Report Number : ICRR0021288

1. Project Data

Project ID	Project Name
P112780	Jamaica Energy Security and Efficiency Enhancement Project
Country	**Practice Area(Lead)**
Jamaica	Energy & Extractives

L/C/TF Number(s)	Closing Date (Original)	Total Project Cost (USD)
IBRD-80070	31-Dec-2015	14,478,574.90
Bank Approval Date	**Closing Date (Actual)**	
10-Mar-2011	31-Oct-2017	

	IBRD/IDA (USD)	Grants (USD)
Original Commitment	15,000,000.00	0.00
Revised Commitment	14,478,574.90	0.00
Actual	14,478,574.90	0.00

Prepared by	Reviewed by	ICR Review Coordinator	Group
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2. Project Objectives and Components

a. Objectives

The project development objective (PDO) was to increase energy efficiency and security through the implementation of the Borrower's National Energy Policy (Loan Agreement, May 19, 2011, page 6).

b. Were the project objectives/key associated outcome targets revised during implementation?

Yes

Did the Board approve the revised objectives/key associated outcome targets?
No

c. Will a split evaluation be undertaken?
No

d. Components
There were three components:

Component 1: Strengthening the regulatory and institutional framework to improve sector performance, increase private investment and transition to cleaner fuels (Appraisal US$5.13 million, Actual US$3.27 million).

Sub-Component 1.1: Technical advisory services to develop, inter alia: (a) policies on renewable energy, energy efficiency and gas, and related regulations; and (b) implementation strategies and plans on renewable energy policies (Implementation: Ministry of Energy and Mining [MEM]).

Sub-Component 1.2: Strengthening the regulatory framework for private-public partnership monitoring capacity of the energy sector, including strengthening the capacity of the Office of Utilities Regulation (OUR) and MEM to: (a) develop regulations for the development of renewable energy (including tariff setting methodologies), and a gas/Liquefied Natural Gas (LNG) program; (b) extend OUR oversight responsibilities to the gas, refinery and downstream petroleum sector; and (c) develop the monitoring and benchmarking instruments (Implementation: OUR).

Sub-component 1.3: Accelerating the development of cost-effective privately- financed generation in the power sector through the provision of technical advisory services to OUR and MEM, to: (a) prepare electricity investments that the project would not finance; (b) facilitate effective interaction with the private developers; and (c) build the institutional capacity of OUR and MEM.

Sub-Component 1.4: Introducing the LNG program to support diversification from oil, including the institutional strengthening of MEM and the relevant ministries, departments and agencies (MDAs), and technical advisory services to enhance the technical, commercial, financial, and legal expertise for developing a sound and sustainable LNG Program and related investments, stakeholders' information and consultation (Implementation: MEM).

Sub-Component 1.5: Technical advisory services to MEM and MDAs to harness the carbon credit potential created through the energy efficiency, renewable energy development and fuel substitution activities under the Borrower's National Energy Policy (Implementation: MEM).

Sub-Component 1.6. Implementing the National Energy Policy communication and information plan (Implementation: MEM).

Component 2: Developing energy efficiency and renewable energy potential (Appraisal US$9.08 million, Actual US$10.82 million).

Sub-Component 2.1: Expanding the energy efficiency testing and labeling capability, and information program of the Bureau of Standards and strengthening the related labeling and information program (Implementation: Bureau of Standards of Jamaica).

Sub-Component 2.2: Carrying out investment promotion activities for identified small hydro sites, reviewing the performance of the existing hydroelectric plants, and mobilizing investors and financiers (Implementation: Centre of Excellence for Renewable Energy of Petroleum Corporation of Jamaica [PCJ]).

Sub-Component 2.3: Promoting solar and wind energy, including disseminating the results of an on-shore wind resource assessment to potential investors, and promoting private sector investment in solar and wind energy (Implementation: Centre of Excellence for Renewable Energy of PCJ).

