
Grazeley Solar Farm Project Update

Committee considering report:	Executive
Date of Committee:	15 December 2022
Portfolio Member:	Councillor Steve Ardagh-Walter
Date Portfolio Member agreed report:	1 November 2022
Report Author:	Jon Winstanley
Forward Plan Ref:	EX4293

1 Purpose of the Report

- 1.1 To provide an update on the business case for the Grazeley Solar Farm project and to seek delegated authority for the Service Director Environment to enter into a power purchase agreement to supply energy through the Crown Commercial Services Heat Networks and Electricity Generation Assets (HELGA) Framework.

2 Recommendation

- 2.1 That the updated business case be noted and that the Executive give delegated authority for the Service Director Environment, in consultation with the S151 and Monitoring Officers, to approve registering as an energy supplier on the Crown Commercial Services Heat Networks and Electricity Generation Asset (HELGA) Framework and entering into of a Power Purchase Agreement for up to 30 years for the supply of electricity through said framework.

3 Implications and Impact Assessment

Implication	Commentary
Financial:	Detailed financial analysis is included in the report and its appendices. Funding for this project is identified in the Council's current 5 year Capital Programme.
Human Resource:	None as a result of this report.
Legal:	The recommendations of this report would involve the Council registering on the Crown Commercial Services Heat Networks and Electricity Generation Asset (HELGA) Framework as an

	<p>energy supplier. The Council will be bound by the Framework's governing terms and conditions applicable to Suppliers.</p> <p>Once registered as a Supplier, the Council may bid for any suitable tenders to supply energy and could enter into a power purchase agreement with a Tenderer for a maximum 30 year term.</p> <p>Any future power purchase agreement would need to be reviewed by Legal Services prior to agreement.</p>			
Risk Management:	<p>The risks within this project are being managed in accordance with the Council's Risk Management and Project Management Methodology procedures.</p> <p>The recommendations of this report will help mitigate the financial risk to the Council of future energy market volatility.</p>			
Property:	<p>The recommendations from this report have no property implications in addition to those already committed to as part of the delivery of the solar farm.</p>			
Policy:	<p>The proposed course of action is in line with the Council's Environment Strategy.</p>			
	Positive	Neutral	Negative	Commentary
Equalities Impact:				
A Are there any aspects of the proposed decision, including how it is delivered or accessed, that could impact on inequality?				N/A

B Will the proposed decision have an impact upon the lives of people with protected characteristics, including employees and service users?				NA
Environmental Impact:	x			The proposal is in line with the aims of the Council's Environment Strategy and delivery plan.
Health Impact:		x		N/A
ICT Impact:		x		N/A
Digital Services Impact:		x		N/A
Council Strategy Priorities:	x			This scheme supports the 'Maintaining a Green District' priority.
Core Business:		x		N/A
Data Impact:		x		N/A
Consultation and Engagement:	<p>Claire Say – Principal Lawyer Property & Procurement</p> <p>Ann McManners – Strategic Assets Team Leader</p> <p>Miles Roberts – Principal Engineer</p> <p>Jenny Graham – Environment Delivery Manager</p> <p>Adrian Slaughter – Energy & Carbon Manager</p> <p>Shannon Coleman-Slaughter – Chief Financial Accountant</p> <p>Sarah Wood – Category Manager Agency & Energy</p>			

4 Executive Summary

4.1 In September 2022 planning permission was secured for the construction of a solar farm at Grazeley. The original business case for the solar farm was produced in November

2020 which demonstrated that a 16MWp farm, costing £10.5m, would generate a modest internal rate of return of 4% whilst offsetting approximately 30% of the Council's carbon footprint.

- 4.2 It should be noted that planning permission has been secured for a 25MWp farm as options are being explored with Scottish and Southern Energy to increase the available grid connection capacity. The 25MWp project represents the most environmentally beneficial scheme that could be built on the land available, which in turn would have the most impact in planning terms. Should additional capacity not be found then the fall-back position would be the construction of an 18MWp facility, which is the maximum size that could be built with the currently available 12MVA grid connection.
- 4.3 In light of the turbulent energy, commodities and financial markets in recent times, an updated options summary and business case appraisal has been prepared by consultants Horizon Power and Energy, which can be seen in Appendix A along with Annexes A to E. Despite the impact of interest rates, rising material costs and other detrimental factors, the updated business case demonstrates that the provision of a solar farm at Grazeley is still a financially and environmentally viable proposition. It is also identified that two potential scheme options exist which impact the economics and risk exposure, which vary dependent on the location of the grid connection.
- Option 1 – Connection directly into the grid. This involves cabling to a designated grid connection point and selling/exporting 100% of the energy produced to the grid.
 - Option 2 – Grid connection via AWE Burghfield. This involves a connection via AWE's substation at Burghfield and may allow the opportunity to sell some of the energy to AWE via a power purchase agreement.
- 4.4 The relative merits of each grid connection option are discussed within the body of the report and some key factors can be compared in the table below:

