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**PROJECT PERFORMANCE ASSESSMENT REPORT**

**SENEGAL**

**ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT ADAPTABLE  
PROGRAM CREDIT (APC)  
(CREDIT NO. 4060-SE)**

**ENERGY SECTOR RECOVERY DEVELOPMENT POLICY CREDIT (DPC)  
(CREDIT NO. 4467-SE)**

**September 26, 2013**

**IEG Public Sector Evaluation**  
*Independent Evaluation Group*

## Currency Equivalents (annual averages)

*Currency Unit = C.F.A. Francs BCEAO (XOF)*

2003	US\$1.00	XOF 539.671
2004	US\$1.00	XOF 528.529
2005	US\$1.00	XOF 527.145
2006	US\$1.00	XOF 523.197
2007	US\$1.00	XOF 479.885
2008	US\$1.00	XOF 447.965
2009	US\$1.00	XOF 471.726
2010	US\$1.00	XOF 495.262

## Abbreviations and Acronyms

AFD	Agence Française de Développement
APL	Adaptable Program Loan
CAS	Country Assistance Strategy
DPC	Development Policy Credit
DSM	Demand-side management
EDF	Electricité de France
GDP	Gross Domestic Product
GWh	Gigawatt-hour
ICR	Implementation Completion and Results Report
IDA	International Development Association
IEG	Independent Evaluation Group
IFC	International Finance Corporation
IPP	Independent Power Producer
LNG	Liquefied Natural Gas
M&E	Monitoring and Evaluation
MEM	Ministère de l’Energie et des Mines
MW	Megawatt
PIU	Project Implementation Unit
PPAR	Project Performance Assessment Report
PRG	Partial Risk Guarantee
SAR	Société Africaine de Raffinage
SENELEC	Société Nationale d’Electricité

## Fiscal Year

Government: January – December 31

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<p>This report was prepared by Midori Makino, Task Manager, and Alain Barbu, Consultant, who assessed the project in November 2012. The report was peer reviewed by Varadarajan Atur and panel reviewed by Fernando Manibog. Romaine Pereira provided administrative support.</p>
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## Principal Ratings

### Senegal-Electricity Sector Efficiency Enhancement Project

	ICR*	ICR Review*	PPAR
Outcome	Unsatisfactory	Unsatisfactory	Unsatisfactory
Risk to Development Outcome	High	High	High
Bank Performance	Unsatisfactory	Unsatisfactory	Unsatisfactory
Borrower Performance	Unsatisfactory	Unsatisfactory	Unsatisfactory

\* The Implementation Completion Report (ICR) is a self-evaluation by the responsible Bank department. The ICR Review is an intermediate IEGWB product that seeks to independently verify the findings of the ICR.

### Senegal- Energy Sector Recovery Development Policy Credit

	ICR*	ICR Review*	PPAR
Outcome	Unsatisfactory	Unsatisfactory	Unsatisfactory
Risk to Development Outcome	High	High	High
Bank Performance	Moderately Unsatisfactory	Unsatisfactory	Unsatisfactory
Borrower Performance	Unsatisfactory	Unsatisfactory	Unsatisfactory

\* The Implementation Completion and Results (ICR) report is a self-evaluation by the responsible Bank department. The ICR Review is an intermediate IEG product that seeks to independently verify the findings of the ICR.

## Key Staff Responsible

### Senegal Electricity Sector Efficiency Enhancement Project

<i>Project</i>	<i>Task Manager/Leader</i>	<i>Division Chief/ Sector Director</i>	<i>Country Director</i>
Appraisal	Michel Layec	Yusupha Crookes	Madani Tall
Completion	Stephan Garnier	Lucio Monari	McDonald Benjamin

### Senegal Energy Sector Recovery Development Policy Credit

<i>Project</i>	<i>Task Manager/Leader</i>	<i>Division Chief/ Sector Director</i>	<i>Country Director</i>
Appraisal	Michel Layec	Subramanian Iyer	Madani Tall
Completion	Stephan Garnier	Anna Bjerde	McDonald Benjamin

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To prepare a Project Performance Assessment Report (PPAR), IEG staff examine project files and other documents, visit the borrowing country to discuss the operation with the government, and other in-country stakeholders, and interview Bank staff and other donor agency staff both at headquarters and in local offices as appropriate.

Each PPAR is subject to internal IEG peer review, Panel review, and management approval. Once cleared internally, the PPAR is commented on by the responsible Bank department. The PPAR is also sent to the borrower for review. IEG incorporates both Bank and borrower comments as appropriate, and the borrowers' comments are attached to the document that is sent to the Bank's Board of Executive Directors. After an assessment report has been sent to the Board, it is disclosed to the public.

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**Outcome:** The extent to which the operation's major relevant objectives were achieved, or are expected to be achieved, efficiently. The rating has three dimensions: relevance, efficacy, and efficiency. *Relevance* includes relevance of objectives and relevance of design. Relevance of objectives is the extent to which the project's objectives are consistent with the country's current development priorities and with current Bank country and sectoral assistance strategies and corporate goals (expressed in Poverty Reduction Strategy Papers, Country Assistance Strategies, Sector Strategy Papers, Operational Policies). Relevance of design is the extent to which the project's design is consistent with the stated objectives. *Efficacy* is the extent to which the project's objectives were achieved, or are expected to be achieved, taking into account their relative importance. *Efficiency* is the extent to which the project achieved, or is expected to achieve, a return higher than the opportunity cost of capital and benefits at least cost compared to alternatives. The efficiency dimension generally is not applied to adjustment operations. *Possible ratings for Outcome:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

**Risk to Development Outcome:** The risk, at the time of evaluation, that development outcomes (or expected outcomes) will not be maintained (or realized). *Possible ratings for Risk to Development Outcome:* High, Significant, Moderate, Negligible to Low, Not Evaluable.

**Bank Performance:** The extent to which services provided by the Bank ensured quality at entry of the operation and supported effective implementation through appropriate supervision (including ensuring adequate transition arrangements for regular operation of supported activities after loan/credit closing, toward the achievement of development outcomes. The rating has two dimensions: quality at entry and quality of supervision. *Possible ratings for Bank Performance:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

**Borrower Performance:** The extent to which the borrower (including the government and implementing agency or agencies) ensured quality of preparation and implementation, and complied with covenants and agreements, toward the achievement of development outcomes. The rating has two dimensions: government performance and implementing agency(ies) performance. *Possible ratings for Borrower Performance:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

## Preface

This report includes a Project Performance Assessment Report (PPAR) of two projects funded by the Bank Group in Senegal: (i) the Electricity Sector Efficiency Enhancement Project approved in April 2005 and closed in December 2010; and (ii) the Energy Sector Recovery Development Policy Credit (DPC), approved in June 2008 and closed in December 2010. The former was supported by an International Development Association (IDA) credit of US\$15.7 million equivalent, an International Finance Corporation (IFC) “A” loan of Euros 17 million, and a Partial Risk Guarantee of up to US\$7.2 million. The latter was a two-tranche DPC of US\$80 million equivalent, with parallel budget support provided by Agence Française de Développement (AFD).

The assessment is based on a review of all relevant documentation, interviews of Bank staff at headquarters and the findings of an Independent Evaluation Group (IEG) mission which visited Senegal from November 25 to December 6, 2012 (a list of persons met during the mission is attached in Annex C).

In addition to detailed assessments of the two subject operations using standard IEG methodology, the report includes a review of the Bank’s assistance and strategy in Senegal’s energy sector since 2000, as well as corresponding lessons, with a view to serve as input into IEG’s forthcoming review of the Bank Group’s assistance to the energy sector.

Copies of the draft PPAR were sent to government officials and implementing agencies for their review but no comments were received.





## Summary

Whereas by the mid-2000's Senegal was still viewed as one of the best performers in Sub-Saharan Africa, the country's economic growth has lagged since 2006, largely as a result of the 2008 crisis, but also of the electricity sector's increasing drain on public finances. The electricity sector in Senegal is characterized by its small size (584 MW of installed capacity in 2012) and its high dependence on expensive imported fuel in the absence of significant local modern energy resources. Such high costs, compounded by poor management of the sector, have led the sector in a continuous downward spiral. Société Nationale d'Electricité (SENELEC), the public electric utility's under-capitalization and structural operating deficit (caused by insufficient tariffs and lagging budget transfers) perpetuates inefficiency by preventing it from investing in required maintenance of aging assets and in less fuel-intensive generating plants that could improve its cost structure in the long-run. And the dire state of sector finances is a disincentive to foreign companies investing in future Independent Power Producer (IPP) projects on a large scale. The deepening sector crisis was marked by record power shortages in 2008 and 2011, with as many as 270 days of load shedding registered in the latter year, which could only be alleviated in 2012 by resorting to the very expensive rental of short-term generation capacity.

The Bank Group has provided considerable financial assistance to the sector (US\$324 million since 1980), including for the two projects in this PPAR: (i) the Electricity Sector Efficiency Enhancement Project, approved in April 2005 and closed in December 2010; and (ii) the Energy Sector Recovery Development Policy Credit, approved in June 2008 and closed in December 2010. The former was supported by an IDA credit of US\$15.7 million equivalent, an IFC "A" loan of Euros 17 million, and a Partial Risk Guarantee of up to US\$7.2 million. The latter was a two-tranche DPC of US\$80 million equivalent, with parallel budget support provided by Agence Française de Développement (AFD). This assessment concludes that while both projects' overarching objective, to restore the financial and institutional viability and sustainability of the energy sector as a whole – but most urgently of the electricity sub-sector-- was highly relevant, their design and implementation were flawed, leading in both cases to partial credit cancellations (60 percent and 30 percent respectively). None of the physical investments to be funded by IDA under the first project were carried out. And while the Kounoune power plant supported by IFC was satisfactorily completed in 2008, albeit with a 2-year delay and technical problems in the first years of operation, its completion did little to alleviate the sector's deepening crisis in the absence of Government actions on key policy issues (including tariffs and generation planning) – which the second Bank project, a policy-based operation, was unable to promote (resulting in its second tranche being cancelled). Overall, both projects' most critical objectives were either negligibly or modestly achieved, with the electricity sector failing to achieve most of its targets related to SENELEC's finances, technical efficiency, and improvements in sector governance.

In spite of their high relevance, and given their modestly relevant designs, negligible or modest efficacy, and modest efficiency, the outcomes of both projects are rated **Unsatisfactory**. Development Risk is rated **High** in both cases, as dependence of the electricity sector on the budget has only gotten worse since 2005, with subsidies reaching an unprecedented level of 1.8 percent of Gross Domestic Product (GDP) in 2012, and depriving other sectors of the economy of much-needed public resources. Furthermore, the sector is not immune from the impact of another possible hike in international oil prices given its continued short-term dependence on liquid fuel-based generation and the Government's apparent lack of willingness to reflect such future cost increases in electricity prices. While greater participation by the private sector in the sector could potentially help improve the sector's situation by easing its financing burden and improving its efficiency, such participation on a large scale is unlikely to be forthcoming as long as the sector's finances remain so precarious.

Borrower performance is also rated **Unsatisfactory** overall in both cases. Unclear division of responsibilities between the Ministry of Energy and SENELEC contributed to lack of coordination during implementation of the first project. And Government commitment to reform implementation was particularly weak with regards to tariff adjustments, as increases during the project period were insufficient to eliminate budgetary transfers (which instead reached peak levels). While the Government should be commended for undertaking the first ever comprehensive and far-reaching diagnostic of the electricity sector, which led to the formulation of the "Takkal Plan" in 2011, implementation of the plan has already badly lagged, as key elements of the Plan were initially questioned by some in the newly-elected administration.