Sub-Component 2.4: Line of credit/revolving facility (LoC) through the Development Bank of Jamaica (DBJ), to approved financial institutions to provide retail financing to the private sector for energy efficiency and renewable energy investments (Subprojects) (US$4,600,000; Implementation: The DBJ).

Component 3: Project management, monitoring and evaluation (Appraisal US$0.7525 million, Actual US$0.87 million, Implementation: MEM).

Sub-Component 3.1: Strengthening the capacity of the MEM for Project management, procurement and financial management.

Sub-Component 3.2: Technical advisory services to define and implement the M&E system of the project implementation and the related actions under the National Energy Policy.

e. Comments on Project Cost, Financing, Borrower Contribution, and Dates

Project Cost

Total project cost at appraisal was US$15 million including an IBRD loan front-end fee of US$37,500. The actual total project cost was US$14.48 million.

Financing

At appraisal, an IBRD loan of US$15 million was approved. Actual loan disbursement was US$ 14.48 million, which was 97 percent of the approved amount. The undisbursed balance was cancelled at closure.

Borrower Contribution

There was no planned or actual Borrower contribution.

Dates
A level 2 restructuring on December 23, 2015 extended the closing date by 22 months from December 31, 2015 to October 31, 2017, to complete all components due to delays in implementation of Subcompnent 2.1 (extending the testing chambers). The restructuring followed important changes in the political context. The Electricity Act, passed in 2015, restricted OUR's mandate to regulation, while the responsibilities of the Ministry of Energy and Mining were expanded to include Science and Technology (the Ministry duly changed its name to the Ministry of Science, Energy and Technology, MSET). MSET became the project's lead implementation agency. There was also a change in the approach to LNG, whereby investments were to be private sector-led. Furthermore, the test chambers' costs were greater than anticipated, which contributed to implementation delays, and for which a reallocation of funds was necessary.

3. Relevance of Objectives

Rationale

At appraisal, the PDO was relevant to the World Bank Group's (WBG's) Country Partnership Strategy (CPS) for 2010-2013. The project supported Results Areas 5 and 6: strengthening non-labor competitiveness, and climate resilience and vulnerability reduction.

The PDO remained relevant to, and consistent with, the CPS 2014–2017, especially Outcome 4: modernized and increasingly diversified energy sector and transport infrastructure. The CPS states that the WBG would (i) continue to provide technical assistance (TA) on policy and institutional support to the energy Regulator and Ministry to expand clean and renewable energy generation and (ii) aim at mobilizing private sector investment for fuel source diversification.

At appraisal and closure, the PDO was relevant to Jamaica's long-term strategy, embodied in the Vision 2030 National Development Plan (NDP). Here, one of the outcomes was "energy security and efficiency" The Government's Medium-Term Framework, 2009-2012 included strategies for "energy security and efficiency through diversification of energy supply and promotion of energy efficiency and conservation. The PDO was also relevant to the Jamaica National Energy Policy 2009-2030 (NEP), the core of which is to develop "a modern, efficient, diversified and environmentally sustainable energy sector, providing affordable and accessible energy supplies with long-term energy security and supported by informed public behavior on energy issues, and an appropriate policy, regulatory and institutional framework."

The project and PDO remain relevant to country conditions at closure. Jamaica's relatively narrow export base (food, bauxite, and tourism), its reliance on fuel imports, and external market financing make it vulnerable to global commodity and financial market conditions.

Rating

High

4. Achievement of Objectives (Efficacy)

Objective 1

Objective

Increase energy efficiency

Rationale

Theory of change: Development and enforcement of energy efficiency policies and standards, testing the energy efficiency of appliances, and energy efficiency labeling on appliances in the markets, were expected to contribute to reducing, and eventually eliminating, the use of energy inefficient appliances . LoCs were intended to help Small and Medium Enterprises (SMEs) to access to finance for their energy efficiency subprojects. Enhancing the capacity of the Office of Utilities Regulation (OUR) to conduct improved procurement processes would assist in the selection of efficient, low cost generating plants. This would be reinforced by technical assistance in the evaluation of bids for new generating capacity. These activities would be expected to increase the use of energy efficient appliances, save SME energy costs, and provide new, cleaner generating capacity at a lower cost.

