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AFRICAN DEVELOPMENT BANK GROUP

PROJECT: ELECTRICITY DISTRIBUTION NETWORKS REHABILITATION AND RESTRUCTURING PROJECT

COUNTRY : TUNISIA

APPRAISAL REPORT

Date: April 2009

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Currency Equivalents

April 2009

1 UA = TND 2.13031
1 UA = EUR 1.12344
1 UA = USD 1.49507

Fiscal Year

January - December

Weights and Measures

1 metric tonne	=	2204 pounds
1 kilogramme (kg)	=	2.204 pounds
1 metre (m)	=	3.28 feet
1 millimetre (mm)	=	0.03937 inch
1 kilometre (Km)	=	0.62 mile
1 hectare (ha)	=	2.471 acres
1 kilovolt (kV)	=	1,000 Volts
1 kilovolt-ampere (kVA)	=	1,000 VA
1 kilowatt (kW)	=	1,000 Watts
1Megawatt (MW)	=	1,000 kW
1 kilowatt hour (kWh)	=	1,000 Wh
1 megawatt hour (MWh)	=	1 000 kWh
1 gigawatt hour (GWh)	=	1,000 MWh

Acronyms and abbreviations

LT	=	Low Tension
BD	=	Bidding Documents
CSP	=	Country Strategy Paper
NDE	=	Non distributed Energy
LC	=	Local Currency
MT	=	Medium Tension
UAM	=	Units of Account, Million
TNDM	=	Tunisian Dinars, Million
STEG	=	Société Tunisienne d'Electricité et de Gaz (*Tunisian Electricity and Gas Company)*
ERR	=	Economic Rate of Return
FIRR	=	Financial Internal Rate of Return
TND	=	Tunisian Dinar
UA	=	Unit of Account
NPV	=	Net Present Value

Project Information Sheet

Customer Information Sheet

BORROWER: Société Tunisienne de l'Electricité et du Gaz, STEG (*Tunisian Electricity and Gas Company*)

EXECUTING AGENCY: Société Tunisienne de l'Electricité et du Gaz, STEG (*Tunisian Electricity and Gas Company*)

Financing Plan

Source	Amount	Instrument
ADB	UA 42.34 million	Project Loan
STEG	UA 10.07 million	Self-financing Government-managed works
TOTAL COST	**UA 52.41 million**	

Key ADB Financial Information

Loan currency	Euro
Type of loan	Variable interest loan (VIL)
Base Rate	Fixed
Contractual margin	40 basis points
Loan cost margin	As determined by ADB
Total interest rate	(Base rate + contractual margin + loan cost margin)
Commitment fee*	None
Other costs*	None
Maturity	20 years
Grace period	5 years (60 months)
FIRR, NPV (baseline scenario)	15%, TND 55.15M
ERR (baseline scenario)	19%, TND 77.68 M

**where applicable*

Duration – Main Stages (Projected)

Approval of Concept Note	2 April 2009
Project Approval	July 2009
Loan Effectiveness	October 2009
Last Disbursement	December 2013
Completion	November 2012
Last Repayment	September 2024

Project **Summary**

1. Project Overview

1.1 The Electricity Distribution Networks Rehabilitation and Restructuring Project is an energy-efficiency project aimed especially at improving service quality, preserving the environment, cutting costs and ensuring the safety of workers and third parties. It covers the whole country. The main activities of the project area are industry, tourism, handicrafts, trading and services. The overall project cost is estimated at TND 111.66 million (UA 52.41 million), net of taxes.

1.2 The main beneficiaries are: (i) Société Tunisienne de l'Electricité et du Gaz, STEG (Tunisian Electricity and Gas Company), thanks to which it will have a more reliable and safer electricity distribution network, increase the quantity of energy sold and its turnover, and improve the safety of workers and third parties; (ii) small and medium-scale industries, the tourism sector and resident subscribers who will benefit from better quality service, works and supply contracts.

2. Needs Assessment

2.1 The project is designed to match Tunisia's socio-economic development, marked by the growth and modernization of industries and services, and the population's enhanced living standards (Gross National Product rose from USD 2,090/inhabitant in 2000 to USD 3,200 in 2007), which has spurred increasing demand for electricity. The electricity consumption trend (5% annual increase) has led to the saturation of power distribution networks, sections of which are obsolete and require urgent upgrading. The technical option selected is network rehabilitation, modernization and upgrading. This option is the best since there is no single substitute option for the whole project. The project comprises nearly 660 sub-projects for which alternatives have been studied.

2.2 The investment envisaged is of interest to the government, its decentralized services, consumers, craftsmen and equipment suppliers. It is financially profitable. However, due to its decentralized nature, it can only be undertaken by the distribution network operator and not a private operator.

3. Added Value for the Bank and Knowledge Management

The project confirms the Bank's presence in the electricity sub-sector and enhances its actions in energy control and service quality improvement. After helping to significantly improve access through its first six operations, Bank assistance, centred on energy efficiency, has already produced concrete results with the Electricity VII[1] Project, of which this project is a continuation. Lessons from the Electricity VII Project were incorporated while designing this project, and will also be used to design other energy-efficiency electricity distribution projects that the Bank might initiate in other countries. Project implementation will enable STEG to put in practice the Bank's new procurement rules and procedures.

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[1] The two projects aim to reduce the duration of power cuts, technical losses, the number of accidents and non distributed energy. The Electricity VII project helped to reduce the duration of power cuts for MT customers from 258 mn /year in 2004 to 118 mn in 2007 and that of LT customers from 297 to 141 mn over the same period. Similarly, non distributed energy (UDP) fell from 7.55 to 6.32 GWh.

