
Sector Code (as % of total Bank financing)		
Transmission and distribution of electricity	100%	100%
Theme Code (Primary/Secondary)		
Infrastructure services for private sector development	100%	100%

E. Bank Staff		
Positions	At ICR	At Approval
Vice President:	Hasan A. Tuluy	Pamela Cox
Country Director:	Sophie Sirtaine	Yvonne M. Tsikata
Sector Manager:	Malcolm Cosgrove-Davies	Philippe Benoit
TTL:	David Reinstein	Lucio Monari
ICR Team Leader:	David Reinstein	
ICR Primary Author:	Gabriela Elizondo-Azuela	

F. Results Framework Analysis
Project Development Objective (from Project Appraisal Document – PAD)
The original project development objectives were: (a) increase the Cash Recovery Index (CRI) of the three EDEs, and (b) improve the quality of electricity service.
Revised Project Development Objective (as approved by original approving authority)
The PDO was not modified during the life of the loan.

PDO Indicators

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1 Increase percentage of people satisfied with electricity service by distribution companies				
Value (Quantitative or Qualitative)	No baseline provided at entry. Values (ISR 3 March 2, 2009): EdeNorte: 62% EdeSur: 62% EdeEste: 62% ISR 9 (July 2012) confirmed baseline value at 62%	No target values provided at entry.	No formal revisions Values (ISR 3 of March 2, 2009): EdeNorte: 75% EdeSur: 75% EdeEste: 75% ISR 9 (July 2012) provided an end target of 75%	TBD The Gallup survey to assess progress in the rehabilitated circuits will be launched 6 months after the completion of rehabilitation works (Q2 of 2014).
Date achieved	3/2/2009	12/31/2010	12/31/2010	08/23/2013
Comments (incl. % achievement)	The progress on this indicator has been measured at the level of rehabilitated circuits. A Gallup survey on consumer satisfaction at the level of circuits intervened will be launched in Q2 of 2014, a few months after the full completion of rehabilitation works to ensure satisfaction is not affected by the disruptions associated with construction. Consumer satisfaction at the level of circuits (as reported by EDEs for some of the intervened circuits) has remarkably improved as follows: i) between 200 and 633 % in EdeEste, ii) 414 and 455 % in EdeNorte, and iii) between 327 and 436% in EdeSur.			
Indicator 2 Average service availability index (ASAI) in each EDE as a whole (and per circuit with Project investments)				
Value (Quantitative or Qualitative)	Original Values: EdeNorte: 73.35% EdeSur: 74.9% EdeEste: 75%	No target values offered at entry.	No formal revisions Target values (introduced in ISR No. 4 of November, 2009): EdeNorte: 75% EdeSur: 75% EdeEste: 75%	EdeNorte: 74.2% EdeSur: 85.0% EdeEste: 91.5%
Date achieved	4/18/2008	11/14/2009	11/14/2009	30/09/2013
Comments (incl. % achievement)	Baseline values were ratified before the signing of EPC procurement contracts and the start of rehabilitation works (between August, 2010 and Q2 2011). On average the three EDEs achieved 111 percent of the target. EdeNorte reached 99 percent, EdeSur 113 percent, EdeEste 122 percent.			
Indicator 3 Audited increase of Cash Recovery Index (CRI) in each EDE as a whole				
Value (Quantitative or Qualitative)	Original Baseline:	EdeNorte: 71% EdeSur: 75%		EdeNorte: 62% EdeSur: 67%

Qualitative)	EdeNorte: 56% EdeSur: 58% EdeEste: 62%	EdeEste: 75%		EdeEste: 59%
	Adjusted Baseline: (Based on data adjusted in December 2010 after full revision and update of EDEs data bases) EdeNorte: 63% EdeSur: 53% EdeEste: 62%			
Date achieved	4/18/2008	12/31/2010		30/09/2013
Comments (incl. % achievement)	<p>On average the three EDEs reached only 85 percent of the target. EdeNorte attained 87 percent of the target, Edesur 89 percent, and EdeEste 79 percent. Compared to the baseline, EdeSur registered an increase of 26 percent. The CRI in EdeEste decreased in 5 percent and in EdeNorte it decreased in about 2 percent. Thus, the CRI declined in 2 out of 3 EDEs from the adjusted baseline.</p> <p>To some extent, the decrease in CRI in both EdeEste and EdeNorte can be attributed to the fact that the PRA areas (National Program for the Reduction of Blackouts, created to service the urban poor with a subsidized tariff) had to be redefined when the Program was phased out in 2011. Also, the data used to estimate the baseline in 2010 was less reliable than the data used in 2014 to estimate the progress, as the EDEs had gone through a process of improved data management (cleaning of existing data bases) and reporting.</p>			

Intermediate Outcome Indicators

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1	Rehabilitation of selected circuits			
Value quantitative or Qualitative)	EdeNorte: 0 EdeSur: 0 EdeEste: 0	EdeNorte: 37 EdeSur: 5 EdeEste: 18	No formal revisions. Adjustments introduced in ISR of May 2012. EdeNorte: 5 EdeSur: 12 EdeEste: 18	EdeNorte: 4 EdeSur: 4 EdeEste: 5
Date achieved	4/18/2008	12/31/2010	05/31/2010	30/09/2013
Comments (incl. % achievement)	<p>Originally the Project was expected to reach 60 circuits (20 circuits with Bank support). The overall target was adjusted to 35 (ISR of May, 30 2012) as follows: 5 in Edenorte, 12 in EdeSur and 18 in EdeEste.</p> <p>With the Bank support (42 million), ultimately 13 circuits were rehabilitated (the remaining circuits are being rehabilitated with resources from the IADB (\$42 million),</p>			

	<p>OPEC Fund (\$38 million) and GoDR (\$20 million)). Total project cost was \$152 million. In terms of the number of circuits rehabilitated, the IBRD Project reached 65 percent of the “original” target. However, the total number of customers reached was higher in the 13 circuits rehabilitated than expected with the original target. The original 20 circuits were expected to reach 81,489 customers; the 13 circuits rehabilitated reached 101,197 customers. Thus, although the “original” target was not reached, the number of beneficiaries was ultimately 24.2 percent higher than expected</p> <p>The rehabilitation works of remaining circuits (those being financed by IADB, OPEC Fund) are expected to be completed at the end 2014.</p>			
Indicator 2	Increase of CRI by circuit intervened			
Value quantitative or Qualitative)	<p>EdeNorte: 9%-56% 37 circuits identified by code in PAD</p> <p>EdeSur: 25%-65% 5 circuits identified by code in PAD</p> <p>EdeEste: 28%-76% 18 circuits identified by code in PAD</p>	<p>EdeNorte: 64-75% 37 circuits identified by code in PAD</p> <p>EdeSur: 34-84% 5 circuits identified by code in PAD</p> <p>EdeEste: 84% 18 circuits identified by code in PAD</p>	<p>No formal revision took place during Project implementation to adjust baselines and targets.</p>	<p>EdeNorte LVEG-103: 97% LVEG-105: 93% VVAS-101: 101% COTU-102: 94% SALC-102: 94%</p> <p>EdeSur CUAR102: 102.8% COHE103: N.A. KDIE102: N.A. BAYO102: 96.8%</p> <p>EdeEste: 84% LM38-C05: 97% LM38-C01: 93% LM38-C02: 101% CAPO-C02: 94%</p>
Date achieved	4/18/2008	12/31/2010	12/31/2010	30/09/2013
Comments (incl. % achievement)	<p>The circuits selected for intervention at appraisal were not necessarily the same (in classification and/or scope) as the circuits intervened during project implementation due to changes in population density, discovery of unregistered customers, demand side needs and other technical considerations (number of polygons and borderlines changed, some of the rehabilitations supported by the Project only covered polygons as opposed to whole circuits).</p> <p>No formal revisions took place during Project implementation to adjust original baselines and targets of this indicator; the value ranges provided in the original results framework were maintained and assumed to be relevant.</p> <p>All the circuits intervened achieved a CRI above the maximum original target established for the circuits selected at appraisal.</p> <p>On average, the CRI of intervened circuits in EdeNorte, EdeSur and EdeEste reached a value of 28, 19 and 14 percent above the original targets, respectively.</p>			
Indicator 3	Increase average availability index ASAI by circuit intervened			
Value quantitative or Qualitative)	<p>EdeNorte: 50-87% 37 circuits identified by code in PAD</p> <p>EdeSur: 62% 5 circuits identified by code in PAD</p> <p>EdeEste: 50%-75% 18 circuits identified by code in PAD</p>	<p>EdeNorte: 87.5% In all 37 circuits</p> <p>EdeSur: 87.5% In all 5 circuits</p> <p>EdeEste: 87.5% In all 18 circuits</p>	<p>No formal revision took place during Project implementation to revise baselines and targets.</p>	<p>EdeNorte: COTU102: 97.84 SALC102: 98.78 LVEG103:97.36 LVEG105: 87.83 VVAS101: 99.80</p> <p>EdeSur: CUAR102: 100.0% COHE103: 97.0% KDIE102: 98.0% BAYO102: 68.0%</p>

				EdeEste: LM38-C05: 74% LM38-C01: 99% LM38-C02: 74% CAPO-C02: 64%
Date achieved	4/18/2008	12/31/2010	12/31/2010	30/09/2013
Comments (incl. % achievement)	<p>The circuits selected for intervention at appraisal were not necessarily the same as the circuits intervened during project implementation due to changes in population density, discovery of unregistered customers, demand side needs and other technical considerations (number of polygons and borderlines changed).</p> <p>No revisions took place during Project implementation to adjust original baselines and targets provided at entry on this indicator; the value ranges provided in the original results framework were maintained and assumed to be relevant.</p> <p>On average, EdeSur reached an ASAI of 90.75% in intervened circuits (above original target), EdeNorte reached 96.32% which is also well above original target, but Edeeste reached 78% which is below original target.</p>			
Indicator 4 Control of operating costs of the EDEs				
Value quantitative or Qualitative)	No baseline values provided at entry	No target values provided at entry	Target Not Revised	$TOC_i < TOC_{i-1} \times k$ $TOC_{Sep2013} < TOC_{Sep2012} \times K$ EdeNorte: 3,621 MCOP < 3,756 MCOP EdeSur: 3,832 MCOP > 3,503 MCOP EdeEste: 2,809 MCOP < 3,528 MCOP
Date achieved	4/18/2008	12/31/2010		30/09/2013
Comments (incl. % achievement)	<p>Baseline values were estimated before the signature of EPC procurement contracts and the start of rehabilitation works.</p> <p>The Results Framework provides a condition based on a formula for assessing progress. Data available includes the comparison between total operating costs (TOC) of September 2012 and September 2013 ($TOC_{Sep2013} < TOC_{Sep2012} * k$). In this case, the established condition was met in EdeNorte and EdeEste, but not in EdeSur:</p>			

