

Programme/Project Information	
Programme/Project/ Name	Installation of rooftop solar PV at South Oxhey Leisure Centre funded by council capital budget and repaid through a Power Purchase Agreement with Sports and Leisure Management Ltd.
Service/Team	Climate Change and Sustainability / Community Services (Leisure)
Outline Business Case Author (Name and job title)	Joanna Hewitson (Climate Change & Sustainability Strategy Officer)
Date Outline Business Case drafted	13/08/25
Project Sponsor (Name and job title)	Emma Sheridan, Associate Director for Environment
Programme or Project Manager (Name and job title)	Joanna Hewitson Climate Change & Sustainability Strategy Officer With support from Kelly Barnard

### 1. Executive Summary & Recommendations

- 1.1 This Outline Business Case (OBC) recommends that rooftop solar photovoltaic (PV) is installed at South Oxhey Leisure Centre (SOLC), funded by council capital budget and repaid through a Power Purchase Agreement with Sports and Leisure Management Ltd (SLM).
- 1.2 The feasibility of rooftop solar PV at SOLC has been evaluated from a technical, financial and legal (including planning permission) perspective. The feasibility study showed that the installation is feasible and that SOLC is a good candidate for rooftop solar PV.
- 1.3 A Power Purchase Agreement (PPA) is a financial arrangement whereby the council would install and fund the solar PV and agree to sell SLM the solar electricity at a unit rate of £0.1393 pence per kWh which aligns to Schedule 18 (Utilities) of the leisure contract. PPA's are commonly used in conjunction with solar PV.
- 1.4 A PPA requires specialist legal advice to setup which will costs £2,900. Proper repair and maintenance (which would be the council's responsibility) is important, failing to keep the solar PV operational could invalidate the PPA. Therefore, the council would seek to enter a solar PV maintenance and repair contract projected to cost ~£1,000 per year. At present SLM have sole responsibility for maintenance at South Oxhey Leisure Centre so this will also require a variation to the existing SLM contract.
- 1.5 To enable the procurement and installation of the solar PV, £5,400 of external consultancy is required.
- 1.6 The cost of the rooftop solar PV is £102,902 and is predicted to generate PPA revenue of £17,823 per year.
- 1.7 Additionally, the council is forecasted to benefit from a £9,659 revenue saving per year from a reduction in the subsidy it pays SLM under the utility indemnification clause of the leisure contract.<sup>1</sup>

<sup>1</sup> Based on 2023/24 electricity consumption and price figures supplied by SLM.

- 1.8 The total cost of the solar PV is £111,202 (solar PV cost + consultancy cost + PPA setup cost) plus an ongoing repair and maintenance cost of £1,000 per year.
- 1.9 The total benefit to the council is therefore forecasted to be £26,482 per year. The capital financing costs are estimated to be £8,340 resulting in a net income of £18,141 per year. Excluding capital financing charges there is a payback period of 4.9 years after allowing for interest costs of £3,892 per year. The net present value is £314,262 after 25 years. Please see Appendix 4 for a more detailed financial appraisal.
- 1.10 The rooftop solar PV is forecasted to save 25.73 tonnes of CO<sub>2</sub> (tCO<sub>2</sub>) per year and 772 tCO<sub>2</sub> over its lifetime. The estimated embodied carbon of the rooftop solar PV is 86 tCO<sub>2</sub> resulting in a carbon payback period of 3.3 years.
- 1.11 The rooftop solar PV will be owned by the council and therefore will not be impacted by the end of the leisure contract with SLM. Additionally, SLM have agreed to the submission of this OBC and entering a PPA with the unit rate aligned to the leisure contract.
- 1.12 We recognise that there are logistical and administrative questions that need to be addressed. For example: how SLM will be charged for the solar electricity, where will the maintenance and repair budget reside and who will administer it, how will maintenance be scheduled with SLM, how will the existing contract be changed to reflect that the council will repair and maintain the solar PV. Officers are working to address these questions but do not consider them to be a blocker to project delivery.
- 1.13 The installation of solar PV at SOLC will complement the recent installation of the 500-panel rooftop solar PV at William Penn Leisure Centre funded by a grant from the Swimming Pool Support Fund and Sport England which at the time of writing has saved over £24,000 and 62 tonnes of CO<sub>2</sub> this calendar year.

