# 1. Project Data

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<th>Reviewed by</th>
<th>ICR Review Coordinator</th>
<th>Group</th>
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<tr>
<td>Ihsan Kaler Hurcan</td>
<td>Dileep M. Wagle</td>
<td>Ramachandra Jammi</td>
<td>IEGSD (Unit 4)</td>
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### 2. Project Objectives and Components

#### a. Objectives

According to the Financing Agreement (FA, p.6) and the Global Environment Facility Grant Agreement (GA, p.5)—both dated July 13, 2009—the project objective was “to improve reliability, efficiency and access to modern energy services in the Recipient's territory." The FA and the GA defined “Recipient” as “Republic of Benin.”

The Project Appraisal Document (PAD, p.5) stated the same objective with a minor difference that “Benin” was used instead of “the Recipient’s territory.” Furthermore, in the PAD (p. x), the Global Environment Objective was defined as “[t]hrough the introduction of energy-efficient appliances in Benin's residential and commercial sector, the project will reduce global greenhouse gas emissions.”

Following IEG procedures, this Implementation Completion and Results Report (ICR) Review is based on the project development objective as stated in the FA and GA.

**Parsing of the Project Objective and Explanation for not Applying Split-Rating**

Neither the PAD nor the ICR provided a clear definition for “modern energy services.” However, from the description of the project’s intent (PAD, para. 23 on p.4) and the project design (PAD, pp.5-9), the project objectives are inferred as “to improve reliability and efficiency of power supply” and “to increase access to modern energy services,” the latter of which consisting of access to electricity and clean cooking facilities, such as fuels and stoves that do not cause pollution in houses.

Project activities under Component A: Electrical Network Up-Grading (for details please see section 2d "Components” below) consist of the construction of transmission lines and rehabilitation of distribution network in areas which already have access to electricity. The outputs of these activities correspond to the achievement of the objective to improve the reliability and efficiency of electricity supply, which will be evaluated as the first objective. On the other hand, although the project activities under sub-component B.1 to increase access to electricity in rural areas and those under sub-component B.2 to modernize biomass energy services through *inter alia* promotion of inter-fuel substitution and supporting improved cookstove programs (please see section “d. Components” below) lead to different outputs, they, too, will be evaluated as one objective, since they target the same group of beneficiaries, i.e., the rural population, and support them move from traditional energy, i.e., kerosene for lighting and biomass for cooking, to modern energy, i.e.,

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electricity and liquefied gas, respectively. As a result, in this review, the project development objective will be treated as consisting of two objectives as follows:

**Objective 1:** to improve reliability and efficiency of power supply in Benin; and

**Objective 2:** to increase access to modern energy services in Benin.

The project objective was not revised during project implementation. However, the results framework and the second component were substantially changed in the second restructuring in October 2013, resulting in a decrease in the project’s ambition in rural electrification. Although this would justify the application of a split-rating, since the project was restructured when the disbursement rate was at 15 percent, its impact on the evaluation of the achievement of the second objective was not material; therefore, a split-rating will not be administered. Furthermore, there was no target set for the increase in rural access to electricity in the original results framework against which the project outcomes could be evaluated before restructuring.

**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**

The project had three components with numerous levels of sub-components:

**A: Electrical Network Up-grading.** *(Appraisal cost: US$98.32 million, International Development Association (IDA) credit financing US$43.32 million and Global Environment Facility (GEF) grant financing US$1.82 million; actual cost was not reported; actual IDA financing US$39.97 million and actual GEF financing US$1.82 million)*

**A.1.** Construction of electrical transmission interconnection between Onigbolo and Parakou.

**A.2.** Construction of electrical transmission interconnection between Sakété and Porto Novo.

**A.3.** Technical assistance for the supervision of the works undertaken under sub-components A.1 and A.2.

**A.4.** Rehabilitation and reinforcement of the Benin Electric Power Company’s (SBEE – Société Béninoise d’Énergie Électrique) electrical distribution network in major urban centers with a view to improving the quality of power supplied.

**A.5.** Improving lighting and appliance efficiency in urban areas for households that already had access to electricity through, among others: (a) promoting the replacement of incandescent light bulbs by compact
fluorescent lamps (CFLs); (b) introducing energy efficient product standards and a labeling scheme for air
conditioners and CFLs; and (c) carrying out of public awareness programs.

**B: Electrification and Modern Energy Services.** *(Appraisal cost: US$65.50 million, IDA credit financing
US$12.00 million; actual cost was not reported; actual IDA financing US$1.84 million)*

**B.1.** Increasing access to electricity in rural areas by:

(a) developing a sustainable institutional framework to support rural electrification through:

(i) the provision of technical assistance and capacity building activities for Beninese Agency for Rural
Electrification and Energy Mastery (ABERME – Agence Béninoise d’Électrification Rurale et de Maîtrise
d’Énergie) to enable the latter to fulfill its institutional functions (including financial management,
procurement, monitoring and evaluation, and environment and social safeguards related functions);

(ii) the preparation by ABERME of a comprehensive study with regard to potential rural electrification
concessions and thereafter implementation of the recommendations of said study, and preparation of an
administrative, financial and accounting manual and of an integrated financial management system for
ABERME;

(iii) the updating of the Rural Electrification Policy, including a proposed financing mechanism for
concessionaires and private operators; and

(iv) the provision of capacity building activities for local communities, potential private operators, and other
potential stakeholders, with regard to ABERME’s functions and rural electrification.

(b) implementing of at least four small pilot rural electrification operations, with community participation,
under which the Rural Electrification Fund would finance the development of business plans from potential
private operators and part of the investment related costs of the approved pilot operations.

**B.2.** Modernizing biomass energy services by:

(a) promoting community-based sustainable wood-fuel supply systems through the implementation of a
community forest management plan for 300,000 hectares of forests in the Moyen Ouémé region.

(b) promoting biomass energy efficiency and inter-fuel substitution by:

(i) expanding the adoption of improved carbonization systems to maximize wood to charcoal conversion
efficiency;

(ii) supporting private sector-based improved cookstove programs and private sector-based liquefied
petroleum gas inter-fuel substitution programs; and

(iii) strengthening the capacity of the General Department of Energy (DGE – Direction Générale de
l’Énergie) to implement the energy sector information and monitoring system;
(c) promoting the delivery of local rural community development services and participatory activities in the Moyen Ouémé region as incentive mechanisms for compliance with the sustainable community forest management plan, including:

(i) encouraging community participation in forest management decisions;
(ii) improving access to and sustainable exploitation of non-wood forest products by the local communities;
(iii) generating forest employments for local people, and promoting sound forest exploitation techniques;
(iv) promoting apiculture and reforestation activities; and
(v) using forest revenues to provide financial support to local development plans.


