



ADUR & WORTHING
COUNCILS

Joint Strategic Committee
1 December 2020
Agenda Item 16

Key Decision [~~Yes~~/No]

Ward(s) Affected: All

Carbon Neutral 2030 - Developing opportunities for solar

Report by the Director for Digital, Sustainability & Resources

Executive Summary

Investment in solar technology is a critical part of the Councils' carbon strategy. The carbon reduction plan approved by Joint Strategic Committee in December 2019, sets out the importance of solar in reaching the carbon neutral target by 2030. This is particularly important as the Councils' energy demands move away from gas and transport fuel towards increased electric use (with more electric heating systems and vehicles) and also as a way to offset residual carbon emissions.

This report sets out the strategy for delivering a significant increase in the use of solar energy through a number of work streams:

- Securing local renewable electricity supply for the councils' use (5MW in total)
 - Rooftop solar, with a number of immediate opportunities identified
 - Solar carports at several locations
 - A 3MW solar farm on council owned land
- Carbon offsetting as set out in the carbon reduction plan
 - Potential large scale solar investment out of area (circa 15-20MW)

The report proposes that the Councils make immediate progress with rooftop solar installations, utilising capital funds allocated and supported by bids to the Public Sector Decarbonisation Fund.

Over the next 12 months, feasibility and invest-to-save business cases will be

developed in each work stream, helping develop a pipeline of projects for delivery in the first phase of our 10 year programme to carbon neutrality by 2030. Dependent on financial modeling and due diligence, it is possible that a proposal for out of area investment could come forward to Joint Strategic Committee as early as January 2021.

With the Carbon Reduction Team now in place, the Councils have the capacity to build a high impact programme and deliver a major contribution to the carbon neutral target.

1. Purpose

- 1.1. The councils have committed under the Climate Emergency Declaration, to work towards being carbon neutral by 2030. A Carbon Neutral Plan sets out pathways for the councils to achieve the target.
- 1.2. Installing renewable energy technologies such as solar photovoltaics (PV) and the potential investment in large scale renewable energy generation are an important strand in the Carbon Neutral Plan to provide zero carbon power and to offset council emissions.
- 1.3. A full review of solar investment opportunities has been undertaken on council owned sites and a solar investment strategy developed. The study identifies potential for up to 5MW of local renewable electricity generation, equivalent to a reduction of **one third of the Councils' carbon emissions**, (or enough to power 1,500 homes).
- 1.4. Subject to full business cases this will be made up of proposals for roof mounted solar on council buildings, solar carports, and a 3MW solar farm locally. Further work will also be undertaken to investigate the benefits of investing out of area in large solar schemes, in consultation with the Executive Members for Resources, and with the support of the Major Projects team, with the aim of offsetting residual council carbon emissions, while delivering an acceptable financial return.

2. Recommendations

- 2.1 The Joint Strategic Committee is recommended to:
 - 2.1.1. Approve the direction of travel proposed within the Solar Investment Strategy for investment in small, medium and large scale solar opportunities as set out at paragraph 8.1. In relation to rooftop solar PV

and solar carports, to:

- a. Note that a report will be presented to the Executive Members for Resources early in the New Year, with a post procurement business case to proceed with a first phase of rooftop solar PV installations;
- b. Note that a viability study for a solar carport at Pond Road car park will be produced; and that subject to a successful business case, a report will be brought before the Executive Member for Resources to approve proceeding with installation.
- c. Recommend to Adur District Council to create an invest-to-save budget within the HRA Investment Programme of £100,000 for carbon reduction schemes funded through borrowing which can be released on the submission of a business case to the Executive Member of Resources.

2.1.2. In relation to a 3MW solar farm on council land, to:

- a. Approve the development of a feasibility study and business case from existing budgets;
- b. Note that a report be presented to the Joint Strategic Committee in 2021, if a viable business case is identified.

