

**AFRICAN DEVELOPMENT BANK  
AFRICAN DEVELOPMENT FUND**



PROJECT P-BJ-FA0-002  
COMPLETION REPORT

SECOND RURAL ELECTRIFICATION PROJECT

**REPUBLIC OF BENIN**

ONEC

NOVEMBER 2011

# PROJECT COMPLETION REPORT

## A. PROJECT DATA AND KEY DATES

### I. BASIC INFORMATION

<b>Project Number</b>	<b>Project Name</b>	<b>Country (ies)</b>	
P-BJ-FA0-002	Second Rural Electrification Project	Republic of Benin	
<b>ID Number of all Lending Instrument(s)</b>		<b>Department</b>	<b>Environmental Classification</b>
- ADF Loan No. 2100150007186 signed on 12 January 2004		ONEC	Category 2
<b>Original Commitment Amount</b>	<b>Amount Cancelled</b>	<b>Amount Disbursed</b>	<b>Percent Disbursed</b>
UA 12 320 000	-	UA 12 159 922	98.70%
<b>Borrower</b>			
Government of the Republic of Benin			
<b>Executing Agency(ies)</b> [List the main Ministries, Project Implementation Units, Agencies and civil society organizations responsible for implementing project activities.]			
<ul style="list-style-type: none"> <li>- Ministry of Development, Economic Analysis and Forecasts</li> <li>- Ministry of Economy and Finance</li> <li>- Ministry of Energy, Oil and Mining Exploration, Water Resources and Renewable Energy Development</li> <li>- Société Béninoise d'Énergie Électrique (SBEE)(Benin Power Utility Company)</li> <li>- Project Implementation Unit within SBEE</li> </ul>			
<b>Co-financers and other External Partners</b> [List all other sources and amounts of financing, technical assistance or other resources used in this project]			
1. Government of Benin:		CFAF 2.237 billion (UA 2.99 million)	
2. Société Béninoise d'Énergie Électrique (SBEE):		CFAF 1.762 billion (UA 2.36 million)	

### II. KEY DATES

Project Concept Note Cleared by Ops. Com.	Appraisal Report Cleared	Board Approval
Non applicable	Non applicable	29 October 2003
<b>Restructuring(s)</b>		

	Original Date <i>MM/DD/YY</i>	Actual Date <i>MM/DD/YY</i>	Difference in months
<b>EFFECTIVENESS</b>	29 April 2004	8 December 2004	7.4
<b>MID-TERM REVIEW</b>	Unspecified	Not applicable	0.0
<b>CLOSING</b>	31/12/2007	<b>For on-going projects enter date of 98% disb. rate</b>	29.3
		30 May 2011	

### III. RATINGS SUMMARY

Insert notes from the relevant tables in the different sections of the PCR. For example, please insert the “Overall Output score” in Section D.I. in the “Achievement of Outputs” box below.

CRITERIA	SUB-CRITERIA	RATING
PROJECT OUTCOME	Achievement of Outputs <i>(insert score from Section D.I.)</i>	3
	Achievement of Outcomes <i>(insert score from Section D.II)</i>	2
	Timeliness <i>(insert score from Section F.4)</i>	2
	<b>OVERALL PROJECT OUTCOME</b> <i>[Score is calculated as an average of the ratings]</i>	2
BANK PERFORMANCE	Design and Readiness <i>(insert score from Section I.I)</i>	4
	Supervision <i>(insert score from Section I.I)</i>	3
	<b>OVERALL BANK PERFORMANCE</b> <i>[Score is calculated as an average of the ratings]</i>	4
BORROWER PERFORMANCE	Design and Readiness <i>(insert score from Section I.I)</i>	3
	Implementation <i>(insert score from Section I.I)</i>	3
	<b>OVERALL BORROWER PERFORMANCE</b> <i>[Score is calculated as an average of the ratings]</i>	3

### IV. RESPONSIBLE BANK STAFF

POSITIONS	AT APPROVAL	AT COMPLETION
Regional Director		J. K. LISTE
Sector Director	A. R. RAKOTOBÉ	H. CHEIKHROUHO
Ag. Sector Manager	W. HABTE-SELASSIE	I. KONATE
Task Manager	J.B. NGUEMA-OLLO	A. MOUSSA
PCR Team Leader		A. MOUSSA
PCR Team Members		P. DJAIGBE

## B. PROJECT CONTEXT

Summarize the rationale for Bank assistance. State:

- what development challenge the project addresses,
- the Borrower's overall strategy for addressing it,
- Bank activities in this country (ies) and sector over the past year and how they performed, and
- on-going Bank and other externally financed activities that complement, overlap with or relate to this project.

Please cite relevant sources. Comment on the strength and coherence of the rationale.

**[300 words maximum]. Any additional narrative about the project's origins and history, if needed, must be placed in Appendix 6: Project Narrative]**

This project was part of the Rural Electrification Development Programme designed by the Government of Benin, with the medium-term objective of attaining a 29% electrification rate in 2008, and the long-term objective of providing electricity to all at least cost. Therefore, it was consistent with the Bank's vision, whose assistance strategy for Benin (2002-2004 CSP) was based on the Poverty Reduction Strategy Paper (PRSP) and consisted in fighting poverty by giving priority in its interventions to rural development, basic infrastructure strengthening and human resource development.

Since the 1998 energy crisis in Benin, national strategy in the sector has been based on: (i) development of energy resources; (ii) reduction of electricity costs; (iii) diversification of supply sources; and (iv) improvement of the population's electricity access rate. It is from this perspective of reducing socio-economic inequalities, especially for the benefit of rural areas, that the rural electrification programme was designed.

Since it began operations in Benin in 1972, the Bank has approved 83 operations for net cumulative commitments of UA 595 million. The Bank's portfolio comprises 15 operations for a total UA 174 million. It is made up of 11 projects covering practically all the Bank's sectors of intervention, including this energy sector project. There are 5 projects at risk in the portfolio (i.e. 45% of the portfolio). The overall disbursement rate for the entire portfolio stood at 41% as at 31/10/2011.

Six (6) other similar projects are on-going, with financing from the national budget and other financial partners: (i) electrical interconnection of 10 council headquarters (national budget) ; (ii) electrification of 5 administrative district headquarters (national budget); (iii) electrification of Toui, Kilibo, Ikémon, Akpéro, Léma-Mamoudji, Akpassi and Pira localities (national budget); (iv) electrification of 58 localities (BIDC); and (v) electrification of 100 localities (BIDC; national budget).

## C. PROJECT OBJECTIVES AND LOGICAL FRAMEWORK

### 1. State the Project Development Objective(s) (as set out in the appraisal report)

The project's sector objective was to increase the rural population's electricity access rate to improve their living conditions. In particular, it aimed at stabilizing the population in these areas and, in the medium term, reducing the use of other forms of energy that are more costly or harmful to the environment. The specific objectives were: (i) the electrification of 57 localities; and (ii) the installation of local capacity to process wooden poles.

### 2. Describe the major project components and indicate how each will contribute to achieving the Project Development Objective(s).

The project comprises the following components:

- A. Increase in production and extension of MV and LV power lines:** This comprises: (i) the installation of a diesel power station and a related transformer station in the Ouessé locality; (ii) the reinforcement and extension of existing MV lines and mixed lines (medium and low voltages) with a view to electrifying new localities and the neighbourhoods of some big towns already electrified; (iii) the construction of LV distribution grids and transformer stations in the project localities.
- B. Execution of distribution works:** This comprises: (i) undertaking 21 000 connections for the beneficiary population, including 20 000 single-phase low-cost household connections and 1 000 three-phase connections for motive power (pumping stations, grain mills, mechanical workshops, processing units, etc.); (ii) installation of 4 180 public lighting points to secure persons and property; and (iii) the procurement of grid operation and maintenance equipment to strengthen SBEE's operating capacity, with a view to improving the power supply service quality.
- C. Installation of a wooden poles processing plant:** This involves the installation of a local unit for the processing and production of wooden poles used in the construction of power distribution grids, which would enable SBEE to reduce or stop its imports from Europe or South Africa and even export to neighbouring countries.
- D. Project management:** This comprises: (i) engineering, control and works supervision by an engineering consulting firm recruited under the project; (ii) the Project Implementation Unit and building technical capacity through procurement of IT and office equipment; (iii) the external audit of project accounts by an independent firm that will verify compliance in the utilization of loan resources.