C.1. Provision of technical assistance to Benin Electric Company (CEB – Compagnie Électrique du Benin) to improve its financial autonomy and performance through: (a) the preparation of a five-year business development plan, and (b) capacity building.

C.2. Provision of technical assistance to SBEE to improve its financial autonomy and performance through: (a) the preparation of a five-year business development plan, including a clear mapping of its distribution network, and (b) capacity building.

C.3. Provision of technical assistance to enhance the capacity of DGE to assess and make recommendations with regard to the electricity sector regulatory framework.

C.4. Preparing an update to the energy sector master plan of 1997 to guide overall least cost energy sector development, and establishment of a sector coordination mechanism to ensure least cost implementation planning.

C.5. Provision of technical assistance to enhance the capacity of relevant public entities to actively monitor environmental and social safeguards as they relate to the energy sector.

Revised Components

The project went through a major restructuring in October 2013. New project activities were added in line with the request of the Government of Benin, and project activities with no progress were deleted. In May 2016, the components were revised again. The revisions to the components are given below:

Sub-component A.1 (b): Installation of protection and relaying equipment. This sub-component was added with an estimated cost of US$1.41 million in the second restructuring in October 2013 to ensure the achievement of N-1 criterion—the capability of delivering electricity from a generation site to a substation without any load loss in case of a failure in one of multiple transmission lines between these two points—in the transmission system. However, this activity was later cancelled in the fourth restructuring in May 2016.
Sub-component A.4: In October 2013, installation of supervisory control and data acquisition (SCADA) system was cancelled due to insufficient project implementation time left to complete this activity. Instead, the installation of 45,000 prepayment meters and connections was added as a new activity with an estimated cost of US$10.9 million, which was the top priority for the government and the utility at the time of restructuring.

Sub-component B.1: The project was to support the Rural Electrification Fund and provide technical assistance to ABERME, but due to the weak capacity of the latter, there was no progress and this sub-component was cancelled. There were no counterpart funds available for this sub-component, either. This was a major revision, because under this component at least four small pilot rural electrification operations, with community participation, would be implemented to increase rural electrification.

Sub-component B.2 (a): Due to limited cook stove manufacturing capacity, the scope of this sub-component was reduced, and the allocation was decreased from US$3.0 million to US$1.3 million.

Sub-component B.3: Electrification of three priority localities. Due to the cancellation of the Rural Electrification Fund and ABERME sub-component, electrification of three priority localities was added as a new project activity with an estimated cost of US$1.5 million. The target was to increase access to electricity by 500-household new connections.

Component C: Study on SBEE’s restructuring was cancelled in May 2016, because there was no progress.

Component D: Project Preparation. (Appraisal cost in October 2013: US$5.00 million, IDA credit financing US$5.00 million; actual cost: US$4.40 million, actual IDA financing US$4.40 million)

This was a new component added in the second restructuring in October 2013 to prepare critical pipeline projects. It had two sub-components:

1. Preparation of Adjarala Hydropower Project through financing (i) the update of the Environmental and Social Impact Assessment and Resettlement Action Plan; (ii) the hiring of a panel of experts for the preparation phase; (iii) the audit of legacy safeguard issues of Nangbeto Hydropower Project; and (iv) laser, imaging, detection, and ranging from the Nangbeto reservoir to Mono River mouth.
2. Preparation of studies of upcoming transmission and distribution projects. These studies included: (i) the technical and environmental studies of the 161kV transmission line from Natitingou to Porga; and (ii) the technical and environmental studies of the rehabilitation and extension of the distribution system.

In the May 2016 restructuring, topographic studies for Adjarala Hydropower Project were dropped.

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

Project Cost: The total project cost was originally estimated at US$178.51 million including US$8.00 million for contingencies. The actual project cost was not reported in the ICR. The project team commented that this information was not readily available from the borrower.

Financing: At appraisal, the International Development Association (IDA) credit was estimated at US$70.00 million and the Global Environment Facility (GEF) grant at US$1.82 million. In the second restructuring in
October 2013, the IDA credit commitment decreased from US$70.00 million to US$54.50 million mostly due to the cancellation of Rural Electrification Fund and ABERME sub-component. At project closing in December 2018, the IDA financing stood at US$54.50 million; the realization of the IDA loan disbursement was 77.86 percent against original commitment and 100 per cent against the revised commitment. GEF grant was fully disbursed.

In addition to the IDA and GEF financing, the Energy Sector Management Assistance Program (ESMAP) was estimated to provide US$2.00 million to the project as grant. ESMAP financing was replaced by grant in the same amount from the African Renewal Energy Access trust fund in 2011. The realization of this grant at project closing was US$1.79 million.

The estimated contributions of other donors at appraisal and their actual realizations at project closing were as follows: (i) the European Investment Bank, US$ 23.09 million, actual US$26.09 million; (ii) Fond Français De L’Environnement Mondial US$1.30 million, which was fully disbursed; and (iii) Kreditanstalt fur Wiederaufbau (KfW) US$18.70 million, which was also fully disbursed.

**Borrower contribution:** At appraisal, the contribution of the Government of Benin was estimated at US$51.85 million, and the CEB and the SBEE were to contribute US$8.25 million and US$1.50 million, respectively. The government’s contribution was substantially decreased at the second restructuring in November 2013 to US$1.85 million since the government was not able to secure funding. The ICR did not report the actual borrower contribution at project closing.

**Restructurings and Dates:** There were five project restructurings

- **First Restructuring (October 7, 2011):** At appraisal, funding from Africa Renewable Energy Access (AFREA) trust fund was not available and it was referred as ESMAP financing in the project appraisal document (Restructuring Paper dated October 7, 2011, p.4). The project was restructured to allow AFREA to co-finance some project activities which were mistakenly listed as items to be financed by IDA. These changes were as follows: (i) a clarification of activities to be financed under sub-component B.2 by IDA credit proceeds; (ii) revision of the disbursement table to reflect the changes in the activities to be financed by IDA; and (iii) extension of the effectiveness period to enable the signature of the AFREA grant agreement.

