



## 1. Project Data

<b>Project ID</b> P106172	<b>Project Name</b> NG-Electricity and Gas Improvement	
<b>Country</b> Nigeria	<b>Practice Area(Lead)</b> Energy & Extractives	
<b>L/C/TF Number(s)</b> IDA-46200,IDA-51280	<b>Closing Date (Original)</b> 31-Dec-2014	<b>Total Project Cost (USD)</b> 251,426,006.79
<b>Bank Approval Date</b> 16-Jun-2009	<b>Closing Date (Actual)</b> 31-Dec-2018	
	<b>IBRD/IDA (USD)</b>	<b>Grants (USD)</b>
Original Commitment	200,000,000.00	0.00
Revised Commitment	265,116,821.66	0.00
Actual	251,426,006.79	0.00

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## 2. Project Objectives and Components

### a. Objectives

The objectives of the Project are to: (i) improve the availability and reliability of gas supply to increase power generation in existing public sector power plants; and (ii) improve the power network's capacity and efficiency to transmit and distribute quality electricity to the consumer. (Financing Agreement, p. 5; PAD, para. 27)

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



Yes

**Did the Board approve the revised objectives/key associated outcome targets?**

Yes

**Date of Board Approval**

19-Jun-2012

**c. Will a split evaluation be undertaken?**

No

**d. Components**

**Component 1: Risk Mitigation through a series of Partial Risk Guarantees (PRGs) in support of gas supplies to increase power generation from existing public sector power plants (Appraisal cost: US\$400 million and Additional Financing (AF) of US\$200 million; Actual cost: US\$111.8 million)**

This component provided risk mitigation and credit enhancement for the risk of payment default by the publicly owned generation companies. The PRG is intended to encourage private entities to invest in the exploration, production, processing, and transportation facilities necessary to deliver natural gas to the state-owned national gas transportation network or directly to individual public sector generation companies. The AF is designed to provide the series of PRGs for gas supply (ICR, para. 24).

**Component 2a: Enhancement of Transmission Infrastructure (Appraisal cost: US\$108 million and the AF of US\$60 million; Actual cost: US\$139.6 million)**

The component included (1) rehabilitation and reinforcement of aging 330 and 132 kV transmission stations, (2) rehabilitation and retooling of the existing power transformer workshop, (3) correction and remediation of deficiencies and defects in switchyard at 330/132 kV transmission stations, (4) reinforcement of the power distribution network, (5) installation of 11 kV sectionalizers, and (6) acquisition and installation of metering and other relevant equipment.

**Component 2b: Enhancement of Distribution Infrastructure (Appraisal cost: US\$72 million and AF of US\$20 million; Actual cost: US\$72.4 million)**

This component was the restoration and strengthening of distribution transformer stations and the installation of 80,000 household prepaid meters.

**Component 3: Technical Advisory Services (Appraisal cost: US\$16 million and the AF of US\$18 million; Actual cost: US\$72.4 million)**

This component included (i) building the institutional capacity of power sector institutions, (ii) strengthening institutional capacity to implement and enforce environmental regulations for gas and oil operations, (iii) community outreach activities, and (iv) feasibility and re-engineering studies related to project investments.

**Component 4: Project Management Unit (PMU) operating costs (Appraisal cost: US\$2 million and AF of US\$2 million; Actual cost: US\$7.3 million).**



The component was to support PMU. The 2017 restructuring reallocated funds to this component to cover the increasing cost for the extended period (2017 restructuring paper, para 13).

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

**Project Cost:** The estimated total project cost was US\$900 million, of which the estimated original cost was US\$600 million, with breakdown of US\$200 million for credit and US\$400 million for PRGs (PAD page vii), and the estimated AF cost was US\$300 million, split into US\$100 million for credit and US\$200 million for PRGs (2012 Restructuring paper, page 6). The actual cost was US\$198 million, of which US\$291.7 million for credit and US\$111.8 million for PRGs (ICR page 41).

