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Report No: ICR00003010

IMPLEMENTATION COMPLETION AND RESULTS REPORT
(TF-53360 TF-53361)

ON A

GLOBAL ENVIRONMENT FACILITY TRUST FUND GRANT

IN THE AMOUNT OF US$11.123 MILLION EQUIVALENT

TO THE REPUBLIC OF THE PHILIPPINES

AND A

GLOBAL ENVIRONMENT FACILITY TRUST FUND GRANT

IN THE AMOUNT OF US$0.877

TO LGU GUARANTEE CORPORATION

FOR A

ELECTRIC COOPERATIVE SYSTEM LOSS REDUCTION PROJECT

Jun 17, 2014

Sustainable Development Department
Philippines Country Management Unit
East Asia and Pacific Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective 05282014)

Currency Unit = Philippine Peso
US$ 1.00 = PHP 44
PHP 1.00 = US$ 0.023

FISCAL YEAR
July 1 – June 30

ABBREVIATIONS AND ACRONYMS

AM	Aide Memoir	HEECP	Hungary Energy Efficiency Co-financing Program
Capex	Capital Investment	IFR	Interim Financial Reports
CAS	Country Assistance Strategy	IMC	Investment Management Contract
CO_2	Carbon Dioxide	IP	Indigenous Peoples
DOE	Department of Energy	ISR	Implementation Status Report
EC	Electric Cooperative	LGUGC	LGU Guarantee Corporation
ECSLRP	Electric Cooperative System Loss Reduction Project	M&E	Monitoring and Evaluation
ECPCG	Electric Cooperative Partial Credit Guarantee	MWh	Megawatt-hours
ESMF	Environment and Social Policies Framework	NEA	National Electrification Administration
ERC	Energy Regulatory Commission	PAD	Project Appraisal Document
FM	Financial Management	PDO	Project Development Objective
GDP	Gross Domestic Product	PDP	Philippine Development Plan
GEF	Global Environment Facility	PhP	Philippines Peso
GEO	Global Environment Objective	PHRED	Philippines Renewable Energy Development
GHG	Greenhouse Gas	PNB	Philippines National Bank
GOP	Government of Philippines	RERP	Rural Electrification Revitalization Project

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PHILIPPINES
Electric Cooperative System Loss Reduction Project

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A. Basic Information

Country:	Philippines	Project Name:	Electric Cooperative System Loss Reduction Project
Project ID:	P066532	L/C/TF Number(s):	TF-53360,TF-53361
ICR Date:	06/17/2014	ICR Type:	Core ICR
Lending Instrument:	SIL	Borrower:	REPUBLIC OF THE PHILIPPINES; LGUGC
Original Total Commitment:	USD 12.00M	Disbursed Amount:	USD 11.63M
Revised Amount:	USD 11.63M		
Environmental Category: F		**Global Focal Area: C**	
Implementing Agencies: LGU Guarantee Corporation (LGUGC) Department of Energy			
Cofinanciers and Other External Partners:			

B. Key Dates

Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	03/04/2003	Effectiveness:		11/05/2004
Appraisal:	09/22/2003	Restructuring(s):		10/18/2011
Approval:	04/29/2004	Mid-term Review:	09/30/2008	05/18/2009
		Closing:	12/31/2011	12/31/2013

C. Ratings Summary

C.1 Performance Rating by ICR

Outcomes:	Moderately Satisfactory
Risk to Global Environment Outcome	Moderate
Bank Performance:	Moderately Satisfactory
Borrower Performance:	Moderately Satisfactory

C.2 Detailed Ratings of Bank and Borrower Performance

Bank	Ratings	Borrower	Ratings
Quality at Entry:	Moderately Unsatisfactory	Government:	Moderately Satisfactory
Quality of Supervision:	Moderately Satisfactory	Implementing Agency/Agencies:	Moderately 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):	No	Quality at Entry (QEA):	Satisfactory
Problem Project at any time (Yes/No):	Yes	Quality of Supervision (QSA):	None
GEO rating before Closing/Inactive status	Satisfactory		

D. Sector and Theme Codes

	Original	**Actual**
Sector Code (as % of total Bank financing)		
Energy efficiency in Heat and Power	100	100
Theme Code (as % of total Bank financing)		
Climate change	67	67
Infrastructure services for private sector development	33	33

E. Bank Staff

Positions	**At ICR**	**At Approval**
Vice President:	Axel van Trotsenburg	Jemal-ud-din Kassum
Country Director:	Motoo Konishi	Robert V. Pulley
Sector Manager:	Ousmane Dione	Junhui Wu
Project Team Leader:	Alan F. Townsend	Selina Wai Sheung Shum
ICR Team Leader:	Suk Harn Jeanette Lim	
ICR Primary Author:	Suk Harn Jeanette Lim	

F. Results Framework Analysis

Global Environment Objectives (GEO) and Key Indicators(as approved)

The global objective of Global Environment Facility (GEF) support will be to reduce GHG emissions through the removal of barriers to energy efficiency investments in the rural power distribution sub-sector. Key indicators are at least 80 GWh of energy savings and at least 40,000 tons of CO2 emissions avoided annually by end of the project.

Revised Global Environment Objectives (as approved by original approving authority) and Key Indicators and reasons/justifications

NA

(a) GEO Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1 :	Annual energy savings of at least 80 GWh by project end			
Value (quantitative or Qualitative)	zero	80 GWh	80 GWh	66.2 GWh based on all assets financed by project end.
Date achieved	04/28/2005	12/31/2011	12/31/2013	12/31/2013
Comments (incl. % achievement)	Based on a conservative estimate, 84% of target was met. Simplistic modelling during project design resulting in unrealistic target setting made it difficult to meet target.			
Indicator 2 :	At least 40,000 tons of avoided carbon dioxide emissions annually by project end			
Value (quantitative or Qualitative)	zero	40,000 tons of carbon dioxide emissions avoided per year	40,000 tons of carbon dioxide emissions avoided per year	68,481 tons of carbon dioxide emissions were avoided based on all assets financed by project end.
Date achieved	04/28/2005	12/31/2011	12/31/2013	12/31/2013
Comments (incl. % achievement)	Outcome exceeded target by 71%.			

(b) Intermediate Outcome Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1 :	Cumulative number of loan guarantees issued for ECs			
Value (quantitative or Qualitative)	zero	at least 15	at least 15	19

Date achieved	04/28/2005	12/31/2011	12/31/2013	12/31/2013
Comments (incl. % achievement)	Outcome exceeded target by 27%.			
Indicator 2 :	Cumulative number of successful investment management contract (IMC) transactions			
Value (quantitative or Qualitative)	zero	At least 6	At least 6	0
Date achieved	04/28/2005	12/31/2011	12/31/2013	12/31/2013
Comments (incl. % achievement)	No IMC transactions were realized. IMCs were not suitable for ECs that required huge amounts of investments to attain financial turnaround despite the relevance of the philosophical framework.			
Indicator 3 :	Cumulative value of loan guarantees issued			
Value (quantitative or Qualitative)	zero	At least US$24 million	At least US$24 million	US$46.65 million
Date achieved	04/28/2005	12/31/2011	12/31/2013	12/31/2013
Comments (incl. % achievement)	Outcome exceeded target by 94%.			
Indicator 4 :	Cumulative investment in ECs under the project			
Value (quantitative or Qualitative)	zero	At least US$40 million	At least US$40 million	US$58.31 million
Date achieved	04/28/2005	12/31/2011	12/31/2013	12/31/2013
Comments (incl. % achievement)	Outcome exceeded target by 46%.			
Indicator 5 :	Total number of commercial banks and other private financial institutions providing loans for investments in ECs under the project			
Value (quantitative or Qualitative)	zero	At least 4	At least 4	5
Date achieved	04/28/2005	12/31/2011	12/31/2013	12/31/2013
Comments (incl. % achievement)	Outcome exceeded target by 25%.			
Indicator 6 :	Cumulative guarantee claim payments under the project			
Value (quantitative or Qualitative)	zero	Not more than US$3 million	Not more than US$3 million	US$0
Date achieved	04/28/2005	12/31/2011	12/31/2013	12/31/2013
Comments (incl. % achievement)	Outcome exceeds target.			
Indicator 7 :	Training and workshops for DOE and NEA on IMCs			
Value	not stated	Number not	Number not	2

(quantitative or Qualitative)		specified	specified	
Date achieved	04/28/2005	12/31/2011	12/31/2013	12/31/2013
Comments (incl. % achievement)	Target did not specify number. Capacity building activities were undertaken. Feedback on usefulness of activities was positive.			
Indicator 8 :	Training, study tours and workshops for ECs and ERC			
Value (quantitative or Qualitative)	zero	Number not specified	Number not specified	19
Date achieved	04/28/2005	12/31/2011	12/31/2013	12/31/2013
Comments (incl. % achievement)	Target did not specify number. Capacity building activities were undertaken. Feedback on usefulness of activities was positive.			

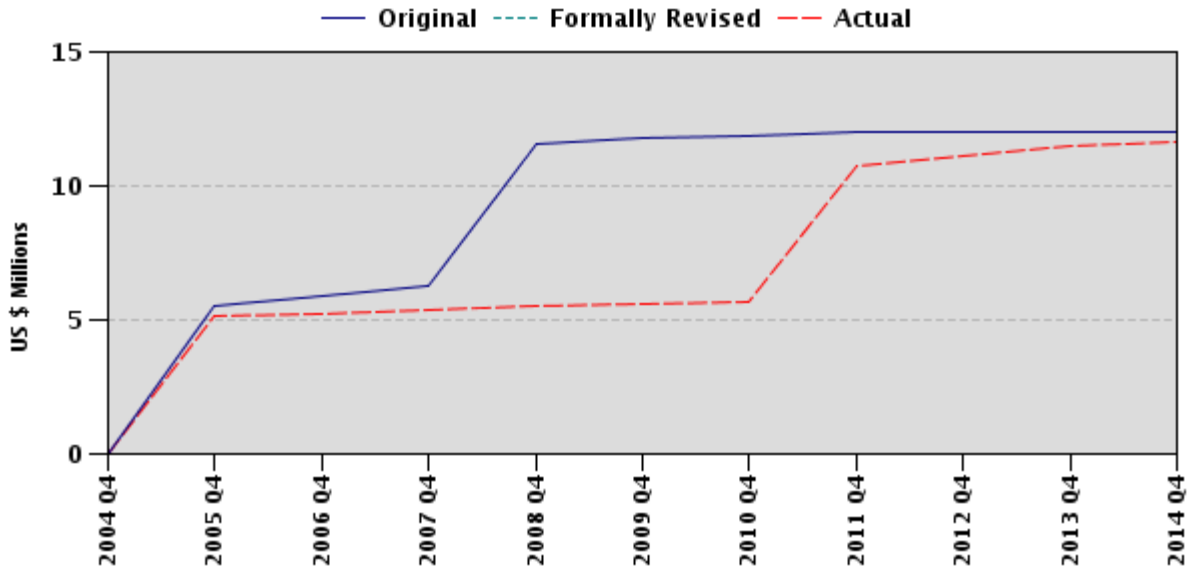
G. Ratings of Project Performance in ISRs

No.	Date ISR Archived	GEO	IP	Actual Disbursements (USD millions)
1	06/30/2004	Satisfactory	Satisfactory	0.00
2	12/27/2004	Satisfactory	Satisfactory	0.00
3	06/09/2005	Satisfactory	Satisfactory	5.18
4	06/07/2006	Moderately Satisfactory	Moderately Satisfactory	5.23
5	06/08/2007	Moderately Satisfactory	Moderately Satisfactory	5.36
6	06/27/2008	Unsatisfactory	Unsatisfactory	5.52
7	06/22/2009	Unsatisfactory	Unsatisfactory	5.63
8	01/07/2010	Moderately Unsatisfactory	Unsatisfactory	5.66
9	03/01/2010	Moderately Unsatisfactory	Unsatisfactory	5.66
10	10/26/2010	Moderately Satisfactory	Satisfactory	5.73
11	04/02/2011	Moderately Satisfactory	Satisfactory	10.78
12	09/06/2011	Moderately Satisfactory	Satisfactory	10.84
13	03/13/2012	Moderately Satisfactory	Satisfactory	10.99
14	12/21/2012	Moderately Satisfactory	Satisfactory	11.32
15	06/13/2013	Satisfactory	Satisfactory	11.47
16	12/13/2013	Satisfactory	Satisfactory	11.66

H. Restructuring (if any)

Restructuring Date(s)	Board Approved GEO Change	ISR Ratings at Restructuring		Amount Disbursed at Restructuring in USD millions	Reason for Restructuring & Key Changes Made
		GEO	IP		
10/18/2011	N	MS	S	10.89	(a) Extend closing date for both grants to Dec 31, 2013; (b) Reallocate grant proceeds to cater for increase in incremental operating cost projections arising from a substantial increase in the number of deals for inclusion in the ECPCG program

I. Disbursement Profile



1. Project Context, Global Environment Objectives and Design

1.1 Context at Appraisal

At the time of project approval in 2004, the Government of Philippines (GOP) was in the process of undertaking a series of reforms in the rural power sector to enable the supply of reliable and competitively priced electricity. Its strategy was to increase private sector investments in the power industry while minimizing the government's financial commitment, and to enhance operational and economic efficiency in electric cooperatives (ECs) in a sustainable manner.