- **Second Restructuring (October 14, 2013):** In this restructuring, project components were substantially amended (for a detailed explanation please see Revised Components above in the previous section.) In line with the changes made to the components, IDA loan amount decreased from US$70.00 million to US$54.5 million. There was no change in the GEF grant amount. The definition of one of the key indicators was revised from “increased number of people with improved access to modern energy and electricity services” to “people provided with access to electricity under the project with household connections” and the target was decreased from 400,000 households to 200,000 households. Indicators related to the cancelled project activities were deleted. Indicators were added to the results framework to measure the progress of the newly added project activities of installation of prepayment meters and electrification of new localities. Due to the weak project implementation capacity of SBEE and ABERME, their fiduciary responsibilities were transferred to the project implementation unit in the DGE, resulting in a decrease of project implementation agencies from four to two, the other being CEB. Lastly, the project closing date was extended by one year from June 30, 2015 to June 30, 2016 because it was estimated that the bidding process and the construction time of the distribution component would exceed the original closing date by one year (Restructuring Paper dated October 14, 2013, p.13).
• **Third Restructuring (June 25, 2015):** The closing date of the GEF grant agreement was extended by one year from June 30, 2015 to June 30, 2016 to align it with the revised closing date of IDA financing agreement to allow time for the completion of energy efficiency activities financed by this grant.

• **Fourth Restructuring (May 12, 2016):** Due to the introduction of core sector indicators, indicators were amended in this restructuring without any material change in the results framework; technical and commercial losses were added as indicators and number of direct project beneficiaries was used instead of indicators measuring number of people benefiting from specific project outcomes, such as access to electricity. Furthermore, the measurement unit was changed from number of households to number of people, assuming that there were six people per household. Some project activities were cancelled, such as the installation of protection and relaying equipment, which was added in the second restructuring and a study on SBEE restructuring and the topographic studies for the Adjarala project. Cancellation of these activities did not have an impact on the results chain of the project. IDA credit proceeds were reallocated among project activities without any change to the total commitment amount. Most importantly, the project closing date was extended by two years from June 30, 2016 to June 30, 2018, to allow the construction of the transmission line between Onigbolo and Parakou financed by IDA, which was delayed due to lengthy coordination process for a joint tender among co-financiers for the construction of the two main transmission lines, and the weak implementation capacity of the project implementation unit. As of this restructuring, the equipment for the Onigbolo-Parakou transmission had already been procured, but the construction had not started, yet. The closing date of GEF grant agreement was not extended since the energy efficiency project activities financed by this grant were expected to be completed by the project closing date of June 30, 2016.

• **Fifth Restructuring (June 20, 2018):** The project closing date was extended by six months from June 30, 2018 to December 31, 2018 to allow the completion of the Onigbolo-Parakou transmission line, the construction of which was further delayed because of late mobilization of the contractor and pending compensation payments by CEB to displaced people due to land expropriations.

• **Dates:** The project was approved on June 23, 2009 and became effective ten months later on April 30, 2010. The original project closing date was June 30, 2015; which was extended three times: By one year in the second restructuring, two years in the fourth restructuring and six months in the fifth restructuring. As a result, the project closing date was extended by 38 months and the project closed on December 31, 2018. The total duration of the project from approval to closing was 9.5 years.

### 3. Relevance of Objectives

**Rationale**

At project closing, the project objectives were highly relevant to country context in Benin. The Growth Strategy for Poverty Reduction, under the Aladia Benin 2025 strategy, aims at reducing poverty through, inter alia, increasing public investments in infrastructure, including the power sector. Provision of reliable power supply is a key area of focus of the 2025 strategy, especially to rural areas and northern regions of the country. At 30 percent, nationwide electrification rate is lower than the Sub-Saharan Africa’s average
electrification rate of 35 percent; the difference in electricity access rate between urban areas and rural areas is extremely wide at 56 percent and 6 percent, respectively. Furthermore, due to inadequate energy supply, wood fuel and charcoal for cooking still have a very high share in the country’s energy balance at 49 percent, which has been adversely affecting forests (Benin Energy Service Improvement Project Appraisal Document, p.11).

The project objective is also highly aligned with the World Bank strategy as defined in the Country Partnership Framework, 2019-2023 (CPF). Under the second objective to improve the quality of infrastructure, the Bank strategy aims at improving the performance of and access to power through increasing generation capacity and strengthening the administration of the system (CPF, p.24). These are expected to improve the reliability of power, and decrease technical and commercial power losses, which would increase the efficiency of the power supply. Under the eighth objective to reduce vulnerability to climate-related threats, the Bank strategy continues to focus on energy-efficient charcoal production to improve the management of forest resources, which are heavily used for fuel consumption (CPF, p.34).

At the time of appraisal, the World Bank had already been providing support to SBEE under the Energy Services Delivery Project (ESDP) to reduce the utility’s operating costs and improve its efficiency while developing a sector strategy including the role of private operators. Therefore, this project benefited from the experience gained during the implementation of ESDP. Yet, although the project objective was adequately challenging given the experience of the World Bank in the country, they were rather ambitious when the weak institutional capacities of the SBEE and the newly formed ABERME were considered.

Overall, the relevance of project objective is rated Substantial.

Rating
Substantial

4. Achievement of Objectives (Efficacy)

OBJECTIVE 1
Objective
To improve reliability and efficiency of power supply in Benin.

Rationale
Theory of Change for Objective 1

As explained in section 2.a Objectives, this objective was not clearly defined but could be construed from the project design and the narratives in the PAD and the ICR. The project was designed to achieve this objective through two separate interventions: (i) construction of a 161 kV transmission line from Onigbolo to Parakou in the north, and another 161 kV line between Sakété and the industrial zone in Porto-Novo in the south; and (ii) strengthening the SBEE’s distribution network through rehabilitation and construction of substations and underground medium voltage network in bigger cities. The outcome expected from the construction of the
transmission lines was improved reliability and efficiency of the transmission network. The Onigbolo-Parakou transmission line was to establish the N-1 criterion, so that electricity could be supplied without any interruption to the central and northern regions of the country should there be an outage in the only transmission line supplying power to these regions from Togo. The rehabilitation and construction of substations and underground distribution network in major cities were to improve the reliability of power supply by stabilizing voltage. When the installation of 45,000 prepayment meters and connections was added as a project activity in October 2013, the expected outcome was a decrease in commercial losses; hence achieving further efficiency in power supply. Technical assistance under the third component would support CEB and SBEE improve their financial autonomy and performance, with the expectation that this would contribute to the improvement of the reliability and efficiency of power transmission and distribution. The implementation of project activities under GEF-financed sub-component A.5—distribution of energy-efficient compact fluorescent lamps and introduction of standards and labels for energy efficient light bulbs and air conditioners—was to indirectly contribute to the reliability and efficiency of power supply through lowering peak load demand. Project funding, i.e., inputs, was sufficient to implement these activities and a direct causal link could be established between the project outputs and the outcomes.

