



Corporate Policy and
Resources

Thursday 5th November
2020

Subject: Solar Photovoltaic (PV) Proposal for new Waste Depot

Report by:	Assistant Director of Operational and Commercial Services
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Purpose / Summary:	Inform Councillors of a grant funding bid that is being submitted for Solar Photovoltaic (PV) Panels for the new central waste depot. The report also seeks approval from Corporate Policy and Resources Committee for a contingency spend to be drawn from The Carbon Management Reserve Fund in the event that the grant bid is unsuccessful.

RECOMMENDATION(S): That Members:

1. Approve an application for funding to the [Public Sector Decarbonisation Scheme](#) for installation of Solar Photovoltaic Panels at the new central waste depot at Caenby Corner.
2. Approve a capital budget of up to £50,000 for 2021/22 and subsequent expenditure, for the installation of Solar Photovoltaic Panels to be funded by grant and/or the Carbon Management Reserve, dependent on level of grant funding received.

The Assistant Director for Operational and Commercial Services is to consult with the Chairman of Corporate Policy and Resources Committee when the result of the grant bid is known.

- 3. Ratify the award of work via the project contractor (subject to any conditions imposed by an award of funding.)**
- 4. Note and endorse the measures to improve energy efficiency at the new depot and approve that they are in line with Council aims to achieve energy sustainability in all Council controlled premises.**

IMPLICATIONS

Legal: Following the UK Government's Climate Emergency Declaration, Net-zero greenhouse gases by 2050 was made a statutory target in June 2019 through the Climate Change Act (2050 Target Amendment) Order.

The council has the ability to award the contract for these works through the existing project contract with Henry Boot for design and build of the depot.

Financial : FIN/100/21/TJB

The approval of a capital budget 2021/22 and subsequent expenditure of £50,000 is deemed appropriate to provide a level of contingency in the estimated pricing quoted for the installation Solar Photovoltaic Panels at the new Depot.

This work will be carried out by our Depot contractor as a variation to the building design.

A grant bid to meet the financing of this investment will be made to Public Sector Decarbonisation Scheme. In the event that the bid is unsuccessful then the costs will be met from the Carbon Management Reserve, which will then be fully allocated.

It is envisaged that this investment will generate an annual £2,272 of saving in electricity cost estimates for the new depot.

Staffing : Negligible impact.

Annual maintenance and cleaning requirement so a 'mansafe system' would be added to the roof design as there isn't a parapet to prevent falls.

Equality and Diversity including Human Rights :

Data Protection Implications :

Climate Related Risks and Opportunities: The proposed installation of Solar PV Panels will reduce the environmental impact of the depot. West Lindsey has made a commitment to be net-zero carbon emissions from our own activities by 2050 and source energy from renewable sources by 2040.

It is estimated that the carbon reduction impact of this scheme is estimated at 11.918kg p.a.

See main report.

Section 17 Crime and Disorder Considerations:

Health Implications:

Title and Location of any Background Papers used in the preparation of this report :

N/A

Risk Assessment :

The funding bid may not be successful, so it is important to make sure the business case for solar PV can be made on its own merits. This is the case, but should the unit costs of energy fall the payback period will be prolonged. This is unlikely given historical rates and projections. Pre-commissioning approval for grid connection has not been received. Timescales may risk slippage if waiting for a response from the District Network Operator (DNO).