Results-Based Logical Framework

Hierarchy of objectives	Expected Outcomes	Scope	Indicators and Output	Indicative Targets and Schedules	Assumptions / Risks
Purpose: Improve energy efficiency and extend access to quality service to the whole population	Impact: - Energy savings - Electrification of virtually the whole country	Beneficiaries: Tunisian population and the country's economic sector.	Impact indicators: Energy intensity Access rate to electricity Source: STEG Reports	Expected Progress and Long-term Schedule[2]: - 0.36 tep/USD 1000 in 2008 to 0.26 tep by 2016 - Rate increased from 99.4% in 2006 to 99.6% in 2011, generalization of long-term access	
Project Goal: Increase the electrical distribution system output	Impact: - Service quality improves. - Service to the population improves - Environmental impact of electricity distribution is reduced.	Beneficiaries: Tunisian population Tunisian economic fabric. STEG	Impact indicators: - Duration of power cuts for MT and LT customers - Number of trippings per 100 km -Number of customers benefiting from network improvements - Non-distributed energy (NDE) - % electrical losses in energy supplied to the network - Quantity of CO_2 avoided at equal service rendered Source: STEG progress reports	Expected Progress and Medium term Schedule: - Duration of power cuts for medium tension (MT) customers: 118 mn /year in 2008 to 100 mn in 2011 - Duration of power cuts for LT customers: 141 mn/year in 2008 to 132 mn in 2011 DRR: from 6.7 in 2008 to 6.4 in 2011 DD: maintain at 2 - 30,000 customers yearly from 2010 to 2012 - NDE: 6.32 GWh in 2008 to 6.10 GWh in 2012 Losses from 12% in 2008 to 11.8 % in 2011, 10% as from 2012 - 7.3 t in 2009, 115 t in 2012 and 430 t in 2015	Risk: Volatile prices of energy sources, especially fossil fuels. Mitigative Measures: Ultimate diversification of electricity generation technologies, notably from renewable sources.
Inputs and Activities: Contracts award Network construction Works control and supervision Human Resources: Project Management Unit Project Cost and Source of Financing: Total cost: UA 52.42 M ADB: UA 42.34 M STEG: UA 10.07 M	Outputs: Rehabilitation and restructuring of MT/LT distribution facilities	Beneficiaries: STEG Local contractors Consultants	Output indicators: - Medium Tension (MT) underground lines; - MT overhead lines - Low Tension (LT) lines - MT/LT stations - MT/LT sub-station	Expected Progress and Short-term Schedule: - Construction of overhead lines: 887 km in MT and 743 km in LT - Laying of underground lines: 423 km in MT and 63 km in LT - Construction of transformer stations: 484 MT/LT stations and 3 sub-stations (MT/LT stations)	Risk: Delays in Project implementation due to the large number of contracts and late preparation and approval of contract award reports Mitigative measures: Actual availability of network equipment through advance procurement, the application of new procurement rules and the use of ex-post review of procurement documents.

[2] Precise long-term statistics are unavailable

Project Implementation Schedule

ACTIVITES	2009				2010				2011				2012			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Board presentation and approval			▼													
Sign. of loan and guarantee agreement			▼													
Effectiveness			▼													
Fulfilment of disbursement conditions				▼												
AWARD OF SUPPLY CONTRACTS																
Advance procurement action																
Bid invitation																
Bid analysis																
Contract Signature																
Normal Procurement																
Bid invitation																
Bid analysis																
Contract Signature																
DELIVERY OF SUPPLIES																
CONSTRUCTION PLANS																
WORKS																
END OF PROJECT																▼

BANK GROUP MANAGEMENT'S REPORT AND RECOMMENDATION TO THE BOARD OF DIRECTORS CONCERNING A PROPOSED LOAN TO THE SOCIETE TUNISIENNE DE L'ELECTRICITE ET DU GAZ (TUNISIAN ELECTRICITY AND GAS COMPANY) TO FINANCE THE ELECTRICITY DISTRIBUTION NETWORKS REHABILITATION AND RESTRUCTURING PROJECT

Management submits these reports and recommendation concerning a proposed loan of UA 42.34 million to the Société Tunisienne de l'Electricité et du Gaz (Tunisian Electricity and Gas Company) to finance the Electricity Distribution Networks Rehabilitation and Restructuring Project in Tunisia.

I. STRATEGIC THRUST AND JUSTIFICATION

1.1 Linking the Project with the Country Strategy and Objectives

1.1.1 Since the early nineties, Tunisia has witnessed sustained growth in power demand in the region of 5% per annum. This development stems from the growth of the productive sector, social development and new consumer demands following the improvement of household living standards, the country's opening to the exterior and enhanced infrastructure. In order to meet this demand, Tunisia has sought to diversify and secure its energy supply over the long-term, reduce its power bill and foster rational power utilisation. A suitable energy policy has been introduced with the following objectives: (i) development of national hydrocarbon resources; (ii) development of national infrastructure, regional cooperation and energy integration to guarantee the country's supply in a reliable and continuous manner and at least cost; (iii) pursuit of the natural gas utilization development strategy as a substitute for other hydrocarbons like liquefied petroleum gas and diesel; and (iv) promotion of energy efficiency by controlling rational energy use, development of new and renewable energy, and protection of the environment.

1.1.2 To achieve these objectives, a number of legislative and statutory sector liberalization measures were introduced, notably in hydrocarbons exploration and production, electricity generation and energy control. The forthcoming reforms envisaged in the electricity sub-sector will be aimed at harmonizing the legislative and regulatory frameworks to create an electricity market between Algeria, Morocco, Tunisia and the European Union.

1.1.3 The Bank's strategy in Tunisia is closely linked to the thrusts of the Eleventh Plan which is the framework of cooperation between Tunisia and its development partners from 2007-2011. The energy sector objectives of the Plan, which stems from the previous one and is in line with the country's energy policy, are: to diversify and protect supplies, reduce the energy bill and promote the rational use of energy.

1.1.4 The Electricity Distribution Networks Rehabilitation and Restructuring Project is an energy efficiency project which will help the country achieve its objectives given that, at equal service rendered, it will make cuts on fuel spending possible by reducing losses in the distribution system. It is in line with the priorities of Tunisia's Country Strategy Paper (CSP) (2007-2011) since it docks into the second intervention pillar involving support for activities designed to modernize infrastructure and strengthen the productive sector. It responds to the pillar's objectives by improving the quality of infrastructure while reducing the related costs.

1.2 Justification of Bank Operation

1.2.1 The Bank is one of Tunisia's key energy sector partners. Since its first operation in 1975, it has financed seven projects. The Bank's total net commitment in the sector amounts to UA 211 million, including UA 3.75 million for the Borma Gas Pipeline Reinforcement Project, financed in 1975, and 207.32 million to finance 5 rural electrification projects respectively in 1979, 1981, 1983, 1993 and 1999, one urban electrification project financed in 1984 and one energy efficiency project (Electricity VII) in 2003.

