



Report To:	Executive Board
Date:	6 th November 2024
Subject:	Provision of Solar PV for Horncastle Hub
Purpose:	To outline to members opportunities through the installation of Solar PV at the Councils headquarters site to deliver medium to long term financial savings to the council at the same time as delivering outcomes to support the councils adopted Climate Change Strategy objectives.
Key Decision:	Yes
Portfolio Holder:	Cllr C Leyland (Property Portfolio Holder)
Report Of:	Duncan Hollingworth Group Manager (General Fund Assets)
Report Author:	Duncan Hollingworth Group Manager (General Fund Assets)
Ward(s) Affected:	Horncastle
Exempt Report:	No

Summary

To consider a recommendation from officers to invest in a large capacity ground mounted solar photovoltaic renewable energy system on the Council's vacant land to the south of the HUB fronting Mareham Road, Horncastle

Recommendations

To allocate £340,854 from the Council's 'Invest to Save' reserve in order to commission and deliver the PV scheme set out within Option 3 of this report.

Reasons for Recommendations

The scheme set out within Option 3 maximises the potential for electricity generation at the HUB site. Effecting Option 3 would offset and reduce the HUBs reliance on imported grid electricity by approx. 61% annually and significantly reduce the ongoing annual operating costs of the HUB; such in situ generation would contribute to year-on-year

carbon reduction target outputs and the strive towards net zero embedded within the SELCP Climate Change Strategy.

Options Considered

Option 1 - Do nothing and continue to source all electric consumed at Horncastle Hub (over and above the current roof mounted PV) through competitive market procurement in the future – not recommended.

Option 2 - Implement only the ground mounted PV proposal and not the car port PV opportunity identified in the report – not recommended.

Option 3 – Implement both the ground mounted PV and car port PV scheme identified in the report – RECOMMENDED.

1. Background

- 1.1 The new Hub building at Horncastle has a relatively small-scale Solar PV system (26kW) incorporated within the roof plant top area of the building, the ambition of this business case seeks to significantly increase its renewable electricity generation production capacity on the site utilising sterile, partially undevelopable land fronting Mareham Road along with innovative solar PV car port and ground mounted structures sited within the southern car parking area of the site.
- 1.2 The 2022 energy strategy embedded a vision and gave a commitment within its Corporate Strategy to tackle climate change, support social, economic, and environmental outcomes at a local level to aid meeting the above UK targets. The adoption in 2021 of ambitious carbon reduction targets of its own operations and estate by 45% by 2027 and to net zero targets by 2040 was embedded within the Climate Change Strategy approved by Council. This included a range of action plans setting out projects and initiatives required to deliver the reductions and implemented to ensure progress remains on track. This project seeks to fundamentally assist with delivering on these ambitions and commitments.
- 1.3 ELDC has made commitments as part of the One Public Estate initiative and funding arrangements with the Greater Lincolnshire LEP to reduce its operational asset running costs as part of the forecasted savings arising from the move from Tedder Hall to the Hub which are required to be reported annually.

2. Report

In 2022 as part of the construction delivery of the Hub, officers considered the potential adjacent land uses on the site which may support feasible options to deploy additional localised renewable energy generation systems and as a result a 0.37ac site shown below was outlined and an initial concept design stage proved successful. Additional supporting electrical infrastructure through underground cable ducts from the southern car park areas and electrical switchgear within the Hub were installed to facilitate future build out of a potential solar farm installation in subsequent years.

