Carbon Reduction Recommendations Report

for

Central Swindon North Parish Council

March 2026

Carbon & energy assessment of

John Moulton Hall Community Centre

32 Penhill Drive, Swindon, SN2 5DU

Funded by Westmill Solar Co-operative

WESTMILL SOLAR CO-OPERATIVE LIMITED

ENERGY SOLUTIONS OXFORDSHIRE®

ORGANISATION OVERVIEW

Report overview

Moira Dorey from EiE met John Carey and Neil Jackson on 12 March 2026. Recommendations in this report are based on our site visit & information obtained; we consider finances, carbon impact, and ease of implementation. Savings and costs are estimated using data provided and from our recent work. Below is a summary of the opportunities recommended; further pages provide detail on each opportunity.

Energy savings recommendations - summary

Opportunity	Payback (years)	Savings current & future energy prices (£ / yr)	Estimated costs (£)	Carbon impact (tCO_2e / yr)
1) Add heating controls	0.6	799	500 to 1,000	0.61
2) Add timers to hot water	2.1	119	250 to 300	0.09
3) Install de-stratification fans	4.4	719	3,800 to 5,000	0.55
4) Review ventilation	-	See details	See details	See details
5) Add solar PV panels	7.6	2,390	18,070 to 20,850	1.69
	TOTAL	£4,027 per year	£22,620 to £27,150	2.94 tCO_2e per year

Site details

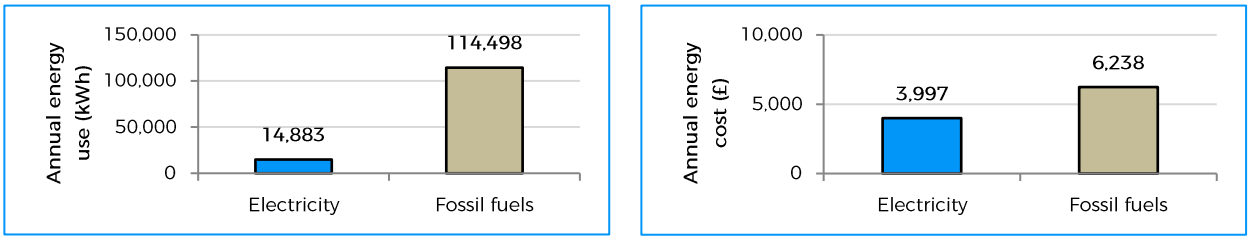
The purpose-built community centre and library covers 455 m^2 and was constructed in the 1950s with an extension added in 2017. It is run by Central Swindon North Parish Council who have a 99 year lease for the building from Swindon Borough Council. The centre includes a main hall, meeting room/small hall with kitchenette, library, main kitchen and toilets. Windows are double-glazed. Most lighting is LED, with the remainder replaced in bulk as lights start to fail. Heating is currently provided by a gas heating system however this will shortly be upgraded to an ASHP heating system. Funding is already secured for this and, at the time of the site visit, the installation work is out to tender. The building is used for an average of 30 hours a week over 7 days for a wide range of events from a twice weekly lunch club, an evening soup kitchen, advice centre activities to regular exercise and art classes, Scouts etc. The library is open 18 hours a week over 4 days, with occasional extra opening for school groups etc. The building has an Energy Performance Certificate (EPC) rating of E. See:
https://find-energy-certificate.service.gov.uk/energy-certificate/7323-2677-4817-3605-3763

ENERGY PROFILE

Energy consumption annual profile

Fuel type	Annual Energy use (kWh)	Cost per kWh (p)	Standing charge (p/day)	Approx. annual cost (£)
Electricity	14,883	23.336	115	3,997
Gas	114,498	5.2	78	6,238

