Report for:	Cabinet
Date of Meeting:	13 January 2026
Subject:	**Phoenix Lane Solar and Battery Energy Storage System**
Cabinet Member:	Cllr John Downes - Cabinet Member for Governance, Finance and Risk.
Responsible Officer:	William Styles - Corporate Projects Officer. Jason Ball - Climate and Sustainability Specialist. Paul Deal - Head of Finance, Property and Climate Resilience.
Exempt:	None. which are Exempt from publication under paragraph 3, Part 1 of Schedule 12A to the Local Government Act 1972 (as amended) as it contains information relating to the financial or business affairs of any particular person (including the authority holding that information)
Wards Affected:	All
Enclosures:	None.

Section 1 – Summary and Recommendation(s)

The Phoenix Lane Solar and Battery Energy Storage System project would install a solar photovoltaic (PV) array on the top levels of the Phoenix Lane multi-storey car park at Tiverton supported by a battery energy storage system (BESS).

Recommendation(s):

1. **That Cabinet approves the Phoenix Lane Solar and Battery Energy Storage System project as outlined within Option 3.**

2. **That delegated authority be granted to the Cabinet Member for Governance, Finance and Risk - in consultation with the Deputy Chief Executive s151**

and the Head of Finance, Property and Climate Resilience - to deliver the Phoenix Lane Solar and Battery Energy Storage System project.

Section 2 – Report

1.0 Introduction

1.1 The project is to install a solar PV array on the top levels of the Phoenix Lane multi-storey car park in Tiverton with a battery energy storage system (BESS). This installation would provide the Council's premises at Phoenix Lane with renewable power in line with its Corporate Plan and Climate Change Strategy.

1.2 The aim is to meet most of the electricity needs at Phoenix House with renewable power, which would achieve considerable cost savings, whilst reducing climate impacts (greenhouse gas emissions) linked to electricity purchase / import. This improved self-sufficiency also lends financial resilience in the longer term.

1.3 This report provides project details to enable a Cabinet decision to implement it. A business case has been approved at the corporate Programme Board and at Leadership Team. The business case considered 3 design options (outlined later) with a recommendation to approve 'option 3' as it would maximise the potential solar energy generation.

1.4 Project cost is estimated at £640k. Cabinet has approved £600k funding in the Capital Programme for this project. The £40k remainder (e.g. site preparation measures plus £10k contingency provision) can be covered by earmarked reserve capital (£50k) for maintenance of the multistorey car park.

1.5 Greenhouse gas emissions referred to in this report are measured in tonnes, or kilograms, of carbon dioxide equivalent (tCO_2e) ($kgCO_2e$).

1.5.1 The project (option 3 as recommended) is expected to achieve estimated savings annually of £67,500 in electricity costs by year 5 (please refer to 3.4, Benefits) and 215 tCO_2e in greenhouse gas emissions. The payback period for the investment is estimated as circa 9 years.

1.6 <u>Successful delivery and implementation</u>

1.6.1 Measures to ensure successful delivery and implementation of this project (if approved) being arranged or already in place include:

- Project management by the Corporate Projects Officer (Property Services).
- Oversight by the corporate Programme Board and support from the Climate and Sustainability Specialist.
- Close working and consultation with key stakeholders including the ICT Operations Manager and Property Services Operations Manager with regard to specifications, fire prevention systems, operational needs, etc.
- A detailed design process that will be informed by the solar potential modelling data (completed), analysis of power consumption patterns, installation cost efficiency, maintenance, insurer requirements, etc.

- Support from the South West Net Zero Hub to include e.g. procurement of a system design process, engagement with the District Network Operator (DNO) National Grid, the benefit of their experience of similar projects.

1.6.2 Commencement and progression after sign-off by the Deputy Chief Executive (s151) would be subject to such measures being in place and satisfactory project management 'gateway' checks e.g. further feasibility detail.

2.0 Background

2.1 The Phoenix Lane solar project would support achievement of the Council's corporate objectives and its climate change strategy. The ambition to carry out this project was expressed in the Council's carbon reduction plan (climate action plan). Capital funding has been allocated as part of approved budget plans.

2.2 The Council has a track record of investment in solar power, such as at its leisure centres. This would be its first bespoke solar PV and BESS installation, and the project provides an opportunity to act as a model for other sites in future.