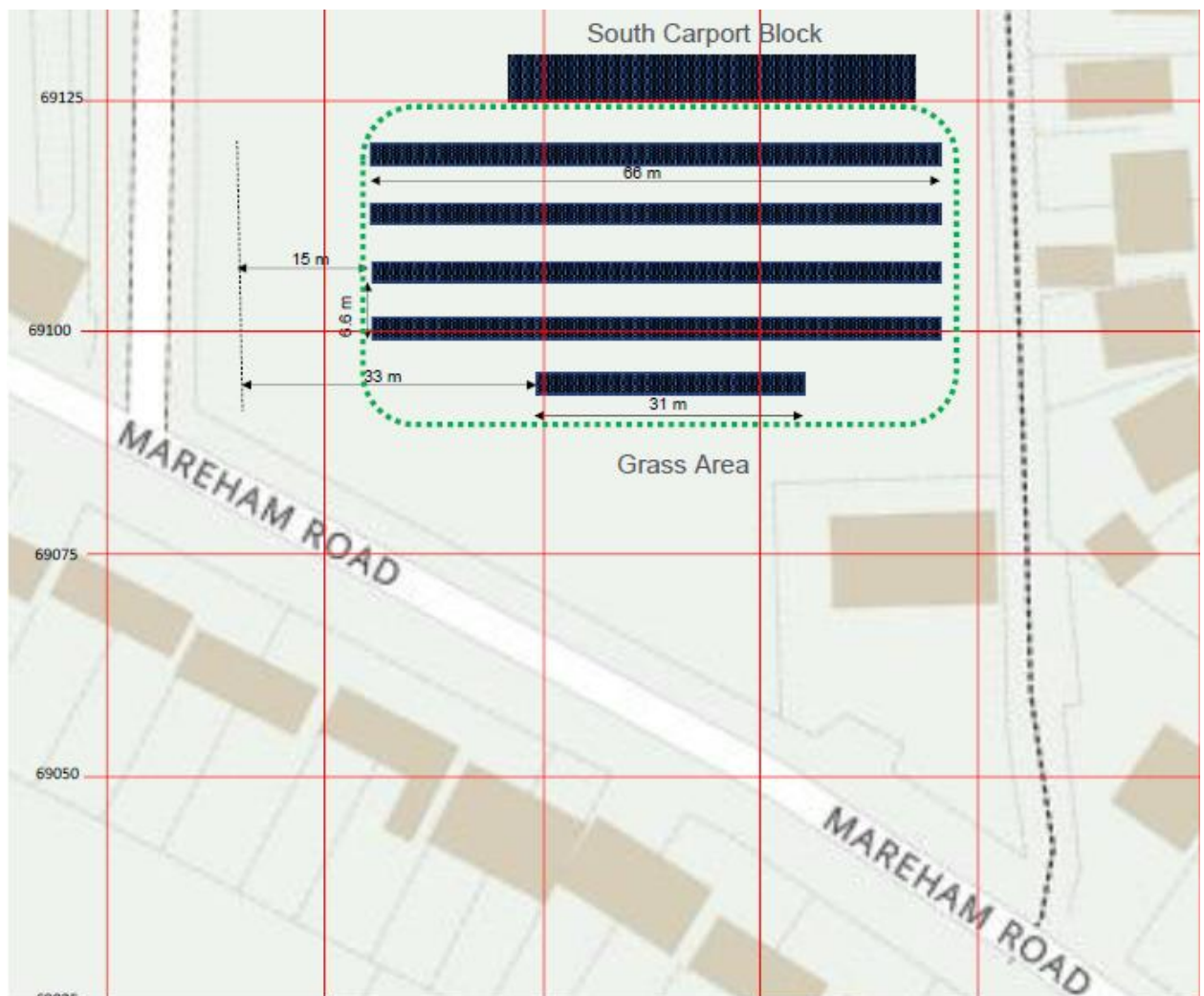


- 2.1 In 2023, Officers engaged with specialist Renewable Energy & Planning Consultants, RINA Tech UK Ltd through the ESPO Framework to develop a feasibility study and full business case with proposal for consideration across differing configuration system size.
- 2.2 Officers have considered potential planning implications to the project that may arise as part of obtaining the necessary consent as part of its red flag review and formal Pre-Application deposited in June 2023. The most notable element raised was around the site being within an area of previous identified archaeological significance. Officers therefore engaged with specialist Consultants to undertake geophysical and archaeological studies in consultation with LCC's Historic Environment Officer.
- 2.3 The subsequent report concluded the proposals are likely to have very limited detrimental effect given the non-invasive ground mounted system proposed with favourable conditional support from the Planning Officers and key consultees being likely to be received should a full planning application come forward. Other planning considerations and potential conditions were raised as part of the pre-app but considered attainable through further mitigation measures, technical reports and further consultation prior to any potential application being submitted.
- 2.4 The technical feasibility assessment produced by RINA Tech UK compared six distinct options for solar PV at the Hub using systems of varying size and orientation and inclination driven by winter time electricity demand requirements at the Hub when the consumption is at its peak due to increased lighting, heating etc.
- 2.5 It was clear from the refinement in the design phase, increasing the size of the PV system, over produced exported power back to the grid which the Council would be paid for but has a far less monetary market value for each kilowatt hour produced in comparison to offsetting grid imported energy to the building which carries a much

