



Report of the Cabinet Member for Homes, Energy & Service Transformation

Cabinet – 17 September 2020

FPR7 – Solar Photovoltaic (PV) Farm Development Opportunity

Purpose:	To confirm approval of capital investment required for the development of a 3MW ground mounted Solar PV farm and benefits of such an approach.
Policy Framework:	Corporate Energy Strategy
Consultation:	Finance, Legal, Access to Services
Recommendation(s):	It is recommended that Cabinet: 1) Approves the scheme and its financial implications and commits the scheme to the capital programme; 2) Approves the scope of the project to enable Officers to commence detailed discussions/negotiations and authorises the Director of Place to agree final terms of the third party agreements, as considered appropriate in line with these recommendations; 3) Authorises the Chief Legal Officer to prepare any legal documentation required to conclude the agreement and to execute the documentation on behalf of the Council.
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1. Introduction

- 1.1 The City and County of Swansea with the support of Welsh Government Energy Services have carried out model financial scenarios towards the development of a 3MW Ground Mounted Solar PV farm located on a capped land filled area at Tir John Site, Port Tennant, Swansea, SA1 8NS.
- 1.2 Local Authorities in Wales are under increasing pressure to reduce their carbon emissions, facing the competing pressures of real terms reductions to their revenue budgets and the ongoing need to deliver services. This project provides considerable potential for long-term revenue generation which will contribute towards easing pressure on finances and enable more effective delivery of front line services.
- 1.3 Renewable energy generation in Wales is supported and encouraged through Welsh Legislation as follows:
 - In Wales we are already delivering on our international commitments through the Environment (Wales) Act and the Well-being of Future Generations Act 2015. The goals in the Well-being of Future Generations Act provide a shared national vision for all public bodies and, along with the Sustainable Development Principle it provides a clear framework for public sector decision-making.
 - The Environment (Wales) Act 2016 sets a target for Welsh Government to reduce greenhouse gas emissions by at least 80% (on 1990 levels) by 2050. Welsh Government declared a climate emergency on 29th April 2019 and, as a response, accepted the recommendations from the UK Committee on Climate Change for emission reduction of 95% by 2050 with ambition to be net zero by 2030.
 - Prosperity for All: A Low Carbon Wales' (March 2019) sets out the Welsh Government's approach to cut carbon emissions and increase efficiency in a way that maximises wider benefits for Wales, ensuring a fairer and healthier society. It sets out 100 policies and proposals that directly reduce emissions and support the growth of the low carbon economy
 - Welsh Government has an ambition for a net carbon neutral public sector by 2030, and will be supporting the public sector to baseline, monitor and report progress towards carbon neutrality (Policy 20, 'Prosperity for All: A Low Carbon Wales') with Net Zero Carbon Reporting Guide, publication delayed due to COVID-19.
 - Welsh Government and Swansea Council members declared a 'Notice of Motion' Climate Change Emergency in 2019.
- 1.4 Within the Authority's Energy and Carbon Management Plan (2020 – 2030) there are a number of key principles which support the development of a solar farm. These include:-

- Reducing the carbon footprint of Swansea Council estate by 3% per annum
- Increasing the use of renewable energy from various sources where practicable and economically viable to do so
- Exploring potential initiatives for generating income from energy generation.

1.5 Confidential information in relation to this report is outlined in agenda item 15 “for information” report of this Cabinet agenda pack (17 September 2020).

