



Council name	COTSWOLD DISTRICT COUNCIL
Name and date of Committee	COUNCIL 19 July 2023
Subject	COMMERCIAL SOLAR PHOTOVOLTAIC INSTALLATIONS ON COUNCIL ESTATE
Wards affected	All
Accountable member	Cllr Mike Evely, Deputy Leader and Cabinet Member for Finance. Email: <a href="mailto:mike.evely@cotswold.gov.uk">mike.evely@cotswold.gov.uk</a>
Accountable officer	Claire Locke Assistant Director Property and Regeneration Email: <a href="mailto:claire.locke@cotswold.gov.uk">claire.locke@cotswold.gov.uk</a>
Report author	Christopher Crookall-Fallon - Head of Climate Action Email: <a href="mailto:Christopher.Crookall-Fallon@cotswold.gov.uk">Christopher.Crookall-Fallon@cotswold.gov.uk</a>
Summary/Purpose	To seek agreement to invest in the installation of solar PV on the roofs of buildings owned and in some cases leased by the Council based on the business cases set out within this report. To seek agreement to enter into a contract with the preferred contractor for the installation of the solar PV.
Annexes	Annex A - EXEMPT Procurement Tender outcome summary Annex B - EXEMPT Business cases Annex C - Climate Impact Assessment Annex D - EXEMPT Lease risk summary
Recommendation(s)	<i>Subject to the resolutions of Cabinet on 17 July 2023, Council is recommended to resolve to:</i>  <i>1) Agree to proceed with investment in roof mounted solar PV based on the business cases in this report, and that,</i>  <i>2) Agree to allocate funding for contingency costs of £27,000 from the Council Priorities Fund with delegation to the Deputy Chief Executive and Section 151 Officer to allocate subject to the business case still</i>



	<i>being viable or expenditure being unavoidable due to structural condition of the building.</i>
Corporate priorities	<ul style="list-style-type: none"><li>• Deliver the highest standard of service</li><li>• Respond to the climate crisis</li></ul>
Key Decision	Yes
Exempt	Yes: Exempt annex A containing named bidders - commercially sensitive Exempt annex B containing commercially sensitive information Exempt annex D containing commercially sensitive information  No: Annex C
Consultees/ Consultation	Chief Finance Officer Procurement team Legal team



## I. EXECUTIVE SUMMARY

- I.1 This report seeks Council approval to invest in Solar Photovoltaic (Solar PV) and battery equipment at the Trinity Road office and one Council-owned tenanted property in Cirencester, using funding provided by members of the public through the 2022 Cotswold Climate Investment.
- I.2 In round numbers the total investment sums will be £210k for the Trinity Road offices and £59k for the tenanted site (£268k total, if both sites proceed).
- I.3 Making an investment in solar PV contributes to reducing the climate impact of electricity consumption within the Council's estate (both Council-occupied and tenanted). Benefits to the Council include a) delivering a part of its commitment to becoming net zero carbon in operation by 2030, b) generating a return on investment (as per the financial model in the business case annex), c) fulfilling one of the stated purposes of the Cotswold Climate Investment, and d) supporting a tenant organisation in their own carbon reduction journey.
- I.4 An open procurement process has been undertaken to establish accurate installation costs, and the winning contractor is an established PV installer. No substantive costs will be incurred and no contract for installation will be entered until full Council decision.
- I.5 A key investment decision factor is the likely future price of power, which affects the value of PV electricity consumed at Trinity Road, and the price of power sold to the tenant in the Cirencester property. Most power sector commentators expect power prices to remain firmly above the levels that were common a few years ago, but professional economic forecasters give a range of expectations. This lack of certainty must be considered when reviewing the financial model in Annex B.
- I.6 The 25 year financial model at Annex B takes account of the cost of power to the Council which is largely known for the next two years, and from then on takes a reasonable central estimate of future power price, provided by a professional consultant. For the tenanted property, the report seeks delegated authority for the Deputy Chief Executive and Section 151 Officer to agree a selling price for power which both provides sufficient return to the Council and is acceptable to the tenant. A firm price proposal will be put to the tenant following Cabinet decision. Solar panels have a realistic expected lifetime of 25 years or more.



- 1.7 The business case for installing panels on Trinity Road appears strong, even with inevitable uncertainty over future power price. The business case for the tenanted property is less strong, and depends on the agreement of the tenant to take the power. The two investments in aggregate have a reasonable business case.
- 1.8 This PV installation is viewed as a pilot project that should give the Council confidence and experience in replicating such installations in other Council-owned and tenanted properties, subject to a future business cases.
- 1.9 To ensure that PV assets are maintained and their performance monitored, and that tenants are correctly charged for PV power consumed, additional technical / financial staff resources will be required. This report identifies in outline how such additional resources could service, and be combined with, other related energy needs, and proposes an annual contribution by the Council to part-fund an energy manager post which will both administer the solar PV investment and deliver energy savings across the Council estate.