Bank performance under both projects is rated **Unsatisfactory**, both at entry and during supervision, on account, *inter alia*, of its overly accommodating stance on key project conditions, relative neglect of the hydrocarbon sub-sector, and overly optimistic supervision ratings. More broadly, the assessment concludes that the outcome of the Bank's overall assistance to Senegal's energy sector over the last 15 to 20 years was poor, as the electricity sector, which had been the primary focus of the Bank's assistance and policy advice, is now in worse shape than it was at the beginning of the 2000s. The assessment attributes this outcome partly to an inconsistent and ambiguous Bank strategy, which fluctuated between an excessively demanding agenda (as reflected in the sector privatization promoted by the 1998 Energy Structural Adjustment Credit or the unrealistic conditions of the 2008 Energy DPC) and an overly accommodating stance when it came to the Government delivering on its key policy commitments, particularly on sector governance and tariffs, or taking a more rational and decisive approach to sector investment selection and implementation. Other factors which accounted for this poor outcome were the sudden surge in oil prices in 2007-2008 as well as weak Borrower performance.

The following lessons can be derived from the Bank’s experience in the power sector of Senegal.

- a) **Proper sequencing of sector policy dialogue and investment support is important for success when the two are closely connected.** The viability and sustainability of the investment commitments for SENELEC strongly depended on the sector policy and strategy as well as the financial restructuring of the utility. The absence of a sound policy framework was a factor in the failure of the Electricity Sector Efficiency Enhancement project. When the Bank finally addressed key policy issues under a heavily front-loaded DPC in 2008, it was too accommodating and complacent in its implementation follow up. The most recent Sector Investment Loan, approved in 2012, is similarly light on institutional and policy content while the energy policy content of the recently-approved Governance and Growth DPC appears to neglect certain urgently needed reforms, including on the tariff front.
- b) **The Bank has an important role in ensuring that investment decisions are made based on technical, financial, and economic merits.** This is particularly true for generation investments in a country like Senegal, which has limited options given its small system size and the absence of sizeable domestic energy resources. The Bank risks credibility if it takes, or is perceived to take, a dogmatic position against coal-based power where it is the least-cost option (after accounting for environmental externalities), at least in the medium-term, and a potentially critical way to significantly reduce generation costs and turn around sector finances.
- c) **Realistic policy requirements and consistent messages are important to borrowers.** Over the past decade, the Bank’s stance has fluctuated between a sometimes overly demanding agenda (like in the “letter” of the 2008 Energy DPC) and an excessively accommodating position when it came to the government delivering on its key commitments (such as on tariffs), all in the context of unwavering and growing financial support. As a consequence, it may have been seen by counterparts as sending mixed messages on the importance and urgency of actual sector reform.
- d) **Where a country’s political timetable is liable to bring significant shifts in policy, a keen appreciation of political economy is necessary.** Twice, the Bank did not sufficiently appreciate the likely implications of scheduled (democratic) changes in government, first in 2000 and more recently in 2012. In the first instance, the new government hardened its position on SENELEC’s privatization, possibly contributing to its failure; and in the second instance, the new government appears to have taken a different approach to investment planning and tariff policy, revisiting key tenets of the “Takkal Plan.”
- e) **The Bank has much to gain from locating key operational staff in the field, particularly where a continuous and intense dialogue is required, such as Senegal’s energy sector.** But field location will only yield benefits if human and

budget resources are made available; otherwise the teams will become overloaded and key areas requiring specialized expertise (like the hydrocarbon subsector in Senegal) will end up unattended.

In addition, several lessons specific to the two projects assessed in this report arise.

- f) **A comprehensive and realistic analysis of sector finances is the best foundation for financial covenants that will be met.** The analysis should reflect realistic assumptions regarding the timing and scope of future reform steps regarding tariff changes, financial restructuring, as well as realistic scenarios for future increases in international oil prices, particularly for a system so dependent on liquid fuel imports like Senegal's. Because it was not done in the first project, the financial covenants were essentially meaningless and bound not to be complied with.
- g) **Project success is handicapped at the start if it is not ready for implementation by credit effectiveness.** In the first project, the preparation of key components was not fully completed until much later in the project's life, leading to delays in bidding and serious implementation delays, and resulting in the ultimate cancellation of a large part of the credit. In fact, the Project Implementation Manual was not even finalized until more than a year after the project was started. Compounding the problem was the fact that procurement training of key SENELEC staff was insufficient, leading to procurement inefficiencies.
- h) **The outcome of IPP projects cannot be viewed in isolation of broader sector outcomes.** While the generally satisfactory completion of the Kounoune project provided needed additional capacity to the system at least-cost and served as a demonstration of the feasibility and benefits of IPP arrangements in Senegal, its outcome is being jeopardized by the recurrent financial difficulties in the sector: the technical problems that marred the plant in the first two years were partly caused by poor fuel quality, itself the result of SENELEC's strained cash situation. The latter also led to delays in energy payments to Kounoune. More broadly, the dire financial situation of the sector is a disincentive to private investors investing on a large scale in future IPP projects.
- i) **Inattention to the good practice principles for the application of conditionality can result in policy-based operations that are unbalanced and lack focus.** In the second project, most of the substantive conditions were back-loaded to the second tranche whereas the first tranche accounted for 70 percent of the credit. Furthermore, the credit included an excessive number of conditions, some of which were vague and/or largely formalistic, whereas others were disconnected from the core objectives of the project.
- j) **In designing policy-based operations, a realistic sense of the pace of reform will take account of political economy considerations.** The DPC was clearly too ambitious regarding the expected timeline for key reform steps, including the

enactment of needed tariff increases and the elimination of budgetary transfers to the sector. It attempted to achieve too many things at the same time instead of focusing on key actions required to address the core roots of the sector crisis – and following up on their actual implementation.

Caroline Heider  
Director-General  
Evaluation



# 1. Background and Context

## Overall Country Context

1.1 In the years 1995 to 2005, Senegal enjoyed robust economic growth, averaging about 5 percent per annum, and low inflation (0.5 percent in 2004), following the 1994 FCFA devaluation. By 2006, the country was viewed as one of the best performers in Sub-Saharan Africa-- thanks to a stable political environment, sound fiscal and monetary policies, large remittances, and the implementation of structural reforms in the productive sector. The poverty rate was reduced by 10 points between 1994 and 2002. Nonetheless, income inequality remained high and social indicators were still lagging. Following aborted attempts at privatizing the electricity sector in the late 1990s and early 2000s, the latter's financial performance had been a continued concern due to high production costs, requiring large budgetary transfers. The country's economy took a turn for the worse in 2006, when GDP growth decreased to 2.3 percent and the fiscal deficit rose to 5.8 percent of GDP (from 3.0 percent in 2005). This was in large part the result of the surge in international oil prices and of a significant increase in public wages and investments. At the same time, the situation of the electricity sector went from bad to worse, causing widespread power shortages with ripple effects on the economy. Partly as a result, GDP growth only averaged 3.4 percent in 2006-2010 and decelerated further to 2.6 percent in 2011, while inflation increased to 3.4 percent and the deficit rose to 6.7 percent of GDP (in part due to surging budgetary transfers to the electricity sector) in the same year. The latest figures show a GDP growth of 3.7 percent for 2012.

## Sector Background and Developments in the Last Decade

1.2 **Energy sector background.** Energy consumption in Senegal is dominated by wood fuels (53 percent of total) and less than 4 percent of villages are electrified. Electricity services in urban areas are provided by SENELEC, the country's public utility, which serves 870,000 customers (versus Senegal's population of 12.8 million). Total capacity of the interconnected system was 584 MW in 2012, 90 percent of which was provided by imported liquid fuel-based thermal plants (of which 117.5MW were under IPP arrangements), with the rest mostly imports of hydroelectric power from regional hydro plants (the most prominent being Manantali). Electricity demand has been growing rapidly at a rate of about 6.2 percent per annum over the last decade (although it has slowed down since 2005 as a result of lower economic growth) and peak demand reached 449MW in 2011. Because of the system's reliance on liquid fuel-based generation (heavy fuel oil and diesel oil), costs of production in Senegal, and tariffs, have remained among the highest in the region.

1.3 **Early attempts at electricity privatization.** In order to improve the sector's low efficiency and address its long-standing financial difficulties, the Government had embarked in 1997, with the support of the Bank's first Energy Sector Adjustment Credit, on an ambitious reform program aimed at introducing competition by eliminating SENELEC's monopoly and attracting private investment, including through the opening of SENELEC's capital. The program also included far-reaching reforms of the hydrocarbons sector. Government commitment to the reforms was strong initially, and the legal framework for the

sector was correspondingly revised to allow for the gradual unbundling of the sector. However, the first privatization attempt ultimately failed as the concession granted to a private foreign consortium in 1999 was terminated after 18 months when disagreements emerged between the private partners and the Government on investment plans and tariffs. A second privatization attempt was launched in 2001 (after a new Government came into power), but was unsuccessful as negotiations with the private bidders could not be satisfactorily completed, in the midst of a deteriorating business environment for private power developers around the world.

1.4 **A new Government strategy.** In early 2003, a new strategy reflecting the lessons learned over the 1999-2002 period was adopted by the Government. It aimed at making up for critical investments neglected during the privatization attempts, by improving the reliability of, and expanding, SENELEC's generation, transmission and distribution system while mobilizing private resources for generation expansion under IPP arrangements. This new strategy was supported by the Bank and IFC through the Electricity Sector Efficiency Improvement project approved in 2005, originally designed as a two-phase Adaptable Program Loan (APL) aimed at supporting the sector's long-term (10-year) investment program.

1.5 **The 2007-2008 Crisis and its aftermath.** For a number of reasons discussed in detail elsewhere in this report, including poor design of the Bank's operations, delays in projected investments, significant increases in international oil prices, political interference in the management of, and poor governance of, the sector, and the Government's unwillingness to address key policy issues (*inter alia*, tariffs and SENELEC's worsening finances), the new strategy did not yield the expected benefits, in spite of the sizeable assistance provided after 2008 by the Bank and bilateral donors in the form of budgetary support. Instead, the sector ended up facing a deepening crisis from 2007 onwards, characterized by recurrent blackouts (with un-served demand reaching 105GWh in 2008, see graph in Annex B) and unprecedented and growing needs for budgetary transfers to the sector (60 billion FCFA, i.e. about US\$120 million, in 2008, or one percent of GDP).

1.6 In fact, the crisis only deepened in subsequent years as unmet demand reached a record level of 250GWh in 2011 (with 270 days of load shedding registered in that year) and the Government had to transfer US\$215 and US\$260 million equivalent in operating subsidies to SENELEC in 2011 and 2012, respectively. The roots of this ongoing crisis were highlighted in the very comprehensive diagnostic carried out by McKinsey, a consulting firm, in 2011 as a prelude to the preparation of the 2011-2015 Emergency and Recovery Plan (the so-called "Takkal Plan"). Essentially, Senegal's electricity sector is caught in a downward spiral caused by the interaction of SENELEC's poor finances and the sector's under-investment, each one of which is discussed at more length in subsequent paragraphs. It works like this: SENELEC's under-capitalization and structural operating deficit (caused by insufficient tariffs and lagging budgetary transfers) perpetuates inefficiency by preventing it from investing in required maintenance of aging assets and non-liquid fuel-based generating plants, which could improve its cost structure in the long-run while improving the quality of service. And SENELEC's difficult cash situation only makes matters worse by causing problems with suppliers, leading to delays in supplies of critical inputs, including fuel, and in payments to IPPs. The dire state of sector finances is also a disincentive to



potential private partners in future IPP projects whose contribution is needed to invest in more efficient, lower-cost (e.g. coal or gas-based) generating plants, without which the sector will continue to generate electricity at prohibitively high costs. Inefficiencies in the Government decision-making process for critically needed investments have only compounded the problem.