1.2.2 The Bank's support to efforts in the electricity sector in Tunisia has contributed to the quasi-total electrification of Tunisia. The country has today embarked on an electrical infrastructure modernization and diversification programme geared towards: (i) promoting more efficient and sustainable energy use, and (ii) improving service quality. In keeping with the 2007-2011 CSP, the Bank's intervention will help to support this effort, thus contributing to enhancing the competitiveness of the Tunisian economy and fostering investment growth, especially in the industrial sectors.

1.2.3 Furthermore, the project adheres to the Clean Energy Investment Framework (CEIF). It seeks to reduce energy intensity through loss reduction - one of the most efficient measures for managing and adapting to climate change (Pillar III of CEIF).

1.3 Aid Coordination

Although several donors operate in the energy sector, there is no formal group/sub-group coordination. The country's approach consists in specializing donors by sub-sector, segment of activity or project, which has the advantage of making the medium- and long-term impact of the actions undertaken by different technical and financial partners more visible. However, it offers little opportunity for co-financing. That notwithstanding and with specific regard to this project, the mission held discussions with the European Investment Bank which also finances energy projects under the Eleventh Plan. Generally, the Bank is on the lookout for co-financing opportunities via the diversification of its operation in the sub-sector that would involve financing of electricity generation and transmission projects.

II. PROJECT DESCRIPTION

2.1 Project Components

Table 2.1
Project Components

#	Name of Component	Estimated Cost (UA million)	Description of Components
1	Distribution network construction	46.17	▪ Construction of overhead lines: 887 km in MT and 743 km in LT ▪ Laying of underground lines: 423 km in MT and 63 km in LT ▪ Construction of transformer stations: 484 MT/LT stations and 3 sub-stations (MT/LT station)
2	Strengthening of STEG's technical resources	3.47	▪ Specialized maintenance and operating plants ▪ Emergency equipment: standby generators and mobile cabins ▪ Measuring tools
3	Project management	2.77	▪ Construction plans ▪ Works inspection and supervision ▪ Environmental monitoring

2.2 Technical Options Selected and Alternatives Considered

2.2.1 Tunisia's economic development and improvement of the people's standard of living have led to a significant growth of electric power consumption (5% per annum) and the saturation of the distribution network. Furthermore, certain plants and installations are today under-sized and no longer appropriate to carry the current network load. This concerns particularly LT underground and overhead lines and the electrical equipment of MT/LT distribution stations. These installations are the cause of electrical overload, technical losses and high voltage drops, sometimes higher than 20%, which is clearly above the accepted levels stipulated in STEG's contract specifications (7% for the MT network and 10% for LT). Furthermore, in certain places, houses have been built under the overhead lines without keeping to the statutory distance, thereby posing a threat to the safety of persons and property.

2.2.2 The project is designed to cope with the socio-economic trends in Tunisia, marked by the growth and modernization of industry and services, and the improvement of the people's living standards (gross per capita income rose from USD 2090 in 2000 to USD3200 in 2007) which has spurred a significant increase in electricity consumption. The technical option selected is network rehabilitation, modernization and upgrading through: replacing old equipment operating beyond capacity, installing equipment that is more efficient and upgrading the network to increase supply safety. Special attention has been given to environmental aspects by burying electric lines in sensitive zones (tourism sites, heritage areas and densely populated areas).

2.2.3 There is no single substitute option for the whole project, which is made up of several sub projects. However, alternatives were studied for each sub-project while considering options for line routes and construction of new MT/LT transformer stations.

2.3 Project Type

2.3.1 The Electricity Distribution Network Rehabilitation and Restructuring Project is an investment project dealing with the construction and rehabilitation of power lines and stations with a view to upgrading MT and LT networks to meet Tunisia's economic exigencies and satisfy STEG's customers. It comprises many sub-projects (about 660) which will be implemented by the company's decentralized operating units. The proposed funding instrument is a project loan granted to STEG by ADB and guaranteed by the Tunisian State. The government preferred this option, which was stated in its funding request submitted to the Bank. STEG has sufficient capacity to generate funds to pay back the loan. It has always honoured its commitments to the Bank.

2.3.2 The investment is of interest to the government, its decentralized services, consumers, craftsmen and businesses. It is financially profitable. Yet, due to its decentralized nature, it can only be implemented by the distribution network operator and not a private operator.

2.4 Project Cost and Financing Arrangements

2.4.1 The total project cost is estimated at TND 111.66 million (UA 52.42 million) net of tax, including provisions for implementation contingencies and price escalation (10% and 3% of the basic cost, respectively). It was determined using the updated unit prices of materials and equipment quoted in the bids invited by STEG, plus construction costs (about 20% of the cost of supplies). Tables 2.3 and 2.4 below give the breakdown of project costs by component and expenditure category.

Table 2.3
Estimated Cost by Component

Components	TND Million			UA Million			% in FE
	FE	LC	Total	FE	LC	Total	
Construction of distribution network	40.83	45.79	86.62	19.16	21.49	40.65	47.13
Strengthening of technical resources	6.69	0.00	6.69	3.14	0.00	3.14	100.00
Project management	0.00	5.40	5.40	0.00	2.53	2.53	0.00
Total basic cost	**47.52**	**51.19**	**98.71**	**22.30**	**24.02**	**46.32**	**48.14**
Provision for implementation contingencies	4.90	5.11	10.01	2.30	2.40	4.70	48.92
Provision for price escalation	1.01	1.93	2.95	0.48	0.91	1.39	34.42
Total project cost	**53.43**	**58.23**	**111.66**	**25.08**	**27.33**	**52.41**	**47.85**

Note: Exchange rates used are stated in the introduction to this report (page (i)

Table 2.4:
Project Cost by Expenditure Category

Categories	TND Million			UA Million			% in FE
	FE	LC	Total	FE	LC	Total	
Property	47.52	32.29	79.81	22.30	15.16	37.46	59.53
Works	0.00	13.50	13.50	0.00	6.34	6.34	0.00
Services	0.00	5.40	5.40	0.00	2.52	2.52	0.00
Total basic cost	**47.52**	**51.19**	**98.71**	**22.30**	**24.02**	**46.32**	**48.14**
Provision for implementation contingencies	4.90	5.11	10.01	2.30	2.40	4.70	48.94
Provision for price escalation	1.01	1.93	2.94	0.48	0.91	1.39	34.53
Total project cost	**53.43**	**58.23**	**111.66**	**25.08**	**27.33**	**52.41**	**47.85**

2.4.2 The project will be financed by STEG and the Bank to the tune of 19.22% and 80.78% of the total cost net of taxes, in that order. The Bank will grant a State-guaranteed loan of EUR 47.57 million (equivalent to UA 42.34 million) to finance the project's entire foreign exchange cost and 63.11 % of local currency cost.

