

Environmental and Social Review Summary

Kounoune Power Plant

This Environmental and Social Review Summary (ESRS) is prepared by MIGA staff and disclosed prior to the date on which MIGA's Board of Directors considers the proposed issuance of a Contract of Guarantee. Its purpose is to enhance the transparency of MIGA's activities. This document should not be construed as presuming the outcome of the decision by MIGA's Board of Directors. Board dates are estimates only.

Any documentation that is attached to this ESRS has been prepared by the project sponsor, and authorization has been given for public release. MIGA has reviewed the attached documentation as provided by the applicant, and considers it of adequate quality to be released to the public, but does not endorse the content.

Country: Senegal Sector: Energy

Project Enterprise: Kounoune Power Plant

Environmental Category: B

Date ESRS Disclosed: November 8, 2018
Status: Due Diligence

A. Project Description

Actis Energy and Amaya Capital, through Azura Power Holding Limited ("Azura Power" or "the Guarantee Holder") plan to acquire three operating power assets, specifically: Tobene and Kounoune Plants in Senegal; and Thika Power Plant in Kenya. All three assets are currently owned by Melec Powergen Inc ("MPG"), which was established in 2005 as a power generation platform in sub-Sahara Africa. Separate ESRS' are being prepared for each asset. The "Project" or "Power Plant" considered in this ESRS comprises Kounoune Power Plant, an existing 67.5MW heavy fuel oil ("HFO") fired diesel power generation plant. The Power Plant is located within Kounoune village, near the City of Rufisque, to the north of the Dakar-Diamniadio highway and approximately 25 km southeast of Dakar.

The Project was developed by a consortium consisting of MHI Equipment Europe B.V. (Netherlands) ("MEE"), and of Matelec S.A.L (Lebanon) under a Build, Own, Operate contract. MPG partnered with Mitsubishi Heavy Industries (MHI) Equipment Europe BV, a fully owned subsidiary of Mitsubishi Heavy Industries of Japan, through MHI Equipment and Services Africa ("MESA"), to supply the engines, act as engineering, procurement and construction ("EPC") and operations and maintenance ("O&M") contractor. The commercial operations date was reached in January 2008. The Project sells power to the national electricity company of Senegal (the Société Nationale d'électricité du Sénégal or Senelec) under a 15-year power purchase agreement (PPA) that was signed in 2005. A Senelec substation is located on the adjacent land to the north.

The Power Plant comprises of nine diesel reciprocating engines, four heat recovery boilers, nine closed air coolers, a short connection to the existing transmission lines, two HFO tanks, and a 6.1

km HFO pipeline from Cap des Biches to the Project site. The pipeline is owned and operated by Senelec and is considered an associated facility¹.

The Project occupies an area of 3 hectares (ha). The land acquisition process was managed by Senelec in 2004, as part of the acquisition of a total area of 14 ha that was earmarked for the development of power infrastructure.

The Project was financed by MPG with 30% equity and 70% long term loans arranged by the International Finance Corporation (IFC). The IFC loan was approved in May 2005. Other Development Finance Institutions (DFIs) involved in the Project include the West African Development Bank (BOAD), Proparco and the African Development Bank (AfBD). Azura Power is an experienced developer, financier, acquirer and operator of IPPs currently operating base-load power plants across Africa, and as well as renewable power projects in Nigeria.

B. Environmental and Social Categorization

The Project is categized as an B under MIGA's Policy on Environmental and Social Sustainability (2013), which is consistent with IFC's categorization of the Project. The potential environmental and social (E&S) impacts are limited, site-specific, largely reversible, and can be readily addressed through mitigation measures. The most significant potential E&S risks are related to: (i) community health, safety and security; (ii) emergency preparedness and response; (iii) air emissions (including greenhouse gases); (iv) water supply and effluent discharge; and (v) hazardous materials management.