3.0 Proposal

3.1 <u>Design Options</u>

3.1.1 A feasibility study has been caried out to explore 3 design options, informed by solar yield modelling data, along with assessment of the site characteristics, operational requirements and power consumption needs.

3.1.2 Battery storage - part of all design options - will enable the Council to achieve the best value from the power (using solar energy to replace imported 'grid' electricity is worth more than the reward for exported surplus power). Location of battery storage will be confirmed in line with fire safety requirements.

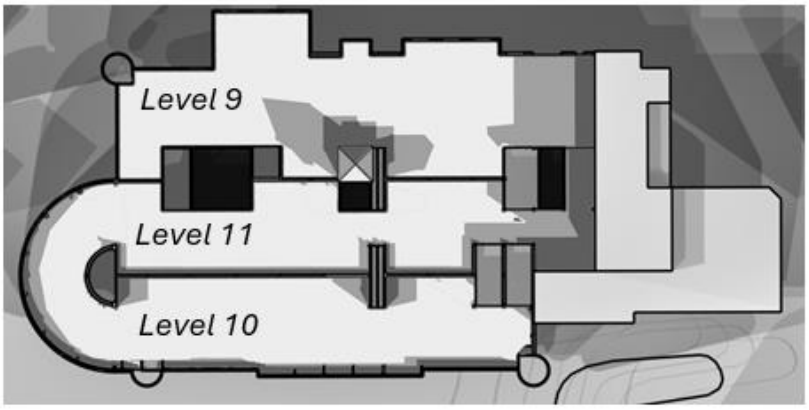

Figure 1 - a plan view diagram showing levels 9, 10 and 11 of the car park.

3.1.3 Detailed modelling was carried out to evaluate solar energy potential on the top levels (9, 10, 11) of the car park. Level 9 is the northernmost section, Level 11 is the central section, and Level 10 is the southernmost section.

3.1.4 Solar potential diagrams provided below for design options 1, 2 and 3 are representative of the potential yield at an equinox.

3.1.5 The Legend below explains the colour coding for the solar potential diagrams.

Legend: Colours used in solar potential diagrams	
	High Solar Potential. No or minimal shade during daylight hours.
	Moderate Solar Potential. Shade for 40-50% of daylight hours.
	Poor Potential. Shade for 50-100% of daylight hours.

3.1.6 OPTION 1: Existing Roof Structure

Retain existing car ports and use all available surfaces.

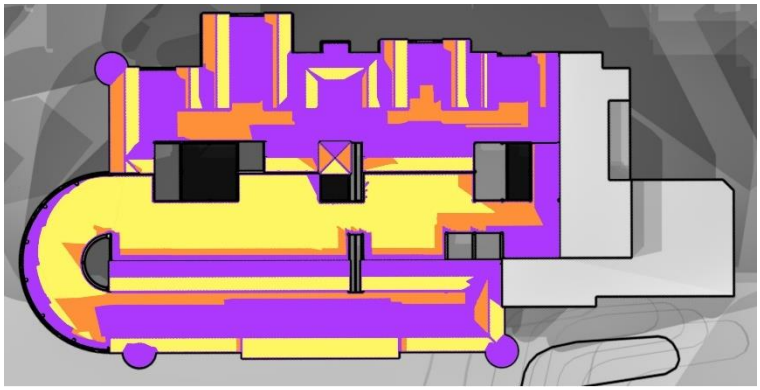

Figure i - Solar Potential for Option 1.

3.1.7 This option has a very low solar potential efficiency compared to the other options, due to the suboptimal configuration of slopes. This option would have the shortest on-site construction timeline as there would be fewer enabling works, but the array would be more expensive per panel, due to the differing slopes and access needs for installation e.g. scaffolding. Permitted Development (PD) may be used instead of a full Planning Application which could reduce the project timeline significantly.

3.1.8 OPTION 2: Existing Floor Surface

Remove the existing car ports and utilise the fully opened floor surface.

