NON-TECHNICAL SUMMARY

Introduction

This study is an update of the social and environmental impact study conducted by Groupe Sapiens International, a Burkina Faso based engineering consulting firm. The update resulted in clarifications and amendments pertaining to a number of significant items in the study that have evolved in the meantime. The update also incorporates additional information that appeared necessary to ensure certain international requirements are met.

The 33 kV transmission line construction project forms part of the Zina solar power plant project located in the town of Kona, Province of Mouhoun (in western Burkina Faso). The 7.8 km line will link the village of Zina with the village of Wona and carry and connect the electricity produced by the 22.4 MWac photovoltaic solar power plant to the national grid.

Background and purpose

Société WINDIGA Burkina Faso SARL, constituted by SEMAFO ENERGIE BURKINA and the State of Burkina Faso, is contemplating construction of a 26.6 MWc photovoltaic solar power plant at a distance of 1 km from the village of Zina in the town of Kona, Province of Mouhoun.

This power plant will be connected to the SONABEL grid by construction of a 33 kV transmission line. The distance between the plant and SONABEL's transformer substation is 7.8 km. The transformer substation will be connected to SONABEL's 90 kV power line for a distance of 73 km between Pa and Mana to supply SEMAFO's mine.

Connected to SONABEL's grid, power from the solar power plant will add some 40 MWh/yr to the power supply over an average of 25 years, which is the life of the project, and diversify its sources of supply with green energy. To achieve this, carrying the power from the power plant to the grid will require completion of a 33 kV power line between the solar power plant outlet and the Wona transformer substation which will receive the power from the Pa-Mana line. The 90 kV Pa-Mana line[1] was commissioned in late 2014 and the power plant and its connection line to the substation are scheduled for mid-2016.

The project will contribute to securing the country's energy supply, limit the impact of volatility on the prices of fossil fuels, create jobs and substitute polluting fossil-based thermal energy with clean energy.

Project description

The power line project discussed in this impact statement relates to the Zina Solar Power Plant construction project, which has been addressed in a separate impact statement. The power produced by the power plant will be carried by construction of a power line linking Zina with Wona.

The power line which will be constructed to carry the energy produced originates from the solar power plant located in Zina and passes the village of Dangouna to join up with the Wona transformer substation. Note that the selected route has been optimized to avoid passing through villages and also to minimize negative environmental impacts.

This 7.8 km long 33 kV line will carry the power to SONABEL's 90 kV transformer substation in Wona. Note that this 90 kV substation will supply SEMAFO's mine through a 90 kV power line linking Pa with Mana.

The key activities to be completed in regard to construction of the 33 kV transmission line are as follows:

[1] Note that construction of the Pa-Mana transmission line (SONABEL) was neither required for/nor dependent on construction of the solar power plant.

- Opening of a 7 m corridor on either side of the transmission line, i.e., 14 metres wide and 7.8 km in length;
- Installation of a conduction line with AAAC 228 mm 2 phase conductors equipped with OPGW-type fibre optic ground wires;
- Installation of 88 steel poles with concrete foundations, i.e., 4xHEB 220 single, 3xHEB 220 double, 68xHEB 180 single, 5xHEB 180 double.

Political, legislative and institutional framework

Addressed by and serving as benchmarks for best practice management of the project are the following pieces of national legislation and texts: the Burkina Faso Mining Code, the Burkina Faso Environmental Code, the Agrarian and Land Reform Act, the Forest Code, SONABEL's Environmental Policy, the Water Management Policy Act and their implementing provisions, and the World Bank standards.

International legal framework

The 33 kV line project ranks as a Category B project. It has the potential to have limited adverse environmental or social risks and/or impacts that are few in number, generally site-specific, largely reversible, and readily addressed through mitigation measures presented in an Environmental and Social Management Plan (ESMP). The Environmental Impact Statement (EIS) was prepared in accordance with the IFC's Environmental and Social Performance Standards.

As implementation of the ESMP is the responsibility of several actors, it is proposed that the tasks be allocated and the related roles described.

INITIAL STATE OF THE ENVIRONMENT

Biological environment

The project site belongs specifically to the south Sahelian sector. A full description of the facies of vegetation typically found in the zone has been completed to place the overall ecological context of the project within the country as a whole. The project site features agro-forest areas and fallow areas of approximately 10.92 ha. The vegetation cover comprises fallow lands of 3-5 years old and 10-20 years old with agricultural plots interspersed or located in proximity.