**Financing:** The Bank financed the entirety of the total project cost estimated at appraisal. Estimated original financing was that IDA would finance US\$100 million for PRAs (of a total of US\$400 million for PRGs) and US\$200 million for Specific Investment Loan (SIL; investments and TA). The estimated financing from AF was that IDA would finance US\$50 million for PRAs (of a total of US\$200 million for PRAs) and US\$100 million for SIL. The original PRA was canceled and the actual cost to the PRAs was US\$111.8, of which IDA distributed US\$28 million from the AF (ICR para 26) and US\$291.7 million from the SIL.

**Borrower Contribution:** The Borrower did not provide any financing specific to the project, while the borrower provided regular budgeted funds including staff cost.

**Dates:** The project was approved on July 16, 2009, and became effective on July 21, 2010. The project undertook the following three restructurings:

The first restructuring in 2012 was to fund the AF; the PDO remained the same, and the AF of US\$112 million was primarily intended to fund the upcoming PRGs. As a result, the Results Framework has been revised and the changes are presented in the efficacy section of this review.

The second restructuring in 2017 was to extend the project's closing date by one year to December 31, 2019, reallocate funds between disbursement categories and revise the Results Framework. A number of indicators in the Results Framework were changed (see section 4. Efficacy for details).

The third restructuring in 2018 was to cancel the undisbursed amount (approximately US\$28 million) from the original credit.

The project was closed on December 31, 2018.

### **3. Relevance of Objectives**

#### **Rationale**

**Country and sector context:** The objectives of the project were substantially relevant to the country's context. At the time of the appraisal, only 30% of the electricity generation supplied by the grid was available for the country's total projected demand of 10,000 MW. Only 40% of the population had access to electricity. The main bottlenecks in expanding power volumes and access to power were energy losses



(technical losses), inefficiencies and limited power plant capacity. According to the National Load Demand Study, the level of energy losses in transmission and distribution substations averaged about 40 percent due to aging, lack of maintenance and system overloads. High commercial losses had led to inefficiencies due to inadequate billing and collection, low rates, and widespread power theft, which undermined efficiency. Due to the limitations of existing thermal power plants capacity, only half of the generating capacity was operating, while more than 70% of the generating capacity depended on natural gas, where gas supply was inadequate.

The Federal Government of Nigeria aimed to provide adequate and reliable grid-based power to ensure that more people could enjoy the benefits of development. The government enacted the Electric Power Sector Reform Act, 2005. The Act established the Nigerian Electricity Regulatory Commission (NERC) to provide independent technical and commercial regulation for the power sector, and in 2011 divided the vertically integrated monopoly power companies into six independent power generation companies.

**Alignment with the Strategy:** The project's objectives are also closely aligned with the Government's long-standing strategic priorities. The Federal Government of Nigeria aimed to provide adequate and reliable grid-based power through newly created independent power generation companies. The project approach to improve the availability and reliability of gas supply and increase the capacity and efficiency of the power network addressed the above challenges in the Nigerian energy sector and was central to the government's reform process. The objectives of the project are substantially consistent with the Bank's strategy: one of the three strategic clusters in the Country Partnership Strategy (CPS) for FY14-17, promoting diversified growth and job creation, focuses specifically on increasing installed power generation and transmission capacity and improving the efficiency and governance of electricity delivery.

**Previous sector experience:** The Bank has actively and consistently supported Nigeria's energy sector through the Transmission Development Project (P072018) (approved in 2001 and closed in 2008) and the National Energy Development Project (P090104) (approved in 2005 and closed in 2012). The recently closed Power Sector Guarantees Project (P120207) attempted to address the energy supply shortage by supporting payment guarantees to Independent Power Producers (IPPs). The Nigerian Distribution Sector Recovery Program (P172891) provides funds to support electricity distribution companies. The project's objectives are consistent with past and ongoing World Bank operations aimed at improving the availability and reliability, capacity and efficiency of the energy sector.