GOP's call for enhanced private sector involvement in the EC sector came as a response to multiple barriers faced by ECs in securing financing for system loss reduction investments. These barriers included (a) limited creditworthiness which essentially close the door on affordable commercial financing of efficiency improvements; (b) political interference in EC investments which often forced them to extend coverage to low density/remote areas; and (c) weak management. In addition, the National Electrification Administration (NEA), the apex organization for rural electrification which financed about 90% of ECs' funding requirements, was saddled with substantial accumulated debt, thereby threatening the longer-term sustainability of ECs which depended on it for investments.

ECs continued to be plagued by high system losses, which was symptomatic of their lack of funds and under-investments while they continued to expand their systems to extend energy access to the poor. The effects of ECs' low levels of efficiency were not only felt in the power sector - they had major implications on the Philippines' greenhouse gas (GHG) emissions levels. Taking in view that the power sector accounted for over 26% of the country's GHG emissions, the Philippines was looking at an unsustainable growth trajectory – with the power sector alone accounting for an expected increase from 14 million tons of carbon dioxide (CO_2) equivalent in 1996 to about 133 million tCO_2e in 2020. The focus on enhancing ECs' efficiency was more urgent in light of their higher contribution to emissions owing to their dependence on diesel or bunker fuel for power generation.

Given the above landscape, the Bank approved the Electric Cooperative System Loss Reduction Project (ECSLRP) that targeted efficiency improvements among ECs, and designed it to promote private sector investments in the sector. This was expected to help GOP to achieve its objective of transforming ECs into competitive, efficient and financially viable organizations.

1.2 Original Project Development Objective (*as approved*)

The PAD states that the objective of the project is to achieve significant and sustained energy efficiency improvements in ECs in order to provide current and prospective viable EC customers with reliable and least-cost power supply over the long term. The Legal Agreements state that the objective of the project is to assist the Philippines and LGU

Guarantee Corporation (LGUGC) in promoting energy efficiency improvements for the provision of reliable and least-cost power supply and the reduction of CO_2 emissions and other pollutants through commercial lending and private investment in ECs. The ICR uses the PDO of the Legal Agreements as the impact of the project on CO_2 emissions is considered in the assessment of outcomes.

Key indicators are:
(a) Annual energy savings of at least 80 GWh; and
(b) Avoided CO_2 emissions of at least 40,000 tons annually by project end.

Intermediate indicators are:
(a) Quantity and quality of the credit guarantee program– (i) at least 15 guarantees issued for ECs; (ii) at least 6 Investment Management Contracts (IMCs) transactions; (iii) at least $24 million of loan guarantees issued; (iv) at least $40 million of investment in ECs, (v) at least 4 commercial banks and other financial institutions providing loans to ECs; and (vi) not more than $3 million of cumulative guarantee claim payments.
(b) Socio-economic impact on consumers - No specific targets were provided for this category. Indicators included the level of EC service quality (as indicated by the frequency of power supply interruptions), average household income, monthly expenditures on energy consumption prior to and after project implementation, level of private investment and management of ECs and the reduced need for public support of ECs.

1.3 Original Global Environment Objectives (GEO) and Key Indicators (*as approved*)

The global objective of Global Environment Facility (GEF) support is to reduce GHG emissions through the removal of barriers to energy efficiency investments in the rural power distribution sub-sector. The GEO indicators are the same as that of the PDO's key indicators reflected above. The indicators for PDO and GEO are very closely linked as system loss reduction is the source of reduced GHG emissions.

1.4 Revised GEO (*as approved by original approving authority*) and Key Indicators, and reasons/justification

GEO was not revised.

1.5 Main Beneficiaries

The primary beneficiaries were ECs which could enjoy significant improvements in system efficiency levels, and whose performances could potentially be turned around. The focus was also on the improvement of the environment for private sector investments in the electricity sector targeted at rural customers. Indirect benefits would accrue to rural electricity customers who would gain access to affordable and reliable electricity supply.

1.6 Original Components (*as approved***)**

The project consists of 2 components, namely the EC Partial Credit Guarantee Program (ECPCG) and Capacity Building and Implementation Support for Key Stakeholders.

Component 1: Partial Credit Guarantee Program *(US$10 million, fully funded by a GEF Grant)*

Under ECSLRP, an ECPCG was established to manage and operate two windows; one for credit enhancement of loans to Non-ECs (so-called IMCs) and the other for support of loans to qualified ECs. The first window was to pilot the use of IMCs to attract private sector investors to manage and operate selected ECs under long-term, performance-based contracts, and to mobilize private finance without recourse to the government. The second window was to support commercial lending to qualified ECs for efficiency improvements. For this purpose, a Guarantee Reserve Account was set up to guarantee commercial loans to ECs and non-EC investors. The guarantee can cover up to 80% of the underlying loan.

Component 2: Capacity building and implementation support for key stakeholders *(US$2.3 million, of which $2 million was funded by a GEF Grant, $0.2 million was funded from Department of Energy and $0.1 million from LGUGC)*

This component supported LGUGC and the Department of Energy (DOE) in strengthening their capacity in project implementation, including the provision of office equipment as well as technical assistance, training, study tours and workshops for financial intermediaries, selected ECs, EC investors, Energy Regulatory Commission (ERC) and NEA.

1.7 Revised Components

The IMC component was dropped after the mid-term review which found that while IMC's philosophical framework was still sound and relevant to ECs' needs, it was not suitable for ECs that required large amounts of investments to attain financial turnaround.

1.8 Other significant changes

On Oct 18, 2011, approval was granted to (a) extend the closing date for both grants to Dec 31, 2013; and (b) to reallocate grant proceeds to cater for the increase in incremental operating cost projections arising from a substantial increase in the number of deals for inclusion in the ECPCG program (see grant reallocation in Annex 1).

2. Key Factors Affecting Implementation and Outcomes

2.1 Project Preparation, Design and Quality at Entry

2.1.1 Soundness of background analysis

Alignment with Country Assistance Strategy (CAS) and GOP Sector Priorities

ECSLRP was aligned with the priorities of GOP at the time of project approval. It was consistent with GOP's Philippines Energy Plan 2004-2013 which called for intensified implementation of energy efficiency programs in the energy sector, and supported regulation that required utilities and ECs to achieve annual targets of reduced system losses.

At the time of project preparation, the Bank Group CAS emphasized a strategy that supported privatization with a particular emphasis on infrastructure and improving the quality of social and institutional capacity. ECSLRP addressed these CAS goals.

Analytical work

Extensive project preparation and design work were undertaken before project approval. The project design was built on findings of analytical work that had been carried out as part of Bank engagement such as the Bank's review of best practices in rural electrification.

Project preparation was overly optimistic on the pipeline projects that could be implemented with the commencement of ECSLRP. For ECs to tap on the Guarantee Fund, they would first have to gain approval from ERC on the pipeline of projects to be implemented with funding from ECSLRP. However, most ECs lacked the capacity to meet ERC requirements for project feasibility studies, which resulted in a dearth of ERC approved projects that were ready for implementation. NEA was also ambivalent about supporting a project in which they were not really involved. The pipeline of IMCs failed to materialize, despite the Bank's findings during project preparation of the potential for pilot ECs to attract private risk capital and improve the quality of service by turning over the management of EC operations to IMC investors/operators.

Lessons from past projects

The project took into account the need to assess institutional capacity realistically before project start-up which was highlighted in CAS as an issue that constantly arose following reviews of operations in the Philippines. Specifically, ECSLRP took into account lessons learnt from previous Bank projects, in particular the Rural Electrification Revitalization Project (RERP) which noted that the selected Guarantee Program Manager will have to be financially sound and have a proven track record in loan guarantees in the country.

Lessons from international experience

The project took into account lessons from Bank/IFC/GEF partial loan guarantee programs in Hungary, Croatia and China, which highlighted the need for clear and transparent appraisal methods for all subprojects, broad risk sharing among end-users, lenders and guarantors to guard against moral hazard, and a clear understanding of target

market. It also adopted the lessons learnt from the IFC/GEF Hungary Energy Efficiency Co-financing Program (HEECP) in which the targeted program marketing is critical to pipeline development and that partial credit facilities can improve a borrower's access to credit.

2.1.2 Assessment of Project Design

Project Objectives

The PDO is relevant for the Philippines as it addresses GOP's priority of achieving efficiency in the provision of electricity that would enable current and future EC customers to enjoy reliable and least-cost power supply. It is also consistent with GOP's policy of fiscal prudence, and the goal of maximizing private investments in the EC sector. ECSLRP is consistent with the Bank's support for policies to enhance electricity access and the Bank's CAS focus on the efficient provision of rural infrastructure.

The PDO furthers the global goals for GEF operations in reducing GHG emissions through the removal of barriers to energy efficiency. It is noted that PDOs in the legal agreements and PAD were not identical, although the performance indicators were diligently tracked throughout the supervision period. For the purpose of the ICR, the assessment of outcomes is based on the indicators in PAD as they are more specific.

Project Targets

It is unclear how the targets for energy savings and GHG emissions avoided were set during project preparation. Taking into consideration that the total kWh purchased or generated for the 18 ECs that participated in ECSLRP is 2,427 GWh, a 3.3% reduction would be required to achieve the target of 80GWh of system losses. Since the maximum reduction in technical loss possible through a single capital investment (capex) project in the Philippines is unlikely to exceed 1 – 2% of total energy (given typical losses of 7-8% at the distribution level), the targets set were high.

Project components and organization

Component 1: Partial Credit Guarantee Program

Given the backdrop of multiple barriers to system loss reduction investments in ECs described in section 1.1, ECSLRP was designed appropriately. For attraction of commercial debt to a sector with recognized governance and creditworthiness issues, a partial credit guarantee made good sense. By specifically addressing non-payment risks, the PCG prompted commercial lenders to be interested in extending loans to ECs; in turn, ECs participating in the program have been exposed to commercial financing processes, documentation, and standards.

ECs had previously been mostly dependent on NEA for financing of investments. ECPCG enabled commercial banks to enter the sector in a risk-managed way and with

lower transaction costs, since a portion of due diligence expenses were paid for by the program (and initial due diligence was in most cases done by LGUGC).

The development of project screening criteria for the guarantee program was desirable in facilitating LGUGC in its accreditation of the commercial banks and selection of ECs into ECSLRP. The performance-based compensation for LGUGC's management services was correct as it provided sufficient incentives for LGUGC to close as many deals as possible.

In light of the Bank's review of best practices in rural electrification (which included the importance of aligning incentives to reward good performance in utilities and their management), the fact that the IMC model is untested in the Philippines, and that feedback suggested strong interest in testing the IMC approach at the time of project preparation, the design of the IMC approach was reasonable. The flaw was not of design of the financial instrument but rather of, first, insufficient preparation of the first set of projects, combined with, second, the decision to leave NEA at some distance from the program.

Component 2: Capacity Building and Implementation Support for Key Stakeholders

The provision of technical assistance to stakeholders was critical and timely. The capacity building components targeted at LGUGC were important given that it was LGUGC's first foray into the EC sector. Capacity building activities were extremely relevant given that ECs were largely saddled with poor management systems, and required training in technical, operational and management aspects of their business. Capacity building activities were also important for financial institutions which had limited knowledge of the EC sector. Just as importantly, the capacity building activities were a useful tool in exposing commercial banks, as well as ECs on the benefits of ECSLRP, and helping them to understand the requirements needed for them to participate in the program.

Choice of trigger for disbursement of funds

The trigger to disburse the second tranche of the Guarantee Reserve Fund after the execution of loan guarantee agreements between LGUGC and lenders for eligible subprojects totaling $4 million was appropriate as it gave urgency to DOE and LGUGC in working towards the realization of projects in order to secure the second tranche.

The remedial action plan, which required LGUGC to develop and implement a remedial action plan with the aim of reducing the guarantee claims in the future should the cumulative amount of the guarantee payment reach $1.5 million, was apt in mitigating the risk of defaults. This plan was not activated as there were no defaults as of project end.

Institutional arrangements

Selecting DOE and LGUGC as the main implementing agencies was appropriate. DOE had experience implementing Bank projects and was the relevant agency responsible for

ECs. LGUGC's selection as the implementing agency was spot-on. It was experienced in guarantee operations and had already worked with USAID on guidelines and methodologies of guarantees in other sectors. LGUGC was resourceful in leveraging on its existing systems to monitor clients and on its relationships with commercial banks. While initially having limited knowledge of the EC sector and lacking technical expertise in this area, LGUGC strengthened its capacity by learning-by-doing and picking up knowledge acquired through the consultants it hired to undertake financial due diligence in the initial years of the project.