However, the results framework did not address the issue of shortcomings in the power generation side; CEB, which supplies electricity to both Benin and Togo, imports 95 per cent of the electricity from Nigeria (60 percent), Ghana (30 percent) and Cote d'Ivoire (5 percent). Power imports have been unreliable causing severe outages (PAD of Energy Service Improvement Project, p.93). Furthermore, the original project development objective (PDO) level indicators did not fully capture the achievement of this objective. The indicator of “Benin transmission network responds to N-1 criteria” is an output level indicator measuring the existence of the transmission line constructed by the project, rather than an outcome level indicator. The other indicator of “power losses in Benin’s transmission networks” measured the transmission losses in GWh which did not take into account the increased flow on the network when setting the target; therefore, it could not capture the reduction in losses in percentage terms (ICR, p.22). The results framework did not include an indicator measuring the reduction in power outages, which is the most relevant indicator to monitor the improvement in the reliability of power supply. However, the intermediate results indicator which measured the distribution level voltage fluctuations could have been a PDO level indicator since it directly captured the improvement in the voltage quality in the project area, which shows the improvement and the reliability of power supply. Lastly, the PDO level indicator added in the fourth restructuring in May 2016, i.e., electrical losses per year in the project area—both technical and commercial—was useful in capturing the project outcome of improving power supply efficiency.

The original theory of change had some major shortcomings and was not robust. The project team tried to address some of those shortcomings during project implementation and some others were addressed in the follow-on Energy Service Improvement Project and the First Fiscal Management and Structural Transformation Development Policy Financing.

**Outputs and Outcomes**

At project closure, the construction of the Onigbolo-Parakou and the Sakété-Porto Novo transmission lines were completed; nine substations were rehabilitated; and 45,000 prepaid meters were installed. Under the GEF sub-component, 350,000 compact fluorescent lightbulbs (CFLs) were installed. All of the above listed project activities achieved their targets.

As a result of the construction of transmission lines, especially the Onigbolo-Parakou line, the efficiency of the transmission network improved; the loss rate was 5.44 percent at the start of project implementation and it
decreased to 4.34 percent between January and September 2019. This was mostly achieved by shortening the transmission distance of the electricity imported from Nigeria to Northern Benin. Before the project, electricity had to be transmitted via the line through Togo (The target was to reduce energy losses from 51 GWh to 24 GWh; it was not defined in percentage points. The loss at project completion was 67.6 GWh, but this was not a correct method of measuring the achievement, because the energy flow at the start of the project was 973 GWh, whereas it was 1,409 GWh in 2018. Therefore, measuring the reduction in percentage points results in a better evaluation of the achievement of this outcome. However, since it is not known what the energy flow was assumed to be at project closing, it is not possible to come to a definitive conclusion whether the project was successful in achieving its target or not. Nevertheless, a 1.1 percentage point decrease out of 5.44 percent is a substantial reduction in transmission losses).

On the other hand, the project was not successful in reducing electricity losses in the project area. The indicator measuring these losses was added in the fourth restructuring in May 2016. The baseline line was 22 percent including both technical and commercial losses. The target was to decrease it to 20 percent. The project closed with an electricity loss rate of 23.09 percent, even higher than the baseline. The main reason for this poor performance was the increase in commercial losses from 11 percent to 13.09 percent. As discusses above in the theory of change paragraph, the project did not address the commercial performance of the SBEE. Therefore, this poor performance led to the follow-on project of Energy Services Improvement Project.

Regarding the reliability of power supply, the results framework did not include any indicator. However, the ICR provides additional information about the reduction in outages (ICR, p.21). In 2013, the duration of power outages in the substations in the project area was 5,018 hours. This figure peaked in 2015 to 8,387 hours and sharply declined to 1,623 hours after the rehabilitation of the substations. This is a notable achievement in reducing the duration of power outages. The rehabilitation of substations resulted in eliminating voltage fluctuations in project cities, too. According to the information provided by SBEE, distribution level fluctuations was lower than seven percent, which was also the target. More stable voltage improves the quality and reliability of power supply.

As result of the distribution and installation of CFLs at household level, the peak load decreased by 6.61 MW against the target of 9.7 MW and the energy savings were 12.06 GWh against the target of 14.0 GWh. The achievement was lower than the targets mostly because of replacing economic bulbs of 40W in the absence of incandescent bulbs (ICR, p50). A decrease in peak load contributes to improving the reliability of power supply by lowering demand.

The project was successful in improving the reliability of power supply by shortening the duration of outages, eliminating voltage fluctuations and decreasing peak load demand, and improving the efficiency of the transmission network; yet, the project failed to improve efficiency in the distribution system in the project area where electricity losses increased from 22 percent to 23.09 percent against the target of 20.00 percent. Overall, the project was substantially successful in improving the reliability and efficiency of the power supply.

Rating
Substantial

OBJECTIVE 2
Objective
To increase access to modern energy services in Benin.

Rationale

**Theory of Change for Objective 2**

“Modern energy services” are defined as consisting of two main components: (i) access to electricity; and (ii) access to clean cooking facilities, such as fuels and stoves that do not cause pollution in houses. Although the project documents do not provide a clear definition of “modern energy services,” the intent and design of the project show that the project aimed at increasing access to modern energy services through increased access to electricity and clean cooking facilities, such as promotion of inter-fuel substitution and supporting improved cookstove programs. Therefore, it is advisable to evaluate the achievements of these two activities separately, since they intervene in two different aspects of moving from traditional energy, i.e., kerosene for lighting and biomass for cooking, to modern energy, i.e., electricity and liquefied gas, respectively. However, since these two activities were designed under the same component to increase rural population’s access to modern energy services, and the project objective did not explicitly include any reference to either one of them, access to electricity and access to clean cooking facilities will be evaluated under one objective as “access to modern energy services.”

Under sub-component B.1, the project was originally designed to provide support to the enhancement of the institutional framework of Benin’s newly established rural electrification agency, ABERME (Agence Beninoise d’Electrification Rurale et de Maitrise d’Energie), to fulfill its functions in increasing rural access to electricity. The project was also to support the Rural Electrification Fund (REF) to finance four small pilot rural electrification operations—mini-grids with diesel-fired generators. Expected outcome was increased access to electricity. The intervention was to be supported by IDA and borrower’s funds, and they were sufficient to implement these project activities. There was a clear causal link between the project activities, project outputs and project outcome. However, it was a rather ambitious objective, given that ABERME lacked institutional capacity to implement these projects. It was expected that ABERME would be able to implement rural electrification activities through concessions, while strengthening its institutional capacity, which was not realistic. Furthermore, it was assumed that the borrower would provide a sizable amount of funds, i.e., US$53.30 million, to finance these activities, which did not materialize. Therefore, these activities were cancelled at the second restructuring in November 2013 when the disbursement rate was at 15 percent. Instead, the electrification of three priority localities was added to the project with a target of 500 new household connections—3,000 people. The amount of IDA funds allocated to rural electrification activities decreased from US$8.0 million to US$1.5 million.