Table 2.5
Sources of Financing

Sources	TND Million			UA Million			% of total
	FE	LC	Total	FE	LC	Total	
ADB	53.43	36.78	90.20	25.08	17.26	42.34	80.78
STEG	0.00	21.46	21.46	0.00	10.07	10.07	19.22
Total	53.43	58.23	111.66	25.08	27.34	52.41	100.00

2.4.3 Project expenditure will be spread from 2009-2012 based on the estimated yearly distribution given in Table 2.6 below:

Table 2.6
Expenditure Schedule by Component

Components	UA Million				
	2009	2010	2011	2012	Total
Construction of distribution network	14.43	14.88	14.88	1.98	46.17
Strengthening of technical resources	0.00	1.04	2.43	0.00	3.47
Project implementation	0.56	0.88	0.88	0.45	2.77
Total project cost	14.99	16.80	18.19	2.43	52.41

1.4

2.5 Project Area and Beneficiaries

The project concerns all regions of the country. The relevant installations are located in all the country's Governorates distributed in STEG's 7 Regions and 38 Districts. The main economic activities of the project area are industry, tourism, handicrafts, trading and services. The main project beneficiaries are: (i) STEG, which will have a more reliable and safer electricity distribution system in areas of high customer and demand density, resulting in cuts in maintenance and operating costs, increasing the quantity of energy sold (hence its turnover) and improving worker and third-party safety; (ii) STEG's customers, particularly small and medium-scale industries, the tourism sector and resident subscribers who will benefit from improved service quality; (iii) contractors (including several national small and medium-scale enterprises) that will win contracts for supplies and works.

2.6 Participatory Approach in Project Identification, Design and Implementation

2.6.1 This project was designed based on the thrusts of Tunisia's Eleventh Development Plan and prepared with participatory input. Different sub-projects that constitute the Plan were prepared by the districts based on studies of the electricity supply master plans of the country's main cities as well as electricity distribution network rehabilitation studies. These sub-projects came as a response to demands for better service made by STEG customers and local authorities.

2.6.2 Local residents, NGOs in the districts concerned, local authorities and the relevant institutions will be consulted during all the phases of the project. Consultation and information of the people will be done through the public media. During works in specific sectors, the population will be informed and warned of the risk of works-related accidents through appropriately displayed signboards.

2.6.3 One of the set objectives is to ensure that the project/sub-projects adhere to Government legislation and Bank policy on environmental and social issues. The Environmental and Social Management Plan (ESMP) describes mitigative, improvement, monitoring and consultation measures necessary for preventing, minimizing, limiting or offsetting negative environmental and social impacts or for enhancing the positive impacts of the project.

2.7 Consideration of Bank Group's Experience and Lessons Drawn from Project Design

2.7.1 The Bank is one of Tunisia's key energy sector partners. The first six projects financed by the Bank in the electricity sub-sector, devoted to access development, contributed to raising the electrification rate to over 99%. Through their implementation, STEG acquired a sound mastery of Bank rules and procedures. Yet, despite this mastery, the change of objectives as from the seventh operation (energy efficiency project), engendered implementation difficulties linked mainly to the goods and works procurement method. It turned out that the procurement and disbursement methods ill suited the many sub-projects of the seventh electricity project now nearing completion.

2.7.2 Lessons from the Electricity VI Project were taken on board during the design of this project, especially: (i) financing by expenditure category, since the Bank finances the purchase of grouped supplies while STEG caters for works using its own procurement procedures, better adapted to the many small-sum contracts; (ii) the use of *a posteriori* reviews for contracts not exceeding UA 2.35 million, given the sound mastery of Bank procedures; (iii) the grouping of equipment by 'family' in order to reduce the number of bids; and (iv) the creation of a special account for the payment of national and foreign suppliers in the case of supply contracts below UA 20,000. All these measures should culminate in the reduction of Bank and STEG contract award deadlines and smooth project implementation.

2.8 Key Performance Indicators

The key project performance indicators are: reduction of outage time and electricity loss; quantity of power saved; and number of customers enjoying better service quality. Data on outage time and energy will be input automatically through counting and measurement systems installed in pilot stations and centres. For the society overall, project performance will be measured by comparing operating data from one year to another. The performance of sub-projects in terms of tension reduction, interruptions, power drop and loss will be measured via readings taken before and after works which will be conducted by the districts.

III. PROJECT FEASIBILITY

3.1 Economic and Financial Performance

Table 3.1:
Key Economic and Financial Data

ERR, NPV (baseline scenario)	15%, TND 55.15M
ERR, NPEV (baseline scenario)	19%, TND 86.57M

NB: detailed calculations are given in Annex B6

Financial Performance

3.1.1 The project's financial analysis was conducted based on the cost/benefits linked to the implementation of STEG's MT/LT distribution networks restructuring and rehabilitation programme. As main financial benefit, the rehabilitation of STEG's network will help reduce the quantity of non-distributed energy and the loss rate, leading to real savings in production costs and improvement of electricity sales. Lastly, investments on operating equipment and network modernization will reduce the cost of maintaining the electricity network.

3.1.2 The financial internal rate of return (FIRR) is the selected indicator for appraising the project's financial performance. To calculate the FIRR, the two main project benefits were taken into account, namely, reduction of non distributed energy (resulting in increased sales) and reduction of loss rates (helping to secure real cost savings).