The exclusion of NEA in the first five and a half years of ECSLRP proved to be the key stumbling block to project progress. NEA's hold and influence over the ECs made it impossible for ECSLRP to take off. ECs were reportedly interested in participating in ECPCG but were discouraged by NEA from doing so owing to the competition that the ECPCG posed to NEA. While the project team at appraisal did have valid concerns about NEA's inclusion in ECSLRP owing to the latter's unsatisfactory performances in past projects, weak financial position and less-than-satisfactory performance in lending and inadequate financial discipline, NEA's clout over the ECs should not have been discounted. In addition, the project team had failed to detect the shifts in NEA governance/culture which meant it was increasingly serious about reform. In this respect, insufficient knowledge of the EC sector during project design, in particular, the politics surrounding the sector, greatly hindered the successful implementation of the project. Not only were the outcomes threatened with the exclusion of NEA, but there was a missed opportunity in tapping NEA's experience and benefitting from its relationships with ECs.

Social and Environmental Safeguards and Financial Management Policies and Guidelines

All applicable World Bank Group safeguards policies and guidelines were considered and addressed during the environmental and social assessment of the Project. The Rural Power Project Environment and Social Policies Framework (ESMF) outlining the process required for the preparation of an Environmental assessment and Environmental Management Plan was adopted. Three environmental and social safeguards were triggered -OP 4.01 Environmental Assessment, OP 4.12 Involuntary Resettlement and OP 4.20 (revised as 4.10 in July 2005) Indigenous Peoples. To address these, the project adopted the Rural Power Project: Policy Framework for Land Acquisition, Resettlement, and Rehabilitation and Policy Framework for Indigenous Peoples (July 2003), and an Operations Manual was developed in consultation with key stakeholders. The FM risks were adequately assessed during project preparation and appropriate FM implementation arrangements were designed to ensure adequacy of funds without compromising the internal controls necessary for the project, while taking due consideration to the relevant risks involved and the financial management capacity of the implementing agencies.

2.1.3 Adequacy of government's commitment

GOP involvement was strong, as was demonstrated by DOE's Philippine Energy Plan 2004-2013 which called for intensified implementation of energy efficiency programs covering the entire spectrum of energy users and projects, with aggregate savings

estimated at about 82.6 m barrels of fuel oil equivalent and 3,289 MW of deferred electricity generation capacity over the 10-year period. Specific provisions required utilities and ECs to target reduced system losses on an annual basis.

2.1.4 Risks assessment

All relevant risks including market, implementation, operational, financing and political risks, were identified and listed in Annex 1 of PAD.

Project risks were correctly assessed as substantial, in light of the high risks associated with the willingness and ability of commercial banks to finance ECs' operations, as well as the politics surrounding the EC sector. The assessment of the high risks involved in association with the willingness and ability of private investors to submit high quality IMC bids and secure sufficient equity was accurate as can be seen by the lack of bids and the Bank's decision to drop this component in 2009. On hindsight, the team was too optimistic in its prediction that the IMC mechanism would take off.

On balance, the overall project risks were acceptable given the potential substantial upside should the project take off, the mitigation measures instituted and the Bank's long-term presence in the rural power sector, which would provide for avenues to address problems that may arise. The team might have better considered the NEA-related institutional risks, however.

2.2 Implementation

Implementation spanned nine and a half years; initially, it was targeted to be completed after seven and a half years. Major implementation milestones included the mid-term review carried out in May 2009 and the approved restructuring in Oct 2011.

2.2.1 Key factors affecting implementation and outcomes

Role of NEA

As discussed earlier, NEA's exclusion in ECSLRP from project start stalled progress owing to its strong influence over ECs. The conclusion of the co-financing agreement between NEA and LGUGC in 2009 led to a renewed interest within NEA to complement, rather than compete with private sector lending, and gave urgency to both LGUGC and NEA to jointly identify, prepare and mobilize commercial loans for investments in potentially viable ECs as well as establish co-financing arrangement between both parties to finance multiyear investment programs of selected ECs.

The inclusion of NEA contributed to the rapid turnabout of the flailing project- six months after the agreement was signed, three EC accounts amounting to $6 million in loan guarantees were booked, supporting about $8-9 million in total investments, a marked improvement from zero guarantees until then. Positive developments in the credit market, which evolved in 2009-2010 and have persisted to this day, were also a critical factor (see below).

Significant changes in credit markets

In the aftermath of the global financial crisis in 2008-09, unexpectedly fast and positive changes impacted the financing environment in the Philippines. Fueled in part by lower interest rates and increasing liquidity in the financial sector, the economy rebounded in 2010, with GDP reaching 7.3%, the highest in 30 years. Sound macro-economic performance and steady economic fundamentals kept interest rates low, liquidity high, and credit growth robust. This 180 degree shift in credit markets impacted implementation substantially. Financial institutions were flushed with liquidity and keen to provide loans – at rates significantly lower than what NEA or other Government financing institutions could offer.

Mid-term Review and Restructuring of Project

Having yet to achieve a single loan in 2009, almost 2 years from project close, a mid-term review of ECSLRP was undertaken in May 2009. The review found that unless NEA could be drawn into ECSLRP, ECs would be unlikely to participate, given NEA's critical role in approving investment and financing plans. Following the findings, a co-financing agreement between NEA and LGUGC was signed.

The mid-term review also found that while the IMC's philosophical framework was still sound and relevant to ECs' needs, it was not suitable for ECs that required huge amounts of investments to attain financial and operational health. Taking this into account, the decision was made to drop the IMC component. The sharpened focus on providing commercial financing to support ECs' loss reduction program led to solid gains in terms of outcomes.

In light of progress made from mid-2010, the project was restructured on Oct 18, 2011 to reallocate the grant proceeds to cater for a shift of funds originally allocated for training and consultants to LGUGC's operational work to meet increased demand for loan guarantees. The closing date of the project was also extended 2 years till Dec 31, 2013, in view that continuity was critical at the point of program development and would allow the results of investments to develop as well as the program to mature. This extension was timely – it made full use of the momentum of guarantees offered, provided continuity at a critical time in program development restructuring, and allowed for the achievement of outcomes at project end despite the late take-off of the program.

Increasing attractiveness of ECs as borrowers

Reforms to the EC sector from the time when the Electric Power Industry Reform Act (EPIRA) was implemented as well as the enhancement of the regulatory framework under ERC paved the way for increased confidence in the EC sector. This factor, combined with EC's enhanced capacity in areas of management and operational matters with support from capacity building activities helped increase ECs' creditworthiness. Consequently, commercial banks not only became increasingly interested in offering loans to ECs, but also offered lower rates than NEA.

2.2.2 Key factors affecting GEF Grant are given below.

Slow project start-up

The US$5 million funds for the partial Credit Guarantee Fund were not transferred to the Philippine National Bank (PNB) for over five months arising from a long process within the national government financial agencies and institutions which were beyond DOE's control, thus delaying the start-up of the project. Protracted delays by DOE at project start arising from understaffing and capacity were eventually sorted out.

Poor initial performance of the Guarantee Fund followed by a sharp turnabout towards the closing date of the project

While LGUGC had conducted due diligence on selected ECs and accredited financial institutions early on, the Guarantee Fund was not utilized until mid-2010 after NEA became a key stakeholder in ECSLRP. Thereafter, there was a sharp uptake of guarantees till project end, with commitments reaching a high of over 60% of fund capacity toward the end of 2013.

Impact of ERC's approval on ECs' capex projects

ECs require ERC's approval of their proposed investments before participating in ECSLRP. At project start, ECs were unprepared and incapable of meeting ERC's requirements for project feasibility studies which effectively cut them off from the program. With the enhanced capacities of ECs through ECSLRP, ECs began to face a different challenge - the long approval process of ERC (at times even up to three years) on capex and rate applications filed by ECs contributed to the low number of accounts under the ECPCG.

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

2.3.1 M&E Design

Key performance indicators for PDO were organized into three categories: (a) traditional performance indicators to address quantity and quality of the credit guarantee program; (b) GHG mitigation impacts; and (c) social and economic impact of rural electrification. While indicators for category (a) were appropriate and measurable, there could have been more clarity on the specific indicators that would be used to measure energy efficiency improvements associated with category (b). From a technical perspective, attributing such improvements specifically to ECSLRP can be very difficult given the numerous external factors that impact on energy efficiency, including the policy and regulatory framework as well as the extension of electricity access to additional consumers. For category (c), both the baseline and specific and measurable outcome indicators to assess progress in meeting the PDO and monitoring the achievement of intermediate results were not available and were only reflected as part of the indicators related to the higher level sector-related CAS goal. The capacity building component could have included more specific measures to capture absorption and use of the training provided.

There was a strong and positive link between GEO and the performance indicators, given the direct relationship between energy savings and GHG emissions reduction.

2.3.2 M&E Implementation

No baseline information was established, no surveys were conducted and no data was collated on the social and economic impact of ECSLRP. Data on energy savings and GHG emissions avoided was made available through participating ECs. The methodology for computing these could have been standardized to enhance credibility of data, especially in light of the complexity of such data collation exercises, as well as the capacity of ECs. In some cases, system losses reported by ECs were deemed non-credible as the figures exceeded the technical norms, thus complicating the computation of outcomes.

2.3.3 M&E Utilization

PDO level indicators and triggers were monitored carefully by DOE, LGUGC and the Bank and were also regularly recorded in ISRs and aide memoires (AMs) to monitor project implementation progress and make decisions. Discussions were held at numerous review missions as to the possibility of project cancellation given the lack of progress in meeting PDO indicators until the project took off in 2010.

2.4 Safeguard and Fiduciary Compliance

2.4.1 Environment

The project is rated moderately satisfactory in compliance with safeguards policy OP 4.01 Environmental Assessment. In accordance with the appraisal and approval process of sub-project proposals under ECSLRP, an Environmental Impact Assessment report was prepared by the proponents and an Environmental Compliance Certificate was secured by the proponent from the Department of Environment and Natural Resources prior to project mobilization. Projects assessed by the safeguards team were found to be managed and operated in an environmentally sound manner and there were no incidences of violations of the government's environmental standards. Likewise, the environmental risks for these projects were minimal and appropriate mitigating measures were in place to address potential hazards.

LGUGC did not maintain a repository of the environmental safeguards documents for the projects covered under ECSLRP. There were also no records in their central files showing that regular monitoring of the environmental performance of the projects was done, likely because the officer responsible for safeguards was re-assigned but not replaced.

2.4.2 Social

The project is rated moderately satisfactory in compliance to social safeguards policies. Two social safeguards were triggered - OP 4.12 Involuntary Resettlement and

OP 4.20 (revised as 4.10 in July 2005) Indigenous Peoples. Social safeguards policies and procedures, especially those relating to land acquisition and compensation and engagement of project affected Indigenous Peoples (IP) were complied with at the project level. ECs made great efforts to avoid acquiring land that would displace dwelling structures and in cases where vacant land was acquired for the construction of infrastructure supported by ECSLRP, the outright sale approach between willing buyer and seller was adopted.

2.4.3 Procurement

The Grant Agreement did not include paragraph 3.14 in Schedule 3 Procurement and Consultants' Services for Procurement under Loans Guaranteed by the Bank which relates to the requirement for procurement practices to pay due attention to economy and efficiency. This was likely because the requirement was new at the point when the Grant Agreement was signed.

Other than the above, there were no serious procurement issues under the Project, with any deficiencies noted being corrected. Both DOE and LGUGC performed satisfactorily in implementing their procurement plan. Even though there were delays in procurement activities in the early part of the project, project management improved over time. LGUGC completed its procurement plan by project end despite initially facing difficulties in this area given its unfamiliarity with Bank guidelines. In light of these, **overall borrower's procurement performance is rated satisfactory**.

2.4.4 Financial Management (FM)

DOE's FM risk was rated moderate and its performance was rated moderately satisfactory. DOE substantially complied with financial covenants including the submission of the quarterly Interim Financial Reports (IFR) and annual audited project financial statements but were late in submitting fourteen out of twenty-eight IFRs as well as six out of eight audited project financial statements, some of which were due to factors beyond its control. Three out of eight audit reports had qualified opinions relating to (i) non-inclusion of certain equipment acquired in the Report on the Physical Count of Property, Plant and Equipment; (ii) unreconciled difference between the balance per books of the Cash in Bank-Foreign Currency Savings Account balance as of December 31, 2010 and the Financial Statements submitted by the Philippine National Bank; and (iii) unrecorded interest earnings from the dollar and peso deposit accounts covering the period June 2005 to December 2010. The audit findings and the reasons for qualifications raised by COA did not result in ineligible expenditures, and were properly addressed by DOE. Agreed financial management actions (for example, in addressing unrecorded direct payments, difference between bank balance and accounting records of escrow funds and unrecorded interest earnings for peso and dollar accounts) arising from FM implementation reviews were also adequately addressed and resolved before the next review mission. Systems of internal controls were found to be generally sufficient and adequate throughout the life of the project. At project close, DOE's FM performance was rated satisfactory.

