



Development of national significance in the renewable energy sector

Economic Benefits Report

Penderi Solar Farm,
Land at Blaenhiraeth Farm,
Langennech, Llanelli, SA14 8PX

APPLICATION SUBMISSION

January 2020 | BRS.4254



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1. INTRODUCTION

1.1 This report outlines the economic benefits that will be created by the installation and operation of a 38MW solar farm at Blaenhiraeth Farm in Camarthenshire, as well as addressing comments made by consultees during the statutory pre-application consultation phase. It has been produced on behalf of Voltalia UK Ltd. The main findings from the analysis are summarised below:

- i. **Construction phase employment:** The Proposed Development could support around 70 temporary jobs, both direct jobs on-site and indirect/induced roles in the wider economy, during the 11-month construction period. A similar number of jobs are expected to be supported as part of the decommissioning process.
- ii. **Contribution of construction phase to economic output:** The gross value added (GVA – a proxy for economic output) generated by jobs supported during the construction phase is around £3.3million.
- iii. **Permanent job creation:** It is estimated that the scheme will support around 4 net additional full-time equivalent jobs (FTE) in Camarthenshire and the wider economy once it is operational. The additional GVA associated with the 4 FTEs is estimated to be £1.7million over a 10-year period (present value).
- iv. **Powering homes and offsetting CO₂ emissions:** 38MW of solar farm capacity is estimated to power around 10,600 homes per annum, and offset 525,000 tonnes of CO₂ over the next 35 years.

1.2 As part of the statutory pre-application consultation phase, a number of comments were made by consultees relating to the negative impact the scheme could have on tourism in the local area. A review of work undertaken on the impact of renewable energy schemes elsewhere in Great Britain indicates little impact on tourism. Based on experiences in Cornwall (solar and wind farms) and Wales (wind farms), such scheme do not appear to significantly influence the decision to visit an area. The construction phase may well be viewed negatively by visitors and local businesses, highlighting the importance of minimising any disruption as much as possible.

Report Structure

- **Section 2** describes the character of the Camarthenshire economy, in comparison to Wales and Great Britain.

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- **Section 3** sets out the construction phase benefits of the Proposed Development, outlining its contribution to employment and economic output.
 - **Section 4** sets out the number of jobs that the scheme will create once fully developed and occupied and presents the assessment of the contribution of the scheme to economic output. It also provides estimates on how many homes the solar farm could power on an annual basis and how much CO₂ it will offset.
 - **Section 5** looks at comments made by consultees during the statutory pre-application consultation phase, in terms of the potential impact the scheme could have on tourism.

1.3 Appendix A presents the main findings from the analysis as an infographic.

2. SOCIO-ECONOMIC BASELINE

Introduction

2.1 This section presents a profile of the Carmarthenshire economy, alongside Wales and Great Britain for comparison purposes. It examines the following topics:

- Employment – change over time and key sectors
- Businesses by size and change over time.
- Unemployment.
- Economic activity.

Employment¹

2.2 Based on the most recent data published by the Office for National Statistics (ONS) from the Business Register & Employment Survey (BRES), in 2018 around 77,000 people – including the self-employed – worked in Carmarthenshire.

2.3 Employment in Carmarthenshire grew by 1.3% between 2015 and 2018, equating to 1,000 additional jobs. This was below the increases of 3.0% and 3.3% seen in Wales and Great Britain respectively (see Table 2.1). The Proposed Development will create new job opportunities in Carmarthenshire and support the area in seeing a faster rate of employment growth.