The project activities under sub-component B.2 aimed at improving the inefficient use of traditional biomass-based products, such as firewood and charcoal, which constituted 60 percent of Benin’s energy balance. The inefficient and unsustainable use of biomass-based products resulted in a serious decline in forest cover in the country: the project was to support the implementation of forestry management plans and management of wood-fuel markets. These were further to be supported by expanding the adoption of improved carbonization systems, with the expected outcome that the efficiency of wood-to-charcoal conversion would be maximized, which would in return reduce aggregate wood requirement and labor effort. The project was to support the promotion of private sector-based programs for improved cook stoves and liquefied petroleum gas (LPG) inter-fuel substitution, which would increase access to clean cooking facilities. Lastly, the project was to finance rural community development activities in the Moyen Ouémé region as an incentive mechanism for compliance with the sustainable forest management plans. The project’s input, i.e., US$5.50 million, was sufficient for a limited intervention to increase access to clean cooking facilities. There was a reasonable
causal link between the project activities, outputs and expected outcome of improving the access of the rural communities to clean cooking facilities, both in terms of fuel and cookstoves, while protecting forests; however, overall design of this component was very complex consisting of various smaller project activities.

**Outputs and Outcomes**

Electrification of six rural settlements—Bariénou, Sikki, Guessou-Bani, Déressi, Tantéga-Tétonga and Tolehoudji—was completed. As a result of these activities, 3,560 people were connected to on-grid electricity against the target of 3,000. Furthermore, the ICR (pp. 44-45) states that around 1.18 million people were “provided with access to electricity by household connections” against a target of 1.2 million. The project team later clarified that the indicator should have read “people provided with new or improved services” in which the latter covers the increase in the number of people with more reliable and better quality electricity services. Therefore, it is not possible to know the exact increase in access to electricity other than those achieved through the electrification of seven rural settlements.

As a result of the biomass activities, the first set of forestry management plans was developed and implemented covering an area of 300,000 ha, as targeted. The installation of wood markets in rural communities was also completed. Training was given to 1,150 farmers on improved carbonization and logging techniques against the target of 450 farmers. Furthermore, the ICR (p.24) states that 24,670 new households were provided access to gas cooking equipment and 25,000 new households access to improved cook stoves. In response to a written question, the project team commented that “[f]our indicators were created for component B, but they did not directly include the cookstoves or interfuel substitution. This is probably mainly explained by the fact that much of the work on promoting the use of them was done indirectly – through subsidies, through working with NGOs to spread awareness of their benefits, and through technical capacity building to support the development of the legal, regulatory, and incentive framework for the promotion of biofuels.” Lastly, in order to diversify income-generating activities in the project area and to incentivize compliance with the forestry management plan, the project financed the construction of 16 honey production sites and 22 water boreholes, and the purchase of beekeeping equipment for new beekeepers. There were no targets set for these activities.

The impact of the project on the preservation of forests and reforestation can only be measured in the medium-term. On the other hand, access to clean cooking facilities increased through the distribution of gas cooking equipment and improved cook stoves. However, there is no information whether this equipment was taken up by households, especially by women, who are in charge of cooking in rural areas and highly exposed to health risks caused by indoor air-pollution. Given that only modest gains achieved in large scale interventions, such as the distribution of 100 million cook stoves by the Global Alliance for Clean Cookstoves, more information is needed to evaluate the impact of the project on the transition from traditional energy to modern energy in the project area and its impact on slowing the inefficient use of forest resources. Furthermore, there is not sufficient evidence to evaluate the impact of improved carbonization and logging techniques training program on improving wood fuel efficiency.

The project was successful in achieving the relatively low target set for increasing rural access to electricity. The project was also successful in establishing a forestry management plan for efficient use of forest resources as biofuel and increasing the number of households with improved cook stoves, the effects of which could be better observed in the medium-term. Overall, the achievement of the project in increasing access to modern energy services is rated Substantial.
OVERALL EFFICACY

Rationale
There were weaknesses in the theory of change for both objectives. However, the project was substantially successful in improving the reliability of power supply and efficiency of the transmission system, though there was no improvement in the efficiency of the distribution system—technical and commercial losses increased to 23.9 percent from a baseline figure of 22 percent. The project was also substantially successful in increasing access to modern energy services in rural areas through increased rural electrification and access to clean cooking facilities, while establishing a forestry management plan for efficient use of forest resources as biofuel.

Overall, the efficacy of the achievement of the project objectives is rated Substantial.

Overall Efficacy Rating
Substantial

5. Efficiency

Economic Analysis

At appraisal, economic analyses were conducted for the investments in transmission lines and rehabilitation of the substations. The other components, consisting of mostly technical assistance activities, were excluded from economic analysis.

Transmission Line Investment

The assumptions were relevant for a cost-benefit analysis of the transmission line investment between Onigbolo and Parakou. The lifetime of the transmission line was assumed to be 40 years and the annual increase in electricity demand as 6 percent. Costs were taken as the investment expenditure, including the costs for the implementation of environmental and resettlement safeguard policies, but excluding taxes, duties and price contingencies. Benefits were assumed to originate from (i) reduced transmission losses; (ii) increased reliability; and (iii) reduced non-distributed energy (PAD, p.72). The same assumptions were used at project closing. The calculations yielded an economic internal rate of return (EIRR) of 22 percent at appraisal and 36 percent at project closing. The increase in the project closing EIRR is due to the use of marginal cost of generation rather than the average cost of generation, and the updating of the cost of non-distributed energy, which was higher at project closing compared to appraisal. The net present values (NPVs) calculated at appraisal and project closing were US$59.95 million and US$80.41 million, respectively, at a discount rate of 10 percent. However, it should be noted that since the transmission line was energized just one month before project closing date, it is
expected that economic analysis would yield better results when the transmission line gradually reaches its optimal load.

Rehabilitation of Substations

In addition to the investment costs, supervision cost and operation and maintenance costs were included in the economic analysis for the rehabilitation of substations. Benefits were assumed to be (i) the reduction of distribution-level losses; and (ii) the reduction in unscheduled power outages (PAD, p.73). The same assumptions were used at the second restructuring in October 2013 when prepaid meters were added to the scope of work and at project closing. The calculations yielded an EIRR of 16 percent at appraisal, 26 percent at second restructuring and 40 percent at project closing. The NPV calculations were US$10.11 million, US$5.6 million and a very high US$86.62 million, respectively, at a discount rate of 10 percent. The reasons for this sharp increase in economic performance of this component are explained as (i) updated economic data, such as the higher cost of unserved energy; (ii) very high baseline for the frequency and duration of unscheduled outages; and (iii) higher projections for energy consumption in the project area (ICR, p.63). A sensitivity analysis was conducted at project closing which assumed the increase in demand as 4 percent rather than 6 percent. This calculation yielded an EIRR of 28 percent and an NPV of US$33.9 million.

