
LAMBY WAY SOLAR FARM – PROGRESS UPDATE

Reason for the Report

1. To provide the Committee with an update on the progress of the Lamby Way Solar Farm project and to detail the next steps in the delivery of this scheme.

Background

2. The capped landfill site at Lamby Way has for some time been considered to be a suitable location for a large scale solar farm which could:
 - Provide a substantial amount of clean, renewable energy to supply the local electricity grid and connected Council buildings;
 - Make a positive contribution to national and local renewable energy generation and carbon reduction targets;
 - Provide a localised economic activity and long-term productive use for a site that would be otherwise difficult to develop; and,
 - Contribute to the new Welsh Government directive for the Council and all public sector organisations in Wales to be “carbon neutral” by 2030.
3. The Council’s Capital Programme includes provision for the development of the Lamby Way Solar Farm using invest to save funding. This provision was subject to the approval of a detailed business case for the scheme that was agreed by Cabinet in June 2018. A copy of the Cabinet report titled ‘Lamby Way Solar’ that was approved on the 14th June 2018 includes information on the detailed business case, and is attached to this report as **Appendix 1**.

4. As well as delivering on the Council's ambitions, carbon reduction targets and other obligations relating to renewable energy, the detailed business case presented in 2018 also identified that the proposal would:
 - Be based on the business case projections, provide an acceptable and attractive return on the Council's invest to save commitment;
 - Make full use of Council funds already expended on grid connection in the area;
 - Provide clean renewable energy to a major neighbouring utility site; and,
 - Open opportunities for further innovation, carbon reduction and air quality management by, for example, providing a potential new and renewable energy source for the Council's Low Emission Transport plans.

Site History

5. In July 2014 Cabinet approved a proposal to publicly offer a land lease opportunity for the development of a solar farm at the site. This was to be funded and delivered by a third party developer, with the Council collecting a small ground rent on the long-term lease. To facilitate the arrangement, and to secure the longer term opportunity, the Council also funded a grid connection to the site at this time.
6. Despite significant negotiation with four separate developers, none of the proposals received by the Council reached a satisfactory position from which to proceed. In summary, the reasons for this were:
 - The removal of the Government Incentives for Solar Farms shortly after the Cabinet decision;
 - The consequential reduction in institutional investment funders' appetite for risk on solar farms nationally; and,
 - The inability of scheme developers to reach a satisfactory pricing level on the sale of energy on the open market to cover the lost government support element.
7. This outcome was not unique to Cardiff and many proposed schemes in the United Kingdom stalled at this time. This led Welsh Government to focus attention on the issue, seeking to understand the current barriers to, and solutions for the delivery of Welsh public sector led renewables schemes in the post Government incentives landscape.

Welsh Government Support & Policy Changes for Renewables

8. As part of its Green Growth Wales agenda Welsh Government undertook an audit of all of the stalled, public sector led renewables schemes in Wales and identified the Lamby Way Solar Farm as one with the highest potential to deliver. This was because of the ready availability of the site, its good solar radiation characteristics on an incline facing south, and the pre-existing grid connection on site.
9. During this period Welsh Government also strengthened its own policy context around renewables, most notably publicising targets for:
 - 100% green energy consumption in Welsh Public Sector from 2017;
 - 70% of all energy consumed in Wales to be generated by Welsh based renewable sources by 2030;
 - At least 1 Giga Watt of this generation to be locally owned; and,
 - For all public sector organisations in Wales to be “Carbon Neutral” by 2030.
10. Together, these policy changes have provided a significant drive for both the Council and Welsh Government to pursue the solar farm and other local renewable energy schemes.
11. On this basis Welsh Government offered the Council free access to consultancy expertise to help develop an options appraisal and detailed business case to examine the viability of the scheme. This assistance has been in place since summer 2017 and has been provided by a solar expert who has helped to develop the business case. Their output, in turn, has been peer reviewed by energy staff at Local Partnerships who have been contracted by Welsh Government to support the Green Growth Wales Agenda.