Table 2.1: Employment Change, 2015-18

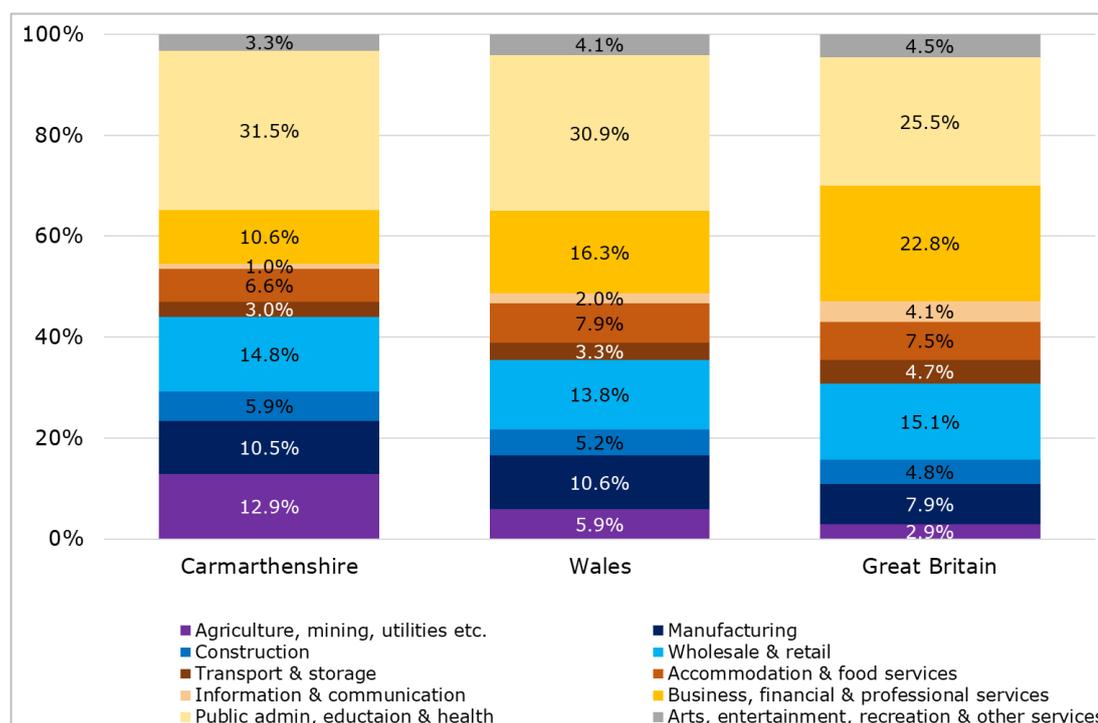
Area	2015	2018	Absolute Change	% Change
Carmarthenshire	76,000	77,000	1,000	1.3%
Wales	1,322,000	1,361,000	39,000	3.0%
Great Britain	29,819,000	30,815,000	996,000	3.3%

Source: Office for National Statistics – Business Register & Employment Survey

2.4 Public administration, education and health is the largest sector in Carmarthenshire, accounting for around 24,000 (31.5%) of all jobs. The second largest sector is wholesale & retail, which supported around 11,300 jobs in 2018 and accounted for 14.8% of the District’s total employment. Figure 2.1 shows the sector share of employment in further detail.

¹ Figures presented in this section may sum due to rounding.

Figure 2.1: Employment by sector, 2018



Source: Office for National Statistics – Business Register & Employment Survey

Total Businesses

2.5 There are currently around 9,100 businesses in Carmarthenshire. Just over 86.0% of these are micro businesses (employing between 0 and 9 people); 12.0% are small (10 to 49 employees); 1.8% are medium (50 to 249 employees); and 0.2% are large (250+ employees). This represents a slightly higher proportion of micro businesses and a slightly lower proportion of small, medium and large businesses relative to Wales and Great Britain. Table 2.2 presents the data on business size in more detail.

Table 2.2: Businesses by size, 2019

Area	Micro (0 to 9)	Small (10 to 49)	Medium-sized (50 to 249)	Large (250+)
Carmarthenshire	86.1%	12.0%	1.8%	0.2%
Wales	83.2%	13.8%	2.6%	0.4%
Great Britain	84.5%	12.5%	2.6%	0.4%

Source: Office for National Statistics – UK Business Count

2.6 Between 2010 and 2019, the number of businesses in Carmarthenshire grew by 5.4% (465). This represented lower growth when compared with the increases seen in Wales and Great Britain of 14.1% and 24.1% respectively. Table 2.3 presents the data in more detail.

