Document of
The World Bank Group

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Report No: 30320-SN

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED INTERNATIONAL DEVELOPMENT ASSOCIATION CREDIT
IN THE AMOUNT OF SDR 10.5 MILLION (US$15.7 MILLION EQUIVALENT)
TO THE REPUBLIC OF SENEGAL

ON A

PROPOSED INTERNATIONAL DEVELOPMENT ASSOCIATION PARTIAL RISK GUARANTEE
IN THE AMOUNT OF UP TO US$7.2 MILLION
TO COMPAGNIE BANCAIRE DE L'AFRIQUE OCCIDENTALE

ON A

PROPOSED INTERNATIONAL FINANCE CORPORATION "A" LOAN
IN THE AMOUNT OF UP TO EURO 17 MILLION (US$22 MILLION EQUIVALENT)
TO KOUNOUNE POWER S.A.

FOR AN

ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROJECT

IN SUPPORT OF PART OF THE FIRST PHASE OF THE
ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROGRAM

April 25, 2005

Energy Group	**Project Finance and Guarantees**	**Infrastructure Department**
Infrastructure Department	**Infrastructure Economics and Finance**	
Africa Region	**Infrastructure Vice-Presidency, IDA**	**International Finance Corporation**

CURRENCY EQUIVALENTS

Exchange Rate Effective March 31, 2005

Currency Unit	=	FCFA
FCFA 505	=	US$1
US$ 1.29265	=	EURO 1.00
US$ 1.50803	=	SDR 1

FISCAL YEAR

January 1 – December 31

ABBREVIATIONS AND ACRONYMS

AfDB	African Development Bank
AFD	*Agence Française de Développement* (French Development Agency)
APL	Adaptable Program Loan
ASER	*Agence Sénégalaise d'Electrification Rurale (*Rural Electrification Agency in Senegal*)*
BMCE	BMCEK Capital
BOAD	*Banque Ouest Africaine de Développement* (West African Development Bank)
BOO	Build, Own, Operate
CAS	Country Assistance Strategy
CBAO	*Compagnie Bancaire de l'Afrique Occidentale* (West African Banking Company)
CET	*Construire, Exploiter et Transférer* (Build, Operate, Transfer)
CFAA	Country Financial Assessment
CNH	*Comité National des Hydrocarbures* (National Hydrocarbon Committee)
CO2	Carbon Dioxyde
COD	Commercial Operations Date
CPRSE	*Cellule de Préparation des Réformes du Secteur de l'Energie* (Unit for the Preparation of Energy Sector Reforms)
CQ	Selection Based on Consultants' Qualifications
CRSE	*Commission de Régulation du Secteur de l'Electricité* (Electricity Regulatory Commission)
DDI	*Direction de la Dette et de l'Investissement* (Debt and Investment Directorate of Ministry of Finance)
DE	*Direction de l'Energie* (Energy Directorate)
DPD	*Demande de Paiement Direct* (Withdrawal for Direct Payment)
DRF	*Demande de Remboursement de Fonds* (Withdrawal Application)
DSCR	Debt Service Coverage Ratio
EIA	Environmental Impact Assessment
EIRR	Economic Internal Rate of Return
EMP	Environmental Management Plan
EPC	Engineering, Procurement and Construction
EURIBOR	Euro Interbank Offered Rate
FCFA	Franc CFA
FIRR	Financial Internal Rate of Return
FMA	Financial Management Assessment
FRR	Financial Rate of Return
FSA	Fuel Supply Agreement
GEF	Global Environmental Fund

GOS	Government of Senegal
HFO	Heavy Fuel Oil
HR	Human Resources
ICB	International Competitive Bidding
IDA	International Development Association
IDB	Islamic Development Bank
IE	Independent Engineer
IFC	International Finance Corporation
IPP	Independent Power Producer
IRR	Internal Rate of Return
IS	Interconnected System
ISDS	Integrated Safeguards Data Sheet
KFW	German Cooperation Agency
LCS	Least-Cost Selection
LDs	Liquidated Damages
Matelec	Matelec S.A.L.
MEE	MHE Equipment Europe B.V.
MEM	*Ministère de l'Energie et des Mines* (Ministry of Energy and Mines)
MHI	Mitsubishi Heavy Industries, Ltd (Japan)
MW	Megawatt
N.B.F.	Not Bank-Financed
NCB	National Competitive Bidding
NGO	Non-Governmental Organization
NPV	Net Present Value
OBA	Output-Based Aid
O&M	Operations and Maintenance
OMVS	*Organisation pour la Mise en Valeur du Fleuve Sénégal* (Senegal River Basin Organization)
PAD	Project Appraisal Document
PCU	Project Coordination Unit
PETROSEN	*Société des Pétroles du Sénégal* (Senegal National Petroleum Company)
PFM	Public Financial Management
PIC	Public Information Center
PID	Project Identification Document
PPA	Power Purchase Agreement
PPF	Project Preparation Facility
PPP	Public-Private Partnership
PRG	Partial Risk Guarantee
PRGF	Poverty Reduction Growth Facility
PROGEDE	Sustainable and Participatory Energy Management Project
PROPARCO	*Société de Promotion et de Participation pour la Coopération Economique* (Promote and Encourage the creation and development of the private sector)
PRSC	Poverty Reduction Strategy Credit
PRSP	Poverty Reduction Strategy Paper
QBS	Quality-Based Selection
QCBS	Quality-and Cost-Based Selection
RAF	Responsable Administratif et Financier (Administrative and Financial Officer)
RE	Rural Electrification
RPF	Resettlement Policy Framework
SA	Special Account
SAR	*Société Africaine de Raffinage* (Refining Company)

SENELEC	*Société Nationale d'Electricité* (National Power Utility in Senegal)
SBD	Standard Bidding Document
SOE	Statement of Expenditures
SPC	Special Purpose Company
SPV	Special Purpose Vehicle
SYSCOA	*Système Comptabilité Ouest-Africaine* (West African Accounting System)
TA	Technical Assistance
TOR	Terms-of-Reference
WAPP	West Africa Power Pool

World Bank		**IFC**	
Vice President:	Gobind T. Nankani	Vice President:	Assaad J. Jabre
Country Director:	Madani M. Tall	Infrastructure Dept. Director:	Francisco Tourreilles
Sector Manager:	Yusupha T. Crookes	Sector Manager:	Darius Lilaoonwala
Task Team Leader:	Michel E. Layec	Task Team Leader:	Alain Ebobisse

SENEGAL
ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROJECT

Project Appraisal Document
Africa Region
Energy Unit (AFTEG)

International Finance Corporation

Infrastructure Department (CIN)

CONTENTS

SENEGAL

ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROJECT (APL-1)

PROJECT APPRAISAL DOCUMENT

World Bank: Africa Regional Office, AFTEG
International Finance Corporation, Infrastructure Department

Date: April 25, 2005

World Bank

Team Leader: Michel E. Layec
Country Director: Madani M. Tall
Sector Manager: Yusupha B. Crookes
Project ID: P073477/P093202
Lending Instrument: Adaptable Program Loan
Sectors: Power (80%) Oil and Gas (20%)
Themes: Other rural development (P)
Environmental screening category: B
Safeguard screening category: Limited impact

Project Financing Data

[ ] Loan [X] Credit [ ] Grant [X] Guarantee [ ] Other:

For Loans/Credits/Others:
Total Bank financing (US$m.): 15.7 (Credit) / 7.2 (Guarantee)
Proposed terms: Standard IDA terms, with a maturity of 40 years, including a grace period of 10 years
For Guarantees: 10 years, including a grace period of 2 years
Proposed coverage: Partial Risk Guarantee backstops the performance, payment and political force majeure guarantee given by the Government of Senegal (GoS) to the Kounoune Power SA.
Nature of underlying financing:
Terms of financing for IDA Guarantee:
Principal amount (US$m): 7.2
Final maturity : 10
Amortization profile : Equal semi-annual installments of principal
Financing available without guarantee: [ ] Yes [X] No
If yes, estimated cost or maturity:
Estimated financing cost or maturity with guarantee:

IFC

Investment Officer(s): Alain Ebobisse
Director: Francisco Tourreilles
Sector Manager: Darius Lilaoonwala
Sector: Power
Project ID: 22410

Borrower: Kounoune Power SA
A- Loan (US$ million): 22 (the US$ equivalent of Euro 17 million)

Financing Plan (US$m)			
Source	**Local**	**Foreign**	**Total**
BORROWER/SENELEC	0.52	0.15	0.67
INTERNATIONAL DEVELOPMENT ASSOCIATION	4.55	11.15	15.70
Sub-total including contingencies	**5.07**	**11.30**	**16.37**
Independent Power Project			
SPONSORS' EQUITY		23.70	23.70
IFC LOANS		19.70	19.70
PROPARCO LOANS		13.20	13.20
CBAO LOAN / IDA / AfD-Guarantee Facility	11.90		11.90
BOAD LOAN		10.50	10.50
Sub-total	**11.90**	**67.10**	**79.00**
Total	**16.97**	**78.40**	**95.37**

Guarantor: Republic of Senegal
Responsible Agencies: Ministry of Energy and Mines / SENELEC (Senegal's Power Utility); Kounoune Power S.A. (Independent Power Producer-IPP)

Estimated disbursements (Bank Credit FY/US$m)									
FY	06	07	08	0	0	0	0	0	0
Annual	4.00	7.00	4.70	0.00	0.00	0.00	0.00	0.00	0.00
Cumulative	4.00	11.00	15.70	0.00	0.00	0.00	0.00	0.00	0.00

Project development objective ***Ref. PAD B.2, B3, Technical Annexes 5 and 6.***
The proposed Project development objectives are to: (i) maintain and increase the electricity supply and the reliability of the services; (ii) reduce the costs of the electricity services; and (iii) enhance the performance of key energy sector institutions.

Project description ***Ref. PAD B.4, Technical Annex 6***
The proposed Project includes two parts:
Part A focuses on priority activities that will allow SENELEC commission new generation facilities through an IPP; rehabilitate critical sections of the transmission and distribution systems; and reduce

costs. It also supports GoS and SENELEC in preparing the next phase of investment in the energy sector. Part B would provide financial resources to support GoS efforts to strengthen the institutions; implement public/private partnership arrangements for SENELEC; and for communication and monitoring and evaluation of project implementation.

Which safeguard policies are triggered, if any? ***Ref. PAD D.6, Technical Annex 12***
OP4.01; OP 4.12;

Significant, non-standard conditions, **if any**, for: None
Ref. PAD D.7
Board presentation: None

Loan/credit effectiveness: July 1, 2005 (IDA Credit)

Covenants applicable to project implementation:
See C.6.1,6.2 and 6.3

Program Financing Data

	Indicative Financing Plan				Estimated Implementation Period (Bank FY)		
APL	**IDA**	**%**	**Others (incl. IFC)**	**Total**	**Commitment Date**	**Closing Date**	**Borrower**
Phase I (APL-1)							
Part 1 -Credit	15.7	16.5	79.5	95.2	07/01/2005	01/31/2009	Republic of Senegal
Part 2 -Credit	33.4	26.7	91.9	125.3	09/01/2005	03/31/2009	Republic of Senegal
Phase II (APL-2)	67.1	20.5	260.9	328.0	07/01/2008	01/31/2013	Republic of Senegal
Total	116.2	21.2	432.3	548.5			
Guarantee	**IDA**	**%**	**Others (incl. IFC)**	**Total**	**Commitment Date**	**Maturity (*)**	**Beneficiary**
Phase I (PRG)							
Part 1 - PRG	7.2	55.4	5.8	13.0	07/01/2005	10 years	CBAO
Part 2 - PRG	7.2	55.4	5.8	13.0	07/01/2006	10 years	TBD
Phase II (PRG)	10.0	50.0	10.0	20.0	07/01/2008	10 years	TBD
Total	24.4	53.0	21.6	46.0			

(*) From signature of loan agreement

A. STRATEGIC CONTEXT AND RATIONALE

1. Country and sector issues

Country issues:

1.1 Senegal is one of the most politically stable African countries. The last elections took place in 2000 with Mr. Abdoulaye Wade elected as president. The next presidential and legislative elections are scheduled for 2006 and 2007 respectively. A peace accord between the Government of Senegal (GOS) and the rebel movement that had been fighting for the independence of Casamance, in the south of the country, was signed in December 2004.

1.2 Senegal is at a decisive point in its economic development. It nears the end of a successful period of economic adjustment that began with the devaluation of the CFA Franc in 1994. It has achieved a historically high rate of growth in the GDP during that period of 5.0% p.a., resulting in a 2.5% annual increase in real GDP per capita terms. Real GDP growth for 2004 was 6.0% and is forecasted to remain the same in 2005. Over the 2005-2010 periods, the GDP average annual growth is projected to be 5.1%. Such performance has led to a reduction in poverty of about 10 points between 1994 and 2002. Additionally, the GOS has shown commitment toward structural reforms. Beyond the energy sector, it has recently taken actions in the groundnut sector, liberalizing it through the elimination of distortionary taxes and privatizing the state-owned company Sonacos. Also, reforms in fiscal policy have led to a decline in the effective tax rates and a rationalization of incentives. Progress on the implementation of budgetary reforms has been acknowledged by the International Monetary Fund and other partners, notably in the second review of the Poverty Reduction Growth Facility (PRGF) in early March 2005.

1.3 As far as monetary policy is concerned, Senegal is a member of the West African Economic and Monetary Union, whose central bank pegs its currency (the FCFA) to the Euro at a rate of FCFA 656/Euro. This arrangement has enabled Senegal to maintain low inflation of 1.6% p.a. on average in 1998-2002. Consumer inflation was close to zero in 2003 and 0.5% in 2004.

1.4 However, despite this recent good macroeconomic performance, Senegal has a significant unmet reform agenda. The economic growth of the last ten years had only a small impact on poverty reduction, especially in rural areas. Income inequality is high and social indicators - primary education, infant and maternal mortality, access to clean water - lag income indicators. The infrastructure shortfalls – in water, electricity and transport - hamper development and poverty reduction. It also affects the country's competitiveness. Upgrades to communication, transport and electricity services will be key to lowering the cost of production and improving the external competitiveness of the economy.

1.5 A new CAS was presented and approved by the Board on April 17, 2003. The CAS derives directly from the Poverty Reduction Strategy Paper (PRSP) of Senegal. The pillars of Senegal's PRSP are: (i) wealth creation; (ii) capacity building and social services; (iii) assistance to vulnerable groups; and (iv) implementation of the PRSP strategy and monitoring of its outcomes. A major objective of the CAS is to expand the supply of infrastructure services, most prominently among the poor, to lower service costs and to promote private sector development. The proposed Project supports the CAS objectives. A progress report on the CAS is planned for December 2005.

Energy Sector Background and Issues:
(See Annex 1 for background details on Senegal's energy sector)

1.6 Energy consumption in Senegal is dominated by wood fuels (wood and charcoal), which accounts for 53% of energy used. The country's hydroelectric technical potential (located on the Senegal and Gambia rivers) has just recently begun to be tapped, with the completion of the Bank-funded Manantali regional hydroelectric project (200 MW). Fossil fuels in the form of heavy petroleum were discovered offshore at Dome Flore (100 million tons), but oil production was considered non-economical. Small amounts of natural gas, however, were discovered and produced onshore near Dakar (Diam Nadio and Thies) and used to produce electricity. Some exploration for gas and oil is underway. However, no comprehensive hydrocarbon exploration effort has been undertaken in Senegal. At present, most of Senegal's commercial energy needs are met by imported petroleum products, which in 2004 represented between 20%-25% of Senegal's export earnings.

1.7 Wood fuels Supply. The supply of wood fuels to the urban and sub-urban areas is based on geographically concentrated and non-sustainable forest resource management practices. Each year, 3 million tons of wood fuels are consumed and it is estimated that about 80,000 hectares of forest stands disappear due to land clearing for agriculture, bush fires, production of charcoal and overgrazing. To address this problem, a GEF / IDA project (the Sustainable and Participatory Energy Management Project - PROGEDE I project) was approved by the Bank's Executive Directors in June 1997 and completed in December 2004. Additional resources for continuing the implementation of wood fuels supply and demand side management activities are included in the IDA supported Electricity Services for Rural Areas project, approved by the Bank's Executive Directors in September 2004.

The Electricity Sector

1.8 Electricity Services in Rural Areas. A majority of the people in Senegal do not have access to modern forms of energy, such as electricity and petroleum products. It is estimated that less than 4% of the villages in Senegal are electrified, and in these villages less than 30% of the population have access to electricity, and most social services (rural health centers, schools, etc.) lack electricity. In its effort to reduce poverty and redress imbalances in development, GOS has concluded that developing rural electrification (RE) is a critical objective. Learning from experiences in Senegal and from more advanced experiences in other countries, GOS has developed and adopted a new RE strategy and established a new institutional, legal and regulatory framework conducive to successful public/private partnerships. In particular, GOS has removed the monopoly of SENELEC for providing electricity to rural areas. To assist GOS in implementing this strategy, the Bank's Executive Directors approved in September 2004 an IDA credit equivalent to US$29.9 million, with co-financing from GEF (US$5.0 million) and other Donors.

1.9 Electricity Services in Urban Areas. Electricity services in urban areas are currently provided by SENELEC, Senegal's public utility. The installed capacity of the interconnected system (IS) is 489 MW. Generation capacity includes 371 MW of thermal plants owned by SENELEC, 66 MW from the regional hydroelectric plant of Manantali, and 52 MW from an Independent Power Producer (IPP), GTI Dakar, financed by IFC. The 2004 peak demand was about 337 MW (See Annex 4 for a detailed description of the demand and SENELEC's existing facilities). SENELEC is currently facing three major hurdles: (i) its electricity generation, transmission and distribution facilities are in poor condition for lack of investment and maintenance and because of age (about 30% of its production facilities are more than 25 years old); (ii) its facilities cannot meet in a cost-effective way the rapidly growing demand for power, growing at a rate of 25 MW-35 MW a year; and (iii) its financial performance is subject to changes in international petroleum prices and sub-optimal investment decisions. As a result, the utility's operating costs are high and its finances are in a precarious condition, which SENELEC is only now beginning to overcome. If

major investments are not carried out in an effective and timely fashion, the utility's financial and operational performance will continue to deteriorate and the economy will likely be damaged.

1.10 GOS Strategy for the Electricity Sector. Given the critical situation of Senegal's electricity sector, GOS undertook major reforms, as outlined in the 1997 Policy Development Letter. These reforms were aimed at introducing private sector participation in investments and operations of the power sector, encouraging sector efficiency and ensuring adequate supply. Specific objectives were: (i) passing of a law transforming SENELEC into a limited liability corporation (i.e., "SENELEC's corporatization") and transferring of all state-owned generation, transmission and distribution assets to the corporation; (ii) enacting a new electricity law and the corresponding implementation decrees, (iii) establishing an independent regulatory agency for the power sector, and (iv) privatizing SENELEC. Two privatization attempts of SENELEC were carried out between 1999 and 2002, but turned out, however, to be unsuccessful (Annex 1 provides details and draws lessons from the failed privatizations).

1.11 In early 2003, a new strategy reflecting the lessons learned over the 1999-2002 period was adopted by GOS. These are reflected in the Energy Sector Development Letter (dated April 9, 2003), which states that: (a) the main objective for the electricity sector is to secure reliable supply of the electricity services required by the economy and the population at the lowest possible cost; and (b) mobilizing financing for investments in the electricity sector is critical, given the poor physical conditions of the sector's facilities and the delays in investments. To meet these objectives, GOS proposed three areas for action: (a) restructuring the generation, transmission and distribution activities currently carried out by SENELEC; (b) promoting private sector participation for financing and improving the sector's performance; and (c) implementing a new approach, in order to quickly increase access to electricity services in rural areas.

1.12 These actions are consistent with the overall strategy of the Private Sector Adjustment Program, which is to help Senegal achieve a sustained and steady private sector based GDP growth, including facilitating private sector participation and enhancing competitiveness.

1.13 On this basis, GOS has prepared a ten-year investment program to be implemented in two phases. In the first phase (mid 2005-mid 2008), urgent investments will be made to ward off technical and financial deterioration of the electricity sector and to provide electricity services to the economy and the population. These investments should have been made some years ago, but were neglected, since GOS's efforts and attention were mostly focused on the privatization of SENELEC. In the second phase (mid 2008-mid 2012), investments will be made to expand coverage and continue reducing costs through improving the efficiency of the investment decision-making process, management and the strengthening of the sector institutions.

1.14 Public/Private Partnerships in the Electricity Sector. The second failed attempt to privatize SENELEC demonstrated that: (a) there is limited appetite among reputable developers of power projects to finance large investments in difficult emerging markets; and (b) privatization strategies and responsibilities need to be very carefully designed, understood and owned by the different stakeholders. In the case of Senegal's power sector, not only are the investments needed large, but electricity tariffs are high and cannot be raised much higher to finance investments without having a negative impact on the economy. This led GOS to conclude that it: (i) could continue to rely on private sector to finance and operate the large investments needed in power generation (i.e., IPPs) with incentives, if they are justified, and that could lead to lower costs to SENELEC; (ii) would adopt the concept of a public/private partnership for SENELEC, giving the private sector a significant level of participation in the company, while not requiring it to make a substantial financial commitment at the outset, which would lead to greater efficiencies; and instead that it (iii) would request the donor community to finance a substantial part of SENELEC's investment program, at least for the first five-ten years.

The Hydrocarbon Sector

1.15 Upstream Activities: Senegal's hydrocarbon potential is not yet established. The country is under-explored and only a few wells have been drilled. Furthermore, these wells have been concentrated in two zones of the country. Heavy petroleum reserves have been discovered offshore at Dome Flore. Proven reserves are estimated at 100 million tons, but their exploitation is considered uneconomical, because of the high cost of extraction and processing. A small amount of gas was found at Diam Nadio, near Dakar, and is currently used to generate electricity. Under the new GOS strategy, the role of PETROSEN – the agency responsible for petroleum exploration - has been limited to the promotion of Senegal's hydrocarbon potential. As part of its new mandate, PETROSEN has focused its attention on acquiring seismic data for interpretation of prospects in onshore sedimentary basins in Northern Senegal, similar to those in neighboring Mauritania, where commercial oil and gas discoveries have recently been made. Major independent oil companies are interested in West Africa and have made enquiries about doing business in Senegal. The acquisition of new seismic data by PETROSEN is therefore very timely for attracting oil and gas companies to explore for hydrocarbon reserves in the country.

1.16 Downstream Activities: Total demand for refined petroleum products, including aviation, marine bunkers and exports were 912,000 metric tons in 2004. To meet its commercial energy requirements, Senegal has to import all of its oil in the form of crude oil and/or refined products. This virtually complete dependence on imported oil is one of the country's major energy problems and places a heavy burden on Senegal's balance of payments. One of the main entities in the downstream petroleum sector is the *Société Africaine de Raffinage* (SAR), a private company established in 1962 that is 90% owned by major multinational oil companies. Retail distribution of petroleum products is carried out by subsidiaries of multinational oil companies and of some smaller independent companies (the "Independents"). Although the downstream activities, including imports, were, for the most part, liberalized several years ago, constraints to competition remain significant. These constraints are related to the strengths of the international oil companies, access to storage facilities by the Independents, and the relative weakness of the regulatory framework and of the public sector institutions. Under the proposed project, the strengthening of the regulatory framework and of the public institutions, in particular the future role and responsibilities of the National Hydrocarbon Committee (Comité National des Hydrocarbures or "CNH") will be carried out. While exports to neighboring countries are still subject to loading at a single designated facility hampering competition in that activity, GOS has indicated that such constraint will be lifted by July 2005. In addition, some of the retail prices of petroleum products are significantly distorted by differential taxes and subsidies. This has led to costly impacts on the GOS budget and an increasing use of polluting fuels.

2. Rationale for the World Bank Group involvement

2.1 The main rationale for the Bank involvement in the proposed program is to support the implementation of GOS's PRSP and GOS's development and reform strategy. This will be done by supporting: (i) key investments in the energy sector, which will increase the level and the quality of energy services in the country and reduce the costs of providing such services to the economy and the population; and (ii) private investment and commercial financing in the electricity and petroleum sub-sectors. The proposed program will also allow IDA, GOS, the private sector and public entities to deepen a dialogue, essential for developing a competitive economy.

2.2 IFC has been actively involved in supporting the implementation of the GOS's power sector development policies over the last four years. In 2001, IFC commissioned a supply/demand and investment requirements' study for Senegal's electricity sector, to assess the sector's capital requirements as well as the possibility to develop a future power project. The study was financed with Swiss Trust Funds arranged by IFC and its results were widely used by GOS, SENELEC and the Bank in the

discussions leading to the second attempt to privatize SENELEC. Following the completion of the study, IFC remained involved in the sector, to enhance the attractiveness of Senegal's power sector to foreign investors and, as such, IFC's participation in the Kounoune I IPP (the "Kounoune Project") supports the GOS's objective of promoting private participation in the power sector in Senegal. IFC's participation also intends to ensure that the Kounoune Project risk allocation will be balanced and that this project is developed in accordance with international standards.

3. Higher level objectives to which the project contributes

3.1 The overall goal of the PRSP, considered by the World Bank Board on December 22, 2002, is to reduce poverty by more than half between 2001 and 2015. Reaching this ambitious objective would require significant and sustained economic growth acceleration, as well as a strong shift in the focus of public services towards the poor, and the successful implementation of programs to improve the development effects of new investments and the efficacy of services to the poor.

3.2 A CAS was presented and approved by the Board on April 17, 2003. It supports the GOS's PRSP around the pillars of: (i) wealth creation, and (ii) capacity building/development of social services. Per capita supply of infrastructure services in Senegal is low and, of the poorest three quintiles, only 3% have electricity, 5% have piped drinking water at home, and 0.1% has a telephone; the corresponding averages in the richest two quintiles are 80%, 20% and 78%. A survey of Senegalese firms found that 83% of these firms considered reliable electricity supply to be a "moderate", "major" or "very serious" element for their operations and growth. Therefore, a major objective of the CAS is to expand the supply of infrastructure services, to lower service costs and to promote private sector development. The proposed project has been included in the base case scenario of the CAS.

B. PROJECT DESCRIPTION

1. Bank's Lending/Guarantee instrument

1.1 Senegal has developed a long term energy program ("the Program'') to: (a) maintain and quickly increase the electricity supply and the reliability of the services needed by the economy and the population; (b) reduce the costs of the electricity services; and (c) enhance the performance of key energy sector institutions. It is proposed that the Bank Group support for the Program includes an Adaptable Program Loan (APL), Partial Risk Guarantees (PRGs) and IFC loans as well as potential MIGA support.

1.2 Sustained commitment and a combined effort by the Bank Group is needed given the long-term nature and risks of private sector contracts, such as those signed with the Independent Power Producers (IPPs), the financing requirements, and the sector issues that need to be resolved. The Bank's APL is the instrument of choice in the context of Senegal's energy sector because: (a) the development needs and issues of Senegal's energy sector cannot be fully addressed through a single investment operation; and (b) the investment needs of the sector require large private and public sector investments. The proposed credit enhancement, through the PRG, is expected to facilitate and reduce the cost of raising the long-term commercial financing required to develop Senegal's electricity infrastructure.

2. Program Objective and Phases

Program Objective

2.1 The main development objective of the Program to be implemented over seven years (mid 2005-mid 2012) is to help Senegal provide reliable and cost effective energy services to support economic growth and poverty alleviation. Such Program will be implemented in two phases. Phase I (mid 2005-mid

2008) main objectives are to increase the installed capacity of the power system, and therefore, the availability of reliable electricity at lower costs, foster private sector participation in the energy sector, promote the development of Senegal's hydrocarbon resources, and strengthen the petroleum sector and the institutions of the energy sector. Phase II (mid 2008-mid 2012) main objectives are to continue to develop the energy sector in a sustainable way and make electricity services available to a greater proportion of the population at the lowest costs possible. Each phase will combine financing instruments and public and private sector partners.

Program Phases
(See Annex 5 for a detailed description of the Program)

2.2 Phase I (or APL-1) of the Program (mid 2005-mid 2008). Phase I of the Program includes the proposed Project and a second project expected to be presented to the Executive Directors in early fiscal year 2006. It supports the Program overall objective by implementing priority investments required to: (a) maintain and increase the supply and reliability of the electricity services needed by the economy and the population; (b) reduce generation, transmission and distribution costs; and (c) support GOS actions to assess and develop its oil and gas resources and to improve competitiveness in the petroleum sector. It also supports the long term objectives of improving the energy sector performance by assisting Senegal in: (a) building capacity in the key energy institutions, (b) implementing the public/private partnership arrangements decided by GOS for SENELEC, (c) promoting private sector participation in generation, and in (d) preparing the next phase of private and public sector investments in the electricity and petroleum sub-sectors.

2.3 Phase II (or APL-2) of the Program (mid 2008-mid 2012) will continue supporting the required increase in cost-effective and reliable generation capacity and the development of the transmission and distribution facilities. It will focus particularly on increasing access to electricity services in the urban and suburban areas of Senegal.

2.4 Financing Requirements and Financing Plan. The total estimated cost of the seven-year Program (mid 2005-mid 2012) is about US$570 million, of which Phase I (mid 2005-mid 2008) will cost about US$220 million. Phase I will be financed by the private sector (IPP project sponsors, commercial banks, etc.), by multilateral (e.g., IFC) and bilateral lenders, and by GOS and SENELEC. IFC will contribute up to Euro17 million to the financing of this phase by lending to the Kounoune Project, which has an estimated project cost of Euro 61 million. IFC is also expected to participate in the financing of the Kounoune II IPP. With respect to IDA's contribution in the form of IDA Credits and PRGs, it is proposed that because of financing constraints under IDA 13, an initial IDA Credit of US$15.7 million and a PRG of up to US$7.2 million be provided. As this only finances part of the urgent needs of Senegal's energy sector and of Phase I, it is therefore anticipated that Senegal will need to return to IDA for additional financing and guarantees in the amount of about US$40 million in early fiscal year 2006.

2.5 Triggers for Initiating APL-2. At this time it is contemplated that access to additional IDA resources (in the form of IDA Credit, PRG and other instruments) for the implementation of Phase II will be eligible upon meeting the following conditions: (a) satisfactory implementation of Phase I of the Program, including meeting of agreed financial targets for SENELEC; (b) demonstrated commitment by GOS to implement its energy sector policies, development strategy and action plan; (c) implemented the public/private partnership arrangements decided by GOS for SENELEC; and (d) an agreement on SENELEC's medium term technical and financial objectives, including operational and financial targets, investment program, financing and business plans.

3. Project development objective and key indicators

3.1 The proposed Project, to be implemented over the mid-2005 - mid-2008 period, covers parts of the Program Phase I requirements. In order to complete Phase I of the Program, additional funding for the Program will be proposed in early fiscal year 2006. The Project development objectives are to: (a) maintain and increase the electricity supply and the reliability of the services; (b) reduce the costs of the electricity services; and (c) enhance the performance of key energy sector institutions.

3.2 Key outcome and output indicators towards these objectives are provided below (See Annex 3 – Results Framework and Monitoring Arrangements for details).

Project Objective	Outcome Indicator (Base year: 2004)
Increasing the electricity supply and the reliability of the electricity services needed by the economy and the population.	a) New generating facility of 67.5 MW commissioned in 2006 (the Kounoune Project). b) Electricity consumption increased from 1,538 GWh in 2004 to 1,875 GWh in 2008. c) Undelivered energy reduced from 14 GWh in 2004 to 8 GWh in 2007.
Reducing the costs of electricity services.	a) Reduction in the variable costs of electricity generated and purchased by SENELEC by 7% by 2007 (based on the 2004 petroleum products price levels). b) Decrease in technical and non-technical transmission and distribution losses (T/D) as a % of net generation from 17.5% in 2004 to 15.5% in 2007.
Enhancing the performance of key energy sector institutions.	a) Monitoring and Evaluation (M&E) system for the energy sector set-up. b) New electricity tariff mechanism set-up. c) Adoption of a training program for the public energy sector staff. d) Implementation of the action-plan for the public/private partnership arrangements selected by GOS.

4. Project Components

(See Annex 6 for a detailed Project description and Annex 7 for the Project cost breakdown)

4.1 The Project components have been designed to address key immediate needs as well as the long-term challenges of Senegal's energy sector. The short/medium term challenges are: the implementation of urgent investment in new generation facilities, and the rehabilitation and maintenance of existing electricity generation, transmission and distribution facilities. Long term challenges calling for action now are: strengthening of the capacity of energy sector institutions, additional improvements of the technical and financial performance of SENELEC through the implementation of the private/public partnership arrangements defined by GOS, preparation and financing of the next investment phase (particularly of an optimized investment program) and securing private financing for the electricity sector.

4.2 The proposed Project comprises two main parts:

- Part A focuses on priority activities that will allow SENELEC to commission new generation facilities through the demonstration effect of the Kounoune Project, rehabilitate critical sections of the transmission and distribution system, and reduce costs. It also supports GOS and SENELEC in preparing the next phase of investments in the electricity sector. The proposed IDA Credit contribution for this Part A is estimated to be US$12.6 million (including a 10% contingency), and the proposed PRG contribution will be up to US$7.2 million. In addition, IFC will provide an A Loan of up to Euro17 million to the project company responsible for the development, construction and operation of the Kounoune Project.

- Part B focuses on supporting GOS efforts to strengthen the institutions, delineate and implement the public/private partnership arrangements for SENELEC, key priority studies and for communication and monitoring and evaluation of Project implementation. The IDA Credit contribution for this Part B is estimated to be US$1.1 million (including a 10% contingency).

4.3 The proposed Project would also refinance advances totaling US$2.0 million made under the Project Preparation Facility (PPF). The proposed IDA Credit will therefore be US$15.7 million and the proposed PRG for the Kounoune Project will be up to US$7.2 million.

4.4 ***Part A: Support to SENELEC***

4.4.1 Component A1 – Generation, Transmission and Distribution Facilities (Partial Risk Guarantee of up to US$7.2 million; IDA Credit of US$8.6 million; IFC A Loan of up to Euro 17 million)

4.4.1.1 *Sub- component A.1.1.A – Generation* (IFC A Loan of up to Euro 17 million)

(a) The Kounoune Project consists of the development, construction, operation and maintenance of a 67.5 MW heavy-fuel oil (HFO)-fired diesel power generation plant, located at Kounoune, in the eastern suburbs of Dakar, in Senegal. The plant will be equipped with 9 large diesel motors burning HFO, a low cost fuel. As part of this project, Kounoune Power S.A. (the "Project Company") will also build a substation and a pipeline, the ownership of which will be transferred to SENELEC when completed.

(b) The Kounoune Project will be developed by a consortium consisting of MHI Equipment Europe B.V. (Netherlands) (MEE) and of Matelec S.A.L. (Lebanon) (Matelec), (collectively, the "Sponsors"). It will be developed by the Sponsors under a Build, Own, Operate (BOO) scheme, and will sell electricity to SENELEC under a 15-year PPA. The PPA was executed between the Project Company and SENELEC on February 5, 2005 and entered into effect on February 28, 2005. SENELEC's obligations under the PPA are guaranteed by GOS as per the Government Guarantee, executed on the same date as the PPA. IFC has played a key role in helping GOS to develop the Kounoune Project. IFC is considering providing an ''A'' loan to the Kounoune Project and is also structuring the entire debt-financing package, which is expected to involve a local commercial bank as well as multilateral ("*Banque Ouest Africaine de Développement* or BOAD" and bilateral (*Agence Française de Développement*/Proparco) institutions.

(c) The main features of the proposed IFC investment in the Project are as follows:

IFC Senior "A" Loan	
Currency and Amount:	up to Euro17 million (approximately US$22 million).
Type:	Fixed or Variable Rate.
Interest:	6-month EURIBOR plus a spread to be negotiated.
Commitment Fee:	0.5% p.a. of the undisbursed amount.
Front-end Fee:	1.0% of loan amount.
Maturity:	up to 12 years.

4.4.1.2 *Sub-component A.1.1.B – Generation (*Partial Risk Guarantee of up to US$7.2 million.)

(a) The PRG supports the Kounoune Project, to be financed by IFC and other lenders. It is proposed that: (i) IFC provides an A Loan of up to Euro17 million, and (ii) IDA provides a PRG of up to US$7.2 million (equivalent to up to Euro5.5 million), which will be complemented by a US$5.3 million guarantee (equivalent to Euro 4.1 million) from the *Agence Française de Développement* (AFD), to mitigate certain risks (e.g., political risk) related to the Kounoune Project for the benefit of a local commercial lender. The main categories of risks to be backstopped by the IDA guarantee are described in Annex 14.

(b) The proposed PRG, which would benefit a Senegalese private commercial bank providing a long-term loan to the Kounoune Project, would guarantee events consisting of well-defined risks related to the payment of the outstanding debt amounts in the event that the Power Purchase Agreement (PPA) is terminated as a result of specified breaches by SENELEC or extended Senegalese political force majeure. The PRG term-sheet is currently being negotiated.

4.4.1.3 *Sub- component A.1.2 - Distribution Network* (IDA Credit: US$1.8 million)

A rehabilitation/reinforcement program has been developed and will be implemented in two phases. Some activities have already been completed by SENELEC with financing from BOAD. It is proposed that, through this sub-component, IDA finances additional urgent rehabilitation/reinforcement work.

4.4.1.4 *Sub-component A.1.3 - Transmission Network* (IDA Credit: US$6.75 million)

This sub-component supports key initial activities needed to strengthen and rehabilitate SENELEC's transmission network, in particular: (a) reinforcement of the transmission line Ouroussogui-Bakel; (b) reinforcement of Mbour-Fatick-Kaolack network; (c) rehabilitation of the 30 kV DSP 3 Nord; and (d) some of the more urgent rehabilitation of the 90 kV lines.

4.4.2 Component A2 – Capacity Building (IDA Credit: US$0.43 million)

The Project will support SENELEC's capacity building efforts by financing part of: (i) training in safety and the safety equipment (gloves, shoes, glasses, specific tool boxes, etc.) for SENELEC's staff, and (ii) specific training for the staff of the recently created entity responsible for environment, quality and security issues.

4.4.3 Component A3 – Consultants' services (IDA Credit: US$2.48 million)

This sub-component consists of technical assistance required to carry out studies critical to the preparation and optimization of SENELEC's investment program. Such studies include: (a) a generation and transmission master plan; (b) a distribution master plan; (c) financing of some equipment and technical assistance for the environmental monitoring of existing power plants; and (d) as needed, the services of external technical and financial advisors and of environmental specialists required by SENELEC to bid and negotiate the Kounoune I IPP as well as for the prospective Kounoune II IPP. An amount of up to US$0.98 million will be provided as retroactive financing in accordance with OP.12.10.

4.5 ***Part B: Institutional Development and Long Term Development of the Energy Sector***

4.5.1 Component B1 – Communication, Monitoring and Evaluation (IDA Credit: US$0.5 million)

The Project Monitoring and Evaluation proposed to be supported by IDA resources includes: (a) the design of a Monitoring and Evaluation (M&E) system for the Ministry of Energy and Mines (MEM); this M&E system should allow the MEM to collect energy sector-wide data and to improve its policy making and oversight function; (b) assistance to the executing agency – the Project Coordination Unit (PCU) of the MEM – and the two implementing entities - SENELEC for Part A and the PCU of the MEM for Part B - in monitoring and assessing the impacts of the activities supported by the Project; and (c) carrying out Project related external audits by auditors acceptable to IDA.

4.5.2 Component B2 – Energy Sector Long Term Development (IDA Credit: US$0.5 million)

The Project will provide resources to GOS, in particular to the MEM and the Electricity Sector Regulatory Commission (CRSE), to access relevant expertise to: (a) review and compare alternatives for Senegal to reach a decision on the expected outcomes of the public/private partnership for SENELEC sought by GOS and on the profiles of the partners; (b) review available energy options to reduce costs, dependency on oil imports and the energy sector impacts on the environment; and to (c) carry out critical studies required by the Energy Directorate and by the CRSE.

5. Lessons learned and reflected in the project design

5.1 In addition to a major adjustment operation financed by IDA in the energy sector, this would be the second project to be financed by IDA in the electricity sector of Senegal (following the Electricity Services for Rural Areas Project approved by the Board in September 2004). Several lessons have been learned from the experience in Senegal, as well as in other countries, and have been incorporated in the design of the Project. The key lessons learned and reflected in the Project design are as follows:

5.2 Fundamental sector reforms are essential to ensure continued and sustainable development of the energy sector. GOS has acknowledged that private sector participation is necessary to achieve the sustainable efficiency improvements, required to meet Senegal's growing demands (both in rural and urban areas), increase service coverage, reduce costs and finance a large investment program. GOS has reconfirmed that it intends to rely on private IPPs to develop electricity generation (and thus increase the country's installed/available capacity), and implement the public/private partnership arrangements decided by GOS for SENELEC before the end of 2007.

5.3 Sector reform, in particular private participation, is a complex process that entails both public and political support. The main reason why the attempts at "privatizing" SENELEC failed in 1998-2000 seem to have been a lack of concerted agreement within GOS and the partners with regard to the opportunity, the features, the true benefits expected from "privatization" and the expected commitment by each of the parties. GOS has now recognized that efforts are needed to ensure that the reform program is feasible, that the expected outcomes are clear, and that it receives concerted support from the general public, the utility's workers and the political parties.

5.4 Investment decisions should be grounded on technical, financial, and economic merits and need to be consistent with macroeconomic and sector development objectives. This has been taken into account in the GOS's phasing and selection of energy sector investment priorities, starting first with narrowing the investment gaps, rehabilitating the infrastructure and improving the quality of the electricity services, to be followed in a second phase by a program to increase access to electricity services.

5.5 Donors' financing, risk mitigation arrangements and the support of bilateral and/or multilateral institutions, such as IFC, is required for the development of a public/private partnership in the power sector in emerging markets, particularly in Africa, and to ensure that the appropriate risk mitigation measures are in place. The Kounoune Project is the result of a joint active Bank-IFC support to the GOS. Following the first failed attempt to privatize SENELEC, IFC and the Bank suggested to GOS and SENELEC a public/private solution for the development of the additional generation capacity. In 2003, IFC undertook a market sounding with reputable developers of power projects and confirmed that there was enough appetite to develop a 60 MW privately-owned power plant under the modality of an IPP selling its output to SENELEC. These companies indicated that their interest was conditional upon the participation of IFC and the Bank in the project and on the transparency of the selection process. To support this project, IFC and the Bank indicated to GOS and SENELEC their willingness to assist in

raising the required debt financing. In 2003, the GOS and SENELEC hired K&M Engineering and Consulting Corp., an experienced IPP advisor, to assist SENELEC. After the pre-qualification phase, on November 3, 2003, SENELEC issued the bidding documents. IFC, IDA and MIGA prepared a joint communication to the pre-qualified bidders stating their interest in offering IFC debt financing, an IDA PRG, and a MIGA guarantee for the winning bidder, if required. This communication, which also provided the indicative terms and conditions of the financing package, was included in the bidding documents. After the selection of the preferred bidder, the Bank and IFC have remained actively involved in the project by providing feedback to the parties, in their capacity as prospective lenders to SENELEC and the Kounoune Project, respectively, with a view to ensure the bankability of the PPA. IFC's development costs for the Kounoune Project have been estimated at around US$2 million to date, of which US$475,000 have been financed through Swiss and IFC's Trust Funds.

5.6 Project design must be simplified and owned by the stakeholders to ensure quality and timely implementation.

6. Alternatives considered and reasons for rejection

6.1 **No-Project Alternative.** The no-project alternative was considered, but it would likely result in a further deterioration of the electricity supply services, creating major problems for the modern sector of the economy, reducing economic growth, depriving the population of adequate electricity supply and not tapping the potential of private sector funding. In the absence of IDA financing, it is likely that a piecemeal approach would have been followed by GOS and SENELEC, bringing about limited and possibly short-lived improvements to the operations of the utility as well as very costly solutions.

6.2 **No World Bank Group Support.** Without credit enhancement from multilateral (such as the World Bank Group) and bilateral institutions, raising long-term commercial debt on good terms for an IPP investment would be difficult. Market soundings conducted by IFC and GOS advisors since Project inception confirmed that there is limited appetite for large private infrastructure investments in Sub-Saharan Africa. Because of regional political instability and uncertainties, private sponsors would be uncertain with respect to GOS's and the utility's ability to fulfill their respective obligations. Investors and commercial banks acknowledge that the World Bank Group support substantially enhances the attractiveness of the transaction, and encourages more concessionaires and investors to submit bids. By mitigating political risks and ensuring a balanced risk allocation, the World Bank Group participation in the form of financing and risk mitigation allows the IPP to mobilize local currency long-term debt, increasing its economic and financial sustainability and improving its chances of long-term viability.

6.3 **Other Sources of Power Generation.** Diesel units using HFO appear to be the cheaper alternative available for the next four years for Senegal. Other sources of power have been considered but found unfeasible in the medium term, including: (a) imports of power from OMVS (Félou or Gouina hydro projects) or from the proposed regional West Africa Power Pool (WAPP) grid; or (b) buying additional power from the prospective OMVG grid. SENELEC has been buying all the power it could obtain beyond its allocated share of the output from the Manantali regional hydroelectric project of 200 MW; however, because of Mali's own needs, SENELEC's share of Manantali's output has been limited to about 60 MW, and may be lower next year because of rainfall shortfalls. Although other hydroelectric sites on the Senegal or in Guinea rivers could be developed (such as Gouina, Sambangalou or Kaleta), the first of these plants will not be on line before 2009-2010. Other possibilities using wind, bagasse and waste have also been explored, but they have not yet reached sufficient technical or commercial definition.

6.4 **Fuel Options for Thermal Plants.** Alternative fossil fuels were considered with the objective of reducing significantly SENELEC's fuel costs, which in 2004 accounted for about 40% of SENELEC's operating costs. No hydrocarbons reserves (gas or oil) that could benefit Senegal have yet been proven economical and to be delivered in a foreseeable future. The economics of a coal-fired plant have not been

thoroughly assessed yet for Senegal. HFO appears, therefore, to be the least costly fuel for base load generation in Senegal.

C. IMPLEMENTATION

1. Partnership arrangements

This project involves several private and public sector partners.

1.1 Independent Power Producer (IPP). To finance, construct and implement the Kounoune Project, a 67.5 MW IPP, Senegal has competitively selected a private consortium consisting of MEE and of Matelec; a PPA between the Project Company and SENELEC was signed on February 5, 2005 and became effective on February 28, 2005. Other financiers for this IPP include: IFC, BOAD, Proparco and *Compagnie Bancaire de l'Afrique Occidentale* (CBAO). IDA and AFD will provide parallel guarantees to CBAO, each covering separate tranches with no overlapping or conflict of interest in coverage.

1.2 Local Commercial Banks are participating in the financing of SENELEC's operations and in the financing of the Kounoune Project. Although long term financing is scarce in Senegal, the proposed guarantees act as catalysts for local commercial banks to fully participate in infrastructure financing.

1.3 Public Sector Partners. The following agencies are involved in assisting SENELEC in other projects which are part of SENELEC's 2005-2015 investment program. BOAD is financing the rehabilitation of transmission and distribution lines and of power facilities in isolated centers; the Islamic Development Bank is planning to finance the HFO 60 MW diesel power plant at Bel-Air (in Dakar) and the Iranian Export Credit Agency is considering providing financing and guarantees for the Tobene/Touba/Kaolack transmission line. Other Donors have indicated a potential interest in financing Senegal's energy sector investment program and have mentioned that their support could materialize in the context of Phase II of the Program.

2. Institutional and implementation arrangements

(See Annex 8: Implementation Arrangements)

2.1 **Executing Agency.** The MEM, through the PCU, will be responsible for Project oversight. Under the Electricity Law, adopted on April 14, 1998, the MEM is responsible for policies and plans for the energy sector, for the granting of licenses to private investors interested in investing in power generation, in petroleum exploration and in the storage and distribution of petroleum products, and generally for supervising all activities in the sector. The PCU will provide the Bank with quarterly progress reports established on the basis of the information provided by the two Implementing Agencies. Project monitoring indicators are described in Annex 3.

2.2 **Implementing Agencies.** SENELEC will implement all the activities under Part A of the Project, except for the Kounoune Project. SENELEC is responsible for the development and exploitation of Senegal's interconnected power system and of some isolated centers included in its concession's perimeter. The implementation of the Kounoune Project will be the responsibility of private sector investors. SENELEC, as the buyer of the output, has negotiated key agreements, notably the PPA, and will coordinate the execution of the IPP investment. Sponsors for the proposed second IPP at Kounoune will be selected on a transparent basis, following a process similar to that of the Kounoune Project. SENELEC will provide quarterly reports to the Bank on the company's technical and financial results and performance. The PCU in the MEM will also be responsible for implementation of the Project Part B activities.

2.3 **Implementation Period:** Implementation of the proposed Project is expected to last 3 years (mid 2005-mid 2008).

2.4 **Financial and Auditing Arrangements**
(See Annex 9: Financial Management and Disbursement Arrangements)

2.4.1 The project's financial management arrangements are based on the relevant World Bank Guidelines and particularly on the documentation entitled "Guidelines: Financial Reporting and Auditing of Projects Financed by the World Bank". They also take into account the fiduciary arrangements for World Bank projects in Senegal.

2.4.2 A Financial Management Assessment (FMA) of the MEM was carried out with the main objective of delineating a financial management system satisfactory to the Bank. This assessment covered: (i) human resources; (ii) accounting and financial procedures and periodic reporting; (iii) audits; (iv) disbursements; and (v) other specific arrangements. The conclusions of the FMA are summarized in Annex 9.

3. Monitoring and Evaluation of Outcomes/Results

3.1 The MEM, through the PCU, will be responsible for supervising, monitoring and reporting on Project implementation. Within one month after the end of each quarter, the MEM will: (a) submit to GOS and IDA a report for Part A and Part B of the Project, including separate detailed reporting by SENELEC covering, *inter alia*, progress on physical implementation, procurement, financial commitments and other elements of Project progress; (b) meet quarterly with the representatives of SENELEC and IDA, in order to review the progress in Project implementation as well as the technical, commercial and financial performance of SENELEC. The PCU will also be responsible for the preparation of the Project Mid-Term Review Report, to be provided to the Bank one month prior to the Project mid-term review. The Project mid-term review would take place approximately 18 months after Credit effectiveness. The PCU will also prepare, with the assistance of SENELEC and the other entities involved in Senegal's energy sector, a Project Implementation Completion Report within six months from the closing date of the Credit.