2.1.3. In relation to the potential purchase of large scale commercial solar farm outside the Adur & Worthing area, to:

- a. Acknowledge the strategic intention to explore potential projects for offsetting council emissions in this way; and note that if identified a solar investment proposal and business case be brought to the Joint Strategic Committee for consideration.

3. Context

- 3.1. Having declared a climate change emergency on 9 July 2019, Adur & Worthing Councils set a target to become carbon neutral by 2030. To support this ambition, the councils' adopted: *Adur & Worthing Councils' Carbon Neutral Plan: Working towards the 2030 target* on 3 December 2019.

- 3.2. The Carbon Neutral Plan sets out recommendations on how to achieve the carbon neutral target through a range of approaches including energy demand reduction, switching to electric heating systems, fully electric or hydrogen vehicle fleet, use of solar and long term carbon sequestration.
- 3.3. The plan identified that to reach carbon neutral by 2030, the Councils would need to invest in solar renewables (potentially up to 20MW), alongside the decarbonisation of heating systems, other building measures and the transition of the vehicle fleet.
- 3.4. Long term carbon sequestration will become an important feature in later years, given the expected further decarbonisation of the national grid, but investment in solar early on is critical, particularly as the councils will see electricity use increase over time.
- 3.5. Installing solar photovoltaics will bring several benefits to the council:
 - 3.5.1. Reduce running costs of the buildings through reducing electricity bills which in 2019-20 were £508,990. Funding bids for 7 rooftop solar schemes were submitted to the Public Sector Decarbonisation Scheme in November 2020. If successful, these installations will see estimated **annual electricity bill savings of £14,400** in year 1. These savings will increase annually as energy prices rise;
 - 3.5.2. Protect the council from predicted electricity prices rises - these are expected to rise year on year. By generating power for their own use, the councils will be protected against future cost rises;
 - 3.5.3. Reduce on-costs to the public for delivering council services;
 - 3.5.4. **Achieve a reduction in the councils' current carbon emissions of over 30% if all the local schemes in this Solar Investment Strategy prove viable and are delivered.** These would result in an estimated reduction of 933 tonnes CO₂/year; delivering carbon reductions for the council and the area, mitigating climate change; and
 - 3.5.5. Improve the future energy resilience of Adur & Worthing by increasing local energy generation.

- 3.6. The Solar Investment Strategy is set out at paragraph 8.1. It covers four areas: (A) Rooftop solar, (B) Solar carports, (C) Large scale solar, and (D) Commercial solar investment out of area. (D) is explained at Section 7.
- 3.7. To support the development of the councils' Solar Investment Strategy, a *Solar Opportunities Study* was commissioned from Local Partnerships, a not for profit consultancy established to support public sector decarbonisation. The findings identify the following opportunities on council sites:

Solar PV opportunities on council owned land				
	Type	Location	Solar PV capacity	Estimated cost
A	Rooftop opportunities	Council buildings	0.85 MW	£714,000
B	Solar carports opportunities	Council car parks	1.165 MW	£1,750,800
C	Large scale opportunities	Council owned sites	3 MW	£2,432,200
TOTAL			5.015 MW	£4,897,000

- 3.8. It is important to emphasise that the councils electricity use is expected to rise with the shift to electric transport and heating; and that the carbon reduction achieved by solar installations will reduce over time as the grid decarbonises. It is therefore crucial that the councils continue to work on other means of decarbonisation including energy efficiency projects, district heating projects and sequestration towards the 2030 target.

4. (A) Strategy for Rooftop solar opportunities on buildings

- 4.1. Rooftop solar PV presents a good business case as an investment in addition to its benefits for carbon reduction. It has a payback of between 7 and 10 years (where 75% of energy generated is used on site), and would deliver year on year savings on energy bills through the 25-30 year life.
- 4.2. The Study undertook a desktop review of council buildings where the council is bill payer. The following potential opportunities were identified at specific sites subject to detailed feasibility work and costings (see 4.5, 4.6 and 4.7).