Table 2.3: Business Change, 2010-2019

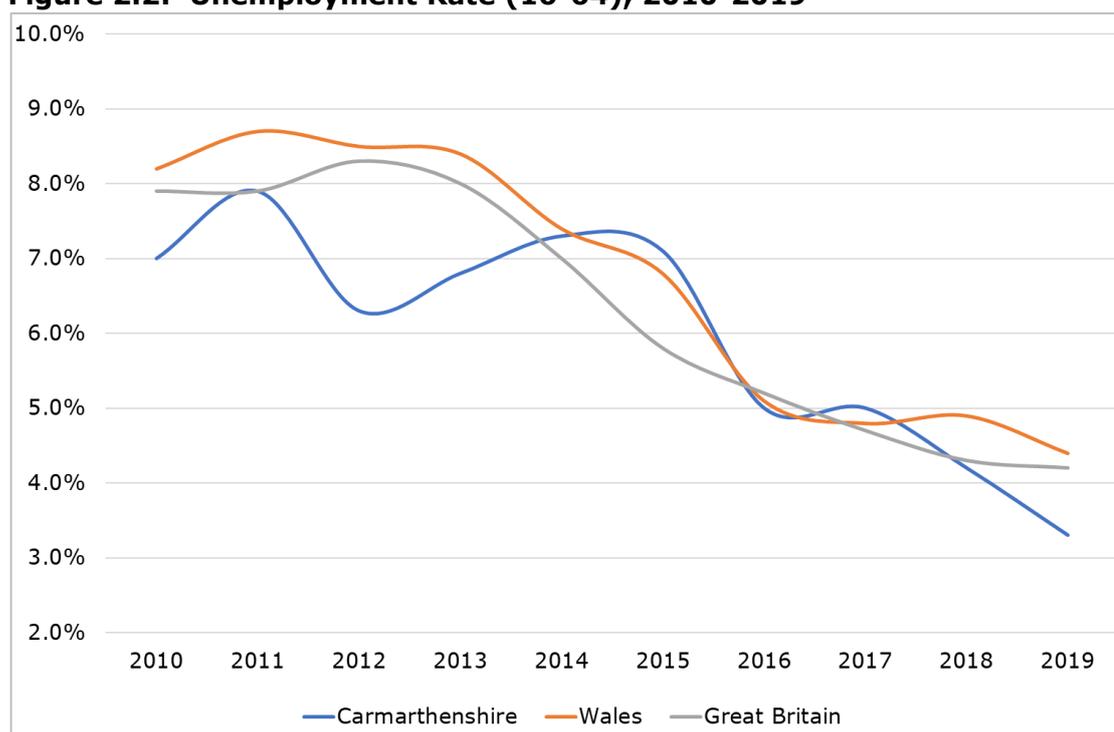
Area	2010	2019	Absolute Change	% Change
Carmarthenshire	8,640	9,105	465	5.4%
Wales	112,810	128,745	15,935	14.1%
Great Britain	2,489,955	3,090,415	600,460	24.1%

Source: Office for National Statistics – UK Business Count

Unemployment

2.7 Overall, the unemployment rate in Camarthenshire fell between 2010 and 2019 (see Figure 2.2). As of July 2018-June 2019, the unemployment rate for people aged 16-64 in the area was 3.3%. Compared with a figure of 7.0% for the same timeframe in 2010, this represents a substantial improvement. Unemployment in Camarthenshire fluctuated between 2010 and 2015, however it has been on a downward trend since then. In addition, unemployment in Camarthenshire is currently lower than in Wales (4.6%) and Great Britain (4.2%).

Figure 2.2: Unemployment Rate (16-64), 2010-2019



Source: Office for National Statistics – Annual Population Survey

2.8 Paragraph 2.3 highlights Carmarthenshire’s modest labour market growth relative to Wales and Great Britain, yet the data above indicate that unemployment is not a major issue for the area. When considering this issue, it is important to note that the employment data are workplace-based (i.e. they only show the number jobs in

area, and not where the people undertaking those jobs live), whereas the unemployment data are residence-based. This would suggest that people living in Carmarthenshire and who are in employment don't necessarily work in the area. Results from the 2011 Census back up this view, indicating that Carmarthenshire has a net outflow of around 6,800 commuters. The neighbouring local authority of Swansea is a common destination for commuters. It is therefore important that new job opportunities are created in Carmarthenshire, which can help in reducing commuting outflows and support sustainable economic growth.

3. CONSTRUCTION PHASE BENEFITS

Supporting Construction Employment

3.1 Economic benefits will arise through the provision of temporary jobs during the construction phase at the site. Research published in 2014 by the Centre for Economic & Business Research (Cebr) on solar powered growth in the UK² highlighted analysis by the Solar Trade Association on the cost of solar energy. The analysis estimated that by 2016, the capital investment cost of building one megawatt of solar power for a large-scale development³ would be around £800,000. Assuming this price is broadly similar in 2018, when applied to the Proposed Development (38MW of solar) this equates to a capital cost of around £30million and will support a number of jobs during the scheme's build phase.