## 2. BACKGROUND

- 2.1 Cotswold District Council's Climate Emergency Strategy identified solar PV on council-owned buildings as a carbon reduction action with a potentially viable return on investment, whether to off-set the cost of purchased electricity in council-occupied properties, or to sell zero carbon electricity to tenants of commercial properties. Solar PV, whilst not a panacea, is an important part of meeting the Council's objective of becoming operationally net zero carbon by 2030.
- 2.2 In anticipation of the investment in Solar PV on council owned properties, the Council issued £0.5m of Cotswold Climate Investment 'bonds' to the public in 2022, earmarked for Solar PV, building energy efficiency improvements, and Electric Vehicle Charging Points (EVCPs) in the Council's Car Parks. The PV investments identified in this report will draw down part of this borrowing, whose relatively low interest rate supports the viability of the schemes.
- 2.3 The Council owns a number of buildings which are let commercially to provide a return on investment which underpins the delivery of core services to the public. A number of these office and warehouse buildings have roofs which could be suitable for the

installation of Solar PV and could generate energy to power the activities within the buildings.

- 2.4 Tenants are responsible for paying their own utility bills, but the Council could sell PV-generated energy to tenants in parallel with their existing supply arrangements, subject to suitable legal agreements being in place.
- 2.5 The capital investment is capable of providing a return on capital sufficient to meet the Council's expectations and reflect future uncertainties, and this commitment to decarbonisation would align well with the Council's Climate Emergency Strategy.
- 2.6 Viability for rooftop PV is site dependent, so the focus of this pilot phase is on larger buildings. Smaller properties could be considered in future phases.
- 2.7 A fully compliant open procurement has been undertaken, including a "meet the buyer" event at pre tender stage in order to attract both local and national PV installers to partake in the procurement exercise. Four bids were received and the summary of those bidders is set out in Annex A. Bidders were assessed on a combination of quality and price. The preferred bidder is Ecovision Ltd which achieved a combined score 74.90%.

### **3. ENERGY MANAGEMENT**

- 3.1 The Council procures energy (gas and power) through a broker. Due to extreme market volatility since the invasion of Ukraine, the Council's current cost of both gas and power is relatively high, but should fall over the next two years. Future energy costs are uncertain, but most energy sector commentators warn that prices are unlikely to fall to pre-Ukraine levels for many years.
- 3.2 Energy supply contracts are currently managed from existing resources across Council and Publica teams. Given the complexity of the administrative arrangements associated with Solar PV and EVCPs (e.g. energy generation and general PV performance, sale to the grid and billing to tenants) a dedicated role is needed to support the Council and maximise investment performance and returns.
- 3.4 EVCPs (existing, under construction and planned) have fees set which aim to recover costs (installation, electricity, maintenance and back office services) and generate a small surplus for reinvestment. The business case for EVCP, as agreed by Cabinet in March

2022, set-aside funding of £7,800 for staff resources to support the administration of energy-related maintenance and administration.

- 3.5 Installation of the Solar PV and the associated management of energy costs and subsequent tenant agreement will require further staff resources. It is proposed that partner Councils (Cotswold, Forest of Dean and West Oxfordshire) fund a dedicated shared Energy Manager (part-time) from a proportion of the projected income from Solar PV. If this post demonstrates significant savings, a recommendation may be made in the future to increase this resource. Each council is asked to fund one day per week, to provide a shared post of three days (22.5 hours). This post is estimated to have an FTE salary of £42,500/year, this equates to £25,500 pro-rata and totals £33,600 with on-costs. The cost to each council would be £11,200.
- 3.6 Taking account of the staff resources already identified in the EVCP business case, Cotswold District Council is asked to top-up with £3,400 per annum for this post.

#### **4. BUSINESS CASE METHODOLOGY**

- 4.1 Business cases have been prepared which set out the capital costs and anticipated revenue return (annex B). This is based on the sale of energy to tenants, or the avoidance of purchased electricity, to provide a return on investment. For business cases purposes it has been assumed that capital expenditure is financed from the Cotswold Climate Investment Bond. The principal assets (the solar arrays) have an expected life of at least 25 years.
- 4.2 This report seeks approval for the Section 151 officer, in consultation with others, to agree an appropriate sale price for PV-generated electricity to the Council's tenant. It is proposed that such a sale price would seek a mid-point between:
- firstly, the minimum target return identified by the Section 151 officer that relates both to the Council's project-specific cost of capital and future revenue risk, and
  - secondly, the currently known, and estimated future, cost of grid electricity to the tenant.

