

**PROJECT INFORMATION DOCUMENT (PID)  
APPRAISAL STAGE**

Report No.:AB7479

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<b>Project Name</b>	Banda Gas-to-Power
<b>Region</b>	Africa
<b>Country</b>	Senegal
<b>Sector</b>	Energy and Mining
<b>Lending Instrument</b>	Partial Risk Guarantee
<b>Project ID</b>	P145657
<b>Parent Project ID</b>	N/A
<b>Borrower(s)</b>	Republic of Senegal
<b>Guarantor</b>	IDA/MIGA
<b>Project Sponsor</b>	Banda Gas Joint Venture Partners, SPEG and SOMELEC
<b>Beneficiaries of the PRG</b>	Banda Gas Joint Venture Partners and SOMELEC
<b>Environmental Screening Category</b>	{X}A { }B { }C { }FI
<b>Date PID Prepared</b>	April 22, 2014
<b>Estimated Date of Appraisal Completion</b>	
<b>Estimated Date of Board Approval</b>	May 22, 2014
<b>Decision</b>	

**I. Country Context**

1. While Senegal and Mali have respective population of 13.7 million and 14.8 million, Mauritania is less populated with 3.8 million people only. In terms of GDP per capita, Mauritania and Senegal are close first with US\$1,106 and US\$1,032 per capita respectively, while Mali is at a significantly lower level of US\$694 per capita (2012 figures).

2. Mauritania's economy is sharply divided between traditional sectors and a modern extractive industry. Crops and livestock provide for the livelihood of about half of the population. Poor infrastructure and low access to energy hinders efficiency and in times of drought, food production levels can drop dangerously low. Export revenue from fishing licenses and fish processing rank second after iron (44% of total exports). But competitiveness of the port based processing facilities is hampered by poor services, and the high cost of electrical power for processing and cold storage. This is particularly true for fishing grounds along the Senegal River. Extractive industries are by far the largest contributor to Mauritania's economy. The country is endowed with abundant mineral deposits of iron, copper, gold, gypsum and salt (resources also include cobalt, diamond, phosphate rock, sulfur and uranium). Since 2006, Mauritania has been a small oil producer.

3. Mauritania's GDP growth is strongly correlated to mining revenues. Real GDP registered a 5.1% growth in 2010 and 4% in 2011; the latest figures estimate a GDP growth over 6% in

2012, and a further acceleration in 2013 up to 7%. The improvements of the macro-economic situation are in large part attributable to higher iron ore sales by the national iron ore company, *Société Nationale Industrielle et Minière* (SNIM), to large foreign investments in the mining industry (both for iron and gold), and to increased fish exports. The mining sector's contribution to the country's economy has been steadily increasing over the past 10 years, and so has energy consumption. In order to diversify the economy, Mauritania needs to increase its energy supply and reliability, and lower its cost.

4. About 42% of the population lives in urban areas in Mauritania. The two major cities Nouakchott and Nouadhibou account for about 800,000 people and 100,000 people respectively. About 46.7% of the people were estimated to live below the poverty line in 2004. By 2008 this percentage decreased to about 42%.

5. Senegal's economy is dominated by a few strategic sectors, including groundnuts, fisheries and services. The role of the agricultural sector, and especially of groundnuts, has declined over time, as Senegal's position bordering the Sahel has led to frequent droughts. High rural poverty and limited access to rural infrastructure and basic services have fuelled migration to urban areas.

6. After a slowdown due to lack of electricity supply and the poor performance of the services sector, Senegal's economic growth rebounded in 2012 to an estimated 3.3%, primarily due to a recovery in agricultural output. Growth should continue to accelerate, driven by government investment in agriculture and infrastructure. Industrial production should also rise as power reliability improves and cement and phosphates output continues to recover. Services growth will be led by banking and telecommunications, as well as by the expanded air and sea logistics capacity of the capital, Dakar, all helping to improve net exports. Private consumption, restrained by higher consumer prices in 2012, will pick up, contributing to an acceleration of real GDP growth from an estimated 3.3% in 2012 to 5% in 2017. Poor physical and human infrastructure and weak institutions continue to weigh on Senegal's business environment, which is also hindered by one of the highest average electricity generation costs in Africa.

7. About 43% of the population lives in urban areas in Senegal. The capital Dakar accounts for about 1.1 million people. About 48.3% of the people were estimated to live below the poverty line in 2005. By 2011 this percentage decreased to about 46.7%.

8. Mali is a vast landlocked country with a relatively limited natural resource and human capital base, and a highly dispersed population. It is located in the heart of Sahel, a region threatened by drought and desertification. The vast majority of the people are directly dependent on their environment for their livelihoods (herding, farming or fishing). It is the largest among the Economic Community of West African States (ECOWAS) countries by land area, with a population of approximately 14.8 million.

