Carbon Footprint & Decarbonisation Plan
Summary Report for
North Norfolk Community Transport

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Greenhouse Gas (GHG) Reporting

In line with Environmental Reporting Guidelines and the Greenhouse Gas Protocol GHG emissions inventories are broken down into direct and indirect emissions which are categorised into Scope 1, Scope 2 and Scope 3 emissions according to which activity and fuel or energy use they arise from and is expressed as tonnes of CO_2 equivalents (tCO_2e) which is the standard unit used to compare and account for emissions from various GHGs based on their respective global warming potential.

Scope 1: These are Direct Emissions which arise from the activities of an organisation and include fuel combustion onsite such as gas boilers and fleet vehicles.

Scope 2: These are Indirect Emissions from electricity purchased and used by the organisation. Emissions are created during the production of the energy 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. These include business travel, commuting, up and downstream value chain, transportation and waste. This report includes, by default, emissions associated with the Transmission and Distribution (T&D) and production of other fuels. Other categories are included according to the data that was provided by the business.

GHG Emissions Statement

Your carbon footprint for 2023 shown in Table 1 and Figures 1 and 2 has been compared to the 2022 emissions. This excludes waste, and any sources not mentioned below.

Table 1: Your Annual Estimated GHG Emissions Statement

	Emission Source	**2022** tCO_2e	**2023** tCO_2e
Scope 1	Business Vehicle Fleet (Diesel)	30.4	28.2
Scope 2	Grid Electricity	2.0	1.4
Scope 3	Fuels and Energy (Diesel) (not included in Scopes 1 or 2)	7.3	6.9
	Grid Electricity T&D and WTT	0.7	0.4
	Commuting	3.4	6.9
	Homeworking	0.3	0.3
Total		**44.1**	**40.8**

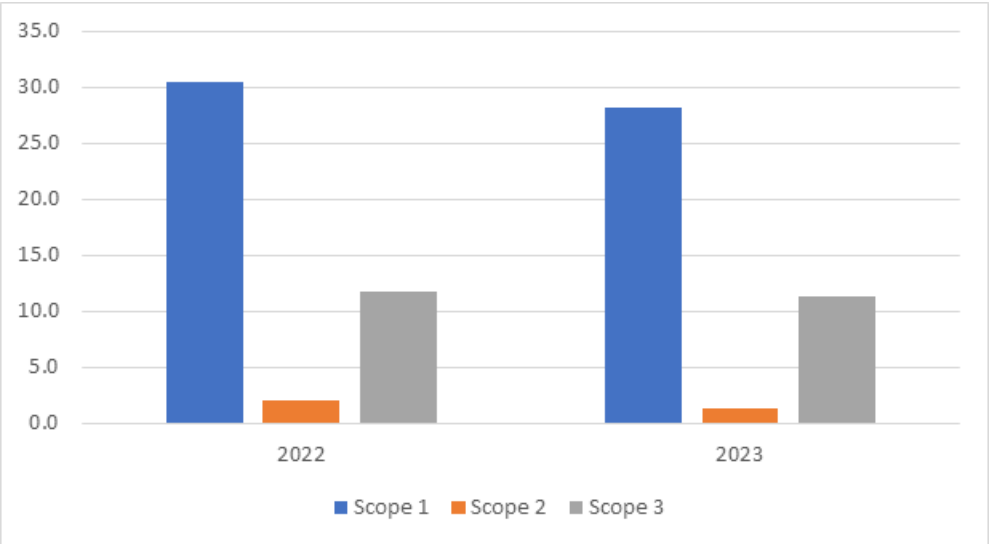

Figure 1: Energy Emissions Breakdown by scope (tCO_2e)