3.2 The monitoring and evaluation of results will be based on the results framework and monitoring arrangements as provided in Annex 3.

4. Sustainability

4.1 The Project is aimed at bolstering the sustainability of Senegal's energy sector through physical investment, improving the technical and financial performance of SENELEC, and strengthening institutional capacity of the key energy institutions. Project sustainability is underpinned by a combination of factors: (i) a strong demand for additional and quality electricity services by a growing economy and urban population; (ii) the GOS commitment to the energy sector reform; (iii) an improved sector financial sustainability; (iv) appropriate cost-recovery policies, together with full transparency in procurement of goods and services; (v) short-term and long-term investment programs that are economically justified and financially beneficial to the utility; and (vi) private sector investors that have shown interest in investing in power generation facilities. However, to achieve full sustainability, Senegal's energy sector will need: (a) long term financing commitment from the Donors; for this reason an APL is proposed with respect to the Bank's participation, in order to address first the priority needs,

and then seek to optimize strategic and investment decisions; and (b) well-thought and coordinated efforts between GOS, the energy sector entities, Donors and private investors.

5. Critical risks and possible controversial aspects

At the country level

5.1 The Country Financial Assessment (CFAA) has identified Public Financial Management (PFM) risks. The general assessment of the fiduciary risk at the PFM level is moderate. GOS is taking actions to address the issues identified and has given priority to improvements in this area, as it has become evident that shortcomings in public sector performance are among the main constraints to economic development and poverty reduction in Senegal. Because of the moderate fiduciary risk at the country level, the Bank has taken specific measures to ensure adequate financial management of its portfolio. Project management staff is appointed on a competitive basis and Bank funding is following special mechanisms to mitigate fiduciary risk. IDA projects are audited by independent and competent auditing firms. Attachment 1 of Annex 9 identifies the key risks at the Project level and provides a basis for determining how management should address these risks.

At the Project level

Risk	Risk Rating	Risk Mitigation Measure
To Project Development Objectives		
Weakening of GOS commitment to reforming the electricity sector.	M	GOS has already passed the necessary reform legislation, and implemented critical steps towards opening the sector to other private and public players. It has created the rural electrification agency (ASER), contracted with one IPP (GTI) and completed PPA negotiations with a second IPP (the Kounoune Project). It has also created an autonomous regulatory body (CRSE). GOS has also reconfirmed that it intends to implement a public/private partnership for SENELEC to support development of the utility and the electricity services. The proposed Project provides a vehicle to maintain the dialogue and assist GOS in delineating and implementing its strategy.
Limited private sector interest in Senegal's electricity sector.	M	Private sector interest in Senegal's electricity sector is critical. At present, GOS is seeking private investors' participation in the sector in two key areas: (a) independent private power generation, in the form of IPPs; in this respect, there is already one IPP (GTI), which was financed by IFC, that has been in operations since 2000 without experiencing significant problems; additionally, the Kounoune Project PPA has recently been signed and the negotiations for its financing are ongoing; and (b) implementation of the public/private partnership arrangements for SENELEC, in order to support the company in its development and in improving its performance. In this respect, and after two failed privatization attempts, GOS has set-up an ad-hoc

		committee to delineate precisely the arrangements and the benefits that the key stakeholders expect from the public/private partnerships, and implement the decisions. In this context, the availability of PRGs as well as IFC's and Donors' support are key factors in encouraging private sector participation in Senegal's power sector by mitigating risks and reducing transaction costs. The active participation of the World Bank Group is a critical factor.
Increase in SENELEC's operating costs.	S	Expected operating cost reductions may be hampered by high fuel costs, poor management and poor investment decisions. In the short term, risk of higher fuel costs cannot easily be mitigated, except by having adequate and efficient generating and transmission facilities. Over the long term, the program supported by the Bank will assist SENELEC in tapping relatively cheap hydro resources from Guinea, and benefiting from regional interconnections or from cheaper domestic primary energy resources. Impacts of sub-optimal utility management will be mitigated through the participation of private partners, the identification of which would be supported by the Project. Risk of sub-optimal investments will be mitigated through (i) increased attention from SENELEC's Board of Directors, its shareholder(s) and the participation of the Bank Group, (ii) the setting up of transparent investment decision-making rules, (iii) improved investment planning, (iv) capacity building and (v) institutional strengthening, supported by the Project.
Weakening of SENELEC's financial condition.	H	A weakening of SENELEC's financial position could be due to unwise investment and financing decisions, higher fuel costs not compensated by tariff adjustments, decrease in its collection rate or inability of the oversight institutions to carry out their responsibilities. In the short term, the actions proposed to manage this risk are: (a) upfront agreement and close monitoring of SENELEC's investment program, financing plan and business plan, and a stricter process for capital budgeting and financing decisions; (b) revision of the electricity tariff adjustment formula, specially to allow for quicker adjustments to fuel prices changes; (c) strengthened role of SENELEC's Board of Executive Directors; and (d) strengthened sector institutions. For the medium term, the involvement of private partners should provide additional risk mitigation.
To Components Results		
Delays in commissioning the new IPP and rehabilitating the electricity facilities.	S	Delays in commissioning the IPP would create load shedding, a deterioration of the quality of the services, additional costs (such as leasing of additional generation facilities) and would lead to questioning of the benefits of the

		sector reform. The PPA for the Kounoune Project has been signed on February 5, 2005. SENELEC plans to start the selection process for the Kounoune II IPP by mid 2005. Bids for the rehabilitation of the transmission and distribution facilities are currently prepared and should be released by mid 2005.
Delays in the implementation of the Kounoune Project.	S	Key project contracts, such as the EPC Contract and the O&M Agreement, are in the process of being negotiated. Failure to finalize these contracts in a timely manner could negatively impact the timing of project implementation. Nonetheless the PPA signed between the Project Company and SENELEC provides for stiff penalties if the IPP was not to be completed within the originally agreed schedule. The World Bank Group stands ready to provide active support to solve the problems which may delay the completion of this Project.
Delays in the implementation of the public/private partnership arrangements for SENELEC.	S	GOS has already set-up an ad-hoc committee comprising representatives of the energy sector institutions and of Donors, and a consultative process to delineate the roles and responsibilities of the partners in the new public/private partnership arrangements.
Delays in the preparation of the investment master plans.	M	The terms-of-reference for these studies have been discussed between SENELEC and the Bank. Requests for proposals are planned to be issued by mid 2005.
Overall Risk Rating	**S**	

Risk Rating: H=High; S=Substantial; M=Modest

No controversial aspects are anticipated for this Project.

6. Credit/Guarantees conditions and covenants

6.1 Conditions of IDA Credit effectiveness

- GOS has (i) established in the MEM a financial management and accounting system, including an administrative and accounting manual, for the Project, satisfactory to IDA; and (ii) appointed an external auditor with qualifications and experience satisfactory to IDA;
- The Borrower has adopted the Project Implementation Manual (PIM) in form and substance acceptable to the Association; and
- GOS and SENELEC have signed the Subsidiary Agreement for the on-lending of the IDA Credit resources assigned to SENELEC.

6.2 Conditions for the PRGs' effectiveness (usual and customary conditions precedent for a limited recourse financing) including, but not limited to:

- Execution of all project documents and finance documents;
- Effectiveness of insurance required in the finance documents to be in effect at financial close, and the naming of financing parties as co-insured under those insurance policies, and of IDA for third liability insurance;

- Executive delivery and effectiveness of the Indemnity Agreement and the IDA Project Agreement;
- Payment of all relevant fees; and
- Delivery of all legal opinions.

6.3 Covenants of IDA Credit

6.3.1 SENELEC's Financial Situation

- SENELEC's financial covenants: (a) Debt Service Coverage Ratio of not less than 1.1 over the 2006-2008 period; (b) Return on Assets of not less than 3% in 2006 and 2007, and 5% in 2008; (c) Net Accounts Receivables of less than 105 days at end of 2006, and 90 days from the end of 2007 onwards; and (d) Financial Leverage ratio of no more than 65%.
- SENELEC's Budgets and Business-Plan: No later than two months before the end of its fiscal year, SENELEC will transmit to IDA, for comments, its work program and budgets (operating budget, revised 10-year investment program with feasibility studies, and corresponding financing plan) and 10-year financial simulations approved by its Board; and
- SENELEC will provide IDA with its quarterly accounts, its six-month audited accounts and its end-fiscal year audited accounts.

6.3.2 Environment

- SENELEC will implement the Environmental Management Plan and, if applicable, the Resettlement Action Plan, and coordinate with the Kounoune Project Sponsors, as and if needed, on the implementation of these Plans and on the environmental and social frameworks.

6.3.3 Project Management and Reporting

- Every quarter, and no later than one month after the end of each quarter, the PCU will submit to IDA an Activity Report including the financial monitoring reports, in form and substance acceptable to IDA;
- The PCU and SENELEC will maintain a financial management system acceptable to IDA;
- Project Mid-term Review: A comprehensive Project mid-term review will take place about 18 months into the Project implementation; and
- The annual legal audit ("Rapports généraux et spéciaux des Commissaires aux Comptes") of SENELEC will be transmitted to IDA within six months of the closing of the accounting period.

D. APPRAISAL SUMMARY

1. Economic and financial analysis

Economic Benefits and Economic Returns:
(See Annex 11: Economic and Financial Analysis)

1.1 The Project provides several benefits. First, it directly supports GOS's efforts to reduce poverty and stimulate economic growth and competitiveness by providing improved quality, reliable and cost-effective electricity supply to meet the country's growing demand. Secondly, it promotes private sector investment and financing in the energy sector.

1.2 Not all the project benefits and costs can be easily quantified, particularly the benefits of pre-investment activities and institutional strengthening. As the proposed Project supports SENELEC's

investment program in different ways, the economic analysis has sought to assess the net economic benefits from SENELEC's investment program. It has also estimated the economic benefits from the commissioning of the Kounoune Project. The economic analysis concludes that such investments are least-cost investments and that they should generate substantial net economic benefits for Senegal. The following paragraphs discuss the economic benefits of SENELEC's investment program, the generation alternatives, and the net economic benefits of the Kounoune Project.

1.3 Generation Alternatives. *Over the next 4-6 years* Senegal has few base load generating options other than to rely on domestic oil-fired generation. Among the thermal generation options, diesel units running on HFO are clearly the least-cost generating option for base load. *In the medium/long term (starting in 2009-2010)* other options, such as importing power from the OMVS hydro program (Félou and Gouina), from Guinea or from the WAPP, and, possibly, coal-fired units, natural gas from Mauritania[1] or domestic hydrocarbon resources (if discovered), could also be candidates. Renewable energies will most likely play a small role. However, most of these options have not yet reached sufficient technical, economic and financing maturity, may not be cost-effective and/or have an uncertain timing, since political, economic and financial considerations may come to play.

1.4 Economic Internal Rate or Return (EIRR) and Net Present Value of the Benefits (NPV) of the Investment Program. For the Bank's base economic case (Bank's forecast of electricity demand and petroleum products prices based on the Bank March 2005 crude oil prices outlook), the EIRR on the 2005-2015 investment program is estimated to be 23%. The NPV at a social discount rate of 10% is also large, estimated to be US$416 million. These estimates are based on a conservative economic value assigned to the consumption of electricity services; for the purpose of this analysis, SENELEC's 2004 average revenue per kWh of US$0.15/kWh has been used. Global and local environmental benefits, in particular related to lower air emissions, are also positive but have not been quantified. Details and assumptions on the EIRR and NPV calculations are provided in Attachment 1 of Annex 11.

1.5 Sensitivity Analysis. The sensitivity of these two economic indicators (EIRR and NPV) to variations in fuel prices, increase in investment costs, demand growth and willingness to pay for electricity services is provided in the following table. This table shows that the EIRR and the NPV are very robust to change in key parameters; they are particularly sensitive to changes in fuel prices, investment costs and the value assigned to electricity services. Under a worst-case scenario (lower demand, fuel costs 30% above those of the base case and investment 30% above base case estimates) the EIRR will be 12.4% and the NPV US$93.6 million.

Table: Sensitivity of EIRR and NPV to key variables.

Scenario	EIRR (%)	NPV at 10% (US$ million)
Base Economic Case	**23.2**	**416**
Base Economic Case; Fuel Costs +30%	19.4	302
Base Economic Case; Fuel Costs +50% (Crude oil at US$50/bbl in 2015)	17.0	227
Base Economic Case; Fuel Costs +30%; Investment Costs:+30%	13.1	121
Lower Willingness-to pay (20% lower)	17.4	209
Lower Demand Growth Scenario	22.2	387
Higher Demand Growth Scenario	25.0	462
Lower Demand Growth Scenario; (20% lower); Fuel Costs +30%; Investment Costs:+30%	**12.4**	**93.6**
Base Economic Case; Higher Willingness-to pay (20% higher)	28.3	623

[1] Mauritania has recently confirmed commercial hydrocarbon resources. Natural gas or electricity from natural gas could benefit Senegal.

1.6 Kounoune Project Economic Benefits. he Kounoune Project is supported by the IDA PRG and a loan from IFC (Annex 13 and Annex 14 provide information on the IFC Loan to the Kounoune Project and the PRG, respectively). Starting mid 2006, this IPP will provide additional energy of 414 GWh p.a., on average, and 67.5 MW of capacity. This private sector investment will yield three main benefits: (a) delivery of reliable and lower cost electricity supply to the IS, which is required to meet the additional demand from new residential, commercial and industrial customers, reflecting the economic growth and the increase in urban population; (b) fuel savings, as the plant substitutes more costly generating units and allows a more economical dispatch of SENELEC's generation units, which has not been the case during the past years; and (c) increased reliability of the electricity supply.

1.7 For the Bank's base economic case, the EIRR for the Kounoune Project is estimated to be 26%; the NPV, at a discount rate of 10%, is also large, estimated to be US$75 million. The benefits for the Kounoune Project have been calculated based on the power generated by the IPP and valued at US$0.15/kWh, i.e., SENELEC's end-user tariff in 2004, which has been used as a proxy for the customers' willingness to pay. This is a conservative estimate given that residential consumers are generally estimated to have a much higher willingness to pay. On the cost side, the investment cost of building the Kounoune Project has been considered, together with the operating and maintenance costs forecasted over the term of the PPA. Fuel and other savings will be reflected in lower operating and maintenance costs of the IPP as compared to those of SENELEC.

Financial Analysis

(See Annex 11: Economic and Financial Analysis, for SENELEC's financial analysis, and Annex 13: IFC A Loan to the Kounoune Project, for the Kounoune Project financial analysis)

1.8 The financial analysis: (a) reviews SENELEC's recent financial performance and examines the reliability of the financial accounts on which the financial analysis is based; (b) discusses the key issues relevant to SENELEC's financial viability; (c) presents SENELEC's financial outlook; (d) assesses the tariff revision mechanism and its impact on the company; and (e) assesses the financial sustainability of the proposed Kounoune Project.

1.9 SENELEC's Past Financial Performance. SENELEC's financial performance over the recent years has been characterized by a lack of operating profitability and a weak cash-flow generation from current operations. The resources generated by the operations have been below what would be required to: (i) cover interest charges; (ii) adequately maintain or replace existing assets; and (iii) finance the required new investments. In this context, SENELEC has seen: (i) a deterioration of the condition of its infrastructure, with negative consequences in terms of reliability and operating costs; and (ii) investments below the level adequate, in the long term, to accommodate growth in demand (fortunately the shortfall between SENELEC generation and the growing demand has been partly compensated by hydropower from Manantali). It should be noted, however, that SENELEC's balance sheet has significantly improved following an equity injection by GOS of FCFA 40 billion in 2001 provided in the context of SENELEC's privatization.

1.10 SENELEC's Future Expected Financial Performance. In the base case financial forecast, SENELEC will incur operating losses in 2005; and achieve a positive net income by 2008, with a return on assets between 3 to 5% over the 2006-2008 period. The *long-term financial outlook* of SENELEC is however expected to improve. SENELEC's profitability is expected to benefit from positive structural trends related to: (i) a significant reduction in its unit cost of generation (the power generated by IPPs and new generating plants will dilute or replace more costly generation plants); this positive impact could, however, be off-set by further increases in oil prices, (ii) reduced costs in other areas, such as transmission, distribution and retail services, which are activities for which scale and density of consumption has an impact on total costs. *In the short term,* SENELEC's profitability will most likely

deteriorate, largely because of SENELEC's high generation costs, sub-optimal dispatch of generating units, and of additional expenses for leasing generating units to prevent excessive generation shortages in 2005 and 2006 (which are, in turn, related to delays in investment planning, financing and contract negotiations), and expected higher oil prices in 2005 and 2006.

1.11 Electricity Tariff Regulation. SENELEC's electricity tariffs are currently determined by a formula of revenue cap; the Maximum Allowed Revenue (MAR) for any given year is based on a reference level of revenue of FCFA 76 billion for the year 1998 (1998 is the reference year because it is the year preceding the application of SENELEC's first private Concession Agreement). This reference level is then increased to reflect: (a) price inflation since 1998; and (b) the increase in the quantity of electricity sold. In addition, some costs are added to the MAR as pass-through (e.g., certain taxes and regulatory fees) and penalties are deducted from the MAR if availability of power is below a certain threshold (i.e., unserved demand above 0.5% of sales). This formula has important virtues: (a) there is a strong incentive to reduce costs; and (b) even though the formula does not explicitly include an efficiency improvement factor, it allows consumers to benefit from the economies of scale brought by the development of the electricity sector.

1.12 However, there are significant shortcomings in the formula that have caused (and are likely to continue causing, unless the tariff formula is revised) a large imbalance between tariffs and costs for reasons that are beyond the control of SENELEC. The most significant problem relates to the indexation mechanism as: (a) there is an excessive time lag in the indexation (for instance, the recent tariff change, applicable starting in September 2004, was based on the difference in average prices during 2003); and, more importantly, (b) the indexation formula does not reflect the reality of SENELEC's costs, particularly with respect to fuel prices. These problems are currently being addressed by the CRSE and a consultative process in this respect has already been initiated. It is expected that a new tariff setting and revision mechanism that would remedy these shortcomings will be implemented by the end of September 2005.

1.13 Kounoune Project Financial Performance: IFC has developed a base case scenario for the Kounoune Project based on conservative assumptions, as summarized in Annex 13. These financial projections for the Kounoune Project demonstrate the project is financially sound, with a minimum Debt Service Coverage Ratio of 1.3 over the term of the IFC loan, and appropriate leverage. The Project Financial Rate of Return has been estimated at 11%.

1.14 On-Lending Arrangements. Resources used by SENELEC under Part A of the proposed project will be on-lent in US$ by GOS to SENELEC. A subsidiary agreement between the two parties delineating the terms and conditions of the on-lending of these IDA resources acceptable to IDA will be signed; signature of this subsidiary agreement is a condition of the Credit effectiveness.

2. Technical

2.1 Kounoune Project Power Plant. The independent engineer hired by the lenders to the Kounoune Project and the external advisors hired by SENELEC have reviewed: (a) the Sponsors capabilities, the technical proposals with respect to the development and construction of the power plant, and the technical sections of the PPA signed between the Project Company and SENELEC; (b) an outline of the key fuel supply arrangements; (c) the compatibility of the plant with SENELEC's transmission system; and (d) the proposed operation and maintenance of the plant. They have confirmed the key technical assumptions, the expected emissions, and, overall, that the proposed plant is a reliable least-cost option for Senegal. The independent engineer has confirmed the suitability of the IPP proposal with respect to SENELEC's needs in terms of additional generation, reliability and cost-effectiveness.

2.2 Rehabilitation of transmission and distribution networks. The proposed Project components and activities have been designed and costed by SENELEC with the assistance of consultants. It meets internationally accepted technical standards. They were reviewed by the Bank's consultants and by Bank staff during project appraisal and found to be technically sound and appropriate to the country's needs.

3. Fiduciary

3.1 An assessment of the financial management and the procurement arrangements required for the two implementing agencies were carried out during Project preparation.

Financial Management
(See Annex 9: Financial Management and Disbursement Arrangements)

3.2 Two implementing agencies will implement the project. SENELEC will implement activities under Part A of the Project and the PCU of the MEM will implement activities under Part B of the Project (Annex 6 provides a detailed description of the Project activities). The financial management assessment has included a review of the accounting system, reporting, auditing, flow of funds and internal controls. The main conclusion of the FMA is that, prior to Credit effectiveness, the PCU needs to put in place a financial management system satisfactory to IDA. The required actions relate to adopting an administrative and accounting manual satisfactory to IDA, setting up a computerized management system and recruiting an external auditor under procedures acceptable to IDA.

Procurement Arrangements
(See Annex 10: Procurement)

3.3 A formal procurement assessment has been carried out in accordance with Procurement Services Policy Group (OCSPR) guidelines dated August 11, 1998.

3.4 Procurement Assessment of SENELEC. The main findings of the procurement assessment of SENELEC, carried out by Bank staff, are that the relevant units of SENELEC have significant experience in procurement in general, but limited experience with World Bank procurement procedures. SENELEC's procurement specialists feel comfortable in applying the national procurement rules, which indicates that adapting to World Bank procedures should not be a big issue. The assessment concludes that there should be no major procurement problems. The primary recommendation of the assessment is to reinforce the actual set-up so as to avoid major deviations. There is, however, a risk of potential conflict of interest since the procurement staff and the contract implementation staff are in the same directorate. To mitigate such risk, it is proposed that the functions of procurement and of contract implementation be separated.

3.5 Procurement Assessment of the MEM. The PCU should include a part-time consultant familiar with the Bank's procurement procedures. The consultant will not work on a full time basis, but rather when particular procurement issues arise. Such consultant would work closely with the PCU and with the different entities to ensure efficient and timely project execution, through compliance with the procurement schedules agreed with the Bank.

3.6 Advance Contracting. Senegal has selected the consortium formed by MEE and Matelec as the Sponsors for the Kounoune Project, and signed on February 5, 2005 the relevant PPA. The selection process has been carried out following the World Bank procurement guidelines for PRGs.

4. Social

(See Annex 12: Safeguards Policy Issues)

4.1 With respect to the Kounoune Project, a Resettlement Policy Framework (RPF) was prepared by SENELEC in February 2004 and posted in the Bank's Infoshop on February 25, 2004. An update was prepared by the IPP Sponsors in March 2005 and made public in April 2005. The generation plant will be located at Kounoune, 23 kilometers east of Dakar, within a 14 hectares site previously owned by the Republic of Senegal and transferred to SENELEC. The 3 hectares required by the IPP plant will be sold by SENELEC to the IPP Sponsors, as per the PPA. The site is near three small villages with a total population of about 8,000 persons and a school, which is located just outside the 500m buffer zone (as defined by Senegal's laws and regulations). An update of the social assessment by SENELEC based on the RPF is underway. With respect to the school, and following discussions with the stakeholders, SENELEC has indicated that it will finance the transfer of the school prior to commercial commissioning of the Kounoune Project. Compensation payments and relocation procedures associated with the establishment of the 500m buffer zone will take place in accordance with the RPF and Senegal's regulations. Other rehabilitation investments considered in the context of the Project are located in the Dakar region and should not lead to resettlement; they will be, however, assessed using the RPF.

5. Environment

(See Annex 12: Safeguards Policy Issues)

5.1 The Project is rated a Category B project. It covers priority activities included in the first phase of the APL, in particular the construction of the Kounoune Project (of 67.5MW) and the rehabilitation of electrical transmission and distribution facilities.

5.2 An EIA was completed in February 2004 for the Kounoune Project, based on SENELEC's general project assumptions. Since the detailed engineering was not available at the time for the new power plant, a detailed Environmental Impact Assessment and Social Management Framework, a Resettlement Policy Framework and a Public Consultation Plan were prepared. Plant specific issues are currently assessed by the Kounoune Project Sponsors and an update of the EIA (the Supplemental EIA), based on the Kounoune Project Sponsors design specifications has been disclosed on April 11, 2005. No new transmission lines are needed, because existing transmission lines pass already through the selected area, thus there would be no further resettlement and/or compensation in this respect. From an environmental point of view this is not a sensitive area.

5.3 The Kounoune Project will comply with the World Bank Environmental Guidelines for air, liquid, and solid emissions and noise levels. Internationally acceptable waste management practices will apply, as in all World Bank financed projects, especially with regard to fuel management. The same is applicable for internationally acceptable safety and occupational health standards.

5.4 The Supplemental EIA predicted that Senegalese air quality standards may be exceeded for a limited amount of hours (94 hours per year) for NO2 1-hour maximum standard and days (8 days per year) for SO2 24-hour maximum standard. In order to mitigate these potential impacts, the Kounoune Project Sponsors are planning to undertake continuous air quality monitoring at the location of predicted maximum impact. The results will be analyzed to determine whether additional measures are needed to ensure compliance with the relevant air quality standards.

5.5 The Supplemental EIA also predicted that, if the Kounoune II IPP is developed, a major reduction of NO2 and SO2 emissions from the Kounoune Project would be needed to ensure that Senegalese air quality standards will continue to be respected. The Sponsors for Kounoune Project were advised to

design the site layout to set aside space for additional flue gas treatment facility, if determined to be necessary, when the Kounoune II IPP is developed.

5.6 The Kounoune Project power plant is designed to have a higher generating efficiency, about 45% Low Heat Value (LHV) basis, than conventional steam power plants, of about 33%. Assuming an annual capacity factor of 80%, the Kounoune Project is estimated to emit 288,000 tons of CO2 per year at 610g CO2/kWh performance. This performance is better than the current Senegalese national average of 840g CO2/kWh for oil-fired power generation (2000-2002 average), published by International Energy Agency.

5.7 A 6.1 km pipeline transporting the HFO required by the power generating units will use an existing right-of-way for an existing pipeline. The only problem with regard to this pipeline is that two houses with gardens are built on this right-of-way. This needs to be assessed and adequate measures implemented, in accordance with the RPF.

5.8 The Kounoune Project Sponsors are planning to have a follow-up public meeting in May 2005 and are expecting to obtain the MEM environmental approval for the IPP in late May or June 2005.

5.9 The proposed investment program will also implement sound environmental management practices for SENELEC's existing power plants at Cap-des-Biches and Bel-Air, in compliance with World Bank Safeguard Policies and Guidelines. These will include: (a) training of the power plants personnel, particularly regarding fire risks and security; (b) updating the evacuation plan; (c) preparing a coordinated plan with other resources available in Dakar (such as from the municipality of Dakar and the army); (d) measuring the quality of processed water released; (e) measuring the air emissions and level of particulate matters around the power plant; and (f) improving "retention" for the storage of diesel oil and for other hydrocarbon products and residues.

5.10 This investment program carries only minor negative environmental impacts with most environmental impacts, such as emission reduction, being positive. Two mechanisms have been put in place to monitor and evaluate the environmental impacts of the project. Regarding the existing power plants at Cap–des-Biches and Bel-Air that are not monitored (the GTI IPP is already monitored), an emission monitoring system will be put in place in order to measure air emissions, air quality around the power plant, and the quality of the water released. This would be required for exploring activities that could mobilize carbon credits. With respect to the Kounoune Project: (a) the Sponsors will maintain files and reports documenting the results of the periodic monitoring activities, problems, and actions implemented, the relevant personnel and their qualifications, and the analyses of the emissions and discharges. These documents will be accessible to the Authorities; and (b) SENELEC will set up a consultation liaison group with the population living in the vicinity of the power plant to report on the work plan and progress during the construction period, inform them of issues that may arise and consult them on the appropriate mitigation actions.

6. Safeguards Policies

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment (OP/BP/GP 4.01)	[X]	[ ]
Natural Habitats (OP/BP 4.04)	[ ]	[X]
Pest Management (OP 4.09)	[ ]	[X]
Cultural Property (OPN 11.03, being revised as OP 4.11)	[ ]	[X]
Involuntary Resettlement (OP/BP 4.12)	[X]	[ ]
Indigenous Peoples (OD 4.20, being revised as OP 4.10)	[ ]	[X]
Forests (OP/BP 4.36)	[ ]	[X]
Safety of Dams (OP/BP 4.37)	[ ]	[X]
Projects in Disputed Areas (OP/BP/GP 7.60)	[ ]	[X]
Projects on International Waterways (OP/BP/GP 7.50)	[ ]	[X]

7. Policy Exceptions and Readiness

No exceptions to Bank policies are requested.

Annex 1: Country and Energy Sector Background

SENEGAL: ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROJECT

Country Background

1. Senegal is one of the most politically stable African countries. The last elections took place in 2000 with Mr. Abdoulaye Wade elected as president. The next presidential and legislative elections are scheduled for 2006 and 2007 respectively. A peace accord between the Government of Senegal (GOS) and the rebel movement that had been fighting for the independence of Casamance, in the south of the country, was signed in December 2004.

2. Senegal is at a decisive point in its economic development. It nears the end of a successful period of economic adjustment that began with the devaluation of the CFA Franc in 1994. It has achieved a historically high rate of growth in the GDP during that period of 5.0% p.a., resulting in a 2.5% annual increase in real GDP per capita terms. Real GDP growth for 2004 was 6.0%, and is forecasted to remain the same for 2005. Over the 2005-2010 periods, the GDP average annual growth is projected to be 5.1%. Such a performance has led to a reduction in poverty of about 10 points between 1994 and 2002. Additionally, the GOS has shown relative commitment toward structural reforms. Beyond the energy sector, it has recently taken actions in the groundnut sector, liberalizing it through the elimination of distortionary taxes and privatizing the state-owned company Sonacos. Also, reforms in fiscal policy have led to a decline in the effective tax rates and a rationalization of incentives. Programs for the implementation of budgetary reforms have been acknowledged by the International Monetary Fund and other partners, notably in the second review of the PRGF in early March 2005.

3. As far as monetary policy is concerned, Senegal is a member of the West African Economic and Monetary Union, whose central bank pegs its currency (the FCFA) to the Euro at a rate of FCFA656/Euro. This arrangement has enabled Senegal to maintain low inflation of 1.6% p.a. on average in 1998-2002. Consumer inflation was close to zero in 2003 and 0.5% in 2004.

4. However, despite this recent good macroeconomic performance, Senegal has however a significant unmet reform agenda. The economic growth of the last ten years has only a small impact on poverty reduction, especially in rural areas. Income inequality is relatively high and social indicators - primary education, infant and maternal mortality, access to clean water - lag income indicators. The infrastructure shortfalls- in water, electricity, transport – hamper development and poverty reduction. It also affects the country's competitiveness. Upgrades to communication, transport and electricity services will be key to lowering the cost of production and improving the external competitiveness of the economy. Public policies, notably in the areas of taxation and incentives to invest, handicap growth by slowing down private sector initiatives.

5. A new CAS was presented and approved by the Board on April 17, 2003. The CAS derives directly from the PRSP of Senegal. The pillars of Senegal's PRSP are: (i) wealth creation; (ii) capacity building and social services; (iii) assistance to vulnerable groups; and (iv) implementation of the PRSP strategy and monitoring of its outcomes. IDA is supporting the achievement of the PRSP goals through its existing lending portfolio (especially in water, education, transport, and health), the planned CAS program of lending, advisory services, and capacity building for monitoring and evaluation. A major objective of the CAS is to expand the supply of infrastructure services, most prominently among the poor, to lower service costs and to promote private sector development. In support of the PRSP, the CAS proposes a base case lending program of US$290 million, plus significant advisory services. A progress report on the CAS is planned for December 2005.

Energy Sector Background

6. Energy Sector Institutional Arrangements

The Ministry of Energy and Mines (MEM). The MEM is responsible for the development and implementation of the energy policy and regulations pertaining to all the activities in the energy sector (biomass fuels, electricity, hydrocarbon, energy efficiency programs, etc.).

The allocation of responsibilities by sub-sector and the main institutions are:

- **Biomass fuels.** The MEM and the Ministry responsible for forest resources coordinate the activities carried out by private entities.

- **Electricity Sector.** SENELEC – is the public utility responsible for the development of electricity services in the urban and some rural areas within SENELEC concession perimeter. ASER ("Agence Sénégalaise d'Electrification Rurale") is the Rural Electrification Agency, a public agency responsible for speeding up progress in providing electricity services in rural areas[2]; CRSE ("Commission de Régulation du Secteur Electricité") regulates all the activities in the electricity sector. SENELEC has also contracted out with GTI, an IPP, and is also importing power for the Manantali Regional Hydroelectric project. A second IPP – the Kounoune Project - is under consideration including Bank Group support; and

- **Petroleum sector**. Upstream activities are coordinated by PETROSEN – a GOS owned company-, and downstream activities are carried out by SAR, a refinery owned by several international private oil companies, the GOS (minority interest) and 6 private distributors. The CNH coordinates downstream activities.

7. Energy Consumption and Resources Base

Energy consumption in Senegal is dominated by wood fuels (wood and charcoal), which account for 53% of energy used. The country's hydroelectric technical potential (located on the Senegal and Gambia rivers) is estimated at 1,000 MW and has just recently begun to be tapped, with the completion of the Bank-funded Manantali regional hydroelectric project (200 MW). Fossils fuels in the form of heavy petroleum were discovered offshore at Dome Flore (100 million tons), but oil production was considered non-economical. Small amounts of natural gas, however, were discovered and produced onshore near Dakar (Diam Nadio and Thies) and used to produce electricity. Some exploration for gas and oil is underway. However, no comprehensive hydrocarbon exploration effort has been undertaken in Senegal. At present, most of Senegal's commercial energy needs are met by imported petroleum products, which totaled 950,000 tons, and cost an estimated US$250 million. In 2004, these imports represented between 20%-25% of Senegal's export earnings.

Wood fuels Supply. The supply of wood fuels to the urban and peri-urban areas is based on geographically concentrated and non-sustainable forest resource management practices (clear cutting). Each year, 3 million tons of wood fuels are consumed and it is estimated that about 80,000 hectares of forest stands disappear due to land clearing for agriculture, bush fires, production of charcoal and

[2] SENELEC's concession perimeter comprises the main urban centers of Senegal, villages that were electrified in 2000 and 175 villages that are part of Framework 10 ("Convention 10") through which GOS provides SENELEC with public financing ("Fonds de Preference") to electrify a defined list of villages. ASER's geographical perimeter includes all the villages that are not included in SENELEC's perimeter; this territory has been divided in 18 concessions that will be bid out to private concessionaires. SENELEC has set-up a subsidiary that will be competing for the 18 rural concessions.

overgrazing. To address this problem, a GEF / IDA project (the Sustainable and Participatory Energy Management Project - PROGEDE I project) was approved by the Bank's Executive Directors in June 1997 and completed in December 2004. Such project had very positive outcomes regarding resources management, efficiency, institutional development and capacity building. Additional resources for continuing the implementation of wood fuels supply and demand side management activities (PROGEDE II activities) are included in the Electricity Services for Rural Areas project, approved by the Bank's Executive Directors in September 2004.

The Electricity Sector

8. GOS Strategy for the Electricity Sector. In early 2003, a new strategy reflecting the lessons learned over the 1999-2002 period was adopted by GOS. These are reflected in the Energy Sector Development Letter (dated April 9, 2003), which states that: (a) the main objective for the electricity sector is to secure the reliable supply of electricity services required by the economy and the population at the lowest possible cost; and (b) mobilizing financing for investments in the electricity sector is critical, given the poor physical conditions of the sector's facilities and the delays in investments. To meet these objectives, GOS proposed three areas for action: (a) restructuring the generation, transmission and distribution activities currently carried out by SENELEC; (b) promoting private sector participation for financing and improving the sector's performance; and (c) implementing a new approach, in order to quickly increase access to electricity services in rural areas.

9. Electricity Services in Urban Areas. Electricity services in urban areas in Senegal are currently provided by SENELEC, which has power plants in Dakar and in five other cities. The capacity of the IS is 489 MW, which includes 371 MW of SENELEC's thermal plants, 66 MW from the regional hydroelectric plant at Manantali (installed capacity of 200MW) and 52 MW from an IPP, GTI Dakar. The 2004 peak demand was about 337 MW. Over the last 10 years, the rate of electrification has increased very slowly. The rate of electrification is relatively low (30%) with access to electricity largely confined to the greater Dakar area (55%) and four urban centers: St. Louis, Kaolack, Ziguinchor and Tambacounda. Village electrification is limited (8%) to areas in the immediate vicinity of these large population centers and some tertiary centers. However, the vast majority of the population living in the 10,000 smaller centers of Senegal (<1,000 inhabitants) is without electricity supply.

10. Senegal's electricity sector is characterized by: high costs due to high thermal generation costs and relatively high transmission and distribution losses, relatively weak technical and financial performance of the utility, poor quality of service and limited access to electricity services, notably in the rural areas. This is largely due to obsolete facilities, insufficient investments in generation, transmission and distribution over the last 10 years, poor investment decisions and lack of timely maintenance. SENELEC has not been able to meet the fast growing demand for power, growing currently at a rate of 25 MW-35 MW a year. As a result, load shedding and poor quality of service is common.

11. Rural Electrification (RE). In its effort to reduce poverty and redress imbalances in development, GOS has concluded that accelerating RE is a critical objective. GOS intends to implement a major RE program to be implemented over a 15-20 year period, aimed at reaching a 62% access rate by 2022, as compared with a 2003 access rate of 8%. GOS's strategy in rural areas, described in the Rural Electrification Development Letter of May 2004, reflects the following two principles: (a) reliance on public/private sector partnership, with a significant share of the rural infrastructure funding being provided by the national budget and Donors (the private sector will provide about 20%-30% of the financing), while (b) the private sector would be called to manage technically and commercially the rural concessions and to ensure their long term sustainability. The public entity, ASER, will: (a) define, coordinate and monitor implementation of the RE program; and (b) ensure increased access to electricity services in the rural areas of Senegal by granting geographical concessions (18 concessions are currently

envisaged) through a transparent and competitive bidding process. Smaller projects developed by local sponsors (community associations, villages, other entities operating in the rural areas, etc.) will complement the rural concessions.

12. In support of GOS RE strategy, the Electricity Services for Rural Areas program (an APL program in three phases) was approved by the World Bank Executive Directors on September 9, 2004. The main development objective of the proposed RE program is to support the progressive transformation and improvement in the living conditions of rural Senegal by: (i) providing lighting and access to modern communication to rural households; (ii) improving delivery of social services by providing electricity to potable water delivery systems, health clinics, schools, etc.; and (iii) enhancing economic productivity through the provision of electricity for productive purposes.

13. Electricity Sector Reforms. Given the critical situation of the electricity sector, GOS undertook major reforms outlined in the 1997 Policy Development Letter for the sector. These reforms were aimed at introducing private sector participation in investments and operations of the power sector, encouraging sector efficiency and ensuring adequate supply. Specific actions were related to: (i) corporatizing SENELEC and transfer of all state-owned generation, transmission and distribution assets to the corporatized SENELEC, (ii) enacting of a new electricity law and corresponding implementation decrees, (iii) establishing an independent regulatory agency for the power sector (CRSE), (iv) "privatizing" SENELEC; and (v) separating the provision of electricity services in urban areas from provision of services in rural areas. The new electricity law [3] provided for: (i) clear separation of the policy, planning, regulatory and managerial responsibilities between sector entities; (ii) clear principles and regulations for the operation of the independent regulatory agency; (iii) an evolving approach towards progressive unbundling of the sector activities (generation, transmission and distribution); (iv) competition in generation and open access to the transmission grid; and (v) the setting-up of a rural electrification agency (ASER) to speed-up implementation of Senegal's RE strategy.

14. Two unsuccessful attempts to privatize SENELEC were carried out between 1999 and 2002. On March 1999, SENELEC operational responsibilities were transferred to a private consortium (the Strategic Partner) comprising Hydro-Quebec and Elyo, who was holding 34% of SENELEC's shares. However, in September 2000, a "friendly" mutual agreement was signed between GOS and the Strategic Partner terminating the contract. On July 2001, GOS launched a new tender process and in November 2001 two technical and financial bids were received. In July 2002, after months of negotiations, GOS declared unsuccessful the second privatization attempt but reaffirmed its commitment to select a Strategic Partner for SENELEC. Attachment 1 to Annex 1 provides additional details on these two privatization attempts. One key lesson for Senegal's electricity sector is that to be successful, the "privatization" needed to be accompanied by an investment program largely financed with concessional funds.

15. Restructuring of the activities carried out by SENELEC. The GOS objective is to progressively open-up the electricity sector to competitive pressures, starting with the separation of generation activities from transmission and distribution activities. With respect to generation, the approach involves requesting competitive bids from IPPs and potential importers. SENELEC will be the sole purchaser (through PPAs) of the power generated by the IPPs and, over time, will divest or liquidate its existing generation assets. SENELEC will remain responsible for planning generation requirements. Senegal has recently selected a second IPP for 67.5 MW (the Kounoune Project) and has started the initial planning for another IPP of about 60 MW - 100 MW. With respect to distribution of electricity, GOS has taken all the decisions required to separate the distribution of electricity in urban and semi-urban areas -to be carried out by SENELEC- from the provision of electricity services in rural areas - to be done by private sector

[3] Law 98-31 of April 14, 1998

operators coordinated and monitored by ASER-. GOS has, therefore, taken another step to remove the monopoly of SENELEC in the electricity sector.

16. Public/Private Partnerships Arrangements in the Electricity Sector. GOS attempted twice to privatize SENELEC. Recognizing the current lack of appetite of private investors for investing in the privatisation of SENELEC and, also, in order to ensure the financing of SENELEC's investment requirements in rehabilitation and extension, GOS has opted for a pragmatic approach. GOS has reconfirmed that it intends to progress the institutional reform of the electricity sector and has set-up an ad-hoc Technical Working Group and a Consultative Group to re-delineate the mandate and the specific objectives of a new public/private partnership for SENELEC, as well as the corresponding contractual arrangements. GOS expects, however, that public sector financing will be needed to carry out the substantial physical rehabilitation required over the next 5 years and to restore SENELEC's technical and financial strengths.

The Petroleum Sector

17. The petroleum sector is of crucial importance for the development of Senegal, as it affects domestic competitiveness and the external and fiscal balances. Potentially, Senegal does have hydrocarbon resources but, as described below, no comprehensive exploration efforts have yet been undertaken. The limited exploration undertaken to date has not led to any significant commercial discovery of hydrocarbons.

Upstream activities (Hydrocarbon Exploration and Production)

18. The Société Nationale des Pétroles (PETROSEN), a state-owned enterprise, was established in 1981 to promote petroleum exploration and production. Senegal's sedimentary basins cover a total surface of 175,000 km^2, of which 113,000 km^2 are prospective for hydrocarbons: 70,000 km^2 onshore, 23,000 km^2 in the shallow offshore (0-200 m water depth), and 20,000 km^2 in the deep offshore (200-2,000 m water depth). Petroleum exploration started in 1954; however, Senegal's hydrocarbon potential is not yet established. About 55,000 km of seismic lines have been shot and over 120 wells drilled; the drillings have been concentrated in two zones of the country. International oil companies have recently expressed interest in West Africa.

19. Oil and gas have been discovered in neighboring Mauritania and oil companies have made serious enquiries about doing business in Senegal. An oil discovery was made at Dome Flore (60 km offshore Casamance); this discovery is of some 100 million tons (one billion barrels) but the oil is heavy (9.1 to 9.6 API). The Dome Floor discovery was made at a time of low oil prices and non-existent technology to produce such fields, especially offshore. In today's higher energy prices environment and availability of lower-cost, proven technologies to produce such heavy oils (i.e., Venezuela, Canada, Middle East, etc.), an independent review of the potential to produce the Dome Floor field in the future should be undertaken to bring its potential at par with the existing pricing and technological environment. A small amount of gas was found at Diam Nadio (over 500 million m^3), near Dakar. It is currently used to generate electricity. Diam Nadio also yielded over 160,000 barrels of oil.

20. Under the new GOS strategy, the role of PETROSEN has been limited to the promotion of Senegal's hydrocarbon potential. As part of its new mandate, PETROSEN has focused its attention on acquiring seismic data for interpretation of prospects in onshore sedimentary basins in Northern Senegal, similar to those in neighboring Mauritania, where commercial oil discoveries have recently been made. Following international competitive bidding procedures, it has selected Japan Gasoline Corporation (JGC) to share the cost of the acquisition, processing, interpretation and promotion of seismic data. A US$8 million contract was agreed, with 40% of the cost to be borne by the contractor and 60% by

PETROSEN. Both parties would share accordingly the revenues generated by the sale of seismic data to international oil companies. However, funding for PETROSEN's share of the contract is not available, and GOS has requested IDA's assistance, which is now included under this proposed operation. The private partner stands ready to mobilize equipment and manpower to start seismic work if GOS indicates its readiness and ability to finance PETROSEN's share.

21. Given the growing gas to power convergence, a strong set of signals should be provided by the authorities and PETROSEN to level the playing field and encourage gas exploration and production (E&P) with full economic cost recovery under state of the art Production Sharing Contracts. This would enhance E&P for gas upstream and conversion to gas in industrial and commercial sectors, given gas competitive prices in today's oil price environment.

Downstream Activities (Refining, Storage and Distribution of petroleum products)

22. With respect to downstream activities, the main entity is the Société Africaine de Raffinage (SAR), a private company established in 1962. At present, 90% of SAR's shares are owned by major multinational oil companies (TotalElfFina –54.6%-, Mobil –11.8%- and Shell-23.6 %-) and 10% by GOS (PETROSEN)[4]. SAR's operations are regulated by its "Convention d'Etablissement" with GOS, which was revised in 1990. The agreement confers to SAR the monopoly for crude oil imports and refining. The company owns and operates a relatively simple hydro skimming type refinery near Dakar. In 1983, the refining capacity was expanded from 0.9 to 1.4 million tons/year. Storage capacities are very high for crude oil (190,000 tons), but only limited for refined products (35,000 tons), which makes SAR dependent on the installations of the oil companies. The refinery acts as a service operation for its shareholders, who pay for using its services. Retail distribution of petroleum products is the responsibility of subsidiaries of multinational oil companies and of some smaller Independents.

23. Total demand for refined petroleum products (including aviation, marine bunkers and exports) was 912,000 metric tons in 2004. To meet its commercial energy requirements, Senegal has to import all of its oil. This complete dependence on imported oil places a heavy burden on Senegal's balance of payments and is one of the country's major energy problems with serious implications for its balance of payments. A large volume of petroleum products is delivered directly to the most important consumers, like SENELEC or Phosphates de Taiba.

24. The downstream petroleum sector of Senegal faces several issues. Although the downstream activities, including imports, were for the most part liberalized several years ago now, constraints to competition remain significant. These constraints are related to the strengths of the international oil companies, access to storage facilities by the Independents, and the relative weakness of the regulatory framework and of the public sector institutions, in particular CNH. While exports to neighboring countries are still subject to loading at a single designated facility, hampering competition in that activity, GOS has indicated that such constraint will be lifted by July 2005. In addition, some of the retail prices of petroleum products are significantly distorted by differential taxes and subsidies. This has led to costly impacts on the GOS budget and an increasing use of polluting fuels.

25. Constraints to competition in the import, exports and distribution of petroleum products. The subsidiaries of the international oil companies (Shell, Mobil and Total) have well established positions (which have been strengthened by the recent mergers of Total, Fina and Elf) and facilities. These companies account for 90% of SAR's shareholding and own and operate all the crude and petroleum products storage facilities. Although new entrants (such as Addax and Elton) have seen their market shares increase, albeit slowly, the impact of this competition on retail prices has been limited. Under the

[4] SAR's capital may be opened-up soon to operators from neighbouring countries.

reforms undertaken in the sector, a law was passed [5] allowing free access to the storage facilities by other private distributors; implementation of this disposition has led, however, to tensions between the actors because of a lack of credible enforcement mechanisms and dispute resolution mechanisms.

26. Pricing of Petroleum Products. Maximum retail prices are decided by GOS based on reviews carried out by CNH and are the same throughout Senegal's territory. They are revised every 4 weeks and adjustments are effected if variations exceed 4%. Retail prices are high in part because of high taxes, the small size of the market, the additional margin imposed to make the SAR refinery financially viable, and weak competition.

27. Petroleum products prices are distorted by the tax and subsidy regimes aimed at supporting targeted industries (notably the fishing industry) and residential customers (kerosene and LPG) (See Table 1 below). These pricing distortions have inevitably created several problems, notably: (a) a significant loss of tax revenues to GOS; and (b) the use of polluting fuels in cars and for domestic uses. These policies and the implementation mechanisms need to be reviewed in the context of the broader GOS's economic and budget management discussions.

Table: 1 - Prices per liter (as of January 29, 2005)

Product	Price (FCFA/liter)	Price (US$/liter)
Premium Gasoline	508	1.02
Regular gasoline (automobiles)	472	0.78
Regular gasoline (fishing industry)	314	0.65
Kerosene	279	0.56
Diesel (automobiles)	407	0.81
Diesel (industrial)	281	0.56
Diesel SENELEC	281	0.56
Fuel Oil 180 CST	145	0.29
Fuel Oil 380	135	0.27
Fuel Oil SENELEC	111	0.22

Source: CNH

28. Regulatory Framework and Regulatory Capacity. Created by a 1998 law, the CNH is, on paper, responsible for overseeing the downstream activities. Because of the current regulatory framework[6], and budget constraints leading to a shortage of personnel with adequate background and training and technical facilities (such as resources to certify the quality of products), CNH is currently not in position to be an effective regulator. Through the proposed IDA Credit, it is proposed to transform the CNH into a regulatory body for the petroleum sector, similar to the CRSE for the electricity sector. This would require: (a) a thorough review and, if needed, adjustments of the regulatory framework, including implementation of the open access policy for storage facilities, competitive framework for distribution, and providing CNH with enforcement tools; (b) a review of the petroleum prices adjustment mechanism; (c) building capacity in CNH; (d) setting up a laboratory to test compliance with quality standards; and (e) ensuring that the regulator is adequately and securely funded.

[5] Law No. 98-31 of April 14, 1998

[6] As described in decree 98-337 of April 21, 1998.

Annex 1 - Attachment 1

Main Lessons from Attempts at Privatizing SENELEC

First Privatization Attempt (1999-2000)

1. GOS had complied well and opportunely with its power sector reform program as stated in the 1997 Policy Development Letter. A new Electricity Law was approved on April 14, 1998 that provided for the establishment of a new power sector structure and appropriate regulations, including the creation of a regulatory commission (Commission de Régulation du Secteur de l'Electricité or CRSE). The roles and responsibilities of the MEM and the CRSE were spelt out in the aforementioned 1997 Letter. SENELEC was converted into a corporation, and the ownership of all generation, transmission and distribution assets operated by SENELEC were transferred to the corporation. SENELEC's privatization was done in a fast and efficient manner. The bidding process was launched in October 1998 and the sale of shares to, and the effective take over of operational responsibilities by, the Strategic Partner took place in March 1999. Finally, a new institution in charge of RE, the Agence Sénégalaise d'Electrification Rurale (ASER) was created.