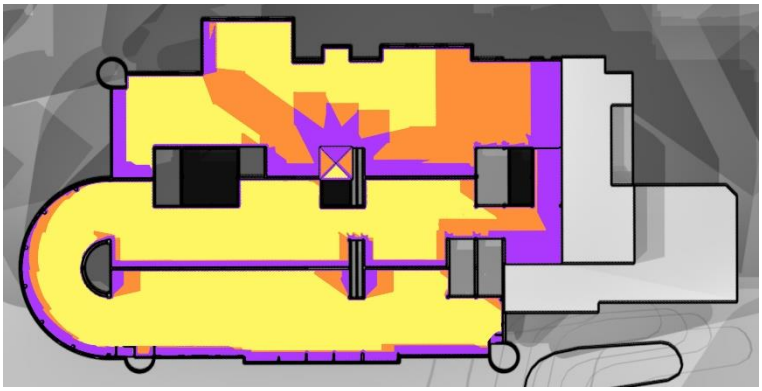

Figure ii - Solar Potential for Option 2.

3.1.9 Option 2 would also be achievable through PD but has a much higher solar potential than Option 1. Whereas previously level 9 (northernmost) was near unusable due to shading – car port removal would achieve high solar potential across ~50% of its surface. Similarly, it would make a massive difference on level 10 (southernmost) improved from ~30% to ~90%.

3.1.10 OPTION 3: New Car Ports

3.1.11 This option proposes to remove the existing car ports, and add a raised surface e.g. a bespoke car port roof on level 9 (northernmost roof level). A new structure would be designed to maximise solar gain and solve the issue of shading across large parts of level 9 by the higher, central level 11. (On levels 10 and 11, works would be the same as for Option 2.)

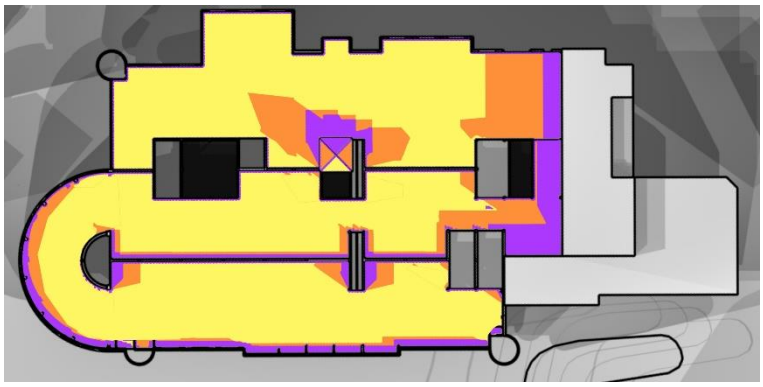

Figure iii - Solar Potential for Option 3.

3.1.12 Option 3 would enable use of level 9 for secure storage e.g. vehicles or supplies. Potentially this area is suited for the energy battery storage system (to be confirmed in the detailed design phase). The car port component would require planning permission, but achieves the highest solar potential and therefore best energy output and financial benefit. Staging could be achieved by delivering the panels on level 11 and 10 while awaiting planning permission to commence the works on level 9 which could then be plugged into an already running system.

3.1.13 The new car port would achieve greater yield on level 9 to transform the situation from ~50% surface area being high solar potential to ~80%, raising the overall site potential from ~75% for Option 2 to ~90% for Option 3.

3.2 <u>The Recommended Option</u>

3.2.1 Option 3 is the recommended option as it would achieve the best yield and the best financial rewards over the 25-year array lifetime (despite higher initial costs). Additional benefits of Option 3 include sheltered storage and parking.

3.2.2 While having a greater cost than Option 2 and only a slightly higher yield, this yield improvement is still enough to give the shortest payback period and the largest financial yield over the 25-year project lifetime. For an investment difference of circa £55k (projected), there is a 25-year increased return of £300k;

(an extra £10k-15k per year). This additional value would almost pay for a full reinstatement of solar panels (in future) once degradation makes the efficiency and yields sub-optimal.

3.2.3 Cost estimates for 3 design options.

- Option 1: £425,000
- Option 2: £595,000
- Option 3: £640,000

3.2.4 It is important to identify that there is a greater cost involved for Option 2 and 3 than Option 1. There is confidence in current Option 3 estimate of £640k on an informal basis, however this does not factor in any heavy-duty surface preparation such as demolition or construction, which on the high end may be £50k-£100k to include unforeseen risk allocation.