Such a price mid-point would seek a balance between the objectives of achieving carbon reductions, supporting the viability of a tenant's business (which in turn reduces risk to the Council as landlord), supporting a tenant's journey towards decarbonisation, and maximising financial return to the Council.



Clearly if no such mid-point is achievable (for example if a tenant has a current or expected future cost of electricity below the Council minimum) then the site investment is very unlikely to proceed.

- 4.3 The cost of electricity for the Trinity Road office is known with fairly high confidence for the first year of operation and thereafter we have assumed that power cost will be in line with the central estimate of market price of power provided by a professional consultant. It is important to recognise that the confidence level on such industry economic forecasts decreases the further in the future the projection is made. It is nonetheless necessary to use such projections in order to derive the IRR, RoI etc on a 20 year business case.
- 4.4 Battery storage has been proposed by the successful tenderer for both CDC sites. The batteries enable excess solar electricity to be stored and used at times when there is little or no solar generation, thereby maximising the amount of solar electricity used on-site.
- 4.5 The supply and installation of Solar PV is a fixed price provided by the installer. Adding a contingency sum to cover any unforeseen costs is therefore likely to unfairly skew the business case. However there is a risk that unforeseen costs do occur principally associated with the building structure itself. For project budgeting purposes a 10% contingency sum of £27,000 will be earmarked from the Council Priorities Fund (CPF). Utilisation of the contingency sum is subject to approval by Deputy Chief Executive and Section 151 Officer on the basis that incurring the costs still delivers a positive business case, or ceasing the project at that point is not feasible, or costs are essential due to building defects and would have to be incurred anyway.

## 5. FINANCIAL IMPLICATIONS

- 5.1 The report proposes a methodology that will be used for assessing the financial viability for the installation of Solar PV on Council-owned properties. The report recommends that in the first phase of properties to be assessed, Solar PV should be installed on 2 properties - Council Offices at Trinity Road, and a tenanted building in Cirencester.
- 5.2 As discussed in the report, the principal driver for investment in Solar PV is to reduce the climate impact of the Council's energy consumption as part of the commitment to become net zero carbon by 2030. Solar PV installations will provide the Council with an ongoing financial benefit and return on investment, although members should note the

volatility in energy prices over the last 12 months and projections of future prices does impact on the certainty of financial returns.

- 5.3 Initial capital expenditure of £0.268m is required to deliver Solar PV on the 2 properties in the first phase. The financial modelling undertaken by the project team (based on a number of assumptions around energy usage and future energy prices) indicates a central estimate of return on investment of 9.3% with an average payback period of 14 years.
- 5.4 With significant volatility in the energy market over the last 12 months and a degree of uncertainty around when the market will stabilise over the medium-term, it is difficult to provide members with certainty around the financial returns on an annual basis. The financial modelling over a 20-year period shows positive cash flows from the investment taking into account running costs, annual inspections and routine maintenance. Where energy is sold to tenants, future electricity prices have been modelled based on market intelligence and an assessment of the size of each Solar PV installation.
- 5.5 Members should review the risks set out in Section 7 of this report. The financial returns set out in this report and through the financial modelling are not guaranteed and will be subject to fluctuation over the life of each installation. The only certainty at the initial stage of each scheme is the capital outlay on the installation of Solar PV with estimates of future income from the sale of energy to tenant over the remaining asset life period.
- 5.6 The Council approved the Capital Programme and Capital Financing at their meeting in February 2023. Whilst the business case has assumed capital financing costs, the Deputy Chief Executive and Section 151 Officer will consider the capital financing of the investment alongside the capital financing requirements associated with the wider capital programme. This will take into account the level and availability of internal resources (e.g. capital receipts) alongside external resources (e.g. prudential borrowing). Recent increases in the Bank of England base rate and expectations of further interest rate rises has led to increases in the Public Works Loan Board (PWLB) rates. Should the Council need to undertake prudential borrowing to support the capital programme over the immediate short-term, this may put pressure on the revenue budget given the increased cost of capital and may make future capital expenditure and financing decisions more challenging.
- 5.7 As noted in paragraph 2.2 of the report, the Council has financing already in place to support the Solar PV investment through the Cotswold Climate Investment bonds. However, as set out in the paragraph above, there will be other factors over the duration



of the programme that will have an influence on the capital financing position. The financial implications of the capital financing and treasury management decisions will be reported to members through the regular financial performance reports to Cabinet and through the treasury management reporting to Audit and Governance Committee.