2. SENELEC did not, however, stay very long under private sector management (which had a minority ownership), mainly because of key flaws in the design of the privatization strategy, its implementation and the management of the utility. Even though the Strategic Partner was responsible for the management and the operations of SENELEC, GOS continued to be the majority shareholder (with 66%). In addition, GOS (particularly the new Government) and the Strategic Partner had very different expectations regarding responsibilities for investment financing and risk sharing. Furthermore, because of the 50:50 structure of the private consortium (Hydro- Quebec of Canada and Elyo of France), conflicts within the consortium on the ultimate management and performance responsibility accentuated the underlying problems and led to inefficient management decisions.

3. Because of the shared ownership (34% for the Strategic Partner and 66% for GOS), there was considerable confusion on how to share responsibilities for new investments. Given that the consortium was a minority shareholder, it could not be held legally responsible for investments. As a result, eighteen months after contract effectiveness, SENELEC had not initiated the preparation of the generation rehabilitation plan. In the meantime, the demand for electricity had increased substantially which, added to the poor reliability of the existing facilities, resulted in increasing capacity shortages and brown outs.

4. The private sector consortium had invested heavily (Euro 59.6 million (1999 Euros)) in buying 34% of the shares of SENELEC, but did not take actions to mitigate financial risks. The need to balance SENELEC's finances, which were hit by the steep increases in fuel costs of 1999-2000 (crude oil prices increased by about 50% in this period), together with the impact of the elimination of GOS's subsidies on fuels for power generation, led SENELEC to submit in February 2000 a 15% tariff adjustment request to the CRSE. CRSE rejected the tariff increase request, on the basis that the Concession Agreement did not provide for such adjustments, as tariffs were based on price-cap regulations, which caused additional financial strain on the company.

5. Public outcry due to poor service, continuous energy shortages, black outs and brown outs increased. Therefore, in September 2000, GOS decided to end the Concession Agreement and, without fully informing the Strategic Partner or consulting the Bank, decided to cancel this agreement. By December 2000, however, a "friendly" mutually agreed termination agreement was signed between GOS and the Strategic Partner, the details of which were not made public or communicated to the Bank.

Second Privatization Attempt (2001-2002)

6. Despite the failure of the first privatization attempt and the changes in the energy industry, GOS reconfirmed its commitment to transfer ownership of at least 51% of SENELEC's shares to a new Strategic Partner. To this end, on July 2001, GOS launched a new tender process under revised principles. A major change in the approach towards privatization then made by GOS was to readopt the traditional concept of the concession, under which all power generation, transmission and distribution facilities existing in Senegal would be owned by GOS, but would be managed and operated by a concessionaire, in this case SENELEC. SENELEC, therefore, was entrusted with the use of GOS-owned facilities, as long as the Concession Agreement remains in effect, and to provide services to consumers. Such installations were to be "repossessed" by GOS at the end of the Concession Agreement under the same conditions as at the beginning of the concession.

7. In November 2001 GOS received two technical and financial bids. GOS selected one as the best offer and declared a winner on November 20, 2001. Negotiations on a possible contract extended, however, from November 2001 until February 2002, when GOS suspended such negotiations and started negotiations with the second bidder, since the first bidder was unwilling to provide significant financing at its own risks. Negotiations with the second bidder also languished, in part due to this bidder's financial difficulties. GOS then declared unsuccessful the second privatization effort and established an ad-hoc task force with an initial goal of rethinking the privatization approach and clarifying the GOS expectations.

Main Lessons and Revised Strategy for Public/Private Partnership in the Electricity Sector

8. The first privatization of SENELEC and the second attempt demonstrated that: (a) there is limited appetite among reputable developers of power projects to finance large investments in difficult emerging markets; and (b) privatization strategies and responsibilities need to be very carefully designed, understood and owned by the different stakeholders. In the case of Senegal's power sector, not only are the required investments large, but the electricity tariffs are high and cannot be raised much higher to finance investments without having an impact on the economy. This led GOS to conclude that it: (i) could continue to rely on private sector to make the large investments needed in power generation (through IPPs) with incentives, if they are justified, which is an area where investment has been notably lacking; (ii) would adopt a private public partnership approach for SENELEC, giving the strategic partner a majority of the shareholding of the concession company, while not requiring it to make a substantial financial commitment at the outset; and (iii) would request the Donors to finance a substantial part of SENELEC's investment program, at least for the first five years.

9. GOS and SENELEC, therefore, prepared a long-term investment program to be implemented in two phases. Such investment program was finally approved by the Board of Directors of SENELEC in March 2005. The first phase of the program (2005-2007) comprises urgent investments and maintenance to be made in generation, transmission and distribution, in order to prevent a technical and financial collapse of the electricity sector and to support the economic and social growth. Most of these investments and the proposed maintenance should have been conducted years ago, but were neglected, mostly because GOS's and SENELEC's efforts and attention were focused on the privatization of SENELEC, as well as on SENELEC's financial constraints. In the second phase (2008-2011), investments will be made to expand coverage and improve efficiency. The Bank proposes to support this program through a two-phase APL.

Annex 2: Major Related Projects Financed by the Bank and/or other Agencies

SENEGAL: ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROJECT

World Bank Financed Projects

Project Name	ID	IBRD/ IDA	Product Line	Status	Approval Date	RATING	Sector issues
Energy Sector Adjustment Credit Project	P051357	100	IBRD/ IDA	Closed	19 - May -98	S	Rationalizing distribution and consumption of electricity. Decentralization of forestry resources management
Sustainable and Participatory Energy Management Project (PROGEDE I)	P046768	5.2	IBRD/ IDA	Active	12-Jun-97	HS	Ensuring and expanding sustainable supply of wood fuels
Electricity Services for Rural Areas Project		29.9	IBRD/IDA	Active	09-Sept-04	--	Increase access to electricity services for private, social and productive uses
Long Term Water Sector Project	P041528	125	IDA	Active	06-March-01	HS	Increase access to Water and Sanitation Services and Strengthen the reform of the sector
Private Sector Adjustment Credit	P080013	45	IBRD/ IDA	Active	18-March-04	S	Implementation of sub-sector reforms aimed at improving the investment climate and accelerating private sector growth and employment
Private Investment Promotion Project	P051609	33.8	IBRD/ IDA	Active	20-May-03	S	Sustained increase in private investment through an improved investment climate, greater private participation, in economic activities, and policy and sector reform

Other Development Agencies

IFC	Financing of the first IPP (GTI) in 1998
BOAD	Thermal generating units for Dakar and other centers
ADB - PAPIL	Small Irrigation
GTZ - PERACOD	Photovoltaic Solar Energy
AECI (Spain) - ISOPHOTON	Photovoltaic Solar Energy
UNDP - Multifunctional Platforms Program	Mechanical Energy and Electricity in Rural Areas

Annex 3: Results Framework and Monitoring

SENEGAL: ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROJECT

Project Development Objective	Outcome Indicators (1)	Use of Outcome Information
Increasing the electricity supply and the reliability of the electricity services needed by the economy and the population.	• New generating facility of 67.5 MW commissioned in 2006 (the Kounoune Project). • Electricity consumption increased from 1,538 GWh in 2004 to 1,875 GWh in 2007. • Undelivered energy reduced from 14 GWh in 2004 to 8 GWh in 2007.	• Check if generation additions are timely. • Check if sales of electricity have increased. • Update demand forecast. • Check reliability and quality of electricity services and performance of IPPs and SENELEC.
Reducing the costs of electricity services.	• Reduction in the variable costs of electricity generated and purchased by SENELEC by 7% in 2007 (based on the 2004 petroleum products price levels). • Decrease in technical and non-technical transmission and distribution losses (T/D) as a % of net generation from 17.5% in 2004 to 15.5% in 2007.	• Check extent of costs reduction. • Determine impact on SENELEC's finances. • Determine if further cost reductions are possible. • Evaluate if loss reduction program is succeeding.
Enhancing the performance of key energy sector institutions.	• Monitoring and Evaluation (M&E) system for the energy sector set-up. • New electricity tariff mechanism set-up. • Adoption of a training program for public sector staff. • Implemented the public/private partnership arrangements decided by GOS for SENELEC.	• Planning and information available to decision-makers. • Project monitoring. • Monitor progress in reform of the tariff adjustment mechanism. • Assess if more intensified training is needed. • Monitor execution of GOS action plan for implementing the public/private partnership in the electricity sector.

(1) Base line: 2004.

Intermediate Results by Component	Results Indicators for Each Component	Uses of Results Monitoring
PART A: Support to SENELEC		
Component A1: SENELEC- Generation, Transmission, Distribution Facilities		
Component A.1.1 Generation: Beginning of construction by selected Sponsors and commercial commissioning of the Kounoune I IPP.	Satisfactory operation of Kounoune I IPP (67.5 MW) diesel units.	Check when additional generating capacity is available.
Components A.1.2 and A.1.3 Distribution and Transmission networks Award of contracts and completion of works relating to the transmission and distribution networks.	Transmission and distribution losses reduced to 15.5% by 2007.	Evaluate impact of proposed investments on network losses and on SENELEC's finances.
Component A2: Technical Assistance to SENELEC Award and Completion of master plans studies for generation, transmission and distribution. Selection of advisors for Kounoune II IPP.	Least cost plans for generation, distribution and transmission available to SENELEC and financiers. External advisors to SENELEC and GOS for Kounoune II IPP.	Determine if SENELEC's investment program needs adjustments and assess potential impacts on SENELEC's finances. Take decisions on future priority investment and seek financing. Provide expert and independent advice on Kounoune II IPP.
Part B: Institutional Strengthening and Long Term Development of the Energy Sector		
Component B1: Communication, Monitoring and Evaluation Completion of Communication Plan. Compiling/Setting up of Monitoring and Evaluation Data Base	Communication Plan finalized. Monitoring and Evaluation Indicators defined for energy sector and Project.	Assess effectiveness of communication plan and disconnects. Determine adequacy of indicators for energy sector and for project.
Component B2: Institutional Strengthening and Long Term Development of the Energy Sector Implementation of the public/private partnership arrangements decided by GOS for SENELEC.	Operational and financial targets agreed with GOS for the selected public/private partnership arrangements.	Track progress on the implementation of the new public/private partnership arrangements for SENELEC.
Preparation of Phase II investment plans.	Investments projects under preparation	Track degree of definition and maturation of SENELEC next investment phase.

Arrangements for results monitoring

		Target Values			Data Collection and Reporting		
Outcome Indicator	**Baseline (2004)**	**YR1 (2006)**	**YR2 (2007)**	**YR3 (2008)**	**Frequency and Reports**	**Data Collection Instruments**	**Responsibility for Data Collection**
Kouunoune I IPP Project	N/A	67.5 MW	67.5 MW	67.5 MW	Quarterly and Yearly	Reports from SENELEC and IPP; Bank Supervision missions	PCU, SENELEC
SENELEC's energy sales (GWh) for the interconnected system.	1 538 GWH	1 769 GWh	1 875 GWh	1 987 GWh	Id.		Id.
Interruption of power deliveries on the IS	16 GWH	14 GWh	10 GWh	8 GWh	Id.	Id.	Id
Reduction in variable costs of SENELEC's generation and purchases.	Index=100 for baseline year	97	95	94		Id.	
Transmission and distribution networks losses (as % of energy sent out)	Networks: Overall performance: 80%	81%	82%	84.5%	Id.		Id
Results Indicators for Each Component							
Component A1 Commercial commissioning of Kounoune I IPP Project.	N/A (IPPs not built.)	67.5 MW	67.5 MW	67.5 MW	Quarterly f	Sponsors and SENELEC progress reports.	SENELEC, IPP Sponsors, PCU.
Transmission and distribution networks losses (as % of energy sent out)	Networks: Overall performance: 80%	81%	82%	84.5%	Quarterly	SENELEC progress reports.	SENELEC, PCU.
Component A2 Capacity building/Training of SENELEC's Human Resources\	N/A	50%	80%	100%	Quarterly and Yearly.	SENELEC reports	PCU and SENELEC
Component A3 a) Completion of master plans for generation, transmission and distribution.		Consultant's work initiated	Plans approved by SENELEC and GOS		Quarterly and Yearly:	Quarterly and Yearly. SENELEC reports.	SENELEC reports.

		Target Values			Data Collection and Reporting		
Outcome Indicator	**Baseline (2004)**	**YR1 (2006)**	**YR2 (2007)**	**YR3 (2008)**	**Frequency and Reports**	**Data Collection Instruments**	**Responsibility for Data Collection**
b) Advisors for Kounoune II IPP.		Consultants hired'	Work completed.		Quarterly and Yearly	SENELEC's reports.	PCU and SENELEC.
Component B1: Effective and regular communication and consultations with stakeholders.	N/A	N/A	N/A	N/A	Quarterly and Yearly: PCU reports.	PCU reports.	PCU
Monitoring and Evaluation System (ME) and for f project outcomes and of implementation of components.	N/A	ME system designed and set-up	ME reports	ME reports	Quarterly and Yearly	PCU reports.	PCU
Project External Audits	N/A	Project Audit report	Project Audit report	Project Audit report	Yearly:	Auditors	PCU
Component B2: Delineation and Implementation of the public/private partnership arrangements decided by GOS for SENELEC.	N/A	50% activity completion	100% activity completion	Implemente d	Quarterly and Yearly:	PCU and Task Force reports.	PCU
Assessment of options to reduce costs	N/A	80% activity completion Id.	100% activity completion	100% activity completion	Quarterly and Yearly	PCU and MEM reports.	PCU
Critical studies required by MME and CRSE.	N/A	100% activity completion	. 100% activity completion	. 100% activity completion	Quarterly and Yearly	PCU, MEM, CRSE reports.	PCU

Annex 4: SENELEC- Demand for Electricity, Existing Infrastructure and Investment Program

SENEGAL: ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROJECT

1. This Annex describes the electricity demand expected to be supplied from the Interconnected System (IS), managed by SENELEC, the condition of the existing electrical facilities managed by SENELEC and its investment program - in particular the generation program - over the next 10 years required to meet the demand for electricity and to increase the quality of services.

The Demand for Electricity

Past and Current Demand for Electricity on the Interconnected System

2. In 2004, SENELEC's total sales were 1,538 GWh, of which 1,463 GWh (95%) were made through the IS [7]. In 2004, gross generation requirements (including power purchases from the Manantali regional hydroelectric project and the GTI IPP) were 1,921 GWh. Peak demand was 337 MW (Table 4.2 below). Over the past 10 years (1994-2004), electricity sales have increased, on average, by 6.0% p.a.; over the 2000-2004 periods, growth has been around 7.6% p.a.. Sales to residential customers increased by 9.7% p.a. over the 2000-2004 period, while sales to medium voltage customers increased by about 3.3% p.a.. During this period, GDP growth was about 5% p.a., while electricity tariffs remained constant in real terms.

3. Structure of Electricity Demand. The structure of electricity demand during the 2000-2004 periods, and its expected evolution over the 2004-2014 planning period, are presented below (Table 4.2). In 2004, low voltage residential demand represented 60% of SENELEC's sales. Because of the relative high expected growth of the demand from residential customers, they are expected to further increase to 69% by 2013. This structural change reflects an increasing use of electricity by residential customers (the unit consumption by customer increased by more than 3%p.a. over the 2000-2004 period), an increasing urban population, and GOS's strategy of significantly increasing access to electricity in the urban and rural areas (see Annex 1).

Table 4.1: Structure of SENELEC' Demand for Electricity

Year	Sales (GWh)	Sales to Low Voltage Customers (GWh)	Number of low voltage customers (000)	Access rate – SENELEC's perimeter	Access rate – SENELEC's urban perimeter	Medium Voltage Customers Sales (GWh)	High Voltage Customers Sales (GWh)
2000	1,149						
2001	1,295	675	349	32.0%	56.0%	418	202
2002	1,352	739	376	33.6	57.9%	426	187
2003	1,444	829	409	35.6	60.9%	456	159
2004	1,538	917	450	38.2	64.7%	479	142

4. Geographical Distribution of Electricity Demand. About 80% of the electricity consumed in Senegal is consumed in the greater Dakar area, which includes the urban centres of Dakar, Pikine-Guediawaye and Rufisque. In 2002, this area housed 25% of Senegal's population (around 2.3 million out of a population of about 10 million). While the overall population in Senegal is

[7] In 2004, the main isolated centers are: Ziguinchor, Tambacounda and Kolda. In addition, SENELEC operates in about 20 smaller isolated centers.

expected to grow by 2.3%-2.5% p.a., the population of the greater Dakar area is expected to grow by 3.5% p.a..

5. Seasonal Variations in Electricity Demand in Senegal is relatively limited, with a main peak month in October. A second slightly lower peak is registered in March; these peaks are associated with the additional lighting and air conditioning demand. The daily peak is registered between 8:00 pm and 9:00 pm caused by the demand from the residential customers. In 2004, the IS load factor was 60%. It is expected that this load factor will slightly decrease, because of the relatively high demand growth expected from the residential customers. Demand side management measures will tend to balance this effect, but such programs will be in full force only starting in 2008.

6. Electricity Demand Forecasts (Base Case, Low Demand and High Electricity Scenario)

The Table 4.2 presents the base case net electricity requirements for the IS and the corresponding peak generation (MWs), as foreseen by SENELEC. With respect to the next 10 years (2005-2015 period), SENELEC base case net deliveries to the IS are expected to grow at about 7.8% p.a.. This reflects a forecast economic growth of 5.5% p.a.[8], a constant nominal tariff and a significant increase in the number of new residential customers, set to bring the access rate to electricity services in urban areas from 65% in 2004 to 86% in 2015.

Table 4.2: SENELEC - Base Case Demand for Electricity and Peak Generation – IS

Year	Sales (GWh)	Overall System Efficiency (%)	Net Deliveries to the IS (GWh)	Load Factor (%)	Peak Generation (MW)	Annual Peak Increase (MW)
1994	826					
2000	1,149	78.2%				
2001	1,295	78.4%				
2002	1,352	78.5%	1,593			
2003	1,444	79.1%	1,696			
2004	1,538	80.1%	1,769	60%	337	48
2005	1,648	81.0%	1,895	60%	361	30
2006	2,147	83.0%	2,204	60%	419	59
2007	2,302	85.0%	2,329	60%	443	24
2008	2,473	86.0%	2,424	60%	461	18
2009	2,660	86.0%	2,550	60%	485	24
2010	2,865	86.0%	2,829	60%	538	53
2011	3,091	86.0%	3,001	60%	571	33
2012	3,339	86.0%	3,192	60%	607	36
2013	3,612	86.0%	3,424	60%	651	44
2014		86.0%	3,649	60%	694	43
2015		86.0%	3,919	60%	746	51
Annual Increase – 2005-2015	8.1%		7.8%		7.8%	40 MW

Source: SENELEC – Financial forecast of November 2004

[8] GDP growth was 6.5% in 2003 and is estimated to be 6% in 2004.

7. Electricity Demand Forecasts (Base Case, Low Demand and High Electricity Scenario). SENELEC's energy and peak demand forecasts are summarized in Table 4.3. Base case demand forecast on the IS provided for a 7.8% p.a. growth rate, with higher growth in the initial years. This appears somewhat optimistic and, for the purpose of the review of the overall Project and of its components, the Bank has relied on a base case demand growth of 7.5% for 2005 and 2006, 7% from 2007 to 2010, and 6% thereafter. This reflects an average 6% p.a. GDP growth, a 1% income elasticity, electricity tariffs constant in real terms and the fact that some demand has not been served in recent years. The Bank high demand forecast corresponds to SENELEC's base case forecast.

Table 4.3: SENELEC's Energy and Peak Demand Estimates for the IS

	Low Demand	Base Case	High Demand
Net Energy Delivered (GWh)	2007: 2,288 2010: 2,602	2007: 2,329 2010: 2,829	2007: 2,721 2010: 3,462
Peak Demand (MW)	2007: 435 2010: 495	2007: 443 2010: 538	2007: 518 2010: 659
Annual growth rate – 2005-2015 (%)	5.8%	7.8%	9.4%

Source: SENELEC: Generation Plan 2005-2015 (Dec. 2004)

Existing Electricity Infrastructure and Investment Program (2005-2013)

8. Many of SENELEC's power generating units are fairly old, very costly to operate, and have a low technical and economic performance, despite the implementation of rehabilitation programs. In addition, because of delays in investment and, sometimes, poor investment decisions, generating units designed to operate on a peaking basis are currently being operated as base load units. Similarly, SENELEC's transmission and distribution system is in need of extensive rehabilitation and extension works because of the age of the equipment, heavy marine pollution, the continuous electricity demand increases and overloading of the installations. The current transmission system configuration also puts the whole supply of electricity to the greater Dakar area in a very risky situation. With respect to the existing infrastructure, the overall conclusion is that insufficient investments, rehabilitation and maintenance, together with poor investment decisions have led to a situation that calls for urgent and substantial new investments and rehabilitation.

Generation Facilities

Existing Generating Facilities

9. The existing generation facilities available to the IS are described below (Table 4.4). In 2004, total installed generation capacity was 489 MW, comprising 371 MW of SENELEC's own generation facilities, 52 MW of the GTI IPP and 66 MW from the Manantali regional hydroelectric facility.

Table 4.4: Existing Generation Facilities

Location	Facility	Commissioning Date	Type of Fuel	Installed capacity (MW)	Available capacity (MW)	Specific Consumption (g/kWh)
Manantali	Manantali	2002	Hydro	66 (1)	60	Hydro
Bel-Air (Dakar)	C1 Diesel	1990	Fuel Oil	10.0	10.0	220
Cap des Biches (Dakar)	C4 Diesel	1989-2003	Fuel Oil	89	84	200-215
Cap des Biches (Dakar)	C5 Diesel	2000	Diesel	16	12	220
Kahone (Kaolack)	Kahone	1982-1988	Fuel Oil	14	11.2	230
St-Louis	Saint-Louis	1979	Fuel Oil	6.0	5	140
Bel-Air (Dakar)	C2 Steam	1953-1961	Fuel Oil	51.2	16	495
Cap des Biches (Dakar)	C3 Steam	1966-1978	Fuel Oil	87.5	83	295
Cap des Biches (Dakar)	C3 GT	1972-1995	Diesel/Jet Fuel	60.5	40	360-395
Bel Air (Dakar)	C2 GT	1989	Diesel	36.5	32	330
IPP GTI	GTI	2000	Naphta	52.0	50	193

(1) Regional hydroelectric facility on the Senegal River, shared with Mali and Mauritania. Senegal share is up to 1/3rd of the power plant output.

10. As shown in the previous table, some of SENELEC's key base load plants, in particular the steam units of Cap-des-Biches and of Bel-Air, are very old (more than 30 to 40 years old) and have very high unit consumption. Furthermore, in 2003 and 2004 in particular, because of delays in the commissioning of new generating units, power plants with high variable costs (such as the Cap-des-Biches and the Bel-Air gas turbines) have been used as base load units. This has significantly increased SENELEC's costs of generating electricity. By bringing on line new base load plants, the proposed generation investments aim at rationalizing the dispatching of SENELEC's generating units, which will therefore result in a reduced generating cost.

Generation Requirements

11. Additional generation is, therefore, urgently required by SENELEC in order to: (a) meet an electricity demand increasing by about 25 - 35 MW per year (see Table 4.2 above); (b) replace some of the existing generating units because of their physical conditions and/or their high variable costs (see Table 4.4 above); and to (c) carry-out deferred maintenance programs. The short, medium and long term options for generation and the least cost plan available to SENELEC are discussed below.

12. Short Term Options (mid 2005-2007). In the short term (i.e., the next 18 months), as no other generation alternative is ready for implementation, Senegal will have to rely on domestic thermal generation using imported or locally refined petroleum products. For base load generation, the units should rely on fuel oil or crude oil. For 2005 and early 2006, and in view of the delays in the preparation and negotiation of the PPA for the Kounoune Project, SENELEC has compared different options and decided to lease on a short term basis about 40 MW of thermal power, with an option to increase it to 60 MW. Bid documents to that effect have already been circulated to 4 firms. By the end of 2006, however, SENELEC should benefit from the output of: (a) the Kounoune Project, with 67.5 MW of installed capacity, to be built and operated by the

MEE/Matelec consortium; and (b) the Bel-Air 60 MW HFO plant, expected to be financed by the Islamic Development Bank. SENELEC has decided to proceed with the Bel-Air project in order to speed up the commissioning of new generating capacity. GOS has confirmed that the selection of the manufacturer and of a private operator for this plant will be subject to international competitive bidding.

13. Medium and Long Term Supply Options (2008-2015). Senegal's medium and long term electricity supply options are: (a) imports from Guinea, relying on Guinea's abundant and relatively cheap hydroelectric potential, from the WAPP, or from the OMVS hydroelectric projects, in particular from Félou and Gouina; and (b) domestically sited thermal projects using imported petroleum products, domestic hydrocarbons (if such resources could be confirmed and developed in an economic way), or imported coal. Power from the regional projects will be available at the earliest by 2009, except for the OMVS Félou hydroelectric project, which could be commissioned by 2008. Félou's contribution to Senegal's requirements will, however, be only about 20 MW[9]. The deliveries of hydrocarbon resources to Senegal (including potential natural gas from Mauritania or other countries with associated gas) for power generation will take time, and is therefore not an option within the next 5-7 years. Imported coal is another medium to long term option that will, however, take significant time to develop, as key port and transport infrastructure will need to be developed and a minimum plant size of about 100 MW is generally required in order to make such project economical.

14. Costs of Base Load Generation Alternatives. Base load generation costs based on facilities located in Senegal and costs of power imports delivered to Dakar (Senegal's main load centre) are compared below (Table 4.5). This table shows that, based on the information currently available, in the short to medium term, Senegal will have to rely first on domestic diesel generation using imported HFO, and then on imports from the Félou, Gouina and other Guinea hydro projects. Although coal could be an option, it has not been thoroughly assessed yet for Senegal.

[9] Using the allocation rule agreed by Mali, Mauritania and Senegal for the Manantali hydroelectric project.

Table 4.5: Costs of delivered power – Base Load Units

Project	Energy available to SENELEC (GWh)	Earliest Commissioning date	Costs of power delivered to Dakar (FCFA c/kWh)	Costs of delivered power (US cents/kWh)
Diesel – Heavy Fuel Oil		128 MW: mid-2006	33-40	6.0-7.3
Steam unit – Heavy Fuel Oil		2007	42	7.6
Coal fired Generation		2008	39	7
Combined Gas Cycle – Diesel oil		mid-2006	45	8.1
Combined Gas Cycle – Natural Gas (2)		mid 2008	30-40	5.4-7.3
Imports from Guinea (3)	367	2009-2010	33-38	6-6.9
Imports from Cote d'Ivoire, Ghana/WAPP		2008	44	8.0
Félou Hydro.	90	2007	30	5.5
Gouina Hydro.	161	2009	34	6.2

Source: SENELEC - Generation Plan – Dec. 3, 2004 and Bank staff estimates
Note: (1) 1 US$= 550 FCFA
(2) Natural gas costs could vary substantially
(3) Sambangalou and Kaleta

Rehabilitation Options

15. SENELEC had been considering an important rehabilitation of the Cap-des-Biches three steam units (see Table 4.4). These units are fairly old (27 to 39 years old), have been rehabilitated in the past, and currently have high variable operating costs. Also, significant uncertainty exists regarding the ultimate cost of this rehabilitation (estimated by SENELEC to be about US$25-US$30 million) and about the expected results over time. After considering the feasible options, GOS, SENELEC and the Bank have agreed that such costly rehabilitation is not justified from a technical and the economic perspective, and that SENELEC should rather: (a) keep the units running with a minimum maintenance budget; and (b) progressively commission new, more efficient and reliable generation units to replace the Cap-des-Biches steam units.

SENELEC's Generation Plan

16. SENELEC has developed a 2005-2015 generation plan optimizing the generation mix and dispatch to meet the IS demand needs within a maximum loss of load of 3 days/year and assuming opportunity costs of US$1.14/kWh (FCFA 629/kWh)[10]. The results of the optimization carried out by SENELEC, for new capacity requirements for the IS over the 2005-2015 period, are presented below (Table 4.6). These base load requirements reflect: (a) SENELEC's base case electricity demand increase of 7.8% p.a. (as previously discussed); (b) an estimate of the demand currently not being served; and (c) an optimized dispatch of the gas turbines of Cap-des-Biches and of Bel-Air as peaking units.

17. As indicated below, over the 2005-2010 period, the required capacity additions for the IS in Senegal are estimated to be, according to SENELEC, 188 MW, of which 127.5 MW will be in

[10] Based on an investment in gas turbine operating for 3 days per year, a maximum loss of load of 3 days per year and a discount rate of 10%.

the form of IPPs (i.e., the Kounoune Project of 67.5 MW and Kounoune II IPP of at least 60 MW). In addition, to manage the likely power shortages during 2005 in the peak periods, SENELEC has requested bids for leasing of about 40 MW to be available starting in June 2005.

Table 4.6 SENELEC's Interconnected System (IS): Capacity Requirements

Year	Demand Growth on the IS (MW)	Domestic New Capacity Requirements (MW)	Retirements (MW)	Total New Capacity Requirements (MW)
2005	30	(1)		
2006	59	128		128
2007	14	60	27.5	87.5
2008	18			
2009	14	Imports	27.5	Imports +60 MW
2010	53		27.5	
2011	33	Imports		Imports
2012	36	Imports		Imports
2013	44	60		60
2014	43	60		60
2015	51	60		60

Source: SENELEC – Generation Plan (2005-2015) – Dec. 2004
(1) Generating units to be leased in the second part 2005 and in the first part of 2006.

18. The Bank's assessment of the IS electricity demand and supply over the 2005-2015 period is provided in Attachment 1 of Annex 4, using the Bank base and high demand case scenarios. This assessment concludes that, in order to be able to supply demand with an acceptable reliability (N-1 criteria) and to carry out the much needed rehabilitation and maintenance programs, SENELEC should commission between 160 MW to 180 MW over the 2006-2008 period. This will allow servicing the additional demand (estimated to be about 120 MW), retire expensive units (such as the St-Louis and the Kaolack units – 15 MW) and carry out maintenance on the Cap-des-Biches steam Units (28 MW).

Transmission and Distribution Networks

19. Except for the 225 kV line linking the regional Manantali hydro project (located in Mali) to Tobene and Sakal, SENELEC's main transmission system is currently concentrated in the urban areas, since about 80% of Senegal's electricity consumption is generated and consumed in the greater Dakar area. Key 90 kV/30 kV substations are located at Cap-des-Biches, Hann, Thiona (Thies); the Bel-Air substation is at the 90 kV/6.6 kV level. Distribution voltages are at the 30 kV and 6.6 kV and the low voltage distribution is carried out at 220/380 kV (some areas are still at 127/220 kV).

Transmission and Distribution System Performance

20. Table 4.7 below presents the performance of SENELEC's transmission and distribution system since 1999. As shown in this table, overall technical and non-technical losses have been around 16% to 18% of net generation, reaching 17% in 2004, with technical losses representing about 50% of the total network losses. SENELEC intends to rehabilitate its transmission and distribution networks, partly through the proposed Project. Based on experience, the Bank staff has estimated that such losses will decrease only gradually to a level of about 14% by 2015. SENELEC has estimated that over 10 years such losses could be reduced to 12%.

Table 4.7 Transmission and Distribution Networks Performance

GWH or %	1999	2000	2001	2002	2003	2004
Gross Generation	1,339	1,323	1,345	1,178	1,143	1,312
Net generation	1,144	1,231	1,213	1,118	1,084	1,140
Purchases/Imports	9	153	307	547	684	608
Energy Delivered to Distribution	1,253	1,384	1,520	1,665	1,768	1,848
Sales	1,063	1,149	1,295	1,352	1,444	1,538
Overall Performance	78.9%	77.8%	78.4%	78.4%	79.1%	80.1%
Transmission and Distribution Performance	84.8%	83.0%	85.2%	81.2%	81.7%	83.2%

Source: SENELEC – 1999-2004 Activity report

21. Non-Delivered Energy. In 2004, the non-delivered energy on the IS was estimated to be 14 GWh, with 8 GWh related to generation and 6 GWh related to the networks. For 2003, non-delivered energy was estimated to be about 7 GWh. With the planned investments in generation, transmission and distribution it is expected that non-delivered energy will be reduced to 2% by 2015; without such investments, non-delivered energy is estimated to increase to 20 GWh by 2015.

Main Planned Investments in Transmission and Distribution

22. In addition to the rehabilitation of the existing transmission facilities, SENELEC's main investments over the next 5 years (2005-2010) are: (a) a 225 kV transmission line and the associated substations between Tobene, Touba and Kaolack (US$31 million) to supply the growing demand of the Touba region and reduce losses; and (b) a 90 kV loop to increase security and reliability of supply in the greater Dakar area (US$25 million). Beyond 2005, SENELEC plans to develop the transmission links between the existing IS and the Ziguinchor area and the Guinea - Tambacounda transmission link.

23. With respect to distribution, SENELEC's main objective is to increase the quality of electricity services and the access to electricity services in urban areas from 65% in 2005 to 86% in 2015.

SENELEC Investment Program (2005-2015)

24. SENELEC's investment in generation, transmission and distribution is summarized below (Table 4.8) and detailed in Attachment 2 of Annex 4. Over the next 10 years, SENELEC's investments are estimated to be around US$439 million. Regarding its generation requirements, and following GOS's policy, most of the new generation facilities will be provided by IPPs (with credit enhancement support, as needed) and by regional interconnections (the OMVS, OMVG and WAPP programs).

Table 4.8: Summary of SENELEC 2005-2013 Investment Program

Type	2005-2013	2005-2007
Generation (new and rehabilitation)	125(1)	98(1)
Transmission (new and rehabilitation)	187	140
Distribution	103	47
Total	415	285.8

Source: SENELEC – Investment Program

(1) Of which US$60 million are for the Bel-Air diesel power plant, expected to be financed by the Islamic Development Bank.

Annex 4.1 - Generation: Demand/Supply Balance
(World Bank Scenario)

ANNEX 4.1, P.1 - ENERGY DEMAND AND SUPPLY BALANCE - INTERCONNECTED SYSTEM -

Jan/3/05 — (WB Base Case Load Growth and Cap-des-Biches Maintenance program)

Average demand grow: 7.50% per year 2005 and 2006; 7.00% per year 2007-2010; 6.00% per year 2011-2015

	Energy (G	2002	2003	2004 (estimated)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
ENERGY and PEAK DEMAND															
Sales on Interconnected System (IS) (GWh)		1593	1696	1769	1902	2044	2187	2341	2504	2680	2840	3011	3192	3383	3586
Net Energy Generated Required on IS (gWh)		64.26%	60.69%	61.01%	60.00%	59.50%	59.00%	59.00%	59.00%	59.00%	59.00%	59.00%	59.00%	59.00%	59.00%
Load factor (%)		283	319	331	362	392	423	453	485	518	550	583	618	655	694
Peak Demand (MW)		14	36	48	31	30	31	30	32	34	31	33	35	37	39
Incremental Demand (MW)															
ENERGY BALANCE (GwH)															
Manantali		194	337	322	225	225	225	225	225	225	225	225	225	225	225
Bel- Air Diesel (C1)		24	19	48	48	48	48	48	48	48	48	48	48	48	48
Cap-des-Biches - Diesel (C4 and ?? C5)		304	463	525	525	525	525	525	525	525	525	525	525	525	525
Kahone Diesel		45	44	44	44	0	0	0	0	0	0	0	0	0	0
Saint Louis Diesel		14	1												
Bel-Air Vapeur (C2)		73	52	23	23	23	0	0	0	0	0	0	0	0	0
Cap-des-Biches - Steam Units w/Maintenance (C3)		394	344	379	360	360	240	240	150	0	0	0	0	0	0
IPP GTI		353	346	286	350	350	326	293	306	306	306	306	306	306	306
Cap-des-Biches TAG (C3)		113	41	34	34	20	20	20	20	20	20	20	20	20	20
Bel-Air TAG (C2)		81	51	30	30	10	10	10	10	10	10	10	10	10	10
Leased Capacity/Energy				0	263	285	0								
Kounoune I HFO IPP	420					105	420	420	420	420	420	420	420	420	420
Bel-Air New HFO Diesel	373	0				93	373	373	373	373	373	373	373	373	373
Kounoune II HFO IPP	373						0	187	373	373	373	373	373	373	373
Imports (Felou, Gouina, Guinea, WAPP)									54	380	540	711	892	1083	1286
Total		1595	1698	1691	1902	2044	2187	2341	2504	2680	2840	3011	3192	3383	3586
Excess/Deficit		2	2	-78	0	0	0	0	0	0	0	0	0	0	0

ANNEX 4.1, P.2 - CAPACITY DEMAND AND SUPPLY BALANCE - INTERCONNECTED SYSTEM -

(WB Base Case Load Growth and Cap-des-Biches Maintenance program)

Average demand grow 7.50% per year 2005 and 2006
7.00% per year 2007-2010
2015 per year 2011-2015

	Energy (G	2002	2003	2004 (estimated)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
CAPACITY BALANCE (MW)															
Peak Demand (MW)	0	283	319	331	362	392	423	453	485	518	550	583	618	655	694
Incremental Demand (MW)	0	14	36	48	31	30	31	30	32	34	31	33	35	37	39
Manantali		32	56	60	42	42	42	42	42	42	42	42	42	42	42
Bel- Air Diesel (C1)		8	8	8	8	8	8	8	8	8	8	8	8	8	8
Cap-des-Biches - Diesel (C4 and ?? C5)				81	81	81	81	81	81	81	81	81	81	81	81
Kahone Diesel		8	8	8	9	9	4	4	0	0	0	0	0	0	0
Saint Louis Diesel		5	5	0	0	0	0	0	0	0	0	0	0	0	0
Bel-Air Vapeur (C2)		16	16	8	8										
Cap-des-Biches - Steam Units w/Maintenance (C3)		77	75	75	60	60	40	40	25	0	0	0	0	0	0
IPP GTI		50	50	50	50	50	50	50	50	50	50	50	50	50	50
Cap-des-Biches TAG (C3)		40	40	39	39	39	39	39	39	39	39	39	39	39	39
Bel-Air TAG (C2)		32	32	32	32	32	32	32	32	32	32	32	32	32	32
Leased Capacity/Energy					33	72									
Kounoune I HFO IPP	67.5					0	68	68	68	68	68	68	68	68	68
Bel-Air New HFO Diesel	60.0					0	60	60	60	60	60	60	60	60	60
Kounoune II HFO IPP	60.0						0	60	60	60	60	60	60	60	60
Imports (Felou, Gouina, Guinea, WAPP)									50	109	140	173	208	245	284
Total		269	291	361	362	393	424	484	514	548	579	612	647	684	723
Excess/Deficit		-14	-28	30	0	0	1	31	30	30	30	30	30	30	30
Excess/Deficit (N-1): 30 MW		-44	-58	0	-30	-30	-29	1	0	0	0	0	0	0	0

Annex 4.2 a – SENELEC Investment Program (in FCFA)

SENELEC'S INVESTMENT PROGRAM (2005-2013) (Millions de FCFA)

(Program as of March 23 2005)

		Total 2005-2013	Total 2005-2007	Total 2008-2013	2005	2006	2007	2008	2009	2010	2011	2012	2013
	GENERATION												
Urgent	60 MW IPP I Kounoune	0	0	0	0								
Urgent	Rehabilitation of C3 (301,302,303) Cap des Biches	3500	3500	0	2500	1000							
Urgent	New Diesel Plant at Bel-Air 60 MW (SENELEC)	30000	30000	0	16500	13500							
Urgent	Extension of Generation at Ziguinchor (5MW)	4451	4451	0	3561	890	0	0					
Urgent	Extension of Generation at Tambacounda (5MW)	5651	5651	0	0	4521	1130	0					
	S-TOTAL URGENT GENERATION	**43602**	**43602**	**0**	**22561**	**19911**	**1130**	**0**	**0**	**0**	**0**	**0**	**0**
				0									
	60 MW IPP II Kounoune	0	0	0		0	0						
	Extension of Generation at Ziguinchor (5MW)	4500	0	4500				900	3600	0			
	Rehabilitation and Major Works	14163	5163	9000	2163	1500	1500	1500	1500	1500	1500	1500	1500
	S-TOTAL GENERATION (EXCL. URGENT INVESTMENTS)	**18663**	**5163**	**13500**	**2163**	**1500**	**1500**	**2400**	**5100**	**1500**	**1500**	**1500**	**1500**
	TOTAL GENERATION (EXC. IPPs)	**62265**	**48765**	**13500**	**24724**	**21411**	**2630**	**2400**	**5100**	**1500**	**1500**	**1500**	**1500**
	TRANSMISSION	0	0	0									
Urgent	Transmission Line and Substation Tobène-Toube -Kaolack	18849	18849	0	13006	5843							
Urgent	Transmission Ligne and Substation Sococim-Mbour 225 kV	3082	3082	0	2466	616							
Urgent	Substation 225/30 KV Mbour	1701	1701		1701								
Urgent	New Substation at Bel-Air (2x80MVA)	2320	2320	0	696	1624							
Urgent	New Substation at Mbao (2x40MVA)	1926	1926	0	578	1348							
	S-TOTAL URGENT TRANSMISSION	**27878**	**27878**	**0**	**18447**	**9431**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
		0	0	0									
	Strengthening of Existing Capacity of Substations	811	811	0	577	234							
	Rehabilitation of HV Substations	6694	5084	1610	2378	2106	600	500	200	210	222	233	245
	Rehabilitation of Transmission Lines	5228	3789	1439	1445	2144	200	210	221	233	245	258	272
	Rehabilitation of 30/6.6 kV and LV Substations	4090	3009	1081	540	2319	150	158	166	175	184	194	204
	Replacement of 30 kV lines Mbour-Fatick and Ouoros-Semme	2600	2600	0	1560	1040							
	Construction of the Dakar 90 kV Loop	21023	18373	2650	102	11666	6605				2650		
	Transmission Line and Substation Kayes-Tambacounda	9000	0	9000							4500	4500	
	30 kV Regional Lines (700 kms)	7000	0	7000					1500	1500	1500	2500	
	Dispaching and Telecommunications	9153	8653	500	0	3242	5411	500	0				
	S-TOTAL TRANSMISSION (EXCL.URGENT PROGRAM)	**65599**	**42319**	**23280**	**6602**	**22751**	**12966**	**1368**	**2087**	**2118**	**9301**	**7685**	**721**
	TOTAL TRANSMISSION	**93477**	**70197**	**23280**	**25049**	**32182**	**12966**	**1368**	**2087**	**2118**	**9301**	**7685**	**721**
		0	0	0									
	DISTRIBUTION	0	0	0									
Urgent	Dakar - Medium Voltage Network	5115	5115	0	2171	2494	450						
	S-TOTAL URGENT DISTRIBUTION	**5115**	**5115**	**0**	**2171**	**2494**	**450**	**0**	**0**	**0**	**0**	**0**	**0**
				0									
	Improvement in Quality of Service Program	14962	4651	10311	1569	1882	1200	1324	1460	1612	1779	1965	2171
	Extension of Distribution Network and Sales	18965	4749	14216	1594	1500	1655	1825	2014	2222	2453	2709	2993
	Improvements in SENELEC Commercial Agencies Program	12517	8917	3600	3161	2381	3375	600	600	600	600	600	600
	S-TOTAL DISTRIBUTION (HORS PROGRAMME D'URGENCE)	**46444**	**18317**	**28127**	**6324**	**5763**	**6230**	**3749**	**4074**	**4434**	**4832**	**5274**	**5764**
	TOTAL DISTRIBUTION	**51559**	**23432**	**28127**	**8495**	**8257**	**6680**	**3749**	**4074**	**4434**	**4832**	**5274**	**5764**
	S-TOTAL URGENT PROGRAM	**76595**	**76595**	**0**	**43179**	**31836**	**1580**	**0**	**0**	**0**	**0**	**0**	**0**
	S-TOTAL OTHER INVESTMENTS	**130706**	**65799**	**64907**	**15089**	**30014**	**20696**	**7517**	**11261**	**8052**	**15633**	**14459**	**7985**
	TOTAL PHYSICAL INVESTMENTS	**207301**	**142394**	**64907**	**58268**	**61850**	**22276**	**7517**	**11261**	**8052**	**15633**	**14459**	**7985**
				0									
	TOTAL GENERATION (EXCL. IPPs)	**62265**	**48765**	**13500**	**24724**	**21411**	**2630**	**2400**	**5100**	**1500**	**1500**	**1500**	**1500**
	TOTAL TRANSMISSION	**93477**	**70197**	**23280**	**25049**	**32182**	**12966**	**1368**	**2087**	**2118**	**9301**	**7685**	**721**
	TOTAL DISTRIBUTION	**51559**	**23432**	**28127**	**8495**	**8257**	**6680**	**3749**	**4074**	**4434**	**4832**	**5274**	**5764**
	TOTAL PHYSICAL INVESTMENTS	**207301**	**142394**	**64907**	**58268**	**61850**	**22276**	**7517**	**11261**	**8052**	**15633**	**14459**	**7985**

SENELEC Investment Program (FCFA) (March 2005)

Annex 4.2 b - SENELEC Investment Program (US$ Million)

SENELEC'S INVESTMENT PROGRAM (2005-2013) (Millions US$)

(Program as of March 23 2005)

1US$=FCF 500

		Total 2005-2013	Total 2005-2007	Total 2008-2013	2005	2006	2007	2008	2009	2010	2011	2012	2013
	GENERATION												
Urgent	60 MW IPP I Kounoune	0	0	0	0	0	0	0	0	0	0	0	0
Urgent	Rehabilitation of C3 (301,302,303) Cap des Biches	7	7	0	5	2	0	0	0	0	0	0	0
Urgent	New Diesel Plant at Bel-Air 60 MW (SENELEC)	60	60	0	33	27	0	0	0	0	0	0	0
Urgent	Extension of Generation at Ziguinchor (5MW)	9	9	0	7	2	0	0	0	0	0	0	0
Urgent	Extension of Generation at Tambacounda (5MW)	11	11	0	0	9	2	0	0	0	0	0	0
	S-TOTAL URGENT GENERATION	**87**	**87**	**0**	**45**	**40**	**2**	**0**	**0**	**0**	**0**	**0**	**0**
	60 MW IPP II Kounoune	0	0	0	0	0	0	0	0	0	0	0	0
	Extension of Generation at Ziguinchor (5MW)	9	0	9	0	0	0	2	7	0	0	0	0
	Rehabilitation and Major Works	28	10	18	4	3	3	3	3	3	3	3	3
	S-TOTAL GENERATION (EXCL. URGENT INVESTMENTS)	**37**	**10**	**27**	**4**	**3**	**3**	**5**	**10**	**3**	**3**	**3**	**3**
	TOTAL GENERATION (EXC. IPPs)	**125**	**98**	**27**	**49**	**43**	**5**	**5**	**10**	**3**	**3**	**3**	**3**
	TRANSPORT												
Urgent	Transmission Line and Substation Tobène-Touba -Kaolack	38	38	0	26	12	0	0	0	0	0	0	0
Urgent	Transmission Ligne and Substation Sococim-Mbour 225 kV	6	6	0	5	1	0	0	0	0	0	0	0
Urgent	Substation 225/30 KV Mbour	3	3	0	3	0	0	0	0	0	0	0	0
Urgent	New Substation at Bel-Air (2x80MVA)	5	5	0	1	3	0	0	0	0	0	0	0
Urgent	New Substation at Mbao (2x40MVA)	4	4	0	1	3	0	0	0	0	0	0	0
	S-TOTAL URGENT TRANSMISSION	**56**	**56**	**0**	**37**	**19**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Strengthening of Existing Capacity of Substations	2	2	0	1	0	0	0	0	0	0	0	0
	Rehabilitation of HV Substations	13	10	3	5	4	1	1	0	0	0	0	0
	Rehabilitation of Transmission Lines	10	8	3	3	4	0	0	0	0	0	1	1
	Rehabilitation of 30/6.6 kV and LV Substations	8	6	2	1	5	0	0	0	0	0	0	0
	Replacement of 30 kV lines Mbour-Fatick and Ouoros-Semme	5	5	0	3	2	0	0	0	0	0	0	0
	Construction of the Dakar 90 kV Loop	42	37	5	0	23	13	0	0	0	5	0	0
	Transmission Line and Substation Kayes-Tambacounda	18	0	18	0	0	0	0			9	9	0
	30 kV Regional Lines (700 kms)	14	0	14	0	0	0	0	3	3	3	5	0
	Dispaching and Telecommunications	18	17	1	0	6	11	1	0	0	0	0	0
	S-TOTAL TRANSMISSION (EXCL.URGENT PROGRAM)	**131**	**85**	**47**	**13**	**46**	**26**	**3**	**4**	**4**	**19**	**15**	**1**
	TOTAL TRANSMISSION	**187**	**140**	**47**	**50**	**64**	**26**	**3**	**4**	**4**	**19**	**15**	**1**
	DISTRIBUTION												
Urgent	Dakar - Medium Voltage Network	10	10	0	4	5	1	0	0	0	0	0	0
	S-TOTAL URGENT DISTRIBUTION	**10**	**10**	**0**	**4**	**5**	**1**	**0**	**0**	**0**	**0**	**0**	**0**
	Improvement in Quality of Service Program	30	9	21	3	4	2	3	3	3	4	4	4
	Extension of Distribution Network and Sales	38	9	28	3	3	3	4	4	4	5	5	6
	Improvements in SENELEC Commercial Agencies Program	25	18	7	6	5	7	1	1	1	1	1	1
	S-TOTAL DISTRIBUTION (HORS PROGRAMME D'URGENCE)	**93**	**37**	**56**	**13**	**12**	**12**	**7**	**8**	**9**	**10**	**11**	**12**
	TOTAL DISTRIBUTION	**103**	**47**	**56**	**17**	**17**	**13**	**7**	**8**	**9**	**10**	**11**	**12**
	S-TOTAL URGENT PROGRAM	**153**	**153**	**0**	**86**	**64**	**3**	**0**	**0**	**0**	**0**	**0**	**0**
	S-TOTAL OTHER INVESTMENTS	**261**	**132**	**130**	**30**	**60**	**41**	**15**	**23**	**16**	**31**	**29**	**16**
	TOTAL PHYSICAL INVESTMENTS	**415**	**285**	**130**	**117**	**124**	**45**	**15**	**23**	**16**	**31**	**29**	**16**
	TOTAL GENERATION (EXCL. IPPs)	**125**	**98**	**27**	**49**	**43**	**5**	**5**	**10**	**3**	**3**	**3**	**3**
	TOTAL TRANSMISSION	**187**	**140**	**47**	**50**	**64**	**26**	**3**	**4**	**4**	**19**	**15**	**1**
	TOTAL DISTRIBUTION	**103**	**47**	**56**	**17**	**17**	**13**	**7**	**8**	**9**	**10**	**11**	**12**
	TOTAL PHYSICAL INVESTMENTS	**415**	**285**	**130**	**117**	**124**	**45**	**15**	**23**	**16**	**31**	**29**	**16**

Annex 5: Energy Sector Detailed Program Description

SENEGAL: ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROJECT

Introduction

1. The development objectives of the proposed energy sector Program developed by Senegal are to: (i) maintain and quickly increase the electricity supply and the reliability of the services needed by the economy and the population; (b) reduce the costs of the electricity services; and (c) enhance the performance of key energy sector institutions. The Program is to be implemented as an APL in two phases. The proposed Project, described in Annex 6, will implement key activities of the first phase of the APL and use the allocated IDA 13 resources. To complete the Phase I activities, a second project will be submitted to the consideration of the Bank's Executive Directors in early fiscal year 2006 as soon as IDA 14 resources are available.