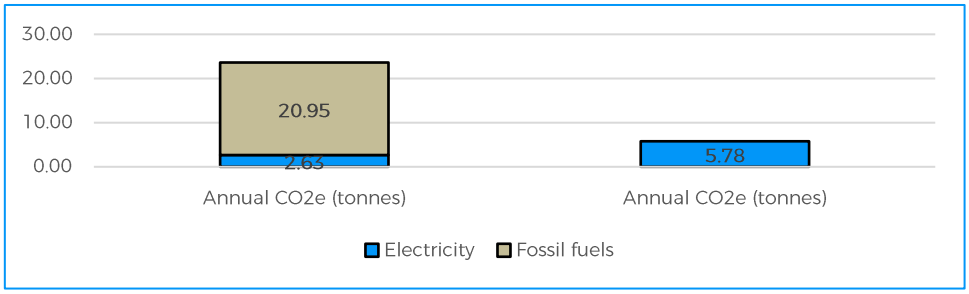
Energy profile breakdown for John Moulton Hall consumption (left) and costs (right)



Consumption is based on information provided.

178.06 tonnes avoided CO_2e over 10 years by implementing recommendations (based on tonnes of CO_2e per year)

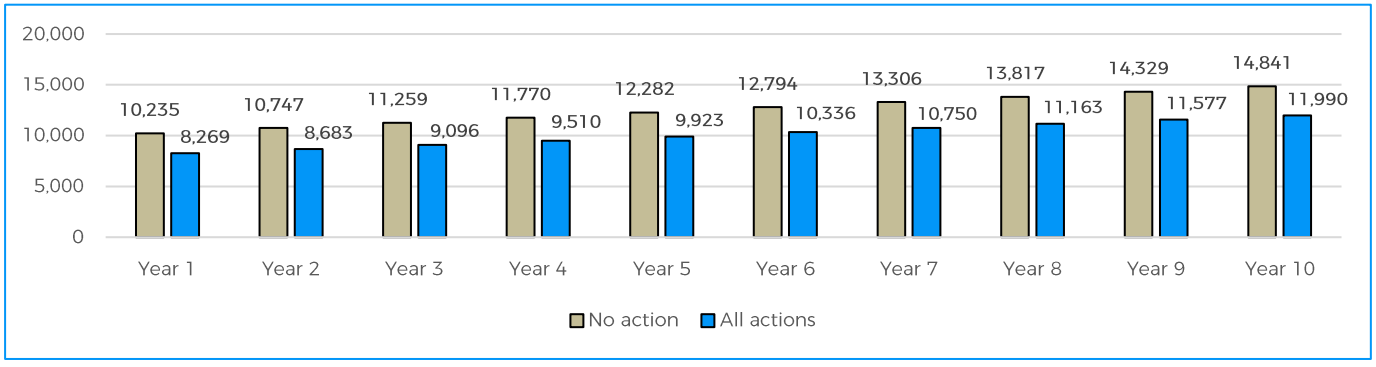
23.58 tonnes CO_2e from current annual energy consumption
5.78 tonnes CO_2e from implementing recommendations



Current annual CO_2e minus CO_2e implementing all actions using 2025 UK greenhouse gases coefficients. Figures are based on the assumption that the gas heating system is replaced with an electric ASHP system.

£24,081 energy savings over 10 years by implementing all report recommendations

John Moulton Hall energy spend in the next 10 years



Savings are 'no action' minus 'all actions' using Laser mid-range predicted UK electricity price rises.

ENERGY SAVINGS RECOMMENDATIONS

1) Add heating controls

Energy saving (kWh)	Cost saving (£)	Cost of action (£)
3,425	799	500 to 1,000

The heating is currently controlled by wall thermostats, set to maintain a comfortable background temperature. These thermostats regularly get adjusted by users and not returned to their original setting, resulting in wasted heating. When the new heating system is installed, new controls will allow heating times and temperatures to be set easily and accurately. This will help reduce costs from unnecessary heating and can potentially be set remotely. We recommend installing new heating controls.

