

TECHNICAL APPENDIX 14.3.3

Estimated Solar Yield and Carbon Benefit Calculations



ScottishPower Renewables

9th Floor Scottish Power Headquarters

320 St Vincent Street

Glasgow

G2 5AD

ITPenergised

7 Dundas Street

Edinburgh

EH3 6QG

Registration Number: SC450178

Tel: 0131 557 8325

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Kilgallioch Proposed Solar Site – Estimated yield for assumed 20MWp system.

We have utilised the EU Database PV GIS, utilising the 4 different datasets provided by the platform.

System Assumptions

- 20MWp
- Modules and Inverters – not specified
- System Losses – 14%
- Module inclination – 30°

Dataset	Yearly in place irradiation kWh/m ²	Annual PV Production kWh	Output kWh/kWP	Calculated PR %	Yearly Variability	Carbon Benefit (TCO ₂ e per annum)
PVGIS-CMSAF	1139	18,647,840	932	82	4.9%	5171
PVGIS - SARAH	1111	18,168,255	908	82	4.2%	5038
PVGIS – ERA5	1235	20,453,406	1022	82.8	2.7%	5671
PVGIS - COSMO	1092	17,942,326	897	82.1	4.8%	4975
Average	1144.25	18,802,956.75	939.75	82.23	4.15%	5213.75

Notes on table

- 1) Yearly in-plane irradiation – often referred to as Horizontal irradiation – kW/m² received multiplied by the number of hours – kWh/m²
- 2) Annual PV Production – this is available exportable electricity converted by the solar system, after losses, allowing for inclination.
- 3) Output kWh/KWp. This is the output for every KW installed on the system. This is direct relationship to the performance ratio and the available irradiance.
- 4) Yearly variability – standard deviation of the yearly values calculated over the time period covered by the chosen solar radiation database.
- 5) Carbon Benefit – this is based on the current grid emission factors (2019) for electrical generation in the UK as published by BEIS. (0.2556kgCO₂e + 0.02170kgCO₂e [t&D])

Disclaimer: This is not a bankable yield assessment and has not be carried out using a detailed site design. Design layout, topography, shading, module and inverter choice will impact PR and overall yield.



Registered Address:

7 Dundas Street

Edinburgh

EH3 6QG

+44 (0) 131 557 8325