2. **IDA Contribution to Phase I (mid 2005-mid 2008 period)** is expected to be in the form of IDA credits and of guarantees (PRGs). This would provide resources to implement critical investments by the private and the public sectors, institutional strengthening, capacity building and technical assistance. The expected outcomes are: (i) a substantial increase in new generation capacity and in consumption of electricity, (ii) a decrease in the costs of generation, transmission and distribution, (iii) an increase in the quality of services, (iv) the preparation of the investment program and of specific projects to be implemented in Phase II, and (v) an improved performance of the institutions relevant to Senegal's energy sector. In the electricity sector, these institutions are: SENELEC, the power utility, the Ministry of Energy and Mines (MEM), and in particular the Energy Directorate ("Direction de l'Energie or "DE") and the Regulatory Commission (CRSE). In the hydrocarbon sector, the institutions are: PETROSEN (the national hydrocarbon company responsible for upstream activities), and the CNH, involved in downstream petroleum activities. The program is financially supported by Donors, the private sector, SENELEC, PETROSEN and GOS. It is proposed that Phase I (covering the 2005-2008 period) be supported by two IDA credits (of US$15.7 million under IDA 13 and of about $40 million under IDA 14) and by two PRGs (of up to US$7.2 million each under IDA 13 and under IDA 14). Attachment 1 of Annex 5 provides a cost summary by components for Phase I of the proposed Program

3. **Phase II of the proposed APL (mid 2008-mid 2012 period)** will focus on additional investment in generation, transmission, and particularly on distribution investment to significantly increase access rates, as required to accommodate the economic and social development of Senegal, on capacity building and on supporting private sector investments. It is proposed that this second phase be supported by an IDA credit currently estimated to be US$65-US$70 million and by one PRG estimated to be up to US$10 million. Attachment 2 of Annex 5 provides for a preliminary description and costing of Phase II of the Program.

Phase I Description

4. Phase I of the proposed Program involves two main parts: Part A: Support to SENELEC, the power utility; and Part B: Support to the relevant energy institutions of Senegal. Each component is described in detail below.

PART A: Support to SENELEC (IDA Credit - US$29.35 million; PRGs – up to US$14.2 million; IFC A Loan – Euro 17 million)

5. Part A comprises three components: Component A1: Investments and guarantees for generation, transmission and distribution (IDA Credit - US$23.10 million; PRGs: up to US$14.2 million; IFC A Loan of up to Euro 17 million); Component A2: Capacity building (IDA Credit - US$2.52 million); Component A3: Consultant's services (IDA Credit - US$2.75 million) and a retroactive financing up to US$0.98 million disbursed by SENELEC on project preparation and start-up activities.

Component A1 – Generation, Transmission and Distribution Investments and Guarantees.

6. This component includes support for investment in generation, essential maintenance of the existing Cap-des-Biches steam generating units, and for the rehabilitation of the SENELEC existing transmission and distribution network.

Sub-component A.1.1. Generation (IDA Credit: US$7 million)

7. The Kounoune Project: A detailed description of the Kounoune Project and the World Bank involvement in this project is provided in Annex 13 and Annex 14

8. Existing Generation Facilities. SENELEC's interconnected network covers mainly the western, northern and central parts of Senegal, and provides electrical services to the main cities of Senegal located in the regions of Dakar, Thies, Louga, Diourbel, St-Louis, Matam, Kaolack and Factik (see Annex 4 and Map). About 96% of Senegal's electricity demand is located in or close to these cities. Senegal's generation facilities currently include the generating units located in the Dakar area (Bel-Air, Cap-des-Biches), Kahone and Saint-Louis, and account for a total installed capacity of 489 MW, allocated to SENELEC's own generating capacity (371 MW), the GTI IPP capacity (52 MW) and the regional hydroelectric facility of Manantali, with a total installed capacity of 200 MW, of which 66 MW are allocated to Senegal).

9. Electricity Demand Growth: (see Annex 4) Over the last 5 years (2000-2004), the electricity delivered to the interconnected system has grown from 1,253 GWh in 1999 to 1,774 GWh in 2004, which is equivalent to an annual average growth of 7.8%. The Bank's base case load forecast assumes that, over the 2005-2025 periods, energy requirements will increase from 1,902 GWh in 2005 to 3,586 GWh in 2015, while the peak demand will grow from 362 MW in 2005 to 694 MW in 2010. This corresponds to an annual growth rate of 6.6% or an additional demand of about 30 MW per year.

10. SENELEC's 2005-2025 Generation Plans: (see Annex 4) In order to meet this demand, in February 2003, SENELEC commissioned 2 new units of 15 MW, following the commissioning of the Manantali regional hydroelectric plant in July 2002. In line with GOS's policy, SENELEC has decided to secure additional generation through IPPs and has prepared a new 2005-2025 generation plan[11] with the aim to identify the least-cost long-term solution to meet Senegal's demand for electricity. This optimization exercise has concluded that an additional 128 MW (net)

[11] SENELEC Generation plan dated December 3 2004.

will be needed in 2006, followed by another 60 MW in 2007; this assumes that the existing 70 MW (net) of steam units of Cap-des-Biches will be available. However, once the retiring of the high variable cost gas turbines units of Bel-Air and of Cap-des-Biches, as well as of other existing units at Cap-des-Biches is taken into account, an additional 70 MW to 100 MW of generating capacity will be needed before 2010.

11. IDA's Contribution to the IPP Projects: In line with GOS's policy of developing additional generation capacity through IPPs, SENELEC, with the support of the World Bank Group, has launched a process to select a first IPP (the "Kounoune Project") to provide a 67.5 MW HFO power plant on the Kounoune site (in the outskirts of Dakar). Following an international competitive process, the consortium formed by MEE and Matelec was selected and a PPA was signed on February 5, 2005. This project is expected to cost about US$80 million (Euro 61 million). The Sponsors' equity will represent around US$23.7 million (Euro 18.2 million) and the lenders (including IFC) will provide the balance. The World Bank and AFD have been requested to mitigate the political risk for a local commercial lender, by providing a PRG cover. An IDA Partial Risk Guarantee for the Kounoune Project up to US$7.2 million and an AFD guarantee equivalent to US$5.3 million is proposed (See Annex 14 for details).

12. As indicated earlier, at least an additional 60 MW is currently expected to be required by 2007, and GOS and SENELEC have requested the Bank Group and AFD to also participate in the financing plan through another PRG and loan. At this stage, amounts equivalent to the Kounoune I Project have been considered.

13. The 60 MW Diesel at Bel-Air: SENELEC's Board has authorized SENELEC to negotiate a concessionary loan with the Islamic Development Bank to build a 60 MW diesel plant at Bel-Air (Dakar) to be commissioned by the end of 2006. In line with its national and sectoral policies, GOS has confirmed that it will follow: (i) a transparent and competitive process for construction of the plant; and (ii) an international bidding process for recruitment of a private operator for the plant.

14. Maintenance of the Cap-des-Biches steam generating units: The Cap-des-Biches C3 steam generating units have an installed capacity of 87.5 MW (see Annex 4). The units were commissioned in 1966, 1974 and 1978, respectively. Despite their age, the two last units have operated adequately, following a major rehabilitation in 1995 and 1996. However, since 1998, largely because of a lack of maintenance, the performance of these units has deteriorated significantly. SENELEC has assessed two main options: (a) major rehabilitation of the C3 units, in order to restore them to their nominal capacity and ensure a reliable output, the cost of which was estimated at around US$25 millions (FCFA 11.6 billions); or (b) minimal critical maintenance, allowing to maintain a capacity of about 50 MW, the cost of which was estimated at US$7 million (FCFA 3.5 billions). This "minimum" maintenance would be critical to keep the C3 generating units providing energy and capacity until the time when new and more efficient generating units are commissioned. The Bank has supported the latter option, which, following extensive discussions with GOS and SENELEC will be the one to be implemented by SENELEC.

15. The following factors have been taken into account in the assessment of these two options: (a) the high costs of rehabilitation; (b) the uncertainty about the expected performance of the power plant post-rehabilitation, as the units are between 30 to 40 years old; and (c) the fuel consumption level of the rehabilitated units, which is expected to remain to be high (see Annex 4). IDA will provide the resources to finance such critical maintenance expected to cost about US$7 million (FCFA 3.5 billions).

Sub-component A.1.2. Network Investments (IDA US$16.10 million)

16. A low level of investments in generation and network facilities has been carried out over the last 5 to 7 years, while demand for electricity was increasing at a relatively high pace, as already described in Annex 4. This reduced level of investments has also led to a significant decrease in the quality of the services provided by SENELEC. GOS and SENELEC, being aware of this problem, are committed to improve the current situation. The proposed remedial investments, to be financed through the Project, are in support of SENELEC's transmission and distribution investment program (see Annex 4.2 - SENELEC's Investment program), with the goal to: (a) increase the network capacity to service an increasing demand; (b) reducing the technical losses; and (c) improving the quality of services.

17. Distribution Network - Existing Facilities and Strategy: Many of SENELEC's 30/6.6 kV transformers, underground cables and distribution lines are already saturated, which has led to voltage drops, high technical losses, low reliability and load shedding. The 6.6 kV voltage level does no longer cover the needs of SENELEC's distribution network. Furthermore, having two voltage levels, as it is the case of SENELEC, increases the difficulties and the cost of operating the network. Finally, certain sections of the distribution network are quite old and in poor condition, which weakens the performance of the whole electrical system and should, therefore, be renewed (i.e., renewal of 35mm^2 copper by 148 Almelec). These problems have already been identified by SENELEC, which has prepared a plan to phase out the 6.6 kV network with a progressive transfer towards a 30 kV network. This is expected to result in: (a) an increase of the capacity of the distribution network, and (b) an improvement in the quality of services in the distribution network.

18. Another constraint has also been identified with respect to the high delays in correcting technical problems: maintenance of the network, without having the ability to remotely control it significantly increases SENELEC's operating costs, as well as its response time, which has an important impact on the quality of the services provided to customers[12]. Hence, SENELEC has decided to significantly increase the number of remote-controlled substations and to reconfigure the network to allow for an automatic search of problems.

19. Proposed IDA support to strengthen the distribution network (US$6.75 million): The Project proposes to finance different activities related to the strengthening of SENELEC's distribution network, and, in particular, to eliminate the 6.6 kV network, renew some weak sections and introduce remote controlled substations. The investments to be financed are: the conversion of the Dakar medium voltage network as an underground network (FCFA 850 millions); renewal of the submarine cable to Gorée (FCFA 300 millions); transfer of the load on the 6.6 kV feeder Air Senegal to the Airport feeder (FCFA 175 millions); transfer of the load on the 6.6 kV feeder Fann to the 30 kV feeder at "Embranchement Université" (FCFA 276 millions); transfer of the load on the 6.6 kV feeder Mermoz to the 30 kV feeder "Embranchement Université" (FCFA 189 millions); transfer of the load on the 6.6 kV feeder Point E to the 30 kV feeder "Embranchement Université" (FCFA 135 millions); setting-up of a new 6.6 kV substation at Bel-Air to the transfer 6.6 kV substations to Gde Voirie and Dakar (FCFA 225 millions); remote control of 30 substations on the Dakar 30 kV and 6.6 kV networks (FCFA 600 millions); and remote control of 10 substations on the IS providing power to various regions in the system (FCFA 250 millions).

[12] The number of sub-stations that can be remotely controlled is very small in the Dakar area and in the other areas (less than 1% of stations over a total of 2000 sub-stations can be remotely controlled). In addition, in the Dakar area, localizing the problems and correcting them are difficult because of the traffic problems. Some works required on the network may last up to 4 hours. On the interconnected 30 kV network, which provides power to the regions, it may sometimes require a length of over 150 km.

20. The expected outcomes from these investments would be SENELEC's improved ability to: (i) provide additional electricity to its customers; (ii) limit the saturation of the 6.6 kV and the 30 kV networks; (iii) reduce voltage drops; (iv) limit the load shedding due to inadequate network capacity; (v) reduce technical losses; and (vi) reduce in the time response for network's repairs.

21. Transmission Network - Existing Facilities and Strategy (US$9.35 million): The high voltage transmission network (i.e., 90 kV and 225 kV) is limited to Dakar area and to the transmission line from Manantali. In the rest of the country, transmission is carried out at the 30 kV medium voltage (MV) level. These MV lines are generally too long and overloaded. As a result, the overall technical losses are generally high (i.e., around 5% in auxiliary generation, 3.5% for high-voltage, 5% for medium voltage and 5% for low voltage, or an average rate of 18.5 %), and quality of service is poor (e.g., high voltage drops, frequent interruptions, etc.). To improve the situation, SENELEC has decided to increase the number of the high voltage substations and strengthen the weak 30 kV sections. SENELEC has secured financing to build new high voltage substations at Mbour, to be financed through a loan from BOAD, and at Kaolack and Touba using additional financing secured by SENELEC but guaranteed by the Iranian Government.

22. Proposed IDA support to strengthen the transmission network: The proposed Project would contribute to finance the strengthening of SENELEC's transmission system and would, in particular, finance the following projects: (a) *Strengthening of the Ouroussogui-Semme-Bakel transmission section* (FCFA 600 million), which includes: (i) strengthen the 148 mm^2 section between Ourossogui and Semme over a distance of about 70 km; (ii) partly adjust the layout; and (iii) interconnect to the network the urban centers of Kidira and Goudiry; (b) *Strengthening of the Mbour-Fatick transmission line* (FCFA 1,500 million), which includes: (i) strengthening the main sections in the 148 mm^2 section; (ii) delivering power to the city of Fatick, where the 2004 load was 3.1 MW; (iii) increasing the reliability and decreasing losses of the 30 kV lines, which are too long with too small a conductor; (iv) securing the supply of Fatick and Mbour in a n-1 situation from the substations of Mbour and Kaolack; (c) *Rehabilitation of 30 kV DSP 3 North Transmission Line* (FCFA 500 million), which includes: (i) renewing the transmission line linking Diourbel and Touba with 148 mm^2 conductors over 55 km; and (ii) increasing its reliability and reducing the transmission losses; and (d) *Rehabilitation of the 90KV lines* (FCFA 1,825 million).

23. The 90 KV network comprises 8 transmission lines totalling 400 km. Such lines were built in 1958, 1965, 1972 and 1990. The total non-delivered energy on the 90 kV network was 388,629 MWh in 1999, 397,731 MWh in 2000, 528,898 MWh in 2001, 305,730 MWh in 2002 and 305, and 730 MWh in 2003. Between 1999 and 2003, maintenance costs were estimated at FCFA 140,150 million. The proposed Program should bring reliability on the 90 kV transmission network. The proposed investments include: (a) rehabilitation of Cap-des-Biches –Sococim section (FCFA 300 million); (b) replacement of the towers on the No.2 line, Hann-Cap-des-Biches (FCFA 170 million); (c) renewal of the conductors and other equipments on the No. 2 line, Hann-Cap-des-Biches (FCFA 20 million); (d) renewal of the "cable de garde" of the high voltage transmission lines going to Dakar (FCFA 25 million); (e) renewal of conductors and other equipment on the No.2 line Hann-Cap-des-Biches, between Sosestra and Hann (FCFA 250 million); (f) rerouting of the Tobene-Thiona transmission line (FCFA 400 million); (g) rehabilitation of the Thiona-Tobene transmission line (FCFA 400 million); (h) rerouting of the 90 kV transmission line between Cap-des-Biches and Hann (FCFA 30 million); (i) setting-up an underground cable for the Gare Routiere, section Sococim-Thiona (FCFA 250 million); and (j) rehabilitation of the Thiona –Tobène transmission line (FCFA 380 million).

Component A2 – Capacity Building for SENELEC (IDA Credit- US$2.52 million + US$2.4 million by SENELEC)

24. In January 2004, the final audit report on SENELEC's human resources, its strategy and the reassignments, as needed, were approved. Based on this report, SENELEC has finalized a Human Resources Action Plan. The Project will support SENELEC's capacity building efforts by financing part of: (i) its Human Resources Action Plan, (ii) the rehabilitation of SENELEC's Training Center ("Centre de Formation et de Perfectionnement Professionnel" or "CFPP"), (iii) safety equipment (gloves, shoes, glasses, specific tool boxes, etc.) for SENELEC's staff, and (iv) specific training for the staff of the recently created entity responsible for environment, quality and security issues.

Component A3 – Technical Assistance to SENELEC (IDA Credit- US$3.73 million)

25. Investment and financing decisions are critical for SENELEC, not only for it to be able to meet the country electricity demand, but also to implement least-cost solution and to attract private capital for its financing. SENELEC investment and financing decisions should be improved (See Annex 11 – Economic and Financial Analysis). The Project will finance technical assistance to improve SENELEC's: (a) investment decision making process; (b) capital expenditures decision making process; and (c) financial reporting.

26. With respect to capital expenditures decisions, a more rigorous process, including the update of master plans, preparation of feasibility studies covering technical, environmental, economic and financial matters, preparation of detailed engineering, etc. should be implemented To improve the situation, the Bank has proposed that an Investment Committee be set-up and that clear guidelines and methodologies be prepared with respect to the preparation and review of any capital expenditures exceeding a given amount.

27. With respect to the assessment of SENELEC's financial strategy, SENELEC's balance sheet currently shows too heavy a reliance on short term loans and overdrafts for an electric utility. The proposed assistance would therefore: (i) analyze and assess the current financial strategy of the company (current debt structure and reliance on short term loans); the impact of such structure on the company's overall cost of borrowing and other relevant parameters (e.g., liquidity risk) and the decision making process in order for the company to raise new funds (e.g., internal procedures, control by the ministry of finance); and (ii) make recommendations regarding the formulation of a financing strategy (e.g., criteria for choosing between different potential sources of finance, relevant terms and maturity in relation to the investments to be finance, etc.), the procedures for financing the company (i.e., nature of the internal and external controls), assess if there is a need to restructure financially the company and in the affirmative, detail the measures that could be taken.

28. With respect to improving SENELEC financial reporting, the financial information produced by SENELEC does not currently meet the need of several of its potential users (e.g., internal management, regulator, ministries, Donors, etc.), and could be improved in several regards, such as relevance, reliability, delays of availability, level of detail, etc.. Improving the financial reporting in the sector should bring significant benefits in terms of management, oversight by the ministries, quality of the information provided to the regulator, comfort of financing institutions, etc..

29. One key aspect in reducing costs and increasing the quality of the services provided by SENELEC is related to its investment planning ability and, in particular, for the development of technically, economically and financially sound options. SENELEC is to make key investment planning decisions over the next 10 years regarding its generation, transmission and distribution assets, including electricity imports from OMVS, the WAPP and Guinea (See Annex 5.2). The

following key planning studies to be carried out by SENELEC are: (a) a generation and transmission master plan, (b) a distribution master plan, (c) a study on the optimal maintenance/decommissioning options for the existing Cap-des-Biches generating units, (d) Technical Assistance, training and specific equipment to implement appropriate environmental practices with respect to its existing power plants at Cap-des-Biches and Bel-Air, and (e) technical, economic, environmental and financial studies regarding the preparation of Phase II of the investment program. SENELEC would also need to hire external advisors for the selection of private operators and investors of the Bel-Air diesel plant and of the Kounoune II IPP, and for negotiating with the selected investors the relevant contractual terms.

a. Generation and Transmission Master Plan (IDA Credit– US$0.80 million)

The objectives of the study are to: (a) review the demand for electricity over the short and the long term; (b) prepare a coherent plan for optimal development of the generation and transmission system over the 2005-2030 period; (iii) assess the various available alternatives to expand the system; and (iv) assess the sensitivity of the proposed plan with respect to each of the key parameters. The main outputs of the study will be: (a) carry out a review of past demand and a load forecast; (b) outline the different available options to increase the country's available generation capacity, including projects related to the WAPP; (b) review and include in the study the proposal regarding the strengthening of supply/distribution in Dakar, in particular the proposed 90 kV Dakar loop; (c) identify the potential transmission and interconnection options; (d) assess the costs of each of the proposed alternatives; (e) develop the key economic parameters required for the study; (e) finalize the master plan by proposing an investment sequence for generation and the location of the plants and, in so doing, defining the transmission master plan; (f) outline a short and medium term investment program; (g) confirm the stability of the proposed network; (h) assess the different variants and carry out the relevant sensitivity analysis to assess the impact of key factors; (i) assess the financial impact of various scenarios, particularly the impact on tariffs; and (j) ensure appropriate transfer of techniques and of competences to SENELEC, including all data, documents and files, in order for SENELEC to carry out subsequent reviews of the master plan. Therefore, these studies will allow the validation of the short term options proposed by SENELEC, and will constitute a useful planning and decision making tool. This should also facilitate SENELEC's process for tariff reviews and improve its financial planning.

b. Distribution Master Plan (IDA Credit – US$0.5 million)

The objectives of the study are to: (a) plan for distribution investments: renewals, strengthening and extensions; (b) provide for the planning and decision making tools, including digitalized data bases to ensure regular updating; and (c) ensure proper training of SENELEC's staff.

c. Environmental monitoring and management of SENELEC's existing power plants (IDA Credit – US$0.7 million)

The Project will finance the implementation of sound environmental management practices with respect to SENELEC's existing power plants at Cap-des-Biches and Bel-Air, in compliance with Senegal's regulations and World Bank Safeguard Policies. It will include the following investments: (a) training of the power plant personnel, particularly with respect to fire risks and security; (b) updating the evacuation plan; (c) preparing a coordinated plan with other resources available in Dakar (such as in the Municipality and the army); (d) measuring the quality of processed water released; (e) measuring the air emissions and level of particulate matters around the power plant; and (f) improving the storage of diesel oil and other hydrocarbon products and residues.

d. Other studies and technical, economic, environmental and financial studies regarding the preparation of Phase II of the investment program (IDA Credit: US$0.75 million)

As indicated above, new IPPs, in addition to the Kounoune Project, are expected to be commissioned by 2007. Transmission and distribution master plans will also have to be implemented and financed most likely by Donors. Some of those investments will be financed during Phase II of the Program. In order to confirm their feasibility, carry out the detailed engineering, secure the relevant financing and obtain the required approvals, the technical, environmental, social and commercial feasibility and the engineering of Phase II investments will need to be fully assessed and the relevant bidding documents prepared. The Project will provide resources for SENELEC to be able to hire the necessary external advisors to carry out this preparatory work.

e. Retroactive Financing (IDA Credit - US$0.98 million)

SENELEC has spent significant financial resources on project preparation and start-up activities related to the Kounoune I Project. These include about US$980 000 comprising: (a) disbursements for the services of an external advisor to SENELEC for the preparation/negotiation of the Kounoune Project, advising SENELEC on the (i) preparation and assessment of the technical and financial proposals from pre-qualified companies; (ii) preparation of bid documentation and evaluation of technical and financial bids, and (iii) drafting the PPA; (b) disbursements for the services of an external firm assisting SENELEC in the preparation of the Kounoune Project Environmental Impact Assessment (EIA) and framework (EAF) and of a Resettlement Policy Framework (RPF). Some of these expenditures do meet the requirements of OP 12.10 on Retroactive Financing, in particular because they represent less than 10% of the Credit amount, would have been paid within 12 months of Credit signing and follow Bank's procurement processes. The eligibility of these expenditures will be thoroughly reviewed by the Bank; an amount of up to US$980,000 would be eligible for retroactive financing.

The following table provides details on the cost of Part A of Phase I activities, and on the IDA Credit and PRGs contribution.

Detailed Cost Table	Guarantee			Credit					
	IDA	Other donors	TOTAL	IDA	SENELEC	PETROSEN	Government	Private Sector	TOTAL
PART A : SUPPORT TO SENELEC									
Sub-component A.1.1 - Generation									
Subcomponent Generation									
- Kounoune I - 67.5MW	6.50	5.30	11.80					80.00	80.00
- Kounoune II – 67.5 MW	6.50	5.30	11.80					80.00	80.00
- C3 Cap-des-Biches (Steam) – Maintenance				7.00					7.00
TOTAL A1.1 - Generation	13.00	10.60	23.60	7.00				160.00	167.00
Sub-component A.1.2 - Networks									
Subcomponent Distribution									
- Distribution projects (part2)				5.05					5.05
- Telecommand program				1.70					1.70
Total subcomponent distribution				***6.75***					***6.75***
Subcomponent Transmission									
- Reinforcement 'Ouroussogui-Bakel'				1.20					1.20
- Reinforcement 'Mbour-Fatick-Kaolack'				3.00					3.00
- Rehabilitation '30 kV DSP 3 Nord'				1.00					1.00
- Rehabilitation program - 90kV				4.15					4.15
Total subcomponent distribution				***9.35***					***9.35***
TOTAL A1.2 - Networks				***16.10***					16.10
TOTAL A.1	13.00	10.60	23.60	23.10				160.00	183.10
Sub-component composante A.2 - Capacity Building									
- Rehabilitation of training center (CFPP)									
- works				0.12					0.12
- equipments				0.15					0.15
- Training and travel				0.75	1.20				1.95
- Specific training for staff of "EQS entity"				0.75					0.75
- Security equipment				0.75	1.20				1.95
TOTAL				2.52	2.40				4.92
Sub-component composante A.3 - Consultants'services									
a. Study : Generation / Transmission Master Plan				0.80					0.80
b. Study : Distribution Master Plan				0.50					0.50
e. Studies and equipments : Environmental enhancement of existing generation				0.70					0.70
d. Other studies and preparation of phase 2				0.75					0.75
Retroactive financing				0.98					0.98
TOTAL				3.73					3.73
Total A1+A2+A3	13.00	10.60	23.60	29.35	2.40			160.00	191.75
TOTAL SUPPORT TO SENELEC	13.00	10.60	23.60	29.35	2.40			160.00	191.75

PART B: Institutional Development and Long Term Development of the Energy Sector (IDA Credit US$13.45 million)

Part B comprises three components: Component B1: Communication and project Monitoring and Evaluation (IDA Credit US$0.95 million); Component B2: Energy Sector Long Term Development (IDA Credit US$8.2 millions); Component B3: Capacity building (IDA Credit US$4.30 million);

30. In addition to physical investments and capacity building in SENELEC (see Part A above), capacity building in the key institutions of Senegal's energy sector is critical (see Component B3). Such institutions are the CRSE, the MEM and, in particular, the DE, the PCU, the CNH, the committee monitoring the refining, storage and distribution of petroleum products, and PETROSEN, the company entrusted with exploring and developing Senegal's oil and gas resources. The other components of Part B are: Component B1 – Communication, project Monitoring and Evaluation, and Component B2 - Long term development of the energy sector, designed to support GOS in defining the best alternatives for selecting a strategic partner for SENELEC, and to attract interest among international companies in exploring and developing Senegal's hydrocarbon resources.

Component B.1: Communication and Project Monitoring and Evaluation (IDA Credit: US$0.95 million)

Sub-Component B.1.1 : Communication (IDA Credit - US$ 0.25 million)

31. This subcomponent intends to ensure transparency and credibility and to provide information feedback during project implementation through consultations with the main stakeholders in the electricity and petroleum sectors, and communication. These stakeholders are: the public sector institutions involved in Senegal's energy sector, the private sector operators and other private entities participating in Senegal's energy sector, the consumers and the Donor Community. This task will be carried out by the PCU within the MEM and by SENELEC's Communication Unit, which is already carrying communication and information outreach. A Bank's Supervision Mission will be used in particular for communication and information feedback.

Sub-Component B.1.1 : Communication		
	IDA	**Total**
TOTAL	**0.25**	**0.25**

Subcomponent B.1.2 – Project Monitoring and Evaluation (IDA Credit US$0.7 million)

32. The Project will support project "Monitoring and Evaluation" by providing resources to design a Monitoring and Evaluation System that will: (a) assist the MEM in better carrying out its policy making and oversight function; (b) assist the executing agency – the PCU of the MEM – and the two implementing entities - SENELEC for Part A and the PCU of the MEM for Part B - in monitoring and assessing the impacts of the activities supported by the Project; and (c) carry out project related external audits by auditors acceptable to IDA.

Subcomponent B.1.2 - "Monitoring and Evaluation"		
	IDA	**Total**
Accountant for Part B TA for Procurement needs for Part B Audits Monitoring and impact assessments		
TOTAL	**0.7**	**0.7**

Component B.2 – Energy Sector Long Term Development (IDA Credit: US$8.2 million)

Sub-Component B.2.1 – Institutional Reform of the Electricity Sector – (IDA Credit US$2.2 million)

33. With the commissioning of a first IPP (GTI) in 2000, the selection of private sponsors to build and operate a second IPP at Kounoune (the Kounoune I IPP) and the decision to accelerate RE through a new institution (ASER) (see Annex 1), significant progress has been made to reform Senegal's electricity sector. With respect to SENELEC, two attempts at selecting a private partner have failed (Attachment 1, Annex 1) and its institutional reform is not yet completed. Because of the past failures and today's challenges in advancing the reform, GOS has set-up a Task Force in order to: (a) assess the potential alternatives, taking into account Senegal's experience as well as those of other countries, the current strength and weaknesses of the sector and of the current international environment; (b) accurately outline the expected outcome from the private sector participation in the power sector and from the strategic partner(s) for SENELEC; (c) design the new arrangements and prepare a Request for Proposal to be addressed to potential partners for this purpose; and (d) manage the selection process of such a private investors/strategic partner(s).

34. The Project will, therefore, provide resources to GOS in particular the MEM to access relevant skills and advices to: (a) review and compare the available alternatives, in order for Senegal to reach a decision on the expected outcomes of the privatization and profile of the potential strategic partner(s); and (b) select such strategic partner(s) through a transparent and consultative process in accordance with Senegal regulations (CET Law, Energy Law and related implementing regulations).

Sub-Component B2.1		
	IDA	**TOTAL**
Task Force on Power Sector Reform	1.2	1.2
Advisors for selecting private partner(s) for SENELEC	1.0	1.0
TOTAL	**2.2**	**2.2**

Sub-Component B.2.2 – Preparation of Phase II (IDA Credit – US$1.5 million)

35. IDA will also finance some technical assistance to be available to the decision makers, in particular to the MEM, to address policy, strategic, technical and legal options, particularly in the context of the Phase II program that cannot be managed by the utilities (see Attachment 2, Annex 5 for a brief description of Phase II program). The resources will also be available for assistance in the preparation of a financiers meeting focusing on Phase II investments.

Sub-Component B2.2		
	IDA	**TOTAL**
Technical Assistance	1.5	1.5
TOTAL	**1.5**	**1.5**

Sub-Component B.2.3 – Seismic and Geological Data Acquisition for Hydrocarbon Development - (IDA Credit US$4.5 million)

36. No comprehensive assessment of Senegal's hydrocarbon potential has been carried out to date (see Annex 1). Following the reform, PETROSEN divested its upstream equipment and streamlined its staff. It has focused its attention on acquiring seismic data for the interpretation of prospects in onshore sedimentary basins in Northern Senegal, similar to those in neighboring Mauritania, where commercial oil discoveries have recently been made. Recently, international oil companies have renewed their interest in West Africa, as oil and gas has been discovered in

countries neighboring Senegal, and oil companies have been making serious enquiries in Senegal. Following international competitive bidding, in 2000 PETROSEN selected Japan Gasoline Corporation (JGC) to share the cost of the acquisition, processing, interpretation of seismic data. A US$8 million contract was agreed with the Bank on a non-objection basis, with 40% of the cost to be borne by the contractor and 60% by PETROSEN. Both parties would share accordingly, the revenues generated by the sale of seismic data. However, as funding for the PETROSEN's share of the contract is not available, GOS has requested IDA's assistance. The contractor has confirmed that it stands ready to mobilize equipment and manpower to start seismic work when GOS indicates its readiness and ability to finance PETROSEN's share.

Sub-Component B2.3		
	IDA	**TOTAL**
Seismic and Geological Data Acquisition for Hydrocarbon Development (PETROSEN)	4.5	4.5
TOTAL	**4.5**	**4.5**

Component B3: Capacity Building for the Energy Sector Institutions (IDA Credit: US$ 4.30 million)

Sub-Component B.3.1 Capacity Building in the Electricity Sector Regulatory Commission (CRSE) – (IDA Credit – US$0.8 million)

37. International experience, particularly in Africa, indicates that, experts appointed by the regulatory commissions often do not have sufficient technical, economic, financial and legal experience. The aim of the CRSE capacity building program supported by the Project is to provide the CRSE staff with a thorough understanding of the regulatory instruments, the relevant international experience, and sufficient knowledge and skills in order to conduct the studies and analysis that such a position entails (including legal, technical, economic and financial aspects).

38. This subcomponent includes two parts: (a) training, and (b) technical assistance. The training component will include both broad and specialized training. The broad training will benefit all the CRSE staff and review all the aspects relevant to the electricity sector regulation. The aim will be to familiarize the CRSE staff with the economic and social objectives of Senegal's electricity sector policy and the tools that CRSE will need to meet these objectives. For the most part, this training will be carried out in Senegal through workshops and seminars. The exact format will vary with the topic to be covered. Both CRSE staff and consultants would participate in the training sessions. The technical assistance complements the training component. The main task of the consultants will include: (i) strategy to stabilize the electricity sector during the transition period prior to the implementation of the public/private partnership arrangements for SENELEC; (ii) support in regulatory functions; (iii) development of regulatory tools; (iv) development of the regulatory framework; (v) information and communication; and (vi) international cooperation.

39. The revision of electricity tariff regulation is particularly important. The mission of the external advisor would be to: (i) examine the adequacy of the current tariff level and its impact on SENELEC's financial viability, and (ii) propose a new mechanism for tariff indexation. In addition to CRSE, the advisor would need to work closely with the relevant interlocutors (e.g., MEM, Ministry of Finance, SENELEC, ASER, customers, etc.). In addition to the required technical work, his mission would have a dimension of "pedagogy" and consensus-building.

Sub-Component B.3.1		
	IDA	**Total**
Training, seminars and workshops - seminars, international and national workshops - specific training sessions and travel - international conferences and international cooperation	0.4	0.4
Technical assistance - specific studies	0.275	0.275
Equipments/office supplies	0.125	0.125
TOTAL	**0.8**	**0.8**

Sub-Component B.3.2 : Capacity Building for the PCU, MEM, in particular of the Permanent Secretary Office General Administration and Equipment Division (SAGE) and DE (IDA Credit US$1.45 million + GOS US$0.85 million)

40. The Project Coordination Unit (PCU) comprises staff from the Permanent Secretary Office and from the General Administration and Equipment Division (SAGE) of the MEM. The Project will support the PCU and SAGE through logistical support, training, studies, seminars and workshops.

Sub-Component B.3.2 a - *Project Coordination Unit*			
	IDA	**Gvt**	**Total**
Equipment and logistical support			0.225
- Computers, printers and relevant accessories		0.036	
- Office equipment		0.029	
- Vehicles		0.16	
Training	0.05		0.05
TA - Studies	0.075		0.075
Seminars and workshops	0.05		0.05
TOTAL	**0.175**	**0.225**	**0.4**

41. The Energy Directorate (DE): Following the 1998 reform of Senegal's Energy sector, which led to the creation of the CRSE, CNH, and ASER (and which also gave priority to IPPs for the increasing the installed generation capacity in Senegal, the role of energy efficiency and energy management, and the environmental and social impacts of the energy sector), the roles and responsibilities of the DE of the MEM have changed considerably. As a result, currently there is a significant gap between the required skills and the existing skills and experiences. Through resources to be provided by the African Development Bank (AfdB), the redefinition of the roles and responsibilities of the DE will be carried out. The Project will benefit from this assessment to build the capacity of the DE, and will also define a demand side energy management program for implementation in Phase II, while carrying out limited promotion and communication activities aimed at reducing end-users energy costs to the end-users and in the public sector. [13]

[13] In the 90's an energy efficiency program was implemented; lessons from Senegal and other countries need to be drawn. The 2003 public sector annual electricity expenditures were FCFA 7 billions; preliminary analysis shows that the implementation of demand side management program could reduce such expenditures by FCFA 700 million per year.

Sub-Component B.3.2.b –*Directorate of Energy*			
	IDA	**Gvt**	**Total**
Office Equipment		0.25	0.25
- Computer equipment, Photocopies			
- Computer supplies, Office supplies (Gvt)			
Training, Seminars, Workshops	0.55	0.125	0.675
- National seminars and workshops			
- Training/international training and workshops			
- Travel, etc			
TA – Preparation of Energy Efficiency Program	0.225		0.225
TA – Other studies	0.5	0.25	0.75
TOTAL	**1.275**	**0.625**	**1.9**

Sub-Component B.3.3 : Capacity Building for the Downstream Petroleum Sector, in particular, strengthening of the CNH (IDA Credit US$1.4 million + GOS US$0.7 million)

42. Created by a law passed in 1998, the CNH is, in principle, responsible for overseeing the activities of downstream petroleum sector and for the regulation and monitoring of the storage, transport and distribution of the refined products in Senegal, as well as for re-exports to neighboring countries. CNH is also responsible for reviewing the petroleum products price structure and for proposing price adjustments. CNH is not, however, able to act as a sector regulator.

43. The proposed IDA credit will support the transformation of CNH from a government committee into a regulatory body for the downstream petroleum sector, similar to CRSE in the electricity sector. This would give CNH greater responsibilities and powers to monitor the sector and enforce regulations (some of them already enacted), as well as a secured and appropriate level of funding. The Credit will also build capacity in CNH by providing it with technical assistance, training and equipment, including a laboratory so it is able to: (i) better monitor the activities of the refinery (SAR) and independently control the quality of petroleum products for compliance with quality standards; (ii) ensure that there is true open access to the petroleum storage facilities and that a dispute resolution mechanism is operational; (iii) ensure equitable access to distribution outlets; and (iv) ensure that petroleum products pricing fairly reflects the costs. To achieve this, it is proposed that: (a) a thorough review and, if needed, adjustments of the regulatory framework, covering, inter alia, imports, exports, open access to storage facilities, competitive framework for distribution and pricing, is carried out; this review will be carried out in coordination with the private sector; (b) CNH is provided with credible enforcement tools; and (c) adequate budgetary financial resources are granted to CNH.

Sub-Component B.3.3			
	IDA	**Gvt**	**Total**
Petroleum and legal Consultants	0.2	0.05	0.25
Training/Capacity building	0.2		0.20
Seminars and workshops		0.15	0.15
Setting up of a laboratory for products testing	1.0	0.5	1.5
TOTAL	**1.4**	**0.7**	**2.1**

Sub-Component B.3.4 : Capacity Building for the Upstream Hydrocarbon Sector, in particular of PETROSEN (IDA Credit US$0.65 million + PETROSEN US$0.25 million)

44. The Project will support the upstream hydrocarbon sector, in particular PETROSEN, through capacity building and technical assistance. Capacity building will include: (a) long-term training (one year or more) for junior engineers, especially in seismic processing and interpretation, production and reservoir engineering; (b) participation into middle term training (2 to 3 months) for PETROSEN staff on specific subjects, such as new technologies; and (c) keeping up and updating the knowledge in specific areas, notably with respect to the fast moving technologies in the oil industry. Technical assistance will include advice on exploration, seismic acquisition, processing of seismic data, seismic interpretation, and promotion of oil and gas prospects, as well as contractual and legal advice.

Sub-Component B.3.4			
	IDA	**PETROSEN**	**Total**
Training	0.30		
External Assistance / Advisors	0.35		
Equipment		0.25	
TOTAL	**0.65**	**0.25**	**0.9**

The following table provides a summary cost table for Part B of Phase I activities and of the contribution of the IDA Credit.

PART B : INSTITUTIONAL STRENGTHENING and LONG TERM DEVELOPMENT OF THE ELECTRICITY SECTOR							
Sub-component B.1 - Communication, Monitoring & evaluation							
Communication		0.25					**0.25**
Monitoring & Evaluation		0.70					**0.70**
TOTAL B1		**0.95**					0.95
Sub-component B.2 - Long Term Development and Prospectives							
Reform of the Electricity Sector – task Force		1.20					**1.20**
Support to implementation of the strategy		1.00					**1.00**
TA preparation Phase 2		1.50					**1.50**
Seismic and Geological Data Acquisition in the Petroleum Sector		4.50					**4.50**
TOTAL B2		**8.20**					8.20
Sub-component B.3 - Capacity building for the energy Sector Institutions							
- Capacity Building to CRSE		0.80					**0.80**
- Capacity Building to Minstry of Energy							
Project Coordination Unit and "Cabinet du Ministre"		0.175			0.225		**0.40**
Directorate of Energy		1.275			0.625		**1.90**
- Capacity Building to CNH		1.40			0.70		**2.10**
- Capacity Building to Petrosen		0.65		0.25			**0.90**
TOTAL B3		**4.30**		**0.25**	**1.55**		6.10
Total B1+B2+B3		**13.45**		**0.25**	**1.55**		15.25
TOTAL SUPPORT TO MINISTRY		13.45		0.25	1.55		15.25

Annex 5 - Attachment 1 (APL-1: Detailed Costing)

Table 5.1

Phase 1

Detailed Cost Table	Guarantee			Credit					
	IDA	Other donors	TOTAL	IDA	SENELEC	PETROSEN	Government	Private Sector	TOTAL
PART A : SUPPORT TO SENELEC									
Sub-component A.1.1 - Generation									
Subcomponent Generation									
- Konoune I - 67.5MW	6.50	5.30	11.80					78.87	**78.87**
- Kounoune II – 67.5 MW	6.50	5.30	11.80					80.00	**80.00**
- C3 Cap-des-Biches (Steam) – Maintenance				7.00					**7.00**
TOTAL A1.1 - Generation	13.00	10.60	23.60	7.00				158.87	165.87
Sub-component A.1.2 - Networks									
Subcomponent Distribution									
- Distribution projects (part2)				5.05					**5.05**
- Telecommand program				1.70					**1.70**
Total subcomponent distribution				***6.75***					***6.75***
Subcomponent Transmission									
- Reinforcement 'Ouroussogui-Bakel'				1.20					**1.20**
- Reinforcement 'Mbour-Fatick-Kaolack'				3.00					**3.00**
- Rehabilitation '30 kV DSP 3 Nord'				1.00					**1.00**
- Rehabilitation program - 90kV				4.15					**4.15**
Total subcomponent distribution				***9.35***					***9.35***
TOTAL A1.2 - Networks				***16.10***					16.10
TOTAL A.1	13.00	10.60	23.60	**23.10**				158.87	181.97
Sub-component composante A.2 - Capacity Building									
- Rehabilitation of training center (CFPP)									
- works				0.12					**0.12**
- equipments				0.15					**0.15**
- Training and travel				0.75	1.20				**1.95**
- Specific training for staff of "EQS entity"				0.75					**0.75**
- Security equipment				0.75	1.20				**1.95**
TOTAL				**2.52**	**2.40**				4.92
Sub-component composante A.3 - Consultants'services									
a. Study : Generation / Transmission Master Plan				0.80					**0.80**
b. Study : Distribution Master Plan				***0.50***					***0.50***
e. Studies and equipments : Environmental enhancement of existing generation				0.70					**0.70**
f. Other studies and preparation of phase 2				0.75					**0.75**
Retroactive financing				0.98					0.98
TOTAL				**3.73**					3.73
TOTAL SUPPORT TO SENELEC	13.00	10.60	23.60	**29.35**	**2.40**			**158.87**	190.62
Sub-component B.1 - Communication, Monitoring & evaluation									
Communication				0.25					**0.25**
Monitoring & Evaluation				0.70					**0.70**
TOTAL B1				**0.95**					0.95
Sub-component B.2 - Long Term Development and Prospectives									
Reform of the Electricity Sector – task Force				1.20					**1.20**
Support to implementation of the strategy				1.00					**1.00**
TA preparation Phase 2				1.50					**1.50**
Seismic and Geological Data Acquisition in the Petroleum Sector				4.50					**4.50**
TOTAL B2				**8.20**					8.20
Sub-component B.3 - Capacity building for the energy Sector Institutions									
- Capacity Building to CRSE				0.80					**0.80**
- Capacity Building to Minstry of Energy									
Project Coordination Unit and "Cabinet du Ministre"				0.175			0.225		**0.40**
Directorate of Energy				1.275			0.625		**1.90**
- Capacity Building to CNH				1.40			0.70		**2.10**
- Capacity Building to Petrosen				0.65		0.25			**0.90**
TOTAL B3				**4.30**		**0.25**	**1.55**		6.10
Total B1+B2+B3				**13.45**		**0.25**	**1.55**		15.25
TOTAL SUPPORT TO MINISTRY				**13.45**		**0.25**	**1.55**		15.25
TOTAL A+B	13.00	10.60	23.60	**42.80**	**2.40**	**0.25**	**1.55**	**158.87**	**205.87**
Contingencies (10%)	1.30	1.06	2.36	4.28	0.24	0.03	0.16	8.00	**12.70**
Refinancing of Project Preparation Facility (PPF)				2.00					**2.00**
TOTAL PROJECT (PHASE1)	**14.30**	**11.66**	**25.96**	**49.08**	**2.64**	**0.28**	**1.71**	**166.87**	**220.57**

* excluding SENELEC's and other energy institutions staff costs and other costs

Table 5.2

Phase 1

Detailed Cost Table	UNDER IDA 13										UNDER IDA 14									
	Guarantee			Credit							Guarantee			Credit						
	IDA	Other donors	TOTAL	IDA	SENELEC	PETROSEN	Government	Private Sector	TOTAL		IDA	Other Donors	TOTAL	IDA	SENELEC	PETROSEN	Government	Private Sector	TOTAL	
PART A : SUPPORT TO SENELEC											**PART A : SUPPORT TO SENELEC**									
Sub-component A.1.1 - Generation											**Sub-component A.1.1 - Generation**									
Subcomponent Generation																				
- Konoune I - 67.5MW	6,50	5,30	11,80					78,869	78,869		6,50	5,30	11,80					80,00	80,00	
- Konoune II – 67.5 MW									0,00										0,00	
- C3 Cap-des-Biches (Steam) – Maintenance									0,00					7,00					7,00	
TOTAL A1.1 - Generation	6,50	5,30	11,80					78,869	78,869		6,50	5,30	11,80	7,00				80,00	87,00	
Sub-component A.1.2 - Networks											**Sub-component A.1.2 - Networks**									
Subcomponent Distribution																				
- Distribution projects (part2)				1,80					1,80					3,25					3,25	
- Telecommand program				0,00					0,00					1,70					1,70	
Total subcomponent distribution				***1,80***					***1,80***					***4,95***					***4,95***	
Subcomponent Transmission																				
- Reinforcement 'Ouroussogui-Bakel'				1,20					1,20					0,00					0,00	
- Reinforcement 'Mbour-Fatick-Kaolack'				3,00					3,00					0,00					0,00	
- Rehabilitation '30 kV DSP 3 Nord'				1,00					1,00					0,00					0,00	
- Rehabilitation program - 90kV				1,55					1,55					2,60					2,60	
Total subcomponent distribution				***6,75***					***6,75***					***2,60***					***2,60***	
TOTAL A1.2 - Networks				***8,55***					8,55					7,55					7,55	
TOTAL A.1	6,50	5,30	11,80	**8,55**				78,869	87,42		6,50	5,30	11,80	14,55				80,00	94,55	
Sub-component composante A.2 - Capacity Building											**Sub-component composante A.2 - Capacity Building**									
- Rehabilitation of training center (CFPP)									0,00					0,12					0,12	
- works									0,00					0,15					0,15	
- equipments									0,00					0,60	0,90				1,50	
- Training and travel				0,15	0,30				0,45					0,62					0,62	
- Specific training for staff of "EQS entity"				0,13					0,13					0,60	0,90				1,50	
- Security equipment				0,15	0,30				0,45					2,09	1,80				3,89	
TOTAL				0,43	0,60				1,03											
Sub-component composante A.3 - Consultants' services											**Sub-component composante A.2 - Consultants' services**									
a. Study : Generation / Transmission Master Plan				0,80					0,80					0,00					0,00	
b. Study : Distribution Master Plan				0,50					0,50					0,00					0,00	
c. Studies and equipments : Environmental enhancement of existing generation				0,20					0,20					0,50					0,50	
d. Other studies and preparation of Phase 2				0,00					0,00					0,75					0,75	
Retroactive financing				0,98					0,98										0,00	
TOTAL				2,48					2,48					1,25					1,25	
Total A1+A2+A3	6,50	5,30	11,80	11,46	0,60			78,869	90,93		6,50	5,30	11,80	17,89	1,80			80,00	99,69	
TOTAL SUPPORT TO SENELEC	6,50	5,30	11,80	11,46	0,60			78,869	90,93		6,50	5,30	11,80	17,89	1,80			80,00	99,69	
PART B : INSTITUTIONAL STRENGTHENING and LONG TERM DEVELOPMENT OF THE ELECTRICITY SECTOR											**PART B : INSTITUTIONAL STRENGTHENING and LONG TERM DEVELOPMENT OF THE ELECTRICITY SECTOR**									
Sub-component B.1 - Communication, Monitoring & evaluation											**Sub-component B.2 - Communication, Monitoring & evaluation**									
Communication				0,15					0,15					0,10					0,10	
Monitoring & Evaluation				0,35					0,35					0,35					0,35	
TOTAL B1				0,50					0,50					0,45					0,45	
Sub-component B.2 - Long Term Development and Prospectives											**Sub-component B.3 - Long Term Development and Prospectives**									
Reform of the Electricity Sector – task Force				0,50					0,50					0,70					0,70	
Support to implementation of the strategy									0,00					1,00					1,00	
Other studies and preparation of Phase 2									0,00					1,50					1,50	
Seismic and Geological Data Acquisition in the Petroleum Sector									0,00					4,50					4,50	
TOTAL B2				0,50					0,50					7,70					7,70	
Sub-component B.3 - Capacity building for the energy Sector Institutions											**Sub-component B.1 - Capacity building for the energy Sector Institutions**									
- Capacity Building to CRSE									0,00					0,80					0,80	
- Capacity Building to Minstry of Energy														0,175			0,225		0,40	
Project Coordination Unit and "Cabinet du Ministre"							0,00		0,00					1,275			0,625		1,90	
Directorate of Energy							0,00		0,00					1,40			0,70		2,10	
- Capacity Building to CNH							0,00		0,00					0,65		0,25			0,90	
- Capacity Building to Petrosen						0,00			0,00					4,30		0,25	1,55		6,10	
TOTAL B3				0,00		0,00	0,00		0,00											
Total B1+B2+B3				1,00		0,00	0,00		1,00					12,45		0,25	1,55		14,25	
TOTAL SUPPORT TO MINISTRY				1,00		0,00	0,00		1,00					12,45		0,25	1,55		14,25	
TOTAL A+B	6,50	5,30	11,80	12,46	0,60	0,00	0,00	78,87	91,93		6,50	5,30	11,80	30,34	1,80	0,25	1,55	80,00	113,94	
Contingencies (10%)	0,65	0,53	1,18	1,25	0,06				1,31		0,65	0,53	1,18	3,03	0,18	0,03	0,16	8,00	11,39	
Refinancing of Project Preparation Facility (PPF)				2,00					2,00					0,00					0,00	
TOTAL PROJECT (PHASE 1)	7,15	5,83	12,98	15,71	0,66	0,00	0,00	78,87	95,24		7,15	5,83	12,98	33,37	1,98	0,28	1,71	88,00	125,33	

Impact on IDA SENEGAL (IDA13)	1,7875	+	15,71	=	17,50
Impact on IDA SENEGAL (IDA14)	1,7875	+	33,37	=	35,16
Impact on IDA SENEGAL (TOTAL PHASE 1)				=	52,66

Total Impact on IDA 13			7,15	+ 15,71	= 22,86
Total Impact on IDA 14			7,15	+ 33,37	= 40,52
Phase 1 : Total Impact on IDA					= 63,38

* excuding SENELEC's and other energy institutions staff costs and other costs

Annex 5 - Attachment 2 (APL-2: Preliminary Description)

SENEGAL: ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROJECT

1. The main objective of Phase II (APL-2) of the APL (2008-2012) will be to support Senegal's efforts to meet the demand for electricity in a least cost way. Key challenges will be to optimize the large investments required in generation, transmission and distribution infrastructure, provide access to electricity to most of the population, and secure low-cost financing for the investment program. As for Phase I of the project, Phase II will comprise two main parts: Part A, to support SENELEC, and Part B, to support the relevant institutions in Senegal. This annex provides for a preliminary description and estimated costs of Phase II.