9. Mali's real GDP contracted by an estimated 3% in 2012 because of the political upheaval in the country, which devastated the tourism industry and caused public spending to be slashed. The vastly improved security situation is expected to encourage a rebound in economic activity, even if tourism and foreign investment are slow to return. Public spending is expected to recover

and other drivers of the economy will improve, given that they are largely located in the secure south.

10. The IMF's growth expectations for Mali for 2013 and 2014 are 4.8% and 6.3% respectively, on the assumption that both the security situation and agricultural output will improve. The agricultural sector (accounting for more than one-third of GDP), which pulled growth down in 2012 due to failed rains in 2011, is expected to improve in 2013 provided there are more favorable weather conditions and the security situation improves. Construction, one of the main drivers of growth as increased donor funds help the government to step up public infrastructure investment, may also recover with government spending to support growth and recovery.

11. About 36% of the population lives in urban areas in Mali. Bamako is the capital and largest city with 1.9 million people. About 47.4% of the people were estimated to live below the poverty line in 2006. By 2010 this percentage decreased to about 43.6%.

## **II. Sectoral and Institutional Context**

12. Mali, Mauritania and Senegal all face daunting energy challenges. Poor infrastructure and low access to energy have constrained GDP growth in all three countries. With a growing population, energy demand is expected to grow requiring additional generation capacity for the region. Mali, Mauritania and Senegal currently rely on hydropower and oil-based power generation to meet their base-load electricity needs. As a result of this generation mix, coupled with high technical and commercial losses, the national power utilities of all three countries have been incurring financial deficits and increasingly relying on government support to cover operating costs and finance required investments. The power grids of the three countries are interconnected and countries trade power through a central dispatching center.

13. The power sectors in all three countries suffer to various degrees from similar issues, including low access rates to electricity, relatively high technical and commercial losses, and high generation costs due to a dependence on oil-based thermal generation capacity. Tariffs are high but still insufficient to cover costs, resulting in reliance on government subsidies.

14. New gas finds in Mauritania are a potential game changer for the sub-region as they can be used to generate affordable and cleaner power compared to other thermal alternatives. However, private investors are loath to invest in gas development because of the lack of creditworthy off-takers in the region. The proposed operation consists of a series of credit enhancement mechanisms to mitigate credit risks in support of upstream gas production to provide gas for the generation of electricity for the benefit of all three countries.

## **III. Project Development Objectives**

15. The Project's Development Objective (PDO) is to enable production of natural gas for generation of electricity to reduce the cost and increase the supply for Mauritanian households and industry, and enable regional integration through exports of electric power from Mauritania to Senegal and Mali.

#### IV. Project Description

16. The Banda gas-to-power project consists of the following components: (a) the Banda offshore gas field production, transmission, and processing infrastructure; (b) a 300 MW gas-to-power plant located in the north of Nouakchott; and (c) existing and new power transmission lines to evacuate power. The Banda gas-to-power project builds on a long track record of regional integration between the three countries. 125 MW of power will be sold in Mauritania: to the mining sector (25 MW to Kinross and 15 MW to the National Company of Industries and Mines in Mauritania – SNIM) and to households and other businesses (95 MW through the National Power Utility - SOMELEC). 125 MW of power will be exported to Senegal and 50MW to Mali.

17. The proposed IDA PRGs will backstop the creditworthiness of public utilities in Mauritania (for the payment of gas under the Gas Sales Agreement) and in Senegal and Mali (for the payment of electricity exports received under their respective Power Purchase Agreements). The proposed MIGA guarantees will cover (a) termination payment under Breach of Contract (BoC) of the GSA backstopped by the Government of Mauritania (GoMR); (b) BoC of the Production Sharing Agreement; and (c) Transfer Restriction, Expropriation and War and Civil Disturbance.

18. The Banda gas field is located approximately 55 km offshore of Nouakchott. Banda field shareholders are Tullow Oil (67%), Petronas (15%), Kufpec (13%) and Premier Oil (5%). Tullow Oil has prepared a field development plan which provides for production of up to 65 mmscfd of gas over 20 years. The Banda Gas Project consists of two subsea wells tied back to an onshore gas processing plant via a subsea production manifold and a 10-inch sub-sea pipeline. First gas can be delivered approximately 30 months from the final investment decision, which is expected to occur by end of April 2014. The SPEG Take or Pay (TOP) obligations will include a 6-month ramp up period which will accommodate early low demand and testing of the various power units using the JV's gas.

##### *The SPEG Power Project: downstream power generation and transmission*

19. SPEG (*Société de Production d'Electricité à partir du Gaz*) is a special purpose vehicle incorporated for the purpose of power generation, transmission and sales of power using Banda gas. SPEG's shareholders are SOMELEC (40%), KG Power, subsidiary of Kinross, an international gold mining company (34%) and SNIM, the national iron ore mining company (26%).