## Rating

Substantial

## 4. Achievement of Objectives (Efficacy)

### OBJECTIVE 1

#### Objective

To improve the availability and reliability of natural gas supply to increase power generation in existing public sector power plants.



## Rationale Theory of Change

The project's theory of change postulates that by reducing the risk of off-taker payments, the private sector would invest in gas exploration, production, processing, transportation, and supply to power generation companies, thereby increasing the amount of gas supplied by the private sector and making it more reliable (ICR para 10-12). To measure the effect of supply availability, two outcome indicators were established for the project, that is, additional power generation from the increased gas supply and gas supply to the public sector power plants. Reliability was measured by the number of gas supply interruptions. Several intermediate indicators supported the measurement of the achievement of these outcomes, including the number of PRGs, the number of stakeholder forums, and the number of staff trained. Indicators related to the Gas Master Plan had already been achieved in the AF, but were withdrawn from the results framework (Project Paper p. 49).

The PDO indicators and interim results indicators were revised during the AF and the 2017 restructuring. While the PDO indicator for gas supply interruptions remained unchanged, the remaining targets for the PDO indicator and the intermediate results indicator were revised downward during the 2017 restructuring. As no justification for the changes was provided in the ICR as well as in the Project Paper 2017, in accordance with the IEG guidelines to avoid lowering the ambition of a project to match achievement (page 45), the 2012 AF indicators were used in this review to assess the efficacy of the objective. **Outputs**

- The number of Partial Risk Guarantee (PRG) contracts was one against the target of seven (AF target). A gas supply agreement (GSA) was signed between Accugas Limited (Accugas) and Calabar Generation Company Limited (Calabar GENCO), with the PRG of US\$111.8 million in face value (IDA allocation of US\$28 million of the US\$50 million approved as part of the 2012 Additional Financing) (ICR para 26). **Not Achieved.**
- Ten stakeholder forum meetings were held against the target of 14 (AF target). The meeting was to review social safeguard issues and identify any potential grievances from the local communities. **Not Achieved.**
- The following staffs were trained. **Partially Achieved.**
  - Staff PMU (EMS): 895 (target: 95)
  - Staff FME: 112 (target: 15)
  - Staff NBET: 16 (target: 10)
  - Staff Gas Group (PHCN): 30 (target: 25)
  - Staff DPR: 0 (target: 10)
  - Staff TCN/Market OP: 469 (target: 58)
  - Staff NAPTIN (Power Sector staff trained): 240 (target: 470)

## Outcome

- The additional generation due to increased gas supply was 253 MW against the target of 898 MW. The failure to meet the target was due to two reasons: the limited number of PRG contracts signed, which significantly reduced the available generation capacity; and the government's limited off-take of the Calabar power plant (capacity 560 MW), which resulted in only half of the generation capacity in operation (ICR paragraph 35). **Not achieved.**



- Gas supply to the public sector power plants was 65.6 Mmscfd/month against the target of 820 Mmscfd/month. Similar to the above results, the additional gas supply capacity from the Calabar power plant was 131 Mmscf/day, but the actual supply was halved due to the government's decision to limit off-take (ICR para 35). **Not Achieved.**
- The number of gas supply interruptions to public sector power plants decreased from ten to zero per month, exceeding the target of eight per month. Calabar stopped receiving gas from Accugas between May and November 2018, as Calabar's equipment was damaged (outside of the project's intervention) and needed to be repaired. The issue was resolved and gas supply was resumed in mid-January 2019; according to an IEG's inquiry to the task team, Accugas had started supplying gas in September 2017 and there were no interruptions before or after the suspension period. Therefore, the single incident of gas supply stoppage was due to the downtime for repairs of the power purchaser hence the achievement of reducing gas supply interruptions was fully attributable to the project. **Exceeded.**

The above assessment showed limited increases in natural gas supply (28 percent of additional generation and 8 percent of gas supply), which were significantly below targets, although the achievement of the reliability target was exceeded. On balance, the project's efficacy in achieving the first objective is rated as modest.