With respect to LGUGC's implementation of the project, its FM performance was generally rated moderately satisfactory and rated low FM risk throughout the life of the project. LGUGC substantially complied with the financial covenants which include the timely submission of the quarterly IFRs and annual audited project and entity financial statements. Both the audited project and entity financial statements had unqualified opinions and were acceptable to the Bank. There were no accountability and internal control issues and only minor delays in the submission of audit reports. LGUGC's FM performance at project end was rated satisfactory.

There were no major issues relating to FM and both DOE and LGUGC were rated satisfactory at project close. In view of this and their overall performance over the lifetime of the project, the **overall rating for borrower's performance in FM is satisfactory.**

2.5 Post-completion Operation/Next Phase

ECs more often than not are unable to fulfill collateral requirements by commercial banks because their assets have already been pledged to NEA as collateral on their existing loans. In light of this, commercial banks have provided feedback that the provision of loans to ECs would still very much be dependent on the availability of the guarantee. Given this backdrop, coupled with the increased demand for ECPCG support and momentum gained at project end, the Bank is in the process of preparing the Philippines Renewable Energy Development (PHRED) project to expand the capacity of GOP's ECPCG program. This project builds on ECSLRP progress, supports increased private sector lending to ECs and extends support to renewable energy generation investments which will have a much larger impact on emissions reduction. It would be important to take into account M&E issues highlighted above in the design of PHRED performance indicators.

Capacity building will still be required, especially for ECs, in order for them to become financially viable. As a case in point, out of the 40 ECs LGUGC assessed by project end, it had only supported 24, on the basis that the other 16 lacked good procurement and governance practices. Financial institutions and ECs too have emphasized that more could be done to enhance capacity building on a longer-term basis. The Bank may wish to consider if there are ways to fund capacity building activities, especially in light that LGUGC's fee for managing the Guarantee Fund would be insufficient and unsustainable in providing such services over the longer term, for example, in PHRED.

3. Assessment of Outcomes

3.1 Relevance of Objectives, Design and Implementation

Relevance of PDO and GEO – high. The PDO remains relevant to current GOP priorities and is consistent with the 2011-2016 Philippine Development Plan (PDP) which calls for increased infrastructure investment and improved governance, and which prioritizes programs to ensure energy security and reliable power supply. It is also aligned with CAS for increased and improved delivery of infrastructure, in particular, for

the need to accelerate investments for power transmission and distribution. The GEO remains consistent with national and global priorities.

The PDO's focus on targeting system loss reduction is appropriate given the emphasis on improving energy efficiency in the EC sector. However, it should have been noted that loss reduction as a singular goal is itself incongruent with GOP's aim to extend electrification, given that that connection of distributed loads at reasonable cost will almost by definition bring additional technical losses. In other words, the case for adding new load could be weak if loss reduction were the only goal. This contradictory relationship would impact the assessment of outcomes which will be discussed later.

At project design, the targeted beneficiaries were "Type B" and "Type C" ECs, which were ECs defined as not fully credit worthy but large in size, with high customer density and with potential for large efficiency gains. While ECSLRP in practice supported the "Type A" ECs (i.e. the more credit worthy ECs), it is noted that even these ECs at the point of project implementation had not had success in accessing commercial financing, much less the less credit worthy ones. ECSLRP's critical role in facilitating commercial financing of EC operations remains relevant to GOP's priorities.

Relevance of Design - moderate. The project design continues to remain relevant as at project end. The central principle of ECSLRP's design was to maximize private investments in the EC sector. The guarantee reduced the perceived risk of lending to ECs and encouraged the flow of private investments into the sector, thereby enabling ECs to increasingly connect new consumers and improve their financial status, which is a critical development path for the EC sector in the longer term. The fact that the Bank is preparing a proposed expansion of the program is testament to the effectiveness of project design.

However, as earlier mentioned, the exclusion of NEA, a key stakeholder, was a major stumbling block to the progress of the project and a U-turn in bringing NEA into the scheme in 2009 proved to be effective.

On balance, the relevance of design is rated moderate in light of the initial decision to exclude NEA, a move which was subsequently corrected.

3.2 Achievement of Project Development Objectives and Global Environmental Objectives
PDO Rating: Moderately Satisfactory

The project exceeded its GEO target of GHG emissions, and fell slightly short of the target for energy savings. The ECPCG program issued $46.65 million of loan guarantees. 5 commercial banks financed 19 loans (to 18 different ECs) worth US$58.31 million that supported 147 separate investment components. There were no loan defaults. These outcomes exceeded their respective targets. No IMC transactions were accomplished, and this component was dropped from the project. See the table in Annex 2 for the details.

IMCs

The IMC approach was seriously considered by the GOP as a potential way of encouraging private sector investment, management and operation of ECs under long-term performance-based contracts. Although the project team had a pipeline of IMCs at project design, this was not enough to ensure the viability of the approach. The pilot areas proved to be difficult and saddled with political baggage which significantly reduced the likelihood of success. Eventually, the IMC approach was dropped as it was found that IMCs were not suitable for ECs that required huge amounts of investments to attain financial turnaround. Additionally, there was never more than very modest interest in IMCs shown by potential private sector contractors.

Energy Savings and GHG Emissions Reductions

Based on a conservative estimate of loss reduction projects financed by the project, **66.2 GWh per year** of energy savings (against a target of 80 GWh) was achieved. For GHG reduction, the Bank estimates that **68,481 tons of GHG emissions** were avoided at project end (compared to a target of 40,000 tons).

These estimates are based on an analysis of assets in service by the time ECSLRP closed in December 2013, with those numbers then grossed up to include assets that were financed but not operational by the ECSLRP closing date. These additional assets are material, given the back-loading of investments supported by the project; the assets in question will in all cases come into service over the course of 2014 and early 2015. The conclusion is that the targets set for GWh loss reduction were too ambitious, with an estimated achievement of 80% of the target. However, the GHG target was exceeded – this may seem inconsistent, but this is due to the use of an average grid emissions factor at the time of appraisal rather than a marginal grid emissions factor (reflecting the reality that the Philippines uses its current coal-fired capacity for load-following and mid-merit purposes, and has become almost wholly dependent on new coal-fired power plants for new generation). The over-estimation of loss reduction potential is discussed below, and further details may be found in the annexes.

a) The targets set for system loss reduction were over-ambitious

As discussed in section 2.1.2, the targets for system loss and GHG emissions reduction set during project design were overambitious, in light of the more realistic savings which are typically 1% to 2% through a single capex project.

b) Difficulty in attributing system loss and GHG reduction loss directly to ECSLRP

Based on the PAD, it appears that the design team's calculation of system losses and GHG reductions was based on a simplistic model, which left out key assumptions relevant to the distribution system that significantly impacted the targets set (details are given in Annex 2). There does not appear to be consideration of the difficulty in attributing system loss and GHG reduction losses directly to the program during project design which will have an impact on the outcomes.

c) Increases in system losses and GHG emissions arising from the expansion of the distribution system to cater for increased electricity connections and economic growth were not accounted for during target setting

The project team, at preparation stage, estimated the loss reduction to be achieved by an investment, and assumed that level of loss reduction to be permanent. This does not happen in reality – what actually happens is that, having lowered losses by reducing loading on critical infrastructure components, losses then creep back up as load growth occurs. While this reduces the level of overall loss reduction that should be claimed by the project, it is a good thing that households and businesses have access to more and better quality power. Losses and loss reduction exercises have a dynamic quality to them that is taken into account in this ICR report.

In light of the above, it is reasonable to assess that the project has managed to achieve substantial results. Targets set at project preparation were not fully realistic, especially in terms of IMCs and GWh loss reduction. The team also badly underestimated how long it would take for the project to take off, which meant that investments were back-loaded into the final three and a half years of the (extended) implementation period. But what was achieved from 2010-2013 was quite substantial and is testament to the efforts and commitment by all stakeholders to make the program work.

PDO – Achieve significant and sustained energy efficiency improvements in ECs through (i) the demonstration of an effective financial mechanism to support private sector investments; and (ii) the enabling of private sector investments in the EC sector

The IMC approach was put aside after the Mid-Term Review assessed that the option would not be workable during the project timeframe as IMC investors were unable to turnaround EC operations due to the deteriorating financial situations of the pilot ECs. It should be noted that the level of private sector interest in IMCs was never really that high.

Despite the above, ECSLRP made inroads in enabling private sector financing in the EC sector. ECs, which previously solely depended on NEA for financing investments, enjoyed access to a wide selection of commercial banks that offered better interest rates and terms with the introduction of the ECPCG. These rates were so competitive that NEA and government banks were prompted to lower their interest rates from 12% (prior to ECSLRP) to 8%.

ECSLRP has gradually changed ECs' mindset – previously dependent on public funds (through NEA), many ECs are now more focused in obtaining commercial financing for their investments. Some ECs have emerged as repeat customers of ECPCG, including BUSECO, MORESCO I, BOHECO I, and SOCOTECO I (and one of these additional financings was completed before Dec 31, 2013).

Commercial banks, given their increased knowledge and experience in servicing the EC sector, have increased their risk appetite in financing ECs. Security Bank, for example,

fast-tracked a large loan to LEYECO V, one of ECs most affected by Typhoon Yolanda, in the weeks after the storm hit.

Commercial banks in the program continue to see the need for ECPCG to provide guarantees for most creditworthy ECs going forward, as the sector remains risky overall. But ECPCG is an important program to help facilitate the transition from a sector that had been mostly financed from public sources, to one in which there is an increasing proportion of risk capital.

PDO – Supporting GOP's program for ECs to provide current and prospective viable EC customers with reliable and least-cost power

ECSLRP supported 21 training sessions and study tours aimed at improving the efficiency of the stakeholders participating in the program. While there is no data on the effectiveness of capacity building activities, interviews with various AFIs and ECs have consistently revealed that the capacity buildings component was beneficial. ECs shared that the capacity building activities upgraded their technical, financial and management capabilities, all of which are essential steps towards the maturity of the EC sector, its growing ability to attract private sector financing and ability to achieve sustained energy efficiency improvements.

The financing of more credit-worthy ECs' investments by the commercial sector through the ECPCG has in effect freed up some of NEA's funds to be directed to marginal ECs. This will contribute to the strengthening of the EC sector in the longer term by enabling NEA to focus its efforts and funds on poorly performing ECs.

PDO - Overall Rating –Moderately Satisfactory

The project exceeded PDO's targets for most indicators by 2012, ahead of the project completion date. A conservative analysis of GWh loss reduction and avoided CO_2 emissions suggests that the project undershot the target for GWh, but exceeded the CO_2 target, if assets in operation and under construction at project end are taken into account. The ECPCG is strongly supported by stakeholders (DOE, LGUGC, ECs and financial institutions) who recognize the success of the program and have urged the Bank to continue with ECPCG through PHRED. By opening the doors to commercial financing which was otherwise unavailable for most ECs, ECSLRP has not only provided opportunities for ECs to gain competitive financing but also contributed to the financial strengthening and improved management of ECs. ECSLRP has demonstrated that it is a pioneering and innovative program which has made a critical contribution in strengthening the EC sector, which in turn facilitated the expansion of electricity access and provision of more reliable and least-cost power, all of which are key in responding to GOP's priorities in the energy sector. In light of the outcomes, and taking into consideration the impactful benefits arising from ECSLRP, overall rating for PDO is moderately satisfactory.

GEO Rating: Moderately Satisfactory

Based on a conservative estimate, ECSLRP achieved an annual reduction in GHG emissions of 68,481 tons. While this assumes that assets under construction will come into service, stakeholders are confident that the supported investments will be completed by early 2015 and that they will make their contribution to overall loss reduction. The annual energy savings target, measured in GWh, undershot, but this is of lesser importance given the avoided CO_2. The GEO rating is therefore ranked moderately satisfactory.

3.3 Efficiency

At project appraisal, it was assumed that of the $10 million GEF capital (i.e. Gross Contingent Grant) used to provide the guarantee, EC defaults would result in a loss of $3 million. Based on this portfolio loss, a Final Net Grant (defined as the Future Value of the Gross Contingent Grant less losses plus net guarantee fees and interest) was computed. The difference between the Gross Contingent Grant and the Final Net Grant is the Incremental (Economic) Cost of the guarantee operation. This approach enabled the calculation of both a Gross Cost and a Net Cost in $/ton$CO_2$e. As ECPCG had suffered no loss by program end, the Final Net Grant is substantially larger than Gross Contingent Grant[1] that was projected, due to the combined effect of compounded interest with no guarantee calls.

The assumptions in computing benefits of the program were optimistic. The assumption of a 25% reduction in energy intensity by each investment in an EC was not realistic, as explained above in which total losses in absolute terms would be in the range of 1-2%. In addition, it would appear that loss reduction increments were assumed to be constant over the 15 year lifetime of the assets when total program benefits were estimated at the project preparation stage. In practice, the loss reduction benefits are driven by significant "de-loading" of the new network components financed, which means that a new substation would typically be operated only at a load factor of 20% initially. With load growth (assumed to be 6% per annum), the new investment loads up again and technical losses again increase as the square of the increase in load factor. Over a 15 year lifetime, this is likely to reduce GWh savings by a factor of around 3 times compared to the uncorrected savings.