G. Ratings of Project Performance in ISRs

No.	Date ISR Archived	DO	IP	Actual Disbursements (USD millions)
1	13/06/2008	Satisfactory	Satisfactory	0.00
2	16/12/2008	Satisfactory	Satisfactory	0.00
3	03/02/2009	Satisfactory	Satisfactory	0.00
4	11/14/2009	Satisfactory	Satisfactory	0.00
5	06/06/2010	Satisfactory	Moderately Satisfactory	0.00
6	02/02/2011	Satisfactory	Moderately Satisfactory	2.75
7	06/08/2011	Satisfactory	Moderately Satisfactory	5.34
8	12/25/2011	Satisfactory	Satisfactory	15.42

9	07/10/2012	Satisfactory	Satisfactory	28.98
10	01/22/2013	Satisfactory	Satisfactory	32.74
11	10/11/2013	Satisfactory	Satisfactory	35.93

H. Restructuring (if any)

Restructuring Date(s)	Board Approved PDO Change	ISR Ratings at Restructuring		Amount Disbursed at Restructuring (in US\$ million)	Reason for Restructuring & Key Changes Made
		DO	IP		
N.A.					

SECTION 1: PROJECT CONTEXT, DEVELOPMENT OBJECTIVES AND DESIGN

1.1 Context at Appraisal

Over the last twenty years, the Dominican Republic has experienced a sustained economic growth, with an annual average increase of GDP per capita of 4 per cent against 1.8 per cent for Latin and Central America and the Caribbean. A low-income small island economy—GDP per capita was below USD 1,000 in 1960—the Dominican Republic attained upper middle income status in 2011, a performance well above most other countries in the region and resembling the experience of the successful globalizers of East and South-East Asia. The Dominican Republic is now the second largest economy in Central America and the Caribbean and one of the most affluent, with per capita GDP levels just below Costa Rica and Panama¹.

In spite of this remarkable macroeconomic performance, the Dominican Republic has been unable to address its main development challenges. GNI per capita levels quickly rose in the aftermath of the temporal economic and financial domestic crisis provoked by the Baninter banking scandal in 2003, from US\$ 2,600 in 2000-2004 to US\$ 5,200 in 2011, but the economic expansion has not been accompanied by a substantial reduction in poverty and inequality. The crises pushed around 1.4 million people into poverty, and moderate poverty incidence has not been brought back to previous levels. Extreme poverty levels in October 2011 were similar to those of October 2000 (9.2%), and moderate poverty affects 34.3% of the population, which is significantly higher than a decade ago (28.2%)².

The DR Electricity Distribution and Rehabilitation Project was approved in 2008 during the years of recovering macroeconomic stability.

In electricity, despite the attempt of a gradual reform the sector has historically struggled with the governance and performance of its main utility (Corporacion Dominica de Empresas Electricas Estatales, CDEEE).

Throughout the 1990s, the Government gradually introduced a classic power sector reform; first allowing IPP participation and later on unbundling the generation, transmission and distribution segments of the State owned monopoly (CDEEE). The July 2001 Electricity Law introduced a modern legal and regulatory framework along with new institutions including *Comision Nacional de Energia (CNE)* in charge of formulating energy policy, *Superintendencia de Electricidad (SIE)*, the regulatory agency; *Organismo Coordinador (OC)* the dispatch center, and the *Oficina de Proteccion al Consumidor (PROTECOM)* a consumer protection entity.

¹ IMF (2013); “Growth, Employment and Social Cohesion in the Dominican Republic”, ILO Background Paper

² World Bank (2013); “Patronage or reform? Political Economy of Policy Performance in the Dominican Republic: Institutional and Governance Review”, Washington DC

Although this reform created a modern, competitive sector structure, serious problems remained, including institutional weaknesses and inconsistencies in the legal framework. Most seriously, the sector remained plagued by the problems that had undermined its financial sustainability: (a) a tradition of illegal connections and non-payment of bills (less than 60 percent of all energy provided was paid for through tariffs), (b) the government's unwillingness to adjust tariffs to fully reflect changes in fuel prices and the exchange rate, and (c) inadequate fiscal resources to cover the resulting gap between costs and revenues. An adverse oil shock in 2002 highlighted system deficiencies and, as a result, EdeNorte and EdeSur electricity distribution companies were renationalized.

At the time of project appraisal, market liberalization had been partially achieved and the technical and managerial performance of the sector was extremely poor. These issues were historically the result of a combination of poor governance, lack of investment and mismanagement.

In 2008, almost half of thermal power generation capacity exhibited very low technical efficiency (more than 40 percent of total installed capacity) and technical and commercial losses in the distribution segment were extremely high (on the order of 30%). The three distribution companies (EDEs) were financially unsustainable due to low revenue generation and recurrent debt. It was in this context that the Project was prepared and justified.

The performance of the electricity sector has represented a structural challenge to the country historically and despite gradual improvements the sector continues to contribute to the Central Government's primary deficit. The persistent gap between tariffs charged and the operating cost, exacerbated by the widespread theft and poor collection of bills, has placed severe financial strain on the electricity sector and limited its ability to invest in improved services. The major consequence of the limitations in revenue generation is the need for external resources in order to close the resulting financial gap. In 2012, the electricity sector deficit still absorbed 2.3 percent of GDP in public subsidies and overall losses have required Government transfers as high as 10 percent of the national budget.

Today, the DR's electricity sector still stands out in LCR for its poor performance. Although coverage has increased over the past twenty years to around 95 percent of the population and black-outs have declined in duration since the early 1990s, the DR continues to have more than six times as many outages per month (18) as the average for LCR (2.5). Also, more than one-third of the energy generated in the country (35%) is still not billed, around 5% of billed energy is stolen, and total losses are estimated in the order of 27-30%, still far above the average level in the region which is in the range of 12-15%.

Theft of energy occurs not only among poor neighborhoods but also among large enterprises and in the internal wiring of middle class apartment buildings (and the theft practice signifies a risk that has led to several hundred deaths over the past decade). Numerous government agencies have in the past also accumulated unpaid bills, although the Medina Administration has taken steps to regularize payments by national government agencies. The DR's three electricity distribution companies (EDEs) continue to be strikingly inefficient, employing 11 times more workers than the electricity utility of Santiago, Chile, for a given number of megawatt hours of service, and seven times more workers than the utility of Lima, Peru, to serve a given number of clients.

At appraisal, entire neighborhoods were not paying, with broken or absent meters, and with utility workers unable to fix meters or attend maintenance works because of conflict with consumers. Investments in rehabilitation were short-lived because communities would quickly vandalize meters, and did not pay their bills. The persistent lack of payment in the sector and other external factors –such as high fuel oil prices – led to a vicious circle of black outs and fiscal losses. Attempts to address these problems through programs like the PRA (National Program for the Reduction of Blackouts) failed successively.

Even if technical and non-technical losses were brought down significantly, the average tariff of US\$0.20/kwh would be insufficient to cover costs. The average indexed tariff calculated by the Superintendence for Energy is US\$0.30/kwh; however over the last years the Government has refused to adjust tariffs upwards to reflect the steep rise in the cost of fuel that has been registered since the mid-2000s. The imbalance between the cost of electricity production and the effective tariff charged (and collected) has resulted in a deficit at 1.6% of GDP on average for the past seven years and burdened the overall public finance.

An additional challenge is the fact that –despite the existence of a diversified capacity based – around 48 percent of contracted generation is indexed to the price of HFO#6 and another 11 percent is purchased in spot markets at marginal prices determined by inefficient thermal generators.

To lower the demand-supply gap the system has seen the rise of 2,700 MW of mainly polluting and expensive diesel based generation. Still, supply remains largely unreliable and many consumers (both households and companies) have opted to install their own electricity generation devices to compensate for frequent power outages.

Successive Government administrations have supported ambitious reforms while at the same time approving the transfer of large subsidy volumes to CDEEE.

Over time, successive governments have established a variety of transfers and subsidies to the electricity sector at more than 1% of GDP every year since 2005; in 2008, the spike in world oil prices raised this figure to 3% of GDP. The amounts transferred since 2005 have exceeded public spending on health most of the years. In practice, the transfers do not take place separately but as a lump sum to CDEEE, the public electricity holding, which then allocates the funds to the electricity distributors.

This practice places large quantities of money in the hands of the CDEEE which has historically had a lack of transparency and low levels of accountability, creating opportunities for frequent mismatches between the intended and actual uses of the funds, as reported by several national media.

The Fernandez government embraced an ambitious reform program in the last years of its second term (2008-2012), including the professionalization of senior management of the distribution companies, better targeting of the subsidies, the revival in investments to rehabilitate the energy grids, and the strengthening of regulations. The service improved with an increasing number of clients receiving

electricity 24 hours (around 791,000 or 35% of the market). At appraisal, the DR Electricity Distribution and Rehabilitation Project was aligned with the objectives of the Government and the pressing needs of the sector.

1.2 Original Project Development Objective and Key Indicators

The original project development objectives were: (a) increase the Cash Recovery Index (CRI) of the three EDEs, and (b) improve the quality of electricity service.

The original indicators proposed were the following:

1. Increase the CRI in circuits with project investments and in each EDE as a whole
2. Control of operating costs of the EDEs
3. Increase in consumers' perception of the quality of electricity services
4. Increased hours/day availability of power in the circuits with project investments and in each EDE as a whole

1.3 Revised PDO and Key Indicators and Reasons/Justification

The PDOs and key indicators were not revised during the implementation stage.

1.4 Main Beneficiaries

The main beneficiaries are the distribution companies (EDEs), through a higher cash recovery index, and ultimately, consumers through a more reliable and extended service.

