



Information on a joint Agricultural and Renewable Energies Program at Sandfontein Farm, Bonnievale

Bonnievale Solar Farm

Overview

This proposal describes the concept of a joint agricultural and renewable energies (RE) farm development on an emerging farm in the Breede River valley of the Western Cape Province of South Africa, developed by the owner, the Ashton Small Scale Farmers Trust (ASSFT) and a consortium of experienced small and medium sized German RE companies, in collaboration with the NGO TCOE (Trust for Community Outreach & Education) in Cape Town. TCOE works with all its affiliates for the empowerment of small scale farmers, the return of the land to its rightful owners and other political aims like food sovereignty etc. www.tcoe.org.za

The general idea is to develop the farm with suitable agricultural means in order to achieve a self-sustaining entity in the agriculture business. This project frame is being developed since quite some years now by TCOE. Parts of the needed investment funds in the midterm will be accomplished through a solar project. Initially, the farm will be equipped with appr. 75 MW of solar capacity. Later, an assessment for 20 MW of wind energy capacity will be executed. Each proposed project will be incorporated into an individual company within the legal structure of South Africa.

The RE projects base on the current South African RE policies and the need to develop new strategies to secure and renew the agricultural structure of the country. They are intended to deliver solutions for the energy as well as for the agricultural industry and at the same time also create jobs in both sectors.

During the operations phase of the RE component an operating company for all locations has to be set up. This company will employ – among others – electricians, monitoring specialists, accountants, security personnel. Also, a maintenance and repair group has to be established, employees have to be recruited locally and trained in South Africa and sometimes at the manufacturer's sites outside S. A.

The integrated approach of the project is actually a risk management tool, as it answers many concerns raised by relevant authorities and stakeholders in advance. As an example, the co-farming approach, i.e. a concept incorporating the traditional agricultural activities of the landowners, is supported through the lease income generated from the solar farm.

Participating Companies / Organizations

IPD Power (Pty) Ltd. is a south African company owned by German RE companies and investors. It has been approached by TCOE, a Cape Town based NGO, in order to investigate on the feasibility to implement solar and / or wind projects on the farm of a small scale emerging farmers community. The farm belongs to the Ashton Small Scale Framers Trust (ASSFT). This trust owns a 1,080 ha farm called Sandfontein south of Bonnievale and has asked IPD Power for support of its main business – agriculture – through additional income from RE operations.



Share Structure

In return for the land to be used for the RE installations – roughly 150 ha on the north-facing slopes of the hills on the farm for solar and ca. 2 ha for the wind turbines footprint – the ASSFT will receive 10 % of the shares of the RE companies involved. The generated income, initially 10 % of the net profit, will be raised every year after the 7th year by 1 percentage point. The earnings are paid into a separate trust, supervised by members of the ASSFT and NGOs and are being used for investment into agricultural activities.

Proposed Site

The farm is well suited for both solar and wind installations, since it comprises a relatively flat area in the northern part and a steep, north-facing mountain slope in the south. A 132 kV ESKOM transmission line runs directly through the farm, another line is a few km north of the farm which makes access to and feed-in of electricity into the grid very easy and cost-effective. The farm is very well suited to develop a combined RE / agricultural concept, i.e. using community farmland for RE production and thus, as a by-product, supporting the community in its main, agricultural business through the proceedings of the landleases.

Timeframe

The urgent initial step is to assess the potential for solar energy. In order to achieve this, we have already collected public domain data. We also set up a project company (SPV), Bonnievale Solar Farm (Pty) Ltd. The aim of these information sheets is to provide the background for an investment into the development phase of this solar project on the Sandfontein farm and to finally develop that site into a socially owned, community based RE project.

The results show sufficient potential for RE solar farm production, therefore:

- Land lease agreements with the landowning co-op have been concluded
- Solar radiation assessment done: ca. 1,700,000 kWhrs / year / MW installed
- Basic Environmental Impact Assessment (EIA): March to appr. October 2015
- Assessment of Grid Capacity and Connection (in collaboration with ESKOM): Mid 2015
- Legal Framework and Government Approvals: until January 2016
- Participation in DoE REIPPP Tender: 2016
- Power Purchase Agreements (PPA): as soon as selected as preferred bidder
- Financial Closing: 2016
- Start of Construction: 2017
- First Electricity Generation: end of 2017



Finance Model

Development Phase

The total development costs are calculated at less than R 2 Million for the solar farm. The main cost components of the development phase include

- Solar Measurement and Assessment (already done)
- Environmental Impact Assessment - EIA
- Grid Connection Planning, ESKOM Grid Connection Letter
- Management of Development Phase
- Constant Exchange with and Support of Co-op

A detailed breakdown of the costs is available.

Construction Phase

The construction costs will be approximately

- R 1050 Million for the solar farm (R 14 Million per MW turnkey - this sum includes a startup component per MW for the agricultural component of the program)

Operations Phase

The payback of the RE project is estimated at appr. 8 years. A detailed 20-year calculation on the project indicate a return of appr. 11 % for the solar project on the investment. We aim to operate at a kWh-price below R 0.90.

Project Data

The basic parameters for the projects are

- Co-ordinates: 34°02'05"S 20°01'47"E
- Connection of the Project: to Eskom Distribution System via a 132 kV line
- Distributor: Eskom Holdings Limited and Robertson Municipal Distribution System
- Co-ordinates of the nearest Substation: McGregor Sub-Station (132 kV) at 33°58'22"S 19°48'24"E
- Solar project: appr. 2.0 ha / MW installed; single units with trackers (CPV, ca. 30% more efficient) or built-up units in a row facing north; between the installations cattle ranching (i.e. goats) is still possible.
- Weight of solar installation: appr. 100 kg / kW installed, incl. aluminium structure, excl. concrete foundation; each module / panel unit delivers appr. 250 to 300 kWp, so appr. 4 modules / panels are needed for 1 kW.



Contacts:

Dipl. Geol. Thomas Siepelmeyer

Director Bonnievale Solar Farm (Pty) Ltd., CEO IPD Power (Pty) Ltd.

Mobile +27 79 868 1635

epupa@web.de

Maishe Maponya

Director IPD Power (Pty) Ltd.

Mobile +27 72 485 0662

maishe.m@ipd-power.co.za

19 Kent Street Salt Circle Bldg., Unit 407

Woodstock 7925

Phone +27 21 448 6798

Mercia Andrews

Director TCOE, Director Bonnievale Solar Farm (Pty) Ltd.

merciam@tcoe.org.za

Boyce Tom, TCOE

boyce@tcoe.org.za

Telephone Number: (021) 6853033

Fax Number: (021) 6853087

36 Durban Road

Mowbray 7700



Attachment: Farm Map



* The green line represents the 132KV ESKOM power line which can be used for feeding in the produced electricity.

** The north-facing parts of the mountain ridge south of the power line are very suitable for the installation of solar panels. The turbines can be placed on the hilltops of the northern part of the farm.

Disclaimer:

This document serves as initial information for potential investors of the a.m. projects. It is based on the knowledge of the persons responsible for preparing it at the time of preparation. Their analyses and conclusions are general in nature and do not take into account the individual needs of investors in terms of earnings, taxation and risk appetite. Please note that investments of that kind entail risks in addition to the opportunities presented here. The value of the projects may rise or fall. Changes in exchange rates can also have a positive or negative effect on the value of an investment into the projects. For this reason, you may receive less than your originally invested amount when you redeem your share in the projects.