### 3. Provide a brief assessment (up to two sentences) of the project objectives along the following 3 dimensions. Insert a working score, using the scoring scale provided in Appendix 1.

PROJECT OBJECTIVES DIMENSIONS		ASSESSMENT	WORKING SCORE
RELEVANT	a) Relevant to the country's development priorities	The project was part of Benin's rural electrification programme, which aimed at attaining a 29% electrification rate in 2008. It was designed following the rural electrification study in Benin financed by the Bank and the Government of Benin in 1997 for 30 of the 57 project localities.	4
ACHIEVABLE	b) Objectives could in principle be achieved with the project inputs and in the expected timeframe	The objectives were achievable within the initially expected 44-month timeframe. Funding was adequate and available for project implementation within the timeframe. However, too much optimism was placed on the implementation timeframe of the	3

		North Benin-North Togo interconnection, from where 21 project localities were to be electrified using an overhead protection ground wire. Due to delay in building this facility, that option (retained at appraisal) was abandoned for the classic but more costly technical solution of constructing medium voltage lines (20-33 kV), hence the additional costs.	
<b>CONSISTENT</b>	c) Consistent with the Bank's country or regional strategy	The project's objectives were consistent with the Bank's strategy in Benin, as defined in the 2002-2004 Country Strategy Paper (CSP) whose two pillars were: (i) rural development and basic infrastructure; and (ii) the social sector. The project was based on the first pillar (i).	4
	d) Consistent with the Bank's corporate priorities	The project was consistent with the priorities of the Bank, whose interventions generally aim at fighting poverty and improving the living conditions of the population of regional member countries, through access to modern basic social services, including access to electricity.	4

4. Summarize the log. frame. If a log. frame does not exist, complete the table below, indicating the overall project development objective, the major components of the project, the major activities of each component and their expected outputs, outcomes, and indicators for measuring the achievement of outcomes. Add additional rows for components, activities, outputs or outcomes if needed.

Hierarchy of Objectives (HO)	Objectively Verifiable Indicators (OVI)	Means of Verification (MOV)	Assumptions/Risks	
<b>1. Sector Objective</b>  1.1. Increase in the rural population's electricity access rate to improve its living conditions	Country's electrification rate rose from 20% in 2002 to 29% in 2008	1.1 Ministry of Energy reports  1.2. Ministry of Planning reports and statistics  1.3. SBEE's activity reports  1.4. CEB's activity reports	<b>Impact on key objective</b>	
<b>2. Project Objective</b>  2.1. Electrification of new rural localities 2.2. Supply and local processing of wooden poles	a) 57 new localities electrified in 2008  b) A local wooden poles processing plant installed in 2008  c) 8000 wooden poles	a) 57 new localities electrified in 2008  b) A local wooden poles processing plant installed in 2008  c) 8000 wooden poles	<b>Impact on sector objective</b>  2.1. Institutional reform conducted successfully  2.2. Proper implementation of the new electricity sector	

	processed locally per year in 2008	processed locally per year in 2008	development policy and strategy.	
<p><b>3. Outcomes</b></p> <p>3.1. Increase in production and extension of MV and LV power lines</p> <p>3.2. Execution of connection works</p> <p>3.3. Installation of a wooden poles processing plant</p>	<p>i) 20 kV MV line of 163 km constructed in 2008</p> <p>ii) LV line of 360 km constructed in 2008</p> <p>iii) Mixed line of 255 km constructed in 2008</p> <p>iv) 145 MV/LV transformer stations built in 2008</p> <p>v) 4 180 public lighting points installed in 2008</p> <p>vi) 21 000 new connections made in 2008</p> <p>vii) 155 000 new households connected in 2008</p>	<p>3.1. Quarterly project implementation reports</p> <p>3.2. Bank supervision mission reports</p> <p>3.3. Project completion reports</p> <p>3.4. Project accounts audit reports</p> <p>3.5. Consulting engineer's reports</p>	<p><b>Impact on project objective</b></p> <p>3.1. Implementation of the North Togo-North Benin interconnection project</p> <p>3.2. Implementation of the CEB-NEPA interconnection project</p> <p>3.3. Drying of hydro-electric dams</p>	
<p><b>4. Activities</b></p> <p>4.1. Recruitment of an engineering consultant</p> <p>4.2. Recruitment of contractors</p> <p>4.3. Recruitment of an auditor</p> <p>4.4. Works execution</p> <p>4.5. Works monitoring and control</p> <p>4.6. Project external audit</p> <p>4.7. Acceptance and operation of facilities</p>	<p><b>4.1. Financial Resources</b></p> <ul style="list-style-type: none"> <li>• ADF: UA 12.32 million</li> <li>• SBEE: UA 2.56 million</li> <li>• Government: UA 0.84 million</li> <li>• Beneficiaries: UA 0.19 million</li> <li>• Total: UA 15.88 million</li> </ul> <p><b>4.2. Human Resources</b></p> <ul style="list-style-type: none"> <li>• Consultants</li> <li>• Contractors</li> <li>• Bank monitoring</li> </ul>	<p>4.1. Appraisal report</p> <p>4.2. Loan agreement signed</p> <p>4.3. Consulting engineer's contract</p> <p>4.4. Contract with contractors</p> <p>4.5. Auditor's contract</p>	<p><b>Impact on achievements</b></p> <p>4.1. Sanctions due to arrears</p> <p>4.2. Compliance by all partners with their commitments and contracts for project financing and implementation</p> <p>4.3. Compliance with the project implementation schedule.</p>	

For each dimension of the log. frame, provide a brief assessment (up to two sentences) of the extent to which the log. frame achieved the following. Insert a working score, using the scoring scale provided in Appendix 1. If no log. frame exists, score this section as a 1 (one).

LOG. FRAME DIMENSIONS		ASSESSMENT	WORKING SCORE
LOGICAL	a) Presents a logical causal chain for achieving the project development objectives	Project activities, outcomes and development objectives were clearly highlighted in the logical framework with causal links.	4
MEASURABLE	b) Expresses objectives and outcomes in a way that is measurable and quantifiable	The objectives, outputs and outcomes were clearly explained in the logical framework with verifiable, measurable and quantifiable indicators.	4
THOROUGH	c) States the risks and key assumptions	Certain risk assumptions were obviously indicated in the logical framework, but their mitigation measures were not adequately mentioned. These concern the risk mitigation measures linked to the delay in the implementation of the North Benin-North Togo interconnection project and SBEE's inability to deliver reinforced concrete poles (RCP) in time, thus affecting project implementation and causing additional costs and delays in works.	3

## D. OUTPUTS AND OUTCOMES

### I. ACHIEVEMENT OF OUTPUTS

In the table below, assess the achievement of actual vs. expected outputs for each major activity. Import the expected outputs from the log. frame in Section C. Score the extent to which the expected outputs were achieved. Weight the scores by the activities' approximate share of project costs. Weighted scores are auto-calculated by the computer. The overall output score must be calculated as the sum of the weighted scores. Override the calculated score, if desired, and provide justification.

MAJOR ACTIVITIES		Working Score	Share of Project Costs in percentage (as stated in Appraisal Report)	Weighted Score
Expected Outputs (ADF, NTF and OPEC components)	Actual Outputs			
1) 20 kV MV line of 163 km constructed	20 kV line of 352 km constructed	4	9%	0.36
2) Mixed line of 255 km constructed	Mixed line of 138 km constructed	3	13%	0.39
3) LV line of 360 km	LV line of 482 km constructed	4	28%	1.12
4) 145 transformer stations built	211 MV/LV transformer stations built	4	5%	0.20
5) 117 IACMs laid	198 IACMs laid	4	2%	0.08
6) 2200 earth connections made	1 560 earth connections made	4	1%	0.04
7) 4 180 public lighting points installed	4 095 public lighting points installed	4	6%	0.24
8) 21 000 connections made	16 000 connections made	3	9%	0.27
9) A diesel power station built	A diesel power station built (Ouessé)	4	2%	0.08
10) A wooden poles processing plant installed	Nil.	0	15%	0.00
11) Studies, Supervision and Audit Reports produced	Consulting engineer's reports; Quarterly project status reports; Supervision reports; External audit reports	2	5%	0.10
12) Procurement of IT, office and grid operation equipment	IT equipment procured Office equipment procured	3	6%	0.15
<b>OVERALL OUTPUT SCORE</b> [Score is calculated as the sum of weighted scores]				<b>3.03</b>





Check here to override the calculated score

Provide justification for over-riding the calculated score

Insert the new score or re-enter the calculated score

3

II. ACHIEVEMENT OF OUTCOMES

1. Using available monitoring data, assess the achievement of expected outcomes. Import the expected outcomes from the log. frame in Section C. Score the extent to which the expected outcomes were achieved. The overall outcome score must be calculated as an average of the working scores. Override the calculated score, if desired, and provide justification.