Part A: Support to SENELEC

Component A.1: Investments and Guarantees

Sub-component A.1.1 – Generation

2. Due to the relatively high expected growth in the electricity demand[14], meeting the demand and increasing access to electricity services while managing costs and tariffs will be a challenge for Senegal. Various investment scenarios are possible and these will be studied in detail during Phase I to provide for a least-cost development plan.

3. SENELEC will most likely continue the development of IPPs (coal power plant is an option to be studied with the creation of a port of Bargny (2010-2012)) and will also import power from hydro projects in neighboring countries (Mali and Guinea). OMVS (Organisation pour la Mise en Valeur du Fleuve Senegal) second generation projects and OMVG (Organisation pour la Mise en Valeur du Fleuve Gambie) projects are now in active development. At the same time, the WAPP program of regional interconnections aims at reducing the cost of power and improving reliability. The priority interconnections will create links between low and high cost energy producers and between countries with complementary hydro and thermal resources.

4. The OMVS second generation program consists of two hydropower plants at Félou and Gouina, in Mali, and the related expansion of the OMVS transmission system. Like the existing OMVS Manantali plant, the output of the new hydro plants will be shared among Mali, Senegal and Mauritania. The first phase of the project is likely to encompass only the 59 MW Félou project, with an estimated cost around US$4-5 cents/kWh, which is considered very competitive relative to the thermal alternatives. Félou takes advantage of an existing dam and excess transmission capacity available on the OMVS network and can be in service in 2009/2010. The feasibility of Gouina and the related OMVS expansion is still under study. Gouina is not expected to be in service before 2013/2014.

5. The OMVG program will develop a new 225kV transmission loop linking the networks of Guinea, Guinea Bissau, Gambia, OMVS and Senegal (1,711 km, estimated cost US$335 million). The Sambagalou and Kaléta hydropower projects are also integrated with this scheme. Later on, hydro projects to interconnect with OMVG could include Souapiti (Guinea), Fomi (Guinea), Saltinho (Guinea-Bissau) and Fello Sounga (Guinea). OMVG is a major initiative and project studies are ongoing. Phase I of the OMVG program is planned to be completed by 2008/2009, together with the Kaléta hydro project.

[14] The World Bank base case is based on average electricity demand annual growth of 6.6 % over the 2005-2015 periods. SENELEC base case is based on a 7.8%/year growth.

6. There are many uncertainties about costs, benefits, preparation and implementation timetables. A conservative scenario developed by the Bank staff in the context of the preparation of the project is proposed in the table below.

Proposed development plan											
	June 05	June 06	June 07	June 08	June 09	June 10	June 11	June 12	June 13	June 14	June 15
Generation development plan - PHASE 1											
1 - Rental solution	**40.00**	40.00									
2 - Bel Air		**60.00**	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00
3 - Kounoune I		**67.50**	67.50	67.50	67.50	67.50	67.50	67.50	67.50	67.50	67.50
4 - Kounoune II			**67.50**	67.50	67.50	67.50	67.50	67.50	67.50	67.50	67.50
Possible Generation development plan - PHASE 2											
5 - Substitution Cap des Biches (vapeur)					**67.50**	67.50	67.50	67.50	67.50	67.50	67.50
6 - Felou hydropower						**20.00**	20.00	20.00	20.00	20.00	20.00
7 - New IPP (Coal ?)							**67.50**	67.50	67.50	67.50	67.50
8 - Kaleta hydropower							**40.00**	40.00	40.00	40.00	40.00
Further Developpement - Post Projet											
9 - Gouina hydropower									**30.00**	30.00	30.00
10 - Samdangalou hydropower										**40.00**	40.00
11 - New IPP (coal or gas)											**67.50**
Available capacity in base (without TAG)	346.20	452.70	460.20	460.20	524.60	519.00	609.00	609.00	679.00	719.00	787.50
Peak available capacity (including TAG)	418.20	524.70	532.20	532.20	596.60	591.00	681.00	681.00	751.00	791.00	859.50
Peak demand	361.00	419.00	443.00	461.00	485.00	538.00	571.00	607.00	651.00	694.00	746.00
Demand in base	324.90	377.10	398.70	414.90	436.50	484.20	513.90	546.30	585.90	624.60	671.40
Peak Gap	57.20	105.70	89.20	71.20	111.60	53.00	110.00	74.00	100.00	97.00	113.50
Gap (without TAG)	21.30	75.60	61.50	45.30	88.10	34.80	95.10	62.70	93.10	94.40	116.10
(N-1) - Additional Disponibility - 67.5 MW	NO	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES

7. Based on the information currently available, in addition to the replacement of the Cap-des-Biches units, SENELEC will develop in Phase II two new IPPs and Senegal would have to finance its share of the Félou and Kaléta regional hydroelectric plants. The World Bank could provide PRGs to mitigate the risks of the two new IPPs (various alternatives, such as coal, gas and HFO, will be studied for both of them). The World Bank may also contribute to the financing of the two hydropower plants.

Sub-component A.1.2 – Transmission

8. Both SENELEC's investment program and WAPP's master plan propose the development of transmission lines between: (i) Kaolack and Ziguinchor (2008), to be followed by the interconnection with Guinea-Bissau, and (ii) Kaolack and Tambacounda (2010), to be followed by the interconnection with Guinea (OMVG loop), and then, with Mali (OMVS loop). The World Bank may contribute to the financing of those transmission lines (see map).

Sub-component A.1.3 – Distribution

9. GOS objective is for nearly all Senegalese urban and peri-urban population to benefit from electricity services by 2015. IDA may support: (i) some distribution investments to continue improving the quality of services; and (ii) capital subsidies, mostly Output Based Aid.

Part B: Institutional support

10. Part B would include capacity building, technical assistance, and project monitoring and evaluation.

Annex 5 - Attachment 2 (APL-2: Preliminary Project Costs)

Part A – SENELEC	IDA financing In million US$	Total cost In million US$
Generation		
New IPP (100MW) to replace Cap-des-Biches	10* (+ 10 Other Donors)	90 + 20*
Ongoing rehabilitation	5	10
Additional generation at Ziguinchor	0	5
Additional generation at Tambacounda	0	2
Total Generation	5+10*	107 + 20*
Transmission		
Contribution to WAPP investments (30%)	20.0	122.0
Aeroport and Almadies substations and lines	1.5	4.8
Universite substation and lines	2.5	2.5
Kaolack-Ziguinchor (225kV)	6.0	12.0
New 30kV lines outside Dakar	6.0	12.0
Rehabilitation of existing lines	2.0	2.0
Dispatching center	0.0	6.2
Total Transmission	38.0	161.5
Distribution		
Extension of distribution system and new connections	4.0	8.0
Quality of service improvement program	6.0	12.0
Total distribution	10.0	20.0
Technical assistance		
Various studies	3.0	5.0
Total technical Assistance	3.0	5.0
Total SENELEC	56.0+10.0*	293.0+20.0*
Part B - Capacity building, Technical Assistance and Monitoring & Evaluation		
Capacity building	1.0	1.0
Technical Assistance	3.0	3.0
Monitoring and evaluation	1.0	1.0
Total Part B	5.0	5.0
Total A+B	61.0 + 10*	298.0+20*
Contingency (10% of Total A+B)	6.1	30.0
TOTAL PHASE II	**67.1 + 10***	**328.0+20***

* Guarantees

Annex 6: Detailed Project Description

SENEGAL: ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROJECT

Introduction

1. This Annex provides a detailed description of the Project components. These components are elements of a comprehensive energy sector program developed by GOS, SENELEC, and other energy institutions, for the 2005-2012 periods (7 years) and submitted to IDA and other financiers. This Program would be implemented in two phases. Phase I will correspond to the first 3 years (mid 2005-mid 2008 period); Phase II will correspond to the following 4 years (mid-2008-mid 2012 period). The investment program and its components and each of the two phases are described in Annex 5. With regard to IDA's participation, it is proposed that an APL and a Partial Risk Guarantee be the instruments of choice that will include clear triggers going from Phase I to Phase II.

2. It is proposed that the financing of Phase I of the APL be sought from the Bank's Executive Directors in two stages. The first stage (the proposed "Project") comprises priority components proposed to be financed using the resources available to Senegal under IDA 13 (net US$17.5 million)[15]. The remainder of the first phase will be financed using the IDA 14 available resources to Senegal (about US$35-$40 million net) [16] and is currently planned to be presented to the Executive Directors in early fiscal year 2006.

3. The proposed Project components are described below and include financial support for generation, transmission and distribution facilities, and technical assistance to SENELEC (Part A); and financial support for activities of capacity building and long term development of the energy sector for the MEM and other agencies in the energy sector, to be implemented by the PCU (Part B). A cost summary is provided in Attachment 1 to this Annex 6.

4. The focus of each of the two main parts of the proposed project is:

- Part A focuses on priority activities that will allow SENELEC to commission new generation facilities through the demonstration effect of the Kounoune Project, rehabilitate critical sections of the transmission and distribution system, and reduce costs. It also supports GOS and SENELEC in preparing the next phase of investments in the electricity sector. The proposed IDA Credit contribution for this Part A is estimated to be US$12.6 million (including a 10% contingency), and the proposed PRG contribution will be up to US$7.2 million. In addition, IFC will provide an A Loan of up to Euro17 million to the project company responsible for the development, construction and operation of the Kounoune Project.

- Part B focuses on supporting GOS efforts to strengthen the institutions, delineate and implement the public/private partnership arrangements for SENELEC, key priority studies and for communication and monitoring and evaluation of project implementation. The IDA Credit contribution for this Part B is estimated to be US$1.1 million (including a 10% contingency).

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[15] Under IDA 13, the proposed project includes a Partial Risk Guarantee (PRG) of up to US$7.2 million accounted for $1.78 million (nominal value of $6.5 million + contingencies), and an IDA Credit of $15.7 million.

[16] Under IDA 14, it is envisaged to propose a project including a Partial Risk Guarantee (PRG) of up to US$7.2 million also accounted for $1.78 million (nominal value of $6.5 million + contingencies), and an IDA Credit of $35-40 million.

5. The proposed Project would also refinance advances totaling US$2.0 million made under the Project Preparation Facility (PPF). In addition, a contingency of $1.25 million covering physical and price adjustments has been included in the estimates of the IDA financing requirements.

6. The proposed IDA Credit will therefore be US$15.7 million and the proposed PRG for the Kounoune Project will be up to US$7.2 million

Part A: Support to SENELEC – (Partial Risk Guarantee of up to US$7.2 million; IDA Credit of US$12.6 million; IFC A Loan of up to Euro 17 million)

Component A1 – Generation, Transmission and Distribution Facilities (Partial Risk Guarantee of up to US$7.2 million equivalent; IDA Credit of US$8.55million; IFC A Loan of up to Euro 17 million)

Sub- component A.1.1A – Generation (IFC A Loan of up to Euro17 million)

7. The Kounoune Project consists in the development, construction, operation and maintenance of a 67.5 MW HFO-fired diesel power generation plant, located at Kounoune, in the eastern suburbs of Dakar, in Senegal. The plant will be equipped with 9 large diesel motors burning HFO, a low cost fuel. As part of this project, the Project Company will also build a substation and a pipeline, the ownership of which will be transferred to SENELEC when completed.

8. The Kounoune Project will be developed by a consortium consisting of MEE and of Matelec. The project will be developed by the Sponsors under a Build, Own, Operate (BOO) scheme, and will sell electricity to SENELEC under a 15-year PPA. The PPA was executed between the Project Company and SENELEC on February 5, 2005 and entered into effect on February 28, 2005. SENELEC's obligations under the PPA are guaranteed by GOS as per the Government Guarantee, executed on the same date as the PPA.

Sub-component A.1.1.B - Generation (Partial Risk Guarantee of up to US$7.2 million)

9. The proposed PRG supports the Kounoune Project, to be financed by IFC and other lenders. It is proposed that: (i) IFC provides an A Loan of up to Euro 17 million, and (ii) IDA provides a PRG of up to US$7.2 million which will be complemented by a US$5.3 million (equivalent to Euro 4.1 million) guarantee from the Agence Française de Développement (AFD), to mitigate some risks related to the construction of the Kounoune Project power plant. The principal categories of risks to be backstopped by the IDA guarantee are described in Annex 14.

Sub- component A.1.2 - Distribution Network (IDA Credit: US$1.8 million)

10. A global rehabilitation/reinforcement program has been developed and will be implemented in two phases. Some activities have already been completed by SENELEC with financing from BOAD. It is proposed that, through this subcomponent, IDA finances additional urgent rehabilitation/reinforcement work relating mostly to the second phase of this rehabilitation/reinforcement program.

Sub-Component A.1.3 - Transmission Network (IDA Credit: US$6.75 million)

11. It is proposed that IDA supports the following key initial activities required to strengthen and rehabilitate SENELEC's transmission network: (a) reinforcement of the transmission line

Ouroussogui-Bakel; (b) reinforcement of Mbour-Fatick-Kaolack network; (c) rehabilitation of the 30 kV DSP 3 Nord; and (d) some of the more urgent rehabilitation of the 90 kV lines .

Component A2 – Capacity Building (IDA Credit: US$ 0.43 million and SENELEC: US$ 0.6 million)

12. The Project will support SENELEC's capacity building efforts by financing part of: (i) the rehabilitation of SENELEC's Training Center ("Centre de Formation et de Perfectionnement Professionnel" or "CFPP"), (ii) safety equipment (gloves, shoes, glasses, specific tool boxes, etc.) for SENELEC's staff, and (iii) specific training for the staff of the recently created entity responsible for environment, quality and security issues.

Component A3 – Consultants' services (IDA Credit: US$2.48 million)

13. It is proposed that IDA finance consultants' services for carrying out studies critical to the preparation and optimization of SENELEC's investment program. This includes: (a) a generation and transmission master plan; (b) a distribution master plan; (c) the implementation of the environmental monitoring of the existing power plants; and (d) the services of external technical and financial advisors and of environmental specialists needed by SENELEC to bid and negotiate the Kounoune I IPP (see below- retroactive financing-) and as needed for the preparation of the prospective Kounoune II IPP.

Retroactive Financing (IDA Credit: up to US$980,000)

14. SENELEC has spent significant financial resources on project preparation and start-up activities related to the Kounoune I Project. These include about US$980 000 comprising: (a) disbursements for the services of an external advisor to SENELEC for the preparation/negotiation of the Kounoune Project, advising SENELEC on the (i) preparation and assessment of the technical and financial proposals from pre-qualified companies; (ii) preparation of bid documentation and evaluation of technical and financial bids, and (iii) drafting the PPA; (b) disbursements for the services of an external firm assisting SENELEC in the preparation of the Kounoune Project Environmental Impact Assessment (EIA) and framework (EAF) and of a Resettlement Policy Framework (RPF). Some of these expenditures do meet the requirements of OP 12.10 on Retroactive Financing, in particular because they represent less than 10% of the Credit amount, would have been paid within 12 months of Credit signing and follow Bank's procurement processes. The eligibility of these expenditures will be thoroughly reviewed by the Bank; an amount of up to US$980,000 would be eligible for retroactive financing.

Part B: Capacity-Building and Energy Sector Long Term Development (IDA Credit: US$1.0 million)

Component B1 – Communication, Monitoring and Evaluation (IDA Credit: US$0.5 million)

15. The Project Monitoring and Evaluation proposed to be supported by IDA resources, includes: (a) the design of a Monitoring and Evaluation (M&E) system for the MEM. This M&E system should allow the MEM to collect energy sector-wide data and to improve its policy making and oversight function; (b) assistance to the executing agency – the PCU of the MEM – and the two implementing entities - SENELEC for Part A and the PCU for Part B - in monitoring and assessing the impacts of the activities supported by the Project; and (c) project related external audits by auditors acceptable to IDA.

Component B2 – Energy Sector Long Term Development (IDA Credit: US$0.5 million)

16. The project will provide resources to GOS, in particular to the MEM and the Electricity Sector Regulatory Commission CRSE, to access relevant skills and advices to: (a) review and compare alternatives for Senegal to reach a decision on the expected outcomes of the public/private partnership for SENELEC sought by GOS and on the profiles of the partners, through a transparent and consultative process, in accordance with Senegal's regulations (CET Law, Energy Law and related implementing regulations); (b) review available energy options to reduce costs, dependency on oil imports and the energy sector impacts on the environment; and to (c) carry out critical studies required by the Energy Directorate particularly for the petroleum sector and for defining the training requirements, and by the CRSE in the context of the ongoing review of the tariff setting mechanisms.

Refinancing of Project Preparation Facility (PPF): (IDA Credit: US$2.0 million)

17. The proposed project would also refinance advances totaling US$2 million made under the PPF facility.

Annex 6 - Attachment 1 (APL-1: Financing Requirements and Proposed Project Contribution)

Phase 1

Table 6.1

Detailed Cost Table	UNDER IDA 13									
	Guarantee			Credit						
	IDA	Other donors	TOTAL	IDA	SENELEC	PETROSEN	Government	Private Sector	TOTAL
PART A : SUPPORT TO SENELEC										
Sub-component A.1.1 - Generation										
Subcomponent Generation										
- Konoune I - 67.5MW	6,50	5,30	11,80					78,869	78,869
- Kounoune II – 67.5 MW									0,00
- C3 Cap-des-Biches (Steam) – Maintenance									0,00
TOTAL A1.1 - Generation	6,50	5,30	11,80					78,869	78,869
Sub-component A.1.2 - Networks									
Subcomponent Distribution									
- Distribution projects (part2)				1,80					1,80
- Telecommand program				0,00					0,00
Total subcomponent distribution				***1,80***					***1,80***
Subcomponent Transmission									
- Reinforcement 'Ouroussogui-Bakel'				1,20					1,20
- Reinforcement 'Mbour-Fatick-Kaolack'				3,00					3,00
- Rehabilitation '30 kV DSP 3 Nord'				1,00					1,00
- Rehabilitation program - 90kV				1,55					1,55
Total subcomponent distribution				***6,75***					***6,75***
TOTAL A1.2 - Networks				***8,55***					8,55
TOTAL A.1	6,50	5,30	11,80	**8,55**				78,869	87,42
Sub-component composante A.2 - Capacity Building									
- Rehabilitation of training center (CFPP)									
- works									0,00
- equipments									0,00
- Training and travel				0,15	0,30				0,45
- Specific training for staff of "EQS entity"				0,13					0,13
- Security equipment				0,15	0,30				0,45
TOTAL				**0,43**	**0,60**				1,03
Sub-component composante A.3 - Consultants'services									
a. Study : Generation / Transmission Master Plan				0,80					0,80
b. Study : Distribution Master Plan				0,50					0,50
c. Studies and equipments : Environmental enhancement of existing generation				0,20					0,20
d. Other studies and preparation of Phase 2				0,00					0,00
Retroactive financing				0,98					0,98
TOTAL				**2,48**					2,48
Total A1+A2+A3	6,50	5,30	11,80	**11,46**	**0,60**			78,869	90,93
TOTAL SUPPORT TO SENELEC	6,50	5,30	11,80	**11,46**	**0,60**			78,869	90,93
PART B : INSTITUTIONAL STRENGTHENING and LONG TERM DEVELOPMENT OF THE ELECTRICITY SECTOR									
Sub-component B.1 - Communication, Monitoring & evaluation									
Communication				0,15					0,15
Monitoring & Evaluation				0,35					0,35
TOTAL B1				**0,50**					0,50
Sub-component B.2 - Long Term Development and Prospectives									
Reform of the Electricity Sector – task Force				0,50					0,50
Support to implementation of the strategy									0,00
Other studies and preparation of Phase 2									0,00
Seismic and Geological Data Acquisition in the Petroleum Sector									0,00
TOTAL B2				**0,50**					0,50
Sub-component B.3 - Capacity building for the energy Sector Institutions									
- Capacity Building to CRSE									0,00
- Capacity Building to Minstry of Energy									
Project Coordination Unit and "Cabinet du Ministre"							0,00		0,00
Directorate of Energy							0,00		0,00
- Capacity Building to CNH							0,00		0,00
- Capacity Building to Petrosen						0,00			0,00
TOTAL B3				**0,00**		**0,00**	**0,00**		0,00
Total B1+B2+B3				**1,00**		**0,00**	**0,00**		**1,00**
TOTAL SUPPORT TO MINISTRY				**1,00**		**0,00**	**0,00**		1,00
TOTAL A+B	6,50	5,30	11,80	**12,46**	**0,60**	**0,00**	**0,00**	78,87	91,93
Contingencies (10%)	0,65	0,53	1,18	1,25	0,06				1,31
Refinancing of Project Preparation Facility (PPF)				2,00					2,00
TOTAL PROJECT (PHASE 1)	7,15	5,83	12,98	**15,71**	**0,66**	**0,00**	**0,00**	78,87	95,24

Impact on IDA SENEGAL (IDA13)	1,7875	+	15,71	=	17,50

Annex 7: Project Costs

SENEGAL: ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROJECT

Project Cost by Component

Project Cost By Component (Phase I of APL)	**Local** US $million	**Foreign** US $million	**Total** US $million
Part A1 – Investments and Guarantees	26.23	61.19 11.8	87.425 11.8
Part A2 – Capacity Building SENELEC	0.82	0.21	1.03
Part A3 – Technical Assistance SENELEC	0.50	1.98	2.48
SENELEC - Retroactive financing	0.05	0.45	0.50
Part B1 - Communication and Monitoring and Evaluation	0.40	0.10	0.50
Part B2 – Technical assistance – Sector Prospective	0.05	0.45	0.50
Part B3 - Capacity Building for the sector,	0.00	0.00	0.00
Total Baseline Cost Guarantee	**28.00**	**63.93 11.8**	**91.93 11.8**
Physical Contingencies on Guarantees	0.20	0.46 0.59	0.66 0.59
Price Contingencies on Guarantees	0.20	0.45 0.59	0.65 0.59
Project Preparation Facility	0.40	1.60	2.00
Total Baseline Cost and Guarantees	28.80	66.44 12.98	95.24 12.98
Total Financing Required and Guarantees	**28.80**	**66.44 12.98**	**95.24 12.98**

Project Cost by Category

Guarantees

Project Cost By Category	**Local US$ million**	**Foreign US$ million**	**Total US$ million**
Guarantees		12.98	12.98
of which (IDA – Senegal)		(7.15)	(7.15)
Total Financing Required		**12.98**	**12.98**
of which (IDA)		**(7.15)**	**(7.15)**

Other Project Costs and IDA Credit

1. Works	26.23	61.19	87.42
of which (IDA)	(2.55)	(6.00)	(8.55)
2. Goods	0.70	0.20	0.90
of which (IDA)	(0.40)	(0.20)	(0.60)
3. Consultants' services,	0.61	2.42	3.03
of which (IDA)	(0.61)	(2.42)	(3.03)
4. Training and travels	0.40	0.13	0.53
of which (IDA)	(0.17)	(0.06)	(0.23)
5. Operating costs	0.05	0.00	0.05
of which (IDA)	(0.05)	0.00	(0.05)
6. Refunding of Project Preparation Advance	0.40	1.60	2.00
of which (IDA)	(0.40)	(1.60)	(2.00)
7. Unallocated	0.40	0.91	1.31
of which (IDA)	(0.38)	(0.88)	(1.25)
Total Baseline Cost	**28.79**	**66.45**	**95.24**
of which (IDA)	**(4.56)**	**(11.16)**	**(15.71)**
Total Financing Required	**28.79**	**66.45**	**95.24**
of which (IDA)	**(4.56)**	**(11.16)**	**(15.71)**

Annex 8: Implementation Arrangements

SENEGAL: ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROJECT

1. The implementation of the proposed Electricity Sector Efficiency Enhancement Project will be coordinated by a Project Coordination Unit (PCU) headed by the Permanent Secretary of the MEM. Under the law adopted on April 14, 1988, the MEM is responsible for: (a) the policies and plans in the energy sector that will be implemented by the companies and entities owned by the State or with whom contracts and agreements have been signed; (b) overseeing implementation of the policies and agreements pertaining to the energy sector, and (c) granting of licenses to private investors and operators interested in the energy sector. SENELEC, the national power utility, will implement Part A of the Project, and the PCU will implement Part B. Implementation of the proposed Project is expected to last 3 years (mid-2005 – mid-2008).

Executing Agency

2. The PCU will oversee the implementation of the proposed Project as well as the implementation of the Electricity Services for Rural Areas project, implemented by ASER. The PCU reports directly to the MEM and is composed of a coordinator, the Permanent Secretary ("Directeur du Cabinet") of the Minister responsible for Energy and Mines, one representative of the Debt and Investment Department (DDI) of the Ministry of Finance, the Director of the Energy Directorate ("Directeur de l'Energie), one representative of SENELEC, one representative of ASER, one MEM advisor on SENELEC, one advisor on RE (ASER and SENELEC), one advisor on petroleum matters (upstream and downstream activities), one advisor on environmental and social matter from the Ministry responsible for Environment, one accountant/ disbursement specialist, and a procurement specialist. The PCU is responsible for the accounting of the Project Special Account (SA); payments will, however, be made by DDI. DDI will prepare the direct payment applications and the applications for the replenishment of the SA that will be forwarded to the Bank by the Debt Directorate of the Ministry of Finance. The PCU will monitor Project implementation and will prepare the consolidated quarterly progress reports, Project mid-term reports and all the reports on the implementation of the Project to be transmitted to the Bank by the Coordinator of the PCU.

3. The PCU accountant will prepare the withdrawal applications from the IDA Credit and maintain a financial management system, including records and accounts, and consolidate the quarterly reports of the Project. The Special Advisor of the MEM will assure quality control of the accounting information before transmission to the DDI of the Ministry of Finance and the Bank. With respect to project procurement activities the PCU does not need a full time procurement specialist; rather the PCU procurement activities will be supported by a consultant who will intervene periodically, (e.g., when Expression of Interest or Terms-Of-References are drafted and the documentation notified to him/her). The Project will finance this expertise.

Implementing Agencies

4. **SENELEC** will implement Part A of the Project. SENELEC is responsible for the exploitation of Senegal's interconnected power system and some isolated centers included in SENELEC's concession geographical perimeter. Part A of the Project includes activities related to the management of SENELEC's business and corresponds to a large share of the Project proposed activities. Part A is organized in 3 main components: (a) investments (with the provisions of guarantees to IPPs, when required), (b) capacity building; and (c) consultants services. SENELEC will produce its financial statements with detailed information on the utilization of IDA and other donor resources. Annex 9 provides an assessment of SENELEC's

financial management capacity. However, overall reporting to IDA will be coordinated by the PCU.

5. **Private Sponsors for the IPP.** The implementation of the Kounoune Project will be the responsibility of private sector investors. SENELEC, as the buyer of the electricity, negotiates the relevant agreements and coordinates the execution of such agreements. A consortium composed of MHI Equipment Europe and Matelec has been competitively selected as the Sponsors to implement the first IPP. Sponsors for the second IPP will also be competitively selected. To implement the PRG, a Project Agreement is being negotiated between the Kounoune Project Sponsors and IDA – See Annex 14.

6. **The PCU** will also be responsible for the overall implementation of the Project Part B activities. Part B includes 2 main components: (a) Project communication, monitoring and evaluation system; and (b) services of consultants in particular for the public/private partnership arrangements decided for SENELEC and for critical studies required by the Energy Directorate and the CRSE. The PCU will "subcontract", as needed, these activities to the beneficiary entities such as the Task-Force - delineating the public/private partnership for SENELEC- , CRSE and the Energy Directorate – critical studies -. These entities will report directly to the PCU, who will consolidate the information in its quarterly report to IDA.

Project Reporting, Monitoring and Evaluation

7. The **PCU** will provide the Bank with quarterly progress reports established on the basis of the information provided by the Implementing Agencies. Project monitoring indicators are described in Annex 3. In addition, SENELEC will provide quarterly reports and annual reports (including audited financial reports) to the Bank on the company's technical and financial results, performance and plans.

Annex 9: Financial Management and Disbursement Arrangements

SENEGAL: ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROJECT

A. Financial Management Capacity Assessment

Introduction and Conclusions of the Financial Management Assessment (FMA)

1. A financial management capacity assessment of the MEM was carried out in September 2004. Attachment 1 to this Annex provides the assessment of the risks and Attachment 2 the Action Plan. The main conclusion of the FMA is that the financial management system of the MEM meets the minimum requirements to implement the Project. However, an external auditor with experience and qualifications satisfactory to IDA needs to be recruited prior to Project's effectiveness.

Ministry of Energy and Mines (MEM)

2. The MEM and the PCU will coordinate the fiduciary implementation of the Project as well as implementing some of the activities (see Annex 8).

Human resources

3. The Financial Management tasks of the Project will be handled by the Special Advisor of the MEM, under the direction of the Permanent Secretary of the MEM and in coordination with the Director of the DDI. He has good qualification and experience on financial management and disbursements processes for IDA credits. Under the Credit, he will prepare the withdrawal applications and maintain a financial management system, including records and accounts, and consolidate the quarterly reports of the Project. He will also ensure the quality of the accounting information before transmission to the Director of DDI in the Ministry of Finance, and then to IDA, for payments or replenishment of the SA.

Accounting and financial management procedures and computerized management information system

4. A Project implementation manual will be developed internally by the Special Advisor of the MEM, in coordination with the beneficiaries. This manual will provide relevant details on the financial management execution of the activities and delineate the responsibilities between the beneficiaries (SENELEC, CRSE, MEM,), the MEM and the Director of DDI in the Ministry of Finance.

5. The beneficiaries will prepare the requests for the activities identified on the budget approved by the Bank. This request will be reviewed by the Special Advisor of the MEM and, as needed, by a procurement consultant, and then transmitted to the Permanent Secretary of the MEM before payment by DDI.

6. If the amount is below the prior review threshold, the Special Advisor of the MEM will launch the recruitment process. Otherwise, a request for Non Objection will be submitted to the Bank. The selection commission for each contract will include, at least, the beneficiary and the MEM. The withdrawal and the direct payments applications will be prepared by the Special Advisor of the MEM and sent to DDI for transmission to the Bank. The payments will follow the same procedures and DDI will review the supporting documents before signing the checks to the beneficiaries.

7. A computerized financial management system will be set up in the MEM to handle the Financial Management and prepare the quarterly and annual reports.

Audit Compliance

8. An external audit of the Project financial statements will be required. The selection of this external auditor, satisfactory to IDA, will be an effectiveness condition. The PCU must furnish to the Bank, as soon as available, but in any case not later than six months after the end of each such year, (a) certified copies of the financial statements of the Project for such year (or other period agreed to by IDA), as so audited, and (b) an opinion on such statements by said auditors, in scope and detail satisfactory to the Bank. The annual legal audit[17] of the main beneficiaries (SENELEC, PETROSEN) will be required.

9. The table bellow summarizes the audit reports requirements under the Credit:

Audit report	*Due Date*
1) Project financial statements	June 30
2) Legal Audit of SENELEC	June 30
3) Legal Audit of PETROSEN	June 30

Quarterly reports

10. The MEM shall prepare and furnish to IDA a Financial Monitoring Report (FMR), in form and substance satisfactory to the IDA, which:

(i) sets forth sources and uses of funds for the Project, both cumulatively and for the period covered by said report, showing separately funds provided under the Credit, and explains variances between the actual and planned uses of such funds;

(ii) describes physical progress in Project implementation, both cumulatively and for the period covered by said report, and explains variances between the actual and planned Project implementation; and

(iii) Sets forth the status of procurement under the Project, as at the end of the period covered by said report.

11. The first FMR shall be furnished to the Bank not later than 45 days after the end of the first calendar quarter after the Effective Date, and shall cover the period from the incurrence of the first expenditure under the Project through the end of such first calendar quarter; thereafter, each FMR shall be furnished to the Bank not later than 45 days after each subsequent calendar quarter, and shall cover such calendar quarter.

Proposed disbursement arrangements

Disbursement method and Special Account

12. The project will use the traditional disbursement method based on Statements of Expenditures (SOEs) and direct payments. This method will be used for an 18-month period, during which time the project will produce quarterly FMRs. After 18 months, capacities will be assessed in order to determine whether disbursements can be based upon FMRs.

Special Account

13. One SA will be opened. The SA of the project will be managed by DDI in the Ministry of Finance, who is the main authorizer *("ordonnateur")* of capital expenditures in Senegal, and the MEM.

The total allocation of this SA will be FCFA 650 million (US$1.3 million equivalent) and will cover, approximately, four months of average expenditures expected to be made from the account. Upon credit effectiveness, the borrower may request the Bank to deposit in the special

[17] « Rapport des Commissaires aux Comptes»

account an advance of up to the total amount of the authorized allocation. The SA will be used for all expenditures equivalent to less than 20% of the authorized allocation, and requests for reimbursement will be submitted monthly. Reimbursements deposited by the Bank into this SA will be made against these requests supported by appropriate documentation.

Use of Statements of Expenditures (SOEs)

14. Disbursements for all expenditures will be made by the Bank against full documentation, with the following exceptions: (a) contracts for works below US$500,000; (b) contracts for goods below US$250,000; (c) consulting contracts for firms below US$200,000; (d) contracts for individual consultants below US$100,000; (e) training and travel; and (f) operating costs. All supporting documentation for SOEs will be retained at DDI and the PCU and must be made available for review by periodic Bank review missions and external auditors. The schema of the flows of funds will be described in the procedures manual and is provided Attachment 3 of Annex 9.

Disbursements by Category

15. The table below sets out the expenditure categories to be financed out of the Credit proceeds. The allocations for each expenditure category are the following:

	Category	**Amount of the Credit Allocated** (Expressed in million US$	**% of expenditure** to be Financed
1	**Works**	**8.55**	
	(a) Part A (A1)	8.55	100% of foreign expenditures, 90% of local expenditures,
2	**Goods**	**0.6**	
	(a) Part A (A2)	0.15	100% of foreign expenditures,
	(b) Part A (A3)	0.15	90% of local expenditures,
	(c) Part B (B2)	0.3	
3	**Consultants' services,**	**3.03**	
	(a) Part A (A3)	2.33	100% of foreign expenditures,
	(b) Part B (B1)	0.2	90% of local expenditures,
	(c) Part B (B2)	0.5	
4	**Training and travel**	**0.23**	
	(a) Part A (A2)	0.23	100%
5	**Operating Costs**	**0.05**	90%
6	**Refunding of Project Preparation Advance**	**2.0**	Amount due
7	**Unallocated**	**1.25**	
	TOTAL	**15.71**	

Annex 9 - Attachment 1 (Assessment of the risks)

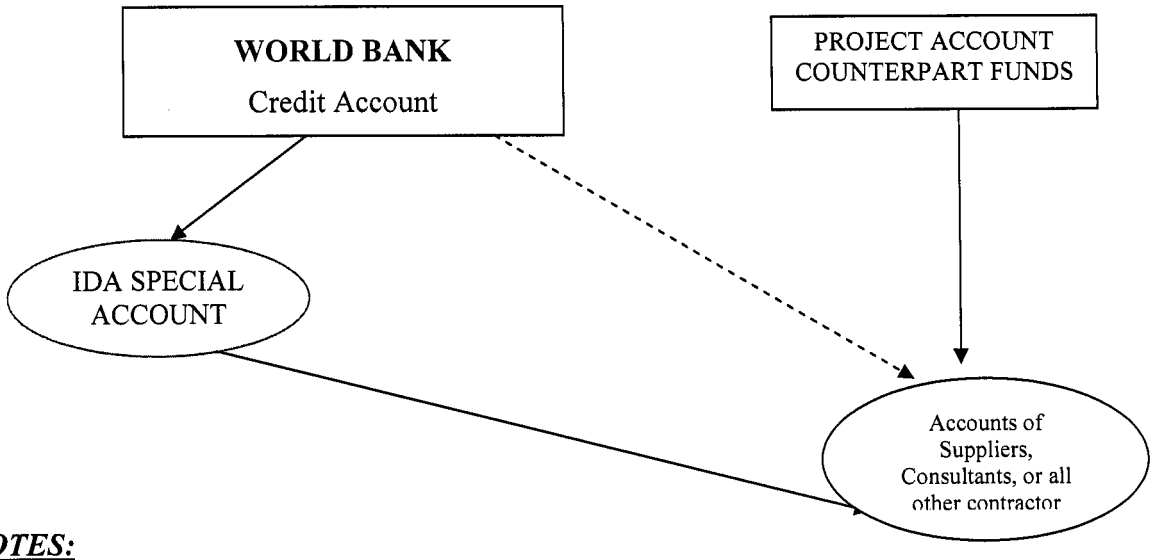
	Risk Assessment				
	H	***M***	***L***	***N***	***Comments***
Inherent Risk					
1. Corruption		X			The proposed financial management (FM) action plan attached in Attachment 2 of Annex 9 will help reducing the risks.
2. Poor governance		X			
3. Weak Judiciary		X			
4. Weak Management capacity		X			
Overall Inherent Risk		**X**			
Control Risk					
1. Implementing Entity		X			Idem inherent risk
2. Funds Flow		X			
3. Counterpart funds			X		A project account will be opened and supplied prior to Credit effectiveness
4. Staffing			X		
5. Accounting Policies and Procedures			X		The preparation of a manual is part of effectiveness conditions
6. Internal Audit			X		
7. External Audit		X			Prior to Credit Effectiveness, an external auditor under TORs acceptable to IDA will be recruited
8. Reporting and Monitoring		X			Idem inherent risk
9. Information Systems			X		Idem inherent risk
Overall Control Risk		X			Idem inherent risk

H : *High*
M : *Moderate*
L : *low*
N/A : *Not Applicable*

Annex 9 – Attachment 2 (Action Plan)

Action	Tasks	Entity	Target Completion Date
Procedures	Elaboration of the administrative and accounting manual • Draft Manual • Final Manual including IDA's comments	MEM	 • 15/5/05 • 15/6/05
External Audit	Recruitment of an auditor satisfactory to IDA	MEM	15/6/05
Accounting system	Setting up an accounting system satisfactory to IDA	MEM	15/6/05

Annex 9 - Attachment 3 (Flow of funds)



NOTES:

----▶ *Direct Payments*

SA Managed by DDI on behalf of the Ministry of Energy

Annex 10: Procurement

SENEGAL: ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROJECT

A. General

1. Procurement for the proposed project would be carried out in accordance with the World Bank's "Guidelines: Procurement under IBRD Loans and IDA Credits" dated May 2004; and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated May 2004, and the provisions stipulated in the Legal Agreement. The general description of various items under different expenditure category is described below. For each contract to be financed by the Credit, the different procurement methods or consultant selection methods, the need for pre-qualification, estimated costs, prior review requirements, and time frame are agreed between the Borrower and the Bank project team in the Procurement Plan. The Procurement Plan will be updated at least annually, or as required to reflect the actual project implementation needs and improvements in institutional capacity.

2. **Procurement of Works**: Works procured under this project, would include: (i) maintenance of Cap-des-Biches steam generating units, and (ii) transmission and distribution network building.. The procurement will be done using the Bank's Standard Bidding Documents (SBD) for all International Competitive Bidding (ICB) and National SBD agreed with (or satisfactory to) the Bank.

3. **Procurement of Goods:** Goods procured under this project would include: (i) specific equipments and goods, (ii) computers, EDP equipment (printer, scanner, etc.) and software, (iii) printing of documents and brochures. The procurement will be done using Bank's SBD for all ICB and National SBD agreed with (or satisfactory to) the Bank.

Procurement of non-consulting services

4. Selection and employment of Consultants: Consulting services will focus on the following areas: providing technical assistance for the implementation of the project; strengthening of SENELEC and of the CRSE, the MEM, PETROSEN and CNH, and for preparing Phase II of the APL.

5. Other consulting services will comprise the services of external auditors and of procurement specialist.

5.1 External Auditors: Least-cost selection will be used to sign a framework contract with auditors for auditing the IDA project.

5.2 Procurement Specialists: Selection of individual consultant will be used for the recruitment of a part-time procurement specialist assisting the Ministry of Energy in procurement related to part B on the Credit. The position will be announced in the local media using the task description and the qualification requirements prepared during project preparation. A consultant highly qualified and experienced on procurement will be selected to train SENELEC's relevant procurement staff on procurement processes under World Bank procedures.

5.3 Accountants: **Part A** will be managed by SENELEC. SENELEC needs to strengthen its accounting functions and should, therefore, recruit an additional accountant. This accountant will prepare the withdrawal applications and maintained a financial management system, including

records and accounts, and prepare SENELEC's input for the quarterly reports to the Bank. **Part B** will be managed by the PCU, comprised of special advisors of the MEM, and an accountant, under the supervision of the Permanent Secretary of the MEM.

5.4 Short lists of consultants for services estimated to cost less than US$100,000 equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

6. **Procurement of Goods and Services for which an IDA Guarantee is to be provided:** Goods and works guaranteed by the proposed Credit will be procured with due attention to economy and efficiency and in accordance with procedures which meet the requirements that the goods and works that are procured:

(a) are of satisfactory quality and are compatible with the balance of the project;
(b) will be delivered or completed in timely fashion; and
(c) are priced so as not to affect adversely the economic and financial viability of the project.

7. **Operational Costs.** The Credit will finance limited incremental operational costs following the World Bank policies and guidelines. The Credit will reimburse 90% of the eligible operational costs.

B. Assessment of Procurement Capacity

Overview

8. Procurement activities will be carried out as follows:

- For Part A - SENELEC component - by the "Direction de l'Equipement" for works and heavy equipment and by the "Direction des Approvisionnements et de la Logistique" for goods (electric equipments, small equipments and office furniture).
- For Part B – which includes activities carried out mainly by the MEM and PETROSEN - there is no need to have a procurement specialist on a full time basis. The procurement activities managed by a coordination unit at the Office of the MEM will be supported by a consultant who will intervene periodically each time clear TORs are drafted and notified to him/her.

9. All the entities responsible for procurement activities will: (a) prepare and update the procurement plan for the component they are in charge; (b) monitor the progress of procurement; (c) assist the implementing units in the preparation of bidding documents and advertisements for goods and works contracts, and request for proposals for consulting assignments; and (d) be responsible for the quality of the outputs related to bid opening and evaluation process even though the full process is managed elsewhere . The procurement entities will also advise the implementing agencies on procedural matters.

10. Specifically for the consultant to be selected, these conditions will be an important part of the TORs and the contracts to be drafted with the assistance of World Bank Procurement team both at Washington and Dakar.

Assessment of the units responsible for procurement activities

SENELEC

11. The component is implemented by SENELEC itself and the Procurement units ("Direction de l'Equipement" and "Direction des Approvisionnements et de la Logistique") are staffed by approximately thirty persons who have extensive experience in the national procurement system. Because of their high level of qualification and experience, it will not be very difficult for them to learn about World Bank rules so as to identify the main differences; there is no staff assigned to procurement activities.

12. The project will refer to World Bank rules and use the appropriate standard bid documents and request for proposals corresponding to the estimated amount of the contracts

13. An assessment of the capacity of the Implementing Agency to implement procurement actions for Part A of the Credit - the SENELEC Component - has been carried out by Bourama Diaté, Sr. procurement specialist at Dakar Office on September 29, 2004. The main findings are that the relevant units of SENELEC have had significant experience in procurement in general but without any proof of experience on World Bank procurement procedures; they feel comfortable in applying the national rules, which means that adaptation to World Bank procedures will not be a big issue. The primary recommendation is to reinforce the actual set-up so as to avoid major deviations. The proposed actions are the following:

- The staff within the units in charge of procurement should be trained in World Bank procurement procedures and their capacity of the procurement enhanced on procurement planning so as to better survey the progress of procurement activities and speed up the contract signature;
- The component responsible for technical activities will do their best to finalize on time the technical specifications for procurement of goods and works and the TORs for selection of consultants so as to avoid delaying procurement; and
- The procurement units should limit its intervention in the procurement activities to: (i) centralization of procurement activities in one procurement plan to ensure that the thresholds are respected in terms of methods (possibility of grouping expenditures and aggregates), (ii) preparation of the bidding documents and requests for proposals; and (iii) advising the component responsible during the evaluation of the bids.

14. Therefore, the assessment indicates that there should be no major procurement problems. Since there is no standard bid document or request for proposals, the PIU will always use the World Bank procurement procedures regardless of the type of contract or the amount.

Other components of the Project

15. The core staff at the level the Ministry's Office would include a consultant who should be familiar with World Bank's procurement procedures and would work closer with the DE, CNH, CRSE and PETROSEN, to ensure efficient and timely project execution through compliance with the procurement schedules agreed with the Bank. The consultant will not intervene in a full time basis but each time he/she is asked to come for a specific assignment.

16. The minimum of qualification and experience required for the consultant to be hired (for a short period) and the procurement specialist to be recruited are: The Procurement Specialist must hold a graduate degree in either of the following, (i) Engineering (Civil, Mechanical, or Industrial), or (ii) similar advanced degree from a recognized university; He/she should have at

least five (5) years of experience in Contract/Procurement Management. Experience with the World Bank assisted projects and familiarity with World Bank Procurement Guidelines would be of particular advantage. The Procurement Specialist should demonstrate ability to resolve efficiently all contractual and procurement matters, and adequate experience in handling consultant contracts and related issues; Demonstrated skills in computer application and use of software programs for contract works management/procurement database and monitoring is an essential requirement.

Risk assessment

17. The main Project implementation issues/risks concerning procurement have been identified and include:

- Possibilities of conflict of interest (the "Secrétaire Général" of SENELEC in charge of coordinating the implementation of Part A – the SENELEC component- is heading at the same time SENELEC's internal control system).
- Use of the national procurement system in case the contract is not advertised internationally will slow down the process and the contract signature for all contract under the national procurement code; the reason is that the threshold for procurement method is low and submission of contract award to CNCA (institution in charge of contract award prior review) for review and approval is some time long.
- The institution in charge of procurement within SENELEC is at the same time responsible for the contract implementation; this is a case of potential conflict of interest.
- Diversity of procurement units in the same entity (SENELEC).

18. The corrective measures would be:

- Within SENELEC, to identify a procurement officer who will be handling procurement activities and will not be involved in technical issues during the project implementation.
- Separate the functions of coordination of project implementation and internal control.
- For contract specifically advertised locally and referenced to the national code, the threshold for procurement methods will be that of the DCA and CNCA prior examination and approval should be avoided if possible.
- The coordination unit of the MEM (the PCU) will follow up procurement progress and supervise the procurement plan.

19. Overall Project risk for procurement is Medium.

C. Procurement Plan

20. The Borrower, at appraisal, developed a Procurement Plan for project Pmplementation which provides the basis for the procurement methods. This plan has been agreed between the Borrower and the Project Team on April 18, 2005 and is available at SENELEC's Offices, located at Rue Vincens, in Dakar. It will also be available in the Project's database and in the Bank's external website. The Procurement Plan will be updated in agreement with the Project Team annually, or as required to reflect the actual project implementation needs and improvements in institutional capacity.