Call in and Urgency:

Is the decision one which Rule 14.7 of the Scrutiny Procedure Rules apply?

i.e. is the report exempt from being called in due to urgency (in consultation with C&I chairman)

Yes

No

Key Decision:

A matter which affects two or more wards, or has significant financial implications

Yes

No

1. Executive Summary

- 1.1 This report is presented to make Councillors aware of a funding bid that is being submitted for additional grant funding for the installation of Solar Photovoltaic (PV) Panels on the roof of the new central waste depot. This is to generate renewable energy for internal use, with any excess supply being sold back to the National Grid. The report also seeks approval from Corporate Policy & Resources Committee for a contingency spend to be drawn from The Carbon Management Reserve Fund in the event that the grant bid is unsuccessful.
- 1.2 As part of the Council's commitment to reducing harmful CO2 emissions and the impact of climate change, a further environmental impact assessment was undertaken by E P Consulting. Whilst it provided assurance that energy efficiency measures and renewable cooling / heating had been taken into account to the highest practical standard, it recommended that the installation of Solar PV Panels would be technically and economically feasible and would make a positive contribution to achieving carbon neutral operations. Installation of the panels would reduce consumption of electricity purchased from the grid and reduce the Council's carbon footprint through the generation and use of renewable energy.
- 1.3 The Council has recognised an ethical and legal duty towards protecting the environment, hence it aims to achieve energy sustainability in all Council controlled properties. WLDC has set an initial goal to be net-zero from its operations before 2050 (in line with UK Government Targets) and source power from 100% renewable energy by 2040.
- 1.4 The proposed solar PV installation provides an economic solution to generation of renewable energy and reduction of CO2, future cashable efficiency savings and meets the requirement for the Council to achieve best value for money.

Alternative Options:

- 1.5 The Council could decide not to install Solar PV panels and forego the associated environmental and financial benefits.
- 1.6 The Council could choose to install a smaller array of panels at a lower initial cost; however this would mean that less electricity is produced and would increase the unit cost of electricity production. This would not achieve the same return on investment over the lifespan of the project, or yield the same reduction in future energy bills or WLDC's carbon footprint.
- 1.7 The Council could choose to install panels at a later date; however this would not achieve the same return on investment or the same reduction in energy consumption. It would likely cost far more to make structural changes to the building and retrofit at a later time, as well as being potentially disruptive to depot operations

2. BACKGROUND

2.1 West Lindsey's CO2 reduction and environmental commitments:

The Council has made a serious commitment to reducing the impact of its operations on the environment and the achievement of this requires innovative solutions and value for money investment.

2.2 Following the UK Government's Climate Emergency Declaration, Net-zero greenhouse gases by 2050 was made a statutory target in June 2019, through the Climate Change Act (2050 Target Amendment) Order.

2.3 WLDC is not one of the 309 Councils that have so far declared a Climate Emergency, but it has communicated ambitions to be net-zero carbon in its own operations by 2050 and made a number of other commitments in the report to Council in November 2019. A revised strategy and action plan will be presented to Council in May 2021; the Council is expected to take a leadership role in carbon reduction and has committed to working with stakeholders to do so.

2.4 WLDC can make a direct impact from Council-controlled premises; to this end all of its land and assets are currently being assessed. Due to the nature of its leasing arrangements, there are a number of Council owned properties where there is limited control or influence on operations, such as commercial properties and leisure centres. However, the new central depot is one area where a significant difference can be made, with the decisions made at the build stage.

2.5 New Central Depot – Environmental Impact

Members of this Committee will be fully aware of the central depot project – the replacement of two obsolete facilities used by the Council's Operational Services that are unsafe and no longer fit for purpose, with a central facility at Caenby Corner.

2.6 This project will ensure adequate facilities to allow high quality waste management and street cleansing services to be delivered in a way which provides value for money for the residents of West Lindsey for the foreseeable future. As well as operational and financial benefits, there are a number of advantages that align us to the Council's environmental commitments above;

- Investing in a new depot with clean, renewable technology will help reduce the Council's carbon dioxide emissions from current levels
- A new central depot with energy efficiency measures designed in will also help future proof the Council and residents from rising maintenance and energy costs
- It provides space and facilities to enable new collection methodologies that are designed to be more environmentally sustainable
- It demonstrates that WLDC are taking action to be community leaders and exemplars in low carbon, sustainable waste management provision – demonstrating our commitment to the Lincolnshire / Government Waste strategy.