Other Market Changes

12. Along with the policy changes mentioned above several key changes have happened which have affected the overall viability of the solar farm proposal at Lamby Way, these are:
 - 1) **Solar Panel Price Reduction** - The price of solar panels has continued to reduce and has fallen at a much faster rate since the removal of Central

Government incentives in 2015. Prices for installed ground mounted solar PV have fallen by around 75% between 2010 and 2016 and global prices for solar components continue to reduce.

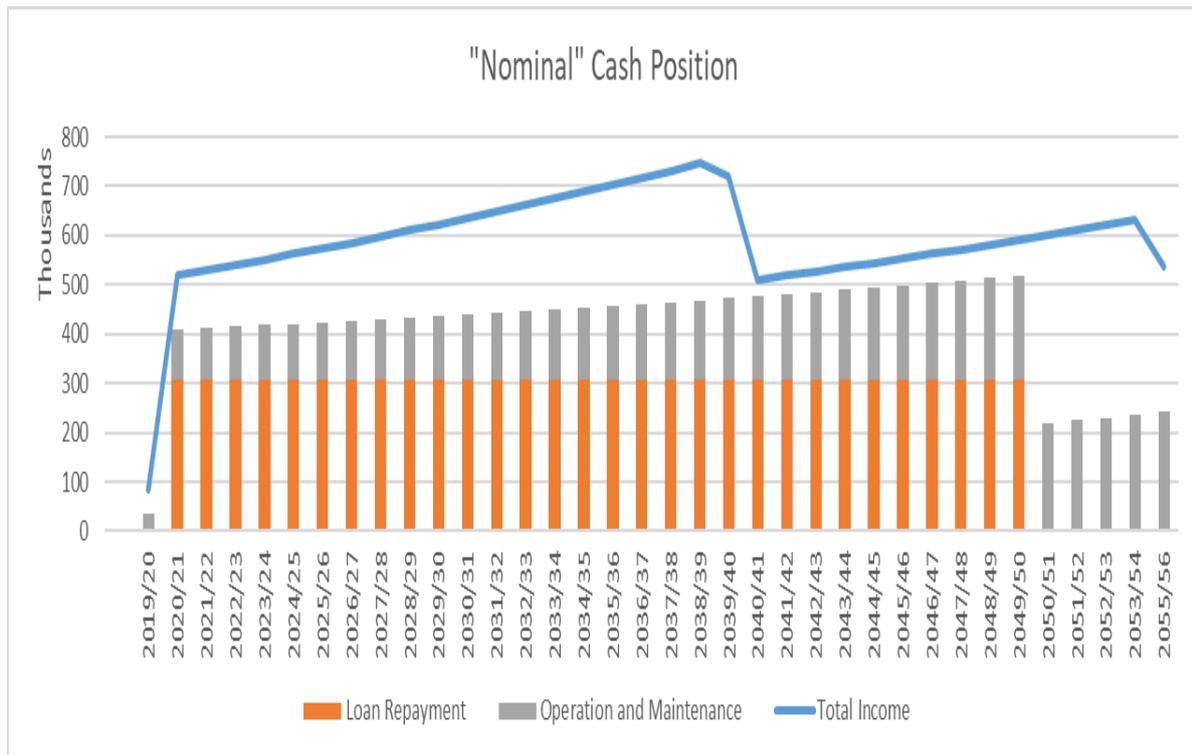
- 2) **Private Wire Connection** - The Council has had extensive dialogue with an organisation based near to the site with regard to a private wire connection between the proposed Solar Farm and their operation. This dialogue, conducted under the terms of a signed non-disclosure agreement, has been very positive and has settled on an outline deal for the organisation to take 4.5MW of generation capacity at the Solar Farm over a 20 year period. This means that the energy sale rate that the Council has negotiated is significantly higher than the other rates available to the scheme through the usual sale-to-grid route. This is possible because the purchaser of the energy avoids the “non-commodity” costs associated with buying energy from the grid (including various charges for grid maintenance and balancing, and other taxation elements). Private wire purchasers can therefore pay a higher rate for the “wholesale” energy and still achieve a saving on the final unit cost. This new rate for the sale of energy has been modelled for the first 20 years of the scheme’s operation and has significantly increased its income generation capacity. A memorandum of understanding has been drafted between the Council and the organisation to capture the key commercial features of this negotiation. This settles on an energy sale price, index linked to RPI for a supply period of 20 years. The deal is considered to be a low risk, high gain option given the partner organisation’s published aim to secure 100% renewable energy supplies for their operations, and will provide them with significant overall savings on electricity bills.