Operational and Administrative Efficiency

At appraisal, it was expected that the newly established ABRERA would have the institutional capacity to implement a rural electrification project and the borrower would provide US$52.00 million to the Rural Electrification Fund. These proved to be overly optimistic expectations, which did not materialize resulting in a major restructuring of the project in October 2013 and scaling down of the rural electrification component of the project. Similarly, the capacity of the rural cook stove manufacturer did not materialize against the expectations at appraisal, and the funding for that sub-component had to be decreased. The project implementation was also adversely affected by delays, initially caused by a lengthy effectiveness period and later by the joint tendering of two transmission lines funded by different donors. Nevertheless, the rehabilitation of the substations and other related works was completed on time in 2015, and the construction of the IDA-funded Onigbolo and Parakou transmission line was completed in 36 months after the fourth restructuring in May 2016. The ICR (p.28) states that these delays resulted in improvements of the work, budgeting the funds for contractor compensation, executing the required studies before implementation, and the necessary changes in the procurement arrangements. During most of the project implementation, the same Task Team Leader (TTL) was in charge of the project, and from the project implementation documents and restructuring papers, it is understood that this helped the project team focus on the implementation of this complex project and take proactive actions to solve implementation related issues. Furthermore, the experience gained in this project and shortcomings identified during implementation led to the follow-on Energy Service Improvement Project and the First Fiscal Management and Structural Transformation Development Policy Financing.

Overall Efficiency

The project was efficient in achieving the objective to improve reliability and efficiency of power supply; the economic returns of the related investment activities, which counted for 74 percent of the IDA financing, were higher than those estimated at appraisal. On the other hand, there were some shortcomings in the operational and administrative efficiency of the project, which resulted in a major restructuring of the project and lengthy implementation delays. Overall, the efficiency of the project is rated Modest.
Efficiency Rating

Modest

6. Outcome

The project objectives were highly relevant to the country context and aligned with the World Bank strategy; however, given that this was the second project following the Energy Services Delivery Project, the objectives were rather ambitious when the weak institutional capacities of the SBEE and the newly formed ABERME were considered. Therefore, the relevance of objectives is rated substantial. The project was substantially successful in achieving the objective to improve the reliability and efficiency of power supply, which was adversely affected by the poor results in reducing distribution level technical and commercial losses. The project was also substantially successful in increasing access to modern energy services by increasing rural access to electricity and clean cooking facilities, while establishing a forestry management plan for efficient use of forest resources as biomass fuel, the impact of which could be better evaluated in the medium-term. Lastly, the efficiency of the project is rated modest due to shortcomings in operational and administrative efficiency.

Overall, the project outcome is rated Moderately Satisfactory.

7. Risk to Development Outcome

The financial viability of Benin Electric Power Company (SBEE – Société Béninoise d’Énergie Électrique) stands out as the major risk for the sustainability of the project outcomes in electricity transmission and distribution. Financial situation of the utility is still precarious. SBEE’s revenues are not high enough to cover its costs of service. The utility has been facing difficulties in collecting billed amounts, with the highest share coming from public utilities; this has resulted in days in payable increasing to three years. Because of a lack of adequate funds, maintenance has been inadequate. If the financial viability and
operational efficiency of the SBEE is not improved, the project outcomes in electricity transmission and
distribution could be adversely affected due to a lack of adequate operation and maintenance.

Unless the power generation constraints are addressed, the full benefits of the project might not materialize. Benin still heavily depends on electricity imports from Nigeria and Ghana, despite recent efforts
to increase domestic generation capacity by diesel-fired generator, hydropower and renewable energy. The unreliable power supply from these two countries, caused by lack of water in the Volta River in Ghana and
gas supply constraints in Nigeria, results in unscheduled shortages and below capacity usage of the transmission and distribution network. This is a major problem affecting the reliability of power sector in Benin and a constraint for economic development.

If the rural population is not encouraged to change their traditional cooking habits in favor of using cleaner cooking facilities, the achievement of the project in increasing access to clean fuels and cook stoves might not be sustainable. It is not realistic that simply distributing clean cooking facilities would be sufficient for this new technology to take off in traditional rural communities. There are cultural and technological obstacles for the acceptance of these new cooking methods, which require continuous encouragement of the rural population to change their traditional behavior. This should be supported by continuous awareness campaigns and creating other income-generating economic opportunities for the rural population. Otherwise, it would be very difficult to sustain the use of cook stoves and the protection of forests from inefficient fuel production. The impact of this intervention could be better evaluated in the medium-term.

8. Assessment of Bank Performance

a. Quality-at-Entry

The project was strategically relevant to the country context; it was designed to address the issues in transmission and distribution of electricity, and to increase the access to electricity and modern cooking facilities in rural areas. In addition to investment activities, the project was designed to support the institutional strengthening of the project implementation institutions through limited technical assistance. The project design was skewed toward the electricity transmission and distribution investments. The support for rural electrification heavily relied on the availability of funds from the borrower; this was not a realistic expectation and it did not materialize. Furthermore, although the project benefited from the experience gained during the implementation of Energy Services Delivery Project and the rural electrification program in Mali, and the dialogue with the Government of Benin during project preparation led to the adoption of a set of decrees to further define the role of Benin's rural electrification agency (ABERME) and strengthen its independence as an agency (PAD,p.11), the assumption that ABERME would have the institutional capacity to implement the rural electrification activities was overly optimistic (ICR, p.24). It should be noted that, as an alternative, SBEE was considered as the implementation institution for the rural electrification component, but because of the financial weakness of the utility, this alternative was not accepted. In the second restructuring in October 2013, the fiduciary responsibilities of both SBEE and ABERME were transferred to the project implementation unit in the DGE, decreasing the number of implementation institutions from four to two.

The economic analysis conducted for the electricity transmission and distribution activities of the project was sound. Technical analysis was sound, being based on feasibility studies prepared in 2008 during project preparation (PAD, p .17). Environmental aspects were adequate, and relevant safeguard policies
were triggered. Risks were correctly identified; however, it was overly optimistic to assume that the project had the ability to address them during implementation. The impact of the project's activities on increasing access to electricity and clean cooking facilities in rural areas was not adequately assessed. The results framework broadly supported the achievement of the project objectives. However, there were major shortcomings in the monitoring and evaluation (M&E) aspects. The indicators did not fully capture the achievement of the project objectives, and in the case of increasing access to clean cooking facilities, there was no outcome level indicator.