1.5 Original Components

The original components included the following three:

1. Rehabilitation and upgrading of medium and low voltage circuits (US\$121.8 Million excluding contingencies, US\$37 Million financed by IBRD).
2. Outreach to communities (US\$9.2 Million excluding contingencies, US\$3 Million financed by IBRD).
3. Technical assistance and training (US\$2.5 Million excluding contingencies, US\$2 Million financed by IBRD).

1.6 Revised Components

There was no revision of components.

1.7 Other Significant Changes

With the phase out of the PRA Program (and dismantling of the PRA zones) in 2011 and after the Mid Term Review, the Project Team considered restructuring as an option to overcome the significant changes in the original project design. The idea however was rejected as it would have entailed significant delays in project implementation due to the need of obtaining Congress approval on the restructuring proposal.

Instead, the Project Team decided to focus more intensely on supervision. This was challenging considering changes in EDEs' management (which signified the cancelation of performance contracts already signed and the renegotiation of new ones with the entrance of a new administration in August 2012), but nevertheless proved appropriate, as disbursements picked during the last 18 months of project implementation.

SECTION 2: KEY FACTORS AFFECTING IMPLEMENTATION AND OUTCOMES

2.1 Project Preparation, Design and Quality at Entry

The analysis of the background and rationale presented at appraisal were appropriate and relevant. Indeed, one of the most critical challenges confronting the sector was –and continues to be- the financial sustainability of distribution companies and the overall quality of service.

The Project’s design was robust in that its objectives and components simply focused on two of the most critical problems of the distribution sector: (i) the lack of billing collection and cash recovery and, (ii) poor reliability of service and low consumer satisfaction.

The Project objectives were consistent with a comprehensive sector plan launched by the Government for the period 2006-2012. In the short term, the plan focused on streamlining the subsidy design and volume, improving distribution infrastructure, controlling operating costs, increasing investments in transmission, and diversifying the capacity mix with introduction of renewable energy. In the longer term, the plan aimed at achieving financial sustainability of the sector and addressing its structural problems (for example, controlling EDEs’ debt, revision of existing programs, ensuring competition at the generation level, and strengthening institutions across the board).

The implementation of this plan was being supported at the time by other World Bank initiatives: the Programmatic Power Sector Reform Loan (US\$150 Million) and the Energy Sector Technical Assistance Loan (US\$7.3 Million). The Electricity Distribution Rehabilitation Project was complementary to these efforts and focused on accelerating the previous efforts and success emerging under the “24 Hours of Light Program”.

In particular, the Project sought to enhance the design and leverage the implementation of the community outreach component launched under the “24 Hours of Light Program”. The improved design was innovative in that few Projects at the time had considered –and demonstrated- the effectiveness of participatory approaches to establish trust between the consumers and distribution companies with an aim to increase billing and promote demand side management. Ultimately, this component proved instrumental to the success of the Project. The new approach focused on social compacts with selected communities and the entry of social workers before the start of rehabilitation works. The Social Management Plan, which is at the heart of this innovative approach, introduced a seven step process which included; i) review of commercial and social characteristics of selected circuits, ii) sensitization and community organization to formulate and implement the 24 Hour Program, iii) diagnosis of the socio-economic characteristics of neighborhoods and status of service, iv) definition of the strategy for inter-institutional coordination, v) implementation of 24 hour program, vi) monitoring and evaluation, vii) sustainability of social network.

The institutional arrangements were adequate as they simply relied on one counterpart (CDEEEE) which could effectively coordinate the implementation of different components with the three distribution companies targeted (EdeNorte, EdeEste and EdeSur). The Project Implementation Unit (PIU) at CDEEEE demonstrated a high level of commitment during the preparation and implementation of the Project.

In terms of the decisions regarding the social and environmental safeguards, the Project was appropriately categorized as B (partial assessment).

The assessment of risks was also appropriate in that it identified the key threats with corresponding mitigating measures, and provided a ranking aligned to the realities of the country and sector. A few of the risks have in fact materialized, including the unresolved debt overhang problem and uncertainties regarding the introduction of tariffs reflective of costs, including fuel price increases.

2.2 Implementation

The factors that contributed to the success of Project implementation were the following: (i) simplicity of Project design and arrangements, (ii) the corporate office at CDEEE (Project Implementation Unit) recruited qualified professionals and had the appropriate technical knowledge and analytical tools to manage the Project; the PIU was extremely committed to progress and achievement of results, (iii) EDEs were also committed to the Project across the spectrum of activities, (iv) the introduction of a well-designed and extremely innovative community outreach component which was supported by 20 trained social development specialists and 96 community workers; this component was ultimately instrumental to the success of the Project, and (v) strong coordination among the technical, commercial, and social units in the three EDEs, and with the PIU at CDEEE; indeed the Project contributed to integrate and align the operation of various different units within the EDEs and between CDEEE and the EDEs.

During implementation, trained social workers approached the communities and launched activities to improve the general understanding of the service at the community level (training on demand side management provided in schools, training on debt reduction provided to small businesses). The social workers together with the community have established community monitoring committees which are politically balanced, mitigating conflicts over electricity via active community management teams and the signing of social compacts which have provided an incentive for the community members to work together, ensure payment and reduce vandalism of meters.

The success of the approach convinced the new administration to continue supporting the model; and the CDEEE and EDEs have been able to expand the service to new areas. In fact, the results in the ground have led to strong demand from the population and thus the Government has requested additional support from the Bank and other development partners to further replicate the approach and achieved a more systematic impact.

The Project design did not undergo any formal restructuring or revisions during implementation³; however, the implementation activities faced a few challenges, including the following:

³ The only formal restructuring during implementation was requested by the Hacienda on August 2010 to amend the loan agreement, first to recognize the corporate office of CDEEE at the project executing unit (PIU), and second to extend closing date by 18 months. Congress approval of the amendment took more than a year.

- ❖ Initial delays mainly due to the time it took the Government to approve the loan and reach effectiveness⁴ (13 months); and the period of time it took CDEEE and the EDEs to complete the procurement processes necessary to select the companies and commission the rehabilitation works (18 months after effectiveness).⁵
- ❖ The establishment of the community outreach team at the level of the EDEs also experienced a slight delay mainly due to the time it took to select and hire specialists and involve community workers.
- ❖ The proposed results framework had to go through a series of adjustments throughout the implementation period in terms of scope, baseline, and target values in part due to delays in effectiveness and procurement process (this is discussed in more detailed in sub-section 2.3).
- ❖ In particular, the choice of the Cash Recovery Index (CRI) as an indicator reflecting financial sustainability was not necessarily appropriate in the context of the DR power system. This is because the CRI may be positive despite negative consolidated balance sheets at the level of EDEs.

The lack of financial sustainability of EDEs has stemmed mainly from the fact that tariffs do not reflect costs; the cost recovery is partial due to technical inefficiencies across the value chain as well as high fuel oil prices. Indeed, CDEEE and EDEs receive frequent cash transfers from the Government to compensate for these problems and to cover the debt service associated with loans issued to purchase fuel oil.

During implementation, the World Bank team took several actions to address the emerging challenges: (i) strong and close supervision focused on the continuous revision of implementation, disbursement and procurement plans, (ii) continuous revision and strengthening of operational manual (for example, to update organization structures and to include standardized formats for performance reporting), (iii) strong support to the counterpart during the bidding process with a revision of the evaluation of “pre-qualified” firms and recommendations to ensure competition in the process, (iv) continuous review of results framework to adjust scope as well as baseline and target values of some of the proposed indicators due to circuit network transformations over time; among others.

2.3 Monitoring and Evaluation (M&E) Design, Implementation and Utilization

i) M&E Design

The original Results Framework included three outcome indicators and five intermediate outcome indicators. The framework did not undergo any formal revision; however, adjustments in scope, baseline and target values were necessary during implementation.

⁴ The team processed two extensions to effectiveness in the year after Project’s approval. Effectiveness was achieved on June 18th, 2009, when the DR’s Congress ratified the loan.

⁵ This delay was attributed to managerial changes in CDEEE’s PIU and the three EDEs which eventually delayed the preparation of technical specifications necessary to finalize the preparation of bidding documents. The first set of rehabilitation contracts was signed between November 2010 and January 2011.

The choice of indicators was consistent with the Project Development Objectives (PDOs) which focused directly on increasing the Cash Recovery Index (CRI) of EDEs and improving the quality of service (expressed as ASAI in this case).

However, it is important to note that the CRI did not necessarily reflect progress in the financial sustainability of distribution companies due to contextual factors characteristic of the power sector in the DR.⁶ Indeed, EDEs financial sustainability is affected by a number of other variables including the debt service associated with the loans issued to purchase fuel oil and direct cash transfers from the Government to cover this debt. Thus, the CRI –as it is defined in the Project—may be positive despite the lack of financial sustainability at the level of the EDEs.

In theory, the CRI should reflect the extent to which power purchased is billed and bills are paid, and provide a good measure of improvements in technical and commercial losses. However, when companies do not bill 100 percent of their customers or when cash inputs other than bills paid are included (for example, reconnection fees or fines) as has happened with the three EDEs, the result is distorted.

As an intermediate outcome the Results Framework proposed the monitoring of the evolution of total operating costs (TOC).⁷ Together with the CRI this indicator contributes to better reflect improvements in the managerial performance and financial sustainability of EDEs, albeit only partially.

In terms of the collection methods, EDEs were in charge of supplying the data on CRI, average service availability index (ASAI), number of circuits rehabilitated, the CRI and ASAI in each of the rehabilitated circuits and evolution in the control of operating costs. Additional activities, including surveys on consumer satisfaction and third party audits, supported the data collection and evaluation of progress.

However, one of the issues faced by the PIU at CDEEE regarding data collection is the fact that information was supplied by EDEs to external auditors but the auditors did not have any means of verifying primary data to evaluate the quality and reliability of information supplied. This aspect has to be improved.

The progress reported on CRI, ASAI and consumer satisfaction at the level of EDEs reflected improvements in overall EDE performance, but not necessarily the impact of the Electricity Distribution Rehabilitation Project, as the initiative ultimately only covered the rehabilitation of a very small percentage of the total number of circuits in each of the EDEs.

Overall, the design of the M&E platform was not particularly strong; and the M&E system can still be substantially strengthened.