3.2.5 Option 2 requires demolition of the existing car ports which will incur a cost. This may be circa £45k but there would be material receipts from the sale of slates and the scrap value of the galvanised steel structural elements and sheeting leading to a non-negligible reduction perhaps as high as £10k-£30k for both sales. (Potential receipts are not reflected in direct comparison, only costs.)

3.2.6 Further to this, there would need to be some surface treatment to plug the attachment points of the former car ports to prevent water penetration and structural damage which has been factored into the Car Port Costs.

3.2.7 On top of this, with Option 3, there is then the additional cost of creating a new raised non-structural platform for the solar panels on level 9 indicated at ~£55k. Despite this, Option 3 is found to be the most cost-effective proposal.

3.3 <u>Other options considered</u>

3.3.1 Sale of energy to neighbouring businesses. This presented potential complexity versus the immediate value of solar power for the Council's use.

3.4 <u>Benefits</u>

3.4.1 The project (option 3 as recommended) could achieve annual savings of £67,500 in electricity costs and 215 tCO_2e in emissions by year 5.

3.4.2 Projected annual value from energy bill savings at year 5 (possibly including some export):

- Option 1: £30,000
- Option 2: £60,000
- Option 3: £67,500

3.4.3 The total 25-year values.

- Option 1: £1.1m
- Option 2: £2.2m
- Option 3: £2.5m

3.4.4 Projected values across the 25-year project lifetime:

Year	**Option 1**	**Option 2**	**Option 3**
1	£25,500.00	£51,000.00	£57,375.00
2	£26,587.58	£53,175.15	£59,822.04
3	£27,721.54	£55,443.07	£62,373.45
4	£28,903.86	£57,807.72	£65,033.68
5	£30,136.61	£60,273.22	£67,807.37
6	£31,421.93	£62,843.87	£70,699.35
7	£32,762.08	£65,524.16	£73,714.68
8	£34,159.38	£68,318.77	£76,858.61
9	£35,616.28	£71,232.56	£80,136.63
10	£37,135.31	£74,270.63	£83,554.46
11	£38,719.14	£77,438.27	£87,118.06
12	£40,370.51	£80,741.01	£90,833.64
13	£42,092.31	£84,184.62	£94,707.70
14	£43,887.55	£87,775.09	£98,746.98
15	£45,759.35	£91,518.70	£102,958.54
16	£47,710.99	£95,421.97	£107,349.72
17	£49,745.86	£99,491.72	£111,928.18
18	£51,867.52	£103,735.04	£116,701.92
19	£54,079.67	£108,159.34	£121,679.26
20	£56,386.17	£112,772.34	£126,868.88
21	£58,791.04	£117,582.08	£132,279.84
22	£61,298.48	£122,596.95	£137,921.57
23	£63,912.86	£127,825.71	£143,803.93
24	£66,638.74	£133,277.48	£149,937.16
25	£69,480.88	£138,961.76	£156,331.98
Total	**£1,100,685.62**	**£2,201,371.23**	**£2,476,542.63**

3.4.5 Projected annual carbon savings (tCO_2e):

- Option 1: circa 77 tonnes.
- Option 2: circa 185 tonnes.
- Option 3: circa 215 tonnes.

3.4.6 Projected Payback Period:

- Option 1: circa 12.4 years.
- Option 2: circa 9.2 years.
- Option 3: circa 9.1 years.

3.4.7 The difference in the carbon saving between options 2 and 3 (circa 30 tonnes, equivalent to 30 transatlantic flights) is a cost-effective gain when comparing the payback period. This reinforces the recommendation of Option 3, particularly in the context of strategic objectives.

3.5 Strategic objectives

a) Leadership and Engagement: provide a tangible demonstration of climate action to residents, businesses, and partners.

b) Carbon Reduction: deliver measurable reductions in operational emissions.

c) Financial Efficiency: lower energy costs (immediate) and long-term cost volatility (over the medium to long term).

d) Resilience: improve self-sufficiency by generating green energy on site.

e) Replicability: establish a benchmark model for solar installation projects that can be adapted for other council-owned assets.

3.6 Realisation and optimisation of benefits, and potential wider benefits

3.6.1 To realise the full benefit of the project, energy production and supply will be recorded and closely monitored. The role of the BESS will be to optimise the solar power supply directly to the Council buildings and to store surplus electricity in a timely manner.