Dominant species are: Parkia biglobosa, Vitellaria paradoxa Faiderbia albida, and Lannea microcarpa. Also present are isolated specimens of Sclerocarya birrea, Detarium microcarpum, Combretum molle and Mitragina inermis.

Grass cover consists of Pennisetum pedicellatum, Andropogon gayanus and Loudetia togoensis. Vegetation of the young 2-3 year old fallow lands consists of stump sprouts which remain from forest species felled during clearing.

The formerly abundant wildlife in the study area is in steady decline. Large mammals have completely disappeared from the study area except for warthogs, monkeys, small ungulates, and rodents.

Population

According to the results of the 2006 General Population and Housing Census (RGPH) the two towns of Bana and Kona were home to 2,420 and 3,424 households, respectively, with total populations of 13,000 and 19,606 inhabitants, respectively. Women made up 48.88% in Bana and 48.28% in Kona. In the town of Kona, two villages are impacted by construction of the 33 kV line, namely Zina, where 7 individuals are affected, and Dangouna, where 28 individuals are affected. In the town of Bana, two villages are impacted, where 4 individuals are affected in Somona and 21 individuals are affected in Wona. A total of 60 PAP who will be affected by the power line have been identified.

Agriculture

Agriculture is the main economic activity of the inhabitants of the towns of Kona and Bana. It accounts for 90% of assets. Generally, cereals and cotton are the largest enterprises. The main cash crops are cotton, sesame, peanuts, cowpeas and soybeans, which comprise some 3,420 ha, 15 ha, 101 ha, 651 ha, and 1.05 ha, respectively.

The development of cotton cultivation has triggered creative conflict among the producers. This stimulates each producer to maximize labour to achieve the greatest output by improving both techniques and crop quantity and quality. This is driving the gradual evolution away from a subsistence economy to a form of market economy.

Livestock production

After farming, livestock production is the second economic activity in the towns of Kona and Bana. Animal husbandry comprises cattle, sheep, goats, pigs and poultry. Donkey breeding is also practised to a lesser extent.

The area is also home to nomadic herdsmen, which gives rise to certain conflicts with the farmers and producers.

Crafts

Handicrafts are one of the inhabitants' secondary activities which earn them substantial income. They comprise mainly wickerwork, weaving, pottery making and metal work. Art crafts (metal work, pottery, weaving) are traditionally practised by blacksmiths, griots (praise singers) and the so-called assimilated castes.

Utility crafts comprise sewing, woodworking and mechanics. Alongside the restaurant industry are the processing and harvesting of agricultural produce.

Silvicultural activities

The main silvicultural activities are:

- The establishment of nurseries;
- Reforestation: The main species planted are neem and eucalyptus;
- Plantations of fruit trees, in particular mango, guava and cashew.

There is true grass-roots mobilization to promote the environment. In all, in the towns of Kona, there are sixteen (16) professional organizations working in the environment.

POTENTIAL IMPACTS

Positive impacts:

Access to electricity and improvement of the local socioeconomic situation: The proposed project will improve access to electricity, promote energy efficiency and facilitate rural electrification projects which will increase the power grid connection rate in the villages neighbouring the project. Greater availability of electrical power could in turn stimulate the development of small retail businesses.

During the consultation meetings held with the communities, the need for electrification of the villages was clear. The communities were convinced that electrification would stimulate economic activity, make charging mobile phone batteries possible and also allow lighting homes and schools and watching television.

Job creation: The project is expected to create jobs for local communities, semi-skilled and unskilled jobs in particular. The recruitment of workers will accentuate awarding equal opportunities to women and men and emphasize local labour.

Empowerment of women: The availability of electricity will facilitate school attendance among girls by reducing their work load which will, over time, enable them to access better jobs. Women will benefit from CSPS (health and social promotion centre) services once electrical power is available for refrigerating medicines and vaccines.

Health education: A key aspect of this initiative is the expected supply of electricity to health establishments to allow the installation of cold rooms to ensure the safe transportation and storage of vaccines and other essential medicines.

Improved storage and processing of agricultural products: Electricity can improve the storage and processing of agricultural products, thereby increasing their market value and extending their shelf life. Storage in cold rooms will keep meat, dairy products, fruits and vegetables for sale or consumption at a future date. Over the long term, such improvements are expected to result in better prices for agricultural products and increase farmers' incomes.

Negative impacts:

Forest impact: The project footprint area includes no classified forest or protected area. However, 325 feet of trees in the agro-forest areas and plantations will be affected.

Required lands: In all, it is estimated that 10.92 ha of land will be affected by the transmission line (with a right of way of 14 m wide over a distance of 7.8 km). Therefore, 10.92 ha of land comprising the corridor for the line will be cleared for installation of the line.