Outputs

- The target of testing 250 appliances was not achieved. No appliance was tested during implementation because the testing chambers of the Bureau of Standards of Jamaica (BSJ) only became fully operational in July 2018. According to the ICR, the chambers are expected to halve the time required to test appliances.
- Of the total 55 LoC loans disbursed, 16 were for energy efficiency projects. The project did not set a target of the number of energy efficiency LoC loans.
- An energy efficiency law was promulgated and energy efficiency standards were developed.
- Technical assistance (TA) was provided to OUR for the procurement of 480 MW of capacity, on a build, own and operate (BOO) basis, to replace old and inefficient power plants and meet anticipated load growth. Although this procurement was not carried through (the reasons were not given), the TA provided an evaluation document that ranked the proposals according to evaluation criteria, supported by the analysis of each item. This framework could be used by OUR in evaluating future bids and proposals.

Outcomes

- The energy efficiency LoCs helped to catalyze the market, by encouraging other lenders to move into this line of business. By the end of 2017, the Development Bank of Jamaica (DBJ) had approved approximately US$24 million in energy loans that incorporated energy efficiency solutions with renewable energy technologies for over 270 projects, through 13 lenders. However, no evidence of improved energy efficiency or energy saving is available.
- Energy efficiency standards incorporated in the law had not yet been enforced by closure, nor, according to the project team, by July 2018. There was no evidence of prohibition of imports of inefficient appliances or of energy efficiency labels on major home devices as of July 2018.
- The procurement framework put in place in OUR has enabled the entity to receive and evaluate bids for new energy efficient projects. One of these – for solar power generation – involved costs as low as US$0.08 per kWh; however, the project team informed IEG that the capacity of the proposed plant is unknown.

Rating
Modest

Objective 2
Objective
Increase energy security

Rationale
Theory of change: Development of policy and of a legal and regulatory framework for developing renewable energy, along with completion of relevant feasibility studies and extension of lines of credit, was expected to mobilize investment in hydro, solar and wind power. Similarly, a clear policy and regulatory framework for natural gas and LNG could be expected to encourage investment in power generation using these fuels, and hence to reduce Jamaica's dependence on imported oil-fired generation. Project-funded technical assistance aimed to address constraints in policies and regulations.

Outputs

- Eleven prefeasibility studies for hydropower sites were completed. Of those, 10 sites were found suitable for full feasibility studies, which were completed. Thus, in total, 21 prefeasibility, feasibility and other investments studies were completed, exceeding the intermediate target of ten.
- The project directly or indirectly contributed to 15 new energy sector regulations related to energy security including the Electricity Act 2015, five petroleum codes, electricity sector grid codes, and regulations for the Electricity Regulator. Three standards were established for testing energy efficiency of

appliances. The total number of regulations issued was 18, exceeding the intermediate target of 12.

- Thirty-nine of the total 55 LoC Loans were disbursed for installation of solar PV generation, for a total amount of 2.8 MW.

Outcomes

- Partly as a result of project-supported investment promotion activities and the development of policy and regulations for renewable energy and natural gas/LNG, US$1.1 billion of investment was committed to build 623 MW of new capacity. These investments are either completed or under construction, and include three LNG facilities, three wind farms, two solar farms and one hydropower plant. The targets of US$625 million and 267 MW were, therefore, significantly exceeded.
- Renewable energy generation almost doubled from 9 percent at the start of the project to 17 percent (of which 15.4 percent were large plants), by the end of 2017. The new renewable energy generation investments (including the PV solar to be installed by 2019) amounted to US$290 million for 374 megawatt-hour (MWh) of generation potential.
- The dependency on imported oil in Jamaica's electricity generation mix was reduced to 72 percent, slightly exceeding the target of 73 percent, from the baseline of 95 percent.