20. The SPEG Power Project is designed to be implemented in two phases to match the evolution of electricity demand in Mauritania (and the region) and optimize capital allocation. The proposed WBG intervention is focused on the first phase of SPEG Power Project, which consists of construction of a 300 MW<sup>1</sup> power plant located in the north of Nouakchott that will operate using Banda gas. The SPEG plant includes 180 MW dual fuel engines (HFO, natural gas) to be commissioned by March 2015, and 120 MW combined cycle gas turbines (CCGT) to be commissioned by mid-2016. The 300MW SPEG plant will sell all its generation to

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<sup>1</sup> Installed capacity might be increased up to 310 MW.

SOMELEC, who will, in turn, (a) sell power to Kinross, SNIM and its regular customers in Mauritania, and (b) export power to Senegal (SENELEC) and Mali (EDM).

21. Power generated by SPEG to SOMELEC will be evacuated through several routes: (i) a greenfield high voltage transmission line to Nouadhibou with a spur to Tasiast, site of Kinross gold mine (the North HV line) owned and operated by SOMELEC and financed by the Saudi Fund, (ii) the existing OMVS high voltage transmission line that will be connected to the power plant through a short extension (the OMVS HV line and the OMVS HV extension), funded by SOMELEC and (iii) a new high voltage transmission line between Mauritania and Senegal, to be financed by AFD and IsDB, with a wheeling capacity of 250 MW (the South HV line) to be built in one phase.

22. The South HV line will be built to accommodate future power exchanges between Mauritania and Senegal sourced from a number of projects and only approximately 30 MW from phase 1 of the SPEG Power Project are expected to transit through that line. Only the power plant will be owned by SPEG. The North HV line will be owned by SOMELEC, and the South HV line will be owned by SOMELEC and SENELEC on their respective national territories. Exports to Senegal will occur through both the OMVS HV line and the South HV line. Exports to Mali are expected to transit through the OMVS HV line and its extension and hence will not require additional transmission lines.

## V. Financing

<b>For Loans/Credits/Others</b>	<b>Amount</b>
BORROWER/RECIPIENT	0.00
IDA Guarantees (up to)	261.00
IFC Loan (up to)	0.00
MIGA Termination Cover (up to)	585.00
Total	846.00

## VI. Implementation

### *Banda Field JV*

23. The Banda field shareholders are Tullow Oil, Petronas, Kufpec, and Premier Oil. As is normal practice in the oil and gas industry, the investor group operates as a non-incorporated joint venture wherein income and costs are directly apportioned pro-rata to the partners. Tullow carries out the petroleum operations on behalf of the partners under the terms of a joint operating agreement.

### *Gas Supply Agreement*

24. Following negotiations on the price and volume of gas under the GSA, SPEG agreed with Tullow Oil on a gas price for a daily consumption up to 60 billion Btu and an annual load factor of 70% on a take-or-pay basis, which amounts on average to 42 billion Btu per day. These gas

volumes are sufficient to power up to 310 MW of generation capacity foreseen under the SPEG Power Project. Key provisions, including the final price of gas as well as provisions for ramp up and termination are still being negotiated between Tullow Oil and SPEG.

### *SPEG Structure*

25. SPEG was formed with the agreement of the GoMR as a joint venture between SOMELEC (40%), KG Power (34%) and SNIM (26%). The Investment Convention which regulates the relationship between the State and SPEG, was signed and ratified by parliament and the senate. The Shareholders' agreement between SOMELEC, KG Power and SNIM, establishes the project company SPEG and governs the relationship between parties in relation to the SPEG Power Project. The SPEG structure is sound and has the explicit support of GoMR and SPEG's shareholders. Time has been too short for SPEG to establish a successful track record of credible commercial dealing, upon which private investors can confidently rely, resulting in a need for World Bank's credit risk mitigation support.

### *Power Purchase Agreements*

26. The direct off-taker of electricity generated by the SPEG Power Project is SOMELEC which has agreed on an umbrella PPA with SPEG that sets forth the terms and conditions for power purchase and supply. SOMELEC will in turn enter into secondary PPAs to sell power to SNIM and Kinross, and export a portion of its SPEG off-take to SENELEC and EDM. In April 2014, SENELEC and EDM agreed with SOMELEC to purchase 125 MW and 50 MW of power respectively. Key provisions of the two export PPAs have been agreed by the parties, who still need to agree on final PPAs.

## VII. Applicable Performance Standards

Performance Standards (PS)	Triggered
PS 1. Assessment and Management of Environmental and Social Risks and Impacts	YES
PS 2. Labor and Working Conditions	YES
PS 3. Resource Efficiency and Pollution Prevention	YES
PS 4. Community Health, Safety and Security	YES
PS 5. Land Acquisition and Involuntary Resettlement	YES
PS 6. Biodiversity Conservation and Sustainable Management of Living Natural Resources	YES
PS 7. Indigenous People	NO
PS 8. Cultural Heritage	YES

## VIII. Contact points

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