

Environmental and Social Data Sheet

Overview

Project Name:	KA XU CSP PROJECT
Project Number:	2012-0340
Country:	South Africa
Project Description:	The project concerns the construction and operation of a greenfield concentrated solar power (CSP) plant with 100 MW of installed power generating capacity.
EIA required:	yes
Project included in Carbon Footprint Exercise ¹ :	yes

Summary of Environmental and Social Assessment, including key issues and overall conclusion and recommendation

The project consists in the development, construction and operation of a 100 MW_e concentrated solar power (CSP) parabolic trough plant in the North West of South Africa, approx. 30 km north-east of Pofadder, a small town in the Northern Cape province of South Africa.

If the project were located in the EU, it would fall under Annex II of the EIA Directive 2011/92/EU, requiring the competent authority to determine the need for an Environmental Impact Assessment (EIA). Under South African Law, the project requires an EIA, including initial scoping and public consultation.

According to the EIA, environmental project impacts relate to effects on local vegetation and avifauna, water consumption and visual and noise impacts. They have been adequately mitigated, and are expected to be minor if the mitigating measures required in the environmental permit are effectively implemented.

The project does not involve any physical or economic displacement of local populations. Project social impacts are deemed to be overall positive, given the high levels of unemployment and poverty and the low levels of education in the surrounding areas, and the employment opportunities this project represents, in particular for low to semi-skilled workers. Negative social impacts such as those related to the presence of construction workers in the area are adequately mitigated.

Environmental and Social Assessment

The CSP plant will emit significantly less gaseous and pollutant emissions, including greenhouse gases, than conventional thermal power plants. The current power plant mix in South Africa is dominated by coal. The CSP plant's construction and operation may represent an important employment opportunity for the communities around the project site that are suffering from high unemployment and limited commercial alternatives.

The EIA process has already been completed and an environmental permit was granted in April 2011. Public consultation was performed during the initial scoping phase and throughout the EIA process. It included inter alia, the identification of potential stakeholders and their issues and concerns related to the project, a 30-day public review period (for both the scoping and EIA reports), focus group meetings, a public meeting advertised in the local press, and written correspondence. In addition, a stakeholder meeting was held to provide feedback on the EIA findings. The EIA scope comprised a plot of land of 33 km², which comprised the project (including a 132 kV overhead power line of ca. 1.5 km length feeding into the Eskom network, a water abstraction point at the Orange River and the associated water supply pipeline, of approx. 30 km in length).

The project's main environmental impacts include effects on local vegetation and avifauna. The environmental study indicated potential environmental impacts on local vegetation including the

¹ Only projects that meet the scope of the Pilot Exercise, as defined in the EIB draft Carbon Footprint Methodologies, are included, provided estimated emissions exceeding the methodology thresholds: above 100,000 tons CO₂e/year absolute (gross) or 20,000 tons CO₂e/year relative (net) – both increases and savings.

threatened Quiver Tree species, which had a high probability of occurring on site. The species also occurs throughout similar habitats in the broader area surrounding the site and beyond. The Quiver Tree is a species of aloe indigenous to Southern Africa, specifically in the Northern Cape region and in Namibia. Given its slow growth and rarity, tall specimens are quite valuable. A detailed search of the site recorded only one specimen of this species, which was not within the footprint of the project. Proposed mitigating measures for the impacts on other plant species include rescuing and replanting the affected specimens on a suitable location, outside of the power plant footprint. Additional planting of indigenous species will be performed in the framework of the project landscaping measures.

The potential impacts on avifauna related mainly to potential collisions of three threatened bird species with the connection tie-line. These are likely to be adequately mitigated after installing bird deterrent mechanisms and special marking devices in the overhead line and its associated structures. Other environmental impacts included water consumption, mainly for cooling purposes. Although the project water consumption is minimal compared to other local usages such as irrigation, given the scarcity of water in the region the water authority (Department of Water Affairs) requested for alternative cooling options to be considered. This request and the relatively high investment needed for the water adduction infrastructure prompted the promoter to design a dry-cooling system for the project. This system reduces water consumption to ca. 250 000 m³/a, or about six times less water than a comparable wet-cooling system, which is the standard solution implemented in CSP plants to date. Due to this dry-cooling system, the impact on the ecological reserve of the Orange River Mouth (a Ramsar site, located approx. 300 km away from the abstraction point) is expected to be negligible.

The project's residual environmental impacts will be mainly visual and related to noise, during operation. Noise will be kept within permitted limits and very limited atmospheric emissions are expected, as the plant will only use auxiliary fuel for safety purposes.

The project site is located on farming land that was previously overgrazed, with very low flora and fauna biodiversity. Nearby the project site, a small rocky outcrop is considered to potentially hold higher biodiversity, in particular in terms of avifauna. However, this area is located outside the project footprint, and it is expected that the project will not entail any major impact on it. The nearest site of natural interest is the Augrabies Falls National Park, which is located approx. 100 km to the east from the site. The project is not expected to have any significant impact on this or any other natural protected sites in the region.

The project does not involve any physical or economic displacement of local populations. Project social impacts are deemed to be overall positive, given the high levels of unemployment and poverty and the low levels of education in the surrounding areas, and the employment opportunities this project represents, in particular for low to semi-skilled workers. Negative social impacts such as those related to the presence of construction workers in the area are adequately mitigated with the proposed measures inter alia, undertaking to engage local low to semi-skilled workers whenever possible and put in place an HIV/AIDS awareness programme for all construction workers.

The project is expected to create 800 person-years of temporary employment, peaking at 1500 posts, during the 27 month construction period. Approximately, 80% of these jobs are expected to be filled by RSA citizens, of which up to 50% will target local unskilled labour. Permanent employment is expected to be 35 full-time jobs, of which more than 90% are expected to be RSA based citizens. In addition during its operation, the project is expected to outsource 40-60 full-time jobs to local suppliers and contractors for services such as cleaning, canteen operation, waste collection, gardening, vehicle rentals, security, etc. Indirect employment is expected to contribute to another 90 local full time job equivalents per annum.

Under the REBID tender process promoters are required to submit a detailed economic development plan for evaluation. The promoter of this project has worked closely with representatives within the local communities, municipalities, suppliers and vendors to identify and maximise economic development opportunities. Up to 29% of the project company will be owned by a public sector national development finance institution that promotes economic growth and industrial development in South Africa. A special purpose community trust will own 20% of the project company. The Trust will be used exclusively to promote the economic and social welfare of the population of the local communities.

EIB Carbon Footprint Exercise

Absolute CO₂ emissions from the project in a standard year of operation will be around 8 kt CO₂ e/a.

The baseline emissions are calculated assuming that electricity generated by the project will displace generation from a mix of existing thermal power (coal) and new generation (coal and renewable). Compared to this baseline the project is estimated to save ca. 265 kt CO₂ e/a.