Rating
Substantial

Rationale
The first objective was modestly achieved. The procurement of new capacity to replace old efficient plants was not carried through. Moreover, testing chambers for appliances were not operational at closure, and energy efficiency standards remained unenforced at the time of ICR preparation. Efficiency improvements resulting from the LOCs to SMEs were not measured.. However, the potential for enhanced energy efficiency was demonstrated in the low bid prices for a solar plant. The BSJ testing chambers, which are expected to halve the time required to test appliances, became operational in July, 2018. Although there is no evidence, it is possible that the LOCs might have increased energy efficiency in the beneficiary SMEs.

Efficacy of the second objective is rated substantial. There is ample evidence of increased energy security reflected in a fall in the share of imported oil in the electricity generation from 95 percent at appraisal to 72 percent at closure. This is likely attributable to an important degree to the policy, legal, regulatory and institutional changes supported by project-financed technical assistance, as well as project activities related to the introduction of the LNG program, promotion of private sector investment, capacity building and extension of credit.

Given the robust degree of achievement of the second objective, and the potential for attainment of many of the energy efficiency goals, overall efficacy is assessed as substantial.

Overall Efficacy Rating
Substantial

5. Efficiency

There was no ex-ante economic analysis reportedly due to difficulties in quantification. The PAD notes a number of indicative impacts of project-supported investments, but no base years or discount rates were provided. The financial return on the replacement of about 480 megawatt (MW) of existing electricity generating plants by the new duel fuel plants was estimated to be about 35 percent, with a four year pay-back period. An extension of the testing and labeling and information program for key electrical appliances was expected to yield a financial return of over 25 percent for buyers of energy efficient appliances, with a pay-back period of less than three years.

No ex-post economic or financial analysis was performed, not even of the US$5.38 million of 55 LoCs (37 percent of the actual project cost) disbursed for energy efficiency and renewable energy sub-projects.

Implementation Efficiency

Staffing capacity in the Ministry of Science, Energy and Technology (MSET), formerly the Ministry of Energy and Mining (MEM), proved to be a bottleneck in reviewing and responding to project requirements (for example, in reviewing terms of reference for consultants). Implementation efficiency was also adversely affected by initial delays in staffing the Project Implementation Unit (PIU) and in replacing staff during implementation. Due to fiscal space limitations, the closing date was extended by 22 months. Despite this, the testing chambers were still not operational at closure.

Efficiency Rating
Modest

a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal		0	0 ☐Not Applicable
ICR Estimate		0	0 ☐Not Applicable

* Refers to percent of total project cost for which ERR/FRR was calculated.

6. Outcome

Relevance is high. Efficacy is rated substantial There is a likelihood that, in the future, the project's contribution to increasing energy efficiency could be at least partly realized, and there is already robust evidence of enhanced energy security, due in an important degree to the project's activities. Efficiency is modest due to the lack of any ex-post quantitative analysis and important administrative and operational inefficiencies. Overall, the shortcomings are considered to be moderate, and outcome is rated moderately satisfactory.

a. Outcome Rating

Moderately Satisfactory

7. Risk to Development Outcome

The risks to the policies, laws, regulations and institutions that the project supported are low because the Government commitment to them is strong despite the potential time lags in enforcing the energy efficiency standards. The energy mix's dependency on imported fuel oil is expected to decline further from 72 percent at closure to around 50 percent by 2019, as new auctions take place for LNG and hydro power plants. It is noteworthy that reduced oil dependency during 2010-2017 was despite the 31 percent real drop in international crude oil prices over the same period. The ICR reports that the BSJ has completed its testing chambers with its own resources and has trained its staff to operate them.