**Rating**  
Modest

## **OBJECTIVE 2**

### **Objective**

To improve the power network's capacity and efficiency to transmit and distribute quality electricity to the consumer.

### **Rationale**

#### **Theory of Change**

Several important intermediate indicators on the efficiency outcome have been changed. An indicator of transmission losses was dropped during AF in 2012 because the investments would be too limited to be able to affect overall system losses in a significant way (AF Project Paper 48). The distribution system losses indicator was replaced with distribution losses (technical and commercial). Similar to Objective 1, most of the targets of the PDO indicators were changed downwards during the 2017 restructuring without any explanation. Given that the 2017 restructuring was to extend the project duration and did not involve any changes in the project components, there is no clear justification for revising the targets; therefore, per IEG guidelines to avoid lowering the ambition of a project to match achievement (page 45), the 2012 AF indicators were used in this review to assess the effectiveness of the objective.

The achievement of the objective was pursued by rehabilitating and upgrading transformer substations in the transmission and distribution network to increase the capacity of the grid, thereby reducing losses in the transmission and distribution network, and making more electricity available to end consumers (ICR para. 10-12). Three PDO indicators were established at the appraisal: added transmission capacity, households connected to electricity, and percent of households with the end-user voltage at 220 volts. The first indicator was modified during the AF to split into added transmission capacity and distribution capacity (page 48 of the





AF project paper). The second and third indicators for household connections were replaced by a new connection with operating meters during the AF. Indicators on direct beneficiaries, including the percentage of female beneficiaries, were also added during the AF period. Several key intermediate indicators on efficiency outcomes were changed. The indicator of transmission losses was dropped during the AF as the investment was too limited to have a significant impact on overall system losses (AF Project Paper 48). The indicator for distribution system losses was changed to distribution losses (technical and commercial). As with Objective 1, most targets for the PDO indicator were changed downward without any explanation during the 2017 restructuring. The changes are summarized in the table below. In accordance with the IEG guidelines, the AF indicators were used in this review to assess the efficacy of the objective.

## Outputs

- The number of distribution transformers installed was 3,567 units against the target of 5,173 units. Note that there was a difference in the number on page 12 (actual 5,173 units) and page 33 (actual 3,567 units). **Partially Achieved.**
- Thirty substations were rehabilitated and reinforced, achieving the target of 28 units. Of these, 2 units of 330/132 kV were installed against a target of 6, and 28 units of 132/33 kV were installed against a target of 12. **Achieved.**
- The revenue collection ratio in selected clusters (target at 10%) was not measured because data was not available from privatized distribution companies. **Not Measured.**
- The percentage of distribution shutdowns due to equipment failures (target at 10%) was not measured because data was not available from privatized distribution companies. **Not Measured.**

## Outcome

- Additional transmission capacity was 2,210 Kilovolt-Ampere (KVA) against the target of 720 KVA. **Exceeded.**
- Additional distribution capacity was 539 KVA against the target of 625 KVA. Target missed due to failure to complete contracts before the transfer of assets to privatized distribution companies (ICR page 12). **Not Achieved.**
- The new connection with operating meters was 40,000 against the target of 80,000. This was achieved through purchasing and installing 40,000 prepaid meters; the remaining 40,000 prepaid meters were canceled because the purchase and installation were not made by the project closure. According to ICR para 39, an introduction of the prepayment meters has improved the quality of the electricity received because the part of the meter greatly reduced voltage fluctuations. **Partially Achieved.**
- Technical and commercial distribution losses were not measured because the privatized distribution companies were unable to provide this data. **Not Measured**
- Transmission losses were removed from the indicator because of the relatively small size of the investments in relation to the total national investments in transmission facilities; still, the ICR reported that the transmission losses were reduced from 11.32 in 2011 to 8.22 percent in 2018 partly due to the project investments in 330/132kV and 132/33kV substations.
- Direct project beneficiaries were 4,845,000 against the target of 400,000, of which the proportion of female beneficiaries was 50 percent against the target of 50 percent. However, as the ICR noted on page 13, the results were strictly not attributable to the project given partial project contribution relative to the total transmission investments.