2.7 Measures have been designed in to reduce energy consumption and increase the use of renewable energy within the facility, including; two electric vehicle charging points, LED lighting, lighting controls, heating, cooling and hot water provided by Air Source Heat Pumps. Heat Reclaim Ventilation technology will also be combined with upgraded insulation and double glazing to ensure that a clean comfortable working environment can be maintained in a way that minimises carbon emissions.

2.8 Depot Progress to date

Members can be reassured that work is progressing to agreed project timelines and budgets. Contracts are signed and start on site is imminent.

2.9 The depot project took into account West Lindsey's existing Carbon Management Plan, as well as local and national environmental policies. However, plans were drawn up and work commissioned prior to West Lindsey making a commitment to becoming a net-zero emissions Council. In light of the above, it was felt prudent to carry out a further review of the environmental impact of the building to see if improvements could reasonably be made at this stage. Due to project timescales this focused on fixtures and fittings rather than building design.

2.10 Work was undertaken in August 2020 by a specialist firm, EP consulting. Assurance was provided that building design had taken into account energy efficiency considerations to the highest practicable extent. Concerning possible improvements the consultant reported;

“The only real option would be Solar [photovoltaic] PV installed to the south facing roof. It looks like it would be possible to get about 80 m² on the roof. This would be circa a 20 kWp [Kilowatts Peak] installation. There is no feed in tariff now, so it would either go back into the grid or be used.”

3. **SOLAR PANELS**

3.1 The installation of Solar PV Panels is a tried and tested solution to generating clean green energy and reducing traditional energy consumption. West Lindsey installed solar panels at The Guildhall and Leisure Centre in Gainsborough and Festival Hall, Market Rasen nearly a decade ago, the authority is still benefiting from the reduced energy bills and income from the Government's feed in tariff of circa £21,000 per annum.

3.2 In recent years, the technology has improved and greater outputs can now be achieved from an economic array of panels, within an acceptable period of pay back without Government subsidy.

3.3 The option of generating electricity for use in the depot via Solar PV Panels located on the flat roof of the building has been explored and proposals have been received for a 31.1 kWp (kilowatts peak) and a 20.1 kWp, system. Officers have determined the larger design to be the most beneficial option with optimal return on investment and CO₂ reductions.

- 3.4 The proposal is to install a flat roof system which comprises panels mounted in separate arrays, such that they spread the load and can easily maintained. Cleaning is usually recommended once per year to ensure panel efficiency. The additional cost of the project takes account of cleaning and maintenance as well provision of an access hatch to facilitate this task. Minor amends to provide ballasting to the roof and modifications to the store room in which the inverter would be located are also accounted for in the financial projections.
- 3.5 There is sufficient roof space to accommodate the 31.1 kWp system but it is still to be determined if the existing electrical infrastructure is capable of receiving and distributing the generated energy from the systems. It is known that the array is of a size that requires pre-commissioning approval for grid connection as each unit with a meter is under the G99 regulations. There is often a cost to connect the system to the National Grid. This cost cannot be accounted for or calculated until an application has been made to the District Network Operator. Officers are seeking further clarification but have been advised that the cost won't be substantial and are working under that assumption.
- 3.6 To generate maximum educational and reputational benefit from the chosen system it is proposed to regularly monitor the solar generation meter and communicate energy savings to staff, members of the public and Councillors. This will be done in conjunction with the communications team to ensure information on solar production, CO2 savings and energy yields is done in a visually engaging way. This would be a key numerical and graphical demonstration of the Council's commitment to managing its impact on the environment.

4. COST AND PERFORMANCE PROJECTIONS

- 4.1 Quotations have been received via the Council's appointed project contractor, Henry Boot, for the cost of installation of the panels, purchased through their supply chain. This amounts to £23,550 for the panels and circa £20,000 for the modifications to the building and roof.
- 4.2 The table below highlights the key figures which have been used to calculate a payback period of 17 years (based on the Councils current electricity supplier unit rate of 14p per unit, and assuming an RPI and electricity inflation rate of 6%).