- 3) **Larger Solar Farm** - A direct result of the private wire there is now an opportunity to develop a slightly larger solar farm than was originally planned. The maximum capacity of the installed grid connection at the site is 5MW, and previous iterations of the scheme were based around this constraint. With 4.5MW of the farm’s generating capacity now proposed to be diverted away from the grid via the private wire, the size constraints for the solar farm are altered. The Council has, therefore, examined a scenario that looks at the relative costs of a much larger scheme. The site can easily accommodate a larger facility.

This increased capacity also has the potential to open up further strategic opportunities for the Council. For example, there is a particular opportunity to explore on-site use of energy to link directly to our strategy for Low Emission Transport Fuels. Energy storage options may also exist, which could contribute to grid balancing in the area and further boost the scheme’s business case.

13. **Figure 1** (below) summarises the nominal cash position of the detailed business case submitted in June 2018, i.e. it includes projected inflation, over the anticipated lifetime of the project. It illustrates that income covers the cost of loan repayment, operation and maintenance with some additional headroom. The dip in income towards the latter years of the model reflects the end of the 20-year private wire arrangement. There would clearly be scope to renegotiate and extend this at the appropriate time, although this option has not been modelled.

Figure 1 – Nominal Cash Position



Risks

14. The June 2018 Cabinet report explained that in progressing the business case to its current stage, several of the variables in the model had developed a greater degree of certainty. In particular, the grid connection costs are expended and final. The energy generation performance assumptions were based on very reliable national sources of solar irradiance data. At the point of the report the private wire arrangement was well developed and viewed as a relatively low risk given the internal policy and cost drivers of the partner organisation.
15. The key risks identified in June 2018 are outlined below:
 - Much of the hardware required for the development of the solar farm will probably be supplied from Europe or America. This means that final costs will be subject to exchange rate fluctuations. This will be monitored over the course of the project development and procurement, with the model will being reviewed if any major fluctuations occur.
 - The modelled lifetime of the project is 35 years. Although there is confidence and market evidence that the equipment, with proper maintenance and routine component replacement, will function adequately through this period there may be external changes that could affect overall viability. This could include step changes in costs and technologies for renewable energy or other unknown future regulations being imposed on production. These sorts of risks are more difficult to quantify but it is considered that the private wire arrangement and other potential innovative options for the Council to use the energy on site will provide significant protection for the asset in the longer term.
 - The proposal will require a planning consent and, therefore, there is a risk that this will not be granted. This is considered to be a relatively low risk, and one that has already been managed as far as possible through pre-application consultations with major stakeholders.
 - The costs for constructing the private wire are based on the best local and market information available at the time of publishing the June 2018 report. However, any excavation of this nature comes with risks of encountering other

utilities or obstacles beneath ground that may increase costs. The Council has, therefore, allowed for a very generous sum in the model for this element. The Council is also exploring potential synergies with other infrastructure projects in the area that may help to control costs.

Lamby Way Solar Farm – Progress Since June 2018

16. In the nine months since the Cabinet report was approved (see **Appendix 1** for details) the Council has completed a number of actions that are essential for the successful completion of the Lamby Way Solar Farm, these include:
- The commissioning of a technical solar consultant to develop a detailed design specification for an 8.5MW facility at the site – 1MW higher than in the detailed business case submitted in June 2018;
 - Engaging ecological consultants to survey the site and produce a mitigation plan to protect ecological assets;
 - Commissioned planning consultants to submit a full planning application – February 2019;
 - Signing a memorandum of understanding (MOU) with a third party for energy off take, and developed a draft contract for signing after the Cabinet report;
 - Developing a detailed tender specification for design and build for the facility – this includes an assessment of the performance of the scheme;
 - Wales Coastal Path – agreed a mechanism to complete the Wales Coastal path adjacent to the site. Currently this section diverts inland at this point.