OUTCOMES		Working Score
Expected	Actual	
1. Electrification of 57 localities in 2008	Electrification of 91 localities at the end of the project in October 2011, including the 54 localities electrified in 2008	4
2. Increase in the country's electrification rate from 20% in 2002 to 29% in 2008	Increase in the country's electrification rate from 20% in 2002 to 28% in 2011	3
3. Local availability of 8 000 wooden poles per year as from 2008	Nil. The installation of the wooden poles processing plant was abandoned.	0
<b>OVERALL OUTCOME SCORE</b> [Score is calculated as an average of the working scores]		2

 Check here to override the calculated score

**Provide justification for over-riding the calculated score**

<b>Insert the new score or re-enter the calculated score</b>	3
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2. Additional outcomes. Comment on the project's additional outcomes not captured in the log. frame, including cross-cutting issues (e.g., gender).

**Environmental preservation:** In the pre-project situation, the population of non-electrified localities used fuel wood, kerosene or vegetable oils as its main sources of household energy. In certain localities, some workshops and small processing units (mills) were powered by diesel generators. With the project, electricity has replaced the generators.

**Accelerated urbanization and promotion of NICTs:** With access to electricity, some electrified localities have witnessed accelerated urbanization with the construction of buildings or other types of housing or residences in permanent materials. Thus, the price of acquiring plots in several of these areas has risen sharply. NICT centres and businesses have also developed in several electrified localities (Internet, telephony, office automation, IT training, word processing, etc.).

**Impact on gender:** In the project area, women represent 51% of the population. They are in charge of fuel wood collection, household lighting, and preservation of foodstuffs and other perishables. Access to electricity has helped to free the women from these daily and recurrent chores, thereby enabling them to devote themselves more to other income-generating activities. Access to electricity has also offered better conditions for studying, schooling and apprenticeship for rural youths. It has also improved working conditions in the health centres of beneficiary localities, which have witnessed increased attendance rates.

**Electrification of several localities not envisaged at project appraisal:** Following the abandonment of the technical option of electrifying certain project localities using the overhead ground wire of the North Benin-North Togo interconnection line and the return to the classic option of constructing 33 kV medium voltage lines, several localities not retained in the project have been crossed by the lines or are close to them. The Government is financing the

electrification of 22 localities crossed by the 33 kV Parakou-Djougou line constructed under the project, using the national budget and National Rural Energy Fund (FNER) resources. Moreover, during implementation of the first phase of the project, modifications were made on the lines, making it possible for 34 localities not retained at project appraisal to be electrified.

**3. Risks to sustained achievement of outcomes. State the factors that affect, or could affect, the long-run or sustained achievement of project outcomes. Indicate if any new activity or institutional change is recommended to help sustain outcomes. The analysis should draw upon the sensitivity analysis in Annex 3, where appropriate.**

**Lack of electricity to supply electrified localities.** For some years now, Benin has witnessed a steadily growing deficit between electricity demand (an average of 7% per year over the last seven years) and energy supply on the interconnected grid coming from CEB and SBEE's own production resources. In 2010, energy supplied by SBEE to the distribution grid rose to 964 GWh, compared to 917 GWh in 2009 (5% increase). Net energy sales in quantities rose from 710 GWh in 2009 to 771 GWh in 2010, representing an increase of more than 8%. CEB provided 91% of SBEE's power supply in 2010 (9% coming from the latter's own production resources). The total number of subscribers has risen from 387 256 in 2009 to 416 878, i.e. a 7.65% increase. Electricity supply is frequently disrupted as a result of the many interruptions on the CEB grid (power cuts for lack of available energy imported from Nigeria, Ghana and Cote d'Ivoire to meet the needs of Benin and Togo). Thus, SBEE witnesses an average of more than four (4) interruptions per day for durations of 19 to 150 minutes, depending on the region of the country.

**Risk mitigation:** The risk is mitigated by: (i) the strengthening of SBEE's own (thermal) production resources with the on-going construction of an 80 MW turbine (gas/jet fuel) power station on the Maria Gléta (Cotonou) site, whose execution is almost completed. The inauguration of this station could take place before the end of 2011. It is also expected to be powered by gas, as soon as the latter is available from the West African Gas Pipeline (WAGP) linking Nigeria, Benin, Togo and Ghana; (ii) the on-going 330 kV Ghana-Togo-Benin interconnection project (financed partly by the Bank) to strengthen the capacity to import energy from Ghana and Cote d'Ivoire; (iii) the multinational project initiated by CEB and the Governments of Benin and Togo to construct the 147 MW Adjarala hydro-electric station on River Mono (on Benin's territory), whose works are expected to start in 2014 and end in 2017; and (iv) the West African Power Pool (WAPP) project to construct the 330 kV Nigeria-Niger-Burkina-Benin North Backbone, whose studies are at a very advanced stage.

## **E. PROJECT DESIGN AND READINESS FOR IMPLEMENTATION**

**1. State the extent to which the Bank and the Borrower ensured the project was commensurate with the Borrower's capacity to implement by designing the project appropriately and by putting in place the necessary implementation arrangements. Consider all major design aspects, such as extent to which project design took into account lessons learned from previous PCRs in the sector or the country (please cite key PCRs); whether the project was informed by robust analytical work (please cite key documents); how well Bank and Borrower assessed the capacity of the implementing agencies and/or Project Implementation Unit; scope of consultations and partnerships; economic rationale of project; and provisions made for technical assistance.**

**[250 words maximum. Any additional narrative about implementation should be included at Annex 6: Project Narrative]**

The Second Rural Electrification Project was the Bank's seventh operation in Benin's energy sector. It was designed in close collaboration with the Borrower, taking into account lessons learned from implementing the first electrification project for 17 rural centres approved by the Bank in May 2000, nearing completion at the time. The major weaknesses noted in project implementation included: (i) a relatively long delay before loan effectiveness; (ii) slowness in setting up the Implementation Unit; and (iii) a poor mastery of Bank rules and procedures.

The organs set up under the first electrification project for 17 rural centres (the Monitoring Committee and the Implementation Unit established within SBEE) were retained for this project. The Implementation Unit was strengthened and attached directly to SBEE's General Management for greater efficiency. Training on the Bank's procurement and disbursement rules and procedures was organized for members of the Unit during Bank launching and supervision missions. The technical assistance of a consulting engineering firm was enlisted to support the Unit in procurement readiness, validation of technical studies, works control and supervision.

**2. For each dimension of project design and readiness for implementation, provide a brief assessment (up to two sentences). Insert a working score, using the scoring scale provided in Appendix 1.**

PROJECT DESIGN AND READINESS FOR IMPLEMENTATION DIMENSIONS		ASSESSMENT	WORKING SCORE
<b>REALISM</b>	a) Project complexity is matched with country capacity and political commitment.	SBEE and the Implementation Unit set up within it had the necessary expertise and experience for project implementation. Included in the Government's programme, the project received political commitment and support at the highest level of the State.	4
<b>RISK ASSESSMENT AND MITIGATION</b>	b) Project design includes adequate risk analysis.	The main risks were identified and factored into the project design, as were the mitigation measures. However, risks linked to SBEE's inability to deliver RCPs in sufficient quantities and on time, and the delay in the construction of the North Benin-North Togo interconnection line were not sufficiently taken into account in project design.	3
<b>USE OF COUNTRY SYSTEMS</b>	c) Project procurement, financial management, monitoring and/or other systems are based on those already in use by government and/or other partners.	All procurement of goods, works and services financed by the Bank were done in conformity with Bank rules and procedures, using standard bidding documents. In contrast, the procurement of certain inputs for the production of RCPs, financed by SBEE from its own resources, was done in accordance with national public procurement regulations. An external firm was charged with conducting the annual audit of project accounts.	4