C. Applicable Standards

While all Performance Standards (PSs) are applicable to this Project, based on our current information indicates that the Project will have impacts which must be managed in a manner consistent with the following Performance Standards:

- PS1: Assessment and Management of Environmental and Social Risks and Impacts
- PS2: Labor and Working Conditions
- PS3: Resource Efficiency and Pollution Prevention
- PS4: Community Health, Safety and Security
- PS5: Land Acquisition and Involuntary Resettlement

As the Project is an operating asset, and no expansion or further land clearance is required, PS6 (Biodiversity Conservation and Sustainable Management of Living Natural Resource) and PS8 (Cultural Heritage) are not triggered for the operations phase. The Project does not have any significant impacts related to biodiversity, thus PS6 Biodiversity Conservation and Sustainable Management of Living Natural Resources also does not apply. The Environmental and Social

¹ Associated facilities are those facilities that are not funded as part of the project and would not have been constructed or expanded if the project did not exist and without which the project would not be viable.

Impact Assessment (ESIA) studies and associated stakeholder engagement processes conducted for this Project did not identify any impacts on cultural heritage, therefore PS8 Cultural Heritage does not apply. There is no indication or evidence of indigenous people residing in or having cultural ties to the Project area, thus PS7 Indigenous Peoples does not apply.

In addition to the PSs, the World Bank Group (WBG) Environmental, Health and Safety (EHS) General Guidelines and Guidelines for Thermal Power Plants apply to this Project.

D. Key Documents and Scope of MIGA Review

The following documents were reviewed by MIGA:

- EBS Advisory, Environmental and Social Due Diligence: MPG Power Project, June 2018.
- ERM, Etude d'Impact Environnemental de la centrale thermique diesel de 67,5 MW dans la localité de Kounoune, Rapport Final, July 2005.
- Kounoune Power Annual Monitoring Report for the Periods Ending December 2016 and 2017

A due diligence site visit was undertaken in October 2018 and comprised of a visit to the Project area, as well as meetings with Azura Power, Project staff, the O&M Contractor and *Direction de l'Environnement et des Etablissements Classés* (DEEC).

E. Key Issues and Mitigation

MIGA's due diligence review considered the environmental and social management planning process and documentation for the Project, and identified gaps, if any, between these and MIGA's requirements. Where necessary, corrective measures, intended to close these gaps within a reasonable period, are summarized in the paragraphs that follow and in the Environmental and Social Action Plan (ESAP) attached to this ESRS. Through the implementation of these measures, the Project is expected to be designed and operated in accordance with the Performance Standards.

PS1: Assessment and Management of Environmental and Social Risks and Impacts

Environmental and Social Assessment:

A provisional environmental impact assessment (EIA) was carried out for the Project and disclosed by the World Bank in early 2004, before the MPG was selected as the IPP for the Project by Senelec. The assessment was carried out by an international E&S consulting company, for a proposed 60MW IPP power plant, in accordance with the Senegalese Environment Code (2002) and the World Bank Operational Policy (O.P.) 4.01 on Environmental Assessment.

After international competitive bidding, MPG was selected by Senelec as the preferred bidder in June 2004, and the PPA was signed in February 2005. Subsequently, the Project company retained the E&S consulting company to: (i) prepare a Supplemental EIA based on the Project company's project design specifications of 67.5MW; (ii) update the EIA; (iii) continue public consultation, and (iv) obtain necessary environmental permits from the *Ministère l'environnement et du*

Développement Durable (Ministry of Environment and Sustainable Development), DEEC. The Supplemental EIA was submitted to DEEC and approved in December 2007.

More recently, an Environmental and Social Due Diligence (ESDD) study was carried out in June 2018 by an independent consultant as part of the Investor Group's² appraisal of the Project. The ESDD Report evaluated the Project's risks and impacts against the IFC PSs, identified gaps and recommended corrective actions to address the gaps. The ESDD also considered the implications of the potential conversion of the Power Plant from HFO to gas. MIGA reviewed progress against the corrective actions identified in the Investor Group's ESDD and the Phase II ESAP as part of the due diligence

The ESIAs, Lenders' ESDD, corrective actions and Project ESAP provide a comprehensive review of the potential risks and impacts of the Project (construction, operation and decommissioning phases), and appropriate mitigation measures are recommended in line with MIGA's requirements.

Identification of Risks and Impacts

As mentioned previously, the Senelec pipeline is an associated facility. No major environmental or social impacts were predicted in the supplemental EIA.