	Option 1 – Grid connection	Option 2 – AWE connection
Scheme cost	£14.98m	£16.30m
First year return	£98,953	£230,412
Internal rate of return (IRR)	5.62%	7.60%
Carbon offset as a percentage of WBC Council emissions	37%	37%
% of WBC carbon emissions offset	37%	10%
Scheme completion and turn on date	June 2024	Nov 2024

- 4.5 It is the view of officers and the advising consultant that the AWE connection option significantly de-risks the project and reduces the financial exposure for the Council going forward. Although there would be a reduction in carbon offset for the Council and an extension to the programme, on balance the recommendation is to pursue the AWE connection option.
- 4.6 In order to do this it would be necessary for the Council to successfully tender to supply AWE with energy and enter into a 30 year Power Purchase Agreement. This would involve the Council registering as a supplier on the Crown Commercial Services Heat Networks and Electricity Generation Assets (HELGA) Framework.
- 4.7 It is therefore recommended that the Executive give delegated authority for the Service Director Environment, in consultation with the S151 and Monitoring Officers, to approve the entering into of a Power Purchase Agreement for up to 30 years for the supply of electricity through the Crown Commercial Services Heat Networks and Electricity Generation Asset (HELGA) Framework.

5 Supporting Information

Introduction

- 5.1 In September 2022 planning permission was secured for the construction of a solar farm in Grazeley. The approved scheme involves the provision of a 25MWp site across 75 acres.
- 5.2 The Council currently has secured a 12MWA grid connection which would allow the construction of an 18MWp site. There are options being explored with Scottish and Southern Energy to increase the connection size to allow the construction of the 25MWp farm. The scheme submitted for planning represented the largest and most intrusive scheme (worst case in planning terms) possible in the event that additional grid capacity can be secured, in the knowledge that the project could be scaled back should additional network capacity not be secured.
- 5.3 For the purposes of updating the business case, an 18MWp scheme is assumed.

Background

- 5.4 The initial business case for the project was developed in November 2020 which demonstrated that a 16MWp site would generate a modest annual surplus and an estimated internal rate of return (IRR) of 4.0%. World events have since led to volatility in the financial markets affecting borrowing rates and the cost of materials and volatility in the energy markets. The business case has therefore been revisited in light of these changing markets.
- 5.5 An updated options summary and business case appraisal has been prepared by consultants Horizon Power and Energy.
- 5.6 There are many economic factors working against the delivery of solar projects at present including a weakened pound, rising material costs, global PV demand pushing up prices, rising employment costs and increased borrowing rates to name a few. Fortunately this is being offset by high energy prices.

- 5.7 The updated project cost for an 18MWp solar farm is between £14.98m and £16.30m dependent on the location of the grid connection. This compares to the original estimate of £10.5m for a 16MWp scheme from 2020. However, the rise in energy prices has meant that the IRR for the project has risen from the 2020 figure of 4.0% to between 5.62% and 7.60% dependent on the connection options discussed below.

Proposals

- 5.8 Two potential grid connection options are available to the Council, the choice of which could have an impact on the scheme economics.

Option 1 – Connection directly into the grid

- 5.9 This would involve laying a cable beneath the Highway between the site and a point designated by SSE to the north west of the site, a distance of approximately 3.4km (see Appendix A Annex E). Negotiations are under-way with adjacent landowners to enter into wayleaves to shorten the route and reduce the amount of hard dig, however the worst case scenario along the road has been assumed for this business case.
- 5.10 In connecting directly into the grid the Council would enter into a Power Purchase Agreement (PPA) with the District Network Operator (DNO which is SSE) to sell them energy.
- 5.11 The total cost of delivering this option is £14.98m.
- 5.12 The benefits of this option is that all the carbon savings (3,256 tonnes per annum) can be offset against West Berkshire Council's operations and this would represent approximately 37% of the Council's footprint (2021/22 figures).
- 5.13 A major risk of this option is the volatility of the energy markets which could potentially leave the Council exposed should energy prices drop and interest rates remain high.

Option 2 – AWE Grid connection

- 5.14 There is a possibility of connecting into the grid via AWE's Burghfield substation. Informal discussions have taken place with both AWE and SSE which have indicated this may be feasible. AWE have also expressed an interest in purchasing green energy locally.
- 5.15 The overall cost of this option is estimated at £16.30m. The difference in cost from the Grid option is due to a slightly shorter cabling distance to the AWE site, but there is a £1.5m addition due to potential work required to connect to the grid through AWE.
- 5.16 Connecting into AWE Burghfield would provide a number of benefits especially if they are able to buy energy. Early informal discussions indicate that AWE's power requirements are such that they could potentially take approximately 73% of the generated energy from the Grazeley site, with the remainder being exported to the grid.
- 5.17 In order for AWE to purchase exported energy, the Council would need to register as a supplier on the HELGA Framework and bid in response to any tender that AWE may issue for the supply of energy. If the Council were the successful bidder, the Council and AWE would need to enter into a Power Purchase Agreement. Typically these

agreements are over 30 years and involve the purchase of power for a fixed (or strike) price with an annual indexation. This gives the Council security of income for the 30 year life of the solar farm and generates savings for AWE in that they will receive relatively cheap green energy for that time.