higher unit value and therefore had a negative effect on the economic viability of the scheme. After careful consideration the consultants recommended two PV options as being suitable for the site and its electrical consumption demands. These were:

Item	Configuration	Ground-mounted PV capacity	Carport-mounted PV capacity	Total Capacity
Item 1	PV on Front grass area only	145 kWp	-	145 kWp
Item 2	PV on Front Grass area and south block carports	145 kWp	50 kWp	195 kWp

2.6 A schematic of these combined proposals is detailed below for information.



To consider the capital costs and feasibility of the new PV system options, a number of assumptions have had to be made in the baseline model below, some of which have shown volatility over the past year, these being.

- Cost of car port structural frames
- Solar PV equipment wholesale cost
- Wage inflation
- Raw material costs
- Forecasted unit rate cost of offset grid electricity and potential exported power income rates.

A capital investment summary is detailed below for information.

Base Case Model	Option 1 – DO NOTHING	Option 2 – Excl Car Port PV	Option 3 – Incl Car Port PV
Capital Expenditure (Real)	na	£239,064 excl. contingency	£309,868 excl. contingency
Total Revenues* (Real)	na	£705,918	£875,176
Total Operational Costs (Real)	na	£162,401	(£185,520)
Net Present Value of Free Cash Flow (Real)	na	£95,502	£126,125
Project IRR (Real)	na	7.39%	6.91%
Simple Payback (system life expectancy = 30+ years)	na	13 years	14 years
Net Cash Savings after repayment of loan / capital interest loss (modelled at 5%)	na	£151,077	£162,366
NPV of Cash Savings	na	£65,373	£66,908
Annual Demand Offset Volume (kWh)	na	99,200	104,000
Annual Export volume	na	33,500	64,800

2.7 The above outlines the expected capital investment financial benefits of both options for the project using GAAP accounting methodology. A number of model sensitivities or variables (best and worst case scenarios) such as fluctuating costs of imported / exported energy and capital costs used to analyse the investment over the project lifespan. Conservative mean forecasts and actual comparable market data were used in the base case model but as such these can fluctuate higher or lower in today's market and pose some financial risk/benefit to the project. It is recommended should the project be approved a detailed procurement exercise is undertaken to fully realise the full as tendered delivered cost of the scheme and a recast of the business case undertaken for review.

2.8 A full high level cost breakdown of the project together with an appropriate industry standard contingency allowance is detailed below for completeness for Options 2 and 3.

Item	Option 2 Estimated Cost – Excl Car Port PV		Option 3 Estimated Cost – Incl Car Port PV	
Pre construction costs / fees/ prelims etc	£	60,000.00	£	60,000.00
Planning application & technical surveys	£	40,000.00	£	40,000.00
Site Investigation	£	2,000.00	£	2,000.00
CDM/Client Supervision	£	5,000.00	£	5,000.00
PV modules	£	15,190.00	£	20,470.00
Inverters	£	7,482.00	£	9,977.00
Optimisers	£	5,229.00	£	7,045.00
Cabling and connectors	£	3,548.00	£	5,032.00
Connection to Hub plant room, including controller	£	7,000.00	£	7,000.00
Insurances / rates	£	5,000.00	£	5,000.00
Groundworks / soft landscaping enhancement	£	12,000.00	£	15,000.00
Boundary fencing & CCTV	£	21,000.00	£	21,000.00
Freight Costs	£	2,250.00	£	2,800.00
Foundations and frames	£	37,014.00	£	85,681.00

Frame installation	£	10,000.00	£	16,000.00
Module Installation	£	4,351.00	£	5,863.00
Commissioning	£	2,000.00	£	2,000.00
SubTotal		£ 239,064.00		£ 309,868.00
Project Risk Contingency @ 10%		£ 23,906.00		£ 30,986.00
Total Project Capital Cost		£ 262,970.00		£ 340,854.00

Operational costs associated with solar PV systems have relatively low ongoing maintenance costs, there is likely to be an ongoing annual revenue budget requirement of circa £5,000 per annum, this would include sums to include essential maintainace and insurance. Operational costs have been included within the business case model figures over the project life.