Wildlife impacts: Clearing the right of way and creating new access lanes needed for construction of the transmission line may lead to partial destruction of the avian wildlife habitat and small game hunting. Workers present onsite may also lead to a temporary increase in hunting and poaching.

Cumulative impacts: A few projects are underway in the project zone, and certain others are planned. Among the largest currently underway are the Zina solar power plant and the SEMAFO mining operation, which will be supplied with power carried by the 33 kV line. The 33 kV line project services both projects. The cumulative effects felt will mainly be social in nature. For instance, overall, the 33 kV power transmission line project will follow the route through the same villages as the SEMAFO mining operation right of way. This involves Zina, Dangouna, Wona and Somona. These villages have already been affected by the mining operation but will feel the further effects of the new transmission line and the solar power plant in Zina. The cumulative effects of these projects will have an incidence, in part, on the communities located along the 33 kV transmission line. When defining the route of the transmission line, efforts were made to the fullest extent possible to limit the risk of involuntary resettlement of the inhabitants. During implementation, the route will be further refined when the pylons are sited. The main impacts on the biophysical environment are the permanent loss of vegetation (trees, shrubs and planted woods) in the right of way and the permanent loss of the required small parcels of agricultural zones. The biophysical impacts can be mitigated.

Resettlement and compensation: The transmission line will have an impact on farming, cash crop and tree farm operations.

Among the other sources of significant potential negative impacts are: (i) clearing the corridor route between the poles (damage to crops, felling trees and disruption of wildlife; (iv) earthworks and pole construction (crop damage, felling trees, silting and contamination of surface waters, loss of habitat, disruption of wildlife); (v) arrival of migrant workers in rural areas (health problems such as HIV/AIDS, social unrest, overuse of local resources such as water, firewood and other natural resources).

MITIGATION/ENHANCEMENT MEASURES

Mitigation and enhancement measures:

Protection of vegetation and landscape quality: With regard to vegetation cover, the company should minimize destruction by carefully choosing and using the location for setting up the construction site and the borrow zones, and limiting tree and brush clearing to the minimum by preserving as many trees as possible.

A tree planting and vegetation restoration program will be implemented in the affected areas to reduce to the minimum the impacts on the agro-forest areas and offset forest losses. Tree planting activities will be integrated into the project for the replacement of trees that will be cut, and contribute to reforestation in the project zone. This activity will be carried out in collaboration with the forestry branch of the Ministry of Environment and Sustainable Development to ensure the planting of appropriate species. This program should involve the local population insofar as possible. Emphasis should be placed on local species.

It will be necessary to provide compensation plantation on village lands to replace felled trees.

Preservation of community relationships and way of life: The presence of hired personnel for construction of the solar power station and the 33 kV line in the project zone will bring different cultures face to face, which could lead to conflicts. Therefore, it will be necessary to make site personnel aware of the cultural practices of the inhabitants of the project zone and alert them to the need to respect the local culture and traditions.

Furthermore, it will be necessary to inform the nearby inhabitants of the different and likely diverse cultures of the newcomers and create awareness among them, as well as the traditional authorities, of the need for coexistence during the work.

In connection with conflicts that may arise during use of the borrow zones and from destruction of property (housing, fields, pasturage) of nearby residents, the company should favour a negotiation and consensus-building approach to compensation over any other action.

Rural electrification: The villages located along the 33 kV line may benefit from the power the project involves.

Wildlife protection: (i) Reduce brush clearing to limit habitat destruction; (ii) prohibit wildlife disruption from poaching; (ii) prohibit project workers from having firearms, traps and other hunting equipment when on the sites.

Resettlement and compensation: To mitigate the impacts of involuntary resettlement, a point-form Resettlement Action Plan has been developed for the 33 kV line.

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

The mitigation measures and the follow-up plan provided for in the Environmental and Social Management Plan total FCFA39,781,000 to which FCFA21,455,500 in follow-up and monitoring costs are added for a total of FCFA61,236,500. These amounts and their related measure should reduce, minimize and optimize the impacts related to the construction and operation of the 33 kV transmission line. Implementing them should allow the developer and contractor to comply with the environmental regulations in force and meet the energy development objectives of Windiga Energy Inc.

Keys among the measures are the implementation of waste management strategies, information for and awareness raising among the nearby inhabitants, compensation plantation, etc. Monitoring, environmental follow-up, the capacity building program, implementation of a multidisciplinary committee and resource persons will further ensure the successful implementation and execution of the project's Environmental and Social Management Plan.