D. Frequency of Procurement Supervision

21. In addition to the prior review supervision to be carried out from Bank offices, the capacity assessment of the Implementing Agencies has recommended two supervision missions each year to carry out post review of procurement actions.

Annex 10 - Attachment 1 - Details of the Procurement Arrangements involving international competition

1. Goods and Works and non consulting services

(a) List of contract Packages which will be procured following ICB and Direct contracting:

1	2	3	4	5	6	7	8	9
Ref. No.	**Contract (Description)**	**Estimated Cost (US$000s)**	**Procurement Method**	**P-Q**	**Domestic Preference (yes/no)**	**Review by Bank (Prior / Post)**	**Expected Bid-Opening Date**	**Comments**
SENELEC								
1	Strengthening of Distribution network (1 out of 4 projects)	1,800	ICB (AOI)	P-Q	no	Prior	2005	4 DAO will be sent to the WB 04/30/05
2	Strengthening of Ouroussogui-Seme	1,200	ICB (AOI)	P-Q	no	Post		Have been attributed yet, All doc., to be sent to the WB before signature
3	Strengthening Mbour-Kaolack	3,000	ICB (AOI)	P-Q	no	Prior	2005	DAO will be sent to the WB 04/30/05
4	Rehabilitation line 30kV DSP Nord	1,000	ICB (AOI)	P-Q	no	Prior	2005	DAO will be sent to the WB 04/30/05
5	Strengthening 90 kV (1 out of 2 projects)	1,550	ICB (AOI)	P-Q	no	Prior	2005	2 DAO will be sent to the 04/30/05
6	Kounoune 1		ICB (AOI)	P-Q	no	Prior		Have been attributed yet
7	Existing power plant environmental monitoring (various equipments)	125	NCB or Quotation			Prior	2005	

(b) ICB Contracts estimated to cost above the equivalent value of US$500,000 for works s and US$250,000 for goods per contract and all Direct contracting will be subject to prior review by the Bank.

2. Consulting Services

(a) List of Consulting Assignments with short-list of international firms.

1	2	3	4	5	6	7
Ref. No.	**Description of Assignment**	**Estimated Cost (US$000s)**	**Selection Method**	**Review by Bank (Prior / Post)**	**Expected Proposals Submission Date**	**Comments**
Part A - SENELEC						
1	Generation and Transmission Mater Plan	750	QCBS	Prior	12/15/04 (?)	Call for Interest 10/30/04 (?)
2	Distribution Master Plan	500	QCBS	Prior		
5	Studies - Existing power plant environmental monitoring	75	QCBS	Prior	2005	
Part B						
1	External Auditors	100	Least Cost Selection	Prior	05/2005	
2	Consultants' services Task Force (1 or more studies)	400	QCBS	Prior	05/2005	

(b) Consultancy services estimated to cost above the equivalent value of US$200,000 for firms and US$100,000 for individuals per contract and Single Source selection of consultants (firms and individuals) will be subject to prior review by the Bank.

(c) Short lists composed entirely of national consultants: Short lists of consultants for services estimated to cost less than the equivalent value of US$100,000 per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

Annex 11: Economic and Financial Analysis

SENEGAL: ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROJECT

Economic Analysis

Introduction

1. The proposed project provides several economic benefits to Senegal. First, it directly supports GOS's efforts to reduce poverty and stimulate economic growth and competitiveness by providing improved quality, reliable and cost-effective electricity services to meet the growing demand. Secondly, it promotes private sector investment and financing in the energy sector.

2. For such project, not all the project economic benefits and costs can be easily quantified, particularly the benefits of pre-investment activities and institutional strengthening. As the proposed project supports the electricity sector and, in particular, SENELEC's investment program through different activities, the economic analysis has sought to estimate the net economic benefits from the electricity sector investment program. The economic analysis has also estimated the economic benefits from the commissioning of the Kounoune Project, supported by the IDA PRG and an IFC A Loan.

3. The economic analysis concludes that the electricity sector investments and the Kounoune Project are least-cost investments, and that they should generate substantial net economic benefits for Senegal. The following paragraphs discuss the generation alternatives, the estimated benefits from the electricity sector investment program and the net economic benefits from the Kounoune Project.

Generation Alternatives

4. In the absence of new power generation supported by SENELEC, electricity demand would have to be met by the end-users of electricity through more expensive (diesel oil units). Part of the electricity demand may also not be met (load shedding may spread) depriving the economy and the population of valued economic and social benefits.

5. *Over the next 4-6 years*, Senegal has few other base load generating options than to rely on domestic oil-fired generation. Among the thermal generation options, diesel units running on HFO are clearly the least-cost generating option for base load. *In the medium/long term (starting in 2009-2010)* other options, such as importing power from the OMVS hydro program (Félou and Gouina) from Guinea or from the WAPP, possibly coal fired units, use of natural gas from Mauritania[18] or domestic hydrocarbon resources (if discovered), could also be candidates. Renewable energies will most likely play a small role. However, most of these options have not yet reached sufficient technical, economic and financing maturity, may not be cost-effective or/and have an uncertain timing as political, economic and financial considerations may come to play.

Assessment of the Net Economic Benefits of the Electricity Sector Investment program

6. Given the nature of the proposed IDA participation – which supports a blend of investments in new generation, in critical maintenance of generating facilities, in rehabilitation of transmission and distribution facilities, in capacity building and in technical assistance – assigning benefits to particular

[18] Mauritania has recently confirmed commercial hydrocarbon resources. Natural gas or electricity from natural gas could benefit Senegal.

project components (except with respect to investments in new generation) is difficult and, to some extent, arbitrary. The benefits of Senegal's electricity sector investment program (See Annex 4 – SENELEC's investment program for the 2005-2013 period) are fourfold: (a) provision of additional electricity supply to meet the additional demand from new residential, commercial and industrial customers, reflecting the increase in urban population and economic growth, through increased generation and maintenance of the generating units; (b) lowering of generation costs, as the new generation investments are efficient and cost effective, and provide fuel savings, as units will be dispatched economically, which SENELEC has not been able to do in the past years; (d) decrease in transmission and distribution losses through the rehabilitation and extension of SENELEC's networks[19]; and (d) increased reliability of SENELEC's electricity services because of the investments in generation, transmission and distribution.

7. Incremental Electricity Demand. Electricity demand growth scenarios are presented in Annex 4. The willingness-to-pay for these services has been estimated on the basis of the existing 2004 average tariff of US$0.15/Kwh paid by the consumers to SENELEC. Such estimate is conservative and does not include estimates of the consumers' surpluses.

8. Net Fuel Savings to SENELEC. Investments in new generating facilities will also provide fuel savings, as relatively cheap HFO will displace more expensive fuels (such as diesel oil, naphtha or kerosene), as more efficient generating units will be dispatched. Fuel savings have been estimated on the basis of the World Bank forecast of March 2005, which foresees that crude oil prices in current dollars will evolve from an average of US$37.7/bbl in 2004 to US$32.5/bbl in 2015[20]. Reductions of carbon dioxide emissions could lead to the possibility of economic benefits from emission credits; such benefits have, however, not been quantified.

9. Decrease in technical losses. In 2004, SENELEC technical and non-technical losses represented 17.5% of the energy delivered to the network; technical losses represented about 50% of these losses (See Annex 4). SENELEC will rehabilitate its networks through the proposed project and program. Based on experience, Bank staff estimates that such technical losses will decrease only gradually to a level of about 14% by 2015; technical losses are estimated to represent 7% of these losses. These savings have been valued at the avoided variable costs (reflecting the World Bank March 2005 crude oil forecast).

10. Reliability Improvements. In 2004, non-delivered energy on the power interconnected system was estimated to be 14 GWh, with 8 GWh related to generation shortfalls and 6 GWh related to the networks. For 2003, non-delivered energy was estimated to be about 7 GWh. With the investments planned in generation, transmission and distribution it is expected that non-delivered energy will be reduced to 2% by 2015; without such investments non delivered energy is estimated to increase to 20 GWh by 2015. The economic value of these benefits is based on SENELEC's and the CRSE's valuation of US$2/kWh (FCFA 1,000/kWh).

11. Base Case Economic Scenario. Electricity demand growth scenarios (World Bank and SENELEC scenarios) have been discussed in Annex 4, and the outlook for crude oil prices presented in the preceding paragraphs. The minimum economic value of incremental demand supplied by the program has been taken as the average tariff charged by SENELEC in 2004 (before the 4.78% tariff decrease effected in

[19] Only the reduction of technical losses can be considered as an additional economic benefit from the project. Reducing non technical losses brings financial benefits to the utility, but does not provide an economic benefit to the consumers.

[20] Prices of a basket of Dubai, Brent and WTI crude oils. World Bank March 2005 forecast of crude oils (in nominal terms) are as follows: 2004:$37.7/bbl; 2005: $42.0/bbl; 2006: $36.0/bbl; 2007: $33.0/bbl; 2008-2010: $30.0/bbl; 2011-2015: $30.5-32.5/bbl.

September 2004). Such tariff was equivalent to US$0.15/kWh (FCFA 82/kWH). This average value does not represent the full value of benefits to users of electricity, but in the absence of a reliable estimate of the consumer willingness-to-pay and consumer surplus, it has been used as a proxy.

12. Economic Internal Rate of Return (EIRR) and Net Present Value of the Benefits (NPV). For the Bank's base economic case (Bank's forecast of electricity demand, petroleum products prices based on the Bank March 2005 crude oil prices outlook), the EIRR on the 2005-2015 investment program is estimated to be 23%. The NPV at a social discount rate of 10% is also large, estimated to be US$416 million. As indicated earlier, these estimates are based on a conservative economic value assigned to the consumption of electricity services. Environmental benefits related to lower air emissions have not been quantified. Details and assumptions on the EIRR and NPV calculations are provided in Attachment 1, Annex 11.

13. Sensitivity Analysis. The sensitivity of these economic indicators (i.e., EIRR and NPV) to variations in fuel prices, increase in investment costs, demand growth and willingness to pay for electricity services is provided in the following table. This table shows that the EIRR and the NPV are very robust to change in key parameters; they are relatively sensitive to changes in fuel prices, investment costs and the value assigned to electricity services. Under a worst-case scenario (lower demand, fuel costs 30% above those of the base case and investments 30% above base case estimates) the EIRR will be 12.4% and the NPV US$93.6 million.

Sensitivity of EIRR and NPV to key variables.

Scenario	EIRR (%)	NPV at 10% (US$ million)
Base Economic Case	**23.2**	**416**
Base Economic Case; Fuel Costs +30%	19.4	302
Base Economic Case; Fuel Costs +50% (Crude oil at US$50/bbl in 2015)	17.0	227
Base Economic Case; Fuel Costs +30%; Investment Costs:+30%	13.1	121
Lower Willingness-to pay (20% lower)	17.4	209
Lower Demand Growth Scenario	22.2	387
Higher Demand Growth Scenario	25.0	462
Lower Demand Growth Scenario; (20% lower); Fuel Costs +30%; Investment Costs:+30%	**12.4**	**93.6**
Base Economic Case; Higher Willingness-to pay (20% higher)	28.3	623

Kounoune Project Economic Benefits

14. The Kounoune Project is supported by the IDA PRG and an A loan from IFC (Annex 13 and Annex 14 provide information on the IFC Loan to the Kounoune Project and the PRG, respectively). Starting mid 2006, this IPP will provide an additional energy of 414 GWh p.a., on average, and 67.5 MW of capacity; a 15-year PPA between SENELEC and the Project Company has already been signed. This private sector investment will yield three main benefits: (a) delivery of reliable and lower cost electricity supply to the IS, which is required to meet the additional demand from new residential, commercial and industrial customers, reflecting the economic growth and the increase in urban population; (b) fuel savings, as the plant substitutes more costly generating units and allows a more economic dispatch of SENELEC's generation units, which has not been the case during the past years; and (c) increased reliability of the electricity supply.

15. For the Bank's base economic case, the EIRR for Kounoune Project is estimated to be 26%; the NPV, at a discount rate of 10%, is also large, estimated to be US$75 million. The benefits for the Kounoune Project have been calculated based on the power generated by the IPP and valued at US$0.15/kWh, i.e., SENELEC's end-user tariff in 2004, which has been used as a proxy for the customers' willingness to pay. This is a conservative estimate given that residential consumers are generally estimated to have a much higher willingness to pay. On the cost side, the investment cost of building the Kounoune Project has been considered, together with the operating and maintenance costs forecasted over the term of the PPA. Fuel and other savings will be reflected in lower operating and maintenance costs of the IPP as compared to those of SENELEC.

Financial Analysis

16. The following sections: (a) describe and analyze the recent financial performance of SENELEC and examine the reliability of the company's accounts on which the financial analysis is based; (b) present the Bank's financial forecasts for SENELEC, and discuss the key issues for the financial viability of the company; and (c) describe and analyze the existing and proposed tariff revision mechanisms and their impact on SENELEC.

SENELEC's Recent Financial Performance

17. SENELEC's financial performance over the recent years has been characterized by a lack of operating profitability and a weak generation of cash-flow by current operations. The resources generated by operations have been below what would be required to: (a) cover interest charges; (b) adequately maintain or replace existing assets and equipment; and (c) finance significant expansion investments. In this context, SENELEC has seen: (a) a deterioration of its facilities, with negative consequences in terms of service reliability and operating costs; and (b) investments below the level adequate, in the long term, to accommodate growth in demand (although the shortfall between SENELEC's generation and Senegal's growing electricity demand has been provided in 2003 and 2004 by the Manantali hydroelectric plant, which represents about 2 years of growth in Senegal's electricity demand). It should be noted, however, that SENELEC's balance sheet has significantly improved since an equity injection by GOS of FCFA 40 billion in 2001, done in preparation for SENELEC's privatization.

18. Operating profitability. Since 2002, SENELEC's operating profitability has improved, although has remained low (Table 1). As a result of this improvement in operating profitability, SENELEC has, for the first time, achieved a positive EBITDA in 2002. This improvement can be explained primarily by two factors: (a) a 10% tariff increase in March 2002, with a full year effect on its revenues in 2003; and (b) cheaper bulk supply of power from Manantali (which also occurred in 2002, with a full year effect in 2003). In addition, efficiency improvements have taken place in other areas: improved revenue collection, substantial diminution of fuel costs in 2003 compared to 2002 (due to a better fuel mix: switch from diesel, gas oil and kerosene to HFO), etc.

19. However, this positive trend has seen a reversal in 2004, with a decline in operating profitability and the rate of return on assets declining from 2.6% in 2003 to 1.0% in 2004, mainly because: (a) generation costs have increased substantially, due to SENELEC having to operate its least efficient generation plants in order to meet the increase in demand, and to higher oil prices; and (b) as a result of a regulatory decision (see below – Electricity Tariff Regulation), SENELEC's tariffs have been reduced by 4.8% in September 2004. Because these factors will probably have a higher negative impact in 2005 than in 2004, it appears likely that SENELEC operating profitability will further deteriorate.

20. Therefore, in order to see again a sustained improvement in profitability, two conditions need to be met: (a) a significant change in the tariff revision mechanisms (which appears likely on the basis of the

indications of the CRSE), and (b) efficiency improvements in the various activities of SENELEC, requiring especially additional generation capacity. These requirements are being addressed by the proposed project.

Table 1: Summary Profit and Loss account of SENELEC (FY 2000-2004) FCFA billion

Fiscal year ending Dec. 31st	2000	2001	2002	2003	2004
gWh generated	1,117	1,294	1,126	1,282	1,234
GWh purchased	300	300	564	551	632
- Losses (Gwh)	268	299	338	389	399
-Losses in %	18.9%	18.7%	20.0%	21.2%	20.6%
Electricity Sold (GWh)	1149	1295	1352	1444	1538
Electricity Sales	85.4	94.6	108.7	117.7	126.5
Average revenue per kWh (FCFA)	*74.3*	*73.0*	*80.4*	*81.5*	*82.2*
Other revenues	4.2	3.8	4.1	7.2	4.9
Gross revenues	**89.6**	**98.4**	**112.8**	**124.9**	**131.4**
Generation and electricity purchase (variable costs)	47.4	61.6	58.3	54.9	61.1
Cost per kWh (FCFA)	*33.4*	*38.6*	*34.5*	*29.9*	*32.7*
Electricity purchase (fixed costs)	3.8	5.7	8.6	9.1	9.2
Operations, mainten. and services	23.5	19.8	19.6	19.5	20.2
Personnel	12.8	13.1	14.0	16.4	18.2
Taxes and assimilated	5.9	5.2	5.3	5.4	5.7
EBITDA	**-3.8**	**-7.0**	**7.1**	**19.7**	**17.0**
Depreciation	10.7	10.1	15.3	15.7	15.5
Operating Income	**-14.5**	**-17.1**	**-8.2**	**3.9**	**1.5**
Net Interests charges	1.0	6.0	2.8	5.8	6.2
Operating Subsidy	0.0	6.1	7.7	0.0	0.0
Net Income (before exceptional)	**-15.5**	**-17.0**	**-3.4**	**-1.9**	**-4.7**
Rate of return on Assets	-12.3%	-13.1%	-5.4%	2.6%	1.0%
Times Interest Earned (EBITDA/Interests)	-3.9	-1.2	2.6	3.4	2.7
Operating ratio	84%	83%	93%	103%	101%

Sources: primarily SENELEC annual accounts, complemented by SENELEC financial model for technical indicators (quantities generated, purchased, losses...) and for the detail of operating expenses. Provisional data for 2004.
EBITDA: Earnings before interest, tax, depreciation of tangible fixed assets and amortization of intangible fixed assets.

21. The structure of SENELEC's Balance Sheet can be characterized as follows:

- a *relatively low level of debt:* at the end of 2004, SENELEC's financial leverage was slightly below 40% (leverage being defined as the ratio of net financial debt to the sum of net financial debt and equity), but
- a structure of financial debt that is not optimal for a capital intensive sector: SENELEC seems to rely excessively on short term financing resources although, in this respect, an improvement has taken place in 2003 and 2004, notably because of a FCFA 15 billion bond issue in 2003.

22. SENELEC's financial leverage has been more or less stable since the end of 2001. Part of the explanation resides in a better management of the working capital (specially a reduction in accounts receivable due to improved collection). However, the stability of the debt level is also the result of a low level of investments over this period, a situation which is not sustainable. Thanks to the Manantali hydroelectric plant, SENELEC has been able to meet an increase in demand at a low cost and without investing in generation.

23. Over the next few years, SENELEC's financial leverage is expected to increase since:

- It will need to make large investments, some of which are clearly overdue (especially in generation); and
- the cost of SENELEC's debt exceeds its operating profitability, as measured by its return on assets.

24. Despite SENELEC's reliance on short term bank financing, the average cost of SENELEC's debt has been low. For instance, the ratio of net interest charges to the stock of net financial debt was under 3% in 2002, reflecting the predominance of concessional loans. However, the average interest rate of SENELEC's debt has started to increase in 2003 due to new additional borrowings. Notably, in 2003, SENELEC has financed its investments with: (a) a FCFA 15 billion bond issue, carrying a 7.5% interest rate (for a 5 year maturity); and (b) a loan from BOAD, at 8% interest rates (9 year maturity).

25. This trend is worrying, since SENELEC would not be able to finance increasing investments with loans carrying a market interest rate, unless it is allowed to earn a comparable return on its assets. This is why it is important to assess the extent to which cash flow from operations can fund investments.

Table 2: Summary Balance Sheet of SENELEC (FY 2000-2004) FCFA billion

Fiscal year ending Dec. 31st	**2000**	**2001**	**2002**	**2003**	**2004**
Net fixed assets	122.1	151.1	151.2	152.7	151.4
Inventories	6.7	4.4	3.4	3.4	4.3
Clients Accounts receivable	29.8	42.3	50.6	46.0	36.9
Other Current Assets	10.7	11.2	11.3	12.0	12.4
Less Current Liabilities	-41.4	-35.3	-47.0	-40.0	-41.8
Net Current Assets	5.8	22.5	18.2	21.4	11.8
Total Assets	**127.9**	**173.6**	**169.4**	**174.1**	**163.2**
Overdraft (less cash)	9.8	6.0	7.7	-1.1	6.3
Financial Debt	62.3	59.6	56.2	65.9	48.8
Total Net Financial Debt	72.1	65.6	63.9	64.8	55.2
Other liabilities (operations)	21.1	18.2	18.9	21.0	21.4
Equity and quasi-equity	34.7	89.8	86.7	88.3	86.6
Total Debt and Equity	**127.9**	**173.6**	**169.4**	**174.1**	**163.2**
Current ratio	*0.73*	*1.06*	*0.92*	*1.07*	*0.91*
Accounts receivable in days	*127*	*163*	*164*	*134*	*103*
Financial Leverage[21]	67%	42%	42%	42%	39%

Sources: SENELEC annual accounts. 2004: provisional.

Weak cash flow generation compared to the required level of investments

26. In 2003, a year in which SENELEC has posted its best ever financial results, the cash flow from operations reached FCFA 13.6 billion, which is probably about the level that would be necessary, on average, to renew the existing assets. This suggests that, in 2003, SENELEC was in a situation that

[21] Financial leverage, definition: Net financial debt (Financial debt –cash) / Net financial debt + equity.

allowed for the recovery of its costs before any remuneration of invested capital. However, since SENELEC has to pay interest charges on its debt and repay the principal, the amount left for investment is limited. In 2003, after taking into account debt service and the increase in working capital, no significant remaining cash flow was available to fund investments, which indicates that nearly all investment expenditures were to be financed through external resources.

27. SENELEC expects a rapid development of the sector during the remaining part of the decade. To cope with the growth in electricity demand over the 2003-2010 period projected by SENELEC at an average 7.8% per year (see Annex 4 for electricity demand forecasts), SENELEC foresees an ambitious investment program over the next few years (2005-2008), with significant investments in distribution, transmission, rehabilitation of existing generation capacity, and new generation capacity (not including the generation capacity built by IPPs). The financial forecasts presented below are based on the Bank's more conservative assumptions (demand growing at about 6.6% per year). Also, the Bank estimates have considered that some of the investments planned by SENELEC for 2005-2008 will be delayed, for several reasons:

- from a technical and operational point of view, SENELEC might have underestimated the time needed between the decision to carry out an investment and its completion;
- SENELEC has not yet secured the financing of a large part of its investment program; and
- SENELEC might need to reconsider the date of some investments in transmission and distribution in order to optimize the overall investment program. For instance, regarding its two largest investments (the Dakar loop, and the Toubene-Toba-Kaolak transmission line) SENELEC has not yet demonstrated that their optimal date of implementation is in 2005 or 2006. Also, it must be noted that a large part of the economic return of such investments derives from the improved reliability of supply, of which the primary beneficiary are electricity users rather than SENELEC.

Table 3: Summary Cash Flow Statement of SENELEC (FY 2001-2004) FCFA Billion

Fiscal year ending December 31st	2001	2002	2003	2004
EBITDA	-0.9	14.7	19.7	17.0
Variation in working capital (assets)	-10.7	-7.4	3.8	7.8
Variation in working capital (liabilities)	-2.1	5.5	-4.1	2.6
Net Interests charges	-6.0	-2.8	-5.8	-6.2
Cashflow from current operations	**-19.7**	**10.0**	**13.6**	**21.2**
Investments	-20.0	-16.6	-18.2	-16.9
Disposals	0.1	0.5	0.0	5.3
Cash flow after investments	**-39.6**	**-6.1**	**-4.6**	**9.6**
repayment of capital on financial debt	7.0	20.5	19.6	19.1
new borrowing	-4.3	-17.1	-29.4	-2.1
Increase(-)/decrease(+) in financial debt	2.7	3.4	-9.7	17.1
Increase(-)/decrease(+) in equity	-40.0	0.0	0.0	0.0
Subsidy(-) invest. and operations	-6.1	-7.9	-3.6	0.0
Increase(-)/decrease(+) in net cash	3.8	-1.7	8.8	-7.4
Financing	**-39.6**	**-6.1**	**-4.6**	**9.6**

Sources: SENELEC annual accounts. 2004: provisional
EBITDA: Earnings before interest, tax, depreciation of tangible fixed assets and amortization of intangible fixed assets.

Reliability of financial information

28. The reliability of the financial information produced by SENELEC has significantly improved over the years. The financial statements for 2003 were certified with only one qualification, which was related to the value of fixed assets in the books of the company. This qualification is mainly motivated by a legal issue regarding the titles of ownership of certain SENELEC's assets. Although it would be an issue to be resolved prior to the implementation of a new public/private partnership arrangement, it does not seem to have significant operational or financial consequences for SENELEC.

29. Historically, the improvement in the quality of the financial information produced by SENELEC has taken place in successive stages, as follows:

29.1 From its corporatization to 2001, SENELEC's external auditors repeatedly refused to certify its annual accounts. The main weaknesses identified by the auditors were in the following areas:

- Fixed assets (absence of a proper registry or of adequate procedures, insufficient physical inventory, insufficient provisions);
- Accounts receivable (inadequate procedures resulting in the impossibility to reconcile the accounts receivable ledger with the general ledger);
- Unreliability of inventories accounts (quantity, valuation);
- Debt in foreign currency (lack of consistency in the way latent gains/losses on debt in foreign currency are recognized); and
- an issue of going concern (solved by a subsequent capital increase of FCFA 40 billion).

29.2 SENELEC has, therefore, taken several steps to improve the quality of its accounts, allowing the auditors to certify the accounts for the first time for FY 2001. This included:

- Reorganization of the accounting department;
- Hiring of external accounting firms to restore an adequate registry of fixed assets (physical inventory, recodification, assessment of the need for further depreciation, etc.); and
- Installation of a new integrated accounting information system (Oracle based).

29.3 Since then, further improvements have taken place (especially on the accounting of customer receivables), allowing the auditors to drop all but one of their reserves, as indicated above.

29.4 Currently, SENELEC is working on the following actions: (a) strengthening internal controls through the definition of a procedure manual (work contracted out to a consulting firm); and (b) establishing an adequate system of cost accounting.

30. Based on the Bank's experience, improving SENELEC's cost accounting should be a managerial priority, and would allow SENELEC to better monitor, forecast and reduce its administrative and operating expenses. The recommendations regarding the managing of investments are detailed below.

Assessment of capital budgeting and financing decision making process

31. At present, SENELEC's capital expenditure investment decisions do not seem to be made through a rigorous process which includes the update of master plans, preparation of feasibility studies covering technical, environmental, economic and financial matters, preparation of detailed engineering, etc. For the most part, neither the decision criteria nor the decision making process are spelt out. These issues are also relevant for decisions related to SENELEC's financial management: there are instances in which long term investments are financed through short term instruments, resulting in a balance sheet

structure which is characterized by an excessive reliance on short-term financing, which, in turn, increases the cost of funds for the company and its liquidity risk. Given the scarcity of financial resources available to SENELEC to finance its investments, it is essential that SENELEC puts in place a rigorous decision making process. Therefore, the Bank is proposing that an Investment Committee is set-up and that guidelines are prepared with respect to preparation and review of any capital expenditures exceeding a pre-agreed amount. It should be noted that SENELEC has already taken a step in this direction, and has formalized its decision-making process for its investments, with its new investment program having been presented for approval to SENELEC's Board of Directors.

SENELEC Financial Outlook

32. The financial forecasts prepared by Bank present the expected evolution of SENELEC's finances over the next 10 years (See Attachment 2, Annex 11 - SENELEC Financial Forecasts). Given the limitations and uncertainties inherent to such an exercise, the results need to be interpreted with caution[22].

33. Main assumptions of the financial forecasts

- Tariff setting: The regulator has indicated that the new tariff regime for the 2005-2009 periods, currently under preparation, will likely enter into effect in September 2005. The assumption in the forecast is that the regulator will decide on an initial tariff level equivalent to the tariffs that were in application before the recent reduction (in September 2004), hence implementing a 5% increase relative to SENELEC's current average tariff. This assumption is the result of several considerations:
    - The September 2004 reduction was primarily the result of events that were related to SENELEC's performance in previous years (i.e., penalties for the blackouts that occurred in 2002, and the off-set of the revenues perceived in excess of the MAR in 2003). Since these penalties are one-time deductions to SENELEC's MAR, after this year, *ceteris paribus*, tariffs should go back to their previous level.
    - The reduced tariff was based on an already old value for oil prices (which, as noted before, is one of the problems identified in the indexation formula), which, for the purpose of tariff calculation, were below both the September 2004 and the current levels.
    - Given the economic, social and political sensitivity of an increase in electricity tariff, an increase of more than 5% may not be approved by CRSE.

- Tariffs revision mechanisms: In line with the indications provided by CRSE, it is assumed that SENELEC will operate in a tariff regime under which tariffs are indexed and modified regularly, in order for the utility to be able to promptly reflect in its end-customer tariffs the actual price evolution of the various inputs (e.g., fuel costs). This would generally result in an increase in nominal tariffs in line with inflation, except for the fuel component, which would be correlated with the prices of crude oil in Senegal. Given SENELEC's current low profitability, no efficiency improvement factor would be factored in the tariff formula until 2010, allowing SENELEC to keep until then any efficiency gains.

- Oil prices: Oil prices in Senegal have been assumed to evolve in line with the recent forecast prepared by the Bank for the evolution of international oil prices. It should be noted that CRSE has indicated that the future tariff revision mechanism should allow SENELEC to pass on to

[22] The definitive results for 2004 are not yet available. Future changes (especially in the Balance Sheet figures) may still occur.

customers' future oil price variations with relatively short delays; hence SENELEC should be relatively insulated from future potential "oil shocks".

- Demand growth: The Bank assumptions are more conservative than those of SENELEC. On average, the growth in the electricity sold would be about 6% (with somewhat higher growth in 2005 and 2006 to compensate for unserved demand in 2004, due to the lack of available generation capacity).

- Investments: From 2006 to 2008, it is assumed that two IPPs (Kounoune I and Kounoune II) will be commissioned, as well as the Bel-Air diesel plant, which will be financed with concessional financing, to be provided by the Islamic Development Bank, but built and operated by a private party.

- Generation and electricity purchase costs: The estimate for SENELEC's cost of electricity purchases takes into account the company's current contractual obligations (i.e., regarding the GTI IPP and Manantali), as well as those of future IPPs (all of which have been assumed to be in line with the terms of the Kounoune Project). Also, the optimal dispatching of SENELEC's plants has been assumed, and SENELEC's fuel costs have been modeled on the basis of the various plants technical characteristics (e.g., energy efficiency, annual maintenance requirement, unscheduled outages, etc.)[23].

- Productivity and efficiency improvements: continuous efficiency improvements, albeit modest, have been factored into the forecasts. In addition to the commissioning of more efficient generating units and a reduction in the transmission and distribution losses, annual productivity improvements have also been reflected in the projections, mostly being the result of two elements: (i) a reduction of non-fuel expenses per unit generated of 0.5% per year, reflecting SENELEC's improved management, processes and/or technological change; and (ii) economies of scale.

- Cost of financing: it is assumed that most investments will be financed with loans carrying a "market" interest rates (i.e., a rate comparable to that for Public Sector borrowers in Senegal; the assumption for the financial projections is 9%), with the exception of the loans to be provided by the Islamic Development Bank for the Bel-Air plant, and of the investments to be financed under the current project (with on-lending terms assumed to be: a 5 % interest rate; and repayments over 20 years)[24].

34. Main conclusions of the financial forecasts. Based on the aforementioned assumptions, two important trends stand out:

35. The long-term financial outlook for SENELEC is expected to improve: SENELEC's profitability is expected to benefit from positive structural trends related to: (i) a significant reduction in the unit cost of generation (the power generated by IPPs and new generating plants, including (in the long-term) hydro generation purchased from the WAAP, will dilute or replace more costly generation plants), (ii) reduced

[23] The forecasts also include an estimate of the costs to be incurred by SENELEC for the leasing of additional generation capacity in 2005 and 2006.

[24] Without prejudice of the future discussions between the World Bank and Senegalese authorities regarding on-lending terms, the rationale for this assumption is that, while SENELEC will finance most additional generation at market rates (through IPPs), it might be justified to finance some of its investments which have obvious benefits in terms of increased access to electricity and poverty alleviation, at non commercial rates, especially in the current context of high oil prices.

costs in other areas, such as transmission, distribution and retail services, which are activities for which scale and density of customers has an impact on total costs.

36. However, SENELEC's short term prospects are worrying. Due to the low starting point of its tariffs relative to its costs, and to the increased generation costs that it will face for the leasing of generating units to prevent excessive generation shortages in 2005 and 2006, SENELEC's profitability will most likely deteriorate, hence increasing the risk of a potential liquidity crisis and/or an increased level of debt.

37. It should be noted that the reduction in SENELEC's profitability in 2005, and possibly in 2006 (should the new generation units be commissioned after the peak season for electricity demand, during the second half of the year), as well as the increasing financing requirements of the company, have the potential to invalidate the more positive scenario presented in the Bank's forecast for the following years.

38. In the forecasts presented below, SENELEC is expected to have a negative operating income (EBIT) in 2005, and only achieve a positive net income by 2008. In the meantime, SENELEC would increase its financial leverage (from the current level below 40% to more than 60%, without taking into account the significant off-balance sheet liabilities that would result from the various IPP contracts). In terms of SENELEC's debt service coverage ratio during the forecast period, until 2010, the company will remain at a level of around 1.2.

39. Therefore, during the coming years, SENELEC will be faced with the need to attract a significant amount of financing while, at a same time, be in a situation of low or negative profitability and weak cash-flow generation. SENELEC will need to be able to present potential financiers (both commercial banks and Donors), that a recovery of its profitability is a credible prospect, and that profitability is only momentarily depressed as a result of its large investment program, the full impact of which will be reflected in its profitability only in the medium term. In this respect, demonstrating a more structured approach in terms of investments planning, capital budgeting, and financial forecasting, would be beneficial for the company. Also, the establishing an adequate tariff regime, applied with a certain level of credibility, would be essential.

Electricity tariff regulation and tariff levels

40. Electricity tariff regulation is one of the main reasons for SENELEC's current weak profitability. Over the last few years, Senegal has applied a tariff revision mechanism that: (a) includes a revenue cap mechanism, which creates incentives for improved efficiency; (b) leaves limited discretion to the regulator in applying the pricing formula, which generally reduces the perception of regulatory risk.

41. Senegal should be able to build on these positive features. However, the current tariff revision mechanism, based on a formula that is relatively simple, has proved not to be adequate, because: (a) it does not correctly reflect the utility's cost drivers (notably, fuel prices) and the structure of consumption, and, as a result, SENELEC has not been able to fully pass on to its consumers, for instance, the increases in fuel prices since 2000; and (b) the utility is left to bear many risks that it cannot control. Therefore, SENELEC's financial position could deteriorate rapidly over the next few years if the current tariff mechanism is maintained. As already discussed, private operators and investors alike, are concerned about this tariff mechanism and the impact it has on SENELEC's ability to meet its investment and financial commitments.

42. Nonetheless, the CRSE seems to be fully aware of the problems with the current tariff formula, as demonstrated by the new tariff methodology that it has recently publicized, and which should become applicable by September 2005.

43. However, even if it is reasonable to expect that tariff indexation mechanisms will be adequate, the question of the adequacy of the current tariff level remains. SENELEC's low profitability seems to indicate that a tariff increase would be necessary. However, the company's current operating costs are not necessarily representative of the long-term supply costs.

Description of the current tariff mechanisms

44. The current tariff mechanisms are based on the Concession Agreement signed between the company and the GOS, which defines a formula applicable for the years 1999-2004. CRSE is in charge of applying the tariff formula, with limited discretion. Under the Concession Agreement, SENELEC's electricity tariffs are determined as a revenue cap or Maximum Allowed Revenue (MAR). The MAR for any given year calculation is based on a reference level of revenue of FCFA 76 billion for the year 1998 (which is the year preceding the application of the Concession Agreement). This reference level is increased to reflect: (a) the evolution of inflation since 1998; and (b) the increase in the volume of electricity sold. In addition, some costs are added to the MAR as pass-through (e.g., some taxes and regulatory fees) and penalties are deducted from the MAR if availability of power is below certain threshold (i.e., unserved demand above 0.5% of sales).

45. The formula has important virtues: (a) there is a *strong incentive to reduce costs and losses* and improve collection rates, since revenues are not determined as a "cost plus" and the company would retain the gains made, if any; (b) even though the formula does not explicitly include an efficiency improvement factor, it allows consumers to benefit from the economies of scale brought by the development of the sector (i.e., an increase of x% in the electricity sold since 1998, translates only in an increase of 80% of x% of the MAR, reflecting the assumption that the operator has certain operating fixed costs, which were estimated to represent 20% of total costs in 1998).

46. However, there are *significant shortcomings* in the formula that have caused (and are likely to continue causing unless the tariff setting and revisions regulations are revised) a large imbalance between tariffs and costs for reasons that are beyond the control of SENELEC. The most significant problems relate to the indexation formula as: (a) there is an *excessive time lag* in the indexation (for instance, the recent tariff change, applicable starting in September 2004, was based on the difference in average prices during the year 2003 relative to 2002, which represents an issue for SENELEC because variations of oil prices have been quite significant but are reflected with delays in its tariff); (b) the *indexation formula does not reflect the reality of SENELEC's costs*. The tariff index is based on a weighted average of the following indexes: consumers' prices in Senegal: 50%, consumer prices in France: 30% and prices of fuel oil in Senegal: 20%. The weight given to oil prices in the formula (20%) is low compared to the share of fuel purchase in SENELEC total costs. For the period 2000 to 2003, the proportion of fuel costs relative to SENELEC's total operating costs has always been significantly above this level. This proportion was 46% in 2000, and even after Manantali came into operation, it remained above 40% in 2002 and 2003. Overall, between 40% to 50% of SENELEC's costs are directly linked to fuel prices and this is not reflected in the indexation formula.

47. There are other potential problems with SENELEC's tariff formula. For instance, the formula takes into account the quantities of energy sold, but not the structure of sales, which is an important factor in SENELEC's operating costs: for a given amount of energy sold, it is much cheaper to supply large industrial users than domestic users (since the former generally have lower level of losses as well as lower metering, billing and collection costs and bear higher tariffs). Also, changes in the cost of financing new investments are not reflected in the formula, although these can significantly affect SENELEC's profitability and are, for the most part, determined by factors beyond its control (e.g., changes in the level of interest rates, availability of donor financing, etc.). Furthermore, the penalty for exceeding the defined

threshold of unserved demand has some benefits in terms of incentives, but is also potentially problematic in a system that is rapidly expanding, and it does not reward the utility for achieving a level of service above a particular threshold.

Application of the tariff revision mechanisms

48. The refusal by the Senegalese authorities to increase tariffs was one of the reasons for the departure of the private operator in 2000. Eventually, in March 2002, following a decision of CRSE, a 10% increase in electricity tariffs was applied, and the operating profitability of SENELEC subsequently improved. However, CRSE has recently decided on a reduction of 4.78% of nominal tariffs (effective starting in September 2004). This reduction is the result of the application of the formula for determining the maximum allowed revenue (MAR) for 2004, but also incorporates certain deductions, as noted early, such as: (a) penalty of FCFA 2.2 billion for the year 2002; and (b) correction for 2003 actual revenues exceeding the MAR (FCFA 2.4 billion actualized at an 11% interest rate). The operating income for the year 2003 was FCFA 3.9 billion, but this is based on a revenue level exceeding that of the MAR, which has led to the subsequent reduction in tariffs. Were the 2003 operating profit to be adjusted for this excess revenue, it would turn into a loss.

49. This is the logical result of the application of a tariff revision formula that does not reflect adequately the evolution of fuel costs during a period of increasing oil prices. This tariff mechanism has contributed to a situation of a negative return on assets for SENELEC, in spite of the improvements that have occurred during recent years (e.g., availability of hydropower from Manantali, improved collection rates, etc.). As a result, a budgetary support to SENELEC was necessary (FCFA 40 billion of equity injection in 2001, in addition to a subsidy of FCFA 6.1 billion).
In this respect, the consequences of the tariff reduction applied since September 2004 could be very negative, especially since the already high level of oil prices in 2004 was not factored in the determination of this tariff. The increase in oil prices should normally be reflected in the determination of the MAR for next year, assuming that the political climate makes possible a large increase in electricity tariffs. However, if the shortages of power feared by SENELEC for 2005 occur, SENELEC could be penalized further with a reduction of its MAR through increased penalties for unserved demand. Increasing electricity tariffs is politically sensitive in any circumstances, and especially at a time of frequent rolling blackouts.

New tariffs revision mechanisms in preparation

50. The CRSE has recently initiated the consultation process for revising the current tariff formula. Its timetable implies that the new tariff formula should be finalized by the end of September 2005. The CRSE has already given indications regarding the methodology it envisions for the new tariff formula. The orientations presented by the regulator demonstrate that it wants to correct the problems experienced with the current tariff formula by: (i) basing it in the total costs of SENELEC in 2004, plus a return on assets, rather than on the 1998 revenues, as in the current formula, (ii) better reflecting the weight of each cost component in the indexation formula, particularly fuel costs, and (iii) introducing an efficiency factor in the formula to incentivize SENELEC to reduce its operating costs.

Adequacy of current tariff levels

51. From the principles spelt out by the CRSE, it seems that SENELEC could soon be able to operate under an improved tariff regime that would largely insulate it from external shocks in the prices of fuel. However, cause for concern remains, since SENELEC's electricity tariffs are too low relative to its current costs, and will presumably remain so in the absence of an improvement in the performance of its generation assets.

52. Understandably, the CRSE might be reluctant to inaugurate a new tariff formula with a significant tariff increase, which would be socially and politically sensitive. However, SENELEC's finances would require additional resources to allow the company to face the coming years, in which it would likely achieve a low profitability, but would require a large level of investments, especially during 2005-2007.

53. In this context, it should be noted that:

- SENELEC's operating costs in 2006 and 2007 will likely increase, mostly due to delays in generation investments, and the new tariff policy should aim at giving price signals to consumers that reflect long-run economic costs; and
- in a period of increasing electrification rates, the large investments required tend to depress the utility's return on assets (at least as reflected by its financial statements). This is mostly because certain assets will result in an increased profitability only over time (for instance, in the case of a transmission line, as its utilization rate increases, or in the case of a distribution network, as there is higher consumption and higher density of customers), whereas the financial statements of the company will show the full increase of the asset base, which will only be recovered over time through the depreciation.

54. Therefore, based on the reasons explained above, the financial forecast presented herein has estimated an initial increase in SENELEC's tariff of 5%, hence effectively reverting to the tariffs in application before September 2004. It should be noted that not adjusting the initial tariff level does not seem to be a reasonable option for SENELEC, and would lead (based on the results of the Bank's financial model) to a negative net income for SENELEC until the end of the decade (from 2010 onwards, SENELEC would operate under a new tariff regime).

Annex 11 – Attachment 1: Economic Rates of Return and Net Present Values

SENEGAL: ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROJECT

ECONOMIC ANALYSIS - SENELEC'S INVESTMENT PROGRAM 2005-2015 (US$ Million)

YEAR	ECONOMIC BENEFITS (a)						ECONOMIC COSTS					NET BENEFITS
	Incremental Sales due to Program	Reduced Technical Losses	Fuel Savings	Fuel Savings	Increase Reli	Total CashFlows	Investment SENELEC	IPP Costs	SENELEC Fuel and O.	SENELEC Increments	Total Outflows	
			USc/Kwh									
2005			9,84				88,40				88,40	-88,40
2006	23,07	0,25	9,39	31,42	8,00	62,73	167,10	24,71	12,82	1,40	206,03	-143,30
2007	44,50	0,51	8,62	58,69	18,00	121,70	55,60	47,12	24,44	2,70	129,86	-8,16
2008	67,47	0,52	8,12	80,05	22,00	170,04	19,40	88,47	22,95	4,10	134,91	35,12
2009	92,10	1,10	7,61	63,19	23,50	179,89	17,10	85,47	22,86	5,60	131,02	48,87
2010	118,50	1,76	7,58	50,25	25,00	195,52	16,10	82,26	22,77	7,20	128,33	67,19
2011	146,81	2,54	7,54	36,56	28,00	213,91	26,00	80,82	22,92	8,92	138,66	75,24
2012	177,15	2,74	7,57	21,65	28,00	229,54	28,90	79,45	23,08	10,76	142,19	87,35
2013	209,68	2,96	7,59	5,64	28,00	246,27	16,00	78,39	23,23	12,74	130,36	115,91
2014	221,11	3,19	7,61	0,00	28,00	252,30	0,00	77,40	23,38	13,43	114,21	138,09
2015	221,11	3,44	7,63	0,00	28,00	252,55	0,00	76,47	23,53	13,43	113,43	139,13
2016	221,11	3,69	7,63	0,00	28,00	252,80	0,00	75,43	23,53	13,43	112,39	140,41
2017	221,11	3,96	7,63	0,00	28,00	253,07	0,00	74,45	23,53	13,43	111,41	141,66
2018	221,11	4,24	7,63	0,00	28,00	253,35	0,00	73,38	23,53	13,43	110,34	143,01
2019	221,11	4,55	7,63	0,00	28,00	253,66	0,00	72,37	23,53	13,43	109,32	144,33
2020	221,11	4,87	7,63	0,00	28,00	253,99	0,00	71,40	23,53	13,43	108,36	145,63
2021	221,11	4,87	7,63	0,00	28,00	253,99	0,00	70,48	23,53	13,43	107,44	146,54
2022	221,11	4,87	7,63	0,00	28,00	253,99	0,00	59,65	23,53	13,43	96,61	157,38
2023	221,11	4,87	7,63	0,00	28,00	253,99	0,00	59,24	23,53	13,43	96,20	157,79
2024	221,11	4,87	7,63	0,00	28,00	253,99	0,00	49,99	23,53	13,43	86,95	167,03
2025	221,11	4,87	7,63	0,00	28,00	253,99	0,00	49,99	23,53	13,43	86,95	167,03
2026	221,11	4,87	7,63	0,00	28,00	253,99	0,00	49,99	23,53	13,43	86,95	196,92
						Residual Economic Values		Transmission Line Tobene/Touba/Kaolack				14,14
								Dakar 90 KV transmission ring				15,75
						Base Case	Economic Internal Rate of Return (EIRR)					23,25%
							Net Present Value (NPV @ 10%)					$415,97

Annex 11 – Attachment 1: Economic Rates of Return and Net Present Values

SENEGAL: ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROJECT

Sensitivity Analysis

	SENSITIVITY ANALYSIS	
Electricity Demand Base Case	Economic Internal Rate of Return (EIRR)	23,25%
	Net Present Value (NPV @ 10%)	$415,97
Electricity Demand High Case	Economic Internal Rate of Return (EIRR)	24,52%
	Net Present Value (NPV @ 10%)	$533,92
Low Electricity Demand Scenario	Economic Internal Rate of Return (EIRR)	22,25%
	Net Present Value (NPV @ 10%)	$387,41
High Electricity Demand Scenario	Economic Internal Rate of Return (EIRR)	25,04%
	Net Present Value (NPV @ 10%)	$462,23
Economic Costs +30% and	Economic Internal Rate of Return (EIRR)	15,60%
Electricity Demand Base Case	Net Present Value (NPV @ 10%)	$206,72
Base Case w/Fuel Costs +30%	Economic Internal Rate of Return (EIRR)	19,44%
	Net Present Value (NPV @ 10%)	$302,43
Base Case w/Fuel Costs +50%	Economic Internal Rate of Return (EIRR)	16,99%
	Net Present Value (NPV @ 10%)	$226,74
Base Case w/Fuel Costs +30%	Economic Internal Rate of Return (EIRR)	13,14%
and Economic Costs +30%	Net Present Value (NPV @ 10%)	$121,24
Low Demand Case w/Fuel Costs +30%	Economic Internal Rate of Return (EIRR)	12,40%
and Economic Costs +30%	Net Present Value (NPV @ 10%)	$93,60
Willingness-to-pay lower by 20% (USc13.2/l	Economic Internal Rate of Return (EIRR)	17,39%
	Net Present Value (NPV @ 10%)	$209,08
Willingness-to-pay higher by 20% (USc13.2	Economic Internal Rate of Return (EIRR)	28,38%
	Net Present Value (NPV @ 10%)	$622,87

Annex 11 - Attachment 2: SENELEC Financial Forecasts

SENEGAL: ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROJECT

Table 11.2 a: Summary P&L account of SENELEC

Fiscal year ending Dec. 31st	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
gWh generated	1,117	1,294	1,126	1,282	1,234	1,433	1,470	1,070	1,182	1,220	1,204	1,210	806	728	847	897
GWh purchased	300	300	564	551	632	590	694	1,211	1,222	1,314	1,467	1,605	2,161	2,409	2,478	2,628
- Losses (Gwh)	268	299	338	389	399	412	435	435	434	445	456	466	477	496	526	557
-Losses in %	18.9%	18.7%	20.0%	21.2%	20.6%	20.0%	19.7%	18.8%	17.9%	17.4%	16.9%	16.5%	16.0%	15.7%	15.7%	15.7%
Electricity Sold (GWh)	1149	1295	1352	1444	1538	1650	1769	1875	1987	2106	2233	2367	2509	2659	2819	2988
Electricity Sales	85.4	94.6	108.7	117.7	126.5	134.7	149.0	159.4	170.3	181.7	193.7	203.7	214.8	227.7	243.6	259.4
Average revenue per kWh (FCFA)	*74.3*	*73.0*	*80.4*	*81.5*	*82.2*	*81.6*	*84.2*	*85.0*	*85.7*	*86.3*	*86.7*	*86.1*	*85.6*	*85.6*	*86.4*	*86.8*
Other revenues	4.2	3.8	4.1	7.2	4.9	5.0	5.4	5.8	6.3	6.7	7.2	7.8	8.3	8.9	9.6	10.2
Gross revenues	**89.6**	**98.4**	**112.8**	**124.9**	**131.4**	**139.7**	**154.4**	**165.3**	**176.5**	**188.5**	**200.9**	**211.5**	**223.2**	**236.6**	**253.2**	**269.6**
Generation and electricity purchase (variable costs)	47.4	61.6	58.3	54.9	61.1	65.3	60.1	56.7	57.7	61.6	65.8	71.1	73.9	79.9	86.2	92.9
Cost per kWh (FCFA)	*33.4*	*38.6*	*34.5*	*29.9*	*32.7*	*32.3*	*27.8*	*24.9*	*24.0*	*24.3*	*24.7*	*25.2*	*24.9*	*25.5*	*25.9*	*26.4*
Electricity purchase (fixed costs)	3.8	5.7	8.6	9.1	9.2	13.7	19.6	33.1	35.4	35.8	34.7	35.5	46.7	48.0	56.5	56.3
Operations, mainten. and services	23.5	19.8	19.6	19.5	20.2	21.1	22.2	21.2	22.7	23.9	25.0	26.2	25.5	26.4	28.5	30.4
Personnel	12.8	13.1	14.0	16.4	18.2	19.0	19.6	19.7	21.4	22.8	24.1	25.5	24.8	26.0	28.4	30.5
Taxes and assimilated	5.9	5.2	5.3	5.4	5.7	6.4	6.8	6.8	7.3	7.7	8.2	8.6	8.7	9.2	9.9	10.6
EBITDA	**-3.8**	**-7.0**	**7.1**	**19.7**	**17.0**	**14.3**	**26.1**	**27.7**	**32.1**	**36.6**	**43.2**	**44.6**	**43.5**	**47.1**	**43.7**	**49.0**
Depreciation	10.7	10.1	15.3	15.7	15.5	15.5	17.4	21.7	22.6	23.4	23.5	25.5	25.7	27.9	28.1	30.6
Operating Income	**-14.5**	**-17.1**	**-8.2**	**3.9**	**1.5**	**-1.2**	**8.7**	**6.0**	**9.5**	**13.3**	**19.6**	**19.1**	**17.8**	**19.2**	**15.6**	**18.5**
Net Interests charges	1.0	6.0	2.8	5.8	6.2	7.2	8.8	7.6	7.9	7.6	7.5	6.6	5.8	5.1	4.2	3.7
Operating Subsidy	0.0	6.1	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Income (before exceptional)	**-15.5**	**-17.0**	**-3.4**	**-1.9**	**-4.7**	**-8.3**	**0.0**	**-1.6**	**1.6**	**5.7**	**12.2**	**12.5**	**12.0**	**14.1**	**11.4**	**14.7**
Rate of return on Assets	-12.3%	-13.1%	-5.4%	2.6%	1.0%	-0.8%	5.0%	3.1%	4.9%	6.8%	9.9%	9.7%	8.9%	9.5%	7.6%	8.8%
Times Interest Earned (EBITDA/Interests)	-3.9	-1.2	2.6	3.4	2.7	2.0	3.0	3.6	4.1	4.8	5.8	6.8	7.4	9.3	10.4	13.2
Operating ratio	84%	83%	93%	103%	101%	99%	106%	104%	105%	107%	110%	109%	108%	108%	106%	107%

Sources : Senelec annual accounts, and Senelec financial model for technical indicators (quantities generated, purchased, losses...) and for the detail of operating expenses.