1.7 **SENELEC's finances and electricity tariffs.** SENELEC's financial difficulties are long-standing and predate the recent sector crisis: in none of the years between 2000 and 2004 did the company show a net profit and in two of these years (2001 and 2002) it received a (small) operating subsidy from the Government. Yet by 2004 its balance-sheet structure was still sound, with a debt-equity ratio of 40:60. As shown in Annex B (Table 2), the situation worsened dramatically in 2006, when SENELEC lost 34 billion FCFA (close to US\$70 million), *after* an operating subsidy of 33 billion FCFA. Things got only worse in subsequent years with the effect of higher oil prices and delayed investments, requiring significant amounts of budgetary transfers from the Government, which reached 103 billion FCFA in 2011 (130 billion FCFA expected in 2012). In parallel, SENELEC's leverage has risen to alarming levels, with a debt-equity ratio of 86:14 by the end of 2011, in spite of substantial recapitalization and debt refinancing steps taken by the Government in 2007 as a first tranche condition of the Bank's Energy DPC (see para. 4.6). SENELEC's strained cash situation has also affected its ability to secure fuel and pay IPP charges in a timely manner, which in turn has disrupted the functioning of generating plants.

1.8 Most recently, as part of the implementation of the above-mentioned "Takkal Plan" and in connection with negotiations of the energy component of the Bank's First Governance and Growth Support Credit, the Government has agreed on a further restructuring and recapitalization plan for SENELEC, including a cross-debts settlement. While these measures will help strengthen the company's balance-sheet, they will not directly address the issue of its structural operating deficit in the absence of revenue-enhancing measures (i.e. tariff increases). And while the proposed performance contract being negotiated between SENELEC and the Government should ultimately lead to higher efficiency and lower administrative costs, this will not be sufficient to make a significant dent in the company's operating deficit, at least in the short run, considering the overwhelming share of imported fuel oil in total operating costs. On the other hand, implementation of the Takkal Plan did include the set up by the Government in 2011 of a Special Energy Fund, which has contributed to alleviate the most immediate impact of SENELEC's continuing cash constraints by helping secure and finance fuel supplies and co-finance critical investments, including the emergency rental of generation facilities. However future funding of the Special Energy Fund hinges on the continued steady collection of earmarked taxes.

1.9 The current tariff formula, based on the principle of a revenue cap, dates back to the failed attempts in the late 1990s to set up a concession system with private participation. It is supposed to enable SENELEC to recover costs (either through tariff hikes or "revenue compensation" from the Government) while providing incentives for internal efficiency improvements. However, its practical implementation has been based on outdated assumptions regarding future capacity and fuel costs and its administration (by the Commission de Régulation du Secteur de l'Electricité, Senegal's Regulatory Commission for Electricity Sector has proven to be overly complicated and burdensome. The ineffectiveness

of the current system is highlighted by the fact that SENELEC has incurred substantial losses in most recent years *in spite* of significant operating subsidies from the Government. It even led to a tariff *decrease* of 8 percent in early 2009 at a time when SENELEC was in dire need of financial resources. While recent changes to the system introduced in 2011 have alleviated some of the most obvious flaws (by providing more frequent reviews and more realistic assumptions of future costs), the bottom line is that the system does not work in its current form. Furthermore, past studies on tariff structure, including one carried out in 2007 by the state-owned utility Office National de l'Electricité (Morocco) under Bank funding, have shown it could be optimized through more progressivity. Yet these recommendations were not implemented by the Government – another tariff study is being planned with funding from the Electricity Sector Support project approved in 2012.

1.10 **Electricity sector's expansion plans.** The upgrading of SENELEC's transmission and distribution network was originally to be supported by the Bank's Electricity Sector Efficiency Improvement Project approved in 2005 but it could not be completed, and the more recent Bank investment credit approved in 2012 (US\$ 85 million, Electricity Sector Support Project) aims to remedy that earlier failure by funding urgently needed investments in these two areas (also including the modernization of SENELEC's metering system). But the most critical investment needs in the sector have been in generation since, as explained earlier, the sector desperately needs to diversify its generation mix and reduce its reliance on liquid fuel-based generation if it is to break away from the above-mentioned downward spiral (para. 1.6).

1.11 Because some generation investments (both rehabilitation of older units and the new Kounoune IPP thermal plant) were delayed, and in order to alleviate the risk of recurring power shortages, the Government had no option but to resort, starting in late 2011, to renting 150MW of short-term/emergency capacity, at a very high cost (about US32 cents per kwh, or about 60 percent higher than the average cost of production of an efficient plant like Kounoune). Whereas the rental contract was expected to lapse by October 2012, by the end of 2012 it appeared it will need to be extended until mid-2013. The McKinsey diagnostic carried out in 2011 included a very comprehensive assessment of the country's generation options, both short-term and long-term. Accordingly, the Takkal Plan recommended, among others, the purchase of 60MW of additional short-term capacity in the form of containerized units on barges (to replace the rented generators) and, most importantly, the acceleration of the introduction of coal-based generation, to be followed by natural gas-based generation if and when natural gas resources (both domestic and imported) could be secured. This would complement the increased imports of hydroelectric power from regional projects, already arranged. These latter recommendations essentially confirmed the main findings of the generation master plan prepared in 2007 by SENELEC's consultants (Lavalin of Canada) with funding from the Bank (para.3.3).

1.12 Yet protracted Government decision-making processes, as well as apparent disagreements within the Government, have contributed to the cancelling of plans for new short-term capacity additions and significant delays in the negotiations of IPP arrangements for future coal-based plants, in spite of the fact that firm offers from reliable sponsors have been on the table for quite some time. As a result, the next 125MW coal-based IPP plant at Sendou, which has been under negotiations with foreign developers since 2007 and was

originally scheduled for commissioning by early 2014, is now unlikely to come on stream before the end of 2015 at the earliest. Instead, the Government now appears to have shifted the focus of much of its immediate attention to potential Liquefied Natural Gas (LNG) -fired generation deals and the purchase of gas and/or gas-based electricity from Mauritania, which, while worth exploring, offer much longer-term prospects, assuming they can be economically justified. Such delays will likely only result in further unsustainable rental and fuel costs and the continuation of SENELEC's losses – and dependence on the Government's budget-- for years to come.

## **2. The Bank's Overall Strategy and Assistance for the Energy Sector**

**2.1 Rationale for Bank Group involvement and lending program.** Successive Bank Country Assistance Strategy (CAS) (the latest Country Partnership Strategy for 2011 was just approved in January 2013) have emphasized the importance of supporting the energy sector, consistent with the Bank's goals to help improve and expand the country's infrastructure services, to lower service costs, particularly to the poorest segments of the population, and to promote private sector development. Early Bank credits to the sector included the Power Engineering and Technical Assistance project (US\$ 3.3 million, approved in 1980 and closed in 1986) and the Energy Sector Rehabilitation project (US\$ 20 million, approved in 1986 and closed in 1992). This was followed by an Energy Sector Adjustment Credit of US\$100 million in 1998 to support the Government's far-reaching efforts to restructure and privatize the sector (see para. 1.3 above). The two projects in this assessment then followed: the Electricity Sector Efficiency Improvement project in 2005 (IDA credit of US\$ 15.7 million, Partial Risk Guarantee (PRG) of US\$ 7.2 million, and IFC "A" Loan of US\$ 22 million); and the Energy Sector Recovery DPC of US\$ 80 million in 2008. More recently, in 2012, the Bank approved the Electricity Sector Support project (US\$85 million). In addition, a Rural Energy project (US\$19.9 million) was also approved in 2004. The First Governance and Growth Support DPC recently approved in December 2012 includes a significant energy policy component. All in all, the Bank Group has lent US\$ 324 million to Senegal's energy sector over the last twenty years, representing about 17 percent of its total assistance.

### **2.2 Bank's stance on key sector issues.**

**(a) Electricity sector governance:** following the inability of its two earlier operations to help resolve the power sector's structural problems, and to take advantage of a political window of opportunity, the Bank had boldly engaged the Government on a radical reform of the sector in the late 1990s and early 2000s in the context of the first Energy Sector Adjustment Credit. Especially for the times, the proposed reforms were ambitious and far-reaching but they failed due to a combination of external factors and a weakening of Government commitment after a new Government took over. The Bank then reverted to a "plain-vanilla" operation with its next investment credit of 2005. The project included a number of conditions/indicators focused on improving sector governance but they were overly vague and formalistic, while leaving key policy issues unaddressed. This policy gap

was filled by the 2008 Energy Sector Recovery DPC which included a wide range of ambitious policy conditions, most of which could not be met in the context of the deepening sector crisis. The Bank then reverted again to an investment lending approach in 2012 with its Electricity Sector Support Project, whose institutional and policy content is limited to the funding of several studies and the imposition of (more lenient) financial ratios on SENELEC. The Bank's latest attempts at addressing governance issues focus, inter alia, on the preparation and implementation of a performance contract between the Government and SENELEC. While this endeavor is still in its early stages, as the performance contract was just signed, its success will hinge on both the Government and SENELEC adhering to its provisions. This may prove to be a challenge in light of the failure of similar "contrats-plans" attempted in Senegal in the 1990s and the poor historical record of performance contracts with state-owned utilities worldwide.

**(b) Hydrocarbons sub-sector:** the Bank's interest in the hydrocarbons sub-sector appears to have fluctuated over the years. Hydrocarbons reforms were an integral part of the program supported by the 1998 Energy Sector Adjustment Credit and a number of them (including the opening up of the sector and price reform) were actually implemented, in contrast with the failure of the power sector component. The 2005 investment credit was originally expected to include a hydrocarbons component but it was dropped when the scope of the operation had to be curtailed (para. 3.1). But hydrocarbons were an integral part of the analysis supporting the 2008 Energy Sector Recovery DPC and the object of several of its conditions. Yet little follow up was done by the Bank in this area after the credit's approval as most of the Bank's energy dialogue had emphasized the power sector. In particular, issues related to petroleum products pricing policy, possible changes in the sub-sector's regulatory set up, *Société Africaine de Raffinage* (SAR) financial situation (and persisting subsidization by the Government), as well as the justification of future investments in domestic refining have been primarily dealt with during the supervision of the two projects by following up on the formalistic completion of related studies rather than engaging on a substantive policy dialogue on these issues. This changed somewhat with the more recent discussions leading to the preparation of the Letter of Policy Development underlying the First Governance and Growth Support DPC which includes several commitments regarding hydrocarbon refining, storage and distribution

**(c) Electricity tariffs:** The program of radical reforms supported by the Bank's first Energy Sector Adjustment Credit included the introduction of a new tariff setting mechanism based on the principle of revenue cap. This made sense in the context of the proposed introduction of competition and the concession structure envisaged at the time. But while the reforms were subsequently reversed, with SENELEC regaining its monopoly, a particularly cumbersome version of the revenue cap system was kept and has been one of the factors behind the sector's financial difficulties (paras. 1.7 to 1.9). Yet the Bank to this day has refrained from encouraging the Government to fundamentally rethink its tariff setting system and instead has argued for changes at the margin, e.g. changes in the frequency of the reviews and the details of the assumptions underlying the application of the overly complex formula. And while the Bank ended up funding a study of the tariff structure in 2007, it showed little interest in discussing its findings or even, more broadly, engage the Government on a comprehensive discussion of the benefits of introducing more progressivity in the current structure. Relatedly, the Bank has too easily agreed to the Government's

arguments that tariff changes would be detrimental to the country's social and economic development without insisting on detailed studies of the social impact of various forms of tariff increases. It even acquiesced de facto to the 2009 tariff decrease (on account of a temporary decline in oil prices), at a time when SENELEC was in dire financial straits and in non-compliance with its financial covenants. Whereas tariff increases were discussed as a possible condition of a Fifth Poverty Reduction Strategy Credit in 2011, the Government's unwillingness to consider such hikes led the Bank to drop the operation. Instead the Bank went on to process an alternative DPC (the First Governance and Growth Support Credit) which does not include any action on electricity tariffs.<sup>1</sup>

**(d) SENELEC's finances:** The Bank's stance on SENELEC's finances has been similarly inconsistent and generally very accommodating. Key financial ratios (including return on assets, debt-service coverage and debt-equity) were included in the 2005 investment credit but were not complied with throughout the project's implementation. Yet the Bank followed up with its processing of the Energy Sector Recovery DPC in 2008, which included essentially similar financial conditions on SENELEC -- which were similarly not met. The Bank's response was to make the financial ratios included in its 2012 investment credit more limited and lenient. And yet even these more generous ratios have not been met in 2012, due to the absence of any tariff increase and insufficient budgetary compensations – without the Bank apparently considering any remedy.