8. Assessment of Bank Performance

a. Quality-at-Entry

The project was strategic and relevant to addressing the cost of energy and Jamaica's dependency on imported fuel oil. Improving energy security through diversification was a critical element in the Government's strategy. The project built upon the assessment of the Electricity Sector Note prepared by the Bank in 2008. At appraisal, Jamaica's energy sector was characterized by high energy costs, very high dependence on imported petroleum products (in 2008, 94 percent of all energy used was imported), relatively limited renewable energy resources, and a relatively small energy market.

Fiduciary and safeguard compliance arrangements were adequate. Design was flexible, and enabled the project to adapt to changes in the electricity sector's governance framework and in the policy regarding the introduction of LNG into Jamaica's fuel mix.

However, design was complex - it addressed energy planning, policy, generation, and efficiency, as well as financing and refurbishment and expansion of small infrastructure. There were over 40 separate activities, requiring a diverse set of skills and involving many different implementing agencies and stakeholders. This challenged coordination and led at times to a loss of focus.

Risks stemming from fiscal space limitations were identified. This was to be mitigated by keeping the size of the loan (US$15 million) as small as possible, but this proved insufficient when the risk materialized. Dialogue with the Ministry of Finance (MoF) could have been more constant and at a higher level.

There were three further shortfalls that could have been addressed at the preparation stage. First, there were weaknesses in M&E design (see Section 9 below). Second, the Bank team did not effectively assess and mitigate the exchange rate risk incurred by the DBJ when it borrowed from the Government in U.S. dollars and then on-lent in Jamaican dollars. Consequently, the DBJ suffered significant losses after the Jamaican dollar depreciation. The on-lending agreement was subsequently changed to DBJ borrowing in Jamaican dollars. Third, there was no assessment of the capacity of LoC borrowers to provide regular operational, technical and financial reports of the sub-projects financed. As a result, no energy efficiency outcomes of the sub-projects were measured.

Overall, the shortcomings in Quality at Entry are considered significant, reflected in a moderately unsatisfactory rating.

Quality-at-Entry Rating
Moderately Unsatisfactory

b. Quality of supervision
The Bank team demonstrated flexibility in addressing changing government priorities. For example, when the LNG policy changed, the Bank team supported the refocusing of government's role as a sector enabler and regulator rather than a participant. The team also effectively assisted the Government in the final two years of implementation so that almost all contracts could be completed. There were at least two missions per year, and reporting was adequate and candid. The project was downgraded from Moderately Satisfactory to Moderately Unsatisfactory in December 2015 due to slow disbursements and a delay in re-staffing the Project Implementation Unit (PIU), and was upgraded again to Moderately Satisfactory in December 2016. However, the Bank team did not substitute the PDO indicators dropped at restructuring. Overall, shortcomings in the Quality of Supervision are considered minor, leading to a rating of satisfactory.

Quality of Supervision Rating
Satisfactory

Overall Bank Performance Rating
Moderately Satisfactory

9. M&E Design, Implementation, & Utilization

a. M&E Design

Some indicators were less than fully adequate for establishing attribution. For example, PDO indicators of an average cost of electricity generation and the share of different technologies (oil, gas, renewable energy) in the power generation mix could be influenced by exogenous factors, such as technological change and/or changes in the underlying conditions of demand and supply, which modify the relative real prices of renewable energy and fuels. Some of the policy and institutional changes received support from other external partners or took place on the Government's own initiative. Investment commitments to the electricity sector could also be affected, inter alia, by the state of financial markets and by changes in the growth of demand for power. There may be a potential time lag between attaining some intermediate outcome targets and achievement of the outcome targets - the former were in some cases draft regulations or feasibility studies. Although these were, in most instances, approved and enacted, their impact would likely not be fully felt during the project's lifetime.