## 2. Objectives

- 2.1 The objective of this project is to contribute to the council having a net zero building estate and to meet its ambitions, as set out in the approved Climate Change and Sustainability Strategy, where the council committed to achieving net zero by 2030 for our own operational emissions. An important element of the council's ambition to achieve net zero is the decarbonisation of council-owned buildings. The installation of rooftop solar PV at SOLC will support the council's corporate plan objective to achieve carbon net zero.

## 3. Background and context

- 3.1 In 2022, the Association for Public Service Excellence (APSE) completed energy surveys of the council's core buildings. The APSE surveys identified a range of potential projects that could reduce the carbon emissions of the buildings. APSE recommended the installation of rooftop solar PV at SOLC.
- 3.2 In 2023, a structural roof survey was completed which raised no concerns about the installation of rooftop solar PV at SOLC.
- 3.3 In 2024, a study was completed to evaluate the feasibility of rooftop solar PV at SOLC, compare rooftop solar PV to a potential car park solar canopy and identify which option should be prioritised. Rooftop solar PV was identified as the priority. Please note that the installation of rooftop solar PV at SOLC does not negate the opportunity for a solar canopy. Combined, both solar PV systems would only generate ~50% of SOLC's electricity needs. Additionally, discussions with the District Network Operator suggest that local electricity grid upgrades are not required for the installation of rooftop solar PV or a solar canopy.

- 3.4 SOLC has high and consistent energy demand which makes it a suitable consumer of rooftop generated solar electricity. SOLC has a projected demand for electricity imports of 546.4 MWh per year, which includes the current metered demand (440.0 MWh per year) and the prospective demand from 3 new fast EV charging points (106.4 MWh per year).<sup>2</sup> The building currently has a 14.25 kW rooftop solar array, which generates an estimated 17.4 MWh per year. 100% of this generation is self-consumed by the SOLC, behind-the-meter. Currently, 97% of electricity consumption is from the grid, and 3% from self-consumed rooftop solar generation.
- 3.5 Figure 1 and Table 1 show the rooftop solar PV design proposed by Geo Green Power following a procurement process. The red line identifies the existing rooftop solar PV.



Figure 1 Proposed Rooftop Solar Design

System	
PV Modules	320
Inverters	1
Optimizers	162
Installed DC Power	145.65 kWp
Benefits	
Annual Energy Production	133 MWh
Annual tCO <sub>2</sub> Saving	25.73

Table 1 Proposed Rooftop Solar Design

- 3.6 The cost of the rooftop solar PV system described above is £102,902 (excl. VAT).

<sup>2</sup> MegaWatt Hours

3.7 The feasibility of rooftop solar PV has been evaluated by scoring it across three different categories of potential constraint:

- Technical Constraints
- Financial Constraints
- Legal Constraints (including planning constraints).

3.8 Each potential constraint has been given a severity score. A lower score is a better score.

- 0 = Unconstrained, no technical constraint at the site.
- 1 = Slightly constrained, may limit viability or require mitigation.
- 2 = Constrained, may limit viability and will require mitigation.
- 3 = Highly Constrained, will limit viability and require mitigation.
- 4 = Very Highly Constrained, viability is poor and require significant mitigation.
- 5 = Completely constrained, site unviable due to constraint.

3.9 South Oxhey Leisure Centre is unconstrained for rooftop solar PV from a technical perspective. Table 4 provides an overview of the key technical constraints:

Constraint	Score	Description
Construction	1	A structural survey of the roof has been completed. The score assumes the roof can support the system without modification.
Shading	1	There is very limited shading from trees to the north-east of building. The impact to energy generation is not anticipated to be meaningful.
Access	1	A roof safety report suggests no floor to gutter scaffold is needed. A permanent ballasted handrail is installed on the north roof. Temporary edge protection will be required on the south roof.
Energy Networks	1	Due to high on-site demand, minimal export capacity will be required.
Annual Generation	2	The system is forecasted to generate ~23% of SOLC's energy needs.
Local Consumption Generation	1	~94% of the generated energy is forecasted to be used by SOLC.