Management Programs and Monitoring

Monitoring and review procedures include the following: (i) monthly and annual QHSE reports; (ii) monitoring data for effluent, air quality, water consumption and waste disposal volumes; (iii) various corrective action plans; and (iv) annual stack emissions testing. These procedures indicate ongoing monitoring and review of E&S risk and impact management on site. A review of the 2016 and 2017 Annual Monitoring Reports (AMRs) indicate that the Project has not developed a formal, documents E&S Management System, but rather complying with an E&S Plan, as described in the EIA, Resettlement Action Plan (RAP) and other DFI E&S policies (specifically AfDB, BOAD and Proparco). The Project will develop and implement an Environmental and Social Management System (ESMS) in line with PS 1 requirements and ensure that it aligns to Azura Power policies (ESAP action item # 1).

Organizational Capacity and Training

At the corporate level, Azura Power has appointed a Head of Environmental and Social Governance (ESG) who's main responsibilities include: (i) the development, implementation and monitoring of ESG related strategies, policies, procedures and budgets; (ii) leading on the ESG due diligence work-streams of potential projects being reviewed by Azura Power to ensure consideration of appropriate risks and opportunities and compliance international best practices as required; (iii) setting up and leading ESG committees and making recommendation on all key ESG issues to the Board; (iv) timely and accurate reporting on ESG matters to relevant stakeholders; (v) ensuring that processes are in place to maintain high business integrity standards across all ESG related functions, for example, grievance mechanisms and community liaison for all projects..

² Azura Power, IFC, Africa50 Project Finance and their associated partners

MESA has also appointed a suitably qualified Quality, Safety, Health and Environment (QSHE) Officer, who coordinates all health, environment, safety and security issues. In addition, a Health, Safety and Environment (HSE) Committee was formed in line with national legislation whose functions and duties are highlighted in the legislation and include: (i) carrying out an inventory of all hazardous products and an analysis and evaluation of real or potential risks; (ii) keeping a health, hygiene and safety register which must contain minutes of the meetings, accident and professional illness statistics; and (iii) the establishment of an annual health and safety program. The QSHE Officer also coordinates the HSE committee meetings which are held on a quarterly basis.

Emergency Preparedness and Response

The National Environment Code requires the development and implementation of an Internal Operations Plan (POI) that includes procedures for alerting relevant authorities and neighboring communities in the event of an emergency incident, evacuating personnel and determining the causes of an incident. A POI has been in place for the Project since 2009 and has been revised and updated a number of times since, in line with DEEC requirements.

Staff are trained in fire prevention and the use of portable fire extinguishers that are provided in operational areas. Fire drills are also conducted regularly. The Project has a fire water system in place, which includes a fire foam injection system. Fire drills are coordinated with the fire station located nearby and a drill is planned for 2019.

Reporting

The Project will compile and submit AMRs to MIGA and provide copies of the annual E&S monitoring reports submitted to DEEC.

Stakeholder Engagement

Stakeholder engagement was undertaken as part of the ESIA process and the Project hold occasional meetings with community leaders/local authorities. The Project has also established a website (http://www.kounounepower.com/) where copies of the ESIA reports can be downloaded. The Project will develop and implement a Stakeholder Engagement Plan (SEP) and External Grievance Mechanism in line with PS 1 requirements (ESAP action item #1).

PS2: Labor and Working Conditions

The Project has 50 permanent workers and of those, five workers are directly employed the Project company and 45 are employed by the O&M Contractor. Among the five direct employees, two are women, two are Senegalese (but not from the local communities) and three are expatriates There are also approximately 30 contracted staff (e.g., canteen and security service providers).

Human Resource Policy and Procedures:

The Project has developed and implements a Human Resources (HR) policy, which covers employment conditions, probation periods, job categories, working hours, the use of PPE, occupational health and safety, employee representation, annual leave and disciplinary measures. The Policy will be reviewed to ensure the inclusion of non-discrimination and equal opportunity (ESAP action item #2).

Employee Grievance Mechanism

The Project will include, in line with PS 2, a mechanism where grievances of employees and sub-contractors will be handled (ESAP action # 3). All workers will be informed about the grievance mechanism. The grievances can be raised anonymously and reviewed in one-week intervals followed by the initiation of corrective action within two days for grievances of high importance. Internal grievances will be handled by the HR Manager who will ensure that they remain confidential.

Retrenchment Plan

In the event of any retrenchment, the Project will develop and implement a Retrenchment Plan in line with PS 2 requirements, in consultation with workers, their organization and if appropriate, the Government (ESAP action item # 4).