MEM (later MSET) was to be responsible for managing and operating M&E. It was to receive inputs from other implementing entities.

b. M&E Implementation

PDO and Intermediate outcome indicators were collected. However, the project team informed IEG that all indicators in the Implementation Status and Results Reports (ISRs) were reported in error at the beginning, that the expected values were entered as opposed to the actuals, and that these errors were corrected only after the project restructuring in 2015.

MSET consistently updated indicator tables in their quarterly Project Manager Reports and the data in all 11 Implementation Status and Results Reports (ISRs). These reports collected qualitative information on the status of implementation of each sub-component (for example, status of procurement or contract execution) and details of the outputs (for example, not just listing the number of reports, but describing which ones were produced).

At the project restructuring in 2015, two PDO indicators representing increases in energy efficiency were dropped. One was tied to "a reduction in energy costs for Small and Medium Enterprises (SMEs),". The indicator was deleted because energy cost reductions were not a good proxy for energy consumption reductions through increased energy efficiency and diversification towards renewables. Energy audits and monitoring of energy consumption of the LoC-financed energy efficiency measures and other energy consumption behaviors of the SMEs, which could have enabled an approximate assessment of energy efficiency improvements, were not carried out. The DBJ had neither funds nor expertise for such activities, despite a requirement in the Project Operational Manual (page 39) to monitor annual progress in energy savings, greenhouse gas (GHG) reductions, and financial results of sub-projects, which would be reviewed by the Bank team.

The second dropped indicator - “a reduction in electricity costs for generation” - was considered to be outside the scope and control of the project. However, no alternative PDO indicator to measure increased energy efficiency was introduced. A potential alternative, such as energy efficiency of appliances powered by electricity to be tested by BSJ’s test chambers could not be measured because the chambers were not operational and energy efficiency standards and import embargoes of energy inefficient appliances were not enforced.

c. M&E Utilization

The ICR does not report on M&E utilization beyond the needs of project management.

M&E Quality Rating

Modest

10. Other Issues

a. Safeguards

The project was classified as Category B under OP/BP 4.01 for purposes of environmental assessment. In addition to Environmental Assessment (OP/BP 4.01), the following safeguards were triggered at appraisal: Natural Habitats (OP/BP 4.04), Forests (OP/BP 4.36), Pest Management (OP 4.09), Involuntary Resettlement (OP/BP 4.12), and Safety of Dams (OP/BP 4.37). On January 24, 2011, the final Environmental Management Framework (EMF) and Involuntary Resettlement Policy Framework (IRPF) were disclosed on the websites of MEM, the National Environmental and Planning Agency (NEPA), DBJ, and in the Bank’s Infoshop (PAD, page 42). The main environmental and social risks were related to private sector investments in energy efficiency and renewable energy sub-projects financed through the LoC, and to investments that could be stimulated as a result of the investment preparation, regulatory and legal studies that the project would finance.

OP/BP 4.04, OP/BP 4.36 and OP 4.09 were triggered as a precaution to ensure that potential private sector investments in energy efficiency and renewable energy and related facilities would not involve (i) unprecedented or significant conversion of natural habitats, (ii) logging operations in natural forest areas, or (iii) procurement of pesticides. OP/BP 4.37 was triggered since the project would finance prefeasibility or feasibility studies for hydroelectric sites that might include dams.

The ICR (page 22) reports that the six completed hydroelectric feasibility studies included Environmental and Social Impact Assessment (ESIA) documents that followed the Bank safeguard policies. Environmental aspects of the LoC for private sector investments were managed by the DBJ. The project team informed IEG that safeguards policies were complied with. Nonetheless, some dimensions could have been addressed more meticulously. According to the ICR (page 23), " more rigorous terms of references and additional time for safeguards review of the hydroelectric ESIAs would have enhanced investment readiness....[More attention to] costs for land acquisition, baseline data in sensitive areas, and dam safety

questions [would have facilitated the granting of NEPA permits]..... For the Line of Credit component, earlier integration of the Environmental Management Framework in possible future funding by other multilaterals into DBJ's operations would have resulted in more effective environmental management, dissemination of environmental information to borrowers, and improvement of environmental practices." The LNG regulations cover some basic safety aspects, but lack reference to internationally accepted standards or best management practices for construction of LNG related facilities.