**(e) Private sector involvement and IPP's:** The Bank took a bold stance on promoting the radical reform of the whole electricity sector in the late 1990s, and in providing related policy advice at the time. The failures of these early reforms led both the Government and the Bank to lower their expectations and focus instead on attracting private capital through IPP investments in generation. To this end, the Bank Group wisely decided to approach the next operation in a coordinated manner and to process a single package combining an IDA credit, an IFC loan, and a PRG. As the detailed assessment of this project makes clear (see Chapter 3), the IDA credit did not meet its objectives but the IFC support of the construction of the Kounoune plant under an IPP arrangement was generally successful, in spite of initial operational problems and persisting contractual issues. Yet in spite of the positive demonstration effect the completion of Kounoune provided, other potential IPP projects (particularly the urgently-needed coal-based plants) have lingered on. This may be due in part to SENELEC's remaining ambivalence vis-à-vis, and lukewarm view of, IPP's in general. But it is also likely the result of the inherent complexity and difficulty of structuring such deals and the lack of strong Government capacity in this very specialized area. In this respect, the Bank may have been too timid in offering to fund specialized technical support (including lawyers, investment advisers, etc.) for the negotiations of IPP contracts, due to an excessive concern about potential conflicts of interest. The Bank is in fact probably better placed than IFC to help Governments in this regard while retaining an arms-length

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<sup>1</sup> In its comments on the report, the region states that IEG “presents an overarching position that an increase in tariffs would be the solution to restoring sector finances” and that priority should instead be given to reducing distribution losses and diversifying the generation mix away from expensive emergency thermal capacity. IEG notes that while better technical efficiency and diversification are indeed key to solving the sector's financial woes in the long-term, these actions will take years to have a financial impact in the best of circumstances.

relationship to the outcome of the negotiations (both in appearance and in reality), and such services have in fact been funded by the Bank in other African countries.

**(f) Generation planning:** Diversifying the generation mix and reducing reliance on liquid fuel-based power is key to lowering the sector's costs hence to resolving the sector's problems in the long run. Yet the Bank was not forceful enough in engaging the Government on the issue of the planning of key generation investments, an area which is highly technical, hence where the Bank should have a priori a comparative advantage. The Bank did include in its 2005 project studies for the preparation of generation, transmission and distribution master plans. These plans were satisfactorily completed with the help of consultants (Lavalin of Canada) and should have provided a clear basis for planning the sector's future expansion. In fact, the fundamental priorities defined in these master plans (including the role of coal-based power as the least-cost medium term option, after taking account of environmental externalities), were reconfirmed in the "Takkal Plan" formulated by the Government in 2011. Yet political interference in the decision-making process, a lack of realism in the timelines for financing and implementing major generation investments, and the above-mentioned lack of specialized Government capacity in negotiating IPP deals have resulted in delays in the commissioning of urgently-needed coal-based plants and the attendant recourse to prohibitively expensive rental of short-term capacity (para. 1.11). It appears that the Bank could have been more forceful in advocating for the Government adhering to the least-cost path defined in the technical studies and not being distracted into entertaining suboptimal proposals from foreign investors (e.g. in the case of LNG-powered plants). In fact the Bank's agreement to fund studies on the long-term role of LNG or its recent advocating for a bilateral agreement with Mauritania for the import of gas-based electricity, while justified on their own merits, may have been misconstrued by the Government as an encouragement to revisit the fundamental short and medium-term least-cost choices defined in all previous technical studies and included in the Takkal Plan. The Bank's well-publicized aversion to coal-based power (and its outright refusal to entertain any related funding request) may have only further contributed to that perception.

**2.3 Coordination with other donors/partners.** Throughout the years, the Bank has kept coordinating very closely with other donors/partners in the sector, which include AFD, Banque Africaine de Développement, Islamic Development Bank, the International Monetary Fund and European Investment Bank (also China, which has recently increased its assistance but with which relations have been more arms-length). Coordination with AFD, the other major donor in the sector, has been particularly close, as AFD (through PROPARCO, its private sector arm and the equivalent of IFC) co-financed the Kounoune project, and the two institutions took a common approach to the preparation and implementation of parallel budget support operations in the energy sector in 2008. To this day, the Bank and AFD are conducting the sector policy dialogue with the Government essentially in tandem.

**2.4 Overall outcome of the Bank's assistance.** The outcome of the Bank's overall assistance to Senegal's energy sector over the last fifteen-twenty years has been poor, even if some success was achieved in specific areas (e.g. the promotion of regional hydro-power). In fact each and every one of the projects implemented in the 1990s and 2000s has been rated unsatisfactory by the Bank's own self-evaluations, including the two projects assessed in this

report. Most damningly, the electricity sector, which has been the primary focus of the Bank's assistance and policy advice, is now in worse shape than it was at the beginning of the 2000s, and while in theory this could have been despite of the Bank's best efforts, as we will see in the next chapters, the Bank's approach may have contributed to this. The country's circumstances, with its lack of domestic modern energy sources and the system's forced primary reliance on liquid fuel-based generation given its small size, are admittedly not favorable. Furthermore, poor Borrower performance as well as external factors (particularly the sudden increase in international fuel prices in the mid-2000's) account, at least in part, for the sector's poor performance, as discussed in the detailed assessments of the two projects. But poor design and implementation of the Bank's assistance strategy is also to blame. As highlighted in the above paragraphs, the Bank's strategy has been both inconsistent and ambiguous in a number of areas, fluctuating between an excessively demanding agenda (e.g. the unrealistic conditions of the 2008 DPC) and an overly accommodating stance when it came to the Government delivering on its key policy commitments, particularly on sector governance and tariffs.

2.5 In the end, it is hard not to conclude that the mixed messages the Bank has been sending throughout the 2000s until recently contributed to the Government's reluctance to address more forcefully the structural weaknesses of the sector, hence contributing to perpetuating the sector's drain on the broader economy. Witness the following sequence of events: by 2008, the Electricity Sector Efficiency Enhancement project, approved in 2005, was performing very poorly on all counts and it was clear to all parties that it was going to have to be partially cancelled. Yet, in the face of such poor performance and instead of restructuring the project proactively, the Bank gave the appearance of "rewarding" failure (at least that is the way it was perceived by some counterparts, based on IEG interviews) by agreeing to transfer another US\$80 million to the sector in the guise of the 2008 DPC (US\$56 million of which were actually disbursed in spite of across-the-board non-compliance with most policy conditions). The failure of the two projects was highlighted in the self-evaluation reports respectively issued in June and October 2011 and should have given the Bank some pause yet it proceeded in short order to approve another major investment credit (US\$85 million) to the sector in July 2012, with minimal institutional and policy content. Under these circumstances, it would have been hard for the Government not to conclude that the Bank would continue, come what may, to financially support the sector even in the absence of Government *implementation* of major reforms (instead of mere declarations of intention) -- including the much-needed changes to tariff structure and levels. Indeed, this impression can only have been reinforced with the inclusion in the energy policy component of the recently-approved First Governance and Growth Support DPC of commitments which are either too vague/formalistic or not directly related to the core roots of the sector's crisis, in this way replicating the flaws of the 2008 Energy Sector Recovery DPC.

2.6 This said, as reflected in the detailed discussion of Bank performance provided in the detailed assessments of the two subject projects (Chapters 3 and 4), this negative assessment of the Bank's key strategic choices should not be seen as a criticism of the hard work and dedication of the energy teams who conducted comprehensive technical analyses and carried the working level dialogue with their Senegalese counterparts day in and day out.

### 3. Electricity Sector Efficiency Enhancement Project – Detailed Assessment

#### Objectives, Design, and Relevance

3.1 **Project Genesis.** In the aftermath of the failed attempts at privatizing SENELEC in the late 1990s/early 2000s, the Government had refocused its efforts towards implementing urgent investments and improving efficiency and reliability in the power sector to meet a growing electricity demand, while improving sector governance. Consistent with this new approach, the Bank Group agreed to support the power sector's 10-year investment program through a two-phase APL combined with PRGs and IFC loans. The IDA Credit, approved in 2005, was originally supposed to fund the full first phase of the APL but due to limitations in IDA13 resources, ended up financing only a more modest portion of that first phase, for an amount of US\$15.7 million covering physical investments in transmission and distribution and Technical Assistance activities. The remainder of Phase 1 activities (US\$33.4 million) was to be funded in a follow-up project to be approved the following fiscal year once sufficient IDA 14 resources were to be available to Senegal, but this never materialized. The PRG and the IFC loan (respectively US\$7.2 million and Euros 17 million) were kept as part of the original funding package, to support the construction of the Kounoune power plant under IPP arrangements although in practice the IDA-funded activities and the IPP project were really handled within the Bank Group as two distinct projects.

3.2 The **project objectives**, as stated in the Project Appraisal Document, were to (a) maintain and increase the electricity supply and the reliability of the services; (b) reduce the cost of the electricity services; and (c) enhance the performance of key energy sector institutions. Considering the problems facing the sector, these objectives were **highly relevant** and remained so throughout project implementation. The outcome indicators set out for the project included: (a) the commissioning of the Kounoune thermal power plant (67.5 MW); (b) a 22 percent increase in SENELEC's overall electricity sales from 2004 to 2008; (c) a reduction in interruption of power deliveries; (d) a reduction in SENELEC's variable costs of generation; (e) a decrease in SENELEC's transmission & distribution losses (technical and non-technical); (f) the setup of a monitoring & evaluation (M&E) system for the energy sector; (g) the set-up of a new electricity tariff mechanism; (h) design and implementation of a training program for key sector entities; and (i) implementation of PPP arrangements in the sector. In addition, financial covenants were included in the credit agreement (debt service coverage of not less than 1.1; return on assets of not less than 3 percent in 2006-07 and 5 percent thereafter; financial leverage of no more than 65 percent; accounts receivable of less than 105 days in 2006 and 90 days thereafter), purportedly to promote a steady improvement in SENELEC's finances.

3.3 **Project design.** Original project components were divided into support to SENELEC (Part A) and Institutional development of the energy sector (Part B).



**Part A** comprised the following components:

- Construction of the 67.5 MW heavy-fuel oil-fired power plant at Kounoune, near Dakar, under IPP arrangements with a private consortium consisting of Matelec (Lebanon) and Mitsubishi Equipment (Netherlands), with an estimated cost of US\$80 million. The project was supported by an IFC “A” loan of Euros 17 million and a Bank RG of US\$7.2 million to guarantee a long-term loan by a Senegalese private commercial bank.
- Rehabilitation/reinforcement of SENELEC’s transmission and distribution network, with an estimated cost of US\$ 9.5 million.
- Capacity building and studies for an estimated cost of US\$2.4 million, including preparation of generation, transmission and distribution master plans.

**Part B** comprised technical assistance, training and studies for both the Ministry of Energy and Mines (MEM) and the Regulatory Commission for Electricity Sector for an estimated cost of 2.3 million, including the set-up of a sector-wide M&E system and a study of options for future public/private partnerships for SENELEC.

3.4 The design of the project was only **modestly relevant** for a number of reasons. First, it only funded a truncated Phase 1 of SENELEC’s long-term investment program due to the above-mentioned IDA13 resource restrictions, limiting the project’s ability to address the sector’s urgent investment needs. Second, it overestimated SENELEC’s implementation capacity, particularly in the area of procurement, and put in place a flawed division of responsibility for project implementation between MEM and SENELEC. Most importantly it did not address head-on the need for key policy actions required to strengthen the sector’s finances, instead merely imposing arbitrary financial covenants on SENELEC and a vague requirement to review the existing tariff mechanism. Furthermore, while supporting the preparation of SENELEC’s long-term master plans and studies for future private options in the sector made sense under the circumstances, no provisions were made to ensure that the results of these studies were thoroughly discussed with the Bank and ultimately implemented.