Your air source heat pump (ASHP) installer may be able to make control recommendations, alternatively, there are many remote systems that could improve control. A useful guide can be read here: https://www.jameshargreaves.com/guide-air-source-heat-pump-heating-controls/

For a community building, with three heating zones (main hall, meeting room and library) ensure that your control system fulfils the following criteria:

- Each heating zone can be separately controlled to match usage.
- Heating can be controlled remotely by more than one member of staff (to cover holiday periods).
- A 'boost button' facility is available to users, which increases the temperature. We recommend that this is both time and temperature limited. For example, increase the temperature by no more than 4˚C for 1 hour.
- Thermostats are suitably positioned to monitor the temperature of the zone / room being heated.
- Tamper proof controls.
- Consider heating integration with your hall bookings system. For example, Hallmaster: https://www.hallmaster.co.uk/heating-integration/.

Regular users of your community centre are used to adjusting heating settings to their needs. When the new heating system is installed, this will be the ideal time to inform and educate users on how the ASHP heating operates and their limited options to adjust heating to suit their requirements while avoiding wasted energy.

Actions

- Discuss heating controls, including remote programming, with your selected installed for the new heating system. Ideally training is included so multiple staff can set the system.
- Ensure that the new heating control system is fully programmable via an App.
- Use bullet points above to explain requirements to an installer (some may not be familiar with the sporadic nature of bookings in community buildings).
- Provide information and education to hall users on the operation of the replacement heating system.

Costs and savings

Savings are based on reducing heating by 10% by adding a well thought out heating programming system. Savings assume the current gas boiler is replaced with an ASHP system based on electricity. The cost for controls may already be built into the tender spec. However, if this is not already the case, £500 to £1,000 should be allocated to ensure controls that are easily able to match heating zones to times of use.

2) Add timers to hot water

Energy saving (kWh)	Cost saving (£)	Cost of action (£)
511	119	250 to 300

Your hot water heaters appear to be always on and heating water 24 hours a day 365 days a year. Each hot water heater is rated at around 3 kW and will use about 0.7 kW a day to heat the water.

Once the new heating system is installed you expect to use 15 litre hot water heaters for the toilets and the kitchen. Arrange for a timer to be installed to each to control heating times. Energy will be saved by only heating the water when users are in the building. We recommend arranging to install 7-day programmable timers to control hot water heater times to save energy. It may be possible to connect the timers with the new heating controls (Recommendation 1).

An example of timer is here:
http://www.screwfix.com/p/lap-7-day-digital-immersion-timer/1804r

Electric hot water heaters store low amounts of water and represent low Legionella risk if they are on for 15 minutes at 60˚C prior to use.

Actions

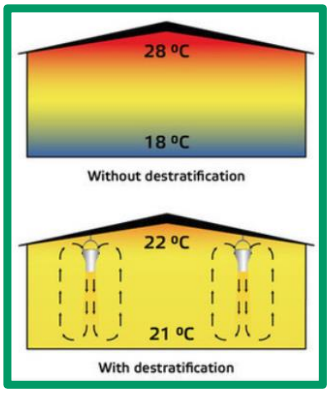
- Confirm the number of electric hot water units that will be at the site.
- Arrange for an electrician to install a 7-day timer on each hot water heater when they are installed. Ask if these can be accessed remotely or can connect to the heating system.
- Set timers to switch off when not needed, for example 8.30pm every night. Programme the timer to turn on 30 minutes before hot water is required, for example 8:30am.

Costs and savings

Savings are based on 4 hot water units being off 50% of the time, assuming each uses 0.7 kW per day. As hot water heaters are hard-wired you will need to get a qualified electrician to wire in each timer, which will cost around £30 each plus up to half a day's labour when installed with the heaters.

3) Install de-stratification fans

Energy saving (kWh)	Cost saving (£)	Cost of action (£)
3,082	719	3,800 to 5,000



Heat in the large hall space rises toward the roof, away from users. Heat near the apex of the ceiling may be pushed down towards users using de-stratification fans to better circulate heat. The installation of de-stratification fans will improve comfort and reduce demand for heating. These fans can look like traditional fans or much smaller more modern units and make very little noise. We recommend considering the installation of de-stratification fans to reduce heating costs and improve comfort.