As per the above discussions, the expansion of the power network’s capacity was partially achieved. While transmission capacity considerably expanded, the project’s contribution to increasing distribution capacity was inadequately achieved. Improvements in efficiency were also limited based on the partial achievement of a new connection with operating meters and the lack of evidence on distribution losses. In light of partial achievements of both capacity and efficiency improvements, the project’s efficacy in achieving Objective 2 is rated modest.

**Rating**  
 Modest

**OVERALL EFFICACY**

**Rationale**

The efficacy of the first objective “to improve the availability and reliability of natural gas supply to increase power generation in existing public sector power plants” is modest. This conclusion was based on marginal results of the increasing availability of natural gas supply, while taking into account the surpassed target for achieving enhanced reliability. The efficacy of the second objective “to improve the power network’s capacity and efficiency to transmit and distribute quality electricity to the consumer” is modest. Although there was a substantial increase in transmission capacity, there were only partial achievements in increasing distribution capacity and in the new connection with operating meters as well as lack of evidence for distribution losses. On this basis, the overall efficacy is modest.

**Overall Efficacy Rating**  
 Modest

**Primary Reason**  
 Low achievement

**5. Efficiency**

**Economic and financial analysis:** The ICR did not perform economic and financial analysis due to attribution issues and lack of data availability (ICR Annex 4), although the appraisal conducted the analysis. The appraisal estimated economic and financial returns by components; implementation of the GSAs (Component 1, corresponding to Objective 1) would yield EIRR at 271 percent, Economic NPV US\$2,456 million, FIRR at 35 percent, Financial NPV US\$205 million based on the base case scenario; transmission and distribution investments (Component 2, corresponding to Objective 2) would yield EIRR at 35 percent, Economic NPV US\$261 million, FIRR at 25 percent, and Financial NPV US\$130 million. This analysis also took into account the new pricing and regulatory framework for the electricity and gas sector. The AF Project Paper conducted a similar economic and financial analysis and concluded that the project continued to be viable.

IEG especially noted the absence of economic and financial analysis for the project upon its completion, thus preventing any useful comparison with the appraisal estimates, and reiterated to the Bank project team that the





Bank’s ICR preparation guidelines require the following: the ICR should present the detail of the efficiency analysis, including the underlying assumptions about costs and benefits (Bank Guidance on ICR for IPF Operations). In response, the Bank team explained in detail that: the ICR team and Transmission Company of Nigeria (TCN) made efforts to gain access to the data that was required for a meaningful study; however the team was unable to obtain economic and financial analysis data because government-owned utilities were unbundled and privatized; the DISCOs did not make their data publicly available; Management Information Systems of DISCOs have not been established; the data reported by DISCOs to the regulatory commission has not been validated or accurate.

**Aspects of design and implementation:** The project design was relevant to pursue the objective despite some false starts of concluding the first two GSA contracts (Shell and Chevron) (ICR para 42). The project was influenced by a series of changes, including the government’s commitment and capacity to implement power sector reforms and the readiness of the gas supply agreements (GSA) to be signed between the government and private gas suppliers, but such changes were not anticipated at the time of preparation (ICR para 58). The project posed a number of implementation challenges that reduced efficiency. The challenges included limited contractor capacity and contract management, which extended the sub-project schedule multiple times and led to project extensions (ICR para 43).

While there were credible reasons why data were not available at project completion for conducting economic and financial analyses, the end result is that there is no tangible evidence of project worth at the time of its closing, which, combined with implementation delays, indicate that the project’s efficiency is modest.

## Efficiency Rating

Modest

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

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal	✓	271.00	100.00 <input type="checkbox"/> Not Applicable
ICR Estimate		0	0 <input type="checkbox"/> Not Applicable

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

## 6. Outcome

The relevance of the project’s objectives to the country context and the Bank’s strategy is **substantial**. Overall efficacy is **modest**, given the modest results of the first and second objective. Efficiency is **modest** due to lack of validation of the project’s economic and financial viability at closing and implementation delays. Hence, in line



with the Bank's ICR preparation guidelines dated September 27, 2018 (Annex H, page 37), the project's overall outcome is **moderately unsatisfactory**.