## **Implementation**

3.5 Implementation of **IDA-financed activities** remained extremely slow until the credit was closed in December 2010, after a two year extension. This was due to insufficient project readiness, as SENELEC’s procurement capacity was weak to start with and inadequate provisions were made under the project to strengthen it (in fact the Project Implementation Manual was finalized only after the project was well advanced). Furthermore, the Bank unwisely acceded to a Government request that the Project Coordination Unit be located only in the MEM whereas most of the project activities concerned SENELEC, leading to poor coordination between the PCU and SENELEC and attendant delays. The pace of implementation was also affected by the difficult dialogue that prevailed between the Bank and SENELEC’s management until the end of 2006. Midway through the implementation

period, in 2007, and in light of the sector's deepening crisis and extensive load shedding, the Government and SENELEC requested, and the Bank agreed, that project funds originally assigned to transmission and distribution works be transferred to the rehabilitation of unit 302 in the Cap des Biches steam power plant so as to alleviate generation capacity shortages. In retrospect, it is not clear that such rehabilitation was technically justified as a subsequent technical audit by Electricité de France (EDF) led to the de-rating of that unit, but in any case the decision led to further delays in project implementation due to a protracted bidding process for the group's rehabilitation, including a need for re-bidding. In the end, by the time the credit closed in 2010, no physical works had been funded by IDA and 61 percent of the credit was cancelled, meaning that the IDA-funded project ended up being essentially a US\$6.2 million Technical Assistance operation.

3.6 The Power Purchase Agreement for the **IFC-supported Kounoune power plant** was signed in 2005 and construction was satisfactorily completed in 2008, US\$8 million under budget, albeit with a 2-year delay. The first two years of operation, however, were marred by technical problems with the turbines operation, which the company attributed to poor fuel quality and which have led to contractual issues with the Government, not yet resolved. These problems have led to lower-than-planned availability of the plant in its early years of operation (as low as 79 percent in 2009). Following the resolution of the turbines technical problems and the provision of higher quality fuel by SENELEC, the plant is now working at about full capacity.

3.7 **Safeguards.** Two safeguard policies (OP 4.01 on the environment and OP 4.12 on resettlement) were triggered by the project which was classified as category B. An Environmental Impact assessment for the Kounoune plant was prepared and released to the public, together with a detailed Environmental Policy Framework and Resettlement Policy Framework for the rehabilitation and maintenance activities originally included in the project. To mitigate the potential impact on air quality, the company has implemented mitigation measures and undertaken continuous air quality monitoring which have shown that air quality standards have been respected by the Kounoune plant. IFC indicated that previous dumping of oily solutions on the plants ground was being addressed by the installation of skimmers in the decantation system. The only significant issue that came up during project implementation was related to the initial setting, under Government regulations, of a 500 meter buffer zone around the Kounoune plant. A subsequent hazard analysis by the Government recommended the reduction of this buffer zone to no more than 40 meter. The IEG mission was informed that a temporary 200 meter requirement granted by the Government had now lapsed, but was able to ascertain during a visit to the plant that no encroachment is currently taking place in the expected new 40 m perimeter. It should be pointed out that, during its visit, the mission also witnessed significant air pollution currently taking place in the immediate vicinity of the plant as a result of the contiguous installation by SENELEC of its temporarily rented electrogen groups with a total capacity of 150 MW (see para. 1.1), which clearly do not meet the same standards. Kounoune's management has repeatedly pointed out to SENELEC that significant gas emissions from the electrogen groups has in fact caused problems for the operation of the Kounoune turbines.

3.8 **Fiduciary Aspects.** Over the last two years of its implementation, the project's financial management was rated unsatisfactory on account of inadequate management

systems in the Project Implementation Unit (PIU) at the MEM and the incurrence of ineligible expenditures for about US\$24,000. The latter was subsequently reimbursed by the Ministry of Finance. Audited financial statements were issued every year (without qualifications), although some reports were submitted with delay. As mentioned earlier, SENELEC's procurement capacity remained weak throughout project implementation, which was a cause of significant delays. However, no major procurement issue and/or instances of misprocurement was reported.

## **Achievement of the Objectives**

3.9 **First Objective: Maintain and increase electricity supply.** Achievement of this objective was **modest** overall. While the Kounoune power plant did ultimately add 67.5 MW to the country's generating capacity (Outcome indicator 1), its commissioning was two years late and availability was lower-than-expected during the first two years of operation due to technical problems (see above). Furthermore, the increase in overall energy sales in the country (Outcome indicator 2) was somewhat less than anticipated – 1,868 GWh actual vs 1,875 GWh expected in 2008. But most importantly, supply did not keep up with demand due to delays in the expansion of the country's generating capacity (both in the form of rehabilitation of existing plants and of new IPPs) and lower-than-forecast operating efficiency of SENELEC's existing assets, itself the result of insufficient maintenance. This led to widespread power shortages in the last years of the project's implementation (see below). Whereas the project-funded expansion master plans (Intermediate Outcome Indicator 3) were completed satisfactorily, their impact has been limited as the Government's decision-making process for major investments in the sector has been extremely weak to this day, as discussed earlier in this report (paras. 1.10 and 1.11).

3.10 **Second Objective: Maintain and increase the reliability of electricity services.** Achievement of this objective was **negligible**. Whereas interruption in electricity deliveries nationwide were expected to decrease from 14 GWh in 2004 to 8 GWh in 2007 (Outcome Indicator 3), undelivered energy increased dramatically towards the end of the project implementation period-- to 105 GWh in 2008, 88 GWh in 2009, 174 GWh in 2010, reaching a peak of 250 GWh in 2011, at the height of the country's energy crisis (see Annex B, Figure 1). These severe energy shortages can be traced to delays in needed generation investments and poor operational efficiency, themselves the result of SENELEC's financial deterioration and poor investment planning and decision-making by the Government. Furthermore, technical and non-technical losses, which were expected to decrease from 17.5 percent in 2004 to 15.5 percent in 2007 (Outcome Indicator 5), had instead risen to 21.4 percent by 2010.

3.11 **Third Objective: Reduce the cost of electricity services.** Achievement of this objective was **negligible**. The expected 7 percent reduction in SENELEC's variable costs of generation (Outcome Indicator 4) did not materialize; instead, SENELEC's costs increased by 50 percent between 2004 and 2010, largely due to the sharp increase in the price of fuel and the lack of maintenance of its aged facilities.

3.12 **Fourth Objective: Enhance the performance of key energy sector institutions.** Achievement of this objective was **modest** overall. A number of actions/studies were

included in the project to support institutional strengthening of the sector. These included: (a) setting up of an M&E system for the energy sector (Outcome Indicator 6); (b) setting up of a new electricity tariff mechanism (Outcome Indicator 7); (c) adoption of a training program for staff of SENELEC, MEM and the Commission de Régulation du Secteur de l'Electricité, Senegal's Regulatory Commission for Electricity Sector (Outcome Indicator 8); (d) implementation of PPP arrangements for SENELEC (Outcome Indicator 9); (e) preparation of Master Plans for generation, transmission and distribution (Intermediate Outcome Indicator 3); and (f) preparation of a communication plan for SENELEC (Intermediate Outcome Indicator 4).

3.13 While most of these actions were at least partially completed, they carried more form than substance and their actual impact was limited at best. In particular, the master plan for generation was prepared but has been largely ignored in the Government's actual investment decision-making process. Training plans were prepared but actual training activities were limited to a few courses and the purchase of IT equipment, none of which benefited the Regulatory Commission for Electricity Sector. While the tariff setting mechanism was reformed twice during project implementation, this was not sufficient to spare SENELEC from severe financial difficulties (para. 1.7). A possible exception to this bleak picture are the project-funded studies conducted, under action (d) above, by RTE, a consulting firm, (France) on the unbundling of SENELEC. Very extensive work was carried out on that front, between 2007 and 2009, with close involvement of SENELEC's staff, and a plan for the accounting separation of the company's three main functions actually completed, with a view to ultimately transform SENELEC into a holding company with three subsidiaries. Implementation of this plan was however halted upon the arrival of the new Government in the spring of 2012 and it remains to be seen whether it will ultimately be followed through. The bottom line is that the project, overall, contributed only very modestly to enhancing the performance of the sector's institutions, particularly SENELEC, whose steadily deteriorating finances have been at the root of the sector's deepening crisis, as described earlier in this report.

## Efficiency

3.14 The ex-post ERR for the Kounoune plant was calculated at 14 percent in the ICR, based on actual costs and the plant's operation record to date, and generally conservative assumptions regarding future operation, fuel costs and losses (see Annex B, Table 3). This compares to the ex-ante ERR of 26 percent estimated at appraisal. But the ICR calculation is based on estimating revenues at retail tariffs of about US\$0.18cents per kWh, which is much lower than current tariffs averaging about US\$0.24 – and even this level may not truly reflect true economic costs since SENELEC has been receiving significant budgetary transfers. In any event, the ERR for an individual plant is not very meaningful as it primarily reflects the adequacy of tariffs used as proxy for revenues in the calculation. More meaningful is the fact that the Kounoune plant was undeniably part of the least-cost generation sequence, as confirmed by planning studies carried out by specialized consultants and confirmed in the more recent McKinsey analyses carried out in the context of the "Takkal Plan" (para. 1.11). But efficiency of the project as a whole can only be rated as **Modest**, considering the non-implementation of many IDA-funded activities, delays in commissioning the plant, and the cancellation of 60 percent of the IDA Credit.

## Ratings

3.15 **Outcome.** Overall outcome of the project is rated **Unsatisfactory**. While its objectives were highly relevant to the sector's circumstances at the time of approval, the project's design was modest, the achievement of its objectives was modest or negligible, and efficiency was modest, with 60 percent of the IDA credit ultimately cancelled at closing. The Kounoune power plant component did reach completion, albeit with some delays, and is now providing reliable energy to the grid, in spite of operational problems in the early years and still pending contractual issues. While it can be argued that such completion contributed to demonstrate the feasibility and benefits of IPP arrangements in the country, the fact of the matter is that Kounoune's completion, in and of itself, did not significantly help in resolving the sector's deep-seated structural problems, which only worsened during implementation of the project and persist to this day.

3.16 **Risk to Development Outcome.** This risk is **High** as any institutional development achieved under the project, and any possible future improvement in the supply and reliability of electricity services in Senegal, will continue to be jeopardized until SENELEC's finances and sector governance issues are addressed effectively. As discussed earlier in this report, this will require, *inter alia*, resolute Government actions both on the tariff front and in reforming the investment planning process. Any hope of attracting further private investment in the sector, whether through IPPs or otherwise (e.g., through private involvement in SENELEC itself), will also be negated if SENELEC's finances are not strengthened and if pending contractual issues with the Kounoune Power Company are not resolved. Due to the latter, IFC has in fact set loss reserves for its loan.

3.17 **Bank performance.** The overall effectiveness of the Bank's strategy in the sector over the last 10 years or so has been discussed in Chapter 2 of this report. Bank performance under the Electricity Sector Efficiency Enhancement project specifically is rated as **Unsatisfactory**, both at Entry and during Supervision. *Quality at entry* suffered from the fact that the project actually approved was only a truncated part of a much larger project which was supposed to cover the whole Phase 1 of the sector's long-term investment program. The Bank clearly misjudged the likelihood that the rest of the program could be financed in short order by IDA 14 resources (see para. 3.1) and the approved project ended up fundamentally unbalanced as a result, with policy objectives which were clearly too ambitious for the relative small size of the project. Furthermore, the critical issue of sector finances was hardly addressed in the project's design, other than through a weak requirement that a new tariff system be set up (with little details on its implications) and the imposition of financial covenants based on overoptimistic financial forecasts. At a practical level, the Bank should have never agreed to have the PIU located in the MEM whereas the bulk of the project's components was under SENELEC's responsibility. This led to coordination problems throughout implementation and weak ownership of the project by SENELEC. On the bright side, quality at entry for the Kounoune plant was good, with one possible exception: IFC agreed to have responsibility for fuel purchase transferred at the last minute from the sponsors to SENELEC, as a result of a specific request by SENELEC's manager. This proved to be a mistake as it led to subsequent serious disagreements on the quality of the fuel provided to the plant, which the private sponsors blamed for the technical problems which affected the plant turbines in the first two years of operation.

