AARDVARK

Certification Ltd

Branden Victoria Solar Park

CO_2 Analysis Report

March 2019

Prepared for: John Laing Environmental Assets Group Ltd

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Executive Summary

Aardvark Certification Ltd (ACL) has been instructed by John Laing Environmental Assets Group Ltd to assess and report against the carbon savings achieved by their 5.89MW solar park located near Victoria, St Austell, Cornwall. This assessment considers the CO_2 savings made as a result of the solar park's energy production and export to the grid.

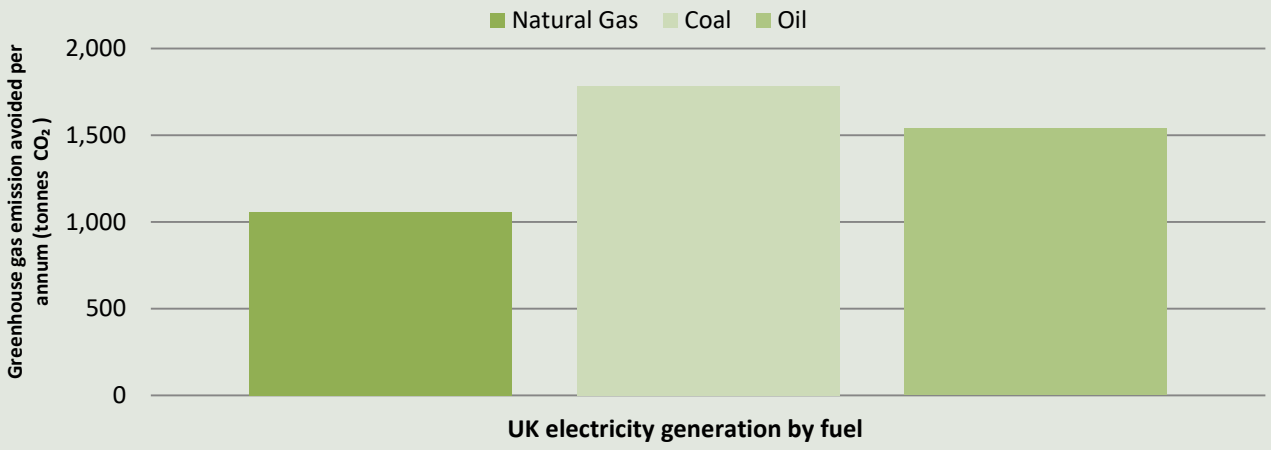
Asset Introduction

The Branden Victoria Solar Park comprises of an array of ground mounted solar panels giving a total installed capacity of 5.89MW. Each year an average of 5,718MWh of renewable electricity has been produced. Since commissioning in March 2013 the solar park has produced 33,398MWh of electricity. During the course of the installations total lifetime it is anticipated that up to 131,668MWh will be produced.

The renewable energy generated by the solar park is fed directly into the grid via the transformer. The grid management system converts the current generated by the generator into an AC current according the requirements and standards given by the local utilities operator.

CO_2 Savings

The preceding summary of energy generation from the solar park enables illustration of the quantities of CO_2 that have been avoided had the Branden Victoria solar parks annual electricity production (5,718MWh) been produced by conventional fossil fuel sources.



GHG Emissions Avoided		
Fuel Type	***Average Annual (tonnes CO_2e)***	***Lifetime Saving (tonnes CO_2e)***
Natural Gas	1,052	24,298
Coal	1,779	35,439
Oil	1,534	41,094

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Energy Production

As there are no green house gas emissions associated with the operational phase of a solar park, the renewable energy produced by the Branden Victoria Solar Park offsets 100% of the equivalent fossil fuel derived energy.

Total Energy Produced (per annum)				UK Generated Electricity	Solar PV Generated Electricity
			Conversion factors	0.28307	0.000
Electricity	5,718,000	kWh	CO_2 Equivalient (kg CO_2e)	1,618,594	0.00
			CO_2 Difference (kg CO_2e)	1,618,594	

What do these savings mean?

The forecast CO_2 savings the Branden Victoria Solar Park will achieve over its lifetime is equivalent to:

- removing the combined emissions of 684 medium sized diesel cars every year from UK roads for the lifetime of the asset.
- Power 1,533 residential properties based upon the national average electricity consumption statistics.
- Provide enough power to drive a Nissan Leaf 16,817,647 million miles a year – equivalent to driving 675 times around the circumference of the earth
- Boil enough water for 1,001 million cups of tea

CO_2 Forecast

Based on the quantity of electricity the solar park produces each year, an average of 1,619 tonnes CO_2e per annum will be offset compared to the emissions associated with electricity produced for the UK Grid. It is expected that during the course of the solar parks remaining 19.2 years of operational life, a further 27,817 tonnes CO_2e will be saved.

Other Emissions to Air Avoided

In addition to offsetting CO_2 emissions, other greenhouse gas emissions are also avoided including CH4 and N_2O. Based on the amount of electricity produced by the Branden Victoria Solar Park per annum, emissions of these gasses which have been avoided have been calculated and shown below.

CO_2e of CH_4 emissions avoided kg/yr	CO_2e of N_2O emissions avoided kg/yr
3,774	8,749

Conversion factors used in this analysis are the Department for Business, Energy & Industrial Strategy Greenhouse gas reporting: conversion factors 2018.

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Methodology

This report has been prepared in good faith by Aardvark Certification Ltd based on data obtained from the owner/operator of the asset reviewed. Our calculations of CO2 savings are based on IFI Approach to GHG Accounting for Renewable Energy Projects. Baseline Emission Factors used in this analysis are taken directly from the Department for Business, Energy & Industrial Strategy Greenhouse gas reporting: conversion factors 2018.

Liability

This document contains information and may contain conclusions and recommendations. Every effort has been made to ensure that the information is accurate and that the opinions expressed are sound. However, Aardvark Certification Limited cannot be made liable for any errors or omissions or for any losses or consequential losses resulting from decisions based on the information.

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