You have previous experience of traditional fans in a community building being turned off because they were collecting dust which fell down during use. Examples of alternative de-stratification fans can be seen here:

Airius fans

https://www.puravent.co.uk/products/fans/destratification-fans/airius-destratification-fans.html

https://www.airius.co.uk/destratification-fans

Traditional fans

https://www.puravent.co.uk/products/fans/destratification-fans/standard-destratification-fans.html

Fan controls can be automatic. Ensure these are set to only be on when users are present. Speak to contractor about how fans may help create a breeze when the hall is too hot (e.g. in summer).

Most fan solutions will be low noise, however discuss this with contractors to ensure a solution that suits users in the space. Establish that hall activities will not be disturbed by the noise of destratification fans.

Actions

- Engage a contractor for advice on the number and sizes of fans needed and how fans will be controlled so they will only be on when users are present.
- Approach at least three qualified contractors for quotes on adding de-stratification fans.
- Discuss noise levels with contractors to ensure a solution that suits users in the space.
- Arrange for the fans to be installed.
- Ensure users are trained in using fan controls.

Costs and savings

Costs and savings are difficult to estimate without a professional assessment. Based on reducing 75% of the demand for heating by 10% (with ASHP heating) you would save 3,082 kWh a year. Costs are estimated at £3,800 to £5,000 based on 3 fans with controls at £800 each, plus installation.

4) Review ventilation

Energy saving (kWh)	Cost saving (£)	Cost of action (£)
See details	See details	See details

During the site visit, on a windy day, the extraction fans were fully operational, drawing air out of the meeting room. The room was heated but not in use therefore heat was constantly being extracted from the room, wasting energy. There was a control panel on the wall, which may have been able to close this unit off.

We recommend reviewing ventilation control in the building and establishing guidelines for staff and users to ensure extraction fans are not over-used. This may require suitable signage beside the controllers, adding further controls or replacing the fans.

Actions

- Review use and control of extractor fans in the building.
- Replace controls or fans, if necessary.
- Ensure that users are advised of use of these fans.

Costs and savings

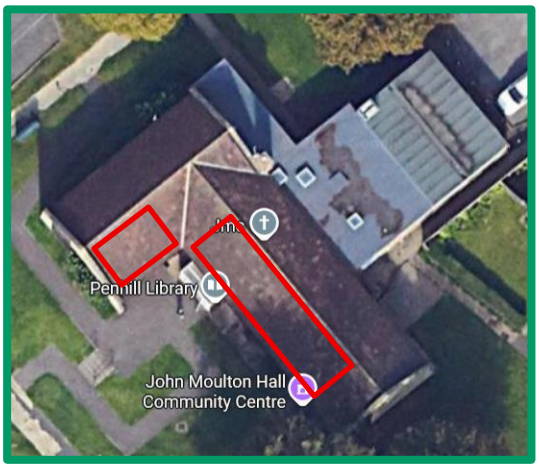
Costs and savings are dependant on actions required following the review.

ENERGY SAVINGS RECOMMENDATIONS

5) Add solar PV panels

Energy saving (kWh)	Cost saving (£)	Cost of action (£)
9,574	2,390	18,070 to 20,850

There is sufficient space to install southeast and southwest facing solar PV panels on the roof to generate electricity from sunlight, which will reduce the amount drawn from the National Grid saving you energy costs and carbon. We recommend, subject to survey, a 13.8 kWp solar array of 30 panels generating an estimated 12,765 kWh of electricity per year. For every kWh generated from solar panels that you use on site you will save 23.336p (your electricity rate). Surplus solar electricity is exported back to the National Grid and you will receive approximately 5p to 15p per kWh from the Smart Export Guarantee, paid through your electricity supplier. With the addition of an electricity based ASHP heating system, we anticipate 75% of electricity generated will be used on site.



In addition to installing an array of solar PV panels on the roof, an inverter is installed indoors to make the electricity compatible with your building's electricity demand. While the sun shines every day, the amount generated is affected by temperature and cloud cover; weather data is used to estimate performance. Consider a battery to store electricity that would have been exported for use when the sun is not shining. This will add approximately £5,000 to £10,000 to overall costs but save an additional £351 per year.