3.1.3 Considering the total cost of investments at current prices at TND 131.75 M, including taxes, savings made on non-distributed energy, and assuming a 10% real discount rate, the net present value (NPV) stands at TND 55.15 M. The FIRR, for its part, stands at 15% for the period 2009-2028. It should be noted that as the reduction of non-distributed energy and rate of technical losses is not attributable to the project alone, given that such reduction is part of STEG's overall network modernization and energy efficiency efforts, an allocation factor of 64% was applied to the project's financial benefits. That factor corresponds to the project amount in relation to the total amount of rehabilitation investments budgeted under the Twelfth Plan (TND 112 M out of TND 175 M). An analysis of STEG's balance sheets and projections was also conducted (see Annex B7).

3.1.4 These results show that the project is financially viable. The project will help to control the network operating costs, thus improving STEG's financial performances. To consolidate the company's financial situation and in view of other major investments programmed concurrently to improve the quality of electricity supplies and improve generation and transmission capacities, the company will ensure that a minimum financial ratio of 1.25 is maintained to cover debt servicing and 25% for self-financing.

Economic Performance

3.1.5 The economic performance indicator selected for the project is the economic rate of return (ERR), calculated using the cost/benefit method. Economic cost was calculated based on the cost of investments, net of taxes, which stood at TND 111.66 M and a wage coefficient of 0.75 applied to services and works, and 50% for operating costs.

3.1.6 In addition to the financial benefits, the economic benefits concern the: (i) reduction of the risk of accidents among the population via the replacement of overhead lines with underground ones and network safety improvement, (ii) reduction of outage time, thus providing better quality service to households and industries, for the latter considerably reducing the risk of production loss linked to power outages, (iii) increase in network capacity, supporting higher load and thus reducing the risk of voltage drop and breakdown. Thus, the project will create a number of direct and indirect jobs. Works generated by the project will benefit local small businesses. Furthermore, the project will contribute to beautifying and improving touristic sites by replacing overhead lines with underground ones and by introducing an environmentally friendly network architecture that respects cultural and town planning specificities.

3.1.7 Based on the foregoing, the ERR was estimated at 19% over a 20-year period, with an economic NPV of TND 86.57 M. Calculation details are presented in Annex B.6. This performance shows the project to be economically viable. As with the financial analysis, an allocation factor of 64% was applied to the project economic benefits.

3.2 Environmental and Social Impact

3.2.1 Pursuant to Bank environmental guidelines, this project is classified under Category 2. It is an energy efficiency project aimed at improving electricity service safety. It involves the rehabilitation and upgrading of electrical lines/stations and reconfiguring distribution systems to reduce the level of loss and outage time, while improving the safety of persons and property. It will not lead to expropriations or displacement of the population. The project's Environmental and Social Management Plan (ESMP) has been prepared, summary of which will be published on the Bank's website.

3.2.2 The project comprises a range of sub-projects of limited scope with no significant impact needing major corrective measures. The negative impact is limited to: traffic disruptions during works; aesthetics problems due to overhead lines; and some damage to farms. Traffic disruptions in urban areas could lead to losses for traders situated along trenches, but regulations do not provide for compensation linked to these easement works. Damage – limited to the period of cable connection and likely to lead to revenue losses – could be caused to crops during line construction. The extent of this damage cannot be known in advance. As STEG's practice consists in assessing its damage at the end of works and systematically compensating farmers who suffered revenue losses, it must therefore undertake to actually compensate farmers affected by the project. Environmental and social monitoring will be performed by the department in charge of the environment which will prepare an environmental and social monitoring report and incorporate it in the project's periodic progress reports.

3.3 Climate Change

The project is part of energy control measures aimed at reducing the national energy intensity. Its design takes climate change into consideration. Lines to be built are designed in a way that reduces electricity loss on the distribution network. At equal service rendered, it will reduce ecological (lower fossil fuel consumption), economic (reduction of production loss and damage caused by electricity) and social (reduction of cases of electric shock) costs linked to power generation and consumption, while helping to improve the people's living standard.

3.4 Gender

Access to electricity is generalized in the project zone and women's specific electricity needs are met. Even so, the project will help to improve and protect the running of social services and small business owned by women. Thanks to improved supply, economic activities will develop and service supply in the tourism and textiles sectors which employ many women will increase. This aspect is important, given the ratio of the unemployed compared to the country's active population (28% for women against 13% for men).

3.5 Social

3.5.1 Direct benefits will accrue to subscribers through fewer power failures and reduced outage time, following the improvement in the power supply quality. Expenditure linked to damages to household appliances will be reduced and conditions of food conservation improved. Social services will work better. In health for instance, vaccines and perishables will be better preserved and the running of hospital theatres secured.

Reliable electricity supply enhances economic competitiveness, which could bring about additional investments. The new investments will create fresh income-generating job opportunities for the disadvantaged social classes, particularly women.

3.5.2 Consumers, especially households, will not pay higher electricity charges due to the project because tariffs will not be raised to defray investment costs.

3.6 Forced Resettlement

The project will not lead to expropriations and population displacement. The existing cable routes will be used. It will also be possible to divert such routes. Therefore, there will be no forced population relocation. However, the project will affect some farmers whose plantations will be crossed by lines and traders established along the trenches of underground cables in urban areas. Farmers could suffer limited loss of revenue during construction of lines across their farms. Traders could also suffer losses stemming from the difficult access to their shops due to temporarily digging of trenches. A list of persons adversely affected by the project will be drawn up within the framework of the Environmental and Social Management Plan.

IV IMPLEMENTATION

4.1 Implementation Arrangements

4.1.1 The technical and financial management of the project will be conducted by existing structures within STEG, which have proven their mettle during previous Bank-financed electricity projects. Project activities will be coordinated by the Distribution Directorate from which the project manager will be appointed. This Directorate will work in close collaboration with other directorates and departments. At the central level, the Finance and Accounts Directorate will be tasked with the financial management of the loan; the Supplies Department will be charged with the procurement of goods; the Programmes and Budget Department will be in charge of works procurement; and the Environment Department will cater for the environmental and social aspects of the project. At the decentralized level, Regional Directorates and Districts will be responsible for construction plans, works control and oversight, in addition to monitoring the environmental and social-related issues. A coordinator will be appointed in each region.

4.1.2 The Distribution Directorate will prepare half-yearly progress reports, which will be forwarded to the Bank. For its part, the Environment Department will prepare environmental and social monitoring reports, which will be incorporated in the periodic progress reports.