For the following dimensions, provide separate working scores for Bank performance and Borrower performance:			WORKING SCORE	
			Bank	Borrower
<b>CLARITY</b>	d) Responsibilities for project implementation were clearly defined.	The responsibilities of various project monitoring and executing agencies were clearly defined and specified in the appraisal report.	4	4
<b>PROCUREMENT READINESS</b>	e) Necessary implementation documents (e.g. specifications, design, procurement documents) were ready at appraisal.	The equipment procured is for routine use at SBEE and the relevant technical specifications are well known. The expenditure categories were defined in the appraisal report and in the Loan Agreement, as were the procurement methods. However, only quantities of equipment necessary for the electrification of 30 out of the 57 project areas were defined at appraisal. As concerns the installation of the wooden poles processing plant, studies to guarantee its technical feasibility and economic viability had not been conducted at appraisal.	2	2
<b>MONITORING READINESS</b>	f) Monitoring indicators and monitoring plan were agreed upon before project launch.	A Monitoring Committee comprising SBEE and delegates of several ministries was set up for the periodic evaluation of project implementation status. The transmission to the Bank of quarterly activity reports and annual audit reports of project accounts was also planned. A monitoring plan for projected activities was defined for the 44 months of project implementation as well as the projected schedule of Bank supervision missions.	4	4
<b>BASELINE DATA</b>	h) Baseline data were available or were collected during project design.	Baseline data of the energy sector and SBEE were available and were indicated in the appraisal report. However, data on the feasibility of the wooden poles processing plant were not collected at appraisal, especially the inventory on Benin's territory of tree species needed for this activity.	3	3

## F. IMPLEMENTATION

1. **State the major characteristics of project implementation with reference to: adherence to schedules, quality of construction or other work, performance of consultants, effectiveness of Bank supervision, and effectiveness of Borrower oversight. Assess how well the Bank and the Borrower ensured compliance with safeguards.**

**[300 words maximum. [Any additional narrative about implementation should be included at Annex 6: Project Narrative.]**

Project implementation, which took place in two distinct phases, did not comply with the estimated timeframe of 44 months. The Loan Agreement was signed on 12/01/2011 and became effective on 08/12/2004, at the same time as the fulfilment of first disbursement conditions. The loan closure date was extended twice up to 31/12/2011, that is to say three years compared to the original date of 31/12/2008. This overrun was as a result of: (i) long delays in the approval of national procurement and contract signature documents; (ii) unavailability of certain technical and economic studies; (iii) inadequacy of available financial resources; (iii) SBEE's inability to deliver RCPs in time; and (iv) difficulties in paying bills on the national counterpart contribution. Despite this delay, the technical quality of the facilities constructed is satisfactory.

The engineering consultant was recruited in June 2005 (10 months late). The consultant's services involved: (i) updating and validating bidding documents on existing studies; (ii) procurement; (iii) acceptance of equipment in factories and on sites; and (iv) supervision of works and administrative monitoring of contracts. The services were well delivered and completed in November 2010, following a modification on the contract in December 2009 after completion of works under the project's first phase. Works under the second phase were supervised entirely by SBEE. The firm in charge of drawing up an administrative and accounting procedures manual and the annual project accounts audit was recruited in December 2008. Consequently, the project was financially managed for more than four years without a procedures manual, and annual audit reports were drawn up several months and even years late.

The installation of the wooden poles processing plant was abandoned. The feasibility study conducted after project appraisal revealed that the tree species needed to support such an activity were not available in sufficient quantities in Benin.

Bank supervision missions were regular, with a total of 13 field missions, that is to say an average of 1.6 supervision missions per year. These missions enabled the Bank to take decisions and make relevant recommendations that helped to advance project implementation.

2. **Comment on the role of other partners (e.g. donors, NGOs, contractors, etc.). Assess the effectiveness of co-financing arrangements and of donor coordination, if applicable.**

The project was financed exclusively by the Bank (70%), the Government of Benin (17%) and SBEE (13%). Despite its financial difficulties, SBEE was able to deliver all the RCPs needed for project completion to contractors, even if there were considerable delays in the deliveries. The Government increased its financial contribution to the project to cover the deficit in available resources during implementation of the second phase and reduce SBEE's contribution, considering the company's delicate financial situation. However, payments of eligible bills under counterpart contributions from the State treasury witnessed considerable delays.

3. **Harmonization. State whether the Bank made explicit efforts to harmonize instruments, systems and/or approaches with other partners.**

Since the project was jointly financed by the Bank, the Government of Benin and SBEE, the harmonization of instruments, systems and/or approaches with other partners was not applicable. All procurements of project goods, works and services were done according to relevant Bank rules and procedures.

4. For each dimension of project implementation, assess the extent to which the project achieved the following. Provide a brief assessment (up to two sentences) and insert a working score, using the scoring scale provided in Appendix 1.

PROJECT IMPLEMENTATION DIMENSIONS		ASSESSMENT		WORKING SCORE
TIMELINESS	a) Extent of project adherence to the original closing date. If the number on the right is: below 12, "4" is scored between 12.1 to 24, "3" is scored between 24.1 to 36, "2" is scored beyond 36.1, "1" is scored	Difference in months between original closing date and actual closing date or date of 98% disb. rate.	The original loan closure date fixed for 31/12/2008 was extended to 31/12/2011. The loan disbursement rate reached 98% on 30/05/2011	2
		29.3		
BANK PERFORMANCE	b) Bank complied with:			
	Environmental Safeguards	The Bank classified the project under Category 2, in line with its Environmental Protection Policy. The project's negative impacts were reduced through compliance with and monitoring of environmental safeguards.		4
	Fiduciary Requirements	The Bank made recommendations on the audit reports, which were consequently corrected. As concerns procurement, the Bank ensured compliance with its rules and procedures for procurement of goods, works and services financed by it, and gave the necessary notices within the required timeframe.		3
	Project Covenants	The Bank ensured fulfilment and compliance with loan effectiveness and first disbursement conditions. Apart from conditions precedent to effectiveness, others concerned extending the mandate and strengthening of the Implementation Unit, extending the mandate of the Monitoring Committee that oversaw the first electrification project for 17 rural areas, opening of special accounts, and the supplementary on-lending agreement to SBEE. Other conditions also featured in the Loan Agreement and were fulfilled.		4
	c) Bank provided quality supervision in the form of skills mix and practicality of solutions	The Bank's supervision teams comprised an electrical engineer and a financial analyst. Participation of other Bank specialists in these missions, from time to time, especially in		3



		procurement or financial management, would have been very useful.	
	d) Bank provided quality management oversight	The Bank exercised regular project management oversight not only at its Headquarters but also with the executing agency and on the ground during supervision missions. Bank supervision missions were regular with an average of 1.6 missions per year. However, the delay in recruiting the audit firm made it impossible for the Bank to have the audit reports within the required timeframe, and to give its opinion and recommendations on the project's financial management on time.	3
<b>BORROWER PERFORMANCE</b>	e) Borrower complied with:		
	Environmental Safeguards	The executing agency complied with environmental safeguards during project implementation. Thus, it used existing tarred or lateritic roads as passage corridors for medium voltage connection or interconnection lines. It succeeded in making necessary modifications in the passages to limit the destruction of big trees and other protected species of the ecosystem.	4
	Fiduciary Requirements	The Bank's fiduciary requirements were not fully complied with, given that audit reports were submitted to the Bank several months and even years late. The final audit reports for the 2005-2007 and 2008-2009 periods were submitted to the Bank in April 2010 and June 2011, respectively. The report for the 2010 financial year was transmitted to the Bank in November 2011. In addition, project finances were managed for more than four years without appropriate accounting software or a procedures manual.	2
	Project Covenants	Approved in October 2003, the loan became effective in December 2004 following the fulfilment of first disbursement conditions, that is to say 8 months after the prescribed deadline. During project implementation, requirements relating to the operation of special accounts for counterpart contributions were not complied with, following a new provision in Benin that no longer authorized the payment of counterpart contributions into project accounts - hence the delays at the State treasury to settle eligible bills.	2
	f) Borrower was responsive to Bank supervision findings and recommendations	The Borrower was responsive to Bank findings and recommendations following supervision missions and the review of various reports submitted. However, recommendations on the timely delivery of RCPs to the project and the payment of bills from the counterpart contribution were not implemented as effectively as expected.	2



	g) Borrower collected and used monitoring information for decision making	Information collected came mainly from the project's quarterly physical and financial implementation reports. The Monitoring Committee set up by the Borrower used the information for decision making.	3
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## G. COMPLETION