The project's effectiveness was delayed by ten months because of low implementation readiness and preparation of necessary studies for effectiveness. As of early 2013, the disbursement rate was at just two percent (ICR, p. 33). These led to two major restructurings, one in October 2013 and the other in May 2016.

Overall, on account of major shortcomings during project preparation, the quality at entry is rated Moderately Unsatisfactory.

**Quality-at-Entry Rating**  
Moderately Unsatisfactory

**b. Quality of supervision**

The ICR (p. 39) states that there were more than 12 World Bank missions during project implementation. The turnover of task team leaders (TTL) was low; there were three changes of TTL, but the same TTL was in charge of the project for most of the project implementation period. This helped the project team to closely monitor the project implementation which is evidenced by the level of detail available in project documents. However, the project team’s focus was on addressing the implementation issues related mostly to the transmission and distribution investment activities for the achievement of the first objective to improve the reliability and efficiency of power supply.

Despite a very slow progress in project implementation, the major restructuring was only processed in October 2013, more than four years after project approval in June 2009. This restructuring and the one in May 2016 addressed most of the project design shortcomings, but the weaknesses in the results framework continued until project closing, such as lack of indicators sufficiently capturing the achievement of project objectives, continued until project closing. The project team had been attentive to the requests of the Government of Benin since project preparation: Initially a technical assistance package was negotiated but upon the preference of the Government of Benin it was agreed to implement an investment project to establish N-1 security in the power network (ICR, p.31), and the sub-component B.2 Modernizing Biomass Energy was kept in the project although its addition was questioned in the decision meeting (ICR, p.32). Various changes were made to project activities during implementation, such as the addition of the installation of prepaid meters, and a new component to prepare studies for the Adjarala Hydropower Plant and future transmission lines.

The supervision of fiduciary and safeguard aspects was adequate. Due to the lack of institutional capacity in SBEE and ABERME, their fiduciary responsibilities were transferred to the PIU at the second restructuring. The project team was proactively involved in securing the faster approval of project contracts by the National Director of Public Contracts Control, but these efforts were partially successful (ICR, p.33).
The project team closely monitored the completion of payments to persons affected by the construction of the transmission lines under the Involuntary Resettlement safeguards policy, which was delayed due to lack of CEB funds for these payments (ICR, p.37); however, this was not sufficient to start the construction of the major transmission line between Onigbolo and Parakou on time, which was delayed until 2016. Shortcomings in the implementation of environmental safeguard were identified and corrected (ICR, p.37).

Quality of Supervision Rating
Moderately Satisfactory

Overall Bank Performance Rating
Moderately Satisfactory

9. M&E Design, Implementation, & Utilization

a. M&E Design
There were major shortcomings in the design of the monitoring and evaluation (M&E) framework. The project objective was broadly defined; the PAD did not clearly define the objective “to improve access to modern energy services.” There was an overall causal link between the project activities, results and outcomes, but the achievement of the outcomes related to the improvement in the reliability and efficiency of power supply and increase in access to modern energy services, i.e., access to electricity and clean cooking facilities, was not fully captured by the results framework, because there was either no indicator, or the indicators were at the output level. According to the results framework (PAD, p.29) the outcome indicator for reduction in losses was in fact to be expressed in percentage terms, but it was defined in GWh under "Arrangements for Result Monitoring" (PAD, p.31), which was not the best way to capture the achievement of this outcome since it did not take the increase in overall energy flow into consideration (ICR, p.30). The project implementation unit (PIU) that was formed under the then ongoing Energy Services Delivery Project was responsible for M&E implementation and had familiarity with the process. However, data collection was to be conducted by CEB, SBEE and ABERME, all of which had insufficient implementation capacity.

b. M&E Implementation
The shortcomings in the M&E design were partially addressed in the second restructuring in October 2013 and in the fourth restructuring in May 2016. Indicators related to cancelled project activities were deleted and new indicators were introduced to measure the reduction in distribution losses and for newly added project activities, such as installation of prepaid meters. However, the results framework still lacked any PDO-level indicators fully capturing the outcome of project activities to increase access to modern energy services. The results framework did not include an indicator measuring the reduction in unscheduled outages in the distribution system, which is directly relevant to the improvement in the reliability of power supply. M&E data were reported by the PIU regularly and these were included in the Implementation Status and Results Reports (ISRs). If the project activity to install supervisory control and data acquisition (SCADA), which was cancelled in the second restructuring in October 2013, had been
carried out, it could have most likely resulted in a more sound and reliable data collection and contribute to the sustainability of M&E functions and processes.

c. M&E Utilization

In the second restructuring in October 2013, M&E findings contributed to the decision to delete inactive project components, such as the funding of the Rural Electrification Fund and establishment of four rural electrification projects. As a result, the project’s funds were partially transferred to other activities, while excess funds were cancelled. Due to the nature of such projects, results of which can only be achieved once the investments activities are completed, the project team’s focus was on project implementation. Since the shortcomings in the results framework continued until project closure, the M&E data could only be partially used to provide evidence for the achievement of the project objectives; the project team used other, additional, data, such as reduction in the duration of outages from SBEE’s annual reports, to provide evidence for the achievement of project activities (ICR, p.21). There was insufficient evidence supported by M&E findings for the achievement of project objectives to increase access to electricity and clean cooking facilities. On the other hand, findings in this project led to the follow-on Energy Service Improvement Project and First Fiscal Management and Structural Transformation Development Operation Project.

Overall, although M&E findings were successfully utilized in strategy change and designing future interventions, the M&E design and implementation had significant shortcomings which makes it difficult to fully assess the achievement of the project objectives. Therefore, the M&E quality is rated modest.

M&E Quality Rating
Modest

10. Other Issues

a. Safeguards

The project was classified as Category B under Environmental Assessment (OP/BP 4.01) and triggered Natural Habitats (OP/BP 4.04), Physical Cultural Resources (OP/BP 4.11), Involuntary Resettlement (OP/BP 4.12), and Forests (OP/BP 4.36).

Environmental Assessment (OP/BP 4.01): The project was expected to have adverse environmental effect due to the construction of transmission lines. An Environmental and Social Impact Assessment (ESIA) was prepared and disclosed in the Bank’s Infoshop and in Benin in January 2009. It was found that an unprotected 17,800 m3 of biomass would be lost during the construction of the transmission lines, which was outweighed by the overall benefits of the project. The Community Forestry Management Plan was to be used to manage the risks of deforestation because of an inadequate implementation of the clean cooking fuel activities. The risk of mercury being released into the environment due to improper recycling of compact fluorescent light (CFL) bulbs was to be managed by contractual arrangements which would implement a cash refund system for burnt CFLs (PAD, p.19-20).
During implementation, the project was mostly in compliance with the environmental safeguard. However, in December 2012, it was found that safeguard measures were not fully integrated and that there were shortcomings in the dissemination and archiving of documents, such as studies and permits (ICR, p.37). Reporting on the implementation of environmental safeguard policy started in 2014. The project team confirmed that the project was in compliance with the environmental safeguard policy at project closure.