Occupational Health and Safety (OHS)

Management of OHS issues is documented in MESA's Global Prevention Plan, which includes requirements for: (i) OHS hazard identification and risk analysis; (ii) the resources and equipment required to ensure OHS issues are addressed; (iii) a Healthy and Safety Plan that provides high-level instructions with regard to safe work practices and first aid provisions.

Induction training provided to new employees includes various OHS aspects (e.g., awareness of the requirement for PPE use, as well as emergency response measures and resources). The Project also keeps incident and accident records and the data reveals a steady decrease in recorded accidents over the last four years. No fatalities have been reported. The Senegalese Social Security Fund undertakes regular monitoring visits to Kounoune and provides recommendations for corrective actions to improve OHS management on site.

Observations made during the Investor Group's ESDD raised a number of concerns with regards to works (and sub-contractors) health and safety. These included: (i) workers not wearing personal protective equipment (PPE), specifically hard hats, ear protectors and safety harnesses while working at height; (ii) tripping hazards due to damaged platforms in the engine room and very narrow staircase tread depths; and (iii) slipping hazards due to oil spills/leaks covering the floors and platform surfaces inside the engine room. The Project will conduct a full OHS audit at the Power Plant, including review and revision of the OHS policies, risk assessment and training procedures in line with the WBG EHS Guidelines and national legislation (ESAP action item # 5). The Project will also ensure that all workers are provided with appropriate PPE (ESAP action item # 6).

Workers' Organizations

Trade unions are represented in Project staff and regular meetings with management are held. In addition, elected employee representatives meet with management monthly.

Supply Chain

While the Project does not employ workers under 18 years of age, the potential for child and forced labor in the supply chain will also be monitored. Contracts with sub-contractors and suppliers will be modified to include Environmental Health and Safety (EHS) requirements and provisions consistent with PS2 to address labor issues including child and forced labor (ESAP action item #7).

PS3: Resource Efficiency and Pollution Prevention

Energy efficiency and Greenhouse Gases

The thermal efficiency reported for the Project in the 2017 AMR is 48.1% (Net lower heating value), which is considerably higher than the typical range as presented in the WBG EHS Guideline for Thermal Power Plants. It was also significantly higher than reported for the Project in previous years (less than 40% in 2016 and 2015).

As per PS3 requirements, the Project has been quantifying the direct and indirect emissions and thereafter reporting on CO₂ emissions in the AMR. In 2017, emissions were reported as 173,596 tCO₂eq, which is about 2.6% of the of the CO₂eq emissions from fuel combustion reported for Senegal in 2015 and less than 0.6% of total emissions recorded for 2014. Calculations estimate annual emissions of 112,051 t CO₂eq based on 35% capacity (or 448,205 tCO₂eq at 100% capacity). The Project will continue to report greenhouse gas emissions annually.

Water Resource Use

The Project sources its water from the municipality that also supplies the local community and figures for November 2016 indicate an average daily consumption of 50m³.

Air Emissions

Annual stack emissions testing is undertaken by an external contractor to measure a range of parameters. Measurements of Sulphur Dioxide (SO_2) and Nitrogen Dioxide (NOx) reported over the last four years show values well below national standards and WBG EHS Guidelines.

Ambient air quality monitoring by passive samplers are undertaken at eight locations surrounding the plant (based on the sensitive receptors identified in the 2005 ESIA). Measurements of NOx and SO₂are taken on a monthly basis by an external contractor. Values recorded over the last five years are much lower than that the relevant national standards and the WGB EHS Guidelines.

Wastewater and Effluent

Treated effluent is disposed of in an onsite treated effluent pond. The pond was originally designed and constructed with a geosynthetic liner, but the liner was damaged during efforts to clean the pond (i.e. to remove contaminated vegetation and soil). The pond was not relined but was reconstructed with sand and some compacted laterite. Reportedly, the pond is cleaned out approximately annually. A site visit carried out in December 2016, by the Investor Group's E&S Advisors observed ponding around the effluent treatment plant in an 'overspill area' of the evaporation pond. By May 2018, a low retaining wall had been constructed around this evaporation area. This was done to increase the capacity of the evaporation pond, in anticipation of the rainy season. Pipelines conveying oily water from the engine room run across this pond area and leaks from the pipelines are evident in this newly retained area.