2. Proposal

- 2.1 The Council have considered a number of locations and have now identified part of the Tir John Landfill site (**Appendix A; 'Proposed Solar PV Site' - (Capped Landfill)**) as being the most suitable location given its orientation, ease of access and high irradiance (solar) levels. The proposed development would provide a 3MW supply and these units could be sold back to the grid, or alternatively sold to a nearby ‘off-taker’.
- 2.2 The scheme will provide an income for the Authority through the sale of electricity it generates. These sales will be through a Power Purchase Agreement (PPA) which is a contract between an electricity generator (generator) and the party who is purchasing the power (off-taker) which incorporates the commercial terms for the sale and purchase of electricity for a project.
- 2.3 The existing business case has been developed on the basis the generation will be sold back to the grid as the export connection is available (pending formal offer from Western Power Distribution). It should be noted that the level of return per kWh is less than private wire but still provides an attractive and sustainable return for the authority. Whilst the Council will investigate the possibility of sourcing an ‘off-taker’ for a private wire scheme, there are limited opportunities given the complexity of supply costs to nearby operators/employers. Therefore, it is assumed the costs of access would outweigh any benefits.
- 2.4 The total payback period is in the region of 20 years. It should be noted that the life expectancy of the PV panels is approx. 25-30 years with appropriate maintenance with the associated degradation in efficiency over time. Therefore the site will have the ability to generate revenue for the authority long after the capital has been repaid (subject to usual running costs).
- 2.5 The scheme will assist towards meeting carbon emission targets/objectives which form part of Swansea Council’s Carbon and Energy Management Strategy, whilst covering its own costs and having some residual financial benefits over the course of the lifetime of the asset.
- 2.6 The electricity generated by a PV module decreases over time. Over the asset lifespan (35 years) it is predicted 101,302,731 kWh of renewable energy (source: Welsh Government Energy Services) will be generated.

Based on 2019/20 UK Government grid emission factors for 'on site generated electricity' equates to 23,405 t/CO₂.

- 2.7 The scheme will help to support Welsh Government legislations and aspirations for 70% of energy consumed in Wales to be from renewable energy generated in Wales by 2030.
The projected finance model has evaluated that a 3MW solar farm would provide maximum electricity generation (assuming no downtime) of 3,189,600 kWh/year, equating to 737 t/CO₂. The electricity consumption across the Authorities building portfolio was 25,435,260 kWh in 2019/20, representing 12.54% of renewable energy generation.
- 2.8 This project is an integral part of Swansea Council's Energy and Carbon Management Plan if we are to meet legislative drivers, carbon targets and reducing the effect caused by the sensitivity in energy prices. The generation of renewable energy will be taken as a credit against Swansea Council's carbon emissions building portfolio.
- 2.9 The development will also create local green jobs (installation to maintenance of the PV system) and help to support biodiversity simultaneously.
- 2.10 Another advantage of utilising the Tir John site is to create 'value', especially as the existing use and ground conditions make the site undevelopable. The scheme will initially cover the capped area of the landfill site although there may be an opportunity to extend the scheme in future years once the remaining landfill areas reach capacity and the land has settled accordingly. It is understood the remaining landfill has approximately 2-3 years before it is considered full.
- 2.11 In total, Tir John Landfill is approximately 107 acres with the capped area extending to circa 17 acres. Only the capped area will be required for the initial scheme which translates to approximately 16% of the total landfill site.
- 2.12 The closed landfill site is subject to an environmental permit for approximately the next 60 years. As such, any development will need to be agreed by the landfill regulator, Natural Resources Wales (NRW). NRW's primary consideration will be to ensure that the Solar PV development has no negative impact on the surrounding environment or existing environmental controls (e.g. gas, leachate and surface water management systems). Therefore, the design & proposed layout of the scheme needs to be sympathetic to these considerations in order to avoid unnecessary downtime and additional compliance costs. The Council's Waste Management team will be consulted throughout the course of the project and will require specialist input during the design stage.

3. Project Programme and Timeline

- 3.1 A high level project programme guide has been developed with Welsh Government Energy Services who will continue to provide specialist

support throughout the delivery of this project. The current programme has the following phases:

Phase 1: (2020) Development

- Formal Connection Application of Power Generating Modules to DNO Distribution Networks in accordance with EREC G99 has been submitted to Western Power Distribution
- Preliminary Ecology Appraisal and Topographical survey are being arranged