1. IS THE PCR DELIVERED ON A TIMELY BASIS, IN COMPLIANCE WITH BANK POLICY?			
Date project reached 98% disb. Rate (or closing date if applicable)	Date PCR was sent to pcr@afdb.org  <i>MM/DD/YY</i>	Difference in months	WORKING SCORE if the difference is 6 months or less, a 4 is scored. If the difference is 6.1 or more, a 1 is scored
May 2011	25 November 2011	6	4

**2. Briefly describe the PCR Process. Describe the Borrower's and co-financers' involvement in producing the document. Highlight any major differences of opinion concerning the assessments made in this PCR. Describe the team composition and confirm whether a site visit was undertaken. Mention any major collaboration from other development partners. State the extent of field office involvement in producing the report. Indicate whether comments from Peer Reviewers were received on time (provide names and positions of Peer Reviewers).**

**[150 words maximum]**

This report was prepared following the project completion mission to Benin from 17 to 28 October 2011. The mission was headed by Mr. Adama MOUSSA, Electrical Engineer ONEC.1, and included Mr. Pierre DJAIGBE, Financial Analyst ONEC.1. It held working sessions with SBEE and all structures involved in implementing the project. It reviewed the project's physical and financial implementation status, visited the facilities, assessed the impacts on the beneficiary population, collected data and technical, economic, social and environmental information necessary for preparing the PCR, and drew lessons from project implementation.

The report was reviewed by peer reviewers, who made comments and observations that were taken into account in the final document. The reviewers included Messrs: Ndoundo NIGAMBAYE, Electrical Engineer, ONEC.1; Ousmane FALL, Investment Officer, OPSM.2; Nouridine K. DIA, Country Economist ORCE; Ousmane Tanou DIALLO, Consultant-Electrical Engineer, ONEC.1; Jean-Baptiste NGUEMA-OLLO, Electrical Engineer, ONEC.1 and Succès M. ASSYONGAR, Economist-Financier, ONEC.1.

## H. LESSONS LEARNED

Summarize key lessons for the Bank and the Borrower suggested by the project's outcomes

**[300 words maximum.** Any additional narrative about lessons learned, if needed, must be placed in Appendix 6: Project Narrative]

### A. DESIGN AND READINESS

- a) **Abandonment of a technical option retained at project appraisal:** Several localities had to be electrified using the overhead ground wire of the North Benin-North Togo interconnection project. Following the delay, this option was abandoned for a classic, but more costly technical solution involving the construction of MV lines. ***During design of projects whose implementation depends on another project, the Borrower and the Bank must provide sufficient guarantees in the latter's implementation timeframe, to avoid resorting to less economic alternative solutions.***
- b) **Unavailability of technical and economic studies at appraisal for the wooden poles processing plant:** Studies for the installation of this plant were not available at project appraisal. An economic feasibility study was later conducted with a view to setting up the plant. The study revealed that the tree species needed to viably support this activity were not available in sufficient quantities in Benin, hence the abandonment of this component. ***The Bank must in future ensure the feasibility of an activity before its inclusion in a project. This feasibility must be backed by available technical and economic studies.***
- c) **Choice of passages that made it possible to electrify other localities not envisaged in the project:** By using the corridors of existing roads (tarded or lateritic) for the passage of MV power lines, a significant number of localities have been crossed or are situated close to power grids. This has eased their electrification within the framework of national projects and those sponsored by NGOs and other donors. ***In the design of rural electrification projects, the choice of line corridors should not only be limited to localities retained for the project, but must take into account subsequent possibilities offered to other areas.***

### B. IMPLEMENTATION

- d) **SBEE's inability to deliver RCPs using work on force account:** The shortages in deliveries of RCPs disrupted works during project implementation. They resulted mainly from the many requests made to SBEE from several rural electrification operations financed by the Government, including the electrification project for several administrative district/council headquarters and other localities. Faced with these many requests, SBEE finally procured RCPs from private pole production units and hired trucks to transport them, so as to reduce delays. ***In future, it would be advisable to improve risk analysis regarding work on force account. In this particular case, it would have been preferable to include the supply of all equipment necessary for the construction of grids in the same contract, including RCPs, which would enable contractors to comply with the contractual deadlines.***
- e) **Insufficient financial resources following the modifications made:** During the first phase, modifications were made to electrify 24 localities not retained, hence the increase in equipment. During the second phase, the remaining funds could not cover the amount offered by the successful bidder, which resulted in a three-year

delay in launching of works. **The Bank's executing agencies must ensure compliance with quantities provided for at appraisal, to avoid significant overruns of budgets allocated to the various components. In case of a modification necessary for the Borrower, the latter must mobilize the necessary funds beforehand, in a special account.**

- f) **Disuse of special accounts provided for in the Loan Agreement:** The project's special accounts were opened, but did not become operational. During project implementation, a new [government] provision no longer authorizing the payment of counterpart contributions into project accounts had become effective. However, the Government of Benin had undertaken to honour its payments on time. During the last phase of the project, serious delays were noted in the processing and payment of bills of the contractor in charge of last phase works. **There is need to reflect on the most efficient manner to manage counterpart contributions for future Bank projects in Benin.**

## I. PROJECT RATINGS SUMMARY

All working scores and ratings must be found in the relevant section in the PCR. For example, please insert the "Overall Output score" in Section D.I. in the "Achievement of Outputs" box below.

CRITERIA	SUB-CRITERIA	WORKING SCORE
PROJECT OUTCOME	Achievement of outputs <i>(insert score from Section D.I.)</i>	3
	Achievement of outcomes <i>(insert score from Section D.I.)</i>	2
	Timeliness <i>(insert score from Section F.4.)</i>	2
	<b>OVERALL PROJECT OUTCOME SCORE</b> <i>(score average)</i>	<b>2</b>
BANK PERFORMANCE	<b>Design and Readiness</b>	
	Project Objectives were relevant to country development priorities. <i>(insert score from Section C.3.)</i>	4
	Project Objectives could in principle be achieved with the project inputs and in the expected time frame. <i>(insert score from Section C.3.)</i>	3
	Project Objectives were consistent with the Bank's country or regional strategy <i>(insert score from Section C.3.)</i>	4
	Project Objectives were consistent with the Bank's corporate priorities <i>(insert score from Section C.3.)</i>	4
	The log frame presents a logical causal chain for achieving the project development objectives. <i>(insert score from Section C.5.)</i>	4
	The log frame expresses objectives and outcomes in a way that is measurable and quantifiable. <i>(insert score from Section C.5.)</i>	4
	The log frame states the risks and key assumptions. <i>(insert score from Section C.5.)</i>	3
	Project complexity was matched with country capacity and political commitment. <i>(insert score from Section E.2.)</i>	4
	Project design includes adequate risk analysis. <i>(insert score from Section E.2.)</i>	3
	Project procurement, financial management, monitoring and/or other systems were based on those already in use by government and/or other partners. <i>(insert score from Section E.2.)</i>	4
	Responsibilities for project implementation were clearly defined. <i>(insert score from Section E.2.)</i>	2
	Necessary implementation documents (e.g. specifications, design, procurement documents) were ready at appraisal. <i>(insert score from Section E.2.)</i>	4
	Monitoring indicators and monitoring plan were agreed upon during design. <i>(insert score from Section E.2.)</i>	3
	Baseline data was available or were collected during design. <i>(insert score from Section E.2.)</i>	4

	<b>PROJECT DESIGN AND READINESS SUB-SCORE</b> (score average)	<b>4</b>
	<b>Supervision:</b>	
	Bank complied with:	
	Environmental Safeguards (insert score from Section F.4.)	4
	Fiduciary Requirements (insert score from Section F.4.)	3
	Project Covenants (insert score from Section F.4.)	4
	Bank provided quality supervision in the form of skills mix provided and practicality of solutions. (insert score from Section F.4.)	3
	Bank provided quality management oversight. (insert score from Section F.4.)	3
	PCR was delivered on a timely basis (insert score from Section G)	4
	<b>SUPERVISION SUB-SCORE</b> (score average)	<b>3</b>
	<b>OVERALL BANK PERFORMANCE SCORE</b> (score average)	<b>4</b>