4.1.3 The logical framework will be used as basis for monitoring the project. Monitoring indicators will be prepared from data collected by the districts and consolidated at the regional level by the regions and at national level by the Technical Distribution Directorate. Except for data on engineering structures and the number of customers, all basic project monitoring data will be automatically generated by the network computers and counting system. This information will be noted by the districts and reprocessed in periodic operation reports.

4.1.4 The Bank will monitor project implementation through regular missions. After the start-up mission, two supervision missions are planned per year as indicated in the table

below. Towards the end of the implementation phase and after the commissioning of all installations, STEG and the Bank will jointly prepare the project completion report.

Procurement

4.1.5 Bank financing will be used for the procurement of network construction materials and logistic equipment. All goods will be procured in line with Bank rules and procedures for the procurement of goods and works, using standard bidding documents. The Bank has authorized recourse to advance procurement action for goods assessed at UA 13.59 million (EUR 15.27 million).

4.1.6 Procurement method: Procurement of logistic equipment (specific machinery, standby generators, mobile cabins, etc.) will be through international competitive bidding. Construction materials for lines and stations will also be procured through international competitive bidding, except for MT line supports, armaments, ground rods and a part of Almelec conductors (Almélec 2) to be procured through local competitive bidding.

4.1.7 Review procedure: Except for contracts covered by advance procurement action for goods authorized by the Bank, the Borrower is allowed to award contracts without the Bank's prior notice of non-objection for procurements below UA 2.35 million (EUR 2.64 million).

4.1.8 Domestic preference: A domestic preference margin is given to national bidders during international competitive bidding. This margin is 15% for finished products and related services.

Disbursement:

4.1.9 Disbursement will comply with the relevant Bank procedures. The Finance and Accounts Directorate's Financing Division is familiar with the Bank's disbursement rules. The different disbursement methods specified in the disbursement manual may be used. The Special Account method will be used for payments related to local supplier contracts regardless of their amount and foreign supplier contracts below UA 20,000. The opening of this account is a loan condition.

4.2 Monitoring of Project Activities

Period	Stage	Monitoring Activities/Feedback Loop
July 2009	General information on procurements	Publication of information note in UN Development Business (Bank)
September 2009	Signing of Loan and Guarantee Agreement	Letter of invitation to Borrower and Guarantor (Bank)
2009 - 2010	Award of procurement contracts for materials and equipment	Approval of BD and bid assessment reports (Bank) Launch of BD and bid assessment (STEG) Signing of contracts (STEG)
2009-2011	Supply of electrical materials and plant	Acceptance of materials and plant (STEG)
2009-2011	Construction plans	Conduct of studies (STEG)
2009-2012	Construction works for lines and stations	Implementation of works (Contractors) Works control and supervision (STEG) Project supervision (Bank)
October 2012	Project completion	Preparation of completion report by Borrower and Bank
December 2012	Project completion report	Project completion report preparation mission (Bank)

4.3 Governance

4.3.1 The Bank's experience with STEG has shown that the governance practices and audit systems in place are satisfactory. In fact, during previous Bank-funded projects in the energy sector, no complaint was received from bidders at the end of the procurement process. For each of the Bank-funded projects, all the procurement and contract management procedures enforced by the Bank were generally respected, aside a few rare cases. For instance, of the 54 bids assessment reports submitted to the Bank during procurement of supplies for the Electricity VII Project, only one was rejected.

4.3.2 The Bank's supervision and audit reports revealed no particular irregularity. The audit system put in place by Tunisia (National Directorate of Public Procurement, Internal Audit, External Audit, State Controller) also revealed no glaring case of contract irregularity. For this project, the control and audit system normally used by the Bank will remain proactive throughout the duration of the project. This concerns procurement procedures, review of procurement files, supervision missions, disbursement procedures and external audit of project accounts. Besides, a project accounts audit report will be submitted to the Bank, pursuant to the general terms applicable to loan agreements and guarantee agreements.

4.4 Sustainability

4.4.1 The country's commitment to the project is reflected at several levels, namely: (i) at national level through the inclusion of project-related investments in the Eleventh Development Plan. The success of previous development plans demonstrates government's capacity and commitment to their implementation. An electricity sector review is planned during the mid-term review of the Eleventh Plan and will help ensure that investments are realized and corrective measures applied, where necessary; (ii) at contractor level through the STEG/State contract programme in which the strategic thrusts and objectives related to power transmission and distribution fit in with the project objectives. Furthermore, the provision of the counterpart contribution by STEG shows its commitment to the project; and (iii) at STEG's decentralized level, with contracts signed between STEG Management and its 38 districts. The latter will be subject to a programme contract under which they will be assigned service quality, safety and cost control objectives. The programme contract will spur them to implement the sub-projects under their care within the stipulated time frames, with a view to attaining their specific goals.

4.4.2 The Project's sustainability depends mainly on STEG's capacity to ensure the upkeep and maintenance of plants and installations set up by the project. STEG has enough qualified technical staff in all Regions and Districts, who run and maintain the MT and LT distribution networks. Adequate resources are earmarked in its annual budgets to cover its operating and networks maintenance expenses. The existence of operating rules and directives as well as plant renewal procedures will ensure the sustainability of investments and control the related recurrent expenditure.

4.5 Risk Management

4.5.1 Two main project risks were identified: (i) volatile fossil fuel prices; and (ii) delay in project implementation linked mainly to the large number of contracts and deadlines for preparing and approving contract award reports.

4.5.2 Ultimately, the diversification of electrical power generation technologies, including renewable sources, might make it possible to mitigate this risk. For its part, the risk of time overrun will be mitigated through better procurement programming, recourse to APA procedure, and enforcement of the new procurement rules which favours reduced timeframes and the use of ex-post reviews for some tenders.

4.6 Knowledge Development

4.6.1 Lessons from the Electricity VII Project were used to design this project and strengthened STEG's knowledge of Bank rules and procedures. They will also be tapped in designing energy efficiency electricity distribution projects that the Bank may initiate in other countries, along with the mono-phased distribution technique deployed by STEG with Bank support to develop access to electricity. Today, many countries already plan to use that technique as part of their rural electrification programmes.