## 6. LEGAL IMPLICATIONS

- 6.1 The responsibilities of the Council as landlord and its ability to alter buildings whilst tenants are in occupation will vary depending on individual lease agreements. Tenants will have existing energy contracts in place with third party providers. The Council cannot insist that existing tenants switch to the supply that the Council installs and therefore this needs to be mutually agreed, with a contract for the energy purchase put in place. Where PV is installed and a tenant ends their tenancy, the Council will market the property with green energy provision and would require that any incoming tenant purchases energy generated from the solar PV.
- 6.2 External legal support is being sought to provide a suitable contract for selling PV power to tenants. The estimated cost of such external legal support is non-material in the context of the overall project investment cost (approximately £1,100 or 0.3% of capex). The final iteration of the financial model, which will govern the Section 151 Officer's approval to proceed, will include the external legal support cost, which will not have a material impact on project RoI.
- 6.3 As a landlord, the Council will have a responsibility to meet Government's Minimum Energy Efficiency Standards (MEES) for non-domestic buildings. The current regulations require all tenanted non-domestic buildings to have an Energy Performance Certificate (EPC) of no lower than a rating of E. From 1st April 2018 any commercial property that has an EPC of lower than an 'E' cannot be rented out to new tenants, or renew any existing tenancy contracts until at least an 'E' rating is obtained. From 1st April 2023 all tenanted commercial properties must have an EPC rating of no lower than 'E' to continue being leased. There are exemptions to the MEES for properties such as listed buildings. The installation of Solar PV would therefore make a notable contribution to lowering the EPC. The Government is also currently reviewing the potential to introduce a further target of an EPC of B by 2030. The Council is currently preparing a plan to consider the works required in non-compliant buildings.
- 6.4 Save the above there are no other legal implications arising directly from this report.



## 7. RISK ASSESSMENT

- 7.1 At a high level, key financial risks may be broken down into: a) uncertainty on quantity of electricity generated and either sold to tenant or consumed in Trinity Road; b) uncertainty over whether electricity will continue to be consumed at the assumed rate (either by the tenant or Council), and c) uncertainty over the price charged to the tenant, or the value of displaced purchased electricity for Trinity Road.
- 7.2 On uncertainty over quantities of energy: Generation of solar PV is known to a high degree of confidence (typical variability of +/- 5-10% in an individual year, much less variability over the project length). Consumption of PV generated electricity can be modelled with high confidence given that the tenanted site and Trinity Road have highly granular historic data on energy consumption.
- 7.3 On uncertainty over maintaining consumption: The Council has a medium-long term commitment to Trinity Road, and the agile working strategy will bring new tenants and staff on site. The Cirencester tenant has a long-term commitment to the site and operates a stable business. For both sites, electricity consumption in the future is more likely to rise than fall, since over time decarbonisation will push energy services (notably space heating) away from gas and towards electricity.
- 7.4 On uncertainty over price / cost: For Trinity Road the financial modelling takes known (or close to known) prices for two years, and then assumes electricity cost will follow a central estimate provided by a professional consultancy. Nonetheless it should be noted that no economic models claim to accurately predict future energy cost. For the tenanted property the tenant has disclosed their year-ahead electricity price. An agreement with the tenant would include both the starting price for PV power sold into the premises, and an escalator.
- 7.5 The business cases have been prepared based on capex costs provided by the preferred bidder. There is a risk that there are unforeseen costs, particularly relating to roof structures and therefore a contingency sum has been built into the business case to mitigate this risk. There is a risk however that an issue arises with significant costs that affect the viability of the scheme. Every effort will be made to avoid this and a decision to proceed would be made in consultation with the Deputy Chief Executive and Section 151 Officer.
- 7.6 The current construction and materials market is volatile and inflationary pressures have seen costs rise dramatically in the last 12 months. Bidders have been asked to hold fixed prices for 90 days from bid submission, for the initial installations. Any delays in decision

making or placing purchase orders could see prices rise. It should be noted that further phases of installations on additional buildings will be the subject of a re-tender process, with learning from this initial phase embedded. Further phases should be relatively quick and easy to tender as specifications, tender evaluation and the financial model are likely to stay fairly similar. It should be noted however that costs are likely to rise if inflation continues to increase material costs.