System option (kWp)	Units of energy generated (kWh) pa	Assumed consumption at 80%	Current rate - pence per unit (Oct 2020)	Estimated electricity savings pa*	Installation cost (£)	Payback (years)	CO2 Offset PA (KGs)
31.1	25,358	20,286	14p	From £2,272	43,550	17	11,918

- 4.3 The performance of solar PV systems is impossible to predict with certainty due to the variability in the amount of solar radiation (sunlight) from location to location and from year to year. This estimate is based upon the recognised best practice MCS (MIS3002) standard procedure but can be given as guidance only.
- 4.4 Likewise, it is thought probable that electricity unit rates will increase annually, but costs (and expected savings per annum) can only be estimates based upon the best advice and historical precedent. Somewhat conservative assumptions have been used in calculating the payback period. Payback on installation costs will be realised earlier with greater savings in energy costs thereafter, if electricity prices rise at a higher rate than predicted.
- 4.5 The installation would need to take place at the time of construction to maximise savings. A solar array of this size would require us to liaise with the electricity District Network Operator (which is estimated to take 6 weeks) so an urgent decision is needed to progress the project.

5. POTENTIAL FUNDING - Public Sector Decarbonisation Scheme

- 5.1 The UK Department for Business, Energy and Industrial Strategy (BEIS) has launched the [Public Sector Decarbonisation Scheme](#), combining the Capital Grant Scheme and the Public Sector Low Carbon Skills Fund. The scheme will provide the opportunity for public sector bodies in England to access funding for energy efficiency and heat decarbonisation projects within public sector non-domestic buildings. The funding will be delivered by Salix Finance – to whom West Lindsey have previously made successful funding bids.
- 5.2 The Capital Grant Scheme allows WLDC to apply for a grant to finance up to 100% of the costs of capital energy-saving projects that meet the scheme criteria. Contact has been made with the awarding body that indicates that this project would potentially meet eligibility criteria in that they contribute to heat decarbonisation and reduce energy demand from the building. Either of the systems would appear to qualify under the lifecycle carbon eligibility criteria of £500/tCO_{2e} reductions.
- 5.3 Officers will aim to submit a bid in the coming days, ahead of the deadline for the scheme on 9th November. Officers are taking advice from bodies such as the Carbon Trust, and our interpretation of the funding guidance is that applicants need to take a holistic approach to the identification and implementation of projects to give confidence to the funder at each stage of the process.
- 5.4 We believe that our approach outlined above and in throughout the new Depot Project will stand us in good stead, but it is important for Members to understand that this grant funding cannot be guaranteed and WLDC should be prepared to fund the scheme on its own merits if it does not come to fruition.
- 5.5 The final Salix funding grant payment is provided on completion and a Completion Certificate being issued by the applicant.

6. FINANCIAL AND BUDGET IMPLICATIONS

- 6.1 Based on the projections and current energy rates the investment achieves payback in 17 years and thereafter offers a saving against energy costs of circa £2,272 pa. It is likely energy rates will rise so the payback and savings may be achieved earlier.
- 6.2 The performance of solar PV systems is impossible to predict with certainty due to the variability in the amount of solar radiation (sunlight) from location to location and from year to year.
- 6.3 The estimate is based upon the Government's standard assessment procedure for energy rating of buildings (SAP) and is given as guidance only. Whilst it should not be considered as a guarantee of performance, Officers believe it to be a conservative estimate and a risk averse assumption.
- 6.4 The installation and building upgrade at an estimated cost of £43,500 (up to £50k budget requested to include for contingencies) will be funded from the Carbon Management Reserve - which would be fully allocated.
- 6.5 There are ongoing annual contributions to the reserve of £17k pa built into the Medium Term Financial Plan from money received from feed in tariff income generated by existing solar PV projects.