⁶ The CRI formula is: (energy billed by distribution companies/energy purchased by distribution companies) multiplied by (electricity bills paid by consumers)/(total electricity billing issued to consumers)

⁷ The Project called for TOCs increasing less than the rate of supply expansion and inflation.

ii) M&E Implementation

The Bank closely monitored progress under the Project through Bank supervision missions. The PIU at CDEEE and UERS conducted effective overall M&E of the activities targeted under the Project, collecting data needed from the three EDEs and other parties tasked with the collection and reporting of specific performance indicators (third party auditors and surveyors). Yet, as explained before, external auditors did not have access to primary data and could not verify the quality of data supplied by EDEs.

During implementation most of the indicators in the Results Framework had to be adjusted either in scope or in baseline and target values. A description of adjustments is provided below:

Outcome Indicators

Percent of People Satisfied with Service at the level of EDEs:

No baseline data was included in the Results Framework at entry. Target values were defined at entry as “improvement from baseline”.

It is important to note that the surveys launched have only covered the circuits targeted for rehabilitation under the Project; in this respect the data available and reported does not correspond to satisfaction at the level of the whole EDE. The baseline was assessed just before the start of the rehabilitation works (2011) in some of the circuits selected for intervention through a Gallup survey and reported in the 9th ISR (July 2012). A Gallup survey will be launched to assess final progress after the completion of rehabilitation works (expected in early 2014).

It is important to note that EDEs have launched their own surveys in the circuits targeted under the Project, so there is available data to show progress with customer satisfaction.

ASAI at the level of EDEs: Original baseline values were maintained and ratified before the signature and implementation of EPC procurement contracts. At entry, the Results Framework did not include target values due to lack of data; targets were estimated later on and included in the fourth ISR of November 2009.

CRI at the level of EDEs: the baseline values proposed at entry had to be modified to account for the facts that i) each EDE was regulated under different tariff structures and ii) the data base system went through an exhaustive update to eliminate obsolete data (for example, registered but not active clients); in this case revised data of December 2010 was reported as baseline. The adjustment was not significant and original target values were maintained. In particular, one of the legal covenants was to ratify the targets for each EDE by May 25th, 2009 (along with targets for increases in total operating costs, one of the intermediate indicators). The targets on CRI at the level of EDEs were ratified as expected.

CDEEE in coordination with EDEs has monitored and adjusted the three outcome indicators described above following appropriate collection methods (surveys before and after rehabilitations) and ensured the quality of data through third party technical audits.

Intermediate Outcome Indicators:

Rehabilitation of Selected Circuits: Originally the Project was expected to reach 60 circuits.⁸ During Project preparation (2008) the team and counterpart identified the circuits that would be intervened for rehabilitation. The implementation of the Project however was delayed by the time it took to reach effectiveness⁹ (13 months) and complete the procurement processes necessary to select and issue contracts to the companies in charge of rehabilitation works (18 months after effectiveness).¹⁰ By 2011, the network of circuits in each EDE had gone through a natural transformation due to changes in population density, discovery of unregistered customers, demand side dynamics and other technical considerations (for example, the overall number of circuits, polygons within each circuit and borderlines changed, which meant that some circuits were merged and other divided). For this reason, the number of circuits intervened during implementation differed from the number of circuits identified for intervention at appraisal.¹¹

Originally the Project was expected to reach 60 circuits (20 circuits with the Bank support). The overall target was adjusted to 35 (ISR of May, 30 2012), however CDEEE expects that 42 circuits will be ultimately rehabilitated (the rehabilitations financed by IADB, OPEC Fund and GoDR are yet to be completed).

Increase of CRI by circuit intervened: Although the circuits selected for intervention were not necessarily the same as the circuits identified at entry¹², no formal revision took place during Project implementation to adjust original baselines and targets of this indicator; the value ranges provided in the original results framework were maintained and assumed to be relevant.

⁸ The Bank support (USD 42 Million) was expected to support 20 of these circuits. The rest would be financed with resources from the IADB, OPEC Fund and the GoDR.

⁹ The team processed two extensions to effectiveness in the year after Project's approval. Effectiveness was achieved on June 18th, 2009, when the DR's Congress ratified the loan.

¹⁰ This delay was attributed to managerial changes in CDEEE's PIU and the three EDE which eventually delayed the preparation of technical specifications necessary to finalize the preparation of bidding documents. The first set of rehabilitation contracts was signed between November 2010 and January 2011.

¹¹ In some case, the Project only supported the rehabilitation of part of these circuits (polygons) considering that a higher population density and number of registered customers required a higher amount of resources (additional material and labor). For this reason, scope of number of circuits intervened was reduced substantially during implementation. It is important to note however, that in some cases the EDEs complemented the financing required for the remaining polygons or areas to cover the rehabilitation of complete circuits. According to the PIU, this additional financing resources are estimated in about US 13-14 Million.

¹² It is possible that some of the circuits were the same; however, the transformation of the network meant that EDEs redefined borderlines and reclassified circuits. In some cases, the Bank support only covered the financing of a few polygons or areas and not complete circuits.

Increase of ASAI by circuit intervened: Although the circuits selected for intervention were not necessarily the same as the circuits identified at entry, no formal revision took place during Project implementation to adjust original baselines and targets of this indicator; the value ranges provided in the original results framework were maintained and assumed to be relevant.

Control of Operating Costs at the level of EDE: At entry, the Results Framework did not provide baseline and target values. The ISRs reported that baseline values would be estimated and ratified before the signature of EPC procurement contracts in August, 2010". In particular, one of the legal covenants was to ratify the targets on operating costs by May 25th, 2009.

The data collection methods used –direct reporting from EDEs and surveys conducted before and after interventions- were appropriate. The quality and reliability of data was validated through third party audits.

In general the achievement of target values has been better realized one year after the completion of rehabilitation works. For example, improvements in consumer satisfaction depend on the full realization of community outreach activities and consumer understanding of the benefits of bill payment and demand side management. The impacts on CRI and ASAI also depend on the gradual reduction of technical and commercial losses through the rehabilitations and community outreach activities. CDEEE has recommended the final measurement of indicators within a year of completing the rehabilitation of targeted circuits.

iii) M&E Utilization

The CDEEE (PIU) and EDEs have used the monitoring and evaluation platform to analyze progress at the level of the distribution sector. The results have encouraged EDEs to increase the scope of the community outreach activities and include other circuits not directly targeted by the Project. EdeNorte for instance has invested an additional 13 USDM in rehabilitation projects following the WB Project's concept. The continuous monitoring of progress in performance will allow the Government, and EDEs in particular, increased access to additional financial and concessional resources to continue the rehabilitation needs of the sector. The M&E platform is already established and functional.

2.4 Safeguard and Fiduciary Compliance

During implementation, the CDEEE (PIU) and EDEs complied fully with the requirements established in the Bank's policies and procedural requirements associated with procurement, social and environmental safeguards, financial management and disbursement.

The operation fully complied with the prescriptions included in the Project's Operational Manual.

Except from an extension of closing date necessary to finalize rehabilitation works and fully disburse the loan, there were no significant deviations or waivers from Bank's safeguards and fiduciary policies and procedures. The IADB and OPEP Fund also rely on the Bank's safeguard conditions in their interventions.

2.5 Post Completion Operation / Next Phase

The PIU at CDEEE as well as EDEs and their social management units are now fully qualified to undertake the extension of distribution rehabilitation works following the same concept across the spectrum of fiduciary, safeguard and technical activities. The design of the M&E framework is appropriate and all indicators still relevant.

The three EDEs in fact have already gradually extended the operation of community outreach activities to other circuits. EDEs are also evaluating a full migration from conventional to smart metering to further enhance billing collection.

To continue supporting the Government in improving the financial sustainability of the power sector, the World Bank is now in the process of preparing a new investment project following the same basic design of this project to intervene a wider set of circuits (80 USDM), and it is also implementing an analytical sector work focused on the introduction of a commodity risk management strategy to manage fuel price volatility.

SECTION 3. ASSESSMENT OF OUTCOMES

3.1 Relevance of Objectives, Design and Implementation

The operation's objectives, design and implementation are still relevant and fully consistent with the country's development priorities. Today, the financial sustainability and performance of the electricity sector still represents a structural challenge to the country. In 2012, the electricity sector deficit still absorbed 2.3 percent of GDP in public subsidies and overall losses have required Government transfers as high as 10 percent of the national budget.

The current National Development Strategy (END or Vision 2030) -approved by Congress in March 2012- explicitly prioritizes the development of a reliable, efficient and environmentally sustainable energy sector under its Pillar No. 3 (Productive Development) with two specific objectives: (i) ensure a reliable supply of electricity at competitive prices as well as financial and environmental sustainability, and (ii) ensure a reliable, diversified supply of fuels in a competitive and environmentally sustainable manner.

The END calls for three major pacts on education, electricity and fiscal balance, to be agreed in the (ambit) of the multi-stakeholder Economic and Social Council (CES). In the medium term, the END specifically focuses on reducing electricity sector losses and cutting generation costs by adding publicly owned coal generation capacity and negotiating new capacity additions with existing private generators, among others.

The operation's objectives, design and implementation are also relevant and fully consistent with the current and forthcoming Bank's Country Partnership Strategy. Under its Pillar 2 (Promoting Shared Prosperity and Broad-Based Growth through Institutional and Productive Development) the FY14-FY17 CPS offers to continue supporting the electricity sector with both the rehabilitation of transmission and distribution infrastructure, and the implementation of an emergency recovery loan under the proposed Electricity Sector Management Project.

The original objectives of the Project today reflect a **high overall relevance** considering that the design reflected a proper diagnosis of a development priority that remains relevant. Indeed, the operation remains important to achieving the country's and Bank's development objectives.

3.2 Achievement of Project Development Objectives

In strict terms, and despite the remarkable success of the Project at the level of the circuits intervened, the Project Development Objectives (PDOs) were partially achieved.

Percent of People Satisfied with Service at the level of EDEs: No baseline data was included in the Results Framework at entry. The baseline was assessed just before the start of the rehabilitation works (2011) in the circuits selected for intervention through a Gallup survey and reported in the 9th ISR (July 2012). Target values were defined at entry as "improvement from baseline". A Gallup survey will be launched to assess final progress after the completion of rehabilitation works (expected in Q2 2014). It is

important to note that there is no baseline data available on consumer satisfaction at the level of EDEs, and that surveys launched have only covered the circuits targeted for rehabilitation under the Project. The results of these surveys at the level of circuits however show extremely positive results; with consumer satisfaction increasing substantially in the areas actually intervened by the Project.