Table 4 SOLC Technical Constraints Score

3.10 South Oxhey Leisure Centre is unconstrained for rooftop solar PV from a financial perspective. Table 5 provides an overview of the key financial constraints:

Constraint	Score	Description
Capital Cost	1	The capital cost of rooftop solar is forecasted to be relatively low but will be confirmed through an open and competitive tender process.
Capital Payback Period	1	The rooftop solar is forecasted to break even in 4.9 years.

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Constraint	Score	Description
Carbon Savings (Lifetime, tCO <sub>2</sub> )	2	The annual tCO <sub>2</sub> saving of 24.43 represents 3% of TRDC's annual reduction target for its core buildings (838 tCO <sub>2</sub> ) to achieve net zero.
Cumulative Net Income (25-year)	0	The Cumulative Net Income is £534,929 suggesting the solar PV will generate significant value of its 25-year lifetime.
Internal Rate of Return (IRR)	1	The IRR is 20% which is above the 3.5% discount rate recommended by the government's green book guidance.
Net Present Value (NPV)	1	The NPV is £313,528 after 25 years which suggests a sound investment.

Table 5 SOLC Financial Constraints

- 3.11 South Oxhey Leisure Centre is unconstrained for rooftop solar PV from a legal and planning perspective. **Error! Reference source not found.**5 provides an overview of the key legal and planning (under permitted development) constraints:

Constraint	Score	Description
Glare impact on neighbours	1	The Leisure Centre roofline is above the sightline of the neighbouring properties except for Alderwood House (owned by TRDC) located to the south-west.
Proximity to neighbours	0	Not applicable to rooftop solar.
Highways Alteration	0	Not applicable to rooftop solar.
Cultural Heritage	0	Minimal conservation area or other concerns at site.
Environmental Heritage	0	Not applicable to rooftop solar.
Title Issues \ Legal Covenants	0	While there is a complex lease agreement with Hertfordshire County Council, the Leisure Centre is owned by TRDC.

Table 6 SOLC Legal & Planning Constraints

- 3.12 South Oxhey Leisure Centre is a relatively unconstrained location and a good candidate for rooftop solar PV as shown in Table 6.

Constraints Summary	
Technical Constraints	8
Financial Constraints	6
Legal Constraints	1
<b>Total Constraints Score</b>	<b>14</b>

Table 6 Constraints Score Summary

- 3.13 It is recommended that that rooftop solar PV is installed at SOLC, funded by a Power Purchase Agreement with Sports and Leisure Management Ltd (SLM).
- 3.14 SLM have agreed to enter a PPA with the unit rate aligned to the leisure contract.
- 3.15 The leisure centre operator contract with SLM features a Utility Indemnification Clause whereby the council subsidise the leisure centres electricity costs when the price of electricity is high. In 2023/24, the council paid SLM £32,858 to subsidise the electricity costs for SOLC. If the rooftop solar PV had been installed the council would have paid ~£23,199, which is a saving of £9,659 to the council.
- 3.16 Table 6 shows the financial proposition of the solar PV based on the cost of £102,920 and using a PPA.

Indicative Capital Cost (inc consultancy and PPA fees)	£111,202
Forecasted PPA Annual Revenue (at £0.1393 per kWh)	£17,823
Council Annual Utility Indemnity Saving (Based on 23/24)	£9,659
Indicative Annual Repair & Maintenance Cost	£1,000
Annual Net Income before Capital Financing Costs	£26,782
Annual Capital Financing Costs	£8,340
Capital Payback Period (in years)	4.9
Net Present Value (25 years at 3.5% discount rate)	£314,262