Treated effluent water quality is monitored on a monthly basis and various parameters are tested and evaluated against the national effluent quality standards, including pH, COD, BOD, TSS and oil and grease (total hydrocarbons). Monthly effluent quality data for April 2015 to August 2016 (excluding June 2016) indicate repeated exceedances of the national standards and WBG EHS Guidelines for Thermal Power Plants for COD, TSS and, of most concern, oil and grease. Recent effluent monitoring data will be provided in the AMR (ESAP action item # 8).

In addition, there is significant groundwater infiltration into the basement of the engine room, as the engine room basement level is reportedly below groundwater level. Extensive oil leaks/spills were observed within the engine room during a site visit carried out in December 2016. Oil had covered most surfaces and had pooled in the collection sump. This resulted in the generation of large volumes of oil-contaminated water and necessitated the construction of the large onsite effluent treatment (gravity separation) plant. The Project recently installed a concrete drainage channel around the perimeter of the engine room basement to separate infiltrated groundwater from the engine room areas. The efficacy of this channel can, however, only be confirmed during the next rainy season (June – September/October).

A contamination assessment was conducted in 2017 to confirm the occurrence, nature and extent of potential subsurface contamination at the site, advise on potential associated risks, and to suggest feasible remediation measures to reduce the risks. Soil sampling was conducted by a specialist contaminated land and remediation solution provider and results of the analysis indicate that hydrocarbon contamination of the soils seems to be contained in the shallow soil layers (<2 mbgl) and is well below the screening level thresholds for industrial sites. No large-scale soil remediation action is therefore considered necessary.

Noise

No noise monitoring is conducted at the Project. The 2005 ESIA predicted that noise generated by the Power Plant could result in ambient noise levels at the nearest residence (at the time more than 500 m from the plant boundary) exceeding relevant standards at night. However, significant development has occurred in the area immediately surrounding the Project since it was constructed. Noise monitoring will be carried out to account for the residential development that has taken place within 500 m of the site since the Project was constructed. (ESAP action item # 9).

Waste

Non-hazardous waste generated at Project is collected and disposed of by licensed contractors and a record of waste sources, types, on site collection points and disposal methods is kept. Records of monthly waste volumes collected by each contractor is also kept and volume records are kept separately for general industrial waste, oily rags, oily wastewater and septic waste. During a site visit conducted in May 2018, hazardous waste (oily rags, etc.) are collected on site in two metal skips. While these are placed on a concrete surface, the skips are not covered, and the area is not bunded; evidence of spillages were observed around the skips. While Senegal does not have hazardous waste disposal facilities, the service provider sells the oil sludge waste to a cement manufacturer that uses the sludge to fire their kilns.

There are no documented procedures for the storage and handling of hazardous substances. A waste management plan will be developed and incorporated into the ESMS, with specific provisions with regard to the storage of hazardous waste (ESAP action item #1). The hazardous substances (chemicals) storage area is not properly secured to prevent unauthorized access and the area is not bunded to contain leaks or spills and there is a lack of appropriate HSE signage Various substances are stored together that should be stored separately, including corrosive substances and flammable liquids. Some hazardous substances were stored indiscriminately (not within the designated hazardous substances storage area). The Project will ensure that the storage of all hazardous materials has appropriate secondary containment and signage (ESAP action item # 10)

PS4: Community Health, Safety and Security

The Kounoune plant is located in the Rufisque district in the Dakar region. At the construction stage, the nearest residential development was approximately 500 m from the plant's southern boundary. The development of Rufisque has resulted in development encroaching into the buffer zone, with dwellings now located less than 100 m from the site boundary. Those within the immediate surrounding area are at risk due to increased traffic on the local road network, as well as ambient air quality impacts and potential emergency incidents. Between February 2013 and November 2016, the Senelec pipeline was not operational and fuel was delivered to the site by truck. During this period, fuel was delivered to the site by a service provider that implemented a health, safety, security and environmental (HSSE) policy. HFO is currently delivered to the site via the Senelec pipeline, which has reduced traffic risks to the local community.

The Project will develop a Community Health and Safety Plan that will be included in the ESMS to minimize the potential risks and impacts to community health and safety including: (i) risk of accidents and incidents (including traffic); (ii) hazardous materials and safety; (iii) air quality and (iv) emergency preparedness and response (ESAP action item # 1).