Next Steps

17. The planning application for the ‘Installation of a ground mounted photovoltaic solar farm & ancillary development’ (Lamby Way Solar Farm) was submitted on the 22nd February 2019. Following the required parts of the planning process it is hoped that this planning application will be approved in April 2019.

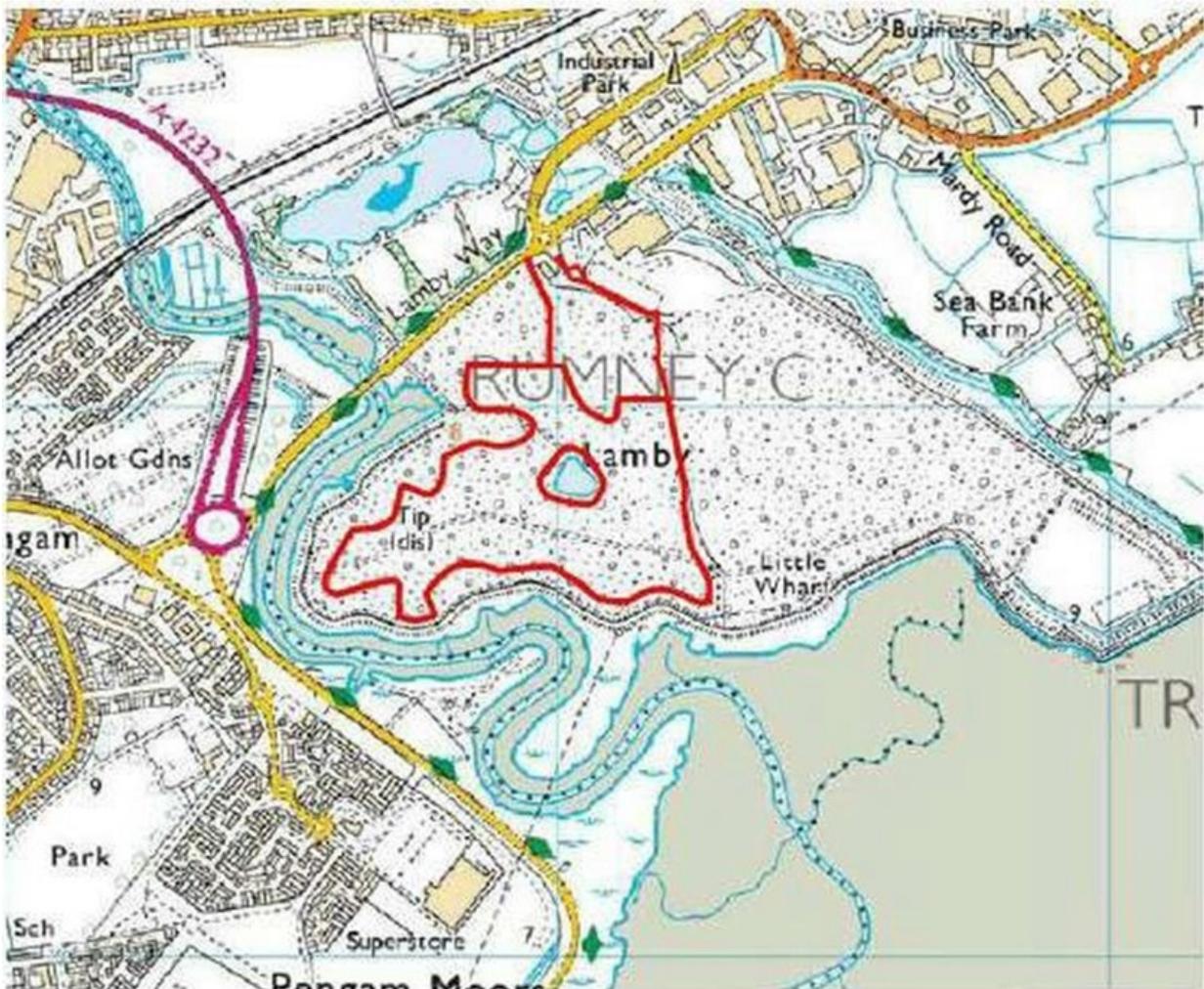
18. One of the key documents that supports the planning application is the 'Design & Access Statement'. It provides a detailed summary of the proposals for the Lamby Way Solar Farm and is attached to this report as **Appendix 2**. The 'Design & Access Statement' provides a list of the key features and aspects of the Lamby Way Solar Farm that are set out below:

- Wardell Armstrong LLP have been instructed by Cardiff Council to prepare a planning application for the construction of a ground-mounted solar farm and associated works on land at Lamby Way landfill site. The development will relate to a site area of 16.89 Ha and provide an expected output of 8.5MW.
- The installation of a series of solar panels will be formatted in rows across the site, in an appropriate south facing direction and at an angle of approximately 20 to 25 degrees from the ground.
- The installation will include an estimated 30,688 individual panels combined to form arrays that are arranged in rows. Each array will be supported by a galvanized steel mounting structure supported on a surface mounted ballasted/concrete pad. The arrays are not proposed to exceed 2.8m in height and the lower edge will be approximately 750mm above ground level. All panels will be secured onto a ballasted/concrete pad with no penetrative or demolition works proposed.
- The eastern portion of the application site comprises of a former landfill site that has since been capped such that it now resembles a grassland habitat. In addition, the site is in close proximity to the Severn Estuary designations and the Gwent Levels: Rumney and Peterstone SSSI.
- The electricity supply generated from the solar panels will be fed into the National Grid, connecting to a substation found to the north of the site via the installation of subterranean cabling.
- The proposed development also requires the installation of ancillary containerised and similar structures containing high voltage electrical equipment including inverters, transformers and switchgear. Each will be set on a concrete raft foundation to spread the load across a wider area.

- The solar panel site will require appropriate security protection and as such a fence will be installed at its perimeter with a network of CCTV cameras within the site itself.
- The site is in close proximity to the Severn Estuary designations (Site of Special Scientific Interest, Special Area of Conservation, Special Protection Area and RAMSAR site) and the Gwent Levels: Rumney and Peterstone SSSI - all designations to be treated as 'Ecological Assets'.

19. **Figure 2** (below) is a map that provides details of the application site for Lamby Way Solar Farm and the surrounding area. The area enclosed in the red line at the centre of the map illustrates the actual site of the solar farm.

- **Figure 2** – A map of the site of the Lamby Way Solar Farm



Way Forward

20. Councillor Michael Michael, Cabinet Member for Clean Streets, Recycling & Environment has been invited to attend for this item. He will be supported by officers from the Planning, Transport & Environment Directorate.

Legal Implications

21. The Scrutiny Committee is empowered to enquire, consider, review and recommend but not to make policy decisions. As the recommendations in this report are to consider and review matters there are no direct legal implications. However, legal implications may arise if and when the matters under review are implemented with or without any modifications. Any report with recommendations for decision that goes to Cabinet/Council will set out any legal implications arising from those recommendations. All decisions taken by or on behalf of the Council must (a) be within the legal powers of the Council; (b) comply with any procedural requirement imposed by law; (c) be within the powers of the body or person exercising powers on behalf of the Council; (d) be undertaken in accordance with the procedural requirements imposed by the Council e.g. Scrutiny Procedure Rules; (e) be fully and properly informed; (f) be properly motivated; (g) be taken having regard to the Council's fiduciary duty to its taxpayers; and (h) be reasonable and proper in all the circumstances.

Financial Implications

22. The Scrutiny Committee is empowered to enquire, consider, review and recommend but not to make policy decisions. As the recommendations in this report are to consider and review matters there are no direct financial implications at this stage in relation to any of the work programme. However, financial implications may arise if and when the matters under review are implemented with or without any modifications. Any report with recommendations for decision that goes to Cabinet/Council will set out any financial implications arising from those recommendations.

RECOMMENDATION

The Committee is recommended to:

- (i) Consider the information in this report and the information presented at the meeting;
- (ii) Determine whether they would like to make any comments, observations or recommendations to the Cabinet on this matter; and,
- (iii) Decide the way forward for any future scrutiny of the issues discussed.

DAVINA FIORE

Director of Governance & Legal Services

27 March 2019