Taking the above factors into account, three scenarios were considered as follows:

i) 2004 PAD baseline
ii) 2004 PAD baseline corrected for re-loading
iii) Projected results assuming full capacity (approximately $70 million in guarantees written) could be reached as it would be if ECPCG were extended another year to

[1] At Dec 2013, the Final Net Grant balance was $14.1 million based on balances in the Guarantee Reserve and Interest Income Accounts.

allow some portion of the already committed and approved loans (totaling $35.9 million) to be released and the assets they would finance be brought fully into service.

It is important to note that the above analysis distinguishes between what the ICR has tried to measure as of the close date of ECSLRP, and the overall impact of the government program, ECPCG, in which GEF has made a substantial investment. The outcomes, as measured here, are based on the less sophisticated methodology used in the PAD (as opposed to the analysis in section 3.2) and include only a reasonable estimate of avoided emissions based on assets financed before Dec 31, 2013. ECPCG, however, continues to operate and offer guarantees to new projects. The team has made calculations in this section based on full utilization of ECPCG capital resources (but not counting re-flows that would occur over time).

The results are summarized in the table below:

Case	Baseline per 2004 PAD	Baseline per 2004 PAD, corrected **	Projected, ECPG at full capacity after extension **
Benefits			
Annual GWh savings from loss reduction, by program end	120	120	75.6
GWh savings from loss reduction, over asset lifetime	1,400	661	464
Carbon intensity, tonnesCO2e/MWh	0.450	0.450	1.034
GHG reductions, tonnes CO2e	629,833	297,375	479,321
Costs			
Gross Contingent Grant	12.0	12.0	12.0
Grant Cost Effectiveness, $/tonneCO2e*			
Gross	19.1	40.4	25.0

**The lower the number the better as this means that less money is required to avoid every tonCO_2e.*

*** Corrected for re-loading of the network impacted by the investment with load growth*

NB: The annual GWh savings and GHG reduction figures in this table are different from those in section 3.2 as they are based on a less sophisticated methodology which was used in the PAD.

After re-loading correction, the lifetime GWh savings forecast in the PAD would have been reduced from 1,400 to 661 GWh and carbon benefits would have been reduced by the same factor, resulting in a substantial increase of gross cost of carbon reduction from $19.1/ton CO_2e to $40.4/ton$CO_2$e.

Assuming that the ECPCG reached full capacity with all financed assets in service, annual loss reductions are estimated at 75.6 GWh per annum, with program benefits estimated to be 464 GWh or about 33% of the PAD projection. The gross cost of carbon reduction was estimated to be $25.0 per ton CO_2e compared to the estimated $19.1per ton CO_2e. It should be noted that the underlying assumptions are conservative, related to expected loss reduction, and do not take into account re-flows that would add to the total investment supported, over time.

3.4 Justification of Overall Outcome Rating
Rating: Moderately Satisfactory

Taking into consideration relevance, efficacy and efficiency (as discussed in the previous sections), the overall outcome is rated as Moderately Satisfactory. The project and its outcomes supported GOP's strategies and priorities in the energy sector and CAS. ECSLRP has paved the way for greater private sector financing of the EC sector, which is a substantial contribution not only for the sector, but for the Philippines economy, given the dependence of public funds for infrastructure. The main drawback of the project was in its institutional design in which NEA was initially excluded from the program. This contributed to the slow uptake of the project in its early years. Given the long slog of implementation, but recognizing the ultimate successes of the project, ECSLRP is rated moderately satisfactory overall.

3.5 Overarching Themes, Other Outcomes and Impacts
(a) Poverty Impacts, Gender Aspects, and Social Development

No surveys were carried out on social or gender impacts of the project. However, ECs provided anecdotes on how ECSLRP had enabled them to connect more consumers and improve electricity supply reliability, which has helped alleviate poverty, given that rural consumers now had the option of engaging in productive activities even after dark.

(b) Institutional Change/Strengthening

ECSLRP has transformed the EC sector by opening the doors of commercial funding, and enhancing ECs' technical, financial and management capabilities. The latter has come about through capacity building activities and ECs' experiences in seeking funding from the commercial sector which requires higher standards of governance and capacity. ECs have increasingly exhibited increased confidence in their dealings with commercial banks and are more aware and open to acquiring technology, which in turn have facilitated the implementation of sound financial management and good governance practices.

The shift of key financing functions to commercial lenders has allowed ECs to maintain an arm's length from political influence on the basis that investments will have to undergo more critical assessments by the financial sector. In the longer term, this spells progress for the EC sector that had been dogged by political interference.

ECSLRP has also been instrumental in strengthening commercial banks' capacity in the EC sector. Financial institutions were introduced to the EC sector through the program

and have been building capabilities to compete to finance ECs' operations. Financial institutions' increasing maturity can be seen in their requests to LGUGC for the provision of a common EC rating system and a list of best practices of ECs for greater transparency.

(c) Other Unintended Outcomes and Impacts

Healthy competition among commercial banks has prompted them to improve their services by introducing other financial services to ECs and become more innovative. For example, FIBECO (one of ECs participating in ECPCG) provides customized ATM cards from its financier (PNB/Allied Banking Corporation) to its consumers for its fee collections.

3.6 Summary of Findings of Beneficiary Survey and/or Stakeholder Workshops

A workshop, with representation from DOE, LGUGC, ERC, ECs and the financial sector was held on Jan 24, 2014 in Manila to gather feedback on their experiences with ECPCG, the impact of the program, as well as lessons learnt from the project. Details are given in Annex 5.

4. Assessment of Risk to Development Outcome

Rating: Moderate

The risk to development outcome is rated moderate. While the risk of GOP changing direction or focus on expanding electricity access and strengthening ECs is low, the risks that political influences could impact on the way in which ECs conduct their business (e.g. ECs are pressured to accelerate electrification, thereby potentially resulting in a reversal of system losses) is moderate. The risk that ECs' projects are stalled or even stopped due to management, operation, financial, resource or technical issues is also considered low to moderate, given the due diligence and close supervision undertaken by LGUGC.

The financial landscape marked by high liquidity and lower interest rates was a major factor that prompted interest of commercial banks in financing ECs' projects. Should the financial environment change, credit markets would likely impact ECs' financing costs and repayments. Given the expected favorable medium term outlook, this risk to development outcomes is considered moderate.

5. Assessment of Bank and Borrower Performance

5.1 Bank

(a) Bank Performance in Ensuring Quality at Entry

Rating: Moderately unsatisfactory

In the course of project preparation, the Bank team, comprising staff and consultants with diverse technical expertise, as well as safeguards and fiduciary staff, provided support to GOP in designing the project to ensure that it was aligned with GOP priorities and CAS,

and that it met the Bank's technical, financial, economic, fiduciary, social and environmental standards.

The key issues in project design that affected project progress adversely were the decision to exclude NEA in the program from project start and the preparation of pipeline investments on the ground. More efforts could have been made to better understand the political landscape of the EC sector and to work out how best to make the pipeline of investments realizable during project design. The latter issue, which appears to be a common problem in many guarantee programs, should have been tackled prior to project start.

Even though project objectives were clear and relevant, the Results Framework to monitor progress could have been less ambiguous with targeted indicators. The methodology in which system losses and GHG emissions reduction were computed could also have been clearer and uniform.

Despite the above, the Bank's design of the guarantee program was right on the mark, as evidenced by the success of the program. On balance, Bank performance in ensuring quality at entry is rated moderately unsatisfactory, taking into consideration the impact on outcomes of the underdeveloped pipeline of projects at project design as well as the institutional flaw of excluding NEA in ECSLRP.

(b) Quality of Supervision
Rating: Moderately Satisfactory

The Bank carried out 16 supervision missions over the course of the nine and a half year project life. The Procurement and FM functions were provided by field base staff, who were responsive to the needs of DOE and LGUGC in providing advice and technical support, and greatly facilitated project implementation.

In the early years of the project, the Bank had undertaken supervision activities, but these were not effective owing to the design of the project. A change in the TTL with a fresh perspective opened the door for more options for restructuring the project at mid-term, including the revisiting of NEA's role, which proved to be instrumental in project performance.

The relevant indicators and targets could have been revised when the project was restructured in 2011 so as to reflect the more realistic assumptions described in section 3.2.

Supervision missions correctly identified and documented the implementation issues, and AMs shared with GOP were transparent, candid and direct in highlighting concerns. Significant challenges were consistently discussed with Bank management, with the latter providing close guidance to the team on monitoring progress and questioning if the remaining loan should be cancelled.

The Bank team made extensive efforts in working with LGUGC and DOE to identify challenges and work out follow-up actions to progress the project. Stakeholders lauded the Bank team, in particular, during the latter years of implementation, as very responsive and flexible so as to meet the needs of the project as much as possible, which facilitated the progress of the project.

While the Bank's performance in the latter years of the project was exemplary, overall, its performance over the life time of the project is rated moderately satisfactory.

(c) Justification of Rating for Overall Bank Performance
Rating: Moderately Satisfactory

The Bank's overall rating is moderately satisfactory taking into account the strong performance of the project in its last few years of implementation, the moderately satisfactory outcomes and feedback from stakeholders of the Bank's strong performance in the latter years. Calls for the Bank to continue to be involved in a follow-up project is testament to the Bank's ability to forge effective relationships with stakeholders.

5.2 Borrower
(a) Government Performance
Rating: Moderately Satisfactory

Prior to project approval, GOP exhibited strong commitment through its preparation of a sector strategy, and its efforts to undertake policy and institutional reforms in the rural power sector. The Government satisfactorily met the covenants in the legal agreements and demonstrated strong commitment to ECSLRP by its efforts in achieving outcomes.

Together with DOE, the Department of Finance co-chaired with DOE an inter-agency Project Supervisory Committee to provide overall policy direction, guidance and oversight supervision for the policy and institutional reforms supported under the program, which was useful in progressing ECSLRP.

The transfer of funds for the Guarantee Reserve Fund Account to PNB (the Fund manager) was only made 10 months after the project effective date arising from long internal governmental processes. While the complexity of dealing with multiple stakeholders is recognized, approval of the transfer of funds could have been undertaken in a more efficient manner.

Taking in view the above, the government's performance is rated moderately satisfactory.

(b) Implementing Agency or Agencies Performance
Rating: Moderately satisfactory

<u>DOE – Moderately Satisfactory</u>

DOE was instrumental in bringing stakeholders together, with its commencement of the monthly DOE and LGUGC Coordination Meetings in 2007 to address issues and concerns affecting ECSLRP and monitoring of ECPCG Program accounts. These

coordination meetings helped to expedite the approval process of ECs participating in ECPCG Program, thus increasing the number of booked EC accounts.

DOE demonstrated commitment by its efforts in achieving outcomes – it made efforts to strengthen its capacity and was also effective in providing capacity building to ECs. It played a strong leadership role in getting LGUGC and NEA to work together following the mid-term review which identified the exclusion of NEA as a key roadblock towards the progress of ECSLRP.

In the initial stages of the project, DOE suffered delays in implementing the capacity building component owing to its lack of capacity in several areas of implementation support. It was also dependent on consultants for procurement without requiring the transfer of knowledge to its staff.

On balance, DOE's performance is rated moderately satisfactory.

LGUGC - Satisfactory

LGUGC's performance is rated satisfactory. It met 4 out of 5 of its performance indicators (the only one being IMC transactions, which was eventually dropped) and was focused in its approach in getting results. LGUGC was effective in its due diligence work on accrediting commercial banks, and in identifying new projects and monitoring program activities. Its pragmatic approach and flexibility, as evidenced by its willingness to share one-third of its management fees with NEA, was key in progressing the program.

LGUGC not only helped strengthen ECs' capacity through workshops but also provided a lot of handholding in the form of advice to ECs on their proposals presented to ERC for approval as well as on ways for ECs to effectively manage their funds. LGUGC advocated for ECs to follow accounting standards, which are important in paving the way towards greater governance in the EC sector. LGUGC is highly regarded by ECs which praised it for being supportive, responsive and accommodating to their needs in the face of challenges.

LGUGC was instrumental in introducing commercial banks to ECs. It also designed the EC Borrower Risk Rating System, which ECs rely on in their assessments of credit worthiness of ECs. Financial institutions lauded LGUGC as cooperative and helpful.

Overall, LGUGC made a major contribution to the EC sector, through its role in demonstrating ECs as a viable market for commercial lenders. The number of closed transactions that has exceeded the targets is testament to the efforts of LGUGC in getting ECSLRP off the ground. In light of these significant achievements, LGUGC's performance is rated satisfactory.

(c) Justification of Rating for Overall Borrower Performance
Rating: Moderately Satisfactory

DOE and LGUGC closely managed project implementation and took appropriate actions to progress the project in their efforts to achieve project objectives. It was their tenacity in dealing with challenges especially in the latter years of the project that helped change the direction of the project and which eventually resulted in them exceeding most targets.

Taking into consideration DOE's shortcomings in the initial years of implementation, on balance, overall Borrower performance rating is moderately satisfactory.