Table 6 Financial Proposition

- 3.17 Please see Appendix 4 for a more detailed financial appraisal.
- 3.18 The inverter may need to be replaced once during the 25-year period, and cost £14,632 at today's prices, which is less than the revenue for one year. This would need a contingency from year 20 when the warranty expires.
- 3.19 Installing rooftop solar PV at SOLC will contribute to 3 key themes in the Corporate Framework 2023-2026:
- 3.20 "Net Carbon Zero & Climate Resilient": The rooftop solar PV will remove 24.43 tCO<sub>2</sub> annually and 1,122 tCO<sub>2</sub> over its lifetime. The council class carbon emissions from Leisure Centres as Scope 3 (indirect) emissions. Therefore, reducing SOLC's carbon emissions will support the council's commitment to be net zero by 2030. The programme to decarbonise council buildings is set out in the Climate Emergency and Sustainability Strategy (2023-2027).
- 3.21 "Provide responsive and responsible local leadership": By installing rooftop solar PV on one of our core buildings we will show residents and businesses that we are leading by example and will encourage others to follow.
- 3.22 "Support and enable sustainable communities": The rooftop solar PV will help improve both the environmental and financial sustainability of SOLC. SOLC is an important community building which rooftop solar PV will help make cleaner, greener and more resilient.

## 4. Options

- 4.1 Please see next page.



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	<b>Option 1 – Do Nothing</b>	<b>Option 2 – Recommended</b>	<b>Option 3 – Wait for grant funding</b>
<b>Description of the Option</b> <i>A brief description including what is in and out of scope</i>	Do not install rooftop solar PV at SOLC.	Rooftop solar PV is installed at SOLC, funded by the council and repaid through a Power Purchase Agreement with SLM.	Wait for grant funding to become available to fund the rooftop solar PV at SOLC negating the need for the council to fund the solar PV.
<b>Timing</b> <i>Approximate start, end and delivery dates</i> <i>Include key milestones</i>	N/A	Corporate Management Team on 27/05/25. Joint Leadership Team on 05/06/25 (Virtual) Climate Change, Leisure and Housing Committee on 02/07/25. Solar PV Procurement – July 25 Policy and Resources Committee on 08/09/25. Sign PPA Agreement – Q4 2025 Solar PV Installation – Q1 2026	Timing unknown. At the time of writing no grant funding is available.  William Penn Leisure Centre was funded by Phase 2 of the Swimming Pool Support Fund. However, there is no evidence that Sport England will offer another phase of this COVID-related grant.  Please note that grant funding is often awarded through a competitive process, so even if eligible grant funding becomes available, there is no guarantee the council will be successful in its grant application.
<b>Costs and resources</b> Include capital and revenue costs Include staffing requirements	£0	£111,202 – forecasted solar PV and consultancy costs.  £1,000 – forecasted annual repair and maintenance cost.  Please note that the exact cost of the rooftop solar PV will be confirmed through contractor quotations consideration by the Policy & Resources committee.	£0
<b>Cashable Benefits</b> <i>High level benefits that will deliver savings against a specific budget code</i>	N/A	£17,823 - forecasted annual PPA revenue (at £0.1393 per kWh).  £9,659 – forecasted council annual utility indemnity saving	None – until grant funding becomes available.