3.18 Government stakeholders indicated to the IEG mission that *Bank supervision* was somewhat hands off and unresponsive in the first two years of the project. This changed with the relocation of the task team to Dakar in 2007, which ensured a closer, practically day-to-day, communications with Senegalese interlocutors. While the project was not formally restructured, two major shifts took place: the lack of emphasis on critical policy issues was addressed by the Bank's approval in 2008 of a major policy-based operation; the Energy Sector Recovery DPC (the object of a parallel assessment in this report). The latter provided a more logical and potentially more effective channel for the Bank to pursue sector issues, although the DPC had itself major flaws and did not prove effective in that regard (see Chapter 4). The second major change was the substitution, late in the game, of original transmission and distribution investments by generation rehabilitation investments (para. 3.5). In retrospect, there are questions as to whether such substitution was wise: the new investment (in the rehabilitation of unit 302 in the Cap des Biches plant) was clearly not ready for implementation and delays in bidding ultimately led to the cancellation of that component. Furthermore, the technical justification for the rehabilitation itself is now in doubt as SENELEC subsequently decided to re-rate unit 302, based on an operational audit carried out by EDF. Finally, supervision ratings were clearly overoptimistic throughout project implementation, with Development Objectives ratings staying in the satisfactory range up to the very moment when 60 percent of the credit had to be cancelled in 2010.

3.19 **Borrower performance.** Borrower performance was **Unsatisfactory** overall, both on the Government and the Implementing agency sides. As mentioned earlier, the Government unwisely insisted on having the PIU located at MEM instead of SENELEC. During the earlier part of the project, MEM (in fact the Minister himself) essentially micro-managed SENELEC's part of the project, leading to a lack of project ownership by the latter. On the policy side, the Government lacked an overall strategy to address the sector's deep-seated structural problems. This was exacerbated by a lack of continuity in key policies (e.g. on tariffs and budget transfers) and long-term investment decisions (particularly for generation), with key orientations revisited, or even overturned, each time a new Energy Minister came on board and after the most recent Government change in 2012.

3.20 The ownership of the project by the main implementing agency, SENELEC, remained weak throughout the project, initially because of the poor dialogue between the Bank and SENELEC's management and later because both the Bank's and SENELEC's focus turned to alleviating the sector's short-term crisis and to meeting the conditions of the Energy Sector Recovery DPC approved in 2008.

3.21 **Monitoring & Evaluation.** Notwithstanding the fact that the PIU was unwisely located in MEM instead of SENELEC, baseline data for selected key technical indicators were available and the monitoring system was simple and based on existing data routinely compiled by SENELEC. But for non-technical/physical indicators, indicators/targets were either too vaguely defined (e.g. review of existing tariff mechanism, adoption of a training program, implementation of PPP arrangements) to promote real accountability, or emphasized form rather than substance (completion of a communications plan, completion of investment master plans) so that the real intent of the conditions was open for different interpretations. Progress was discussed on a regular basis between the Bank team and counterparts, which was made easier by the relocation of the task team to Dakar in 2007. In

retrospect, one particular indicator, the increase in electricity sales, was ill-chosen and essentially meaningless in and of itself since it did not encompass the sector's ability to meet a fast-growing energy demand. In the event, sales targets were almost met even as the country faced growing power shortages and the sector was in the midst of a growing crisis. All in all, M&E quality (including both design and implementation) is rated **Modest**.

## 4. Energy Sector Recovery Development Policy Credit – Detailed Assessment

### Objectives, Design, and Relevance

4.1 **Project Genesis.** As discussed earlier in this report, the improvement in the energy sector's situation which had been expected when the Bank approved the Electricity Sector Efficiency Improvement project in 2005 did not materialize. Indeed, it only got worse as SENELEC's finances deteriorated in 2006 and 2007 to the point of becoming a huge drain on the Government's budget and weakening the country's economic growth (down to 2.3 percent in 2006). Whereas the 2005 operation had very little policy content, the DPC approved in 2008 was designed to fill that gap by addressing the key policy issues at the root of the sector's woes, primarily in the electricity sector but also in the petroleum sector, where the state-controlled refinery, SAR, was also facing financial difficulties.

4.2 The **project objectives**, as stated in the Program Document, were to “ensure a sustained and sound long-term development of electricity services and supply of petroleum products in Senegal”. More specifically the operation covered three policy areas: (a) restoring the financial viability and sustainability of the electricity and hydrocarbon sub-sectors; (b) improving the governance of the electricity and hydrocarbon subsectors; and (c) ensure the sustainable long-term development of Senegal's energy sector. These broad objectives and policy areas of focus were, and remained throughout project implementation, **highly relevant** and consistent with the Bank's Country Assistance Strategy (CAS) for 2007-2010, which emphasized the promotion of a competitive investment climate, the maintenance and building of basic infrastructure, good governance, and the financial viability of public institutions.

4.3 **Project design.** The DPC was designed as a two-tranche operation (US\$56 million and US\$26 million respectively) encompassing a large number of policy actions in each of the three policy areas: 7 in policy area 1 (4 of which in tranche 2); 7 in policy area 2 (5 of which in tranche 2); and 4 in policy area 3 (all of which in tranche 2). Some of these actions were appropriately specific and focused on the fundamental issues of the sector, such as the recapitalization of SENELEC, adjustments to electricity tariffs and the elimination of budgetary transfers to SENELEC. Some others addressed key issues such as the country's long-term generation expansion choices, the reform of the tariff setting mechanism, and the preparation of a long-term investment plan for SAR, but only through formalistic requirements (mere completion of studies). Others, such as the studies on the unbundling of SENELEC and on the private sector's participation in the energy sector, while substantive in

principle, were premature in the context of the sector's immediate crisis. And others were either of lower priority, like the creation of specific committees within SENELEC, the completion of an audit of SENELEC's internal audit function (sic), or somewhat disconnected from the operation's main focus (to resolve the sector's crisis), like the preparation of action plans for renewable energies and demand-side management. In the end, the number of actions was clearly excessive, and some of them had no immediate connection to the fundamental issues the sector was facing in 2008. Most importantly, the expected speed of improvement in SENELEC's finances was probably unrealistic for a two-year operation and the much more ambitious scope of the second-tranche conditions was out of balance with its financial weight (30 percent).

4.4 All in all, the design of the project was only **modestly relevant** since the project, as the ICR appropriately states, "failed to take into account the Bank's recommendations regarding good practice for the application of conditionality in DPCs such as: (i) reinforcing ownership of the MEM and SENELEC; (ii) customizing the accountability framework and modalities of Bank support to country circumstances and in particular the balancing of conditionalities and financing between tranches; (iii) choosing only actions critical for achieving results as conditions for disbursements; and (v) choosing the right instruments to effect the changes in the financial situation of SENELEC".

## Implementation

4.5 The overambitious timeline of key actions required under the DPC, particularly regarding the improvement in the electricity sector's finances, would have made meeting the project objectives difficult under any circumstance. But the energy crisis of 2008, with oil prices spiking at US\$147 per barrel in July 2008, hit SENELEC particularly hard given its primarily liquid fuel-based generation mix (fuel costs increased by as much as 26 percent between 2007 and 2008). Further the 2008 crisis affected Senegal's economy and resulted in a significant deterioration of the country's fiscal situation. These in turn weakened the Government's commitment to implement the required actions, including tariff increases, required to turn around the sector's finances. The second tranche was not disbursed and the corresponding funds (US\$24 million) were cancelled because, as detailed below, most of the second tranche conditions were not, or only partially, met by the original closing date of December 31, 2010 (nor were they likely to be met had the closing date been extended by even a year).

## Achievement of the Objectives

4.6 **First Policy Area: restore the financial viability and sustainability of the electricity and hydrocarbon sub-sectors.** Achievements in this policy area were **negligible** overall. SENELEC's financial situation has grown steadily worse since 2008 and the company has required ever-larger budgetary transfers to stay financially afloat, in the absence of sufficient tariff increases (the last tariff increase dates back to 2009, after the Government had even implemented a tariff *decrease*, of 8 percent earlier in January 2009, at a time when SENELEC was still in dire financial straits). More recently, in the context of the negotiation of the First Growth and Governance DPC, the Government has carried out several positive steps to strengthen SENELEC's finances, including partial re-capitalization



through debt restructuring and a cross-settlement of debts and arrears between the Government public agencies and SENELEC, but their effect will remain limited short of more radical actions to increase revenues through tariff hikes and to decrease operating costs through improvements in operating efficiency and lower fuel costs. Estimated financial results for 2012 show that the company will incur a loss of 2 billion FCFA (US\$4 million) *after* a budgetary transfer of 130 billion FCFA (US\$260 million). Related second tranche specific conditions (minimum debt-service coverage ratio of 1.2, timely Government transfers to allow SENELEC to achieve its Maximum Authorized Revenue under the tariff formula set by the Regulatory Commission for the Electricity Sector and elimination of all budgetary transfers by 2009) were not met. And while a tariff study was completed with the help of Office National de l'Electricité (Morocco) as another second tranche condition, its recommendations were never implemented.

4.7 On the hydrocarbon side, whereas SAR was recapitalized through the transfer of 34 percent of its capital from the Government to private investors (the Bin Laden group of Saudi Arabia), making it a majority privately-held company, very limited information has been made available to the Bank on the evolution of SAR's finances, including the level of remaining Government subsidies. Indeed the question of the refinery's long-term economic and financial viability remains open. A study on the subject is planned under the Government's Letter of Development Policy prepared in connection with the just-approved First Governance and Growth Support DPC. Furthermore the IEG mission was informed that Total (France), the other private investor, may have rescinded its management contract for the refinery.

4.8 **Second Policy Area: improve the governance of the electricity and hydrocarbon sub-sectors.** Achievements under this policy area were **modest**. While some of the conditions listed under this policy area were met or partially met, such as the adoption by SENELEC of new procurement procedures, the study of SENELEC's unbundling, or the preparation of a draft law to create a Hydrocarbon Regulatory Agency, they either carried more form than substance or were not directly connected to the priority reforms needed to resolve the sector's crisis, as highlighted earlier (para. 4.3). As such, they made only a modest contribution to the attainment of the project's objectives. Since 2008, sector governance has been characterized by a weak delineation of the respective roles of MEM and SENELEC, and constant political interference in the management of SENELEC. In fact, the issue of the sector's governance remains very much alive to this day, and was a focus of the dialogue carried out during the negotiation of the just-approved First Governance and Growth Support DPC, including through the preparation and implementation of a performance contract for SENELEC.

4.9 **Third Objective: ensure the long term development of the energy sector.** Achievements under this policy area were also **modest**. The second tranche conditions related to renewables and demand-side management (DSM) were partially met with the presentation to Parliament of a regulatory framework to facilitate the development of new and renewable energy sources and the completion of a consultant study on DSM; but as mentioned earlier, their relevance to the core objectives of the project was limited. On the more critical issue of long-term investment choices in the sector, the completion of the master plans for electricity generation, transmission and distribution were formalistically

met, but did little to help streamline the investment decision-making process in the sector, which remains fundamentally flawed (see para. 1.12), while the very viability of SAR over the long-run is still open to question (see above).