<b>BORROWER PERFORMANCE</b>	<b>Design and Readiness</b>	
	Responsibilities for project implementation are clearly defined. (insert score from Section E.2)	4
	Necessary implementation documents (e.g. specifications, design, procurement documents) are ready at appraisal. (insert score from Section E.2)	2
	Monitoring indicators and monitoring plan are agreed upon (insert score from Section E.2)	4
	Baseline data are available or are being collected. (insert score from Section E.2)	3
	<b>PROJECT DESIGN AND READINESS SCORE</b> (score average)	<b>3</b>
	<b>Implementation</b>	
	Borrower complied with:	
	Environmental Safeguards (insert score from Section F.4)	4
	Fiduciary Requirements (insert score from Section F.4)	2
	Project Covenants (insert score from Section F.4)	2
	Borrower was responsive to Bank supervision findings and recommendations. (insert score from Section F.4)	2
	Borrower collected and used of monitoring information for decision-making. (insert score from Section F.4)	3
	<b>IMPLEMENTATION SUB-SCORE</b> (score average)	<b>3</b>
<b>OVERALL BORROWER PERFORMANCE SCORE</b> (score average)	<b>3</b>	

## J. PROCESSING

STEP	SIGNATURE AND COMMENTS	DATE
Sector Manager Clearance	Mr. I. KONATE	10/11/2011
Regional Director Clearance	Mr. J. K. LISTE	24/11/2011
Sector Director Approval	Mrs. H. CHEIKHROUHO	24/11/2011

## Scale for Working Scores and Ratings

SCORE	EXPLANATION
4	<b>Very Good-</b> Fully achieved with no shortcomings
3	<b>Good-</b> Mostly achieved despite a few shortcomings
2	<b>Fair-</b> Partially achieved. Shortcomings and achievements are roughly balanced
1	<b>Poor-</b> Very limited achievement with extensive shortcomings
NA	Non Applicable

## PROJECT COST AND FINANCING

## a. Project Cost by Component

Components	At Appraisal			At Completion			Gap	
	Foreign exchange	Local currency	Total	Foreign exchange	Local currency	Total	Amount	In %
<b>A.</b> Increase in production and extension of grid	7.06	2.45	9.51	8.71	7.07	15.78	+ 6.27	+ 66%
<b>B.</b> Execution of distribution works	1.19	0.13	1.32	1.24	0.16	1.40	+ 0.08	+ 6%
<b>C.</b> Installation of a wooden poles processing plant	1.42	0.82	2.24	-	-	-	- 2.24	- 100%
<b>D.</b> Project administration and management	0.83	0.80	1.63	0.32	0.17	0.49	- 1.15	- 70 %
<b>Total base cost</b>	<b>10.50</b>	<b>4.20</b>	<b>14.70</b>	<b>10.27</b>	<b>7.40</b>	<b>17.67</b>	<b>+2.97</b>	<b>+ 20 %</b>
Provision for physical contingencies (5%)	0.52	0.22	0.74	-	-	-	-	-
Provision for price escalation (3% per year)	0.31	0.13	0.44	-	-	-	-	-
<b>Total project cost</b>	<b>11.33</b>	<b>4.55</b>	<b>15.88</b>	<b>10.27</b>	<b>7.40</b>	<b>17.67</b>	<b>+1.79</b>	<b>+ 11 %</b>
<b>Percentage</b>	<b>71 %</b>	<b>29 %</b>	<b>100 %</b>	<b>58 %</b>	<b>42 %</b>	<b>100 %</b>	<b>-</b>	<b>-</b>

## b. Project Cost by Expenditure Category

Components	At Appraisal			At Completion			Gap	
	Foreign exchange	Local currency	Total	Foreign exchange	Local currency	Total	Amount	%
<b>A.</b> Goods	6.77	2.38	9.15	9.00	3.56	12.56	+ 3.41	+ 37 %
<b>B.</b> Works	2.90	1.02	3.92	0.96	3.76	4.72	+ 0.80	+ 20 %
<b>C.</b> Services (studies, control and audits)	0.47	0.24	0.71	0.32	0.04	0.36	- 0.35	- 50 %
<b>D.</b> Project administration and management	0.36	0.56	0.92	-	0.31	0.31	- 0.89	- 97 %
<b>Total base cost</b>	<b>10.50</b>	<b>4.20</b>	<b>14.70</b>	<b>10.27</b>	<b>7.40</b>	<b>17.67</b>	<b>+ 2.97</b>	<b>+ 20 %</b>
Provision for physical contingencies (5%)	0.52	0.21	0.74	-	-	-	-	-
Provision for price escalation (3% per year)	0.31	0.13	0.44	-	-	-	-	-
<b>Total project costs</b>	<b>11.33</b>	<b>4.55</b>	<b>15.88</b>	<b>10.27</b>	<b>7.40</b>	<b>17.67</b>	<b>+1.79</b>	<b>+ 11 %</b>
<b>Percentage</b>	<b>71 %</b>	<b>29 %</b>	<b>100 %</b>	<b>58 %</b>	<b>42 %</b>	<b>100 %</b>	<b>-</b>	<b>-</b>

**c. Resources by Source of Financing**

<b>Table1.3</b>										
<b>Resources by Source of Financing UA million</b>										
	<b>At Appraisal</b>				<b>At Completion</b>				<b>Gap</b>	
	Foreign exchange	Local currency	Total	%	Foreign exchange	Local currency	Total	%	Amount	%
<b>ADF</b>	11.33	0.99	12.32	78%	9.03	3.28	12.31	70%	- 0.01	- 0.1 %
<b>SBEE</b>	-	2.53	2.53	16%	-	2.36	2.36	13%	- 0.17	- 6.8 %
<b>Government</b>	-	0.83	0.83	5%	1.24	1.75	2.99	17%	+2.16	+ 260 %
<b>Beneficiaries</b>	-	0.19	0.19	1%	-	-	-	-	- 0.19	- 100 %
<b>Total</b>	<b>11.33</b>	<b>4.55</b>	<b>15.88</b>	<b>100%</b>	<b>10.27</b>	<b>7.40</b>	<b>17.67</b>	<b>100%</b>	<b>+ 1.79</b>	<b>+ 11.25%</b>
<b>Percentage</b>	<b>71 %</b>	<b>29 %</b>	<b>100 %</b>		<b>58 %</b>	<b>42 %</b>	<b>100 %</b>		<b>-</b>	<b>-</b>

## PROJECT FINANCIAL IMPLEMENTATION

### 1. ADF Loan Disbursements

The Bank's cumulative payments stood at UA 12 159 922.12 as at 30/10/2011, representing a disbursement rate of 98.70% on the ADF loan and an undisbursed balance of UA 160 077.88. The rate is highly satisfactory, despite the three-year delay in project completion that twice required the extension (up to 31/12/2011) of the deadline for loan closure initially fixed for 31/11/2008. Three (3) payments are still pending on ADF resources for a total UA 50 713. The payments are made up of the balances of three (3) contracts nearing completion: (i) DECON Engineering Consultant (EUR 67 543.10); (ii) INEO Enterprise for the supply and installation of power grids under Phase 2 (EUR 132 731.12); and (iii) BENAUDIT CONSULTEX Audit Firm (CFAF 5 870 000). After these payments that will be made before loan closure, the total ADF loan disbursement rate will be close to 100%. The following table indicates ADF loan disbursements by expenditure category as at 31/10/2011.

Expenditure Category	At Appraisal		At Completion	
	Amount in UA	%	Amount in UA	%
Goods	7 670 000	62 %	11 870 705	98 %
Works	3 280 000	27 %	-	-
Services (studies, control and audit)	650 000	5 %	289 217	2 %
Project administration and management	720 000	6 %	-	-
<b>Project Total</b>	<b>12 320 000</b>	<b>100%</b>	<b>12 159 922</b>	<b>100 %</b>

**NB:** The two contracts for supplies and installation of power grids of the two project phases were registered in the Bank's system under the "goods" category.

### 2. Disbursement of Counterpart Contributions

#### 2.1. Société Béninoise d'Énergie Electrique (SBEE)

SBEE's contribution to the project stood at CFAF 1 762 642 094 (UA 2 360 451), representing 93 % compared to the amount at project appraisal estimated at CFAF 2 063 344 030 (UA 2 532 000). Thus, SBEE payments for the project account for 13% of total project cost at completion, against the 16% projected at appraisal. The payments were used in buying inputs for the production and transportation of RCPs for the project (force account). SBEE also bore the running cost of the Implementation Unit. Details of SBEE's contribution to the project are indicated in the table below.