3.2 In a design and access statement by TGC renewables associated with a planning application (15/00588/FUL) for a proposed 21MW solar farm on the land at Radbrook Pastures in Stratford-on-Avon⁴, it is noted that solar farms create opportunities for local businesses through the supply chain, including aggregates suppliers, security and monitoring during operation, farming and landscaping contractors and other aspects of the construction process, such as fencing. The report goes on to quote a 2014 solar farm appeal decision: APP/K1128/A/13/2206258, which states that solar farms:

"Would provide some support for the construction industry and local contractors/suppliers could be engaged during the construction and eventual decommissioning stages. Some construction workers may also use some local services. Furthermore, the scheme would generate additional income for the landowners, enhancing farm incomes and possibly diversifying some farm businesses. This would accord with the Government's objective of promoting a strong rural economy. In addition, the development would assist in increasing the security and diversity of electricity supply. These economic benefits are important considerations that can be given much weight" (Paragraph 17).

3.3 In the Construction Management Plan associated with the Proposed Development, it is estimated that there will be up to 30 construction workers on-site during peak

² *Solar powered growth in the UK – the macroeconomic benefits for the UK of investment in solar PV*: Cebr (report for the Solar Trade Association), September 2014.

³ Cebr's report noted that large-scale arrays usually have a capacity of at least 1MW.

⁴ *Planning, Design & Access Statement – Proposed Solar Farm on Land at Radbrook Pastures*: TGC Renewables, August 2018.

times of the construction period, which is expected to be up to 11 months. In the *Solar powered growth in the UK* report, Cebr⁵ give an employment multiplier for large-scale solar PV investments of 2.33 – i.e. for every job supported on-site, 1.33 indirect/induced jobs are supported in the wider economy. Applying this multiplier to the 30 on-site jobs, the Proposed Development could support 40 additional temporary jobs in the wider economy during the 11-month build phase.

- 3.4 In total, the Proposed Development could support around 70 temporary jobs, both direct jobs on-site and indirect/induced roles in the wider economy, during the 11-month construction period. A similar number of jobs are expected to be supported as part of the decommissioning process after 35 years when the solar farm comes to the end of its lifespan.

Gross value added

- 3.5 The contribution of the site to economic output has been calculated by taking the 30 on-site jobs associated with the scheme, and multiplying this by an estimate of average levels of gross value added (GVA) per construction employee in Wales. Based on data sourced from the Office for National Statistics (ONS), GVA per construction employee in Wales is around £56,000 per annum. This is based on data for 2018.
- 3.6 The estimated 40 indirect/induced jobs have been multiplied by the average GVA per job in Wales overall. Based on ONS data, it was £48,000 in 2018.
- 3.7 Based on the figures above, it is estimated that during the 11-month construction of the Proposed Development, the GVA associated with the 70 temporary jobs supported on-site and in the wider economy is around £3.3million.

⁵ *Solar powered growth in the UK – the macroeconomic benefits for the UK of investment in solar PV*: Cebr (report for the Solar Trade Association), September 2014.

4. BENEFITS CREATED ONCE THE SCHEME IS OPERATIONAL

Introduction

- 4.1 This section outlines the impact of the proposed scheme, in terms of supporting permanent employment and economic output in Camarthenshire. It also outlines how the scheme will power homes and offset CO₂ emissions.

Employment

- 4.2 Details of permanent on-site jobs supported by the Proposed Development are still to be finalised. A maximum of 3 gross full-time equivalent (FTE) jobs has been used to inform this report, which reflects maintenance employment related to the site.
- 4.3 For consistency, to arrive at a net estimate for job creation, the same multiplier has been applied as the on-site construction jobs (1.33, as per the Cebr report). Applying this multiplier to the estimated 3 gross FTE jobs, it is estimated that the scheme will support around 4 net additional FTE jobs in Camarthenshire and the wider economy once it is built and fully operational.

Gross value added

- 4.4 The contribution of the site to economic output has been calculated by taking the job creation associated with the scheme, and multiplying this by an estimate of average levels of GVA per employee in Wales (£48,000 in 2018, based on ONS data). It is estimated that once operational and fully occupied, GVA associated with the direct, indirect and induced jobs will be around £199,000 per annum.
- 4.5 Looking at the economic output contribution over a longer timeframe, over a ten-year period the additional GVA associated with the permanent jobs is estimated to be £1.7million (present value)⁶.