4.6.2 STEG has centres where it trains its staff on the electrical materials and plants it routinely uses. Training needs on the use of specially fitted materials and plants (especially static metres, special working and maintenance vehicles) are incorporated in bidding documents and the training is given ex-works or on site, as the case may be.

V. EGAL FRAMEWORK

5.1 Legal Instrument

The funding instrument selected is a State-guaranteed loan awarded to the Société Tunisienne de l'Electricité et du Gaz (*Tunisian Electricity and Gas Company*), the Borrower.

5.2 Conditions linked to Bank Operation

5.2.1 Conditions Precedent to Loan Effectiveness: Effectiveness of the loan agreement is subject to its signature by the Bank and the Borrower.

5.2.2 Commitments: The Borrower must undertake to:

i) Continue to maintain a debt servicing ratio of at least 1.25 (one point two five) and an self-financing investment ratio of at least 25% (twenty five percent) throughout the loan duration (paragraph 3.1.4) ;

ii) Compensate on a timely basis any loss of agricultural revenue due to the construction of project lines (paragraph 3.2.2).

Conditions Precedent to First Loan Disbursement: Apart from loan effectiveness, disbursement shall be subject to the Borrower fulfilling to the Bank's satisfaction the conditions set out in Section 12.02 paragraph (a) contingencies (i) and (ii) of the General Conditions and the following special condition:

Show the Bank evidence of opening a special account for the project, into which loan resources will be paid (paragraph 4.1.9).

Other Condition: In addition, the Borrower shall provide the Bank with evidence showing that all persons having suffered loss of agricultural revenue due to the project actually received compensation (paragraph 3.2.2).

5.3 Compliance with Bank policy

This project complies with all applicable Bank policies.

VI. RECOMMENDATION

The Directorate recommends that the Board of Directors approve the proposed State-guaranteed loan of EUR 47.57 million (UA 42.34 million) to the Société Tunisienne de l'Electricité et du Gaz, (Tunisian Electricity and Gas Company) for the purpose and under the terms stated in this report.

Annex I.

Comparative Socio-economic Indicators

Tunisia - Development Indicators			
Social Indicators	**Tunisia**		**Africa**
	1990	**2008 ***	
Area ('000 Km²)	164		30,323
Total Population (millions)	8.2	10.4	985.7
Population growth (annual %)	2.1	1.1	2.3
Life expectancy at birth, total (years)	69	74	55
Mortality rate, infant (per 1,000 live births)	40.1	19.3	83.9
Physicians per 100,000 People	53.8	99.7	39.6
Births attended by skilled health staff (% of total)	80.0	89.7	51.2
Immunization, measles (% of children ages 12-23 months)	88.0	98.0	83.1
School enrollment, primary (% gross)	99.7	97.3	99.6
Ratio of girls to boys in primary education (%)	90	100	92
Illiteracy rate, adult total (% of people ages 15 and above)	...	22.3	33.2
Access to Safe Water (% of Population)	82.0	94.0	64.3
Access to Sanitation (% of Population)	74.0	85.0	37.6
Human Develop. (HDI) Rank (Over 179 Countries)	...	95	...
Human Poverty Index (% of Population)	...	16.1	38.7
		Tunisia	
Economy	**2000**	**2007**	**2008**
GNI per capita, Atlas method (current US$)	2,090	3,200	...
GDP (current Million US$)	19,444	35,485	42,457
GDP growth (annual %)	4.7	6.3	5.1
Per capita GDP growth (annual %)	3.5	5.2	4.0
Gross Domestic Investment (% of GDP)	27.3	25.6	26.8
Inflation (annual %)	3.0	3.1	5.0
Budget surplus/deficit (% of GDP)	-2.4	-2.8	-3.0
Trade, External Debt & Financial Flows	**2000**	**2007**	**2008**
Export Growth, volume (%)	7.3	20.5	17.0
Import Growth, volume (%)	6.5	10.9	11.1
Terms of Trade (% change from previous year)	-2.2	-6.0	-4.8
Trade Balance (mn US$)	-2,253	-2,870	-3,552
Trade balance (% of GDP)	-11.6	-8.1	-8.4
Current Account (mn US$)	-821	-915	-1,764
Current Account (% of GDP)	-4.2	-2.6	-4.2
Debt Service (% of Exports)	22.6	13.0	10.0
External Debt (% of GDP)	58.5	56.8	49.6
Net Total Inflows (mn US$)	660.1	1,485.7	...
Net Total Official Development Assistance (mn US$)	222.3	310.1	...
Foreign Direct Investment Inflows (mn US$)	778.8	1,617.9	...
External reserves (in month of imports of goods & services)	2.3	4.6	4.1
Private Sector Development & Infrastructure	**2000**	**2006**	**2007**
Time required to start a business (days)	...	11	11
Investor Protection Index (0-10)	...	3.3	3
Main Telephone Lines (per 1000 people)	100	124	123
Mobile Cellular Subscribers (per 1000 people)	12	718	759
Internet users (000)	260.0	1,294.9	1,722.2
Roads, paved (% of total roads)	68.4	...	...
Railways, goods transported (million ton-km)	2,282	...	...

Source: ADB Statistics Department, based on various national and international sources

Annex II

Table of ADB Portfolio in the Country

List of Ongoing Projects (Loans and Grants) by Sector:

TUNISIA: ONGOING PORTFOLIO

(Amount in UA million as at 17 April 2009)