6. Lessons Learned

A good understanding of local politics is essential in the design stage to ensure a successful project. When preparing the program, the Bank should be keenly aware of the local politics and be realistic when preparing the pipeline of projects. This is a common issue that has plagued many programs. In the case of ECSLRP, the failure to recognize the vast influence of NEA over ECs was a key stumbling block towards progress of the project. It was only after the team recognized this design flaw and engaged NEA as a key stakeholder did the project take off.

A uniform methodology in computing system losses should be required at project start. Computing system losses was a complex exercise and based on data from ECs, of which some were found to be non-credible. Given this, similar Bank financed projects that require the computation of system losses or similar indices should at project start require participants in the program to conform to a uniform methodology and procedures/guidelines. ECs would require capacity building in this aspect given the complexity of these calculations.

The impact of time lags on outcomes needs to be considered for selected infrastructure projects. System losses are realized with investments in infrastructure, most of which will occur over time. In this project, GHG emissions avoided would have far exceeded the target if the savings at the realization of the investments were taken into account. In light of this, there may be a need to review how outcomes could be computed, taking into consideration duration of project implementation.

Distribution projects are not ideal for projects that focus on the reduction of GHG emissions. In the case of ECSLRP, system losses, and correspondingly carbon emissions, were limited due to the nature of distribution investments which had at most 2% of losses per single capex project. Generation projects that focus on renewable energy would render much lower energy savings and carbon emissions reduction.

PDOs could be more relevant to the development context, rather than focus on Trust Fund objectives. While the reduction of system losses was a clear area of focus given that ECSLRP was a GEF project, the Bank could have considered PDOs which would be more impactful to the needs of the clients. In ECSLRP's design, other economic benefits, such as that arising from additional GWh supplied and MW load

served, were not considered, which would better reflect the impact of programs on the clients and their relevance to Governments' priorities.

7. Comments on Issues Raised by Borrower/Implementing Agencies/Partners

(a) Borrower/implementing agencies

NA

(b) Cofinanciers

NA

(c) Other partners and stakeholders

(e.g. NGOs/private sector/civil society)

NA

Annex 1. Project Costs and Financing

(a) Project Cost by Component (in USD Million equivalent)

Components	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
1. Partial Credit Guarantee Program	50*	58.31	117
2. Capacity Building	2.3	1.63	71
Total Project Costs	52.3	59.94	115
Total Financing Required	52.3	59.94	115

*This figure reflects the eligible EC subproject investments and is separate from the cost of leveraging the ECPCG.

(b) Financing

Source of Funds	Type of Cofinancing	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Borrower		0.22	0.22	100
Global Environment Facility (GEF)	Grant	12.00	11.69	97
Borrowing Country's Fin. Intermediary/ies		37.50	47.00	125
Local Sources of Borrowing Country		12.58	11.75	93
Sub-borrower(s)		0.00	0.00	100
Total		62.3	70.66	113

(c) Expense Category Reallocation Table After Restructuring of Project

	Category		Original GEF Grant Allocation	Revised Grant Allocation (February 2010)	Proposed Re-allocation
(1)	Goods		45,000	39,000	43,000
(2)	Consultant Services	(a) Audit	5,000	17,000	21,000
		(b) Other	688,000	707,000	534,000
(3)	Training		100,000	24,000	12,000
(4)	Incremental Operating Costs		39,000	90,000	267,000
	Total		**877,000**	**877,000**	**877,000**

Annex 2. Outputs by Component

Component 1: Partial Credit Guarantee Program

A snapshot of outputs for component 1 achieved by ECSLRP is given below.

No	Performance Indicator	Closing Date Require-ment	Value As of Dec 31, 2013	Remarks
1	Total program annual energy savings (GWh)	At least 80	66.2*	>80% achieved. Based on all assets financed.
2	Carbon dioxide emissions avoided per year (tons)	At least 40,000	68,481*	Achieved. Based on all assets financed.
3	Cumulative number of loan guarantees issued for Electric Cooperatives	At least 15	19	Achieved.
4	Cumulative number of successful investment management contract transactions	At least 6	0	Not achieved.
5	Cumulative value of loan guarantees issued (US$ millions)	At least 24	46.65	Achieved.
6	Cumulative investment in Electric Cooperative under the Project (US$ millions)	At least 40	58.31	Achieved.
7	Total number of commercial banks and other private financial institutions providing loans for investments in electric cooperatives under the project.	At least 4	5	Achieved.
8	Cumulative guarantee claim payments under the Project (US$ millions)	Not more than 3	0	Achieved.

*Details on the computation of system losses and GHG emissions reductions are given below.

System Loss and GHG Reductions

Introduction

This Annex attempts to estimate the actual system loss and GHG reductions achieved by ECSLRP and compare them to the *per annum* targets as approved in the PAD, of 80 GWh and 40,000 tons respectively. In addition the Annex uses a simplified scaling approach to gross up these *per annum* reductions had the program end date allowed sufficient time for the guarantee to reach its full capacity (estimated at $70 million based on a leverage ratio of 1 : 5), and for all financed assets to be brought into service.

Principles

System losses are the sum of technical and non-technical (sometimes called commercial) losses. Reduction in systems loss is measured as kWh that do not have to be purchased or generated. System loss reduction should always be measured in absolute kWh terms. Percentage system loss is useful only in a rule of thumb sense. Knowing the emissions factor in tons CO_2e/kWh generated allows simple conversion of a reduction in kWh systems loss to the avoided GHG emissions in tons CO_2e.

Capital investments (capex) supported by ECPCG primarily impact technical, not non-technical losses. Technical losses are due to the physics of electricity – e.g. resistance loss in a conductor, core losses in a transformer. Investments in upgrading the specifications of conductors and transformers can reduce technical losses, as can investments that reduce the length of feeders, that site transformers closer to major system loads, or that increase feeder voltage levels.

Non-technical losses have a variety of sources including tampering, bypassing, hooking and other forms of theft, non-recording of low consumption on meters, and errors in metering and billing. Control of non-technical losses is primarily a management problem, not an investment one. Some investments e.g. in electronic metering, automated meter reading (AMR), and sophisticated revenue assurance systems can help reduce non-technical losses but their primary effect is to capture more revenue, not necessarily reduce kWh purchased or generated.

Capex projects are also feeder specific – they typically do not affect the whole EC system. Rehabilitation or strengthening of an EC's network is normally phased over a number of years as the loading of individual feeders approaches their maximum capacity.

For these reasons, it is not possible to compare an EC's total losses from year to year (even in absolute kWh terms, and certainly not in percentage terms) and claim that all of any reduction is due to a particular capex project or projects. Equally it is not possible to directly measure technical losses – these can only be modeled *ex-ante* using specialist software. Modeling is data-intensive, complex and time-consuming and not all ECs have the capability to do system modeling. *Ex-post* verification of system modeling results is sometimes possible using feeder metering but in the case of network expansion by building new feeders, no baseline measurement is possible (and even modeling becomes challenging).

Addition of large loads must also be interpreted with care – while these have the effect of "diluting" system losses in percentage terms this is mainly because of their impact on non-technical not technical loss. Large customers fed directly by express feeders and metered at the substation by definition have zero technical and non-technical loss. And while percentage losses are reduced, connection of the large load by definition brings additional technical losses measured in absolute kWh terms but it is the customer who now pays for them.

Typical EC Technical Losses

Electric cooperatives in the Philippines typically have technical losses in the 7 – 8% range. If they have very long and / or much overloaded MV feeder lines, technical losses may go as high as 10 - 12%. The lower limit for technical losses is probably 6% (simply because resistance loss and transformer losses can never be zero according to the laws of physics). The maximum reduction in technical loss possible through a single capex project is likely to be in the range of 1 – 2%.

ECSLRP System Loss Reduction Targets

The approved ECSLRP target for system loss reduction was set at 80 GWh per year by program end (Dec 2013). The rationale for setting this target is not clear. Comparing 80 GWh to the total kWh purchased or generated of 10,538 GWh by the 67 ECPCG eligible ECs in 2012 results in a targeted reduction of 0.76%.

At first sight this appears to be credible target. However the capacity of ECPCG program is currently limited to about $70 million (Php 3.208[2] billion) calculated as 5 X the available program capital inclusive of interest and other accrued income. At Dec 2013, released ECPCG loans totaled $58.3 million (Php 2.57 billion) across 18 ECs with NEA and LGUGC balance sheet guaranteed loans adding another $65.1 million (Php 2.86 billion). ECPCG loan drawdowns were $45.3 million (Php 1.99 billion) or approximately 80% of the released amount. The drawdown from other loan sources is not known with certainty but at 80% would amount to another $52.1 million (Php 2.29 billion).

The total kWh purchased or generated for these 18 ECs is 2,427GWh. To achieve the 80 GWh target would therefore require a 3.3% reduction in system loss. Grossing up the generation by 80 / 58.3 would reduce this figure to 2.4% which is still on the high side of credibility. A more realistic target would have probably been around 50 GWh (equivalent to 1.5% system loss reduction) per year by program end.

System Loss Reductions Achieved by ECPCG Loans Released by Program End

DOE has documented[3] the system loss reductions reported by each EC as a result of their ECPCG supported capex investments – see the table below.

[2] An exchange rate of Php 44 per USD is used throughout this annex.

[3] Borrower's Completion Report, John. C. Placente, Dec 2013

	Power Purchases, GWh	System Loss	Loss Reduction Reported, GWh	As % Purchases	Notes
Released Loans:					
BENECO	366	10.8%	5.33	1.5%	
BOHECO-I	131	7.5%	6.25	4.8%	
BUSECO	**124**	**11.6%**	**2.23**	**1.8%**	
CANORECO	122	10.8%	-		Not yet energized
CAMELCO	17	12.8%	-		Not yet energized
DANECO	174	16.6%	-		No submission
FIBECO	149	12.7%	9.09	6.1%	
FICELCO	39	16.1%	-		Construction not yet started
LEYECO V	158	13.0%	-		Not yet energized
LUELCO	**160**	**12.0%**	**0.26**	**0.2%**	**Annualized and scaled up from 9 to 14 feeders**
MOELCI-I	47	13.0%	0.55	1.2%	
MORESCO-I	**144**	**5.2%**	**2.93**	**2.0%**	**2013, annualized - Canituan, Quibonbon, Moog**
MORESCO-II	95	11.0%	4.08	4.3%	
NEECO-1	136	11.8%	0.95	0.7%	
PALECO	135	10.2%	-		New account
PANELCO-I	87	16.8%	2.02	2.3%	
SOCOTECO-I	188	11.6%	0.19	0.1%	
SURNECO	155	10.7%	-		Data submitted in question
Total or Average	**2,428**	**11.5%**	**33.88**	**1.4%**	

The reported GWh loss reductions were obtained ex-post direct from each EC and the method of their derivation is not always known[4]. In three cases[5]however (bolded in the table) the values were obtained by system modeling.

Key findings from the reported results are:

1. The average total system loss (technical plus non-technical) of ECs with released loans is 11.5%. Given that non-technical losses of less than 2 – 3% would be very unusual, this supports the typical range for technical losses stated above.

2. As a % of annual kWh purchased or generated, individual system loss reductions vary from 0.1% to 6.1%. Cases significantly in excess of 2% are considered non-credible.

3. Two of the system modeling cases (MORESCO-I and BUSECO) report, and were able to validate to some degree with actual system loss data, impacts of 1.8 – 2%. In both cases, capex plans were carefully designed to place new transformation capacity close to the largest loads in the system. These values likely constitute an upper bound on ECSLRP achievements consistent with the theoretical discussion above.

[4] Note that LGUGC also employs a technical consultant to do *ex-ante* due diligence on each proposed capex investment utilizing ECs' capex plan submissions to ERC and in some cases system modeling. Where available, these estimates were reported by DOE. In general these estimates also appear high, grow very rapidly year on year, and also produce non-credible results before or by 2013 casting doubt on the methodologies used by ECs in their capex plan submissions.

[5] Two cases were reported by DOE and the third (BUSECO) was obtained during a validation visit as part of this ICR process.

4. One of the system modeling results (LUELCO) reports a 0.2% impact from the installation of amorphous core transformers casting some doubt on the benefit/cost of such investments.

Extrapolating the MORESCO-I and BUSECO cases – assuming 2% loss reductions were achieved by every project with assets in service in Dec 2013 and simply scaling the losses accordingly – the estimated achievement of the program (including the co-financing it has attracted) is 32.6 GWh per year for assets in service at the end of 2013.

Gross Up to Full ECPCG Capacity

Given the $58.3 million (Php 3.75 billion) worth of ECPCG releases and a physical completion rate (as reported by DOE) of 59.1%, **the estimated loss reduction achieved by the program, counting assets in service and under construction would be:**

32.6 X 70 / 58.3 X 100 / 59.1 = 66.2 GWh per year

GHG Reductions Achieved

Converting system loss reduction to GHG reduction is simply a matter of applying the correct emissions factor. Emissions factors computed as generation weighted averages in the Luzon, Visayas and Mindanao grids were used for this purpose by DOE. These range from 0.2 – 0.6 tons CO_2e/MWh. However, a more appropriate factor is the marginal generation emission factor. Unusually in the Luzon-Visayas grid, coal is not base loaded but is load following. Base load is instead provided by gas and geothermal capacity that is must run for contractual reasons. This situation will not change for at least a decade. In the Mindanao grid capacity is short and the deficit will also be filled by new coal projects. Gas will only be an option in Mindanao if LNG facilities are eventually built or the transmission link to Visayas is built.