- 4.3. Based on the findings of the study it is proposed that some sites are taken forward immediately to be delivered, while others are considered later subject to further feasibility work and review of future uses.
- 4.4. Finance for solar schemes has been sought through the Government's Public Sector Decarbonisation Scheme (PSDS) but also finance has been allocated through the councils' Capital Strategy *Carbon Reduction Scheme* for renewable energy projects.
- 4.5. These rooftop solar PV opportunities on council buildings are proposed to be progressed immediately. It is proposed that full business cases be presented to Executive Members in early in 2021 seeking approval to proceed.

Rooftop solar PV opportunities - phase 1			
Owner	Location	Capacity kW	Cost £
WBC	Goring Recreation Ground	18 kW	£15,300
WBC	Worthing Town Hall	28.6 kW	£24,310
WBC	Assembly Hall	21.4 kW	£18,190
ADC	Eastbrook Manor Community Centre	10 kW	£8,500
ADC	Commerce Way Depot¹	60 kW	£51,000
AH	Manor Court	10 kW	£8,500
AH	Shadwells Court	60 kW	£51,000
WBC TOTAL		68 kW	£57,800
ADC TOTAL		70 kW	£59,500
AH TOTAL		70 kW	£59,500
OVERALL TOTAL		208kW	£176,800

- 4.6. The Study also identified the following sites for potential rooftop solar but these need further investigation before proceeding, and may be longer term opportunities. It is proposed these be explored at a later following further feasibility work and review:

¹ In the event of changes to this site, the PV panels can be removed and reinstalled elsewhere.

Rooftop solar PV opportunities - phase 2 for exploration and delivery 2022 onwards			
Owner	Location	Capacity kW	Cost £
WBC	Durrington Amenity Centre	10 kW	£8,500
WBC	Worthing Crematorium	60 kW	£51,000
WBC	Connaught Theatre	40 kW	£34,000
WBC	Manor Sports Ground	10 kW	£8,500
WBC	Downsview	10 kW	£8,500
AH	Grange Court	6 kW	£5,100
AH	Sea House, Whiterock Place	6 kW	£5,100
	WBC TOTAL	130 kW	£102,000
	AH TOTAL	12 kW	£10,200
	OVERALL TOTAL	142 kW	£112,200

- 4.7. It was also identified that Decoy Farm, currently being remediated, could host PV of up to 1MW as rooftop and solar carports; battery storage could also enhance performance. The potential capacity that could be accommodated at the site will depend on site design. Estimated costs for the site are: £425,000 for 500kWp rooftop and £750,000 for 500kWpsolar carports.
- 4.8. The councils now have the technical capacity within the new Carbon Reduction Team, to undertake desktop feasibility of opportunities for solar. This will enable investigation of other council owned assets not included in the lists above, such as the Leisure Centres.

5. (B) Strategy for solar carport opportunities on car parks

- 5.1. Solar carports are a fairly recent innovation, which many businesses and local authorities are utilizing to power buildings and charge points or as commercial ventures. The Local Partnerships study identifies they can have a payback of 11-13 years if at least 75% of electricity is used on site.
- 5.2. The Study undertook a desktop review of the opportunity to install solar carports on surface car parks and the top floor of council-owned multi-storey car parks (MSCPs). The following potential opportunities were identified in the desktop study, though these need to be investigated further through feasibility work, structural surveys, and costings:

Owner	Car park location	Maximum potential capacity	Cost £
WBC	Worthing Crematorium	63kWp	£95,100
WBC	Buckingham MSCP	138kWp	£207,675
WBC	High Street MSCP	255kWp	£383,175
WBC	Beach House	50kWp	£75,000
ADC	Pond Road, The Shoreham Centre	159kWp	£239,850
	WBC TOTAL	506kWp	£760,950
	ADC TOTAL	159kWp	£239,850
	OVERALL TOTAL	665kWp*	1,000,800*

* See also opportunity identified at Decoy farm: paragraph 4.7

- 5.3. The Pond Road site is considered the best initial opportunity as it is a surface level car park and power generated can be used in the Shoreham Centre, giving a shorter payback period. An application has been submitted to the Low Carbon Skills Fund to undertake a fully-funded feasibility study to install a solar carport at the Shoreham Centre, providing power to the proposed air source heat pump at the building. Should this feasibility study identify a viable project, a further paper will be presented to Executive Members for approval.
- 5.4. Delivery options for the remaining sites will be explored once the opportunities have been further reviewed and potential funding sources identified for feasibility studies and investment.