**Involuntary Resettlement (OP/BP 4.12):** A Resettlement Action Plan was prepared and disclosed in the Bank's Infoshop and in Benin in January 2009. It was found that 184 families, consisting of 1,322 people, were to be resettled because of the construction of transmission lines. Awareness campaigns were conducted through the distribution of summaries of priority action programs and by holding extensive public consultations prior to the start of project implementation (PAD, p.19).

During implementation, there were issues with the timely payments of compensations to the affected people. CEB was expected to complete all the payments by December 2014, but due to lack of funds, payments could not be processed. This resulted in protests from people who could not receive their compensations. By 2015, all the compensations payments had been processed. However, in 2018, it was found that 70 project-affected people did not receive their payments, because they did not contact the CEB. An action plan was implemented to close these pending cases (ICR, p.37). The project team confirmed that the project was in compliance with the Involuntary Resettlement safeguard policy at project closure.

**Natural Habitats (OP/BP 4.04), Physical Cultural Resources (OP/BP 4.11), and Forests (OP/BP 4.36):** The project team commented that these three safeguard policies had already been complied with at appraisal by avoiding protected forest and sacred forest areas, and by avoiding the sacred natural areas of féticheurs—healers or diviners belonging to animist cults; the remaining part of the Physical Cultural Resources safeguard policy was satisfied by the ‘chance find procedure’, particularly during the construction phase, as required by Beninese environmental law (PAD, p.20). The project team also confirmed that the project was in compliance with these three safeguard policies at project closure.

**b. Fiduciary Compliance**

**Financial Management**

The project adopted the financial management arrangements of the then ongoing Energy Services Delivery Project; the project implementation unit (PIU) in the DGE would handle the financial management of the components implemented by the DGE, CEB and SBEE. At appraisal, ABERME did not have the capacity to manage the fiduciary aspects of the components for which it was responsible. This was identified as a risk and mitigation measures were introduced during project preparation (PAD, p.18).

During project implementation, it became evident that neither SBEE nor ABERME had the institutional capacity to manage the fiduciary aspects of the project. High staff turnover, too, adversely affected the financial management at these two institutions. Therefore, at the second restructuring in October 2013, their fiduciary responsibilities were transferred to the PIU (ICR, p.37). Furthermore, due to lack of counterpart funds, the rural electrification components of the project were also cancelled at the same restructuring.
As the ICR (p.37) reports there were no issues in financial management; the project accounts were up-to-date during project implementation, and the financial monitoring reports were submitted to the World Bank on time. The project team also confirmed that all project funds were accounted for at project closing.

**Procurement**

There were significant procurement issues during project implementation. SBEE and ABERME did not have the capacity to implement procurement activities according to the World Bank guidelines; therefore, in the second restructuring, this responsibility was transferred to the PIU. The procurement process was delayed at the start of the project because the feasibility studies and the environmental studies for the transmission lines were not ready, which delayed the preparation of bidding documents. It was further delayed, because the two transmission lines were tendered as a joint process with the other donors, i.e., European Investment Bank and Kreditanstalt fur Wiederaufbau (KfW). High staff turnover at the National Director of Public Contracts Control (DNCMP- Directeur National de Contrôle de Marches Publiques) and low contract size threshold for the DNCMP approval resulted in lengthy contract approvals. Changes in contracts’ ownerships, which required reprocessing of project documents, were another reason for delays in procurement (ICR, p.33).

c. **Unintended impacts (Positive or Negative)**

None.

d. **Other**

None.

**11. Ratings**

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<tr>
<td>Quality of M&amp;E</td>
<td>Substantial</td>
<td>Modest</td>
<td>There is a discrepancy in the rating of the Quality of M&amp;E in the ICR. In the main text of the ICR, it is clearly rated as modest, but in the summary section it was mistakenly entered as substantial. Therefore, there is no disconnect between the ICR</td>
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12. Lessons

Two lessons were taken from the ICR with some adaptation of language.

**Differences between World Bank procurement requirements and those at the national level can result in lengthy project implementation delays and higher workload for the project implementation unit (PIU).** This is an issue widely seen in World Bank project, which is also confirmed by this project. The DNCMP had a very low threshold for full approval of contracts, which resulted in delays processing numerous small size projects up to four months, which was substantially longer than the stated-timeline of 15 business days. The lower contract size threshold for full contract approval also increased the work load of the PIU due to increased paper work.

**Lack of institutional capacity of project implementation institutions can delay project implementation and jeopardize the achievement of project objectives.** Like the first lesson, this one, too, is a common issue in World Bank projects. However, it is worth pointing this out here again, since the project implementation and achievement of the project objectives were adversely affected by the lack of project implementation capacity, especially, at the SBEE and ABARME. The financial management and procurement responsibilities of these two institutions had to be transferred to the PIU and the project activities related to rural electrification had to be cancelled. As a result, the achievement of the objective to increase access to electricity was modest. The project design at appraisal was overly optimistic about the SBEE’s institutional capacity and the mitigation methods to improve ABERME’s capacity were not realistic. This major shortcoming was partially addressed at the second restructuring in October 2013, more than four years after project approval.

13. Assessment Recommended?

Yes

**Please Explain**

The full impact of the project on increasing access to modern energy services, especially continuous usage of clean cooking facilities by households and the success of the implementation of forestry management plan, would be better evaluated in the medium-term. A detailed assessment of this project, along with similar projects implemented in other sub-Saharan countries, could provide invaluable lessons for such interventions in the future.

14. Comments on Quality of ICR
The narrative of the ICR was internally consistent. It was candid about the shortcomings of this complex project. In addition to reporting the achievement of the indicators’ targets, the ICR provided additional evidence from other sources, especially for the achievement of the first objective. The discussion on economic analysis was adequate.

However, the ICR’s focus was mostly on project implementation rather than on the achievement of the objectives. The discussion on the achievement of the objective to increase access to modern energy services, i.e., access to electricity and access to clean cooking facilities, was not sufficient. The Bank Supervision and M&E Quality sections could have benefited from a more detailed discussion. The lessons learned were important and backed by evidence from project implementation; however, they were generic. Actual project costs by component were not reported, but the project team commented that this information was not readily available. The rating for Quality of M&E in the summary section and in the main text was different. Other than the Environmental Assessment and Involuntary Resettlement policies, there was no information in the ICR about the other three safeguard policies triggered at appraisal.

a. Quality of ICR Rating
   Modest