PROJECTS	GROSS LOANS ADB	CANCELLATIONS ADB	NET LOANS ADB	DISBURSEMENT ADB	% DISBURSEMENT ADB	APPROV.	SIGNAT.	EFFECTIVE.	CLOSING	REMARKS
I - AGRICULTURE										
Kairouan Integrated Development Programme	14.71	0.00	14.71	3.78	24.74%	29/06/06	13/09/06	09/03/07	21/12/13	Ongoing
Gables Integrated Development Programme	11.53	0.00	11.53	11.09	96.18%	08/11/2000	28/02/01	13/06/01	31/12/07	Ongoing
PISEAU II	19.22	0.00	19.22	0.00	0.00%		---	---	--	Not yet signed
S/Total I (4 projects)	**45.46**	**0.00**	**45.46**	**14.87**	**32.71%**					
II - TRANSPORT										
Development of the Classified Road Network IV	138.09	0.00	138.09	73.23	53.03%	24/11/04	22/03/06	20/09/2006-	31/12:09-	Ongoing
Railway Modernization II	61.61	0.00	61.61	31.22	50.68%	03/12/03	04/05/04	13/10/2004	31/12/08	Ongoing
Road Programme V	149.94	0.00	149.94	0.00	0.00%	11/06/08	22/10/08	---	31/12/13	Not effective
Enfidha Airport (OPSM)	58.50	0.00		32.40	55.38%					
S/Total III (3 projects)	**406.14**	**0.00**	**406.14**	**136.85**	**33.70%**					
IV - PUBLIC UTILITIES										
Electricity Distribution Network Rehabilitation (Electricity VII)	64.09	0.00	64.09	48.40	75.53%	7/12/2003	20/09/04	21/02/05	31/12/08	Ongoing
S/Total IV (2 projects)	**157.09**	**0.00**	**157.09**	**48.40**	**30.81%**					
VI - SOCIAL										
Secondary Education Support Project PAESII	49.43	0.00	49.43	25.71	52.02%	28/09/05	23/11/05	16/05/06	310112/	Ongoing
S/Total VI (1 project)	**49.43**	**0.00**	**49.43**	**25.71**	**52.02%**					
VII – ECONOMIC REFORMS										
PAI	156.97	0.00	156.97	0.00	0.00	17/04/09				Not yet signed
S/Total VII (1 project)	**156.97**	**0.00**	**156.97**	**0.00**	**0.00**					
OVERALL TOTAL (11 projects)	**815.09**	**0.00**	**815.09**	**225.83**	**27.70%**					

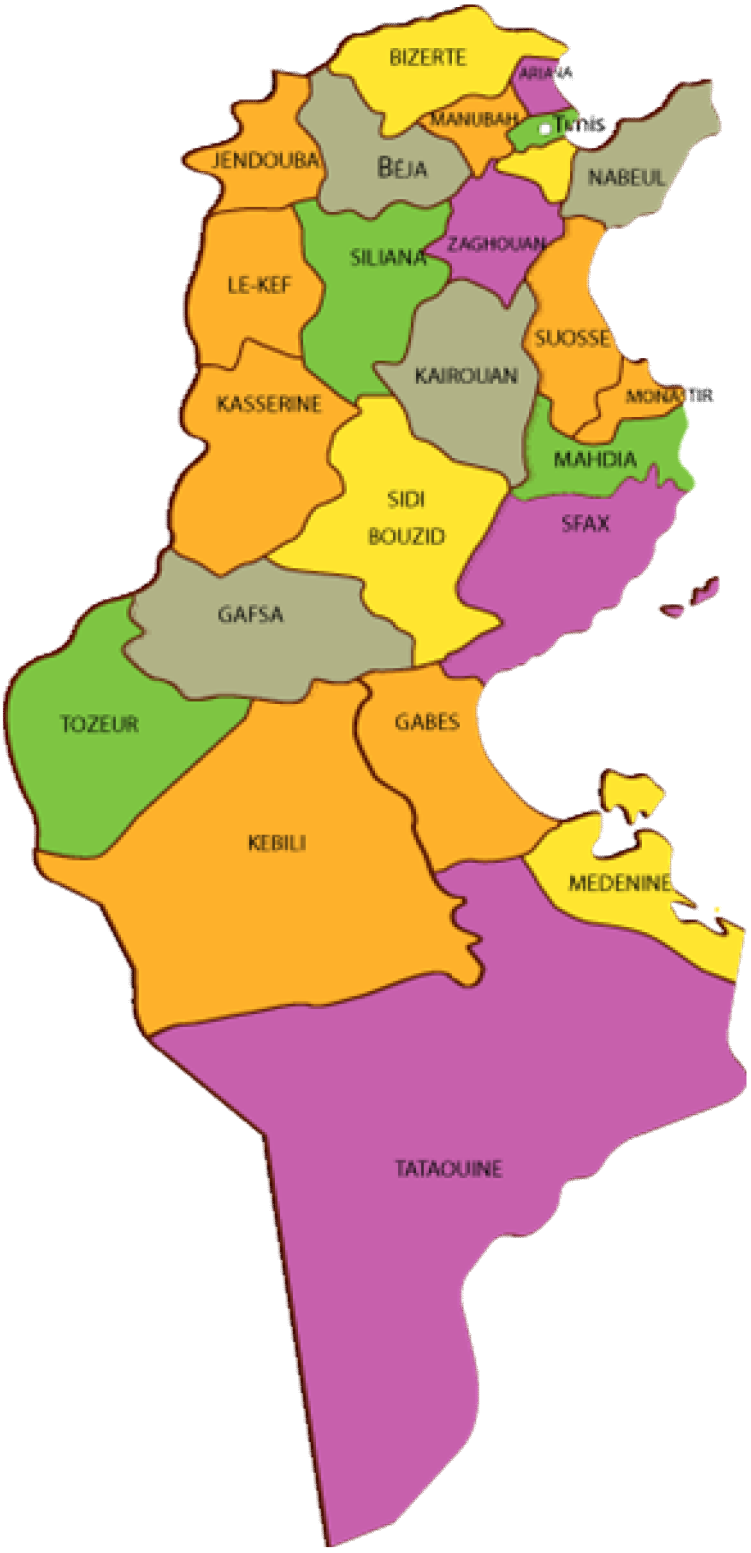
Annex III

Major Related Projects Funded by the Bank and Other Development Partners in the Country

Project	Financing (millions)	Foreign exchange	Donors
Thyna Gas Turbine	123	EUR	IDB
Ghannouch Combined Cycle Power Plant	114	EUR	EIB
Gharnnouch Suppl.	86	EUR	EIB
Gharnnouch Suppl.	15	DK	AFESD
Bizerte Combined Cycle Power Plant	199.0687	EUR	ICO

Annex IV

Map of the Project Area



This map has been provided by the staff of the African Development Bank exclusively for the use of the readers of the report to which it is attached. The names used and the borders shown do not imply on the part of the Bank Group and its members any judgment concerning the legal status of a territory nor any approval or acceptance of these borders.