

Organisation	The Coddendam Centre
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Background and Energy Consumption

The Coddendam Centre contacted Groundwork East through the Net Zero Suffolk support service to instigate their annual carbon footprint. The Centre has been committed to reducing their carbon emissions by installing a heat pump this year and are due to get 80 solar panel PV System installed.

Electricity, LPG and water consumption were given for the period January to December

Electricity consumption: 27,803kWh

LPG Consumption: 94kg

Water: 183m³

Carbon Footprint

GHG emissions are expressed as tonnes of CO₂ equivalents (tCO₂e). This is a unit of measurement used to indicate the global warming potential of a greenhouse gas, expressed in terms of the global warming potential of one unit of carbon dioxide.

Scope 1: These are Direct Emissions which arise from the activities of an organisation and include fuel combustion on site or in owned equipment, such as gas boilers, fleet vehicles and mobile machinery.

Scope 2: These are Indirect Emissions from electricity purchased and used by the organisation. Emissions are created during the production of the energy which is eventually used by the organisation.

Scope 3: These are all other Indirect Emissions from activities of the organisation, occurring from sources that they do not own or control. In this GHG report Scope 3 emissions are those arising from business travel on public transport by employees, the supply and sewerage of water at the business

premises, and from the disposal of waste. Also included here are emissions arising from the 'Transmission and Distribution' (T&D) and Well to Tank (WTT) of electricity and Scope 1 fuels purchased by the organisation.

Data provided via the Carbon Charter gave an annual carbon footprint for 2020 of 31.0tCO₂e.

The total greenhouse gas emissions covering this year is 8.6tCO₂e. This is a 22.4tCO₂e reduction, approximately 72%.

The Coddendam Centre current electricity tariff is a 100% renewable through EON Energy. The emissions factor of grid electricity is already inclusive of the UK's renewable generation production. This means whilst the energy generated from on-site renewables is effectively carbon neutral the actual energy you receive through the grid is not. Green energy tariffs are a positive way to tell the energy industry that you want to support renewable energy. We have produced this leaflet which may be of interest: https://carboncharter.org/wp-content/uploads/2020/01/Renewable_Energy_v2.pdf

Table 1: Breakdown of emissions 2022

		2021/22
Scope 1	Fuels	0.3
Scope 2	Electricity	5.9
Scope 3	Fuels and Energy (not included in Scopes 1 or 2)	0.03
	Electricity T&D and WTT	2.2
	Water supply and treatment	0.2
		8.6

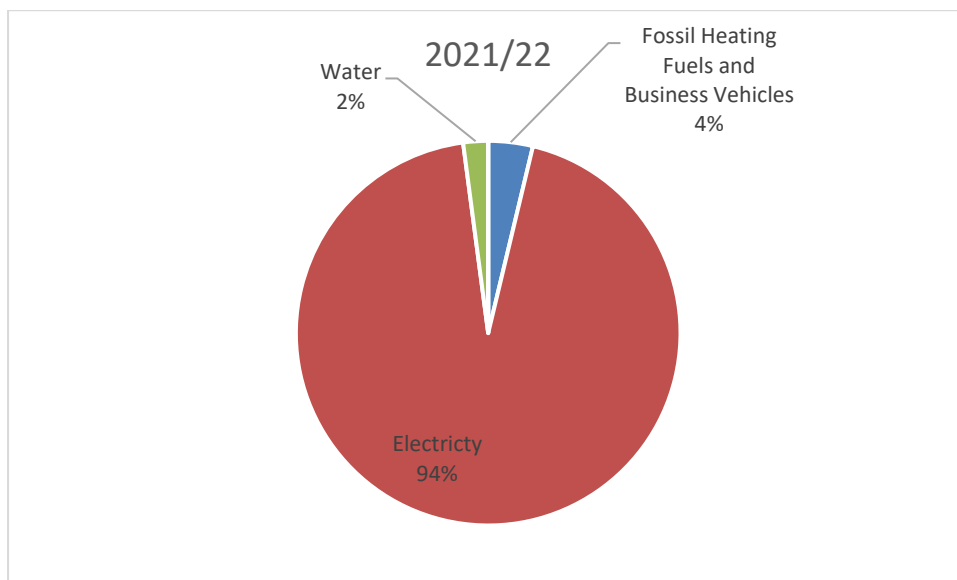


Figure 1: Annual Estimated Summary Emissions

Solar PV

The Coddendam Centre is due to get a 31.6kWp Solar PV System (80 panels) which is estimated to further save 18,550kWh, approximately 5.4tCO₂e.

A battery system would allow daytime generation to be used in the mornings, evenings and night, however the cost of a battery system can be expensive, so careful consideration as to the evening demand is required.

A battery is estimated to save a further 7,150kWh, approximately 2.1tCO₂e.

It was estimated that at least 70% of the generated electricity could be used on site. This is typical for normal office hours Monday-Friday.

A series of quotes for the array were given previously which puts the total cost of the system at around £50,000. The quotes estimated emissions saved is broadly in line with our estimate of 6.67tCO₂. The difference in savings could be related to the difference in estimated usage of solar generated electricity.

Table 2: Potential savings of the whole solar system

Measure	Savings (kWh)	Annual Cost Savings	Savings (tCO ₂ e)	Indicative Estimated Cost (Excl. VAT)	Payback (years)
Solar PV + Battery	25700.0	£10,280	7.5	£51,700	5.0

*Assuming Electricity @40p/kWh

Additional Changes

The Centre is also looking at replacing their lighting to LEDs with proximity sensors once funding has been secured. This will help further reduce their carbon footprint.