Annex 11 - Attachment 2: SENELEC Financial Forecasts

SENEGAL: ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROJECT

Table 11.2.b: Summary Balance Sheet of SENELEC

Fiscal year ending Dec. 31st	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Net fixed assets	122.1	151.1	151.2	152.7	151.4	167.4	208.6	208.8	208.9	211.6	212.2	212.2	213.9	215.3	218.7	221.9
Inventories	6.7	4.4	3.4	3.4	4.3	4.6	4.8	4.4	4.6	4.7	4.8	5.0	4.7	4.8	5.1	5.4
Clients Accounts receivable	29.8	42.3	50.6	46.0	36.9	37.2	38.8	39.0	39.6	40.3	41.0	43.1	45.5	48.3	51.7	55.1
Other Current Assets	10.7	11.2	11.3	12.0	12.4	12.8	13.5	13.9	14.4	15.0	15.5	16.0	16.5	17.1	17.8	18.5
Less Current Liabilities	-41.4	-35.3	-47.0	-40.0	-41.8	-45.5	-49.9	-46.0	-46.9	-48.0	-48.5	-49.2	-51.1	-51.9	-53.9	-56.6
Net Current Assets	5.8	22.5	18.2	21.4	11.8	9.1	7.2	11.3	11.7	12.0	12.8	14.9	15.7	18.3	20.8	22.4
Total Assets	**127.9**	**173.6**	**169.4**	**174.1**	**163.2**	**176.5**	**215.8**	**220.1**	**220.6**	**223.5**	**225.0**	**227.1**	**229.5**	**233.7**	**239.5**	**244.3**
Overdraft (less cash)	9.8	6.0	7.7	-1.1	6.3	4.7	3.0	0.8	-1.7	-4.5	-5.8	-6.1	-6.4	-6.8	-7.3	-7.8
Financial Debt	62.3	59.6	56.2	65.9	48.8	71.4	111.1	118.2	118.6	117.6	107.0	95.9	85.7	74.8	68.3	57.3
Total Net Financial Debt	72.1	65.6	63.9	64.8	55.2	76.1	114.1	119.0	116.9	113.0	101.2	89.8	79.2	68.0	61.0	49.5
Other liabilities (operations)	21.1	18.2	18.9	21.0	21.4	22.1	23.4	24.4	25.4	26.5	27.7	28.6	29.7	30.9	32.4	33.9
Equity and quasi-equity	34.7	89.8	86.7	88.3	86.6	78.3	78.3	76.7	78.3	84.0	96.1	108.7	120.6	134.8	146.2	160.9
Total Debt and Equity	**127.9**	**173.6**	**169.4**	**174.1**	**163.2**	**176.5**	**215.8**	**220.1**	**220.6**	**223.5**	**225.0**	**227.1**	**229.5**	**233.7**	**239.5**	**244.3**
Current ratio	*0.73*	*1.06*	*0.92*	*1.07*	*0.91*	*0.89*	*0.84*	*0.86*	*0.83*	*0.89*	*0.94*	*1.05*	*1.08*	*1.13*	*1.19*	*1.24*
Accounts receivable in days	*103*	*133*	*139*	*114*	*87*	*82*	*78*	*73*	*69*	*66*	*63*	*63*	*63*	*63*	*63*	*63*
Financial Leverage	67%	42%	42%	42%	39%	49%	59%	61%	60%	57%	51%	45%	40%	34%	29%	24%

Annex 11 - Attachment 2: SENELEC Financial Forecasts
SENEGAL: ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROJECT

Table 11.2.c: Summary Cash flow Statement of SENELEC

Fiscal year ending December 31st	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
EBITDA	-0.9	14.7	19.7	17.0	14.3	26.1	27.7	32.1	36.6	43.2	44.6	43.5	47.1	43.7	49.0
Variation in working capital (assets)	-10.7	-7.4	3.8	7.8	-1.0	-2.4	-0.3	-1.2	-1.4	-1.3	-2.8	-2.7	-3.5	-4.5	-4.4
Variation in working capital (liabiliti	-2.1	5.5	-4.1	2.6	4.4	5.7	-2.8	1.9	2.2	1.6	1.7	2.9	2.0	3.5	4.2
Net Interests charges	-6.0	-2.8	-5.8	-6.2	-7.2	-8.8	-7.6	-7.9	-7.6	-7.5	-6.6	-5.8	-5.1	-4.2	-3.7
Cashflow from current operations	**-19.7**	**10.0**	**13.6**	**21.2**	**10.5**	**20.6**	**17.0**	**24.8**	**29.9**	**36.0**	**36.9**	**37.9**	**40.6**	**38.6**	**45.2**
Investments	-20.0	-16.6	-18.2	-16.9	-31.5	-58.6	-21.9	-22.7	-26.0	-24.2	-25.5	-27.3	-29.3	-31.5	-33.7
Disposals	0.1	0.5	0.0	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cash flow after investments	**-39.6**	**-6.1**	**-4.6**	**9.6**	**-20.9**	**-38.0**	**-5.0**	**2.1**	**3.9**	**11.8**	**11.4**	**10.6**	**11.2**	**7.1**	**11.5**
repayment of capital on financial debt	7.0	20.5	19.6	19.1	10.6	11.5	15.2	19.7	25.4	23.8	22.8	17.9	17.0	17.0	16.3
new borrowing	-4.3	-17.1	-29.4	-2.1	-33.2	-51.1	-22.4	-20.1	-24.3	-13.2	-11.7	-7.6	-6.2	-10.4	-5.4
Increase(-)/decrease(+) in financial d	2.7	3.4	-9.7	17.1	-22.5	-39.7	-7.1	-0.4	1.0	10.6	11.1	10.3	10.8	6.6	11.0
Increase(-)/decrease(+) in equity	-40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subsidy(-) invest. and operations	-6.1	-7.9	-3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Increase(-)/decrease(+) in net cash	3.8	-1.7	8.8	-7.4	1.6	1.7	2.2	2.5	2.8	1.3	0.3	0.3	0.4	0.5	0.5
Financing	**-39.6**	**-6.1**	**-4.6**	**9.6**	**-20.9**	**-38.0**	**-5.0**	**2.1**	**3.9**	**11.8**	**11.4**	**10.6**	**11.2**	**7.1**	**11.5**
Debt service Coverage Ratio-DSCR (annual)		*0.6*	*0.8*	*0.7*	*0.8*	*1.3*	*1.2*	*1.2*	*1.1*	*1.4*	*1.5*	*1.8*	*2.1*	*2.1*	*2.4*
DSCR 3 year moving average		*0.5*	*0.7*	*0.7*	*0.9*	*1.1*	*1.2*	*1.2*	*1.2*	*1.3*	*1.6*	*1.8*	*2.0*	*2.2*	*2.5*

Annex 12: Safeguards Policy Issues

SENEGAL: ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROJECT

A. Introduction

1. The proposed program to be supported by IDA consists of: (a) investment in a new 67.5 MW generating power facility at Kounoune; (b) maintenance of some existing power generating facilities at Cap-des-Biches; (c) rehabilitation of power transmission and distribution facilities; and (d) acquisition of geological and seismic data.

2. This program is classified as an environmental Category B. The following environmental and social documentation has been disclosed to the Public and in the World Bank's Infoshop on February 25, 2004: (a) Environmental and Social Impact Assessment of the 60 MW diesel power plant located at Kounoune; (b) Environmental Impact Assessment and Social Management Framework [25] and Resettlement Policy Framework for the maintenance activities of the existing power facilities at Cap-des-Biches and the rehabilitation of transmission and distribution facilities. A Supplemental Environmental Impact Assessment was disclosed in the World Bank's Infoshop in April 2005. The Environmental Impact Assessment and Management Plan for the acquisition of 2,000 kms of 2D Land Seismic in Northern Senegal were released to the Board and the public in March 2001.

3. SENELEC selected the consultant Environmental Resources Management (ERM) to carry out the preparation of the Environmental and Social Impact Assessment studies and of the Environmental, Social and Resettlement Frameworks for electricity sector activities. Ulla P. Ledjie prepared the Environmental Impact Assessment and Management Plan for the geological and seismic survey.

4. The proposed project comprises a subset of the program activities. The physical investments include: (a) the investment in a new 67.5 MW generating power facility at Kounoune; and (b) rehabilitation of power transmission and distribution facilities.

B. The 67.5 MW Power Generation Facility at Kounoune

5. The 67.5 MW generating power facility will be located at Kounoune, 23 kms east of the capital city of Dakar, on a 14 hectares site previously owned by the Republic of Senegal and transferred to SENELEC; the Kounoune Project itself will require 3 hectares. The facilities include the main substation, the cooling systems, storage tanks for petroleum products, treatment facilities for petroleum products, treatment facilities for effluents, facilities for the treatment and storage of water, a petroleum product pipeline, workshops and offices.

6. The main environmental and social impact of the facilities during the construction phase can be expected to be as follows: dust, water pollution, noise pollution, road traffic, laborers and laborer housing and transmission of infectious diseases. The biggest noise generated would be

[25] The frameworks establish a mechanism to determine and assess future potential environmental and social impacts of SENELEC's planned investments under the proposed project, and then to set out mitigation, monitoring and institutional measures to be taken during design, implementation and operation of these activities to eliminate adverse environmental and social impacts, offset them , or reduce them to acceptable levels.

during the laying down of concrete foundations, but the vibrations are not likely to be felt beyond 100 m. Senegal's environmental regulations require a buffer zone of at least 500 m.

7. There are several villages within 1 to 2 km from the Kounoune Project site (e.g., Kounoune, Kounoune Ngalap) but the closest is Darou Rahmane, an area recently zoned for urban expansion and that currently has defined lots but few constructed houses, located about 400m to 500m south of the Kounoune Project site. Darou Rahmane has a primary school of approximately 650 students, located 500m from the installations of the Kounoune Project. Assuming that the 500m buffer zone is counted from the boundaries of the plant's installations (and not from the boundaries of the Kounoune Project's property or the boundary of the substation adjacent to the plant, but within SENELEC's property), the school is not within the Kounoune Project buffer zone. However, the buffer zone includes 34 residential lots (29 vacant lots and 5 with dwellings under construction) and 7 agricultural lots (6 privately owned and 1 considered public land, but being used by local people).

8. SENELEC has announced that it will relocate the school prior to the initiation of the construction works and define a buffer zone based on the 14 hectares site, in anticipation of the Kounoune II IPP. Compensation payments and relocation procedures associated with the establishment of the buffer zone will take place in accordance with Senegalese regulation and the RPF. With respect to the new oil pipeline bringing the fuel oil to the power plant, the impacts are expected to be small as this pipeline will follow an existing right of way of 10m.

9. During the operation of the thermal facilities at Kounoune, the main impacts identified would be on the air/atmosphere, noise, water and visual pollution. At present there is no other source of pollution in Kounoune and the closest industrial zone is about 5 kms away, at a town called Rufisque. To mitigate these impacts/risks, including the burning of petroleum products, the following actions are recommended:

(a) assuring that the stack height and diameter are adequate to meet Senegalese and World Bank air quality standards, taking into account the expected impacts of the proposed extension of the generating facilities at the Kounoune site (to about 150 MW). Such design optimization should be carried out by the Project Sponsors in the context of the detailed engineering phase;

(b) siting of the plant facilities to minimize noise;

(c) establishing a system for monitoring air emissions, including primary pollutants such as NO2 and SO2, as well as dust;

(d) creating a zone for the storage of petroleum and chemical products;

(e) installing fire fighting equipment for facilities storing petroleum and chemical products and training of personnel in matters relating to security;

(f) clearly marking areas that hold the risk of electrocution and allowing only certified personnel near these facilities;

(g) developing a hygiene and a security plan to be monitored by a Hygiene and Security Committee;

(h) with respect to greenhouse gases, provision of incentives to the Sponsors and the operator of the plant, maximizing plant efficiency; and

(i) establishing a system for monitoring noise levels at the plant, at the plant property boundary, and at sensitive receptors such as residential communities and schools.

10. All these recommendations have been further updated in the Supplemental EIA of April 2005, based on the Kounoune Project design. With respect to the air quality impacts, the Supplemental EIA, assuming mitigation measures such as a 60m stack height and limiting the sulfur content of the fuel to a maximum of 2.0%, predicted that the Senegalese air quality standards may be exceed for a limited number of hours (94 hours per year) for NO2 1-hour maximum standard and days (8 days per year) for SO2 24-hour maximum standard. In order to mitigate these, the Kounoune Project Sponsors are planning to undertake continuous air quality monitoring at the location of the maximum impact. The results will be analyzed to determine whether additional measures are needed to ensure compliance with the relevant air quality standards. An Environmental and Social Action Plan will be agreed with Kounoune Project addressing all these factors.

11. The Supplemental EIA also predicted that, if the Kounoune II IPP is developed, a major reduction of NO2 and SO2 emissions from the Kounoune Project would be needed to ensure that Senegalese air quality standards will continue to be respected. The Sponsors for Kounoune Project were advised to design the site layout to set aside space for additional flue gas treatment facility, if determined to be necessary, when the Kounoune II IPP is developed.

B. Rehabilitation of power transmission and distribution facilities

12. The other power activities to be financed under the proposed project include: the rehabilitation of power transmission and distribution facilities. These are activities involving existing facilities and include the following possibilities: (i) reinforcement of the distribution network in the city of Dakar, including burying some of the cables underground; (ii) replacement of 70 kms of 30 kV line between Ourpssoui and Semme; (iii) replacement of 150 kms of 30 kV lines between Mbour, Fatick and Kaolack; (iv) replacement of 55 kms 30 kV lines between Diourbel and Toba; and (v) rehabilitation of 90kV lies in Thies and Dakar. The impacts of these activities cannot be identified at this stage. Hence, an Environmental Impact Assessment Framework and a Resettlement Policy Framework have been prepared that establish the process and provide guidelines to plan for and implement the physical activities. The framework also provides for compliance with the relevant existing environmental rules and regulations applicable in Senegal and the World Bank guidelines. The environmental assessment process described in the Framework includes: (a) an initial environmental screening, including public consultations; (b) an assessment of whether the particular activity under review will generate environmental impacts; and (c) if environmental impacts are expected, an Environmental Management Plan needs to be prepared and should ensure that adequate implementation arrangements are in place. Similarly, in the Resettlement Policy Framework, the process for determining the need for Resettlement Action Plans or compensation plans and principles and procedures to be followed in preparing and implementing them are spelt out.

Annex 13: IFC A Loan to the Kounoune Project

SENEGAL: ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROJECT

I. INTRODUCTION

1. This Annex describes the Kounoune Project, a subcomponent of the Electricity Sector Efficiency Enhancement Project, which will be financed by the IFC and other lenders. This Annex contains additional information to the information included in the main body of this document, which is necessary to understand and assess the financial sustainability of the IPP project and the risks involved.

II. PROJECT CONCEPT AND DESCRIPTION

Background and History:

2. The Kounoune Project is the result of the Bank's and IFC's active project development efforts in the power sector in Senegal over the last four years. In late 2000, IFC initiated discussions with the GOS and SENELEC regarding the financing of SENELEC's post-privatization investments. Subsequent to the cancellation of the first privatization attempt of SENELEC in January 2001, IFC commissioned a supply/demand and investment requirements' study for Senegal's electricity sector, to assess the sector's capital requirements as well as the possibility to develop a future power project. The study was financed with Swiss Trust Funds arranged by IFC and its results were widely used by the GOS, SENELEC and the Bank in the discussions leading to a second attempt to privatize SENELEC. However, this second privatization attempt also failed in July 2002.

3. Faced with urgent capital needs, IFC and the Bank suggested to the GOS and SENELEC a public/private solution for the development of the additional generation capacity. In 2003, IFC undertook a market sounding with reputable developers of power projects and confirmed that there was enough appetite to develop a 60 MW privately-owned power plant under the modality of an IPP selling power to SENELEC. These companies indicated their interest was conditional upon the participation of IFC and the Bank in the Project and on the transparency of the selection process. Therefore, to support this Project, IFC and the Bank indicated to the GOS and SENELEC that the World Bank Group would be willing to assist in raising the required debt financing. With this support, the GOS proceeded to develop a private IPP and requested the World Bank Group's assistance for its development. On November 3, 2003 SENELEC issued the bidding documents. IFC, IDA and MIGA prepared a joint communication to the pre-qualified bidders stating their interest in offering IFC debt financing, an IDA PRG and/or a MIGA guarantee for the winning bidder, if required.

The Kounoune Project:

4. The Kounoune I IPP (the "Kounoune Project") consists in the development, construction and maintenance of a 67.5 MW HFO fired diesel power generation plant located at Kounoune, in the eastern suburbs of Dakar, in Senegal. The plant will be equipped with 9 large diesel motors burning HFO, a low cost fuel. The Project Company will also build a substation and a pipeline, the ownership of which will be transferred to SENELEC when completed.

5. The Kounoune Project is being developed as a joint venture between Matelec S.A.L. ("Matelec") from Lebanon, the electrical business group part of the Doumet group, a diversified industrial and services group operating in the Middle East and North America; and MHI Equipment Europe B.V. ("MEE") from the Netherlands, a wholly-owned subsidiary of Mitsubishi Heavy Industries Ltd. of Japan (Matelec and MEE are referred to as "the Sponsors"). Total Project costs are estimated at Euro61 million.

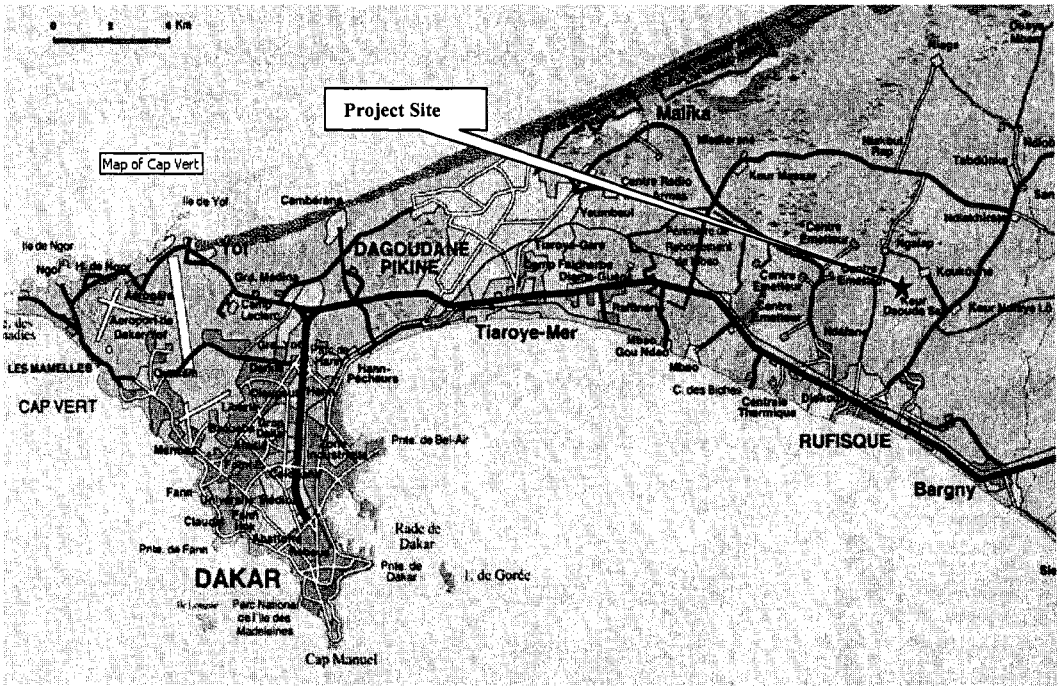
6. The Kounoune Project will sell electricity to SENELEC, Senegal's electricity utility (the "off taker"), under a 15-year PPA. SENELEC's obligations under the PPA will be guaranteed by the GOS through a Government Guarantee.

7. The Kounoune Project will be built pursuant to a fixed price, date certain, turnkey Engineering, Procurement and Construction Contract ("EPC Contract") to be entered into between the Project Company and MEE. MEE will design, engineer and construct the plant according to the requirements of the PPA, and will guarantee that the net electrical capacity of the plant meets the required level of 67.5 MW. MEE will also be the operator of the plant and will carry out its maintenance under an Operation and Maintenance Agreement ("O&M Agreement") to be entered into with the Project Company for the term of the PPA.

8. Fuel will be supplied by one or two of the local private distribution companies (Total, Shell, Mobil or Elton) for which purpose the Project Company will enter into a Fuel Supply Agreement ("FSA") with the selected fuel suppliers. Fuel will be supplied from the local refinery via a new 6 km pipeline to be built by the Project Company.

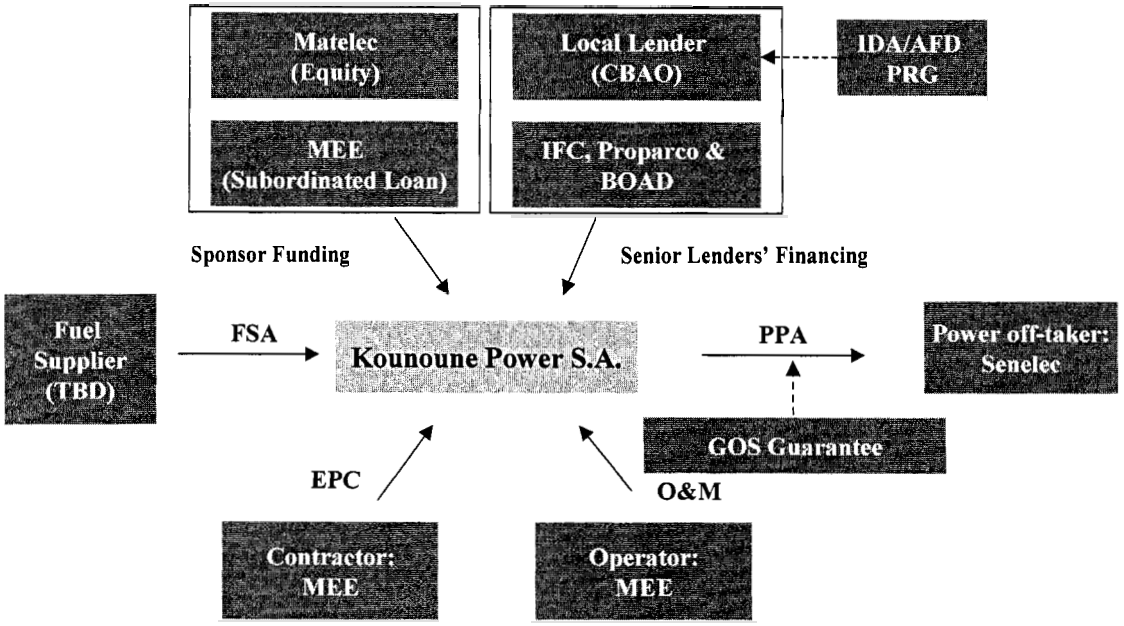
9. The Kounoune Project is expected to commence construction by June 2005 and to achieve commercial operation by June 2006.

10. The following map shows the Project's location in the country:



11. The Project Structure

The Project's structure can be schematically described as follows:



The Project Contracts

12. Power Purchase Agreement. The Kounoune Project will sell electricity to SENELEC pursuant to a 15-year PPA, executed by and between the Project Company and SENELEC on February 5, 2005. The PPA entered into effect on February 28, 2005. IFC made important contributions in the interest of achieving a bankable PPA. The IFC team, assisted by Fulbright & Jaworski (transaction counsel), François Sarr & Associés (local counsel), and Stucky S.A. (senior lenders' independent engineer, "IE") from Switzerland, actively participated in the review of the initial PPA and its negotiation with SENELEC. The term of the PPA is 15 years counted from the Commercial Operations Date ("COD") of the power plant. Key provisions of the PPA are as follows:

12.1 ***Implementation.*** **The Kounoune Project** will be executed in two phases: (i) the Development phase and (ii) the Construction phase.

12.1.1 The *Development phase* will last 4 months, counted from the date of entry into effect of the PPA (i.e., until June 28, 2005). The Project Company's obligations during this phase are the following: (i) to obtain all permits required for the construction and operation of the plant, the substation and the pipeline, including environmental authorizations, rights-of-way and import permits; (ii) to finalize a supplemental EIA study and a social study, and to prepare the preliminary design and engineering plans for the plant, the substation and the pipeline; (iii) to purchase the plant site from SENELEC; and (iv) within 30 days of the date of entry into effect of the PPA, to post a Good Execution Bond in the amount of FCFA 3 billion (equivalent to Euro4.6 million) to guarantee its obligations during the Development and Construction phase. This Bond

will be in place until it is replaced by a Performance Bond of the same amount, at the latest 30 days after COD.

12.1.2 The *Construction phase* will end in 16 months, counted from the date of entry into effect of the PPA (or 12 months after the termination of the Development phase). The date when this 16 month period ends is defined in the PPA as Scheduled Commercial Operations Date ("Scheduled COD", i.e., June 28, 2006). The obligations of the Project Company during this phase are the following: (i) to complete the detailed design, studies, equipment supply, and construction of the plant, the substation and the pipeline; (ii) to achieve COD by the Scheduled COD; and (iii) to post a Performance Bond in the same amount as the Good Execution Bond within 30 days after COD at the latest, and maintain it in effect during the term of the PPA.

12.2 *Commercial Operations Date*. The Kounoune Project will achieve COD as of the date in which the plant has satisfactorily passed all capacity tests, in accordance with the PPA requirements, which demonstrate a capacity of at least 67.5 MW, and SENELEC confirms receipt of a complete test report. Exceptionally, if the plant does not achieve COD by the Scheduled COD, it could do so within an additional period of 7 months after the Scheduled COD (or 10 months, if an additional 3 month extension period is requested and certain pre-conditions are met), as long as capacity tests demonstrate a plant capacity of at least 64 MW.

12.3 *Capacity and Energy payments*. SENELEC will make the following monthly payments to the Project Company: (i) Fixed Capacity Payments, intended to cover costs related to reimbursement of principal and interest on senior debt, fixed O&M costs, insurance costs, administrative fees, all taxes applicable to the Project, and a return on equity; and (ii) Energy Payments, designed to cover variable O&M costs including fuel, non-fuel consumables, lubricants, water and maintenance expenses.

13. Government Guarantee. On February 5, 2005, the GOS executed a Government Guarantee Agreement ("the Government Guarantee") in favor of the Project Company, pursuant to which it agreed to guarantee SENELEC's performance and payment obligations under the PPA, during the term of the PPA or until its termination.

14. Construction Contract. MEE will carry out the construction, testing and commissioning of the power plant, the substation and the pipeline under an EPC Contract to be entered into with the Project Company, and will agree to deliver a functionally complete power plant, substation and pipeline pursuant to the requirements and technical specifications of the PPA and SENELEC's requirements. Although MEE will subcontract the supply of the substation, other electrical equipment and the civil works to Matelec, MEE will guarantee the overall plant performance and the construction schedule. MEE will guarantee that the net electrical capacity of the plant meets the required level of 67.5 MW. MEE, as the EPC contractor, will also ensure that air emissions, noise, surface discharges and effluents from the site during construction do not exceed the values prescribed by applicable environmental laws in Senegal and the World Bank Group Environmental Guidelines for diesel power plants.

15. Operation and Maintenance. MEE will operate and maintain the plant pursuant to an O&M Agreement to be entered into with the Project Company, with the same term as that of the PPA. MEE will operate the plant in accordance with an annual program agreed with SENELEC, prudent electrical practices, the O&M Agreement and the PPA. The operator will ensure that the plant meets at all times the performance requirements of the PPA (i.e., contractual capacity and guaranteed availability), and a minimum base-line heat rate.

16. Fuel Supply Agreement ("FSA"). The FSA is currently under negotiation. The Sponsors have agreed the key requirements for a bankable FSA, as follows: (a) guarantee of a sufficient quantity of fuel to operate the plant at full load; (b) it shall not include take-or-pay obligations by the Project Company, and the fuel supplier should not charge any penalties for delays in completion of the Kounoune Project; (c) the fuel should meet the specifications required under the EPC Contract; (d) fuel price will follow the same price formula as that of the PPA; (e) fuel is to be delivered FOB plant; (f) pre-agreed minimum term; and (g) there shall be no termination rights from the fuel supplier other than for non-payment. Fuel will be supplied from the *Société Africaine de Raffinage* ("SAR").

17. The Off taker. An assessment of SENELEC's historic financial condition and projected financial performance is presented in the main body of this document and in Annex 11. It appears from this assessment that SENELEC's financial condition is relatively weak albeit improving.

18. SENELEC's creditworthiness as off taker of the Kounoune Project is mitigated by the following factors: (a) expected improvements in profitability over time based on a gradual reduction of generation costs, the replacement of more costly generation capacity, improvement of collection rates, an improved fuel mix (HFO and hydro), and a new tariff regime expected to be in place by the end of September 2005; (b) SENELEC's Management and GOS's commitment to address the various issues affecting the company and the sector, including the establishment of an adequate tariff regime; (c) the Bank's continuous support for the sector; (d) SENELEC's good track record meeting its payment obligations to the IFC-financed GTI-Dakar project, not having defaulted on its capacity payments until this date; and (e) monitoring of SENELEC's financial condition through certain financial ratios agreed to with the Bank. In addition, payment risk under the PPA will be mitigated by the security mechanisms provided for under the PPA, which are sized to cover two months of PPA payments, and by the Government Guarantee.

III. THE PROJECT COMPANY AND THE SPONSORS

The Project Company

A. The Project Company's Shareholders.

19. Kounoune Power S.A. was incorporated under the laws of Senegal to finance, build, own and operate the Kounoune Project. The Sponsors of the Kounoune Project are Matelec and MEE.

20. Matelec will contribute 20% of total Project costs in the form of equity. Matelec's contribution will be made through Melec Power Gen, a special purpose vehicle owned by the Doumet family, which will be the sole shareholder of the Project Company. MEE will provide funds to finance up to 10% of Project costs in the form of an unsecured convertible subordinated loan, which will be remunerated in the same terms as the equity capital of the Project Company. Therefore, although MEE is a Sponsor in the Project, it will not be a shareholder.

B. The Project Company's Board.

21. The Project Company will be managed by a Board of Directors composed of six members, four appointed by Matelec and two by MEE.

The Sponsors

A. The Sponsors' History, and Operational and Financial Track Record:

22. The Matelec Group. The Matelec Group is the electrical engineering arm of the Doumet Group, a diversified industrial and services group employing 4,000 people in the Middle East, Europe and North America, with controlling stakes in companies operating in the following businesses: (i) manufacturing: cement and construction materials, chemicals and fertilizers, textiles, cables, distribution transformers and electrical equipment; (ii) contracting/services; (iii) distribution; and (iv) hotels.

23. The Matelec Group was founded by Mr. Elias Doumet in 1975 for the manufacturing of electrical products, such as transformers, switchboards, control panels and packaged substations. At present, the Matelec Group is one of the few manufacturers of transformers in the Arab countries and a leader in its line of business at a regional level. As of December 31, 2003, the Matelec Group had an asset base of about Euro91 million (about US$118 million) and total revenues of around Euro97.6 million (approximately US$127 million). The group has factories in Lebanon, Egypt, France and Jordan, and new manufacturing facilities are being considered in Algeria and the Kingdom of Saudi Arabia. The Matelec Group currently sells its products in Egypt, France, Ghana, Iraq, Jordan, Kingdom of Saudi Arabia, Lebanon, Morocco, Nigeria, Portugal, Qatar, Senegal, Syria, Yemen, Switzerland, Bahrain and Cyprus. The Matelec Group's largest market is Lebanon (60% of total revenues), while the rest of the Middle East and North Africa and Europe account for the remaining 40%. The Matelec Group pursues an active expansion strategy, which has lead to the consideration, among others, of this Project.

24. The Matelec Group is managed by a board of Directors formed by 6 members: 3 appointed by the Doumet family, 2 by the Moretti family (agents of Alstom in Lebanon) and one by Mr. Sami Soughayar, CEO of the Matelec Group. Decisions are adopted by majority vote of the members of the Board. Since its founding, Mr. Elias Doumet has been the Chairman of the Board and President of the Matelec Group, and Mr. Sami Soughayar the CEO and General Manager. Mr. Elias Doumet holds a Masters in mathematics from Columbia University, in the USA and is the founder of Matelec. Mr. Sami Soughayar holds an engineering degree from ESIB, in Lebanon. He joined Matelec in 1975 and since then has been the CEO of the Matelec Group.

25. MHI Equipment Europe B.V.. MEE is a wholly-owned subsidiary of Mitsubishi Heavy Industries Ltd. (Japan) ("MHI"), a leading manufacturer of a broad range of products and services, including shipbuilding, steel structures, power systems, air conditioners, machinery for industrial and general use, and aerospace systems. As of December 2003, MEE had an asset base of Euro134.5 million (around US$175 million), with total sales of around Euro164.5 million (around US$214 million).

26. MHI is a modern Japanese industrial group. Based on technological capabilities developed over time, MHI has a strong international reputation thanks to its experience, know-how and products in the engine business sector. MEE is in charge of designing, marketing, selling and realizing complete power generation systems based on Mitsubishi diesel and gas engines. MEE also provides design, manufacturing, installation and commissioning of complete installations, after-sales service and maintenance. MEE has a long experience in turnkey projects, including co-generation power plants and power plants for national grids, both for base load and emergency use.

IV. PROJECT COST AND FINANCIAL PLAN

Project Costs:

A. Project Costs estimate

27. Total Project costs are estimated at Euro61 million (approximately US$79 million) based on a fixed price EPC Contract and other costs, such as interest during construction and a debt service reserve account.

Proposed Financing Plan

A. Proposed financial plan

Table 1: Proposed Financial Plan

Source	€ millions	US$ millions	% of Total
Debt			
IFC A Loan	15,186	19,742	25.0
Proparco Loan	10,124	13,161	16.7
BOAD Loan	8,099	10,529	13.3
CBAO Loan	9,112	11,846	15.0
Total Senior Debt	42,521	55,278	70.0
Sponsors' Funds			
Matelec	12,028	15,636	19.8
MEE	6,196	8,055	10.2
Total Sponsors' Funds	18,224	23,691	30.0
Total Project Funding	60,745	78,969	100.0

B. Financing Plan Comments

28. The base case financial plan considers an *equity/quasi-equity participation* of 30% of total Project costs. The Doumet family will contribute 66% of these funds as equity, and MEE will contribute the remaining 34% by means of unsecured subordinated convertible debt. IFC will require that the Doumet family guarantee their equity contributions by means of letters of credit, and will seek to obtain a similar backstopping mechanism for MEE's contribution.

29. Regarding *long-term debt*, the Project will be financed by a combination of:

(i) an IFC A-Loan of Euro15.2 million[26] (25% of total Project costs);

(ii) a parallel loan of Euro10.1 million provided by the *Société de Promotion et de Participation pour la Coopération Economique* ("Proparco") (16.7% of total Project costs);

(iii) a loan in local currency in the equivalent of Euro8.1 million provided by the *Banque Ouest Africaine de Développement* ("BOAD"), the regional development bank for West African States (13.3 % of total Project costs); and

[26] Board approval is requested for up to Euro17 million to allow IFC to increase the A Loan amount, should the final EPC Contract result in higher Project costs.

(iv) a commercial-bank tranche in local currency in the equivalent of Euro9.1 million arranged by BMCEK Capital ("BMCE"), a Moroccan commercial bank, and subscribed by *Compagnie Bancaire de l'Afrique Occidentale* ("CBAO"), a Senegalese commercial bank (15% of total Project costs). This tranche will be guaranteed by two parallel PRGs, one from IDA (55%), and another from AFD (45%).

V. THE PROPOSED IFC INVESTMENT

Key Terms of IFC Investment

30. The main features of the proposed IFC investment in the Project are as follows:

IFC Senior "A" Loan

Currency and Amount: up to Euro17 million (approximately US$22 million).

Type:	Fixed or Variable Rate.
Interest:	6-month EURIBOR plus a spread to be negotiated.
Commitment Fee:	0.5% p.a. of the undisbursed amount.
Front-end Fee:	1.0% of the loan amount.
Maturity:	up to 12 years.

VI. FINANCIAL PROJECTIONS OF THE KOUNOUNE PROJECT AND SENSITIVITY ANALYSIS

31. Key assumptions of IFC's base case scenario are as follows: (a) capacity of 67.5 MW; (b) annual dispatch rate of 80%; (c) HFO price expected to evolve according to World Bank's estimates for crude oil international prices; and (d) operation and maintenance costs in line with O&M costs of similar projects financed by IFC.

32. A summary of the projected financial performance of the Project Company under the above assumptions is presented in Table 2 below. Detailed financial projections are in Attachment 1, Annex 13.

Table 2: Forecasted Financial Statements and Performance (Euro 000s)

December 31,	2005	2006	2007	2008	2009	2010	2013	2016
Senegal inflation	2.1%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%
Exchange rate FCFA/€	655.96	655.96	655.96	655.96	655.96	655.96	655.96	655.96
Capacity (MW)	67.5	67.5	67.5	67.5	67.5	67.5	67.5	67.5
GWh	--	196,312	406,814	421,006	421,006	404,449	421,006	404,449
Income Statement								
Total Revenues	--	14,092	28,281	27,923	27,413	25,847	26,158	24,598
Operating Costs	--	8,450	16,663	16,378	15,976	15,551	17,065	17,399
EBITDA	--	5,642	11,618	11,545	11,437	10,296	9,093	7,199
Net Income	--	2,282	4,253	4,090	3,906	3,132	2,440	1,441
Balance sheet								
Total Assets	29,902	64,221	62,258	56,240	52,127	47,829	35,816	21,312
Senior Debt (D)	11,678	42,522	38,042	33,562	29,082	24,602	11,162	0
IFC Loan	4,171	15,186	13,668	12,149	10,630	9,112	4,556	0
Net Worth (E)	18,224	20,505	22,815	20,891	20,906	21,147	21,985	18,597
Cash from Oper.	--	3,242	9,437	11,254	10,772	9,433	7,668	7,237
Key ratios								
EBITDA Margin	--	40%	41%	41%	42%	40%	35%	29%
D / D+E	39%	68%	63%	62%	58%	54%	34%	0%
DSCR	--	3.0	1.5	1.5	1.5	1.4	1.3	1.6
Current Ratio (C.R.)	--	4.1	5.0	2.8	2.3	2.2	1.8	1.6

Note: figures may not add up due to rounding differences

33. In the base case financial projections, the Project's nominal Financial Rate of Return ("FRR") is projected to be 11%, and the minimum Debt Service Coverage Ratio ("DSCR") would be 1.3.

34. Sensitivity Analysis. The Project's financial performance is expected to remain robust even under a broad range of adverse scenarios, as listed below. The most significant factors affecting the Project Company's financial performance would be: (i) delays in achieving COD and the plant achieving a capacity of 64 MW; (ii) lower availability than forecasted; and (iii) devaluation of the FCFA relative to the Euro. Even under stress-test levels for each of these factors, the Project Company's DSCRs are expected to remain adequate.

Table 3: Sensitivity Analysis

	Min DSCR (year)	Min C.R. (year)
Base Case	1.3 (2014)	1.6 (2015)
(A) Upside Case	1.4 (2014)	1.5 (2016)
(B) 10-month delay in COD	1.3 (2013)	1.6 (2016)
(C) (B) + Capacity of 64 MW	1.3 (2013)	1.7 (2016)
(D) Availability of 81%	1.1 (2012)	1.7 (2015)
(E) Devaluation: FX Δ25% in 2007	1.1 (2007)	1.7 (2015)

35. Sensitivity A. This scenario has been calculated using the same assumptions as the base case scenario, but is an upside from the base case since the EPC contractor would pay penalties resulting from its failure to comply with the terms of the EPC Contract and O&M Agreement. The minimum DSCR increases to 1.4.

36. Sensitivity B. This sensitivity considers that the Kounoune Project is commissioned with a 10-month delay relative to the Scheduled COD, which is the maximum delay allowed under the PPA (prior to SENELEC being able to exercise its right to terminate the PPA). The additional costs that the Project Company would incur during this 10-month period (including interest during construction, construction insurance, construction management costs, etc.) are assumed to be funded by the Sponsors. The resulting DSCR would remain stable at 1.3 but the shareholders' equity return would be negatively impacted.

37. Sensitivity C. This scenario considers the possibility of the plant being commissioned with the maximum delay allowed under the PPA and the minimum capacity acceptable to SENELEC (i.e., 64 MW), with the relevant delay-related costs covered as per Sensitivity B. The resulting DSCR would be 1.3.

38. Sensitivity D. This scenario identifies what would be the lowest availability that the Project could sustain while maintaining a DSCR close to 1.0. This availability would be equal to around 81% (further reduced to 77.5% during the years with major overhauls). Under this scenario, the resulting minimum DSCR would be 1.1.

39. Sensitivity E. This scenario considers a devaluation in which the FCFA exchange rate relative to the Euro would increase by 25% at the beginning of 2007 (the first full year of operations after the Project's COD) and then continues pegged to the Euro for the remainder of the forecast period. Under this scenario, the Project Company would maintain a minimum DSCR of 1.1.

VII. WORLD BANK GROUP STRATEGY AND IFC ROLE

IFC Role and Expected Contributions

IFC has played various key roles in the Kounoune Project, as follows:

40. *Advisory role.* Since 2001, IFC made a strategic decision to dedicate considerable resources to support Senegal's power sector reforms and to facilitate the development of the Kounoune Project. After the second failed privatization of SENELEC in 2002, IFC (in its capacity as a prospective lender) and the Bank advised the GOS to develop a 60 MW power plant under an IPP scheme, to meet the electricity needs of the country and to avoid potential electricity supply shortages. The Kounoune Project is the consequence of such efforts.

41. *Project development role.* IFC has been key in the development of the Kounoune Project: since its inception by the GOS, during the bidding process and during the negotiations of the PPA, with the goal to achieve a bankable contract. At the request of the GOS and SENELEC, IFC provided critical input during the negotiations of the PPA, primarily on the allocation of risks between the Sponsor, the GOS and SENELEC. After several months of difficult negotiations, the PPA was finally signed in February 5, 2005.

42. *Structuring and leadership role.* IFC's participation has also been key in structuring a suitable financing package, as leader of the prospective lender group (*i.e.*, Proparco, BOAD, IDA,

AFD and CBAO), and in developing a Project structure that could be replicated in the future. IFC's demonstration effect may extend to other sectors or financing initiatives pursued by the GOS and other private players in the country or in the region. IFC obtained Trust Funds from the Swiss Government to pay a portion of the expenses incurred by its transaction counsel and the external IE advising the prospective lenders. Additional trust funds managed by IFC were also allocated to the Kounoune Project to pay legal costs associated to the structuring of the Project.

43. *World Bank Group collaboration.* Collaboration between IFC, IDA and MIGA to support the Kounoune Project during the pre-bidding phase and after the selection of the winning bidder, is part of an integrated Bank Group effort to move the infrastructure development agenda forward. This approach constitutes also a unique opportunity to engage in a dialogue with the GOS on sector reforms with a coordinated Bank Group position.

44. *Financing role.* Finally, IFC will also be playing a critical role by providing the Kounoune Project with access to long-term financing through a 12-year loan, which is currently difficult to obtain for greenfield projects in Senegal.

VIII. DEVELOPMENT IMPACT

45. *Addition of capacity to the system.* The Kounoune Project will add 67.5 MW to the grid, providing base-load capacity to the IS. Given Senegal's generation shortage, the main benefit of the Project will be to meet incremental demand in the most cost effective manner. Apart from the private returns to the Sponsors, the Kounoune Project will benefit consumers whose willingness to pay for electricity is higher than the PPA tariff and will transfer a stream of income taxes at a rate of 35%.

46. *Improvement of the system's reliability.* Since the Kounoune Project will be conveniently located close to Dakar, Senegal's largest load center, accounting for the bulk of the country's demand, it will add flexibility in handling power demand and will improve the system's overall stability and reliability.

47. *Efficient source of energy.* The Kounoune Project will sell electricity to SENELEC at a competitive price, thus providing an efficient source of energy for the country. The levelized tariff at which it will sell electricity is lower than SENELEC's own generation costs. In addition, SENELEC's payments to the Project will decrease over time both in nominal and in real terms due to the structure of the capacity payments under the PPA (decreasing over time).

48. *Reduction of GOS/SENELEC's budgetary constraints.* Investments in Senegal's electricity sector are rapidly lagging behind and soon will begin to constrain the development potential of the country. Implementation of SENELEC's expansion plan is experiencing some delays. To rehabilitate and expand the country's installed capacity large sources of financing are required. Projects that do not require investments from the public sector, such as the Kounoune Project, will provide a reliable and timely source of energy and would enable the GOS to destine funds to other priority projects or sectors.

49. *Private sector participation.* The Kounoune Project will be the second private IPP developed in Senegal with the private sector assuming construction, financing, operation and maintenance risks. After the two failed attempts to privatize SENELEC, the Kounoune Project would be the first major private investment in Senegal's power sector. In addition, the Kounoune Project will seek to attract private financing for the power sector in Senegal at a time of sharp decline in private infrastructure financing in Africa.

50. *Demonstration effect.* The Kounoune Project will enhance the attractiveness of Senegal's power sector. Its successful implementation is expected to facilitate both the development and the financing of future IPPs in Senegal and other countries of West Africa. The Kounoune Project is expected to be replicated through another similar IPP (the Kounoune II IPP), supported by the World Bank Group, which will benefit from the lessons learned from the planning and implementation of the Kounoune Project.

51. Going forward, IFC will monitor the Kounoune Project's development impact by tracking the plant's availability, its level of dispatch, and its generation costs, thereby assessing its ability to continue providing power at a low cost in Senegal. IFC will also monitor the Kounoune Project's compliance with both Senegal's applicable environmental laws and regulations, as well as the World Bank Group Environmental and Social Policies and Guidelines.

IX. KEY RISK AND ISSUES

52. Key Risks and Issues. The principal risks and issues inherent to the Kounoune Project are discussed below:

52.1. Sponsors' risk. The Sponsors have limited experience developing complex projects under a BOO scheme, such as the Kounoune Project. The Kounoune Project represents a major financial undertaking relative to the Sponsors' balance sheet.

Mitigants. The Kounoune Project is part of Matelec's strategy to enter into new markets and to expand its business. MEE has good track record as equipment supplier and O&M operator. In addition, MEE, as the wholly-owned subsidiary of MHI of Japan which covers MHI's operations in Europe, represents a strategic subsidiary of MHI. It is therefore likely that MHI will use its best efforts to ensure that MEE can meet its obligations under the Kounoune Project. Additionally, MEE will be responsible for the technical aspects of the power plant, guaranteeing the capacity and availability levels agreed to in the PPA, and will be responsible for construction, operation and maintenance. Finally, the Sponsors are receiving advice from an international law firm with extensive experience in project finance.

52.2. Construction risk. During construction, several factors such as delays and cost overruns could impede the completion of the plant and thus its ability to generate revenues to repay senior debt.

Mitigants. MEE is an experienced manufacturer of diesel engines. Diesel is a safe, well known technology with high fuel efficiency and the lowest water consumption of all types of thermal power plants. Delay liquidated damages ("LDs") payable under the EPC Contract mirror the delay LDs payable under the PPA. Additionally, SENELEC has agreed to make a termination payment if the PPA is terminated for any breach by the Project Company, other than for technical reasons. Finally, IFC will require sponsor support to provide deficiency funding until the project is completed.

52.3. Operation risk. Various risks during operation (i.e., lower capacity and availability of the plant, increased costs/revenue shortfall and termination of the PPA) could impede the Kounoune Project from generating enough revenue to repay senior debt.

Mitigants. MEE as operator guarantees the capacity and the availability agreed to in the PPA. LDs payable by the operator mirror the LDs payable by the Project Company under the PPA.

52.4. Off taker risk. An important issue for the Kounoune Project lenders is related to the creditworthiness of SENELEC and its ability to comply with its payment obligations under the PPA. An important risk is a potential breach by SENELEC of its obligations under the PPA.