Item	Amount in CFAF	Remarks
Buying of inputs for the production of RCPs	69 348 500	Force account
Production of RCPs and transportation to the sites	1 670 203 094	Force account
Implementation Unit running cost	23 090 500	
<b>Total</b>	<b>1 762 642 094</b>	

#### 2.2. Government of Benin

The Government of Benin's cumulative commitments to the project stood at CFAF 2 237 240 331 (UA 2 996 011), representing 260% compared to the CFAF 676 907 330 (UA 833 000) estimate at project appraisal. Therefore, Government's contribution accounts for 17% of total project cost at completion, against the 5% projected at appraisal. The Government increased its financial contribution to the project to cover the deficit in financial resources available to implement the last phase of the project, reduce SBEE's contribution considering its delicate financial situation and pay the expected contribution of project beneficiaries estimated at CFAF 154 954 690 (UA 195 000). Details of Government's contribution to the project are given in the following table:



**Table 2.2**  
**Disbursements of the Government of Benin's Counterpart Contributions in CFAF**

<b>Item</b>	<b>Amount in CFAF</b>	<b>Remarks</b>
Power grid construction works	1 189 801 457	Second phase of the project
Connection equipment	1 047 438 874	Second phase of the project
<b>Total</b>	<b>1 237 240 331</b>	

### **2.3 Beneficiaries**

At project appraisal, a contribution amounting to UA 195 000 (CFAF 154 954 690) and representing 1.1 % of the total projected cost was expected from the beneficiary population. During sensitization campaigns that preceded project appraisal, the population had shown great interest and accepted the principle of this contribution that had to be paid beforehand to SBEE, which would deposit it in one of the special accounts provided for in the Loan Agreement. At project implementation, no prior contribution had been received from the beneficiary population. However, during connection campaigns in the electrified areas, the population contributed to connection costs by paying their connection estimates at promotional and low-cost rates granted by SBEE.

**BANK INPUT**

**a. Project Readiness and Supervision Missions**

N°	Missions	Period	Number of Persons	Composition of the Team	Number of Days
1	Readiness	14/07/2002 to 29/07/2002	2	- Electrical Engineer - Energy Economist	32
2	Appraisal	18/05/2003 to 01/06/2003	3	- Electrical Engineer - Financial Analyst - Economist	42
3	Launching	01/03/2004 to 20/03/2004	1	- Electrical Engineer	21
4	Supervision	02/03/2005 to 19/03/2005	1	- Electrical Engineer	18
5	Supervision	09/12/2005 to 16/12/2005	2	- Electrical Engineer - Financial Analyst	18
6	Supervision	21/02/2007 to 28/02/2007	1	- Electrical Engineer	8
7	Supervision	23/11/2007 to 01/12/2007	1	- Electrical Engineer	8
8	Supervision	09/12/2007 to 17/12/2007	2	- Electrical Engineer - Financial Analyst	18
9	Supervision	23/09/2009 to 03/10/2009	2	- Electrical Engineer - Financial Analyst	22
10	Supervision	14/12/2009 to 18/12/2009	2	- Electrical Engineer - Financial Analyst	10
11	Supervision	15/04/2010 to 27/04/2010	2	- Electrical Engineer - Financial Analyst	26
12	Supervision	03/08/2010 to 13/8/2010	3	- 2 Electrical Engineers - Financial Analyst	33
13	Supervision	06/12/2010 to 15/12/2010	2	- Electrical Engineer - Financial Analyst	20
14	Supervision	18/07/2011 to 29/07/2011	2	- Electrical Engineer - Financial Analyst	24
15	Completion	17/10/2010 to 28/10/2010	2	- Electrical Engineer - Financial Analyst	24

**b. Scores Given by the Last Project Supervision Mission of 18 to 29 July 2011**

INDICATORS	SCORES
<b>A. COMPLIANCE WITH LOAN CONDITIONS</b>	
Compliance with implementation conditions	3
Compliance with general loan agreement conditions	3
Compliance with other loan agreement conditions	2
<b>B. PROCUREMENT PERFORMANCE</b>	
Procurement of consultancy services	2
Procurement of goods and works	3

<b>ANNEX 3</b> <b>Page 2/2</b>	
<b>C. FINANCIAL PERFORMANCE</b>	
Availability of funds in foreign exchange	3
Availability of funds in local currency	1
Disbursement efficiency	3
Cost management/recovery	3
Performance of co-financiers (where applicable)	2
<b>D. ACTIVITIES AND WORKS</b>	
Compliance with implementation schedule	1
Performance of consultants or technical assistants	3
Performance of enterprises	3
Performance of project management	2
<b>E. IMPACT ON DEVELOPMENT</b>	
Probability of attaining the project objective	3
Probability of achieving and sustaining benefits beyond the project's investment phase	3
Probable contribution of the project to institutional capacity building	3
Current rate of return	2
<b>F. OVERALL ASSESSMENT</b>	
Current	2.50
Future trend	2.52

<b>STATUS</b>
Implementation Progress (IP) = 2.43 Development Objectives (DO) = 2.75
<b>OVERALL STATUS: NON PROBLEMATIC PROJECT / POTENTIALY PROBLEMATIC PROJECT /</b>

(\*) Score given: 3 = Excellent; 2 = satisfactory; 1 = inadequate; 0 = very inadequate; - Non applicable

## PROJECT ECONOMIC ANALYSIS

The criteria retained for project economic analysis are the economic rate of return (ERR) and the net present value (NPV). The methodology used is that of comparing the economic benefits coming from project implementation and operation with the economic costs (investments and operation) incurred.

For reasons of comparison, the types of benefits taken into account at appraisal were repeated, and relate especially to the increase in: (i) savings made by households by using electricity from SBEE instead of other energy sources used prior to the project; and (ii) savings made by cottage industries, small-scale enterprises and individuals who used small generators to produce electricity at CFAF 260 per kWh, compared to SBEE's average cost price of CFAF 107 per kWh.

The other assumptions retained for project economic analysis are as follows:

- The period of analysis is 20 years from 2005, year of first disbursement;
- The project economic cost is the project financial cost adjusted by transfers estimated at 15%;
- The works maintenance and operating costs are estimated at an average of 2.5% of the investment cost per year from the year of operation;
- The number of new subscribers as a result of the project is estimated at 16 000, of which 40% of small generator users (small scale industries, cottage industries and service enterprises, individuals (welders, carpenters, shops, etc.);
- The average consumption per subscriber in the project area is estimated at 80 kWh per month.

Based on the foregoing, the ERR stands at 15.3 % and the net present value (NPV) at CFAF 2 490 million; these results are indicated in the following table:

Calculation of the Economic Rate of Return (ERR)					
Amounts in CFAF million					
Year	Investment Cost	Maintenance	Increase in Household Savings	Increase in SME Savings	Financial Flows
2005	1 606		115	134.8	-1 357
2006	3 773	94.33	384	451.6	-3 032
2007	2 114	52.86	535	629.1	-1 004
2008	1 486	37.15	641	753.8	-129
2009	524	13.10	678	797.8	939
2010	48	1.19	681	801.8	1 434
2011	1 663	41.57	800	941.4	37
2012		280.35	800	941.4	1 461
2013		280.35	800	941.4	1 461
2014		280.35	800	941.4	1 461
2015		280.35	800	941.4	1 461
2016		280.35	800	941.4	1 461
2017		280.35	800	941.4	1 461
2018		280.35	800	941.4	1 461
2019		280.35	800	941.4	1 461
2020		280.35	800	941.4	1 461
2021		280.35	800	941.4	1 461
2022		280.35	800	941.4	1 461
2023		280.35	800	941.4	1 461
2024	-2 243	280.35	800	941.4	3 704
<b>Economic rate of return (ERR)</b>					<b>15.3%</b>
<b>Net Present Value (NPV)</b>					<b>2 490</b>

The actual ERR is lower than the one calculated at appraisal, which stood at 19.39%. This drop in the rate of return is linked both to the increase in the overall project cost and the cost per kWh of electricity distributed by SBEE.