These figures are based on using the pitched roof of the main hall. If this is not suitable it would also be possible to add solar panels to your flat roof. A solar installer can advise. See: https://mcscertified.com/find-an-installer/

Actions

- Engage a solar PV contractor to design a solution for your premises. They will assess feasibility of the project, considering obstructions, such as trees. Speak to the designer about batteries for storing electricity that would have been exported. You can then engage a number of contractors with the design for quotes on installation.
- Contact at least three solar panel contractors to obtain quotes. Installation quotes need to include a structural assessment of the roof to determine if it can bear additional weight.

Costs and savings

Savings are based on using UK solar data to estimate generation from 460W solar PV panels, exporting at 5p per kWh. Costs are based on £1,300 to £1,500 per kWp. Prices from contractors will differ.

RESOURCES & NEXT STEPS

Funding

Possible sources of funding for the recommendations in this report:

Westmill Solar Coop (https://westmillenergy.coop/what-we-do/community-funding/)
May offer funding for community sites who have received an ESOx energy assessment.

The National Lottery Awards for all
https://www.heritagefund.org.uk/funding/national-lottery-heritage-grants-10k-250k-0
Up to £20,000 for charities or CiCs for community benefit (improve places and spaces).

Matthew Good Foundation (https://www.matthewgoodfoundation.org/grantsforgood/)
Share £15,000 among 5 applicant community projects (income less than £50,000 in the last year).

Postcode Society Trust (https://www.postcodesocietytrust.org.uk/apply-for-a-grant)
£25,000 charities & CiCs 'responding climate emergency', £2,500 voluntary.

Morrisons Foundation (https://www.morrisonsfoundation.com/grant-funding-request/)
Projects up to £10,000, for **charities** only, must help community facilities, cannot part fund.

Sports England – Movement Fund
https://www.sportengland.org/funding-and-campaigns/our-funding/movement-fund
£15,000 measure will directly result in an increase in attendance for physical activity.

Energy Redress from Energy Saving Trust (https://energyredress.org.uk/about-us)
£20,000 to £200,000 for charities, CiCs, Coops main & small funds for carbon emission reduction.

Step Change Fund (https://oxfordshire.org/ocf_grants/step-change/)
Up to £50,000 for **charities only**, systems or premises upgrades for sustainability; see deadlines.

DWF Foundation (https://dwfgroup.com/en/about-us/dwf-foundation)
£5,000 grants with environmental impact for charities. See 2026 deadlines in guide doc.

You can also **sign up to the ESOx newsletter** at this link (see bottom left):
https://www.energysolutionsoxfordshire.org/articles/

Solutions fit for the future

This report recommends installing new electrical products. We recommend discussing some technical considerations with your contractors. While UK electricals must comply with safety standards, there is currently no requirement that items are able to communicate with other electrical systems to maximise operating efficiency both on site and within the National electricity grid. For example, heat pumps use electricity and are best operated in tandem with solar PV panels and batteries to minimise use of more expensive grid electricity. As electricity networks make more use of data sharing, **ensure contractors consider compatibility when installing** the items below to help avoid later upgrades:

Solar PV panels – Ensure inverters, which convert DC power generated to AC power compatible with your site, have **'modbus'** interface. This enables communication with other devices, including batteries.

Heat pumps – Ensure these include **OpenADR** (automated demand response), which allows better electricity management, particularly in areas where sub-stations have grid constraints.

RESOURCES & NEXT STEPS

Your action progress update

Our report recommendations may help you choose what actions your organisation would like to act on. After a number of months, we will ask for an update on your progress. Some actions will be completed, some in progress, and others not yet started. Below is an example of how you can indicate your progress (tick one box per row). There is no expected completion date for any action, however your information is extremely important for helping us track project improvements.

Opportunity	Action completed	Action in progress	Not begun but intending to	Not begun, not intending to	Not applicable
1) Add heating controls	◯	◯	◯	◯	◯
2) Add timers to hot water	◯	◯	◯	◯	◯
3) Install de-stratification fans	◯	◯	◯	◯	◯
4) Review ventilation	◯	◯	◯	◯	◯
5) Add solar PV panels	◯	◯	◯	◯	◯