Consumer satisfaction at the level of circuits (as reported by EDEs for some of the circuits intervened with Bank support) has improved substantially: i) between 200 and 633 percent in Edeste¹³, ii) 414 and 455 percent in EdeNorte, and iii) between 327 and 436 percent in EdeSur.

The causal link between increases in reliability (ASAI) and consumer satisfaction is adequate.

ASAI at the level of EDEs: At entry, the Results Framework did not include quantitative targets due to lack of data (the result frameworks offered “improvements from previous year”); a quantitative target for the three EDEs was later on estimated and included in the third ISR of March 2009 (as 75 percent).

EdeNorte reached 99 percent of the target and both EdeSur and EdeEste surpassed the target attaining 113 and 122 percent respectively. On average the three EDEs achieved 111 percent of the target.

Compared to the baseline data, all companies increased their ASAI. Thus, the Project achieved the PDO of “improving the quality of service” at the level of distribution companies.

The causal link between the operation and proposed benefits was adequate (in that the rehabilitation of infrastructure directly affect reliability levels).

Cash Recovery Index (CRI) at the level of EDEs: When compared to the adjusted baseline EdeSur registered an increase in CRI of 26 percent. The CRI in both EdeNorte and EdeEste decreased in 2 and 5 percent respectively.

To some extent, the decrease in CRI in both EdeEste and EdeNorte can be attributed to the fact that the PRA areas (National Program for the Reduction of Blackouts¹⁴, created to service the urban poor) had to be redefined when the Program was phased out in 2011. Also, the data used to estimate the baseline in 2010 was less reliable than the data used in 2014 to estimate the progress, as the EDEs had gone through a process of improved data management, cleaning of data bases, and reporting.

On average the three EDEs reached only 85 percent of the target. EdeNorte attained 87 percent of the target, Edesur 89 percent, and EdeEste 79 percent. Thus, the PDO was partially achieved by the fact that two of the three EDEs did not register an increase in CRI when compared to the baseline, and the targets where not fully attained.

Ultimately the Bank intervention only supported rehabilitation in a small percent of the total number of circuits in the distribution segment and therefore –although the CRI in the circuits rehabilitated did reach the targets- its impact on the CRI at the level of the EDEs was small. The causal link between the operation and proposed benefits was adequate in that rehabilitation and outreach to communities directly affect the CRI. However, the scope of the Project being lowered from 11 to 5 percent (in terms

¹³ For example, in circuit LM3801, consumer satisfaction increased from 45% (before rehabilitation) to 95% after rehabilitation; in circuit LM3801, satisfaction increased from 9 to 57%.

¹⁴ The National Program for the Reduction of Blackouts (Programa Nacional de Reduccion de Apagones) was created in 2001 to provide limited electricity service for a minimum flat tariff to poor urban areas, to address the social unrest caused by widespread blackouts.

of the percent number of circuits rehabilitated) over the course of implementation reduced the potential magnitude of the impact.¹⁵

The **intermediate outcomes** (as defined in the PAD) were also partially achieved.

Rehabilitation of Selected Circuits: Originally the Project was expected to reach 60 circuits.¹⁶ However, as explained before, the distributions network experienced a natural transformation with time that forced the team to redefine the number of circuits for intervention. The original target was adjusted to 35 circuits (5 in EdeNorte, 12 in EdeSur and 18 in Edeste). Ultimately the rehabilitation of circuits under the Project only reached 13 (the remaining circuits are being rehabilitated with resources from the IADB, OPEC Fund and GoDR).

In terms of the number of circuits rehabilitated, the Project reached 65 percent of the “original” target. However, the total number of customers reached was higher in the 13 circuits rehabilitated than expected with the original target. The original 20 circuits were expected to reach 81,489 customers; the 13 circuits rehabilitated reached 101,197 customers. Thus, although the “original” target was not reached, the number of beneficiaries was ultimately 24.2 percent higher than expected.

Increase of CRI by circuit intervened: In this case, the targets were fully met: all the circuits intervened achieved a CRI above the maximum original target established for the circuits selected at appraisal. On average, the CRI of intervened circuits in EdeNorte, EdeSur and Edeste reached a value of 28, 19 and 14 percent above the original targets, respectively.

Increase of ASAI by circuit intervened:

On average, EdeSur and EdeNorte reached an ASAI of 90.75 and 96.32 percent respectively in intervened circuits (above the original target, set at 87.5 percent for all circuits intervened); Edeste reached 78 percent which is below original target. EdeSur and EdeNorte surpassed the target in 3.7 and 10 percent respectively and EdeEste was below the target in 11 percent.

Control of Operating Costs at the level of EDE: At entry, the Results Framework did not provide baseline and target values. The measurement and evaluation of progress was defined in terms of an algorithm as follows:

¹⁵ When considering the total number of circuits to be rehabilitated under the Project (that is, including also the circuits intervened or to be intervened by IADB and the OPEC Fund), the scope of the Project lowered from an expected 11 percent (at the time of approval, 2008; which considered 60 circuits) to 5 percent (in 2014). The Bank’s intervention covered about 1.8 percent of total number of circuits in 2014.

¹⁶ The Bank support (USD 42 Million) was expected to support 20 of these circuits. The rest would be financed with resources from the IADB and other financiers.

Formula for assessing progress with “Control of Operating Costs”:

For each year $TOC_i \leq (TOC_{i-1} * k)$

Where:

$$k = [(0.5 * (VE_i / VE_{i-1} - 1) + 1) * Infl_{i/i-1}]$$

Infl is the distribution inflation index in Dominican Republic

VE is energy sales (GWh) (audited for CRI calculation)

TOC is the yearly audited total operation costs

Data available includes the comparison between total operating costs (TOC) of September 2012 and September 2013 ($TOC_{Sep2013} < TOC_{Sep2012} * k$). In this case, the established condition was met in EdeNorte and EdeEste, but not in EdeSur:

- EdeNorte: 3,621 MCOP < 3,756 MCOP
- EdeSur: 3,832 MCOP > 3,503 MCOP
- EdeEste: 2,809 MCOP < 3,528 MCOP

3.3 Efficiency

The benefits selected for the economic analysis at appraisal included: i) reduction in system technical losses, ii) reduction in theft (through both illegal and unmetered connections, and by not paying bills) and, iii) increased hours of power availability.

At appraisal the ERR was estimated in 73 percent with a NPV of US\$428 Million (discounted at 10 percent and based on a 10 year stream of benefits).

At closing, the NPV is estimated in US\$110.95 Million with a corresponding ERR of 63 percent when considered the same benefits (discounted at 10 percent and based on a 10 year stream of benefits).

It is important to note that despite the fact that scope of the intervention lowered in terms of the number of circuits, the actual hardware (equipment, materials) was ultimately aligned to the original scope.

Annex 3 describes in more detail the assumptions and results of the economic analysis.

3.4 Justification of Overall Outcome / Rating

The overall outcome rating proposed is moderately satisfactory.

The original objectives of the Project today reflect a high overall relevance considering that the design reflected a proper diagnosis of a development priority that continues to be critical.

The development objectives were partially achieved mainly due to i) the natural transformation of distribution networks in the three different EDEs that occurs with time (in terms of changes in population density and energy demand) and the reclassification of circuits and circuits' areas which required a redefinition of the scope of the Project (in terms of the number of circuits intervened), ii) the assumption at entry that the Project would have a significant –or at least noticeable- impact on indicators at the level of EDEs (and not only specifically on the circuits rehabilitated).

These aspects can be regarded as moderate shortcomings considering that the CRI at the level of circuits rehabilitated surpassed the targets established and the population (or beneficiaries) reached was higher than originally expected. Also, the increase of consumer satisfaction at the level of circuits was remarkable, proving that the interventions were extremely successful.

The ASAI targets were met at the level of EDEs, but partially met in the circuits rehabilitated. This is in part explained by the fact that in some cases the Project only supported the rehabilitation of a few polygons within circuits, and not the whole circuits. On the other hand, the EDEs did not have in place the number of meters and reporting system necessary to perform reliable measurements in the areas of intervened circuits.

The data for indicators in consumer satisfaction at the level of EDEs is still pending as the survey has to be launched within reasonable period of time after the completion of rehabilitation works and community outreach efforts to avoid the impact of the perception during and soon after the construction works (6 months to a year).

3.5 Overarching Themes, Other Outcomes and Impacts

i) Poverty Impacts, Gender Aspects, and Social Development

The community outreach component was extremely effective not only in enhancing customer understanding of the service (cost of service, reliability, demand side management) and directly contributing to increase billing collection in the areas intervened by the Project, but also in delivering other co-benefits or unintended effects.

First, the rehabilitation of circuits brought public lighting to the areas intervened which had an impact on citizen safety and on the reduction of crime. Second, the areas illuminated created an interest for additional improvements such as the organization of street sport and cultural activities and the setting

of green areas or parks. Third, small business and households experienced less accidents associated with the use of electrical installations (less fires and explosions). Fourth, the energy bill of the customers in the intervened circuits was substantially reduced due the increase in the number of hours of service (24 hours), and the elimination in the use of liquefied petroleum gas (LPG) and additional electricity to charge the inverter-battery systems at the household and commercial levels. The impact of this Component on Community outreach was outstanding. Proposal for this project was prepared with focus on this Component and won a prize in Shared Prosperity Days).

Most importantly, the rehabilitation of circuits focused primarily on areas with predominance of lower income communities, thereby enhancing their overall electricity access and quality of service. The Project has improved the standard living conditions of poor urban communities as well as the capacity of small businesses to improve their income and efficiency through extended access to the electricity service and improved reliability.

ii) Institutional Change / Strengthening

Although the Bank intervention ultimately only supported the rehabilitation of a small percent of the total number of circuits, the model established –which also promoted better management at the level of EDEs and a more dynamic and informed consumer participation- was effective and replicated in the rehabilitation of all other circuits not directly supported by the Bank. Indeed, the Project brought to the three EDEs the first challenge in massive rehabilitation and has left a strong managerial and technical system capable of following up with new stages in the rehabilitation of circuits.