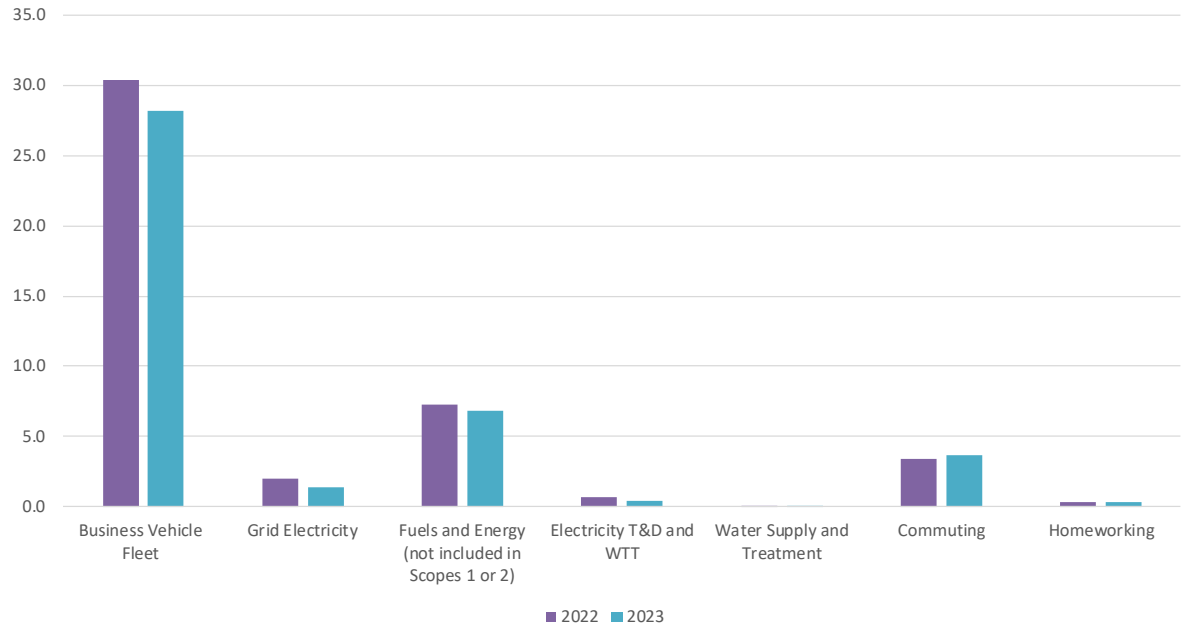

Figure 2: Energy Emissions Breakdown by emissions source (tCO_2e)

This is based on the data provided by the business for the year 2023 in Table 2.

Table 2: 2022 and 2023 Consumption Data Provided with associated Green House Gas Protocol Carbon Factors used. (see https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting)

Energy	2022 Reported Consumption	2022 Conversion factors used	2023 Reported Consumption	2023 Conversion factors used
Electricity	10150 kWh	**Scope 2** UK Electricity generated: Year 2020; 0.193kgCO_2e per kWh **Scope 3** Transmission and distribution (T&D) - UK Electricity: Year 2020; 0.018kgCO_2e per kWh **Scope 3** WTT- UK electricity generation: Year 2020; 0.046kgCO_2e per kWh **Scope 3** WTT- UK & overseas Electricity (T&D): Year 2020; 0.004kgCO_2e per kWh	6589 kWh	**Scope 2** UK Electricity generated: 0.207kgCO_2e per kWh **Scope 3** Transmission and distribution (T&D - UK Electricity: 0.018kgCO_2e per kWh **Scope 3** WTTUK electricity generation: 0.046kgCO_2e per kWh **Scope 3** WTT- UK electricity (T&D): 0.004kgCO_2e per kWh
Fleet Diesel	11,896 litres	**Scope 1** Liquid fuels Diesel (average biofuel blend) 2.558kgCO_2e per litre **Scope 3** WTT- Liquid fuels Diesel (average biofuel blend) 0.610kgCO_2e per litre	11,217 litres	**Scope 1** Liquid fuels Diesel (average biofuel blend) 2.512kgCO_2e per litre **Scope 3** WTT- Liquid fuels Diesel (average biofuel blend) 0.611kgCO_2e per litre
Water usage	36m^3	**Scope 3** Water supply 0.149kgCO_2e per cubic metre **Scope 3** Water treatment 0.272kgCO_2e per cubic metre	18m^3	**Scope 3** Water supply 0.177kgCO_2e per cubic metre **Scope 3** Water treatment 0.201kgCO_2e per cubic metre
Commuting	9780 miles	**Scope 3** Business travel - land; Cars (by size) Average car 0.275kgCO_2e per mile **Scope 3** WTT- passenger vehicles & travel (land) – cars (by size) Average car 0.073kgCO_2e per mile	10803 miles	**Scope 3** Business travel - land; Cars (by size) Average car 0.268kgCO_2e per mile **Scope 3** WTT- passenger vehicles & travel (land) - cars (by size) Average car 0.070kgCO_2e per mile
Homeworking	2448 hours	**Scope 3** Homeworking Office (Equipment) kgCO_2e 0.032 per FTE Working Hour **Scope 3** Homeworking (Heating) 0.309kgCO_2e per FTE Working Hour	2448 hours (for homeworking office equipment) 33% of this for Heating	**Scope 3** Homeworking Office (Equipment) kgCO_2e 0.031 per FTE Working Hour **Scope 3** Homeworking (Heating) 0.302kgCO_2e per FTE Working Hour