Other Quantitative Benefits

- 4.6 Based on information provided by Volitalia UK Ltd, it is estimated that 38MW of solar farm capacity will power around 10,600 homes per annum. It is also estimated that the scheme could offset almost 15,000 tonnes of CO₂ per annum, or 525,000

⁶ Where future benefits are calculated over a 10-year timeframe, they have been discounted to produce a present value. This is the discounted value of a stream of either future costs or benefits. A standard discount rate is used to convert all costs and benefits to present values. Using the Treasury's Green Book, the recommended discount rate is 3.5%.

tonnes over the next 35 years. The issue of reducing emissions is a significant one, given in June 2019 the UK became the first major economy in the world to pass laws to end its contribution to global warming by 2050. The target requires the UK to achieve net zero greenhouse gas emissions by 2050.

4.7 A design and access statement produced as part of a planning application for a solar farm in Stratford-upon-Avon⁷ lists a number of wider economic benefits associated with solar power. These are as follows:

- Additional investment of £40billion is expected in renewable energy generation projects up to 2020, boosting energy security, reducing reliance on imported fossil fuels and supporting up to 200,000 jobs by 2020.
- TGC present data published by Cebr which states that by 2030 British Solar could provide 60GW of power, supplying 18 million homes and supporting an average of 49,900 jobs per annum – nearly twice as many jobs as new nuclear and more than twice as many as on-shore wind, per unit of energy generated. The research found that, with bold government backing, by 2030, solar farms could contribute £25.5billion to the UK economy and put £425million back into consumers’ pockets through reduced energy costs.

Qualitative Impacts – Supporting Economic Development Objectives

4.8 In March 2017, the Welsh Government published its economic action plan – Prosperity for All. The plan sets out a vision for inclusive growth and drives the twin goals of growing the economy and reducing inequality. Significantly, it includes an action of driving sustainable growth and combatting climate change. The Action Plan goes on to state the importance “...on energy as an enabling sector and the emphasis we place in this Plan on equipping our people with the skills our economy needs and decarbonising our public transport infrastructure.”⁸ The proposed solar farm will help not only in combatting climate change, but also in supporting the transition to a low carbon economy.

⁷ *Planning, Design & Access Statement – Proposed Solar Farm on Land at Radbrook Pastures:* TGC Renewables, August 2018.

⁸ *Prosperity for All: economic action plan.* Welsh Government, March 2017.

5. CONSULTEE COMMENTS ON THE SCHEME

Consultee comments on socio-economic impacts of the scheme

5.1 As part of the statutory pre-application consultation phase, a number of comments were made by consultees relating to the potential impact the scheme could have on tourism in the local area. In summary, these responses included:

- The site is in an attractive area containing the Morlais river and Troserch woods. These are places that attract tourism and leisure which are being promoted. The solar farm will significantly dominate and spoil the landscape, health and wellbeing and leisure opportunities for its community.
- Woods Wales relies heavily on agriculture and tourism and the proposed development will surely undermine any policies the Welsh Assembly Government may have to promote agriculture and tourism in the area as it clearly impacts significantly on the character of the landscape and the views from the A476 which itself is a well-known accident blackspot.
- Wales is a nation highly dependent upon agriculture and tourism which will be undermined by the development.

Responding to consultee comments

5.2 The comments made by consultees highlight the important role that tourism plays in supporting the local economy and there is concern that the scheme could impact negatively on this. When considering the extent to which this could happen, it is helpful to look at work undertaken elsewhere on any impacts that renewable energy schemes can have on tourism.

5.3 In 2013, a survey of 1,000 holidaymakers in Cornwall explored the extent to which solar and wind farms impact on whether people would visit the area. The survey was commissioned by Good Energy, a renewable energy supplier, and carried out during the peak holiday month of August. The main findings to emerge from the research were that⁹:

- More than nine out of ten (94%) respondents said the presence of solar and wind farms would make no difference to their decision to visit Cornwall again.

⁹ <https://www.economicvoice.com/wind-and-solar-farms-are-accepted-part-of-landscape-say-holidaymakers-in-cornwall/>

- Poor weather (17%) and the cost of holidaying (14%) were the largest deterrents to holidaymakers, with only 2% of those surveyed citing the presence of solar and wind farms as a reason to be less likely to visit Cornwall.
- Only 7% of those surveyed said that the presence of solar farms had a negative impact on their visit.