Ultimately, the improvements in governance at the level of CDEEE and EDEs for managing technical and commercial losses can be directly attributed to the Project. The Project contributed to the organizational and managerial strengthening of EDEs (including the creation of new units to improve data management and reporting and manage the community outreach activities), to increased consumer awareness regarding the service and to the creation of a strong system of social workers and community leaders.

One of the issues however that have to be improved in the short term is the formalization of the employment status of social and community workers, who do not have a permanent staff status or earn benefits.

iii) Other Unintended Outcomes and Impacts

None

iv) Summary of Findings of Beneficiary Survey and/or Stakeholder Workshops

No beneficiary survey or stakeholder workshop has been launched so far.

SECTION 4. ASSESSMENT OF RISK TO DEVELOPMENT OUTCOME

4.1 Risk to Development Outcome

Rating can be considered Moderate

The sustainability of development outcomes in the long term depends on several factors, including the following:

- Appropriate operation and maintenance of distribution lines to maintain technical losses at a minimum level
- The continuous implementation of the social management and commercial strategies to maintain a high levels of billing collection (for example, through the activities conducted by the Comites de Seguimiento y Enlace, COSEs)
- Continuous strengthening of the M&E framework
- Increased capacity in the execution of implementation, disbursement and procurement plans and the implementation of turn-key projects to continue with rehabilitations and extensions of the network.

The project has successfully introduced these elements and has acquired a high level of capacity and experience in the implementation of technical, social, procurement and fiduciary activities. The organizational structure created to manage the Project has continuously evolved and is considered strong (the structure includes today new units attending the commercial, social and environmental aspects of rehabilitation and service provision; all these activities are well aligned and integrated). The model introduced under the Project has already been replicated in the rehabilitation of circuits not directly supported by the Project. Indeed, the Project brought to the three EDEs the first challenge in massive rehabilitation and has left a strong managerial and technical system capable of following up with new stages in the rehabilitation of circuits.

The operation is not facing any major uncertainties over its expected remaining useful life. The risks that the long-term flow of benefits in the circuits rehabilitated (lower commercial and technical losses and maintained reliability and quality of service) will not be realized is low.

The flow of benefits however could be affected by increased constraints on the financial sustainability front (which could in turn affect the flow of resources to maintenance and community outreach).

Indeed, the risk that GODR breaks the social compacts and fails to supply 24-hour electricity even with high repayment due to cash flow problems is plausible.

However, the Government and CDEEE are taking steps in the right direction. As described before, the current National Development Strategy (END or Vision 2030) -approved by Congress in March 2012- explicitly prioritizes the development of a reliable, efficient and environmentally sustainable energy sector under its Pillar No. 3 (Productive Development) with two specific objectives: i) ensure a reliable supply of electricity at competitive prices as well as financial and environmental sustainability, and ii) ensure a reliable, diversified supply of fuels in a competitive and environmentally sustainable manner. In

the medium term, the END specifically focuses on reducing electricity sector losses and cutting generation costs by adding publicly owned coal generation capacity and negotiating new capacity additions with existing private generators, among other.

The risk that the development outcome will not be maintained is therefore considered moderate.

SECTION 5. ASSESSMENT OF BANK AND BORROWER PERFORMANCE

5.1 Bank Performance

The rating of the overall Bank performance can be considered moderately satisfactory.

i) Quality at Entry

In general terms, the operation was well designed and appraised. Indeed, the team included the key components necessary to increase the Cash Recovery Index (CRI) and improve the quality of service in the areas where circuits (feeders) were rehabilitated. The Project's design as well as the preparation and appraisal were also aligned to the Bank's fiduciary role.

However, the PDOs were not appropriate and consistent with the scope of the intervention. This means that even with the rehabilitation of 60 circuits (as offered at entry), it was unlikely that the Project could have had an impact on the overall CRI at the level of distribution companies. In addition, and as explained before, the CRI at the level of EDEs was affected by factors which were not under the control of the proposed intervention (e.g.; absorption of PRA areas, changes in the number of registered customers, total number of customers billed, etc.). It was also unlikely that an intervention only affecting a small percent of the total number of feeders could have had an impact on the overall consumer satisfaction at the level of EDEs.

During preparation and appraisal the team missed to assess the possibility that the scope of the Project –in terms of the number of circuits- could change with time for the reasons explained before and that the Project's impact could be limited only to the circuits rehabilitated under the operation (and not necessarily affect the overall distribution network and EDEs). The risk assessment and Results Framework proposed at entry did not reflect these considerations.

However, it is important to note that the Project has indeed been extremely successful in the areas where the circuits were rehabilitated. Also, the Project has had an impact on the overall management and implementation of circuit rehabilitation at the level of EDEs, and the concept and practices introduced –especially the innovative community outreach component- have been further replicated which is expected to have a more generalized impact over time. In particular, the Project has contributed to prepare the companies for the next stage, which includes automation and the introduction of smart metering.

The Bank's performance in ensuring quality at entry can be considered moderately unsatisfactory.

ii) Quality of Bank Supervision

As described before, during implementation the World Bank team took several actions to address the emerging challenges: i) strong and closed supervision focused on the continuous revision of implementation, disbursement and procurement plans, ii) continuous revision and strengthening of

operational manual (for example, to update organizational structures and to include standardized formats for performance reporting), iii) strong support to the counterpart during bidding processes, including revisions of the evaluation of “pre-qualified” firms as well as recommendations to ensure competition in the process, iv) continuous review of results framework to adjust scope, define baseline values and confirm target values of some of the proposed indicators due to circuit network transformations over time; among other. The team made a special effort to continuously adjust to contextual changes: i) managerial and organizational restructuring of EDEs, ii) managerial changes in the executing agency, iii) continuous changes in personnel responsible for the operation at the level of EDEs.

In addition, considering that baseline and target values in some of the indicators were not in place or trusted at entry, almost all of the M&E had to be defined in the first year of Project supervision.

In particular, the experience with similar Bank operations over time has demonstrated the difficulty in defining quantitative baselines in the performance indicators of underperforming distribution companies. It is now widely recognized that it is critical to set targets at the outset and much less important –and feasible- to define baselines from the start, especially in cases where the quality of data is poor (as it was the case in the DR). During the supervision, the team supported all efforts necessary to measure baselines (despite the challenges of the context where frequent changes were registered including the redefinition of circuit categories and geography), and of course achieve targets.

The changes in the geography of circuits described before were difficult to predict during supervision, as these modifications were introduced gradually in a relatively short period of time between 2011 and 2013. During supervision, information on the changes in the geography of circuits was not clear until after the signing of EPC contracts and beginning of rehabilitation works. The rehabilitation of circuits also took place very gradually during the period 2011-2013. In reality, the final number of rehabilitated circuits has been a “moving target”.

In addition, during Project implementation there were 3 different Government administrations which led to a stop-and-go situation as well as multiple delays. This meant that most of the rehabilitation works took place in the last 18 months of Project implementation.

During supervision the team considered a restructuring of PDO and project outcome indicators (to reflect increase in CRI only at the level of rehabilitated circuits), but this action would have entailed additional and long delays (due to the requirement of Congress approval) at a time when disbursements were actually starting to flow. Indeed, it is remarkable that the Project was able to disburse most of the resources in the last 18 months of implementation.

The Bank’s performance in ensuring quality at supervision can be considered moderately satisfactory.

5.2 Borrower Performance

The rating of the overall Borrower performance can be considered moderately satisfactory.

i) Government Performance

During loan preparation, the Government and the implementing agencies demonstrated strong commitment and ownership by actively participating in the design of the project, including technical background information and discussion on project formulation. Nevertheless, the project had a slow start, mainly due to delays in Congress approval of the lending operation as well as in achieving effectiveness.

Borrower commitment and ownership varied over the course of implementation, reflecting changes in administration. The project slowed during a period of political transition. After considering the project's relevance, the new administration showed commitment to the project's PDO and it became at the end more supportive. The new administration proved to be an advocate for improved corporate governance of state-owned utilities and for increased sector efficiency.

ii) Performance of Implementing Agencies

The implementing agency (CDEEE) demonstrated strong commitment in the fulfilling of PDOs and provided adequate internal staff and resources to ensure implementation success despite the difficult enabling environment and changes outside of its direct control. CDEEE complied with all Bank covenants, produced regular progress reports and discharged its fiduciary duties in a highly satisfactory manner.

CDEEE played an important interagency coordination and project management role. The major shortcoming of CDEEE during project implementation was the slow pace of procurement processing which in part was due to external factors and the time needed to finalize the detailed engineering of the circuits to be rehabilitated. Despite the numerous challenges and shortcomings, the PIU at CDEEE managed to conclude the project in a satisfactory manner and achieve the targeted values in most of the outcome and output indicators.

The overall Borrower performance rating is deemed moderately satisfactory.

SECTION 6. LESSONS LEARNED

The lessons learned in the design and implementation of the Project are described below.

Procurement and Contract Design

- i) The PIU at CDEEE learned that it is necessary to reduce the scope of bidding processes (or to set a cap on the maximum number of areas that a single company can win) to increase the number of participating contractors and reduce the risk of no delivery; without this provision very large companies tend to win the bids increasing the Project's vulnerability to delays and low quality of service.
- ii) The experience of the PIU is that the contract design needs to be adjusted to include penalizations against delayed delivery and/or low quality of service during the service period as opposed to the very end, when nothing can be done to steer the planned works back on track. For example, in the "supply and installation" contract, payments are delivered in 80 percent against disembarked material and 20 percent against installation. The PIU has suggested to make adjustments so that the highest proportion of payments are delivered against actual installations.

Project Design

- i) One important lesson learned is that the basic and design engineering have to be conducted when the resources are available to pay for the rehabilitation works, considering that long delays in the Project (including in reaching effectiveness and in the launching of bidding process) render the engineering work outdated as the system changes with demand growth and other modifications. In the case of the Project, the engineering conducted in 2008 was not adequate when the actual works started in 2011.

Design of Results Framework

- i) The choice of CRI as an indicator that reflects progress in the financial sustainability of distribution companies was not necessarily appropriate in the context of the power sector in the DR.¹⁷ Indeed, EDEs financial sustainability is affected by a number of other variables including the debt service associated with the loans issued to purchase fuel oil and direct cash transfers from the Government to cover this debt. Thus, the CRI –as it is defined in the Project- maybe positive despite the lack of financial sustainability at the level of EDEs.