## LIST OF CONTRACTS

a. Procurement of Goods and Works									
N°	Item	Number of Lots	Method	Date of Publication	Date of Bid Submission	Date of Reception of the Appraisal Report	Date Contract Signature	Amount in CFAF	Suppliers
1	Iron and frame for RCPs	1	LCB	16/08/04	04/10/04	27/10/04	08/02/05	371 062 262	MACELEC
2	Cement for RCPs	1	LCB	16/08/04	04/10/04	27/10/04	23/06/05	84 150 000	SCB
3	Sand and gravel for RCPs	1	LCB	16/08/04	04/10/04	27/10/04	13/06/05	25 222 000	GRACINA SARL
4	Sand, gravel and chippings	1	LCB	16/08/04	04/10/04	27/10/04	13/06/05	21 370 000	SELECTCOM
5	Grease and diesel	1	LCB	16/08/04	04/10/04	27/10/04	13/06/05	11 713 000	NET PLUS
6	Production of RCPs	Day labour by SBEE						1 670 203 500	SBEE(EN REGIE)
7	Construction of power grids and the Station	2	ICB	29/01/05	10/05/05	24/06/05	03/10/05	6 669 605 595	RMT - GMBH
8	Office equipment	1	LCB	06/02/07	13/03/07	28/08/07	28/12/07	41 290 373	SOCIETE LIPALADI
9	Construction of power grids Phase II	1	ICB	29/01/05	16/02/06	10/11/08	12/01/09	3 978 561 254	INEO ENERGIE EXPORT
10	Computer hardware	1	LCB	29/02/06	13/02/06	02/11/06	13/10/08	30 730 000	ELECTRI HALL BENIN
b. Use of Consultancy Services									
	Item	Selection Method	Date of Non-objection on the Short List	Proposals Submission Date	Bid Appraisal Reception Date	Date of Contract Signature	Contract amount in CFAF	Service providers	
1	Engineering Consultant	Short list	01/07/04	18/10/04	25/11/04	14/06/05	236 374 105	DECON	
1	Audit of project accounts	Short list	27/08/07	23/10/07	28/08/08	01/12/08	29 350 000	BENAUDIT	
<b>TOTAL IN CFAF</b>							<b>CFAF 13 169 631 683</b>		
<b>TOTAL IN UA</b>							<b>UA 17 636 175.96</b>		

**LIST OF DOCUMENTS CONSULTED**

- a.** Loan Agreement of the Second Rural Electrification Project
- b.** Project Appraisal Report
- c.** Quarterly Project Status Reports made by the Implementation Unit
- d.** Reports and Aide Memoires of the Bank's Supervision Missions
- e.** Completion Report prepared by SBEE
- f.** The Bank's Completion Reports on the Electrification Project for 17 Rural Centres in Benin
- g.** OPEV Performance Evaluation Report of the Electrification Project for 17 Centres (REPP)
- h.** Benin's 2002-2004 Country Strategy Paper
- i.** Benin's RBCSP 2005-2009 Mid-term Review Report
- j.** Review of the Bank's Portfolio in Benin (January 2008)

**Project Narrative**

- 1. The project had as objective to increase the rural population's access rate to electricity to improve its living conditions.** Its specific purpose was to stabilize the population of these localities and, in the medium term, reduce the use of other forms of energy that are costly or harmful to the environment. It followed another project entitled "Study of a Rural Electrification Programme in Benin" that cost UA 818 000 (financed by the Bank through an ADF/TAF grant of UA 700 000 and the Government of Benin for UA 118 000, and concerning 30 localities. During project identification, the Société Béninoise d'Energie Electrique (SBEE) convinced the Bank that 21 localities situated between Ouaké (Togolese border) and Parakou along the passage of the North Togo-North Benin interconnection line should also be retained, as well as six other localities situated in Atlantique and Collines Divisions, making a total of 57 localities.
- 2. Works were divided into two distinct phases** the first of which concerned 30 localities that were the subject of the rural electrification programme study and for which bidding documents were already available at project launch. The second phase concerned the remaining 27 localities and for which detailed technical studies had to be conducted by SBEE and validated by the engineering consultant recruited to assist the executing agency. The first phase was fully completed in December 2007 albeit with significant modifications made on the planned passage of grids to electrify 34 other localities not initially taken into account. This made it possible for 54 localities to be electrified through the construction of 204 km of MV lines; 97 km of mixed lines; 427 km of LV lines; 157 transformer stations; 3 541 public lighting points and the installation of a 500 kVA diesel plant
- 3. Modifications made on the first phase engendered overruns of quantities envisaged for the entire project and considerably reduced the budget available** to cover the supplies and works of the second phase. A supplies and works contractor was retained to implement the phase, following international competitive bidding launched in October 2005, but the remaining funds could not cover the bid amount proposed by the contractor. Thus, the project witnessed a long period of inactivity of more than two years and the demobilization of part of the Implementation Unit's staff.
- 4. After several missions to re-launch the project both in Benin and at the Bank's Temporary Relocation Agency in Tunis, followed by negotiations between SBEE and the contractor on the basis for reducing certain quantities in the wake of Government's acceptance to increase its contribution to the project to cover the deficit,** the implementation contract on the second phase was finally approved in January 2009. However, payment of the mobilization advance by the State treasury as counterpart contribution came only in June 2010, i.e. more than 42 months (3.5 years) after contract was awarded. The second phase made it possible to electrify 37 localities through the construction of 149 km of MV lines; 41 km of mixed lines; 55 km of LV lines; 54 transformer stations; installation of 554 public lighting points; procurement of equipment; and 8 000 connections.
- 5. Twenty-one areas of the project's second phase had to be electrified using the overhead ground wire of the 161 kV North Togo-North Benin interconnection line,** financed by other donors (BOAD, World Bank, CEB, etc.). Following the delay in constructing this line, the option of using the overhead ground wire was abandoned for a classic but more costly technical solution of constructing MV lines (33 kV).

6. **The project also envisaged the installation of a local wooden poles processing plant.** The dossier for the selection of the contractor to set up the plant was developed by the project's engineering consultant. Considering SBEE's delicate financial situation (the company was to finance this component), it opted for partnership with investors within the framework of public-private partnership. A session was organized in February 2010 to present the plant to investors who requested that a feasibility study be conducted and a business plan designed before they could make any commitments. Data collected revealed that the tree species needed to support a viable wooden poles production activity were not available in sufficient quantities on Benin's territory. This led to the abandonment of the component.

### 7. Main Project Outcomes:

Table 7.1  
Project Outcomes

N°	Item	Expected	Actual	Gap	
				Quantity	%
1	Medium voltage lines	163	352	+ 189	+ 115%
2	Mixed lines	155	138	- 177	- 46%
3	LV lines	360	482	+ 122	+ 34%
4	Transformer stations	145	211	+ 66	+ 46%
5	Public lighting points	4 180	4 095	- 85	- 2%
6	Connections	21 000	16 000	- 5 000	- 24%
7	Diesel plant	01	01	-	-

### 8. List of 91 Localities Electrified by the Project

Division	Localities
Alibori (2)	Kandi and Malanville
Atacora (1)	Natitingou
Atlantique (25)	Ouidah, Sô-Ava, Abomey-Calavi, Houègbo, Ouédo, Savi, Azohoué-Aliho, Azohoué-Aliho, Ouédo-Adjagba, Hèvié, Tori-Hèvié, Godonoutin, Agonkanmey, Tandahota, Woussa, Dodji-Bata, Gonfandji 1 and 2, Fongbo, Glègbodji, Tangbo, Agondotan, Wawata, Kpé
Borgou (10)	Onklou, Daringa, Bakou, Yébéssi, Kpèssou, Bétérou, Kpassatona, Sanson, Sébou and Tourou
Collines (6)	Tchètti, Ouèssè, Atata, Aklamkpa, Zouzonkanmè, Ouèdèmè
Couffo (5)	Hlassamè, Koutimè-Tannou, Tchégnonhoué, Zindjihoué, Dévè
Donga (22)	Djougou, Pénèssoulou, Pélébina, Alédjo, Partago, Kodowari, Bodi, Gbèssou, Bougou, Akaradé, Badjoudè, Anoum, Pénèssoulou, Baréi, Alédjo, Pélébina, Partago, Dewa-Bouroum, Founga, Sérou, Alfa-Kpara, Vanhoui
Mono (3)	Lokossa, Ouèdèmè-Adja, Dahè
Ouémè (5)	Avrankou, Adjarra, Dangbo, Sèmè-Kpodji, Affandjitanmè
Plateau (4)	Ilara, Yoko, Idigny, Ilikimou
Zou (8)	Cové, Zangnando, Tindji, Dan, Bamè, Bohicon-Avogbana, Bohicon (Lissèzoun et Sodohomè, Heonzon), Abomey (neighbourhoods: Détohou, Vidolé, Agbokpa, Djègbé, Djimè, Sèhoun)