**a. Outcome Rating**

Moderately Unsatisfactory

## 7. Risk to Development Outcome

The government has been in the process of implementing the sectoral reform through unbundling and privatization of power companies (ICR para 3). Considering the centrality of the privatization of Nigeria's power sector, the most significant risk of the project is that the government will partially implement the off-take agreements with DISCOs. With the failure of tariff reform in 2015 (ICR para 60) and limited government budget transfers, the contracts have not been enforceable. The government attempted to fill the cash flow gap by borrowing from the Central Bank of Nigeria and is still seeking a more sustainable solution through a series of PRSP policies and regulatory measures (ICR para 62). Still, it is not clear how long the owner, Niger Delta Power Holding Company (NDPHC), will be able to sustain financial losses and payments on its take-or-pay gas contracts (ICR para 80).

## 8. Assessment of Bank Performance

**a. Quality-at-Entry**

The project was designed based on the Bank's extensive sector experience in the country. The Bank has financed a series of investments (ICR para 7), ongoing economic and sector work (ESW), analytical and advisory activities (AAA) and policy advice, and investment support through the lending projects (PAD para. 17). However, the risks associated with privatization and contracts were not adequately addressed (ICR para 77). Relevant lessons on privatization of the sector and implementation of GSAs were not incorporated in the project design, and the risk identification and mitigation measures for GSA payments by the Power Holding Company of Nigeria were optimistic as the project was conceived based on a subsidy to the sector would be set at cost-recovery tariff levels (PAD, page 29). Downside scenarios were not anticipated.

**Quality-at-Entry Rating**

Moderately Satisfactory

**b. Quality of supervision**

The project team provided adequate supervision twice a year and produced 18 implementation status and results reports. With regard to network investments, the supervision missions continued to emphasize the need to take stronger measures to bolster components of the project that were behind schedule (ICR para



78). The 2017 restructuring was poorly implemented. The objective of the restructuring was “to extend the project’s closing date by one year to December 31, 2018” (Project Paper para 13); however, as mentioned in Section 4, a number of indicators in the results framework was amended or downgraded without explanation

### **Quality of Supervision Rating**

Moderately Satisfactory

### **Overall Bank Performance Rating**

Moderately Satisfactory

## **9. M&E Design, Implementation, & Utilization**

### **a. M&E Design**

Although the results framework was appropriately designed, there were some weaknesses. Many of the intermediate outcome indicators were modified or removed due to difficulties in obtaining data and attributing results to project activities (ICR paragraph 69). In particular, the "additional transmission capacity" indicator had attribution problems, reflecting the inadequate M&E framework.

### **b. M&E Implementation**

While most outcome indicators were tracked, some were not, including the needs assessment and capacity building programs for the Ministry of Environment and Department of Petroleum Resources (ICR para 70). Some indicators (such as technical and commercial distribution losses and distribution outages) had not been assessed by the time of ICR preparation, thus raising questions whether their respective performance values were monitored at all.

### **c. M&E Utilization**

The ICR reported that M&E was used to closely track the technical progress of the investment program and report to both Transmission Company of Nigeria's management and the Bank's task team (ICR para 71). However, as indicated above, the implementation of M&E and the expected data collection were questionable.

### **M&E Quality Rating**

Modest

## **10. Other Issues**



**a. Safeguards**

The project was classified as Environmental Category B. The project triggered the Bank's safeguard policies on Environmental Assessment (OP/BP 4.01) and Involuntary Resettlement (OP/BP 4.12). The Resettlement Policy Framework (RPF) and the Environmental and Social Management Framework (ESMF) were prepared. According to the ICR (paragraph 73), resettlement was not activated. However, one issue was the transfer of land that was supposed to be donated by the local chiefs, but they passed away before they could sign the formal document. Therefore, the state government stepped in and made appropriate payments to the claimants and formally sold the land to Transmission Company of Nigeria. Another issue was the treatment of polychlorinated biphenyls (PCBs), a highly toxic carcinogen. The ESMF recognized the likely presence of PCBs at some substations' aging equipment and provided some general guidelines for its handling; however, the ICR (para 74) reported that there was a lack of documentation from the substations to indicate that PCB contamination was discovered and handled appropriately.