¹⁷ The CRI formula is: (energy billed by distribution companies/energy purchased by distribution companies) multiplied by (electricity bills paid by consumers)/(total electricity billing issued to consumers)

In theory, the CRI should reflect the extent to which power purchased is billed and bills are paid, and provide a good measure of improvements in technical and commercial losses. However, when companies do not bill 100 percent of their customers or when cash inputs other than bills paid are included (for example, reconnection fees or fines) as has happened with the three EDEs, the result is distorted.

As an intermediate outcome the Results Framework proposed the monitoring of the evolution of total operating costs (TOC).¹⁸ Together with the CRI this indicator contributes to better reflect improvements in the managerial performance and financial sustainability of EDEs, albeit only partially.

Monitoring and Evaluation

- i) The main lessons learned in M&E is the need to impose third audit access of EDEs' primary data as condition for concessionary support to ensure the quality of M&E results. Today, external auditors have to rely on data supplied by EDEs, but there is concern regarding the quality and reliability of this data.

Circuit Rehabilitation Works and Consumer Satisfaction

- i) The PIU has learned that it is important to include the installation of meters and other accessories (commercial infrastructure) in the works associated with the rehabilitation of circuits to avoid delays in service provision and the regularization of billing. These delays also affect consumer's perception of the quality of service and impact the baseline information in surveys launched soon after the meters are installed.

Community Outreach

- i) The design of the social component, which included a strong Social Management Plan that introduced a seven step process as a strategy for community outreach was extremely successful in both bringing the community on board and substantially improving the revenue collection of the utilities as well as quality of service to consumers. The social activities also derived in multiple benefits and co-benefits, as described before.
- ii) The PIU has learned that it is critical to formalize the employment status of social and community workers in order to maintain stability in the community outreach activities. Today, most social and community employees work under temporal employment status and do not earn benefits.

¹⁸ The Project called for TOCs increasing less than the rate of supply expansion and inflation.

SECTION 7. COMMENTS ON ISSUES RAISED BY BORROWER / IMPLEMENTING AGENCIES / PARTNERS

Positive Aspects

The CDEEE (PIU) and EDEs believe that the DR Distribution Rehabilitation Project marked the beginning of a new vision for the Electricity Sector authorities to confront serious energy losses which have affected for many years the electricity distribution sector.

The design and conceptualization of the project were appropriate, especially with regards to the model and methodological process necessary to reach consumers and build a constructive and sustainable relationship between the supply and demand. The project had a high degree of success in improving performance indicators at the level of rehabilitated circuits. At this level, the project successfully implemented the actions necessary to gradually achieve financial recovery of EDEs and improve the quality of service to users.

Considering that for many years the power distribution sector of the country has lacked consistent investment and managerial actions focused on measurable results, the Project brought improved practices in Project execution as well as improved supervision/monitoring mechanisms and streamlined practices across the three EDEs.

Through implementation of component 2, the Community Outreach and Social Management Strategy, which focused on building a bridge between service users and EDEs, has created an unprecedented milestone in the history of the Dominican electricity sector, which has been highly valued by other sectors of the country.

The Project strategy was accompanied by an extensive process of communication and training to service users on both user rights and EDEs's responsibilities, which resulted in a high level of public awareness and understanding of the electricity sector. When processes are performed on technically well designed platforms, as was the strategy used in Community Outreach and Social Management Component introduced for the implementation of the Project, the results are qualitatively superior. The impact of the model and actions introduced have gone beyond the scope of the Project, since the EDEs have replicated the experience learned in the rehabilitation of other circuits, with its own resources and financing from other multilateral institutions.

Negative Aspects

The lack of clear baseline values for the measurement of results as well as the uncertainty in the detailed engineering and technical specifications, made the execution of the Project challenging and impacted efficiency of the processes.

General Recommendations

Improve the accuracy of baseline information in future projects and the definition of specific indicators for sub-projects to be impacted in order to meet the proposed goals and targets.

Consistency is essential in investment support to this type of projects; our observation through the years is that the lack of continuity in investments creates even greater problems and distortions in the electricity sector.

Annex 1. Project Costs and Financing

(a) Project Cost by Component (in US\$ Million)

Components	Appraisal Estimate (US\$million)	Actual/Latest Estimate (US\$million)	Percentage of Appraisal
1. Rehabilitation of Distribution Networks	37.0	38.38	103.73%
2. Outreach to Consumer Communities	3.0	1.88	62.67%
3. Technical Assistance	2.0	1.09	54.50%
Total Project Costs	42.0	41.35	98.45%
Front-end fee	---	0.105	
Total Financing Required	42.0	41.45	98.70%

(b) Financing

Source of Funds	Appraisal Estimate (USD millions)	Revised Amount	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Borrower	10.50	--.--	60.28	574.10%
International Bank for Reconstruction and Development	42.00	--.--	42.00	98.70-%
Other Financiers	99.60	--.--	70	70.28%
Total	152.10	--.--	172.28	113.27%

Annex 2. Outputs by Component

The table below presents the project's outputs by the closing date

Objective/Output	Indicator	Baseline	Target *	Actual (% accomplished)
Increase the Cash Recovery Index CRI of the three distribution companies (EDEs)	Increase the CRI in each EDE as a Whole	EdeNorte: 56% EdeSur: 58% EdeEste: 62%	EdeNorte: 71% EdeSur: 75% EdeEste: 75%	Actual: EdeNorte: 62% EdeSur: 67% EdeEste: 59% % Accomplished: EdeNorte 88% Edesur 90% EdeEste 79% Average EDEs: 85%
Improve the quality of electricity service	ASAI: Average Service Availability Index (Indice de Disponibilidad Promedio del Servicio), per circuit with project investment and in each EDE as a whole	EdeNorte: 56% EdeSur: 58% EdeEste: 62%	EdeNorte: 75% EdeSur: 75% EdeEste: 75%	Actual: EdeNorte: 74.2% EdeSur: 85.0% EdeEste: 91.5% % Accomplished: EdeNorte 99% Edesur 113% EdeEste 122% Average EDEs: 111%
	Increase percentage of people satisfied with electricity service by distribution companies	EdeNorte: 62% EdeSur: 62% EdeEste: 62%	EdeNorte: 75% EdeSur: 75% EdeEste: 75%	EdeNorte: TBD EdeSur: TBD EdeEste: TBD
Intermediate Outcome Indicators				
	Rehabilitation of selected circuits	EdeNorte: 0 EdeSur: 0 EdeEste: 0	EdeNorte: 37 EdeSur: 5 EdeEste: 18	Actual: EdeNorte: 4 EdeSur: 4 EdeEste: 5 % Accomplished: EdeNorte: 10.8% EdeSur: 80.0% EdeEste: 27.3%
	Increase of CRI by circuit intervened	EdeNorte: 9%-56% 37circuits identified by code in PAD EdeSur: 25%-65% 5 circuits	EdeNorte: 84% 37circuits identified by code in PAD EdeSur: 84% 5 circuits identified by code	EdeNorte LVEG-103: 97% LVEG-105: 93% VVAS-101: 101% COTU-102: 94% SALC-102TENA: 94% EdeSur

Objective/Output	Indicator	Baseline	Target *	Actual (% accomplished)
		<p>identified by code in PAD</p> <p>EdeEste: 28%-76% 18circuits identified by code in PAD</p>	<p>in PAD</p> <p>EdeEste: 84% 18circuits identified by code in PAD</p>	<p>CUAR102: 102.8% COHE103: N.A. KDIE102: N.A. BAYO102: 96.8%</p> <p>EdeEste: 84% LM38-C05: 97% LM38-C01: 93% LM38-C02: 101% CAPO-C02: 94%</p> <p>% Accomplished: On Average: EdeNorte: 128% EdeSur: 119% EdeEste: 114%</p>
	Increase average availability index ASAI	<p>EdeNorte: 50-87% 37circuits identified by code in PAD</p> <p>EdeSur: 62% 5 circuits identified by code in PAD</p> <p>EdeEste: 50%-75% 18circuits identified by code in PAD</p>	<p>EdeNorte: 87.5% 37circuits identified by code in PAD</p> <p>EdeSur: 87.5% 5 circuits identified by code in PAD</p> <p>EdeEste: 87.5% 18circuits identified by code in PAD</p>	<p>EdeNorte: LVEG-103: -- LVEG-105: -- VVAS-101: --, COTU-102: --, SALC-102TENA: --</p> <p>EdeSur: CUAR102: 100.0% COHE103: 97.0% KDIE102: 98.0% BAYO102: 68.0%</p> <p>EdeEste: LM38-C05: 74% LM38-C01: 99% LM38-C02: 74% CAPO-C02: 64%</p>
	Control of operating costs of the EDEs	<p>EdeNorte: -- EdeSur: -- EdeEste: --</p>		<p>$TOC_i < TOC_{i-1} \times K$ $TOC_{Sep2013} < TOC_{Sep2012} \times K$</p> <p>EdeEste: 3,621 MCOP < 3,756 MCOP</p> <p>EdeSur: 3,832 MCOP > 3,503 MCOP</p> <p>EdeEste: 2,809 MCOP < 3,528 MCOP</p>

Annex 3. Economic and Financial Analysis

Cost Benefit Analysis

The economic analysis at closing considers a total cost of US\$ 42 Million. The benefits are the following: i) reduction in commercial and technical losses, ii) increase in the availability of electricity service to consumers (hours per day), which displaces the use of alternative sources of electricity (e.g.; batteries, other fuels, etc.). The results are summarized in the table below:

	Reduction in Technical Losses (GWh)	Increase in Power Availability (Gwh)	ERR	NPV (US\$ million)
EdeNorte	13.7	17.0	59.7%	\$34.45
EdeSur	41.4	17.1	84.6%	\$56.42
EdeEste	27.6	9.8	41.5%	\$20.08
Total	82.8	43.8	62.8%	\$110.95

Sensitivity Analysis

Benefits From	ERR	NPV (US\$ million)
Reduction in Technical Losses	29.0%	\$33.7
Reduction in Technical Losses and Increase In Power Availability	62.8%	\$110.9

Key Assumptions:

- Discount rate: 10 percent
- Energy Price: Purchase Price (applied to EDEs)
- Increase in energy consumption: At appraisal it was assumed that the overall energy consumption in the rehabilitated circuits would increase in 10 percent due to the increase in the number of hours available to consumers. The analysis at closing is considering the same conservative assumption (although in some circuits the increase in consumption has reached 25 percent).
- The costs of alternative uses of energy (batteries, other fuels) are taken as twice the cost of electricity to consumers. This is the same assumption considered at appraisal.