## Ratings

4.10 **Outcome.** The overall outcome of the project is rated **Unsatisfactory**. While its objectives were, and remain, highly relevant to the sector's on-going crisis, the DPC was poorly designed and its objectives were modestly or negligibly achieved, forcing the cancellation of the operation's second tranche. The sector's situation not only did not improve with the project but in fact has kept worsening to this day. As discussed earlier in this report, any improvement in future years will require forceful actions by the Government, be it on the tariff front or on the investment front, beyond mere declarations of intention.

4.11 **Risk to Development Outcome.** This risk is assessed as **High**, as the dependence of the electricity sector on the budget has only gotten worse over recent years, reaching an unprecedented level of 1.8 percent of GDP in 2012 and depriving other sectors of the economy of desperately needed public resources. Furthermore, the sector is not immune from the impact of another possible hike in international oil prices given its continued dependence on liquid fuel-based generation, at least in the short-term, and the Government's apparent lack of inclination to reflect such future cost increases in electricity prices. While greater participation by the private sector in the sector could potentially mitigate these risks, such participation on a large scale is unlikely to be forthcoming as long as the sector's finances remain so precarious.

4.12 **Bank performance.** The overall effectiveness of the Bank's strategy in the sector over the last fifteen-twenty years has been discussed in Chapter 2 of this report. Bank performance under the Energy Sector Recovery DPC specifically is rated as **Unsatisfactory** overall. Quality at Entry was *Unsatisfactory*: the design of the operation was flawed, as discussed earlier (para.4.3), and the Bank clearly misjudged the Government's willingness to take the necessary tariff actions in the face of a difficult international environment. Actually, based on the experience of the earlier Energy Sector Adjustment Credit approved in 1998 (which also ended in failure), the Bank should have been more skeptical of formalistic commitments included in the Credit Agreement and Letter of Development Policy, in the face of a relative lack of substantive, concrete upfront actions before the disbursement of the first tranche.

4.13 Bank Supervision was *Moderately Unsatisfactory*. Supervision was close on the electricity side, thanks to the location of the task team in Dakar, and the policy dialogue was supported by comprehensive and frequent aide-memoires, management letters and meetings at the highest level. In particular, the team provided critical inputs into the preparation (by Government consultants McKinsey) of the thorough diagnostic that led to the ground-breaking "Plan Takkal". Yet there was some ambiguity in the Bank's stance, as discussed earlier in this report (para.2.4). In retrospect, a stronger message, particularly on issues of tariffs and investment choices, may have better sensitized the Government to the urgency of accelerating reforms. In particular, it is difficult to understand how the Bank did not react more strongly to the tariff *decrease* implemented by the Government in 2009. Further, Bank

supervision of the hydrocarbons component of the operation was much less intense and consistent than for the power component. In particular, the situation in SAR appears to have been neglected by the Bank, on the grounds that SAR had now become a majority private company (even though Government subsidies are reported to continue to this day), and the dialogue on the merits of creating a regulatory commission covering the whole energy sector (versus the hydrocarbons sub-sector only as planned under the DPC) was never very substantive. Finally, project supervision ratings were neither consistent nor realistic: IP was rated *Moderately Satisfactory* (but DO *Moderately Unsatisfactory*) until very late in the project's life – when most of the second tranche conditions were clearly not being met.

4.14 **Borrower performance.** Borrower performance was **Unsatisfactory** overall (for a DPC, Borrower performance conflates Government and Implementing Agency performance). Whereas the Government (primarily MEM and the Ministry of Finance) were closely involved in the preparation and implementation of the operation, commitment fluctuated, particularly with successive changes in Energy Ministers and government. Government commitment was weakest with regards to tariff adjustments, as increases during the project period were insufficient to eliminate budgetary transfers (which instead reached peak levels) and tariffs were even unwisely *decreased* on one occasion (in 2009). Lack of continuity in Government policies also affected key investment decisions, particularly regarding the generation mix, a critical factor in SENELEC's ability to reduce its operating (fuel) costs. The Government can be commended for undertaking the first ever comprehensive and far-reaching diagnostic of the electricity sector, which led to the formulation of the "Takal Plan" in 2011. Yet implementation of this plan has already lagged, and key elements of the Plan have been questioned by the new Government, without clear, practical, alternatives, being put forward.

4.15 **Monitoring & Evaluation.** Notwithstanding the fact that there were too many conditions and that some of them were either premature or somewhat peripheral to the core objectives of the project (see para. 4.3), related key indicators were generally relevant to the conditions and measurable, with some caveats: e.g. the requirement to prepare a diversification strategy from oil to coal and new and renewable energies was too broadly worded to be meaningful. And the requirement for the preparation of master plans for generation, transmission and distribution was too focused on form versus substance. In both cases, these requirements were legally met with the mere completion of documents, but no provision was made for their implementation and/or Bank input into the actual recommendations of the studies. The conditions related to the strengthening of SENELEC's finances were appropriately specific – albeit unrealistic in retrospect—but those related to SAR (recapitalization and preparation of an investment plan) were too vaguely worded to be meaningful and no provision was made as to their follow up in the event of a major change in ownership. All in all, M&E quality (including both design and Implementation) is rated **Modest**.

## 5. Lessons Learned

5.1 The following lessons can be derived from the Bank’s experience in the power sector of Senegal.

5.2 **Proper sequencing of sector policy dialogue and investment support is important for success when the two are closely connected.** The viability and sustainability of the investment commitments for SENELEC strongly depended on the sector policy and strategy as well as the financial restructuring of the utility. The absence of a sound policy framework was a factor in the failure of the Electricity Sector Efficiency Enhancement project. When the Bank finally addressed key policy issues under a heavily front-loaded DPC in 2008, it was too accommodating and complacent in its implementation follow up. The most recent Sector Investment Loan, approved in 2012, is similarly light on institutional and policy content while the energy policy content of the recently-approved Governance and Growth DPC appears to neglect certain urgently needed reforms, including on the tariff front.

5.3 **The Bank has an important role in ensuring that investment decisions are made based on technical, financial, and economic merits.** This is particularly true for generation investments in a country like Senegal, which has limited options given its small system size and the absence of sizeable domestic energy resources. The Bank risks credibility if it takes, or is perceived to take, a dogmatic position against coal-based power where it is the least-cost option (after accounting for environmental externalities), at least in the medium-term, and a potentially critical way to significantly reduce generation costs and turn around sector finances.

5.4 **Realistic policy requirements and consistent messages are important to borrowers.** Over the past decade, the Bank’s stance has fluctuated between a sometimes overly demanding agenda (like in the “letter” of the 2008 Energy DPC) and an excessively accommodating position when it came to the government delivering on its key commitments (such as on tariffs), all in the context of unwavering and growing financial support. As a consequence, it may have been seen by counterparts as sending mixed messages on the importance and urgency of actual sector reform.

5.5 **Where a country’s political timetable is liable to bring significant shifts in policy, a keen appreciation of political economy is necessary.** Twice, the Bank did not sufficiently appreciate the likely implications of scheduled (democratic) changes in government, first in 2000 and more recently in 2012. In the first instance, the new government hardened its position on SENELEC’s privatization, possibly contributing to its failure; and in the second instance, the new government appears to have taken a different approach to investment planning and tariff policy, revisiting key tenets of the “Takkal Plan.”

5.6 **The Bank has much to gain from locating key operational staff in the field, particularly where a continuous and intense dialogue is required, such as Senegal’s energy sector.** But field location will only yield benefits if human and budget resources are made available; otherwise the teams will become overloaded and key areas requiring specialized expertise (like the hydrocarbon subsector in Senegal) will end up unattended.

5.7 In addition, several lessons specific to the two projects assessed in this report arise.

5.8 **Project implementation requires suitable institutional arrangements.** In the first project, the institutional arrangements and the location of the PIU were not designed in accordance with the roles and responsibilities of the respective entities: MEM should have played the role of coordinating entity (except for the few activities directly pertaining to it) and not that of an implementing unit, when most of the project activities required the involvement of SENELEC for their execution. This lesson has been reflected in the design of the latest Sector Investment Loan to Senegal (the Electricity Sector Support project approved in 2012).

5.9 **A comprehensive and realistic analysis of sector finances is the best foundation for financial covenants that will be met.** The analysis should reflect realistic assumptions regarding the timing and scope of future reform steps regarding tariff changes, financial restructuring, as well as realistic scenarios for future increases in international oil prices, particularly for a system so dependent on liquid fuel imports like Senegal's. Because it was not done in the first project, the financial covenants were essentially meaningless and bound not to be complied with.

5.10 **Project success is handicapped at the start if it is not ready for implementation by credit effectiveness.** In the first project, the preparation of key components was not fully completed until much later in the project's life, leading to delays in bidding and serious implementation delays, and resulting in the ultimate cancellation of a large part of the credit. In fact, the Project Implementation Manual was not even finalized until more than a year after the project was started. Compounding the problem was the fact that procurement training of key SENELEC staff was insufficient, leading to procurement inefficiencies.

5.11 **The outcome of IPP projects cannot be viewed in isolation of broader sector outcomes.** While the generally satisfactory completion of the Kounoune project provided needed additional capacity to the system at least-cost and served as a demonstration of the feasibility and benefits of IPP arrangements in Senegal, its outcome is being jeopardized by the recurrent financial difficulties in the sector: the technical problems that marred the plant in the first two years were partly caused by poor fuel quality, itself the result of SENELEC's strained cash situation. The latter also led to delays in energy payments to Kounoune. More broadly, the dire financial situation of the sector is a disincentive to private investors investing on a large scale in future IPP projects.

5.12 **Inattention to the good practice principles for the application of conditionality can result in policy-based operations that are unbalanced and lack focus.** In the second project, most of the substantive conditions were back-loaded to the second tranche whereas the first tranche accounted for 70 percent of the credit. Furthermore, the credit included an excessive number of conditions, some of which were vague and/or largely formalistic, whereas others were disconnected from the core objectives of the project.

5.13 **In designing policy-based operations, a realistic sense of the pace of reform will take account of political economy considerations.** The DPC was clearly too ambitious regarding the expected timeline for key reform steps, including the enactment of needed tariff

increases and the elimination of budgetary transfers to the sector. It attempted to achieve too many things at the same time instead of focusing on key actions required to address the core roots of the sector crisis – and following up on their actual implementation.

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## Annex A. Basic Data Sheet

### ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT (APL) (CREDIT 4060-SE)

#### Key Project Data (amounts in US\$ million)<sup>2</sup>

	Appraisal estimate	Actual or current estimate	Actual as % of appraisal estimate
Total project costs	16.6	6.9	42%
Credit amount	15.7	6.2	39%
Co-financing	0	0	0%
Cancellation	n/a	9.5	61%

#### Cumulative Estimated and Actual Disbursements

	<i>FY06</i>	<i>FY07</i>	<i>FY08</i>	<i>FY09</i>	<i>FY10</i>	<i>FY11</i>
Appraisal estimate (US\$M)	4.00	11.00	15.70	15.70	15.70	15.70
Actual (US\$M)	3.31	3.31	3.31	3.61	4.50	5.49
Actual as % of appraisal	82.75	30.09	21.00	21.00	28.66	34.96
Date of final disbursement:	May 13, 2011					

#### Project Dates

	Original	Actual
Concept Review	10/21/2003	10/21/2003
Negotiations	03/21/2005	03/21/2005
Board approval	05/17/2005	05/17/2005
Signing	06/28/2005	06/28/2005
Effectiveness	12/09/2005	12/09/2005
Closing date	01/31/2009	12/31/2010

<sup>2</sup> The data only includes IDA supported part of the project.