3.6.2 BESS system design could support business resilience by improving ICT power backup. (ICT engaged a stakeholder and will be consulted on design details.)

3.6.3 The timing of electric vehicle recharging at Phoenix House can also be managed to make the most of solar power and to fit in with energy demand patterns. Effectively, the car batteries could add flexible storage capacity to the system.

3.6.4 Option 3 offers the opportunity to have covered, secure storage and parking or storage for MDDC.

3.6.5 This project would achieve a valuable and productive use of the top levels (9, 10, and 11) which have not been used for parking for several years, and demand trends suggest it is not worth reopening them for car parking.

3.6.6 These areas have often been the target of vandalism and anti-social behaviour. Potential vandalism and theft are key risks, so the upper levels must be secured to protect the installations. A renewable energy system with sound financial benefits therefore adds further justification for the pre-existing security decision to exclude the public, already identified as vital for safety reasons. Removal of the slate roof is also seen as a positive step in that regard.

3.6.7 Long term demand for the on-site power generation will provide ongoing benefit, being adaptable to changing needs. Trends show reducing levels of demand for power at Phoenix House due to improvements in electrical efficiency. However, we expect growth in demand for electricity to recharge vehicles and to enable future moves to decarbonise heating.

3.7 Delivery Timescales

3.7.1 Each option will have a different delivery timeframe with Option 1 being the shortest due to limited enabling works being required. This anticipates a completion for Q3 2026. On site works commencing in earnest Q1 2026.

3.7.2 The most significant impacts to the timeframe for the other two options are demolition time for the existing car ports and the subsequent weatherproofing works for Option 2. For Option 3 this will also be a factor though so too will the construction of a new car port type structure on level 9 and the relevant planning permission period for this.

3.7.3 Option 3 may also benefit from a phased approach, delivering level 10 and 11 in the first instance while constructing the car ports on level 9.

Financial Implications
The project would be funded by existing approved budgets.

Legal Implications
The appropriate Consents will need to be obtained and in place, such as with the District Network Operator (supply agreements, system compliance) and Planning Permission if required. There are no legal implications associated with this proposal.

Risk Assessment
Key risks include: vandalism; theft; structural engineer-imposed limitations; supply-chain delay; grid-connection timing. Early surveys and DNO liaison have already begun. Contract terms must include retention payments and performance benchmarks to safeguard delivery quality, timings, and a suitable defects period.

Impact on Climate Change
Based on the demonstrable ability for this form of grant scheme to create or accelerate action to reduce greenhouse gas emissions, this proposal should contribute positively towards reducing climate impact. The project could achieve emissions savings / impact avoidance of up to 215 tCO_2e annually.

Equalities Impact Assessment
Projects and policies are subject to the Public Sector Equality Duty. (Assessing the equality impacts of proposed changes to policies, procedures and practices is not only a legal requirement, but also a positive opportunity for authorities to make better decisions based on robust evidence.) There are no equality impacts associated with this proposal.

Relationship to Corporate Plan
The Council's Corporate Plan 2024-2028:

- Priority 1.1: Demonstrate climate leadership through achieving ambitious net zero targets
- Measure 1.1: Council carbon footprint
- Measure 1.1: Carbon emissions avoided (renewables and green transport)

The Council's Climate Change Strategy 2024-2028

- reduce areas of the operational carbon footprint where we have direct control
- renewable energy and flexible energy storage
- project included in the Climate Action Plan

Section 3 - Statutory Officer sign-off/mandatory checks
Statutory Officer: Andrew Jarrett
Agreed by or on behalf of the Section 151
Date: 23 December 2025

Statutory Officer: Maria De Leiburne
Agreed on behalf of the Monitoring Officer
Date: 23 December 2025

Chief Officer: Stephen Walford
Agreed by or on behalf of the Chief Executive/Corporate Director
Date: 23 December 2025

Performance and risk: Steve Carr
Agreed on behalf of the Corporate Performance & Improvement Manager
Date: 15 December 2025

Cabinet member notified: Yes.

Section 4 - Contact Details and Background Papers

Contact: William Styles - Corporate Projects Officer. Email wstyles@middevon.gov.uk Telephone: 01884 255255 (switchboard).

Background papers: None.