

Pylle Solar Park

CO₂ Analysis Report

August 2018

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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 5MW solar park located in Pylle, Somerset. This assessment considers the CO₂ savings made as a result of the solar park’s energy production and export to the grid.

Asset Introduction

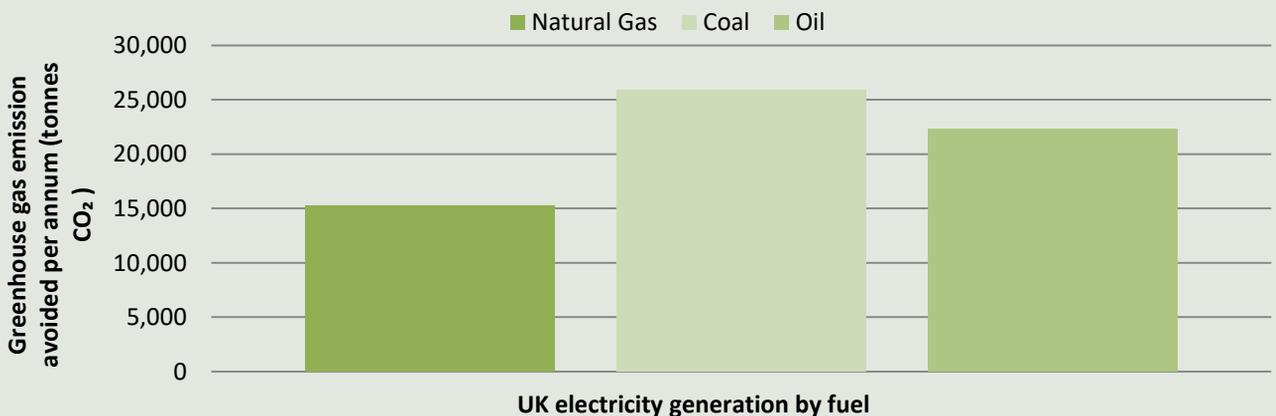
The Pylle Solar Park comprises of an array of ground mounted solar panels giving a total installed capacity of 5MW. Each year an average of 4,962MWh of renewable electricity is produced. Since commissioning in April 2014 the solar park has produced an estimated 21,088MWh of electricity. During the course of the installations remaining lifetime it is anticipated that up to 127,523MWh will be produced.

The renewable energy generated by 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.



CO₂ Savings

The preceding summary of energy generation from the solar park enables illustration of the quantities of CO₂ that have been avoided had the Pylle solar parks annual electricity production (4,962MWh) been produced by conventional fossil fuel sources.



GHG Emissions Avoided

Fuel Type	Average Annual (tonnes CO ₂ e)	Remaining Lifetime (tonnes CO ₂ e)
Natural Gas	15,283	479,259
Coal	25,895	530,857
Oil	22,332	457,811

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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 Pylle Solar Park offsets 100% of the equivalent fossil fuel derived energy.

Total energy produced each year		UK Generated Electricity	Wind Generated Electricity
4,962,000 kWh	Conversion Factor	0.28088	0.000
	CO₂ Equivalent (kg CO₂e)	1,393,727	0.000
	Annual CO₂ Difference (kg CO₂e)		1,393,727

What do these savings mean?

The forecast CO₂ savings the Pylle Solar Park will achieve over its lifetime is equivalent to:

- removing the combined emissions of 506 medium sized diesel cars over 25 years from UK roads.
- Power 5,596 residential properties based upon the national average electricity consumption statistics.
- Provide enough power to drive a Nissan Leaf 14,594,118 million miles a year – equivalent to driving 586 times around the circumference of the earth
- Boil enough water for 868.35 million cups of tea

CO₂ Forecast

Based on the quantity of electricity the solar park produces each year, an average of 1,394 tonnes CO₂e 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 25.5 years of operation life 28,571 tonnes CO₂e will be saved.

Other Emissions to Air Avoided

In addition to offsetting CO₂ emissions, other greenhouse gas emissions are also avoided including CH₄ and N₂O. Based on the amount of electricity produced by the Pylle Solar Park per annum, emissions of these gasses which have been avoided have been calculated and shown below.

CH ₄ emissions avoided kg/yr	N ₂ O emissions avoided kg/yr
3,275	7,592

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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

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