6. (C) Strategy for large scale solar development on a Council owned site

- 6.1. A site has been identified in Worthing on Worthing Borough Council owned land that may be suitable for a solar farm. The site is a former landfill site (approximately 6.7 Ha in size) to the north of Brooklands Park.
- 6.2. Former landfill sites are often regarded as ideal for solar farms as they are expensive to remediate for more significant development and there are opportunities to integrate biodiversity enhancements alongside solar infrastructure. Solar arrays can be mounted on ballast, avoiding the need for ground penetration. As an example, the nearby WSCC 7.4MW Westhampnett Solar farm with 4MW battery storage is located on a former landfill site.

- 6.3. A high level analysis of the viability of a solar farm on this site identifies that up to 3MW capacity could be accommodated. High level financial analysis, subject to low cost funding, identified the following opportunity:

Worthing Solar Farm: high level financial analysis²	
Solar PV Capacity	3MW
CAPEX	£2,432,200
Payback	16.5 year payback
Project IRR	over 5%

- 6.4. The site abuts an industrial estate and sewage works to the south, and to the north-east abuts the housing off St Paul's Avenue and St Luke's Close. The northern edge of the site is bounded by the West Coastway railway line and to the west are the Chesswood allotments. The land falls within a strategic gap.
- 6.5. It is proposed that a feasibility study for a solar farm on this site be developed in early 2021 to investigate the opportunity further. The co-location of battery storage could improve financial viability and will be included in the feasibility study if approved. Subject to a viable business case being found, proposals would be brought before members for approval to proceed to next steps.
- 6.6. Many site specific issues will need to be explored including: LCWIP allocation for a cycle path; implications relating to the former landfill; an underground cable from the Rampion through the eastern part of the site; and ecological and planning related issues.

7. (D) Strategy for purchase of a commercial solar farm

- 7.1. The Local Partnerships study identifies the opportunities identified on Councils' own land and assets will contribute circa 5 MW (if deployed) towards the circa 20MW requirement. The remaining capacity requirement could be met by the Councils purchasing renewable energy generation assets, most likely solar PV, from third parties. Whilst the purchase of solar farms are a viable investment proposition in their own right, they can also contribute to an offsetting strategy for local authorities.

² Based on a 35yr operating life

- 7.2. Several councils have adopted this strategy towards their carbon neutral targets including Cambridgeshire County, Halton Borough, Leicestershire County, Salford City, Swindon Borough, Warrington Borough, West Suffolk County, and City of London.
- 7.3. It is proposed that the councils explore opportunities for purchase of a large scale solar investment, as a means of offsetting council emissions. Local Partnerships will continue to provide advice on out of area solar opportunities. Should an appropriately sized solar investment arise, due diligence will be undertaken on investigating the opportunity, and a report will be brought before the Joint Strategic Committee for consideration. An opportunity is currently being assessed and a proposal *may* be presented to committee as soon as January 2021.

8. Summary of Solar Investment Strategy: Next steps

- 8.1. The following strategy is proposed to progress the opportunities identified:

A) Rooftop solar opportunities	
Early 2021	Bring a paper to the Executive Members for approval to proceed with installations on group 1 sites in early 2021.
2022-ongoing	Explore group 2 sites following review, consideration and planned maintenance programmes
B) Solar Carports opportunities	
Jan 2021	Proceed with feasibility for solar carport at Pond Road car park
Spring 2021	In the event a viable business case is found for a solar carport at Shoreham Centre, bring a paper to the Executive Members for approval to proceed.
Ongoing	Explore opportunities to fund feasibility studies for solar carports at multi storey car park sites, and/or consider other delivery models to develop solar carports at these sites.
C) Large scale solar on council site	
April 2021	Progress with a feasibility study
Summer 2021	Bring business case to members if found viable and feasible
Autumn/Winter 2021	Detailed design, Progress Planning, Commercialisation, Procurement
D) Commercial solar farm purchase	

Dec 2020 - spring 2021	Explore large scale solar investment opportunities with technical support from Local Partnerships.
2021	Bring forward any identified opportunities to the Joint Strategic Committee for consideration.