- 5.18 As AWE are a public body, public procurement regulations apply and they would need to undertake a competitive procurement process in order to purchase energy from the Council. AWE has indicated that they would undertake this procurement exercise through the Heat Networks and Electricity Generation Assets (HELGA) Framework which is managed by Crown Commercial Services. As noted above, West Berkshire Council would need to register as a power supplier on this framework and successfully bid to supply energy to AWE.
- 5.19 Whilst there are no legal or procurement concerns around the Council becoming an energy provider through the framework contract, it does add a layer of complexity to the project and will delay the delivery of the scheme by approximately 4 months from June 2024 to September 2024.
- 5.20 A dis-benefit of selling power to AWE is that AWE's carbon footprint is accounted for at a national level and West Berkshire Council would not be able to claim the carbon offset from the energy sold to AWE. Assuming 73% of the energy generated would be sold to AWE, under this scenario only 27% (880 tonnes) of the carbon savings could be claimed by the Council which is approximately 10% of the Council's footprint.

6 Other options considered

- 6.1 Consideration is being given to using the solar farm for sheep farming during its life. Biodiversity and ecology is also prominent in the scheme design. The project retains the current features that are present on the site, such as the mature trees and hedges. We have allowed a ten metre buffer between these existing features and the fenced solar farm area, hence ensuring there is no damage to the existing flora and fauna in the field boundaries. In addition to this, the proposed scheme design includes additional tree and hedge planting, the creation of ponds and seeding with wildflower seed-mix, and seeding for winter birds. The scheme will also include the installation of bird and bat boxes across the site. All of these measures have been captured in the Biodiversity Net gain score, which is positive.

7 Conclusion

- 7.1 Despite the impact of interest rates, rising material costs and other detrimental factors, the latest business case update demonstrates that the provision of a solar farm at Grazeley is still a financially and environmentally viable proposition.
- 7.2 Two connection options are currently open to the Council for a minimum size 18MWp scheme and officers will fully explore the potential for increasing grid capacity to allow the construction of up to 25MWp as approved at planning.
- 7.3 Of the two connection options available, the AWE option significantly de-risks the project and reduces the financial exposure for the Council going forward. Subject to the terms of any PPA, benefits to the Council of the AWE option include:

- Improved guaranteed rates of return as detailed in the business case.
- Not being exposed to the volatile wholesale electricity market prices, thus de-risking the future project revenues.
- Elimination of the longer term risk of price cannibalisation, and the negative impact on project revenues.
- Agreement of a fixed PPA starting price (strike price) plus a fixed annual indexation percentage, resulting in significantly more accurate financial forecasting.
- If project build costs escalate due to increasing inflation and a weakening pound sterling, the AWE PPA option may provide an avenue to compensate by increasing the agreed PPA strike price.
- Subject to suitable wayleave agreements being obtained, the HV cable runs associated with the AWE connection are shorter, and less disruptive to local road users.
- Subject to grid connection constraints, it may be possible to utilise battery storage to increase the scheme size, and sell power to AWE overnight.

7.4 The disadvantage of selling power to AWE is a slight delay to the delivery of the project. It should also be noted that as AWE's carbon emissions are accounted for at a national level the Council would not be able to directly claim carbon reductions for any energy AWE offtake from the project. However it should be noted that this is an anomaly of the carbon accounting model and selling to AWE should not detract from the fact that the Council will be generating significant amounts of renewable energy which will be used locally by one of our key.

7.5 It is therefore recommended that the Council pursues the AWE grid connection option and registers on the HELGA framework as a power provider and that delegated authority is given to the Service Director Environment (in consultation with the S151 and Monitoring Officers) to enter into a Power Purchase Agreement through the framework for a period of up to 30 years.

8 Appendices

None

Background Papers:

Grazeley Project Update Part II report

Subject to Call-In:

Yes: ☐ No: ☒

The item is due to be referred to Council for final approval

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Delays in implementation could have serious financial implications for the Council	<input checked="" type="checkbox"/>
Delays in implementation could compromise the Council's position	<input type="checkbox"/>
Considered or reviewed by Overview and Scrutiny Management Committee or associated Task Groups within preceding six months	<input type="checkbox"/>
Item is Urgent Key Decision	<input type="checkbox"/>
Report is to note only	<input type="checkbox"/>

Wards affected: Burghfield & Mortimer

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