3. Conclusion

- 3.1. Whilst projected project investment returns (7.39% / 6.9% IRR) are modest and may not be as attractive as some other commercial investment opportunities at present, the scope of the project has vast significance in aligning with the Partnerships clear strategic actions, policy commitments to ambitious carbon emission reductions and demonstrates leading by example within the communities we serve as we move collectively towards net zero status.
- 3.2. Option 2 delivers slightly greater economic value, however Option 3 enables increased generation capacity on site through deployment of solar PV car port structures as an innovative pilot that could potentially be rolled out to other parking locations across the Partnership area which; such innovation being an East Lindsey member aspiration for its area.
- 3.3. Option 3 is estimated on average to generate 168,727 kWh's of electricity per annum with an expected reduction on imported grid energy to the building of approx. 61%. During the months of May to August, solar generation from the system is forecast to outstrip demand from the building, leaving the Hub effectively 'entirely off grid' at times of the day when conditions are optimum.
- 3.4. Subject to project approval, an application for full planning permission with the required environmental and technical surveys estimated at £40,000 in the overall cost plan would need to be progressed at risk.
- 3.5. Officers would work with Procurement colleagues to achieve best value, be that through an existing Framework or pursuing an open process depending on the advice received.

Implications

South and East Lincolnshire Councils Partnership

None

Corporate Priorities

In 2021 the adoption of ambitious carbon reduction targets challenged the council's own operations and estate to reduce its carbon footprint by 45% by 2027 and to net zero targets by 2040. This was embedded within the Climate Change Strategy approved by Council. This included a range of Action Plans setting out projects and initiatives required to deliver the reductions and implemented to ensure progress remains on track. This project seeks to significantly assist with delivering on these ambitions and commitments.

Staffing

None

Workforce Capacity Implications

None

Constitutional and Legal Implications

None

Data Protection

None

Financial

Fully detailed in the body of the report

Risk Management

None

Stakeholder / Consultation / Timescales

Initial consultation has taken place with both the Portfolio Holder and Ward Member. Provisional timescales associated with this project are set out below.

Stage	Estimated Timeframe
EB Decision	Nov 2024
Stage 2 technical design & planning app preparation & surveys	Jan 2025
Submission of full planning application	Feb 2025
Planning permission determination (Committee decision)	April 2025
Procurement / stage 4 design	May 2025
Award of Contract	July 2025
Delivery on site	August 2025
Completion	September 2025

Reputation

The scheme design is non intrusive and moving the Council towards more sustainable energy should be positive for its reputation and commitment to tackling climate change.

Contracts

Any resulting contract will be compliantly procured in partnership with our PSPS Procurement partner.

Crime and Disorder

None

Equality and Diversity / Human Rights / Safeguarding

None

Health and Wellbeing

None

Climate Change and Environmental Implications

The project gives significant potential for generating electricity locally on our estate thus offsetting and reducing reliance on imported grid electricity by approx. 61% annually. It will significantly reduce its ongoing annual operating costs of the Hub and contributing to its year-on-year carbon reduction target outputs and net zero ambitions embedded within the SELCP adopted Climate Change Strategy in 2022.

Acronyms

PV – Photovoltaic

Appendices

None

Background Papers

Rina Tech UK feasibility report. Available from: Group Manager, General Fund Assets..

Chronological History of this Report

A report on this item has not been previously considered by a Council body.

Report Approval

Report author: Duncan Hollingworth, Service Manager (Property and Technical Services)

Signed off by: Andy Fisher, Joint Deputy Chief Executive – Programme Delivery and Assistant Director - General Fund Assets

Approved for publication: Councillor Craig Leyland, Leader of the Council and Portfolio Holder for Corporate Affairs