b. Fiduciary Compliance

Financial Management

Throughout implementation, the project was compliant with the requirements of the Loan Agreement. Despite variations in timely submission of interim financial reports, the ICR (page 23) reports that the team produced financial information of acceptable quality. All external audit reports received as of July 2018 were provided to the Bank on time and were unqualified. The task team informed IEG that the final audit was submitted after the due date, but was unqualified, well prepared and deemed acceptable to the Bank.

Procurement

Procurement implementation was assessed in supervision reports as consistently satisfactory and the fiduciary risk was considered low throughout the life of the project. Initially, the PIU prepared and processed a large number of TA contracts. However, the high PIU staff turnover affected progress. Over the life of the project, the Procurement Officer was changed twice, and the Project Manager, the Financial Management Specialist, and the Project Coordinator were changed once. There were usually long delays in replacing staff. In one instance, the project was without a Project Manager, a Procurement Officer and a Project Coordinator for almost a year. Some delays in contract issuance and implementation in 2016 were reportedly due to the PIU's technical capacity challenges, bottlenecks in decision making, and disbursement limitations set by the Ministry of Finance (MoF). An important issue was a weak response on the part of vendors to procurement requests. This was partially mitigated by conducting pre-bid meetings for prospective bidders, to advise them on the requirements for submitting responsive bids. There were no reported cases of misprocurement.

c. Unintended impacts (Positive or Negative)

Not applicable.

d. Other

Not applicable.

11. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Moderately Satisfactory	Moderately Satisfactory	---
Bank Performance	Satisfactory	Moderately Satisfactory	There were significant shortcomings in Quality at Entry and moderate shortcomings in Quality of Supervision (see Section 8 above).
Quality of M&E	Modest	Modest	---
Quality of ICR		Substantial	---

12. Lessons

The following lessons are taken from the ICR with some adaptation of language:

1. **A relatively small, but targeted technical assistance operation can contribute to important sectoral policy and institutional changes.** The impact of technical assistance and of specific reports and studies led to improved laws and regulations, which helped to attract private sector investment in the targeted areas.

2. **Developing a robust results framework with measurable indicators and insuring appropriate capacity building for measuring and analyzing the indicators are important to provide evidence of the project's outcomes.** In this case, there were several gaps. For example, no information was available on cost savings or increase in renewable energy generation through the LoC. The degree of attainment of the objective increase energy efficiency was not measured. Consistency in designing indicators which more clearly establish attribution would have been helpful.

3. **Where there are severe macroeconomic constraints, securing fiscal space to ensure disbursement against all planned activities in a year can be difficult.** Continuous monitoring, re-estimation of expected disbursements, and constant communication with the MoF could help mitigate the risk but may not eliminate it as the fiscal space issue depends on factors beyond the project's scope.

13. Assessment Recommended?

Yes

Please explain

The impact of several project activities, especially regarding energy efficiency, was not fully apparent at closure. Moreover, the project could provide useful lessons of experience for technical assistance operations supporting policy and institutional changes at a sector level.

14. Comments on Quality of ICR

The ICR provides a detailed overview of the project. It is candid, generally aligns its analysis to the project development objective, and is focused on results. Despite the weakness of some indicators, the ICR successfully demonstrates the project's important contribution to the promotion of an enabling environment favoring energy security and efficiency. The report follows most but not all guidelines (for example, the 2017 ICR guideline that “Annex 3. Project Costs by Component” needs to include project costs at appraisal is not followed). No ex-post economic or financial rates of return were estimated, even for the LoC component.

a. Quality of ICR Rating

Substantial