**Staff Inputs (staff weeks)**

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
<b>Lending</b>	No. of staff weeks	US\$ Thousands (including travel and consultants costs)
FY01		0.34
FY02	1	2.94
FY03	16	110.71
FY04	20	155.07
FY05	58	345.06
<b>Total:</b>	<b>95</b>	<b>614.12</b>
<b>Supervision/ICR</b>		
FY06	38	131.74
FY07	38	181.29
FY08	28	90.07
FY09	6	
<b>Total:</b>	<b>110</b>	<b>403.10</b>

**Task Team Members**

Names	Title	Unit
<b>Lending</b>		
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Fabrice Karl Bertholet	Sr. Financial Analyst	AFTEG
Moez Cherif	Sr. Energy Econ.	AFTPC
Bourama Diaite	Senior Procurement Specialist	AFTPC
Anta Tall Diallo	Program Assistant	AFCF1
Saidou Diop	Sr. Financial Management Spec.	AFTFM
Philippe J-P. Durand	Program Coordinator	AFTEG
Alain Ebobisse	Chief Investment Officer	CNGIV
Maimouna Mbow Fam	Sr. Financial Management Spec.	AFTFM
Kwawu Mensan Gaba	Lead Energy Specialist	SASDE
Stephan C. Frederic Garnier	Senior energy Specialist	AFTEG
Yhanh Lu Ha	Senior Program Assistant	AFTEG
Fatouma Toure Ibrahima Wane	Senior Financial Specialist	AFTEG
Amadou Konare	Sr. Environmental Spec.	AFTEN
Michel E. Layec	Lead Energy Economist	LCSEG
Sunil W. Mathrani	Senior Energy Specialist	AFTEG
Cheikh A.T. Sagna	Consultant	AFTCS
Ibrah Rahamane Sanoussi	Procurement Specialist	AFTPC
Awa Seck	Senior Economist	AFTEG
Seynabou Thiaw Seye	Program Assistant	AFCF1

<b>Names</b>	<b>Title</b>	<b>Unit</b>
Fily Sissoko	Lead Financial Mgmt Spec.	AFTFM
Pierre C. Viellescazes	Consultant	MNSED
Eric Jean Yoboue	Senior Procurement Spec.	AFTPC
Noureddine Bouzaher	ICR Primary Author/Consultant	AFTEG

### Other Project Data

#### Senegal:

#### Follow-on Operations

<i>Operation</i>	<i>Credit no.</i>	<i>Amount (US\$ million)</i>	<i>Board date</i>
Energy Sector Recovery Development Policy Credit	4467-SE	80.0	05/21/2008

### ENERGY SECTOR RECOVERY DEVELOPMENT POLICY (CREDIT 4467)

#### Key Project Data (amounts in US\$ million)

	Appraisal estimate	Actual or current estimate	Actual as % of appraisal estimate
Total project costs	80.0	56.07	70%
Loan amount	80.0	56.07	70%
Cancellation	-	23.9	30%

#### Cumulative Estimated and Actual Disbursements

	<i>FY09</i>	<i>FY10</i>
Appraisal estimate (US\$M)	56.0	80.0
Actual (US\$M)	56.1	56.1
Actual as % of appraisal	70%	70%
Date of final disbursement: September 25, 2008		

**Project Dates**

	Original	Actual
Concept Review	03/07/2007	03/07/2007
Negotiations	05/16/2008	05/16/2008
Board approval	06/19/2008	06/19/2008
Signing	06/30/2008	06/30/2008
Effectiveness	09/05/2008	09/05/2008
Closing date	03/30/2010	12/31/2010

**Staff Inputs (staff weeks)**

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
<b>Lending</b>	No. of staff weeks	US\$ Thousands (including travel and consultants costs)
FY07		23.95
FY08		337.58
<b>Total:</b>		361.53

**Task Team Members**

Names	Title	Unit
<b>Lending</b>		
Michel Layec	Lead Energy Specialist (TTL)	AFTEG
Stephan Garnier	Power Engineer	AFTEG
Iradj A. Alikhani	Consultant	AFCTZ
Mourad Belguedj	Consultant	SEGOM
Fabrice Karl Bertholet	Sr. Financial Analyst	AFTEG
Sidi Mohammed Boubacar	Lead Operations Officer	MNC03
Renee M. Desclaux	Senior Finance Officer	CTRFC
Kwawu Mensan Gaba	Lead Energy Specialist	SASDE
Bertrand Loiseau	Senior Economist	ENVCF
Sunil W. Mathrani	Senior Energy Specialist	AFTEG
Awa Seck	Senior Economist	AFTEG
Seynabou Thiaw Seye	Program Assistant	AFCF1
Boris Enrique Utria	Country Operations Adviser	LCC5C

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**Supervision**

Stephen Garnier	Sr. Power engineer (TTL)	AFTEG
Fabrice Karl Bertholet	Sr. Financial Analyst	AFTEG
Moez Cherif	Sr. Energy Econ	AFTEG
Saodpi Diop	Sr. Financial Management Spec	AFTFM
Philippe J-P. Durand	Program Coordinator	AFTEG
Thanh Lu Ha	Senior Program Assistant	AFTEG
Fatouma Toure I. Wane	Senior Financial Specialist	AFTEG
Michel E. Layec	Lead Energy Economist	LCSEG
Seynabou Thiaw Seye	Program Assistant	AFCF1
Fily Sissoko	Lead Financial Management Spec	AFTFM
Pierre C. Vieillescazes	Consultant	MNSED
Eric Jean Yoboue	Senior Procurement Specialist	AFTPC
Noureddine Bouzaher	ICR Primary Author/Consultant	AFTEG

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**Other Project Data**
**Senegal:**


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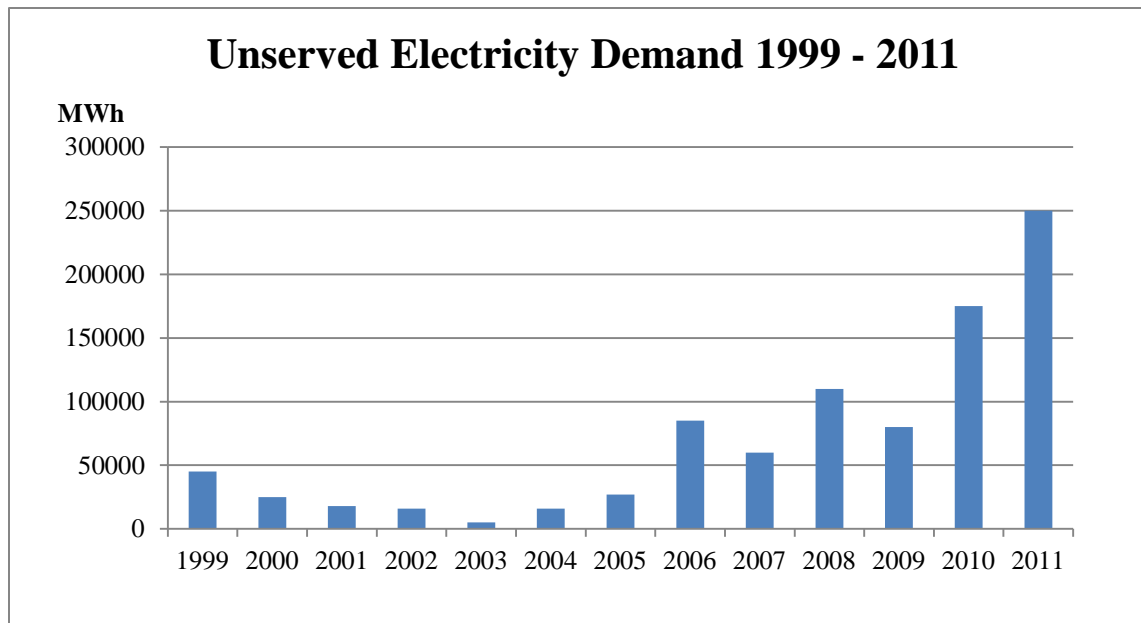
**Follow-on Operations**

<i>Operation</i>	<i>Credit no.</i>	<i>Amount (US\$ million)</i>	<i>Board date</i>
Electricity Sector Support Project	IDA-51450	85.0	07/01/2012



## Annex B. Other Data

Figure 1. Un-served Electricity Demand 1999-2011



Source: World Bank (2012). Project Appraisal Document for Senegal Electricity Sector Support Project.

**Table 1. SENELEC's Historical Results (FCFA billion)**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012 *
Sales revenues	85	95	109	118	127	135	157	181	210	221	243	242	272
Other sales and services rendered	-	-	-	-	-	5	5	5	6	7	8	8	7
Energy/fuel related expenses	-51	-67	-66	-64	-70	-113	-160	-170	-215	-164	-228	-237	-288
Gross margin	34	28	43	54	57	44	53	36	8	71	20	13	-9
Other revenues	4	4	4	7	5	13	2	6	5	7	8	12	10
Operating subsidy	0	6	8	0	0	26	33	37	60	40	28	103	130
General charges/external services	-24	-20	-20	-20	-20	-55	-73	-41	-36	-58	-52	-75	-98
Personnel charges	-13	-13	-14	-16	-18	-19	-21	-22	-23	-27	-28	-28	-26
Earnings before interest, taxes, depreciation, and amortization	1	5	21	25	24	9	-6	15	14	34	-20	25	7
Depreciation/amortization	-10	-10	-15	-16	-16	-20	-18	-20	-18	-23	-31	-21	-10
Operating results	-9	-5	6	9	8	-7	-23	-3	-1	13	-52	4	-3
Financial charges	-7	-11	-8	-11	-12	-8	-12	-7	-7	-6	-7	-9	-1
Ordinary results	-	-	-	-	-	-15	-36	-9	-9	6	-59	-6	-4
HAO results	-	-	-	-	-	11	3	3	2	0	4	0	2
<b>Net results</b>	<b>-16</b>	<b>-17</b>	<b>-4</b>	<b>-2</b>	<b>-4</b>	<b>-4</b>	<b>-34</b>	<b>-6</b>	<b>-7</b>	<b>6</b>	<b>-55</b>	<b>-6</b>	<b>-2</b>

\* preliminary



**Table 2. Economic and Financial Analysis – Kounoune Power Plant**

Plant nominal capacity		67.5	MW
Plant capacity factor		70%	
Generation		414	GWh
Use	1st year	70%	
	2nd year	80%	
	3rd year	100%	
	£20th	18%	
Station use & T&D losses			
Average tariff		18	Uscents/kWh
Estimated cost		80	US\$ Million
O&M		3%	of invest costs
Heavy Fuel Oil price		70	US\$/bbl
bbl		159	liters
Fuel use		250	gr/kWh



## **Annex C. List of Persons Met**

### **SENELEC:**

Mr. Papa Dieng, General Manager  
Mr. Bakary Diop, Director of Studies  
Mr. Mustapha Ba, Head of Planning Dept.

### **Ministry of Energy and Mines:**

Mr. Boudiene Diffe, Director of Cabinet  
Ms. Oumy Diop, Technical Advisor  
Mr. Daniel Sarr, Technical Advisor

### **Ministry of Economy and Finance:**

Mr. Alhousseynou Diallo, Director of Cabinet  
Mr. Aliounae Ndong, Technical Advisor  
Ms. Wade Drame, Technical Advisor

### **Regulatory Commission for Electricity Sector:**

Ms. Maimouna Seck, President  
Mr. Aloune Fall, former President, Consultant

### **National Committee for Hydrocarbons:**

Mr. Abdoulaye Gueye, Permanent Secretary

### **Permanent Secretariat for Electricity:**

Mr. Assane Diouf, Permanent Secretary

### **Kounoune Power Company/Mitsubishi**

Mr. Claude-Pierre Lhoste, General Project Manager, Kounoune  
Mr. Michel Vincent, Plant manager, Kounoune

### **Agence Francaise de Developpement:**

Mr. Anthony Dupont, Energy specialist

### **International Monetary Fund:**

Ms. Valeria Fichera, Resident Representative in Senegal

### **International Finance Corporation:**

Mr. Bertrand De La Borde, Infrastructure Manager, Africa  
Ms. Benadette Tabeko, Investment Officer

**World Bank:**

Ms. Vera Songwe, Senegal Country Director

Mr. Philippe Durand, Program Coordinator

Mr. Demetrios Papathanasiou, Lead Energy Specialist

Ms. Fatouma, Ibrahima, Financial Analyst

Mr. Stephan Garnier, Senior Energy Specialist (at HQ)