- 7.7 The business case is predicated on income being generated from the sale of energy to tenants (or for Trinity Road, purchased electricity cost being avoided). There is little income from sale to the grid at tenanted premises at this point in time but this will continue to be reviewed. For Trinity Road any electricity 'spilled' to the grid will be able to attract a market value. There is risk around the continual purchase of the energy if the tenant breaches the purchasing agreement, fails to pay invoices for energy, or terminates the tenancy and a prolonged void period occurs. As some of these risks will be largely determined by the demand for that unit, information on risk is provided on a building specific basis (see Annex D).
- 7.8 At present the volatile energy market means that purchase of green energy from the Council should be attractive to tenants. However, future market conditions are unknown and significant cost reductions could mean the Council energy offer is less attractive to tenants.
- 7.9 The cost for replacement batteries has not been included within the 20 year model as research shows that batteries should last the twenty year life of this business case. In addition replacement could not be costed at today's prices as the technology will change and costs are likely to reduce as the technology becomes more commonplace. Extended warranties will be explored but breakdown and repair or replacement costs will remain a risk.
- 7.10 Certain pre-investment risks cannot be resolved until further technical work is carried out as step one of the contract. These include gaining permission to connect from the electricity distribution operator, and confirming suitability of roof structures to support panels. Whilst unlikely, if such risks manifested and were unresolvable, installations would not be able to proceed. However the scheduling of activity means that any such blocks would precede any commitment of capital investment, and therefore capital would not be at risk.



**8. EQUALITIES IMPACT**

8.1 There is no identified Equalities Impact from this proposal.

**9. CLIMATE AND ECOLOGICAL EMERGENCIES IMPLICATIONS**

9.1 Installing Solar PV will reduce the use of fossil fuels in the Council's estate (it will reduce 'Scope 2' emissions in the Council's annual carbon emissions reporting). It will provide tenants with a renewable form of energy, which may also offer them cost savings.

9.2 Information on the estimated carbon savings from the commercial PV installations is shown below:

Trinity Road:

<b>Annual avoided emissions impacts:</b>			
Average avoided monthly kWh		11,245 kWh/month	
	Nitrogen Oxides	185	kg/yr
	Methane	88	kg/yr
	Carbon Dioxide	34,132	kg/yr
<b>Annual avoided emissions equivalencies:</b>			
Avoided emissions equivalencies	CO <sup>2</sup> avoidance	84,486	average passenger vehicle miles
	CO <sup>2</sup> emissions	4.2	average home's annual electricity use
	Carbon sequestered by	1,551	tree seedlings grown for 10 years

Tenanted property:

<b>Annual avoided emissions impacts:</b>			
Average avoided monthly kWh		3,020 kWh/month	
	Nitrogen Oxides	50	kg/yr
	Methane	24	kg/yr
	Carbon Dioxide	9,168	kg/yr
<b>Annual avoided emissions equivalencies:</b>			
Avoided emissions equivalencies	CO <sup>2</sup> avoidance	22,692	average passenger vehicle miles
	CO <sup>2</sup> emissions	1.1	average home's annual electricity use
	Carbon sequestered by	417	tree seedlings grown for 10 years

9.3 The project has a number of climate and ecological impacts which have been considered and mitigated where possible. For a full breakdown, please see Annex C.

- While delivering renewable energy to the selected buildings and to the grid will reduce greenhouse gas emissions (GHGs), there will also be emissions produced from the manufacture, delivery and installation of the solar panels, known as the embodied carbon. However research shows that carbon savings and energy generation across the lifetime of the solar panels will be significantly more than the carbon emitted or energy consumed in their manufacture and installation<sup>1</sup>. Additionally, the Council have requested that contractors minimise the embodied carbon of the contract.
- The mining and material extraction processes associated with manufacturing the solar panels will affect soil and waterway health in manufacturing and mining locations.
- There are known issues around the sustainability of materials used for solar panels over which we do not have control. However, the Council have requested that consideration be given to decommissioning so that the panels can be repaired as needed and recycled at end-of-life.

## 10. ALTERNATIVE OPTIONS

10.1 The Council could decide not to install Solar PV for its own offices and commercial estate.

## 11. BACKGROUND PAPERS

The Council's Climate Emergency Strategy 2020-2030:

[https://www.cotswold.gov.uk/media/8d8eab9716634de/cdc-climate-emergency-strategy-adopted-2020\\_09\\_23.pdf](https://www.cotswold.gov.uk/media/8d8eab9716634de/cdc-climate-emergency-strategy-adopted-2020_09_23.pdf)

The Cotswold Climate Investment:

<https://www.cotswold.gov.uk/environment/cotswold-climate-investment/>

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<sup>1</sup> e.g. <https://www.carbonbrief.org/solar-wind-nuclear-amazingly-low-carbon-footprints/>