As per the Senegalese Environment Code, a 500-meter buffer zone is required for Class 1 installations (such as the Project). The rapid development of the city of Rufisque over the last few years has resulted in development activities (including residential buildings) within the 500-m buffer zone area escalating in recent years. The Project has made various efforts to address this situation over the years, specifically by notifying and requesting action from the relevant authorities from as early as 2008. This included a request to consider reducing the buffer zone requirement from 500 m to 40 m; to date, however, this issue has not been resolved. DEEC conducts regular

site visits and is therefore aware of the situation and has not raised any notices in this regard. The Project will introduce measures related to management of the buffer zone as required by the Senegalese Environment Code (ESAP action item #11).

Security Personnel

A Security Plan in line with PS4 will be developed. Security will be provided in a manner that does not jeopardize the community's safety or the Security Provider(s) relationship with the community and that is consistent with national requirements. The Security Provider(s) will ensure that security personnel have not been involved in past abuses and are adequately trained (ESAP action item #12).

PS5: Land Acquisition and Involuntary Resettlement

Land Acquisition

The land was previously used primarily for grazing and agriculture, and the land acquisition for the 14-ha resulted in total economic displacement of 22 people. The land acquisition fell under the national domain category thereby allowing expropriation to take place for public utility services. Senelec's acquisition of the 14ha resulted in the economic displacement and compensation of 22 people from the City of Rufisque engaged in agricultural activities (mainly grazing and growing fruit trees). Senelec followed the compensation process as required by national legislation. Land for the Project site was then purchased from Senelec. The acquisition of the 14 hectares did not involve physical displacement, as the area did not contain dwellings or other structures. IFC reviewed the land acquisition at the time of its implementation and it was considered in line with the requirements applicable at the time. All compensation has been paid out and there are no open cases or claims from affected land owners.

F. Environmental Permitting Process and Community Engagement

While the Project has obtained all permits and compliance certificates required to operate, any future expansion or redevelopment as a Class 1 installation may be jeopardized by the proximity of residential dwellings and other structures that are currently within the 500 m buffer zone.

The supplemental ESIA was approved in December 2007. As part of the ESIA, a series of consultation meetings with project affected persons (PAPs) was held by Senelec and the E&S Consulting Company in November 2003 as well as an public meeting in December 2003. The following documents were thereafter disclosed by the World Bank in 2004: (i) the EIA; (ii) a Public Consultation and Disclosure Plan; (iii) Resettlement Framework; and (iv) Non-Technical Summary. The Project will however develop and implement a Stakeholder Engagement Plan (SEP) and Grievance Mechanism in line with PS 1 requirements.

business activities by requiring them to set up and administer appropriate grievance mechanisms and/or procedures to address complaints from Affected Communities.

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In addition, Affected Communities have unrestricted access to the Compliance Advisor/Ombudsman (CAO), the independent accountability mechanism for MIGA. The CAO is mandated to address complaints from people affected by MIGA-guaranteed business activities in a manner that is fair, objective, and constructive, with the goal of improving environmental and social project outcomes and fostering greater public accountability of MIGA.

Independent of MIGA management and reporting directly to the World Bank Group President, the CAO works to resolve complaints using a flexible, problem-solving approach through its dispute resolution arm and oversees project-level audits of MIGA's environmental and social performance through its compliance arm.

Complaints may relate to any aspect of MIGA-guaranteed business activities that is within the mandate of the CAO. They can be made by any individual, group, community, entity, or other party affected or likely to be affected by the environmental or social impacts of a MIGA-guaranteed business activity. Complaints can be submitted to the CAO in writing to the address below:

Compliance Advisor/Ombudsman International Finance Corporation 2121 Pennsylvania Avenue NW Room F11K-232 Washington, DC 20433 USA

Tel: 1 202 458 1973 Fax: 1 202 522 7400

E-mail: cao-compliance@ifc.org

G. Availability of Documentation

• ERM, Etude d'Impact Environnemental de la centrale thermique diesel de 67,5 MW dans la localité de Kounoune, Rapport Final, July 2005.

The above listed documentation is available electronically as PDF attachments to this ESRS at www.miga.org.