9. Issues for consideration

- 9.1. Issues for consideration have been set out in the Strategy for A), B), C) and D) above
- 9.2. Solar PV and wind turbines represent the best value for money for onshore UK renewable energy technology installations. However, there are planning constraints relating to onshore wind technologies that do not exist for solar PV, and therefore wind technologies have not been considered as a means of offsetting or generating renewable electricity in this report.

10. Engagement and Communication

- 10.1. Consultation has been undertaken with Technical Services, Adur Homes, Major Projects, Planning, Finance, Legal, and Members.
- 10.2. Planners have indicated that large scale renewable technologies are supported through the draft Worthing Local Plan.
- 10.3. Funders and technical experts that have been consulted include the South East Energy Hub, the Salix Team, BEIS, AECOM, Local Partnerships. UK Power Networks have been approached to identify grid capacity at certain sites.

11. Financial Implications

- 11.1. There is currently £2.2m allocated to deliver energy efficiency and renewable energy improvements within the General Fund capital programme.

	2020/21	2021/22	2022/23	Total
	£	£	£	£
Adur District Council	327,210	325,000	325,000	977,210
Worthing Borough Council	409,020	400,000	400,000	1,209,020
	<u>736,230</u>	<u>725,000</u>	<u>725,000</u>	<u>2,186,230</u>

11.2. The budgets have been included on an ‘invest-to-save’ basis and each proposal or programme of works should generate a saving over the life of the investment. Each scheme is subject to a business case and approved by the Executive Member of Resources prior to spend.

11.3. The proposed programme of solar investments outlined within the report is expected to cost the following amounts:

	2021/22	Future	Total
	£	years	£
		£	£
Adur			
General Fund			
- Rooftop solar panels	59,500		59,500
- Solar carports		239,850	239,850
HRA			
- Rooftop solar panels	59,500	10,200	69,700
Total Adur programme	119,000	250,050	369,050
Worthing - General Fund			
- Rooftop solar panels	57,800	111,000	168,800
- Solar carports		760,950	760,950
- Large scale solar farm		2,432,200	2,432,200
Total Worthing programme	57,800	3,304,150	3,361,950
Total investment	176,800	3,554,200	3,731,000

There are sufficient General Fund budgets in place to fund the proposed investments in rooftop solar schemes in 2021/22. However, there is no invest-to-save budget currently contained within the HRA and so it is recommended that Council approve an invest-to-save provision to fund these schemes which can be released by the Executive Member for Resources on presentation of a business case.

11.4. The following funding bids have been submitted under the Government’s Build Back Better programme relevant to proposals in this report:

Owner	Site	Application for (£)	Fund	Comments
WBC	Worthing Town Hall Assembly Hall Goring Recreation Ground (Pavilion)	£65,650	PSDS*	100% capital funding
ADC	Commerce Way depot Eastbrook Manor Community Centre	£37,225	PSDS	79.2% capital funding (match funding requirement of £9,776)
Adur Homes	Shadwells Court Marsh House	£31,680	PSDS	79.2% capital funding (match funding requirement of £8,320)
ADC	Pond Street Car Park	£10,000	LCSF**	100% revenue funding to commission a feasibility study for solar carport
Total		£144,555		

*PSDS: Public Sector Decarbonisation Scheme

**LCSF: Low Carbon Skills Fund

If successful, these resources will help strengthen the viability of the proposed investments. Nevertheless members should be aware that the schemes may be financially viable without external grant.