Mitigants. It is expected that SENELEC's profitability will improve over time based on a significant reduction of generation costs, through the replacement of more costly generation, an improvement of collection rates, and the implementation of the new tariff setting mechanism. SENELEC's Management and GOS are committed to address the various issues affecting the company and the sector, including the establishment of an adequate tariff regime. Another important mitigant is the Bank's continuous involvement in the sector, and its expected continuous monitoring of SENELEC's financial condition through certain pre-agreed financial ratios. Payment risk under the PPA will be mitigated by the security mechanism provided for under the PPA, sized to cover two months of PPA payments, and by the Government Guarantee. Finally, in the event of termination of the PPA due to SENELEC's default, SENELEC is obliged to make termination payments, guaranteed by the GOS, which are sized to cover debt, equity and a return on equity.

Annex 13 - Attachment 1

(Page 1 of 3)

BALANCE SHEET
SENEGAL: KOUNONE I IPP
(Euro 000s)

Year (December 31,)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
ASSETS												
Current Assets	0	8,758	10,656	8,499	8,246	7,808	7,597	7,391	7,377	6,623	6,414	4,454
Net Fixed Assets	29,902	55,462	51,602	47,741	43,881	40,021	36,160	32,300	28,439	24,579	20,718	16,858
Total Assets	**29,902**	**64,221**	**62,258**	**56,240**	**52,127**	**47,829**	**43,757**	**39,691**	**35,816**	**31,202**	**27,133**	**21,312**
LIABILITIES												
Current Liabilities	0	1,194	1,402	1,788	2,139	2,080	2,229	2,360	2,670	2,764	2,854	2,715
IFC A Loan	4,171	15,186	13,668	12,149	10,630	9,112	7,593	6,075	4,556	3,037	1,519	0
Other Senior Lenders	7,507	27,335	24,374	21,413	18,451	15,490	12,529	9,567	6,606	3,645	1,822	0
Total Long Term Debt	11,678	42,522	38,042	33,562	29,082	24,602	20,122	15,642	11,162	6,682	3,341	0
NET WORTH	18,224	20,505	22,815	20,891	20,906	21,147	21,406	21,689	21,985	21,756	20,938	18,597
Total Liabilities and Net Worth	**29,902**	**64,221**	**62,258**	**56,240**	**52,127**	**47,829**	**43,757**	**39,691**	**35,816**	**31,202**	**27,133**	**21,312**

Note: Numbers may not add up due to rounding errors

Annex 13 - Attachment 1

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INCOME STATEMENT

SENEGAL: KOUNONE I IPP
(Euro 000s)

INCOME STATEMENT

Year (December 31,)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Revenues	0	14,092	28,281	27,923	27,413	25,847	25,566	25,315	26,158	25,957	25,784	24,598
Operating Expenses	0	8,450	16,663	16,378	15,976	15,551	15,850	16,152	17,065	17,386	17,711	17,399
EBITDA	**0**	**5,642**	**11,618**	**11,545**	**11,437**	**10,296**	**9,716**	**9,163**	**9,093**	**8,571**	**8,073**	**7,199**
Depreciation	0	1,014	3,860	3,860	3,860	3,860	3,860	3,860	3,860	3,860	3,860	3,860
EBIT	**0**	**4,628**	**7,758**	**7,684**	**7,576**	**6,436**	**5,855**	**5,303**	**5,233**	**4,710**	**4,213**	**3,339**
Interest Income	0	0	71	71	4	4	4	3	4	4	4	4
Interest on Senior Debt	0	1,627	3,085	2,745	2,406	2,066	1,726	1,386	1,047	707	352	117
Net Interest Expenses	0	(1,627)	(3,015)	(2,675)	(2,402)	(2,062)	(1,723)	(1,383)	(1,043)	(703)	(348)	(114)
EBT	**0**	**3,001**	**4,743**	**5,009**	**5,174**	**4,373**	**4,133**	**3,920**	**4,189**	**4,007**	**3,865**	**3,225**
Taxes	0	719	490	920	1,269	1,241	1,375	1,491	1,749	1,828	1,901	1,785
Net Income	**0**	**2,282**	**4,253**	**4,090**	**3,906**	**3,132**	**2,757**	**2,429**	**2,440**	**2,179**	**1,963**	**1,441**
EBITDA Margin	0%	40%	41%	41%	42%	40%	38%	36%	35%	33%	31%	29%
Net Income Margin	0%	15%	14%	14%	13%	11%	9%	8%	8%	7%	6%	4%

Note: Numbers may not add up due to rounding errors

Annex 13 - Attachment 1

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CASH FLOW STATEMENT

SENEGAL: KOUNONE I IPP

(Euro 000s)

Year (December 31,)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Net Income	0	2,282	4,253	4,090	3,906	3,132	2,757	2,429	2,440	2,179	1,963	1,441
(+) Depreciation	0	1,014	3,860	3,860	3,860	3,860	3,860	3,860	3,860	3,860	3,860	3,860
Net Interest Expenses	0	1,627	3,015	2,675	2,402	2,062	1,723	1,383	1,043	703	348	114
Working Capital Variation (incl. DSRA)	0	(1,681)	(1,690)	629	604	378	361	336	324	848	298	1,822
Cash Flow from Operations	**0**	**3,242**	**9,437**	**11,254**	**10,772**	**9,433**	**8,701**	**8,009**	**7,668**	**7,591**	**6,470**	**7,237**
Capital Expenditure (incl. IDC)	(29,902)	(30,444)	0	0	0	0	0	0	0	0	0	0
Cash Flow from Investments	**(29,902)**	**(30,444)**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Debt Drawdown												
IFC	4,171	11,016	0	0	0	0	0	0	0	0	0	0
Other Senior Lenders	7,507	19,828	0	0	0	0	0	0	0	0	0	0
Equity contributions	18,224	0	0	0	0	0	0	0	0	0	0	0
Debt Principal Repayments												
IFC	0	0	(1,519)	(1,519)	(1,519)	(1,519)	(1,519)	(1,519)	(1,519)	(1,519)	(1,519)	(1,519)
Other Senior Lenders	0	0	(2,961)	(2,961)	(2,961)	(2,961)	(2,961)	(2,961)	(2,961)	(2,961)	(1,822)	(1,822)
Net Interest Expenses	0	(1,627)	(3,015)	(2,675)	(2,402)	(2,062)	(1,723)	(1,383)	(1,043)	(703)	(348)	(114)
Cash from Financing Activtities	**29,902**	**29,216**	**(7,495)**	**(7,155)**	**(6,882)**	**(6,542)**	**(6,203)**	**(5,863)**	**(5,523)**	**(5,183)**	**(3,689)**	**(3,455)**
Annual Change in Cash	**0**	**2,014**	**1,943**	**4,100**	**3,890**	**2,891**	**2,498**	**2,146**	**2,145**	**2,408**	**2,781**	**3,782**

Note: Numbers may not add up due to rounding errors

Annex 13 - Attachment 2

IFC Held and Disbursed Portfolio

MIS | International Finance Corporation | Report Run Date: 04/21/2005

Statement of IFC's Committed and Outstanding Portfolio

Amounts in US Dollar Millions

Country: Senegal | Accounting Data As Of: 04/30/2005 | Page 1

Approval Fiscal Year	Institution Short Name	Loan Cmtd-IFC	Equity Cmtd-IFC	QL+QE Cmtd-IFC	All Cmtd-Part	Loan Out-IFC	Equity Out-IFC	QL+QE Out-IFC	All Out-Part
1996/1997/1998	AEF SERT	0	0.17	0	0	0	0.17	0	0
1980	BHS	0	0.46	0	0	0	0.46	0	0
1999	Ciments du Sahel	12.93	2.26	3.17	0	12.93	2.26	3.17	0
1997/1998	GTI Dakar	8.83	1.68	0	10.65	8.83	1.51	0	10.65
2001	SEF Royal Saly	1.44	0	0	0	1.44	0	0	0
Total Portfolio:		**23.19**	**4.58**	**3.17**	**10.65**	**23.19**	**4.41**	**3.17**	**10.65**

Annex 14: IDA Guarantee for Kounoune I IPP

SENEGAL: ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROJECT

1. Phase I of the proposed APL provides for the completion of Independent Power Projects (IPPs), which are part of Steele's least-cost power generation investment plan. The Kounoune I project is being implemented first. A detailed presentation and assessment of the Kounoune I project is provided in Annex 13. The terms and conditions of the PRG for the Kounoune I Project are in the process of being negotiated.

Risk Allocation and Proposed IDA Guarantee

2. The contractual structure of the transaction and the allocation of commercial, technical, and political risks among the parties are consistent with industry standards in a limited recourse project financing structure. Table 1 delineates the allocation of project risks, in particular with respect to the proposed IDA guarantee.

Table 1: Proposed Allocation of Project Risks

Phase	Risks/Obligation	Equity Sponsors	Lenders	Government Guarantee	IDA Guarantee
Pre-construction	Project design	X			
	Debt and equity financing	X			
Construction	Cost overruns	X	X		
	Construction delays	X	X		
Operation	Operation and maintenance (O&M)	X	X		
	Output quality specifications	X	X		
	Supply of fuel and water	X	X		
PPA & GOS Guarantee Term	Currency devaluation	X	X	X	
	Currency convertibility/transferability	X	X		
	SENELEC's performance under the PPA	X	X	X	X
	Senelec's payments under the PPA	X	X	X	X
	Senegal (Local) political force majeure* including change in laws	X	X	X	X
	Foreign political force majeure & natural force majeure** affecting the SPC	X	X		
	Foreign political force majeure affecting Senegalese public sector entities	X	X	X	
	Natural Force majeure affecting Senegalese public sector entities	X	X	X	

* Political force majeure events include: acts of war, blockade, embargo, strikes, change in law, expropriation, etc.

** Natural force majeure events include: fire, earthquake, landslide, flood, etc.

3. The IDA Guarantee will cover any outstanding scheduled payment of principal and interest (excluding default interest and breakage costs) which are outstanding as a result of:

(a) SENELEC's breach of its payment obligations under the PPA[27] in case of termination of the PPA by the Project Company due to breach by SENELEC and GOS's breach of its corresponding payment

[27] Article 14.7.1.1 (a) and (b) of the PPA

guarantee under the Government Guarantee[28], as provided for in an arbitral award rendered against SENELEC in accordance with the PPA or as confirmed by SENELEC and the GOS; or

(b) GOS's breach of its undertaking under Article 3 of the Government Guarantee to pay to the Kounoune Power S.A. a termination amount in the event of termination of the PPA as a result of an Event of Local Political Force Majeure (as such term is defined in Article 15.2.1 (b) of the PPA)), as provided for in an arbitral award rendered against GOS in accordance with the Government Guarantee, or as confirmed by the GOS.

4. If there is a dispute, the IDA Guarantee is callable only in respect of amounts that the GOS is obliged to pay and fails to pay following the making of an arbitral award which is stated to be final in accordance with the dispute resolution procedures contained in the Government Guarantee

5. Commercial risks, such as completion and operations risks, natural force majeure and foreign political force majeure risks relating to the project, which will be borne by the sponsors and commercial lenders, will be mitigated by the EPC and O&M contracts and various commercial insurance and bonding arrangements. The principal categories of risks that will be backstopped by the IDA guarantee are the following:

- Breach of the GOS's Performance Guarantee under Article 1 of the Government Guarantee Agreement;

- Breach of the GOS's Payment Guarantee of the sums owed to the Kounoune Power S.A. by Senile under the PPA, under Article 2 of the Government Guarantee Agreement; and

- Breach of the GOS's Guarantee under Article 3 of the Government Guarantee Agreement covering political force majeure events occurring in Senegal, including nationalization and expropriation.

Approval Process and Required Documentation

6. World Bank procedures[29] require approval of the *IDA Guarantee* by management and IDA's Board of Executive Directors. The World Bank has conducted, in close association with IFC, a due diligence of the ownership and management structure of Kounoune Power S.A., the Special-Purpose Company (SPC) established by the Sponsors to build, own and operate the Kounoune Project.

7. Required documentation includes the following: (a) The IDA Guarantee Agreement: The terms and conditions of the *IDA Guarantee* will be embodied in the *IDA Guarantee Agreement* between the lending Bank, CBAO and IDA; (b) The IDA Project Agreement: Kounoune Power S.A.and IDA will execute a separate *IDA Project Agreement* to create a direct contractual relationship with IDA; such agreement will contain undertakings to the World Bank with respect to matters of particular concern, such as consent requirements for changes to Project agreements and documentation, compliance with World Bank safeguards policies, assignment of rights, and good governance; and (c) The Indemnity Agreement: GOS will indemnify IDA in the event it makes payments under the *IDA Guarantee*, and against other expenses or liabilities incurred by the World Bank. The following pages provide an indicative summary of the main agreements.

[28] Article 2 of the Government Guarantee
[29] B.P 14.25 Guarantees

INDICATIVE SUMMARY OF THE PRINCIPAL TERMS AND CONDITIONS OF THE IDA GUARANTEE

Disclaimer: *This term sheet contains a summary of indicative terms and conditions of the IDA Guarantee for discussion purposes only and does not constitute an offer to provide an IDA Guarantee. The provision of an IDA Guarantee would be subject, inter alia, to due diligence satisfactory to IDA, including a review of the Project, compliance with all applicable IDA policies, IDA Management and Board approval and satisfactory conclusion of all documentation, including an Indemnity Agreement with the Government of Senegal.*

I. IDA-GUARANTEED FACILITY TERMS

1. Borrower:	Kounoune Power S.A., a special-purpose limited liability company established in Senegal by the MEE-Matelec consortium (the ***Company***)
2. IDA Guaranteed Lender:	Compagnie Bancaire de l'Afrique Occidentale (***CBAO***)
3. Arranger:	BMCE Capital (***BMCEK***)
4. Facility Amount:	Up to US$7.2 million equivalent in CFA franc (XOF) The Facility will benefit from the IDA Guarantee (as described in Schedule 1, Indicative Terms and Conditions of the IDA Guarantee)
5. Guarantor:	International Development Association (***IDA***)
6. Term:	10 years, including two years of grace
7. Availability:	The IDA-Guaranteed Facility will be available for drawing during the Availability Period, subject to the satisfaction of all conditions precedent listed in the Facility Agreement. Any un-drawn amount remaining at the end of the Availability Period will be cancelled.
8. Availability Period:	The period ending twenty four months from date of signing of the IDA-Guaranteed Facility Agreement.
9. Repayment:	TBD[30] quarterly or TBD semi-annual installments commencing on the first repayment date
10. Interest Rate:	Fixed rate at 10 percent per annum.
11. Default Interest:	Default interest of TBD percent per annum above the Interest Rate of the IDA-Guaranteed Facility.
12. Interest Payment Dates:	TBD. Quarterly or semi-annual after financial close, as defined in the Facility Agreement.
13. Facility Fees	(a) 0.5% per annum commitment fee payable on un-drawn amounts during the Availability Period; and (b) 1% flat fee payable upfront
14. Use of Proceeds:	To fund IDA eligible costs (***IDA Eligible Costs***) only. Proceeds of the IDA-Guaranteed Facility may only be used to fund costs incurred for assets located in Senegal and <u>may not be used for</u>: (a) Costs in connection with the acquisition or use of nuclear, military or luxury items;

[30] To be determined

	(b) Fees, commissions, expenses or other financing costs (including interest) unrelated to the IDA-Guaranteed Facility or the IDA Guarantee; and (c) Development fees; and (d) Any payment in or expenses incurred in, or in respect of, goods or services supplied from the territory of any country, which is not a member of the International Bank for Reconstruction and Development (***IBRD***) or IDA.
15. Debt Service Reserve Account:	To cover a minimum of 6 months principal and interest
16. Conditions Precedent to each Disbursement:	As specified in the conditions precedent for the loan facility provided to the Company. In addition, it shall be a condition precedent to each drawing under the IDA-Guaranteed Facility that the IDA Guarantee remains in full force and effectiveness
17. Governing Law:	TBD.

II. PROPOSED IDA GUARANTEE TERMS

1. Guarantor:	International Development Association (***IDA***).
2. Beneficiary	The IDA-Guaranteed Lender (Compagnie Bancaire de l'Afrique Occidentale - CBAO)
3. Maximum Aggregate Liability under the Guarantee:	The aggregate amount of (i) up to US$7.2 million equivalent in XOF of principal and (ii) interest thereon (excluding any default interest) accrued on such principal amount under the IDA Guaranteed Facility
4. Guarantee Fee:	The Company shall pay a Guarantee Fee of 0.75 percent per annum on the aggregate scheduled disbursed and outstanding principal amount of the IDA-Guaranteed Facility payable in US dollars in advance (i) on the earliest of the sixtieth (60^{th}) day from signature of the Guarantee Agreement or the date of effectiveness of the Guarantee Agreement; and (ii) semi-annually thereafter. The applicable XOF to US dollar exchange rate will be the exchange rate published by BCEAO two working days immediately preceding the scheduled Guarantee Fee payment date.
5. Commitment Fee:	The Company shall pay a Commitment Fee of 0.35 percent per annum to accrue from the date of signing of the IDA Guarantee Agreement on un-drawn commitments and payable semi-annually in advance in US dollars on each Interest Payment Date, with the first installment due on the earlier of the sixtieth (60^{th}) day from signature of the Guarantee Agreement or the date of effectiveness of the Guarantee Agreement. The applicable XOF to US dollar exchange rate will be the exchange rate published by BCEAO two working days immediately preceding the scheduled Commitment Fee payment date.
6. Initiation Fee	The Company shall pay a one-time Initiation Fee of US$100,000 (one hundred thousand) payable in United States dollars, to cover IDA internal project preparation and development costs. The Initiation Fee will be due and payable following IDA Board approval within 10 days of receipt of written demand from IDA.
7. Scope of Guarantee:	The IDA Guarantee covers any outstanding scheduled payment of principal and interest (excluding default interest and breakage costs) which are outstanding as a result of: (y) Senelec's breach of its payment obligations under Article 14.7.1.1 (a) or (b) of the PPA (termination of the PPA by the Company due to breach by Senelec) and GOS's breach of its

	corresponding payment guarantee under Article 2 of the Government Guarantee, as provided for in an arbitral award (an ***Award***) rendered against Senelec in accordance with the PPA and the Government Guarantee or as confirmed by Senelec and the GOS, or (z) GOS's breach of its undertaking under Article 3 of the Government Guarantee to pay to the Company a termination amount in the event of termination of the PPA as a result of an Event of Local Political Force Majeure (as such term is defined in Article 15.2.1 (b) of the PPA), as provided for in an Award rendered against GOS in accordance with the Government Guarantee, or as confirmed by the GOS. If there is an ongoing dispute between the Company and Senelec or GOS, the IDA Guarantee is callable only in respect of amounts that the GOS is obliged to pay and fails to pay following the making of an Award which is stated to be final in accordance with the dispute resolution procedures contained in the PPA and in the Government Guarantee.
8. No-Acceleration of Guarantee:	The IDA Guarantee may not be accelerated even if the underlying payment obligations of the IDA-Guaranteed Facility are accelerated. The IDA Guarantee will cover payment of principal and interest payable in accordance with the original payment schedule applicable to the IDA-Guaranteed Facility.
9. Conditions Precedent:	Usual and customary conditions precedent for a financing of this type, including but not limited to the following: (a) Execution of all project documents and finance documents; (b) Delivery of all legal opinions; (c) Effectiveness of insurance required by the finance documents to be in effect at financial close and the naming of finance parties as co-insured parties under those insurance policies and of IDA as named insured under third-party liability insurance; (d) Approval of the Executive Directors of IDA; (e) Execution, delivery and effectiveness of the Indemnity Agreement and the IDA Project Agreement; and (f) Payment of the Initiation Fee, and the first installment of the Guarantee Fee and the Commitment Fee, respectively.
10. Exclusion:	Guarantor is not liable for payment of any amount which is due to: (a) The Company's failure to comply with any law, decree or regulation in force in Senegal as of the date of the Guarantee Agreement; (b) An action or omission (i) that was agreed to by the IDA Guaranteed Lender , or the Company; or (ii) the preponderant cause of which is prescribed conduct of the IDA-Guaranteed Lender, or the Company, including failures to comply with the applicable laws or regulations of Senegal, breach of their material obligations set forth in the PPA, the Government Guarantee or related project documents, and failure to fulfill their other agreed obligations towards, or assurances given to, Senelec or Senegal; or action or omission attributable to the IDA-Guaranteed Lender or the Company; and (c) Corrupt Practices as defined in the IDA Guarantee Agreement.
11. Suspension of Additional Coverage:	If any of the following events occurs and is continuing prior to the end of the Availability Period, IDA may by written notice to the Agent to deny guarantee coverage to subsequent advances, if any: (a) Any event which, with passing of time or giving notice or both, may lead to a claim under the IDA Guarantee; (b) Breach by the Company of any of its obligations to IDA under the IDA Project Agreement; (c) An installment of the Guarantee Fee or Commitment Fee is not paid when due; (d) Suspension of lending by IDA or the International Bank for Reconstruction and Development (***IBRD***) to Senegal as a result of failure by Senegal to pay IDA or

	IBRD, as the case may be, amounts due and payable under any agreement, including the Indemnity Agreement; or (e) Suspension or lapse of Senegal from membership of IDA, IBRD or the International Monetary Fund.
12. Termination by IDA:	The IDA Guarantee Agreement may be terminated immediately if: (a) The Beneficiary intentionally makes an untrue statement in or intentionally omits material information or evidence from, a demand; (b) The Beneficiary, the Company, or any of its shareholders or affiliates engages in Corrupt Practices; or (c) Any material change is made without IDA consent to those provisions of the project or financing documents for which IDA consent is required for changes. The IDA Guarantee Agreement will also be terminated: (i) Upon IDA notice of termination if the IDA-Guaranteed Lender or the Company is in material violation of the laws and regulations of Senegal or the World Bank Environmental Guidelines and Safeguard Policies applicable to the Company; (ii) Effective as of the date the Beneficiary transfers, assigns or encumbers, without IDA prior consent, any rights under the IDA Guarantee Agreement, the IDA-Guaranteed Facility, or an Award; or (iii) Effective on the day immediately preceding the Guarantee Fee Payment Date, if any Guarantee Fees are not paid on or before the tenth day following notice of non-payment.
13. Subrogation:	If and to the extent IDA makes payment under the IDA Guarantee and is not reimbursed by Senegal under the Indemnity Agreement within 60 days of notice from IDA, then IDA shall be immediately subrogated to the IDA-Guaranteed Lender's rights under the IDA Guaranteed Facility. Until IDA has fully paid out under the IDA Guarantee Agreement, IDA will not exercise voting rights or realize security under the IDA-Guaranteed Facility.
14. Right to Offer to Purchase the IDA Guaranteed Facility:	If there is a call on the IDA Guarantee, IDA shall have the right, at its sole discretion, to limit its obligation to guarantee interest payments by acquiring the IDA Guaranteed Facility from the IDA Guaranteed Lender for an amount equal to the then unpaid principal and interest (not including default interest). In the event that IDA acquires the IDA Guaranteed Facility, IDA, at its discretion, will have the right under its Indemnity Agreement with Senegal, to cause Senegal to make immediate payment to IDA of the outstanding IDA Guaranteed Facility amount together with interest thereon.
15. Demand Process:	IDA will pay within sixty days after IDA's receipt of a Demand Notice. Demands must be made not less than thirty days and not more than ninety days from the due date for scheduled payment or, if (a) the IDA Guaranteed Lender is precluded from making a demand under the Guarantee or (b) a dispute is being pursued by the GOS or the Company under the Government Guarantee, within 90 days of (i) the end of the preclusion or (ii) the issuance of an Award in connection with the applicable dispute resolution procedures. Demands for Provisional Payments must be made no more than nine months after the due date of the scheduled payment that is in default.
16. Dispute Resolution:	Disputes will be settled by arbitration in accordance with UNCITRAL Arbitration Rules (or other international arbitration rules acceptable to IDA).
17. Governing Law:	English.

III. THE INDEMNITY AGREEMENT

1. Parties:	IDA and Senegal
2. Indemnity:	Senegal will reimburse and indemnify IDA, on demand or as IDA may otherwise direct, for all losses, damages, costs, expenses, etc. incurred by IDA relating to or arising from payments under the IDA Guarantee.
3. Remedies:	If Senegal fails to perform under this agreement, IDA may suspend or cancel, in whole or in part, Senegal's rights to make withdrawals under any other loan with the IBRD or Developmental Credit Agreement with IDA or any IDA loan/IDA credit to a third party guaranteed by Senegal. IDA may also declare the outstanding Principal and Interest of such loan/credit immediately due and payable in the circumstances provided for in the Indemnity Agreement.
4. Choice of Law:	The Indemnity Agreement will follow the usual legal regime and include dispute settlement provisions customary for agreements between member countries and IDA.

IV. IDA PROJECT AGREEMENT

1. Parties:	IDA and the Company
2. Representations and Warranties:	The Company will represent, inter alia, that it is in compliance with applicable World Bank Environmental Guidelines, Safeguard Policies and Fiduciary Policies. The Company will also represent that it has not engaged in any Corrupt Practices.
3. Covenants:	The Company will covenant, inter alia, that it: (a) will use the proceeds of the IDA-Guaranteed Facility only for the agreed purposes; (b) will comply with Applicable World Bank Environmental Guidelines, Safeguard Policies [and Fiduciary Policies]; (c) will not engage in any Corrupt Practices or hire any individual or firm included in the World Bank Group list of firms barred from World Bank-financed contracts; and (d) Will provide regular accounts and reports to IDA.
4. Governing law:	English.

Annex 15: Project Preparation and Supervision

SENEGAL: ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROJECT

Activities	Planned	Actual
PCN review	10/21/2003	10/21/2003
Initial PID to PIC		
Initial ISDS to PIC		
Appraisal	10/04/2004	03/21/2005
Negotiations	10/25/2004	04/18/2005
Board/RVP approval	12/14/2004	05/17/2005
Planned date of effectiveness	07/01/2005	
Planned date of mid-term review	12/01/2006	
Planned closing date	01/31/2009	

Key institutions responsible for preparation of the project:

Responsible Agency for Part A of the Project (Electricity Sector Investment and Exploitation):
SENELEC (Société Nationale d'Electricité).

Responsible for Part B of the Project (Others components):
The Project Coordination Unit (PCU) of the Ministry of Energy and Mines.

Bank staff and consultants who worked on the project included:

Name	Title	Unit
Michel Layec	TTL/Lead Energy Economist	AFTEG
Sidi Boubacar	Sr. Counsel	LEGAF
Stephan Garnier	Power Engineer	AFTEG
Awa Seck	Economist	AFTEG
Ignatius Menezes	Consultant	AFTEG
Isabelle Daverne	Consultant	AFTEG
Ahoulou Aka	Consultant	AFTEG
Lu T. Ha	Language Program Assistant	AFTEG
Anta Tall Diallo	Team Assistant	AFC14
Pierre Vieillescazes	Sr. Financial Officer	IEF
Ximena Talero	Sr. Counsel	LEGCF
Atsuko Okubo	Counsel	LEGCF
Fabrice Bertholet	Private Sector Dev. Specialist	AFTPS
Marie-Christine Balaguer	Paralegal	LEGAF
Bourama Diaite	Sr. Procurement Specialist	AFTPC
Pierre Morin	Sr. Procurement Specialist	AFTPC
Fily Sissoko	Financial Management Specialist	AFTFM
Michael Fowler	Sr. Finance Officer	LOAG1
Thomas E. Walton	Lead Safeguards Regional Coordinator	AFTSD
Robert Robelus	Sr. Environmental. Assessment Specialist	AFTS1
Kristine Ivarsdotter	Sr. Social Development Specialist	AFTS1
Irene Xenakis	Operations Adviser	AFTOS
Peer Reviewers		
Philippe Durand	Lead Energy Specialist	LCSFE
Scott Sinclair	Lead Financial Officer	IEF
Mourad Belguedj	Lead Energy Specialist	COCPO
Alain Ebobissé	Senior Investment Officer	CININ

IFC staff who worked on the project included:

Name	Title	Unit
Francisco Tourreilles	Director	CINDR
Richard L. Ranken	Director	CAFDR
Darius Lilaoonwala	Manager	CININ
Thierry Tanoh	Associate Director	CAFDR
Alain Ebobissé	Senior Investment Officer	CININ
Adriana de Aguinanga	Senior Investment Officer	CININ
Belén Castuera	Investment Officer	CININ
Paul Anthony Nickson	Principal Power Engineer	CININ
Akira Tanabe	Principal Environmental Specialist	CESIG
José Zevallos	Senior Social Development Specialist	CESIG
Moez Cherif	Economist	CINDR
Patricia Jungreis Sulser	Principal Counsel	CLEIP
Martha Yebra-Bryant	Senior Insurance Officer	CESIS
Jan P. Mumenthaler	Insurance Officer	CESIS
Gisella García	Program Assistant	CININ
Aida der Hovanessian	Country Manager	CAFW3
Marieme Diaw Travaly	Investment Officer	CGMP4

Bank funds expended to date on project preparation:

Bank resources (excluding PPF): US$405,031
Trust funds: US$0
Total: US$405,031

PPF: US$2 million

Estimated Approval and Supervision costs:

Remaining costs to approval: US$0
Estimated annual supervision cost: US$120,000

Annex 16: Documents in the Project File

SENEGAL: ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROJECT

A - Government and Companies Documentation

- La Reforme du Secteur de l'Electricite – Bilan et Perspectives – Association des Cadres de la SENELEC (September 9, 2000)
- Energy Sector Policy Letter (April 2003)
- Rural Electrification Policy Letter – (July 2004)
- Construction, Exploitation, Transfert (CET/BOOT Law)
- SENELEC – Financial Statements -2002-2004 – (2004 provisional)
- PETROSEN - Financial Statements -2002-2004- (2004 provisional)
- SENELEC – Generation Plan for Interconnected System - 2005-2015– (December 3 , 2004)
- SENELEC- Assessment of the Supply Outlook for the Interconnected System in 2005 and Possible Solutions – (November 22, 2004)
- SENELEC – Five-Year Activity Report (1999-2004) – (May 2004)
- SENELEC – Investment Program (2003-2013) – (November 11, 2004)
- SENELEC – Financial model – Hard Copy - (November 2004)

B - Consultants' Reports

- Analyse du programme d'investissements Transport et Distribution de la SENELEC (hors Electrification Rurale) – Ahoulou Aka – (June 2003)
- Analyse du bilan de la SENELEC - I. Daverne (2003)
- Prévisions financieres de la SENELEC – 2004-2013 – I. Daverne (2004)
- Environmental Impact Assessment of the 60MW diesel thermal plant at Kounoune (Etude d'Impact Environnemental de la centrale thermique diesel de 60MW dans la localite de Kounoune – ERM (January 2004)
- Environmental Impact Assessment Framework for the Physical Investments for the Electricity Sector Efficiency Enhancement project (Cadre de Gestion des Impacts Environnementaux des Investissements Physiques du projet d'Amelioration de la Performance du Secteur Electrique) – ERM - (February 2004)
- Resettlement Policy Framework - (Cadre de la Politique de Deplacement Involontaire et de Reinstallation – Projet d'Amelioration de la Performance du Secteur Electrique) - ERM - (February 2004)
- Supplemental Environmental Impact Assessment (Etude d'Impact Environnemental de la centrale thermique diesel de 67.5 MW dans la localité de Kounoune), ERM (April 2005)
- Environmental Management and Monitoring Plan for the Acquisition of 2000 km of 2D Land Seismic in Northern Senegal – (December 1999)
- K&M Engineering report on review of technical and financial bids.
- Review of SENELEC's Investment Program – Electrowatt/Ekono Lt. (January 2002)
- West Africa Regional Transmission Study – Nexant (August 2004)

C - World Bank

- Implementation Completion Report: Energy Sector Adjustment Operation (June 30, 2003)
- Implementation Completion Report: Manantali OMVS project (December 2004)
- Senegal World Bank Country Assistance Strategy
- Sustainable and Participatory Energy Management Project (Progede I) – Project Appraisal Document (June 2000)
- Electricity Services for Rural Areas Project – Project Appraisal Document (August 2004)
- Sustainable and Participatory Energy Management Component of Electricity Services for Rural Areas Project (Progede II) – Detailed Note (June 2004).

D. Other Documents

- Draft Memorandum on Economic and Financial Policies - IMF (2005)

* including electronic files

Annex 17: Statement of Loans and Credits

SENEGAL: ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROJECT

Operations Portfolio (IDA and Grants)

(As at 03/20/05)

Closed Loans and Credits: 114
Active Credits 17

Original Amount in US$ Millions

Project ID	Project Name	Development Objective	Implementation Progress	FY	IBRD	IDA	GEF	Cancel	Undisb.	Difference between Expected and Actual Disbursements [a/] Original	Formally Revised
P074059	HIV/AIDS Prevention & Control (Map II)	S	S	2002		30			22.4	4.8	
P041528	Long Term Water Sector	S	S	2001		125			92.0	14.0	
P070541	Nutrition Enhancement	S	S	2002		14.7			6.4	1.4	
P051609	Private Investment Promotion	S	S	2003		46			45.8	-5.7	
P080013	Private Sector Adjustment	S	S	2004		45			37.1	18.5	
P047319	Quality Education for All	S	S	2000		50			3.4	1.8	-48.2
P069207	Casamance Emergency Recovery	S	S	2005		20.0			19.7	-0.2	
P057996	National Rural Infrastructure	S	S	2000		28.5			8.9	7.4	1.4
P086480	Integrated Marine & Coastal Res. Mgmt	S	S	2005		10.0	5.0		10.6	0.5	
P002369	Integrated Health Sector Development	S	U	1998		50			8.9	8.5	8.7
P085708	Electric Services for Rural Areas	S	S			29.9			30.0		
P002366	Transport II	U	S	1999		90			42.6	35.5	18.6
P002367	Agr. Serv. & Producers Organizations.	S	S	1999		27.4			3.6	2.2	1.0
P041566	Social Development Fund	S	S	2001		30			13.5	8.8	1.1
P055472	Urban Mobility Improvement Program	U	S	2000		70			69.9	59.5	
P074065	Poverty Reduction Support Credit - 1	S	S	2005		30.0			0.0		
P091473	AFR Emergency Locust	S	S	2005		10.0			10.2		
Total						**706.5**			**414.1**	**166.9**	

a/ Intended disbursements to date minus actual disbursements to date as projected at appraisal.

IBRD/IDA

Total Disbursed (Active)	308.7
of which has been repaid	0.0
Total Disbursed (Closed)	1,862.1
of which has been repaid	344.4
Total Disbursed (Active+Closed)	2,170.8
of which has been repaid	344.4
Total Undisbursed (Active)	414.1
Total Undisbursed (Closed)	1.2
Total Undisbursed (Active+Closed)	425.3

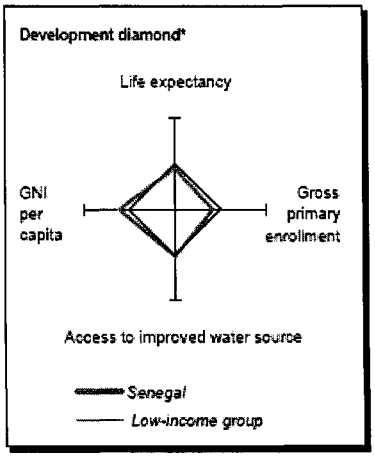
Annex 18: Country at a Glance

SENEGAL: ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROJECT

Senegal at a glance

9/29/04

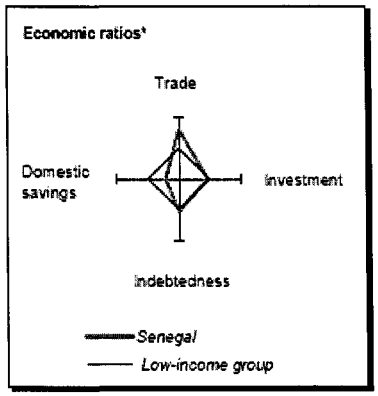
POVERTY and SOCIAL	Senegal	Sub-Saharan Africa	Low-income
2003			
Population, mid-year *(millions)*	10.0	703	2,310
GNI per capita *(Atlas method, US$)*	550	490	450
GNI *(Atlas method, US$ billions)*	5.6	347	1,038
Average annual growth, 1997-03			
Population *(%)*	2.3	2.3	1.9
Labor force *(%)*	2.4	2.4	2.3
Most recent estimate (latest year available, 1997-03)			
Poverty *(% of population below national poverty line)*	57	..	..
Urban population *(% of total population)*	50	36	30
Life expectancy at birth *(years)*	52	46	58
Infant mortality *(per 1,000 live births)*	79	103	82
Child malnutrition *(% of children under 5)*	23	..	44
Access to an improved water source *(% of population)*	78	58	75
Illiteracy *(% of population age 15+)*	61	35	39
Gross primary enrollment *(% of school-age population)*	75	87	92
Male	79	94	99
Female	72	80	85



KEY ECONOMIC RATIOS and LONG-TERM TRENDS

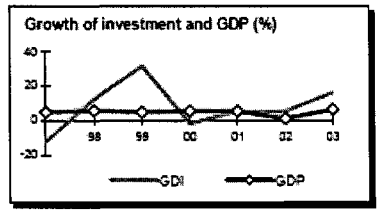
	1983	1993	2002	2003
GDP *(US$ billions)*	2.5	5.4	5.0	6.5
Gross domestic investment/GDP	12.8	13.7	18.5	20.1
Exports of goods and services/GDP	31.7	22.2	30.1	28.4
Gross domestic savings/GDP	-1.9	7.7	8.8	8.0
Gross national savings/GDP	-6.3	4.4	12.6	13.8
Current account balance/GDP	-18.8	-10.6	-5.9	-6.3
Interest payments/GDP	1.7	0.4	1.3	1.0
Total debt/GDP	83.8	69.2	77.5	64.1
Total debt service/exports	11.3	9.1	11.4	9.9
Present value of debt/GDP	..	..	47.9	..
Present value of debt/exports	..	..	125.4	..

	1983-93	1993-03	2002	2003	2003-07
(average annual growth)					
GDP	2.1	4.9	1.1	6.5	5.9
GDP per capita	-0.7	2.3	-1.3	6.0	3.7
Exports of goods and services	1.5	7.2	-1.7	0.5	4.9

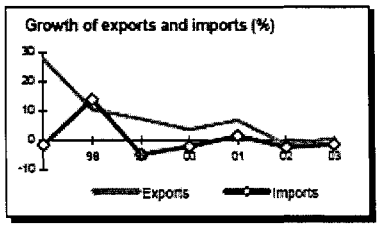


STRUCTURE of the ECONOMY

	1983	1993	2002	2003
(% of GDP)				
Agriculture	21.5	19.0	15.0	16.8
Industry	15.5	19.1	21.6	21.2
Manufacturing	10.6	13.0	13.8	12.8
Services	63.0	61.9	63.4	62.0
Private consumption	83.9	77.5	76.7	77.4
General government consumption	18.0	14.8	14.5	14.6
Imports of goods and services	46.4	28.2	39.8	40.5



	1983-93	1993-03	2002	2003
(average annual growth)				
Agriculture	1.2	2.4	-19.9	19.2
Industry	3.3	6.7	9.5	4.6
Manufacturing	3.3	5.9	10.1	0.3
Services	2.1	5.1	4.8	4.1
Private consumption	1.6	1.2	-0.2	2.7
General government consumption	1.7	7.3	1.2	8.3
Gross domestic investment	4.7	10.0	5.4	16.4
Imports of goods and services	1.0	1.8	-2.6	-1.6

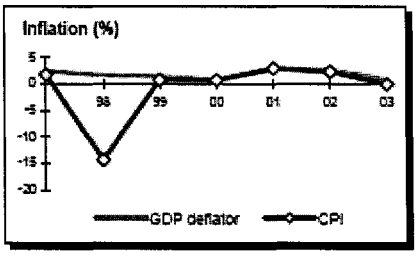


Note: 2003 data are preliminary estimates.

* The diamonds show four key indicators in the country (in bold) compared with its income-group average. If data are missing, the diamond will be incomplete.

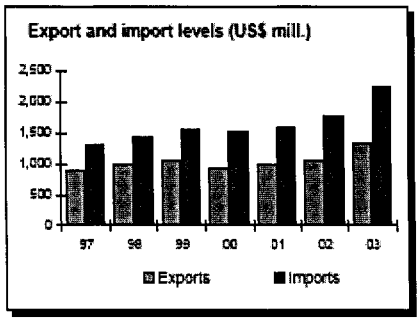
PRICES and GOVERNMENT FINANCE

	1983	1993	2002	2003
Domestic prices				
(% change)				
Consumer prices	11.4	-1.0	2.3	0.0
Implicit GDP deflator	8.9	-1.4	2.7	0.8
Government finance				
(% of GDP, includes current grants)				
Current revenue	18.8	16.8	19.0	19.6
Current budget balance	-4.0	0.2	5.4	5.5
Overall surplus/deficit	-8.1	-4.0	-3.0	-3.0



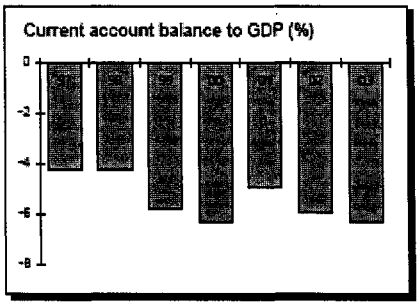
TRADE

	1983	1993	2002	2003
(US$ millions)				
Total exports (fob)	606	719	1,066	1,332
Groundnut products	170	47	69	61
Phosphates	48	43	174	168
Manufactures	160	164	250	304
Total imports (cif)	1,042	1,235	1,775	2,247
Food	265	348	335	410
Fuel and energy	239	124	284	387
Capital goods	164	159	317	325
Export price index *(1995=100)*	62	56	87	87
Import price index *(1995=100)*	53	61	83	83
Terms of trade *(1995=100)*	117	90	104	105



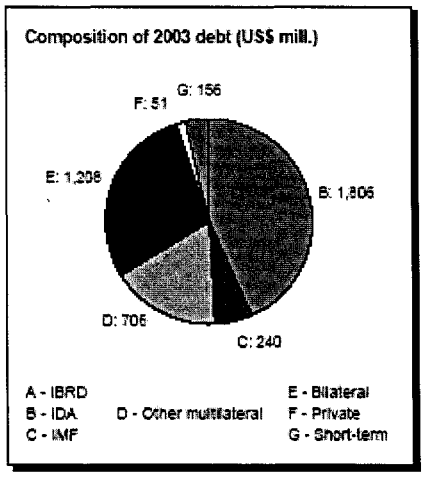
BALANCE of PAYMENTS

	1983	1993	2002	2003
(US$ millions)				
Exports of goods and services	955	1,272	1,518	1,847
Imports of goods and services	1,312	1,674	2,004	2,628
Resource balance	-358	-401	-486	-780
Net income	-103	-191	-184	-92
Net current transfers	-6	15	373	464
Current account balance	-467	-578	-298	-408
Financing items (net)	414	466	368	342
Changes in net reserves	53	112	-70	67
Memo:				
Reserves including gold *(US$ millions)*	23	15	579	689
Conversion rate *(DEC, local/US$)*	381.1	283.2	697.0	580.1

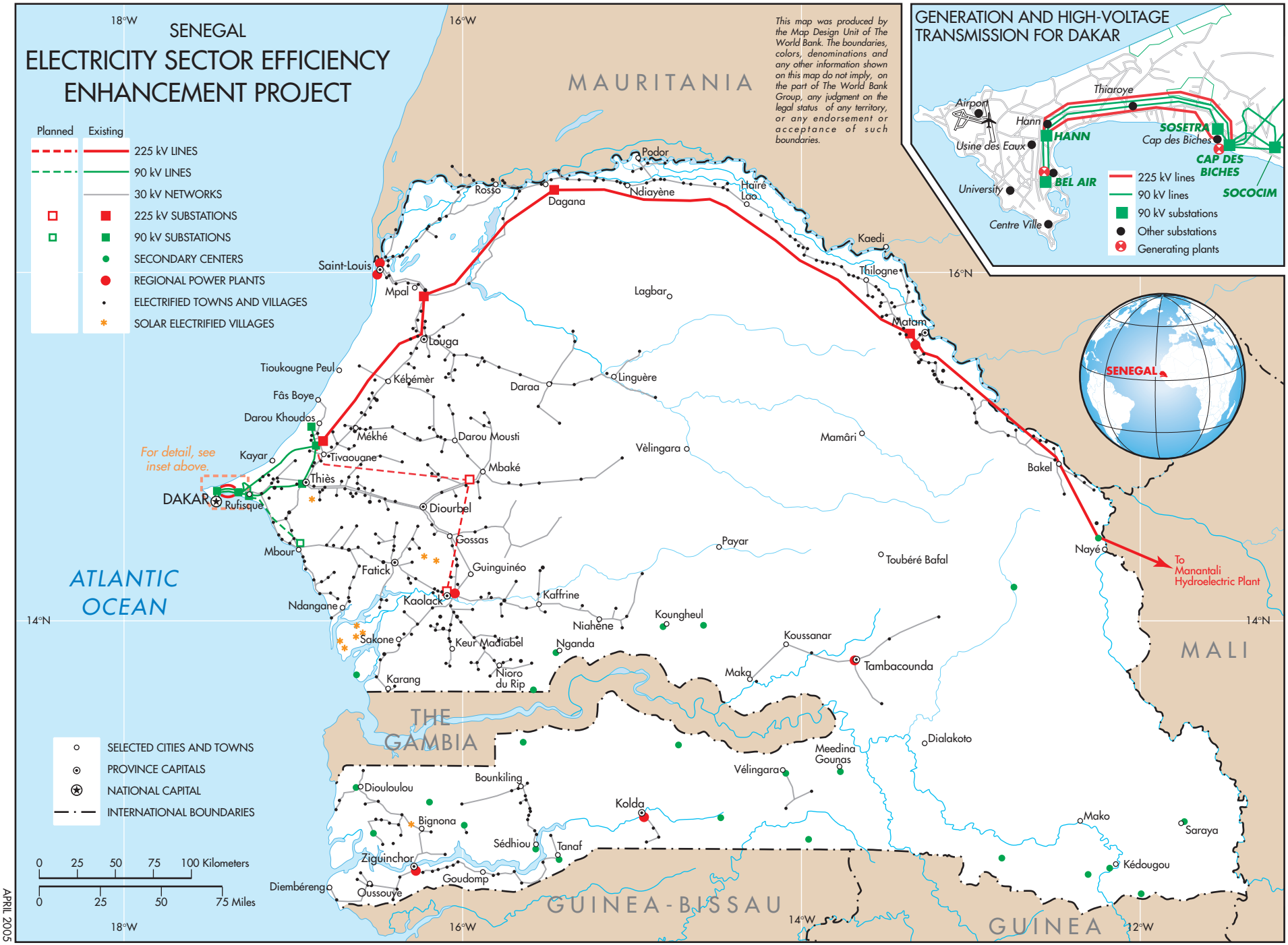


EXTERNAL DEBT and RESOURCE FLOWS

	1983	1993	2002	2003
(US$ millions)				
Total debt outstanding and disbursed	2,078	3,760	3,904	4,167
IBRD	86	52	0	0
IDA	183	918	1,578	1,806
Total debt service	117	127	220	237
IBRD	10	16	0	0
IDA	3	10	16	24
Composition of net resource flows				
Official grants	108	299	190	190
Official creditors	274	101	93	83
Private creditors	58	-6	1	1
Foreign direct investment	-35	-1	93	..
Portfolio equity	0	6	0	0
World Bank program				
Commitments	59	40	45	46
Disbursements	32	46	114	107
Principal repayments	6	15	6	13
Net flows	26	31	108	95
Interest payments	7	11	10	12
Net transfers	19	20	98	83



The World Bank Group: This table was prepared by country unit staff; figures may differ from other World Bank published data. 9/29/04


SENEGAL
ELECTRICITY SECTOR EFFICIENCY ENHANCEMENT PROJECT
This map was produced by the Map Design Unit of The World Bank. The boundaries, colors, denominations and any other information shown on this map do not imply, on the part of The World Bank Group, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries.
Planned
Existing
225 kV LINES
90 kV LINES
30 kV NETWORKS
225 kV SUBSTATIONS
90 kV SUBSTATIONS
SECONDARY CENTERS
REGIONAL POWER PLANTS
ELECTRIFIED TOWNS AND VILLAGES
SOLAR ELECTRIFIED VILLAGES
SELECTED CITIES AND TOWNS
PROVINCE CAPITALS
NATIONAL CAPITAL
INTERNATIONAL BOUNDARIES
0 25 50 75 100 Kilometers
0 25 50 75 Miles
APRIL 2005
IBRD 33982
GENERATION AND HIGH-VOLTAGE TRANSMISSION FOR DAKAR
Airport
Thiaroye
Hann
HANN
SOSETRA
Cap des Biches
Usine des Eaux
CAP DES BICHES
BEL AIR
University
SOCOCIM
Centre Ville
225 kV lines
90 kV lines
90 kV substations
Other substations
Generating plants
SENEGAL
For detail, see inset above.
MAURITANIA
ATLANTIC OCEAN
THE GAMBIA
GUINEA-BISSAU
GUINEA
MALI
DAKAR
Rufisque
Thiès
Kayar
Mbour
Fatick
Ndangane
Sakone
Karang
Diembéreng
Oussouye
Ziguinchor
Bignona
Diouloulou
Sédhiou
Goudomp
Tanaf
Bounkiling
Kolda
Vélingara
Meedina Gounas
Dialakoto
Mako
Saraya
Kédougou
Nioro du Rip
Keur Madiabel
Nganda
Niahène
Kaffrine
Kaolack
Guinguinéo
Gossas
Diourbel
Mbaké
Darou Mousti
Mékhé
Tivaouane
Darou Khoudos
Fâs Boye
Tioukougne Peul
Kébémèr
Louga
Mpal
Saint-Louis
Rosso
Dagana
Podor
Ndiayène
Haire Lao
Lagbar
Kaedi
Thilogne
Matam
Linguère
Daraa
Vèlingara
Mamâri
Bakel
Payar
Toubéré Bafal
Nayé
Koungheul
Koussanar
Tambacounda
Maka
To Manantali Hydroelectric Plant
18°W
16°W
16°N
14°N
14°W
12°W