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<b>Non-Cashable Benefits</b> <i>Benefits such as efficiency savings and increased customer satisfaction</i>	None	25.73 Scope 3 tCO <sub>2</sub> emissions saved per year.  772 lifetime Scope 3 tCO <sub>2</sub> emissions savings.  Demonstrates best practice.	None – until grant funding becomes available.
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<p><b>Risks and Opportunities</b>  <i>High level risks and opportunities associated with the option</i></p>	<p><b>Risks:</b>  Strategic Risk 10 – Failure to deliver net-zero carbon commitments - Impacts negatively on the council's ability to achieve net zero by 2030.</p> <p><b>Opportunities:</b>  None</p>	<p><b>Risks:</b>  Please note that this option is relatively low risk because the council and SLM would enter the PPA <u>before</u> installation of the solar PV. Additionally, PPA's are typically long-term contractual agreements, and it is envisaged the PPA would run until the end of the leisure contract and offer long-term security to both the council and SLM.</p> <p>There is an inherent risk with solar PV of damaging the roof either during installation or afterwards because of the additional weight. This risk will be mitigated by using a non-penetrative ballast mounting system. The solar PV installer will commission a structural roof survey before installation to confirm the roof can support the weight. The survey will be included in the total cost and will be shared with TRDC before installation. The property team will have ensure compliance with the design</p> <p>Proper repair and maintenance (which would be the council's responsibility) is important, failing to keep the solar PV operational could invalidate the PPA. Therefore, the council would seek to enter a solar PV maintenance and repair contract to cover this risk. This will be managed by Leisure contract officer.</p> <p>The solar PV could generate less electricity than forecast which would reduce the PPA revenue</p>	<p><b>Risks:</b>  No grant funding becomes available for which the project is eligible, or the council is not successful in its grant application resulting in:</p> <p>Strategic Risk 10 – Failure to deliver net-zero carbon commitments - Impacts negatively on the council's ability to achieve net zero by 2030.</p> <p><b>Opportunities:</b>  In December 2024 the UK Government published the Clean Power 2030 Action Plan. The mass deployment of solar PV is a key strategic action. While the Action Plan doesn't promise new, or more, solar PV grants, it is reasonable to assume that solar PV grants will be available in the future.</p>
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		<p>to the council and increase the subsidy it pays to SLM under the utility indemnification clause. Alternatively, the solar PV could overperform forecast and generate more benefits than estimated in this OBC.</p> <p>A small risk also exists because of the complex building lease arrangements, especially when connected to Hertfordshire County Council, that could delay installation of the solar PV.</p> <p>Opportunities: The opportunity is for the council to install solar PV on one of the council's biggest electricity consuming buildings.</p>	
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### 5. Engagement with support services

- 5.1 The Community Services and Climate Change & Sustainability teams collaborated to create this OBC.
- 5.2 The Property & Asset Manager has been engaged with regards to the buildings lease agreement.
- 5.3 SLM have been engaged throughout the process of creating this OBC and have agreed to enter into a PPA, if approved by the council.
- 5.4 The Leisure Assets Manager has been a contributor to the business case and that team will manage the ongoing maintenance contract and invoicing requirements.
- 5.5 The property team are recruiting a Building Surveyor who will have requisite skills to oversee the design and installation.

### 6. Data Protection

- 6.1 Not required.

### 7. Equalities Impact

- 7.1 A Short Equality Impact and Outcome Assessment has been completed. There are no negative impacts identified as arising from the project.

### 8. Sustainability Impact

- 8.1 The Climate and Sustainability Impact Assessment has been completed as per the table below.
- 8.2 The project scores highly in the homes, buildings, infrastructure, equipment and energy section as it will improve energy efficiency and reduce grid electricity use.
- 8.3 The project scores highly in the goods and consumption section because solar PV panels can be recycled.
- 8.4 The project scores highly in the engagement & influence section as installing solar PV on a community building and point of local interest will demonstrate best practice.
- 8.5 All other sections are not applicable due to limited nature of the project.

Climate and Sustainability Impact Assessment Summary	
Homes, buildings, infrastructure, equipment and energy	3.40
Travel	N/A
Goods and Consumption	3.00
Ecology	N/A
Adaptation	N/A
Engagement and Influence	3.00
<b>Total Overall Average Score</b>	<b>3.13</b>

### **9. Decision making and governance**

- 9.1 This OBC has been reviewed by Associate Director for Environment and Director of Finance.
- 9.2 This OBC has been approved by:
- 9.3 Corporate Management Team on 27/05/25.
- 9.4 Joint Leadership Team on 05/06/25 (Virtual).
- 9.5 Climate Change, Leisure and Housing Committee on 02/07/25.
- 9.6 This OBC will now be considered by the Policy and Resources Committee on 08/09/25.

### **10. Next steps**

- 10.1 If agreed:
- Recommend that the Policy & Resources Committee approve the installation of rooftop solar PV at South Oxhey Leisure Centre as outlined in this Outline Business Case and accompanying committee report.

Meeting where authority to proceed was obtained	Date of meeting