5.4 In another study published in 2014, Regeneris Consulting and The Tourism Company looked at the potential economic impact of onshore wind farms and associated grid infrastructure on the Welsh Tourism Sector¹⁰. Findings from the study include:

- Wind farms have been an established presence on the local landscape in areas such as Powys, Anglesey and the South Wales Valleys. Case study analysis of these areas (including consultation with local tourism trade associations and local authority tourism officers) reveals little evidence of significant impacts on tourism. The majority of consultees believed there had been no impact on overall visitors numbers.
- While visitor responses and reactions to wind farms are highly subjective, the evidence indicates that a clear majority of people do not react negatively to wind farm developments or change their visiting behaviour as a result.
- Disruption during the construction phase can be an annoyance for visitors and also businesses. The study found no evidence that it had deterred visitors, however it did note that such disruption should be minimised or mitigated through the planning process.

5.5 The analysis presented above indicates that solar and wind farms do not have any major negative impacts on tourism, with the presence of such schemes not appearing to significantly influence the decision to visit an area. The construction phase may well be viewed negatively by visitors and local businesses, highlighting the importance of minimising any disruption as much as possible.

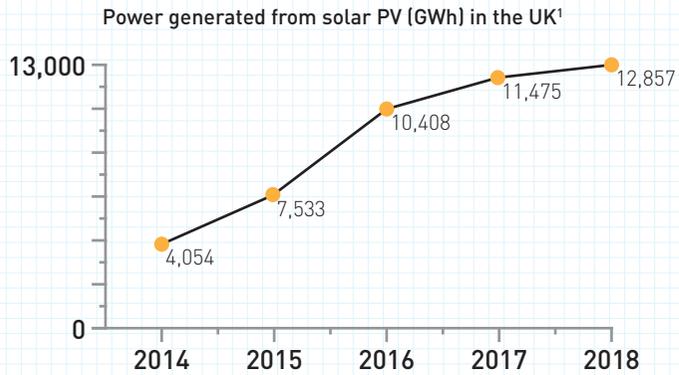
¹⁰ *Study into the Potential Economic Impact of Wind Farms and Associated Grid Infrastructure on the Welsh Tourism Sector*. Regeneris Consulting & The Tourism Company, February 2014.

APPENDIX 1 – ECONOMIC BENEFITS INFOGRAPHIC

ECONOMIC BENEFITS

LAND AT BLAENHIRAETH FARM, CAMARTHENSHIRE
CONSTRUCTION OF A **38MW** SOLAR PHOTOVOLTAIC FARM

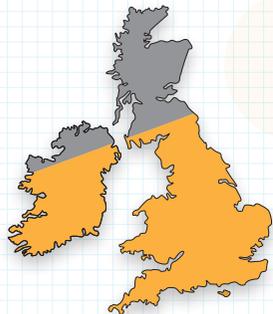
SUPPORTING A GROWING SECTOR



Jan-May 2019

For the first time since the Industrial Revolution, Britain obtained more power from zero-carbon sources (48%) than fossil fuels (47%).

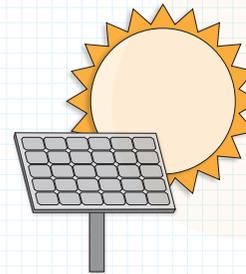
SUPPORTING RENEWABLE ENERGY TARGETS



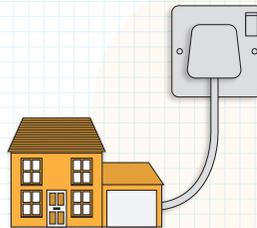
10%
of UK energy came from renewable sources in 2017.²

32%
of energy to come from renewable sources by 2030.³

BENEFITS OF THE SCHEME

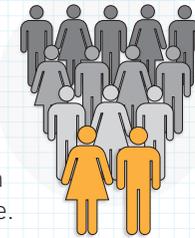


Investment of approximately **£30million** to develop a 38MW solar PV farm.



Generating enough power for **10,600** homes.

Supporting **70** temporary jobs, both on-site and in the wider supply chain during the 11-month construction phase.



Supporting **4** permanent direct and indirect jobs once the proposed development is built and operational.



Saving around **525,000** tonnes of CO₂ over a 35-year period.

Contributing **£3.3million** in gross value added to the economy over the 11-month construction phase.



Contributing **£1.7million** in gross value added⁴ to the economy over the next 10 years.⁵

¹ Based on data in the 2019 edition of the Digest of United Kingdom Energy Statistics (DUKES), published by the Department for Business, Energy & Industrial Strategy.
² Eurostat Renewable Energy Statistics 2019.

³ Based on the 2030 Climate & Energy Framework, adopted by the European Council in October 2014.
⁴ GVA, or gross value added, is the measure of the value of goods and services produced in an area, sector or industry.
⁵ Present value.

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