Given that Philippines coal plants today are relatively small and not high efficiency a factor of 1.03 tons CO_2e / MWh is considered more appropriate for calculations at program end. This would give a ceiling on GHG reductions achieved by program end of 68,481tons against a program target of 40,000 tons.

Conclusions

Measuring the system loss reduction achieved by network investments is a complex and uncertain process. *Ex-ante* system modeling, combined if possible with before and after feeder metering based energy balance, is the most robust estimation approach. It may be possible to derive some useful rules of thumb based on a large experience base of modeling results but these would still have to be used with great care.

While recognizing that their first and legitimate priority is system expansion and strengthening to accommodate load growth, ECs should be encouraged to do more rigorous system modeling and benefit/cost calculations on their proposed capex plans. ECPCG program could usefully identify investment criteria that would be preferred for financing as well as investment options that are not very attractive. Obtaining the maximum GHG reductions / $ invested is certainly the goal of the Global Environmental Fund and other similar bodies who monitor the cost effectiveness of their investments in $ / ton CO_2e.

From an economic analysis standpoint, measurement of ECSLRP type projects in pure system loss and GHG reduction terms is over simplistic. Load growth brings economic benefits and strictly those benefits should be computed and netted off against the (reduced) economic cost of loss reduction. If loss reduction were the only goal, there would be no case for adding new load.

Finally, there is also a case for financing more sophisticated loss reduction technologies – including smart grid investments and real time revenue assurance AMR projects. These not only have carbon impact but also improve the financial sustainability of the EC (the revenue impact as well as some cost impact) allowing it to self-finance more of its capex and releasing carbon financing for other projects.

Component 2: Capacity building and implementation support for key stakeholders

According to the PAD, capacity building activities for DOE, NEA, LGUGC, ECs and ERC were to be conducted. The number of workshops/training/study tours was not specified. In all, 21 capacity building activities were undertaken during the lifespan of the project.

Annex 3. Economic and Financial Analysis

Introduction

This Annex attempts to repeat the economic analysis in the original PAD – which compared GHG reduction benefits *over the entire lifetime* of the assets financed by the program to the incremental economic costs to determine the Grant Cost Effectiveness (or program efficiency) in \$/tons CO_2e terms. Calculation of the lifetime benefits uses a more sophisticated analysis than the simple gross-up approach used in Annex 2. The analysis is built on the portfolio of overlapping investments financed by the program, corrected for load growth which, because technical losses increase with system loading, will actually lower GHG reduction year on year over the lifetime of the asset. This seems not to have been considered in PAD analysis.

Original Approach to Economic Analysis

Costs

The 2004 PAD included an Incremental Cost Analysis in Annex 4. As initially designed the proposed partial credit guarantee program would target "Type B" and "Type C" ECs. Type B ECs were defined as not fully creditworthy but large in size, with high customer density and with potential for large efficiency gains (i.e. they are high loss, low collections). Type C ECs were defined as marginally viable and unable to attract private financing. Together these accounted for about the middle 45% of ECs (about 54 in total). A 30% loss rate was assumed for this EC target portfolio.

In fact, almost all ECs struggle to attract such financing because of their non-profit nature based on a cash flow break even tariff methodology with a capex adder. Except for short term loans or credit facilities secured on customer receivables, most Philippines commercial banks have traditionally been wary of investing in the EC sector – partly because they do not understand the EC business and partly because of widespread governance issues. Recognizing this, for ECPCG, only creditworthy[6] ECs are eligible.

The 2004 PAD assumed that of the \$10 million GEF capital (the so-called Gross Contingent Grant) used to provide the guarantee; \$3 million would be lost because of defaulting ECs. Based on this portfolio loss, PAD calculated a Final Net Grant defined as the Future Value of the Gross Contingent Grant less losses plus net guarantee fees and interest. The difference between the Gross Contingent Grant and the Final Net Grant is

[6] These are ECs rated by NEA as A+ or A before 2012, and now AAA, AA and A under the new KPS rating system. In total, there are about 67 of these out of 99 rated ECs and 120 in total. They represent 69% of total annual 2012 sales of 13,600 GWh.

the Incremental (Economic) Cost of the guarantee operation. This approach enabled calculation of both a Gross Cost and a Net Cost in $/tons CO2e. As ECPCG has suffered no loss by program end, the Final Net Grant is substantially larger than Gross Contingent Grant[7] and a Net Cost therefore cannot be calculated.

On the benefits side, certain key assumptions appear rather optimistic – including a 25% reduction in energy intensity by each investment in an EC. This would appear to ignore that total losses include both technical and non-technical, that only non-technical losses can be strongly influenced by capital investment, and that there are physical limits to the loss reductions possible which are around 1 - 2% of total losses in absolute terms. These issues have already been discussed in Annex 2. Estimates of annual loss reductions of 120 GWh by program end in Annex 4 of the PAD are therefore considered very optimistic. As Annex 2 has argued, even the approved target of 80 GWh is still considered high and 50 GWh is a more reasonable number.

In addition, in estimated total program benefits, it would appear that loss reduction increments have simply been assumed constant over the 15 year lifetime of the assets. In practice, the loss reduction benefits are driven by significant "de-loading" of the new network components financed. It is typical for a new substation to be operated only at a load factor of 20% initially. With load growth (assumed to be 6% pa) the new investment loads up again and technical losses again increase as the square of the increase in load factor. Over a 15 year lifetime, this is likely to reduce GWh savings by a factor of around 3X compared to the uncorrected savings.

Reworked Economic Analysis

Taking these various factors into account, the economic analysis was reworked on a gross cost basis with more realistic assumptions for achievable benefits and with correction for re-loading of the investment. The approach used was a portfolio of overlapping annual investment "strips" with each strip producing benefits for 15 years, but these benefits decrease over time with re-loading. The carbon intensity was also increased from the 0.450 tons CO_2e/MWh assumed in the 2004 PAD to 1.034 tonsCO_2e/MWh based on displacement of relatively low efficiency coal capacity (again as discussed in Annex 2).

Three cases were considered:

i) the 2004 PAD baseline
ii) the 2004 PAD baseline corrected for re-loading
iii) projected results assuming full capacity (approximately $70 million in guarantees written) is reached. ECPCG continues to operate and finance assets and the existing resources should be fully committed by the end of 2014.

The results are summarized in the table below:

[7] At Dec 2013, the Final Net Grant balance was $14.1 million based on balances in the Guarantee Reserve and Interest Income Accounts.

Case	Baseline per 2004 PAD	Baseline per 2004 PAD, corrected **	Projected, ECPG at full capacity after extension **
Benefits			
Annual GWh savings from loss reduction, by program end	120	120	75.6
GWh savings from loss reduction, over asset lifetime	1,400	661	464
Carbon intensity, tonnesCO2e/MWh	0.450	0.450	1.034
GHG reductions, tonnes CO2e	629,833	297,375	479,321
Costs			
Gross Contingent Grant	12.0	12.0	12.0
Grant Cost Effectiveness, $/tonneCO2e			
Gross	19.1	40.4	25.0

*** Corrected for re-loading of the network impacted by the investment with load growth*

After re-loading correction the lifetime GWh savings forecast in the 2004 PAD are reduced from 1,400 to 661 GWh (the annual savings at program end was left per the original assumption). Carbon benefits were reduced by the same factor, again leaving the carbon intensity as per the original assumption. The gross cost of carbon reductions jumps from $19.1 to 40.4 $/tons CO_2e.

If ECPCG program were extended and allowed to reach full capacity with all financed assets in service, annual loss reductions are estimated at 75.6 GWh per annum at program close. This is in broad agreement with the ceiling value of 66.2 GWh per annum estimated in Annex 2 by the much less robust gross up approach described therein. Total program benefits are estimated at 464 GWh or about 33% of the original 2004 PAD projection. However, lifetime GHG reductions of 479,321 tons CO_2e are not too far short of the original 2004 PAD projection (because of the higher carbon intensity assumption). The gross cost of carbon reduction is therefore also in the same ballpark at $25.0 per ton compared to the estimated $19.1.

Annex 4. Bank Lending and Implementation Support/Supervision Processes

(a) Task Team members

Names	Title	Unit	Responsibility/ Specialty
Lending			
Selina Wai Sheung Shum	Lead Financial Analyst	EASEG	Task Team Leader (2001-2003)
Preselyn Abella	Operations Officer: Financial Management	EAPCO	Financial Management
Maya Gabriela Villaluz	Operations Officer: Environment	EASES	Environmental Assessment
Jose Tiburcio Nicolas	Operations Officer: Social Sector		
Rene SD. Manuel	Procurement Specialist	COSU	Procurement
Karin Nordlander	Lead Counsel	LEGEA	Legal
Patricia Miranda	Lead Counsel	LEGEA	Legal
Hung Kim Phung	Senior Finance Officer		Financial Management
Jas Singh	Energy Efficiency Specialist	EASEG	Power Engineer
Charles Feinstein	Lead Energy Specialist, Peer Reviewer	EWDES	Peer Reviewer
Tomoko Matsukawa	Senior Financial Officer, Peer Reviewer	PFG	Peer Reviewer
Robin Broadfield	Senior Regional Coordinator, Peer Reviewer	EASES	Peer Reviewer
Robert Crooks	Senior Environmental Specialist, Peer Reviewer	EASES	Peer Reviewer
John MacLean	Project Finance/Credit Guarantee Specialist (Consultant)	EASEG	Financial Management
Arlene Porras	Environmental Consultant	EASEG	Environment
Supervision/ICR			
Selina Wai Sheung Shum	Lead Financial Analyst	EASEG	Task Team Leader (2004-2007)
Arturo Rivera	Senior Energy Specialist	EASTE	Task Team Leader (2008-2009)
Alan Townsend	Senior Energy Specialist	EASWE	Task Team Leader (2010-Present)
Jeanette Lim	Energy Specialist	EASWE	ICR Primary Author
Preselyn Abella	Senior Finance Officer	CTRLN	Financial Management
Victor Dato	Infrastructure Specialist	EASPS	Engineering
Aisha Lanette N. De Guzman	Financial Management Specialist	EASFM	Financial Management
Samuel Haile Selassie	Senior Procurement Specialist	SARPS	Procurement
Charles A. Husband	Consultant	ECSEG	

Rene SD. Manuel	Senior Procurement Specialist	EASR1	Procurement
Tomoko Matsukawa	Senior Financial Officer	TWIFS	Peer Reviewer
Shawn Swaranjit Otal	Consultant – Power Engineer	EASIN	Power Engineer
Ian Driscall	Consultant	EASWE	ICR contributor
Jeanette Lim	Energy Specialist	EASWE	ICR Lead Author
Galina Menchikova	Program Assistant	EASTE	Administrative Support
Maria Luisa Juico	Program Assistant	EASIN	Administrative Support
Gia Mendoza	Program Assistant	EACPF	Administrative Support
Mari Anne Trillana	Project Assistant	EASPS	Administrative Support

(b) Staff Time and Cost

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of staff weeks	USD Thousands (including travel and consultant costs)
Lending		
FY00	12	70.5
FY01	2	11.7
FY02	8	37.0
FY03	20	134.0
FY04	15	126.1
Total:		371.99
Supervision/ICR		
FY05	9	53.2
FY06	10	64.1
FY07	13	78.2
FY08	10	61.0
FY09	15	84.8
FY10	8	43.3
FY11	11	59.1
Total:	76	443.7

Annex 5. Stakeholder Workshop Report and Results

An ECSLRP ICR Workshop was held on Jan 24, 2014 in Manila. About 55 participants from implementing agencies ECs and financial institutions participated at the workshop. At the event, DOE and LGUGC shared their experiences in ECSLRP, their journey in achieving outcomes and lessons learned. ECs and financial institutions also articulated their views on the program, as well as roadblocks they faced and benefits arising from the program.

The presentations by LGUGC and the Bank's consultant as well as the full list of participants are provided in project files.

Annex 6. Summary of Borrower's ICR and/or Comments on Draft ICR

DOE Report on Project Implementation Assessment

Introduction

1. The ECSLRP is a project approved on April 29, 2004 and became effective on November 5, 2004, with a total project component amount of US$ 12.00 Million. The project has two components. The first is (1) implementation of a Partial Credit Guarantee Program (PCG) through the establishment of a Guarantee Reserve Account for guaranteeing commercial loans to electric cooperatives (ECs) and non-EC investors of up to 80% of their loans. The government has selected the LGU Guarantee Corporation (LGUGC) as the Guarantee Program Manager for the PCG. The second component is (2) for Capacity Building and Implementation Support(CBIS) which is intended to provide funding for the activities under the program, including technical assistance, training, study tours and workshops for DOE, LGUGC, NEA, ERC and ECs.