- 11.5 In parallel to the grant application, officers will explore the availability of low cost financing from Salix which offers interest free loans. Obtaining this type of finance would strengthen any business case.
- 11.6 A report will be presented to the Executive Member of Resources on the rooftop solar programme once the procurement exercise has been concluded. This report will be used to confirm the final cost of the programme, how the programme will be financed, and the revenue implications of the proposed investment both in the short and long term.
- 11.7 It is proposed that as part of the development of the revenue budget, a sustainability budget of £50,000 be created which can be used to fund the feasibility studies required to progress the carport and solar farm projects. This should be viewed as an 'invest-to-save' initiative which will enable the Councils to both reduce energy costs and our carbon footprint. Any costs incurred in the interim will be funded from within existing budgets.

12. Legal Implications

- 12.1 Under Section 111 of the Local Government Act 1972, the Council has the power to do anything that is calculated to facilitate, or which is conducive or incidental to, the discharge of any of their functions.
- 12..2 s1 of the Localism Act 2011 empowers the Council to do anything an individual can do apart from that which is specifically prohibited by pre-existing legislation
- 12.3 Section 3(1) of the Local Government Act 1999 (LGA 1999) contains a general duty on a best value authority to make arrangements to secure continuous improvement in the way in which its functions are exercised, having regard to a combination of economy, efficiency and effectiveness.
- 12.4 s1 Local Government (Contracts) Act 1997 confers power on the local authority to enter into a contract for the provision of making available assets or services for the purposes of, or in connection with, the discharge of the function by the local authority
- 12.5 In spending any amount of grant funding received from third party's to assist delivery of the Councils' Carbon Neutral Plan the Councils must ensure that the expenditure is in line with the funder's requirements terms and conditions.
- 12.6 Under the Public Contract Regulations 2015 where a Public Authority is to enter into a contract for the supply of goods & services, and the value of those goods and services exceeds a financial limit of £189,333 (or for works £4,733,252.00) any procurement exercise to contract for those goods and services must be conducted in accordance with the Regulations.
- 12.7 As part of the due diligence to be carried out on the proposed purchase of the out of area solar farm, specific more detailed legal advice will need to be obtained on the Councils' powers for such an investment.

Background Papers

- [Working towards the councils' carbon neutral target: progress update \(JSC 03.11.20\)](#)
- [Working towards the 2030 target - Adur & Worthing Councils' Carbon Neutral Plan \(JSC 03.12.19\)](#)
- Adur & Worthing Councils [Carbon Neutral Plan](#)
- Adur & Worthing Councils [Platforms for our Places](#)
- Adur & Worthing Councils [SustainableAW](#)
- [Public Sector Decarbonisation Fund](#)
- [UK 100 Cities Pledge](#)
- [Climate Change Act 2008 \(2050 Target Amendment\) Order 2019](#)

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Sustainability & Risk Assessment

1. Economic

Transition to a low carbon economy is vital to provide future energy systems resilience, and to address and reduce potential impacts of climate change. Improved energy efficiency across the councils' assets reduce ongoing revenue requirements for energy purchasing.

2. Social

2.1 Social Value

By securing affordable, low carbon energy into the future, the councils protect budgets from future energy price rises, drawing less budget into council operational costs away from services delivery that benefit local communities.

2.2 Equality Issues

The impacts of climate change are predicted to impact on all communities, but the greatest impact is predicted to impact the most vulnerable communities. It is imperative that all is done to mitigate climate change.

2.3 Community Safety Issues (Section 17)

No impacts identified

2.4 Human Rights Issues

The impacts of climate change are predicted to impact on all communities, but the greatest impact is predicted to impact the most vulnerable communities. It is imperative that all is done to mitigate climate change.

3. Environmental

The key driver for ongoing carbon reduction is to mitigate the predicted catastrophic impacts of climate change on the environment, economy and communities.

4. Governance

The reporting and management of carbon reduction emissions show leadership in response to our declaration of a climate emergency. This aligns with national legislation (the Climate Change Act 2008); national and regional policy, and the councils own policy.