**b. Fiduciary Compliance**

**Financial Management:** The ICR reported that there have been no fiduciary issues raised during project implementation. Quarterly IFRs have been provided to the Bank on schedule, and minor accounting issues have been resolved. The task team informed that the final audit was acceptable except for a few deficiencies in the presentation and disclosure.

**Procurement:** Although there was a slow implementation of procurement, the task team provided assurances that the procurement was conducted in accordance with the World Bank's Procurement Guidelines.

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

There were delays in the implementation of the procurement, but the task team informed the IEG that the procurement was carried out in accordance with the World Bank's procurement guidelines.

**d. Other**

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**11. Ratings**

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Moderately Unsatisfactory	Moderately Unsatisfactory	
Bank Performance	Moderately Satisfactory	Moderately Satisfactory	
Quality of M&E	Modest	Modest	



Quality of ICR

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Substantial

## 12. Lessons

**If sector reforms are likely to strongly influence the achievement of objectives, multiple scenarios should be developed to facilitate the project's rapid adaptation to the changing reform and operational context.** The initial problems in the Nigerian power sector were inadequate energy supply due to energy losses (technical losses), inefficiencies and insufficient power plant capacity. The project aimed to address these problems by increasing power supply through the PRGs and installing and retrofitting power transmission and distribution facilities. However, the reform of the power sector changed the situation and redefined the problems as (1) poor revenue collection and payment discipline from the DISCOs, and (2) lack of incentives for the privatized DISCOs to increase power supply and sales to customers. The project's approach to increasing electricity volume and capacity was not responsive to the post-sector reform situation. Despite the fact that sector reforms were envisioned from the beginning, the risks were not adequately addressed and there were no alternatives or scenarios considered in case the sector reforms had a negative impact on the project. It is essential that projects prepare for multiple scenarios and respond to change early in order to respond to the envisioned sector reforms if the sector reforms are expected to have a direct or indirect impact on project outcomes.

**A parallel Power Purchase Agreement (PPA) should be considered when establishing a guarantee scheme.** In the project, the GSA was signed between Accugas Limited and Calabar Generation Company Limited (CGC), but due to policy changes, the government did not receive the full agreed power supply from Calabar. Although gas supply from Accugas was stable, CGC was also unable to sell power equivalent to the full capacity of CGC due to constrained demand on its network, leaving half of its installed capacity unused. The lack of a PPA to guarantee the purchase of power in parallel could have improved the power supply environment.

**Indicators in the Results Framework need careful monitoring and revision when they involve privatization.** The project was unable to collect data on key indicators such as technical and commercial distribution losses, distribution outages, and revenue collection ratio after the privatization of distribution entities. Due to the lack of data on actual performance vis-à-vis the indicators, it was not possible to properly assess the achievement of the project's objectives and to conduct economic and financial analysis. During privatization, it is important to closely monitor the availability of data and unless original data can be collected, it is vital to explore other data sources or devise different indicators.

## 13. Assessment Recommended?

No

## 14. Comments on Quality of ICR



The ICR was well written and provided an objective and candid view of the project's performance. The theory of change was clearly presented in a logical sequence from activities to achievement of the PDOs. The section on relevance was also well explained. In the efficacy section, while the ICR provided a wealth of evidence, it should have explained why the project changed the target value of the indicator in question and why the ICR adopted such a modified target value. The efficiency part of the project was explained in terms of implementation, but should have discussed tangible evidence of project worth at the time of its closing.

**a. Quality of ICR Rating**  
Substantial