2. The ECPCG is supported by a total amount of US$ 10.00 Million deposited in accounts held in escrow by the Philippine National Bank (PNB). The CBIS program is funded by a total amount of US$ 2.0 Million, in which US$1.123 Million is allocated to DOE and US$ 0.877 Million is for LGUGC program support.

A. Statement and Evaluation of Objectives

3. The main objective of the ECSLRP is to achieve significant and sustained energy efficiency improvements in ECs to provide EC customers with reliable and least-cost power supply over the long term. Along with the expected energy efficiency improvements in EC/rural power distribution sub sector is the global objective of reducing the greenhouse gas (GHG) emissions.

B. Achievement of Objectives and Performance of Grant Recipients

4. Table 1(A) and Table 1(B) detail the performance of DOE and LGUGC as grant recipients. The DOE achieves four (4) closing date requirements particularly on providing capacity building support for the ECSLRP stakeholders. However, the direct impact project savings on SL and GHG were not yet met primarily due to the reasons listed in this report. Though the case is such, the grant recipients agree, that eventually, the savings are expected to be met once the projects of the EC participants are completed. The DOE, as the oversight of the Project implementation, has introduced innovations to facilitate the engagement and support of the major stakeholders as the project progressed such as regular coordination meetings to identify the necessary support to LGUGC and NEA.

5. LGUGC has successfully achieved the five (5) closing date requirements on the performance indicators, except for the IMC requirement, which has been agreed to be

discontinued from being supported in the program implementation due to challenges beyond the control of the project.

6. There are 18 ECs which participated in the ECPCG Program with a total of 19 loan accounts (Table 2). There are seven (7) ECs from Luzon, two (2) from Visayas and nine (9) from Mindanao. The program supports 147 projects. Eighty two (82) projects have direct impact to system loss reduction; 60have indirect impact and five (5) are categorized as other projects.

7. At ECSLRP closing date, the EC overall project completion rate is 59.11%. Out of 82 projects with direct impact to system loss reduction, 32 projects were completed while 38 projects were either fully or partially earning system loss savings. There were 19indirect system loss reduction projects and two (2) other projects completed.

8. Based on the completed direct impact projects, a total of 33.17 GWh of energy has been saved from system loss reduction project which is equivalent to 15,244.88 metric tons of GHG/CO_2 emission avoided. The goal at the end of the project was to achieve 80 GWh and 40,000 tons of CO_2 avoided. This particular indicator was not realized at closing date due to several potential reasons, namely, (1) program primarily kicked off acceptance of the EC sector only on 2010; (2) there are only 38 direct impact projects earning savings thus the target energy savings from 2010 to 2012 was not met; and (3) as this is the first World Bank supported system loss reduction project in the Philippines, there may be a need to review if the closing date requirements are achievable based on duration of implementation and project strategies.

9. Though the system loss (SL) and greenhouse gas (GHG) closing date requirements were not met, the grant recipients are optimistic that the implementation of the project will earn more efficiency savings in the coming years and consequently will contribute to the global objective of reducing emissions.

10. The program supported 21 trainings and study tours aimed at improving the efficiency of the different agencies participating on the ECPCG. The grant recipients deem necessary to provide continuous competency building workshops, especially for ECs, to further and continuously improve the sector in both technical and management aspects. To be very specific, the DOE and the ECs are primarily looking at having more support related to information technology, project management, stakeholder management, business continuity, technical design workshops for energy efficiency and planning.

C. **Major Factors Affecting the Project**

11. The full support of NEA to the ECPCG has been the primary key towards the acceptance of the program in the EC sector. The barriers in the implementation were fully understood the moment the DOE and LGUGC collaborated with NEA on the loan and implementation agreements.

12. The implementation of IMC Program was discontinued. Several barriers on the implementation were identified in the ECSLRP Mid-Term Report (June 2004 to June 2009) and among them were primarily the (1) IMC investors inability to turnaround EC operations due to the deteriorating financial situations of the pilot ECs and (2) low willingness and inability of private investors to submit high quality IMC bids and secure sufficient equity.

13. There is a need to conduct assessment regarding the individual EC's project implementation performance as against the project schedule. Some ECs indicated several right-of-way and zoning problems as reasons why some of projects are not fully energized. Some ECs also indicated lack of construction materials, delivery issues and failed bidding as causes of delays on implementation. As to whether the ECs follow the planned implementation schedules, and on whether the ECs are meeting their construction deadlines, the grant recipients have no full or reliable information to establish the facts. This is one aspect of the ECPCG that immediately need to be addressed to avoid risks in project sustainability. There were recommended actions contained in the Project Completion Report.

14. Another factor affecting the project is the establishment of a standard procedure or guideline in the calculation of system loss and GHG savings. ECs have different methodologies in the savings estimation or calculation, different software was used and most have on-going calculations. A standard procedure for the actual savings calculation will facilitate timely delivery of necessary information on the key indicators to LGUGC and DOE in accordance to the ECSLRP Grant Agreement.

15. The policy and the regulatory environment are fully supportive of the Project objectives. Even then, the ECs enrolled under the ECPCG Program need to comply with the required regulatory approval process of the ERC.

D. **Project Sustainability**

16. There is a need to conduct assessment establishing facts on whether the ECs allocated budget for maintenance and continuous developments of the projects. One of the reasons being seen as to why it is so is because most of the ECs are still on the construction/implementation stage of the projects. The grant recipients have yet to determine the project sustainability as they are still being completed.

17. The ECs are regularly filing five (5) year CAPEX plan to the ERC to sustain the objectives of improving system loss and reliability. The DOE and ERC are supportive of EC's projects that will result to energy efficiency improvements.

18. The government framework/rules on the continuous or progressive implementation and partnership with the ECs on system loss reduction projects are on-going. Good governance to include transparency, accountability and responsibility, among others, will have to be observed by the parties involved.

E. **Bank Performance**

19. Accredited financial institutions find comfort in the ECPCG and with NEA's step-in rights/supervisory powers over the ECs which facilitated their internal approval processes. The Grant recipients' assessment on participating banks is satisfactory. There were no issues specified by the ECs on the loan releases.

20. The banks are informed on the progress of the projects. The grant recipients invite the banks for regular inspections and the banks send representatives to determine progress. The banks are also member of the Project Monitoring Board (PMB) and are invited to other stakeholders meetings.

F. **Assessment of Outcomes**

21. The savings calculation based on simulations and actual billing information reveal that there are energy savings from the projects implemented. However, the results reveal that the targets identified in the technical due diligence and EC CAPEX documents are higher than the simulated values.

22. The grant recipients agree that, as of time provided, the SL and GHG savings expectations on the Project Appraisal Document were not yet met. Based on the current results, the grant recipients suggest a review of the closing date requirements to determine whether the values agreed upon may be too high considering the challenges that need to be hurdled by the project during the entire duration of implementation and the scale of the EC projects.

PART II. STATISTICAL TABLES

TABLE 1(A)
PHILIPPINE GOVERNMENT PERFORMANCE INDICATORS

No	Performance Indicator	Closing Date Requirement	Value As of December 31, 2013	Remarks
1	Total program annual energy savings (GWh)	At least 80	33.17	Based on completed projects with direct impact to SL reduction.
2	Carbon dioxide emissions avoided per year (tons)	40,000	15,244.88	Based on completed projects with direct impact to SL reduction.
3	Monitoring and evaluation of the Credit Guarantee Program by DOE	Completed	Completed	Achieved
4	Training and workshops for DOE and NEA on investment management contract transactions	Completed	Completed	Achieved.
5	Training, study tours and workshops for the Energy Regulatory Commission.	Completed	Completed	Achieved.
6	Training, study tours and workshops for electric cooperatives	Completed	Completed	Achieved.

TABLE 1(B)
LGUGC PERFORMANCE INDICATORS

No	Performance Indicator	Closing Date Requirement	Value As of Dec. 31, 2013	Remarks
1	Cumulative number of loan guarantees issued for Electric Cooperatives	At least 15	19	Achieved.
2	Cumulative number of successful investment management contract transactions	At least 6	0	No IMC transactions due to challenges beyond the control of the project.
3	Cumulative value of loan guarantees issued (US$ millions)	At least 24	47.50	Achieved.
4	Cumulative investment in Electric Cooperative under the Project (US$ millions)	At least 40	59.38	Achieved.
5	Total number of commercial banks and other private financial institutions providing loans for investments in electric cooperatives under the project.	At least 4	5	Achieved.
6	Cumulative guarantee claim payments under the Project (US$ millions)	Not more than 3	0	Achieved.

Note: Foreign Exchange rate of US$=PhP43.21

TABLE 2
ECPCG PROGRAM RECIPIENTS

No.	Electric Cooperative	Address
1	Benguet Electric Cooperative, Inc. (BENECO)	Alapang, La Trinidad, Benguet, Luzon
2	Bohol I Electric Cooperative, Inc. (BOHECO I)	Cabulijan, Tubigon, Bohol, Visayas
3	Bukidnon Second Electric Cooperative, Inc. (BUSECO)[a/]	ManoloFortich, Bukidnon, Mindanao
4	Camarines Norte Electric Cooperative, Inc. (CANORECO)	Magallanes Ilaod, Daet, Camarines Norte, Luzon
5	Camiguin Electric Cooperative, Inc. (CAMELCO)	Pandan, Mambajao, Camiguin Province, Mindanao
6	Davao del Norte Electric Cooperative, Inc. (DANECO)	KM 100 Montevista, Compostela Valley Province, Mindanao
7	First Bukidnon Electric Cooperative, Inc. (FIBECO)	Anahawon, Maramag, Bukidnon, Mindanao
8	First Catanduanes Electric Cooperative, Inc. (FICELCO)	Marinawa, Bato, Catanduanes. Luzon
9	Leyte V Electric Cooperative, Inc. (LEYECO V)	Ormoc City, Leyte
10	La Union Electric Cooperative, Inc. (LUELCO)	Sta. Rita East, Aringay, La Union, Luzon
11	Misamis Occidental I Electric Cooperative, Inc. (MOELCI I)	Calamba, Misamis Occidental, Mindanao
12	Misamis Oriental I Rural Electric Service Cooperative, Inc. (MORESCO I)	Laguindingan, Misamis Oriental, Mindanao
13	Misamis Oriental II Rural Electric Service Cooperative, Inc. (MORESCO II)	Medina, Misamis Oriental, Mindanao
14	Nueva Ecija I Electric Cooperative, Inc. (NEECO I)	Malapit, San Isidro, Nueva Ecija
15	Palawan Electric Cooperative, Inc. (PALECO)	Tiniguiban, Puerto Princesa City, Palawan.
16	Pangasinan I Electric Cooperative, Inc. (PANELCO I)	San Jose, Bani, Pangasinan
17	South Cotabato I Electric Cooperative, Inc. (SOCOTECO I)	Matulas Koronadal City
18	Surigao del Norte Electric Cooperative, Inc. (SURNECO)	Narciso St. Corner Espina St. Surigao City

[a/] BUSECO is a recipient of two (2) loan guarantees under the ECPCG Program.

Annex 7. Comments of Cofinanciers and Other Partners/Stakeholders

NA

Annex 8. List of Supporting Documents

Republic of the Philippines, *Electric Cooperative System Loss Reduction Project: Borrower's Final Report*, Submitted by the Department of Energy, March 2, 2014

Republic of the Philippines, *Electric Cooperative System Loss Reduction Project Borrower's Report*, Submitted by the Department of Energy, March 24, 2014

Republic of the Philippines, *Electric Cooperative System Loss Reduction Project: Mid-Term Report (June 2004-June 2009)*, September 1, 2009

Republic of the Philippines, *Philippine Development Plan 2011-2016*, May 30, 2011

Republic of the Philippines, *Philippines Energy Plan 2004-2013*, 2004

The World Bank, *Aide-Memoires and ISRs for the Electric Cooperative System Loss Reduction Project* from 2004 to 2013

The World Bank, *Electric Cooperative System Loss Reduction Project: Project Appraisal Document* (Report No. 26517-PH), April 2, 2004

The World Bank, *Electric Cooperative System Loss Reduction Project Restructuring Paper* (Report No. 64978-PH), May 5, 2011

The World Bank, *Electric Cooperative System Loss Reduction Project: Trust Fund Grant Agreement* between LGU Guarantee Corporation and the International Bank for Reconstruction and Development, May 5, 2004

The World Bank, *Electric Cooperative System Loss Reduction Project: Trust Fund Grant Agreement* between the Republic of the Philippines and the International Bank for Reconstruction and Development, May 5, 2004

The World Bank, *International Bank for Reconstruction and Development, the International Finance Corporation and Multilateral Investment Guarantee Agency: Country Assistance Strategy (CAS) Progress Report for the Republic of the Philippines,* (Report No. 61274-PH), April 20, 2011

The World Bank, *Memorandum of the President of the International Bank for Reconstruction and Development and the International Finance Corporation to the Executive Directors on a Country Assistance Strategy of the World Bank Group for the Republic of the Philippines* (Report No. 24042-PH), April 30, 2002.

MAP

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