Phase 2: (2020/2021) Detailed Design

Phase 3: (2021/2022) Procurement

Phase 4: (2022) Proposed Installation of the Solar PV System

4. Financial Implications

- 4.1 The capital costs will initially be funded through additional Council borrowing (the most economically advantageous source available at that time e.g PWLB). The Welsh Government Energy Service business case and financial model for the proposal which has been appraised includes sensitivity analysis for the wholesale price of electricity sold, other costs, and efficiency and output of the asset. Based on these assumptions payback period is in the region of 20yrs and projected cash flows meet debt servicing in the medium term, all subject to those assumptions. Other preferential funding routes may exist given the 'green' infrastructure but it is anticipated that the payback period will not meet the funding criteria of such bodies such as Salix. Given recent Government announcement, all other grant opportunities will be explored in addition during the next phase.

5. Resources

- 5.1 The project is likely to require a cross cutting number of expertise given the specialist nature of the development. As such, the feasibility model has been adjusted to reflect the need for initial consultancy advice and a separate provision has been included for project management costs.
- 5.2 In addition to the above, Welsh Government Energy Services are jointly committed to delivering the Solar PV project and will therefore continue to support the development until practical completion of the scheme.
- 5.3 Welsh Government Energy Services (WGES) are currently supporting other public sector Solar PV farms which are at advanced stages of development:
- Cardiff City Council are currently installing a ~9 MW solar farm at Lamby Way landfill site.

- Torfaen County Borough Council have gained planning consent for a 3 MW solar farm at Ty Coch.
- Flintshire County Council are developing two solar farms, one of which is just starting construction and the second has applied for planning consent.
- Monmouthshire County Council have an operational 5 MW solar farm which was supported under Green Growth Wales (the previous version of WGES).

6. Equality and Engagement Implications

6.1 The Council is subject to the Public Sector Equality Duty (Wales) and must, in the exercise of their functions, have due regard to the need to:

- Eliminate unlawful discrimination, harassment and victimisation and other conduct prohibited by the Act.
- Advance equality of opportunity between people who share a protected characteristic and those who do not.
- Foster good relations between people who share a protected characteristic and those who do not.

Our Equality Impact Assessment process ensures that we have paid due regard to the above.

6.2 An EIA screening form has been completed and reviewed (**Appendix B**). The agreed outcome was that a full EIA report was not required as the equalities and engagement implications were considered low.

6.3 However, community involvement will be an integral part of this development. The local community will be engaged with communication campaign and consulted throughout Phase 2 of the project – *Detailed Design* - for their views and opinions which will be taken into consideration prior to submitting planning applications. Communications campaign will continue throughout Phase 4 of the project – *Installation* – ensuring the community is informed of installation activities.

6.4 Opportunities for community benefit will be explored wherever practical and agreed with local community organisations.

7. Legal Implications

7.1 The Landfill operations are currently sub contracted to Enovert until 2022. In order to formalise Enoverts occupation of the site, a separate lease agreement was arranged to reflect the terms of the service contract and to ensure the Council were protected from any security of tenure claims. Enovert occupy the whole site of which part is required for the proposed Solar PV development.

- 7.2 The occupational lease is dated 2nd February 2015 and was originally granted to Cory Environmental (Gloucestershire) Limited on a 5-year term and is therefore 'holding over'. It is understood Cory Environmental were Enoverts predecessors and this lease is now vested in Enovert.
- 7.3 The lease benefits from an option to renew in the event of the service contract being extended and this has now been mutually triggered to ensure both agreements are co-terminus.
- 7.4 As part of the renewal lease, an option agreement has been negotiated with Enovert which will enable the authority to 'call in' the redundant capped area of land so that the Solar PV development can proceed. A right of way will also be reserved to allow access to the site.
- 7.5 To clarify, the option to 'call in' part of the site to facilitate the scheme will not impact on the existing operations as the capped area of land is of no use to Enovert other than to provide overspill storage.
- 7.6 At the expiry of the landfill lease period Enovert will be granted a license to complete capping and restoration of the current active areas of the landfill site. This will not impact the development of the solar PV area.

Background Papers: None

Appendices:

Appendix A - Tir John Landfill Site Plan

Appendix B – EIA Screening Form