Annex 4. Bank Lending and Implementation Support/Supervision Processes

(a) Task Team members

Names	Title	Unit	Responsibility/ Specialty
Lending			
Lucio Monari	Task Team Leader	LCSEG	
David Reinstein	Sr. Energy Specialist	LCSEG	
Maritza A. Rodriguez	Financial Mgmt Specialist	LCSFM	
Jayme Porto-Carreiro	Energy Specialist	Consultant	
Stephen Ettinger	Economist	Consultant	
Vladimir Jadrijevic	Power Engineer	Consultant	
Catherine Abreu	Procurement Analyst	LCSTP	
Pedro Antmann	Power Engineer	Consultant	
Elena Correa	Sr. Social Dev. Specialist	SDV	
Alejandro Deeb	Environmental Specialist	Consultant	
Fabiola Altimari	Counsel	LEGLA	
Mariana Montiel	Sr. Counsel	LEGLA	
Miguel-Santiago da Silva Oliveira	Finance Officer	LOAFC	
Alma Domenech	Program Assistant	LCSEG	
Robert Taylor	Peer Reviewer	EASTE	
Malcolm Cosgrove-Davies	Peer Reviewer	AFTEG	
Supervision/ICR			
Sarah Keener	Senior Social Development Specialist	LCSSO	
Alonso Zarzar Casis	Sr Social Scientist	LCSSO	
Zoila Catherine Abreu Rojas	Procurement Specialist	LCSTP	
Fabiola Altimari Montiel	Senior Counsel	LEGLE	
David Reinstein	Senior Oil and Gas Specialist, TTL	SEGOM	
Pedro Antmann	Senior Energy Specialist	SEGEN	
Maritza A. Rodriguez De Pichardo	Sr Financial Management Specialist	LCSFM	
Janina Andrea Franco Salazar	Energy Specialist	LCSEG	
Sergio Augusto Gonzalez Coltrinari	Senior Energy Specialist	LCSEG	
Frederic Verdol	Power Engineer	LCSEG	
Davide Zucchini	E T Consultant	LCSPS	
Andrea Maria Castro Astudillo	Program Assistant	LCSEG	
Sandra Solano Couce	Consultant	LCSEG	
Juan Carlos Cardenas Valero	E T Consultant	LCSEG	
Vladimir T. Jadrijevic	Consultant	LCSEG	
Mary Louise Gifford	E T Consultant	LCSEG	

Elena Correa	Consultant	SDV	
Alma Domenech	Senior Executive Assistant	SEG	
James Victor Pannett	Operations Officer	LCSEG	
Laura Wendell Berman	Consultant	LCSEG	
Suzanne Casolaro	Consultant	LCSHH	
Jayne Porto-Carreiro	Energy Specialist	Consultant	
Alejandro Deeb	Environmental Specialist	ECSAR	
Stephen Ettinger	Economist	Consultant	
Gabriela Elizondo Azuela	Senior Energy Specialist	SEGEN	

(b) Staff Time and Cost

It is pull up by the system

Annex 5. Beneficiary Survey Results

Not Available.

Annex 6. Stakeholder Workshop Report and Results

Not available.

Annex 7. Summary of Borrower's ICR and/or Comments on Draft ICR

Positive Aspects

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The design and conceptualization of the project were appropriate, especially with regards to the model and methodological process necessary to reach consumers and build a constructive and sustainable relationship between the supply and demand. The project had a high degree of success in improving performance indicators at the level of rehabilitated circuits. At this level, the project successfully implemented the actions necessary to gradually achieve financial recovery of EDEs and improve the quality of service to users.

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Through implementation of component 2, the Community Outreach and Social Management Strategy, which focused on building a bridge between service users and EDEs, has created an unprecedented milestone in the history of the Dominican electricity sector, which has been highly valued by other sectors of the country.

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The impact of the model and actions introduced have gone beyond the scope of the Project, since the EDEs have replicated the experience learned in the rehabilitation of other circuits, with its own resources and financing from other multilateral institutions

Negative Aspects

The lack of clear baseline values for the measurement of results as well as the uncertainty in the detailed engineering and technical specifications, made the execution of the Project challenging and impacted efficiency of the processes.

General Recommendations

Improve the accuracy of baseline information in future projects and the definition of specific indicators for sub - projects to be impacted in order to meet the proposed goals and targets.

Consistency is essential in investment support to this type of projects; our observation through the years is that the lack of continuity in investments creates even greater problems and distortions in the electricity sector.

Annex 8. Comments of Cofinanciers and Other Partners/Stakeholders

Not available.

Annex 9. List of Supporting Documents

ABC Consulting Group, Quantum and CNEEE. Informes Auditoria Técnica del Proyecto de Rehabilitación de Redes de Distribución de Electricidad

CDEEE. Informes de Avance Proyecto de Rehabilitación de Redes de Distribución de Electricidad (Financiamiento BM/BID/OFID)

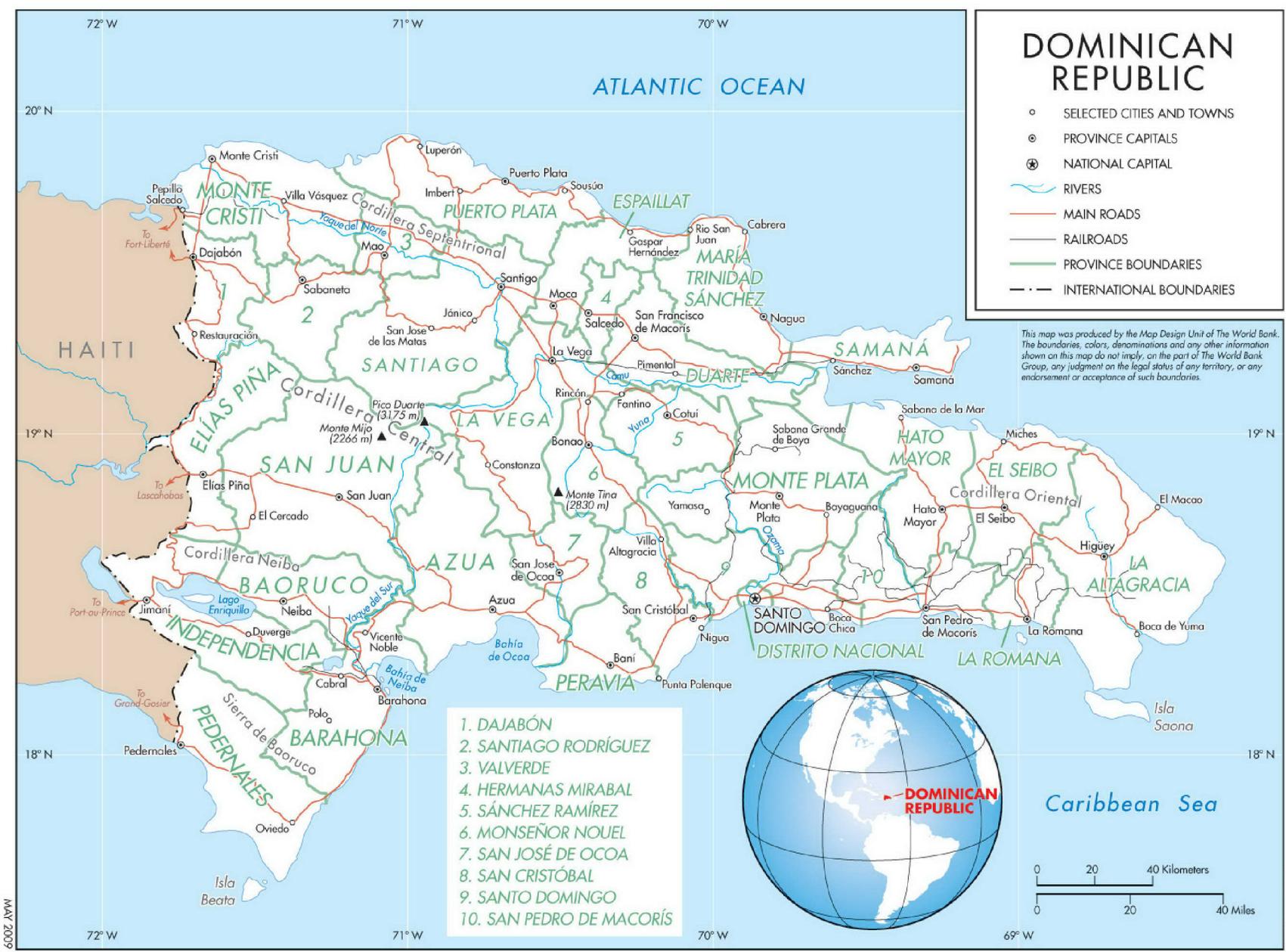
World Bank. Aide Memoire for the Project's Preparation and Supervision Missions

World Bank. Project Implementation Status Reports (ISRs)

World Bank, 2008. Project Appraisal Document on a Proposed Loan in the Amount of US\$42 Million to the Dominican Republic for an Electricity Distribution Rehabilitation Project.

IMF; 2013. Growth, Employment and Social Cohesion in the Dominican Republic, ILO Background Paper

World Bank; 2013. Patronage or reform? Political Economy of Policy Performance in the Dominican Republic: Institutional and Governance Review, Washington DC

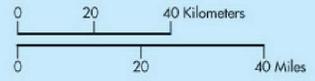


DOMINICAN REPUBLIC

- SELECTED CITIES AND TOWNS
- ⊙ PROVINCE CAPITALS
- ⊕ NATIONAL CAPITAL
- ~ RIVERS
- MAIN ROADS
- RAILROADS
- PROVINCE BOUNDARIES
- - - INTERNATIONAL BOUNDARIES

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1. DAJABÓN
2. SANTIAGO RODRÍGUEZ
3. VALVERDE
4. HERMANAS MIRABAL
5. SÁNCHEZ RAMÍREZ
6. MONSEÑOR NOUEL
7. SAN JOSÉ DE OCOA
8. SAN CRISTÓBAL
9. SANTO DOMINGO
10. SAN PEDRO DE MACORÍS



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