Recent Energy Efficiency Measures Undertaken

The business has started a long-term goal to replace all of its current diesel passenger transport fleet with electric vehicles in an effort to reduce its carbon footprint and reach a net zero goal. They introduced the first replacement in 2020 which replaced a diesel Wheelchair Accessible Vehicle (WAV) with an electric alternative. NNCT are hoping to be able to replace a mini-bus this year in the next stage of this phased switch over.

Other actions that the company have taken to reduce their footprint:

- 2023 LED lighting was installed into the offices to replace older inefficient fluorescent lighting
- New double-glazed windows and doors were fitted
- The company continues to use a renewable energy tariff. If this renewable energy tariff is backed by certificates to track attributes associated with energy generation, the organisation may wish to demonstrate a lower emissions figure where appropriate here (i.e. market based emissions taken from the associated certification), but this should be in addition to the figure reported under normal location-based emissions shown here. (I.e. dual reporting with commentary to be clear on the impacts).

You can see from the electricity usage figures and resulting carbon footprint from this emission source that there was a reduction noticed from 2022 to 2023. This may have been partly due to these changes above.

Using the vehicle Litre consumption data provided for 2023 we can see a usage decrease despite advised customer number increases. If the data is accurate then this is a good reflection on more efficient use of resources. It is likely however that further increases in number of customers as the business grows. As such the organisation may wish to consider implementing further Carbon KPIs to understand the relationship between usage, business performance and carbon efficiency more effectively.

Carbon KPIs

What are absolute emissions?

Absolute emissions metrics indicate the total amount of greenhouse gases (GHGs) emitted into the atmosphere over a specific period. I.e. all emissions from your buildings and fleet over a year period. These are measurements of emissions in units of mass, most commonly tonnes of carbon dioxide equivalence (tCO_2e) or also referred to as Metric tons of carbon dioxide equivalence (MT CO_2e). This is helpful for understanding how organisations are doing towards their net zero journey- which requires assessing absolute emissions.

What is carbon emissions intensity?

A Carbon intensity metrics refers to the amount of greenhouse gas emissions per unit of activity or output. This helps to express the emissions intensity of a particular process and help normalise the resulting emissions due to changes in organisational activity, such as the total

growth and increased output. Examples include dividing the total tCO_2e emissions by a metric of an operation, such as the number of products/units produced, the number of full-time equivalent employees, or the square footage of building(s) which would result in tCO_2e /unit

Carbon Emissions Intensity KPI	=	Absolute Carbon Emissions	÷	Performance metric (i.e. # Units)

etc.

Figure 3: Carbon Emissions Intensity KPI calculation

Because the carbon footprint of NNCT is directly correlated with the business output (i.e. passenger miles etc) then it might be worth calculating both an absolute carbon footprint and a carbon emissions intensity KPI. A performance indicator for NNCT could be tCO_2e per passenger miles, calculated as such:

Carbon Emissions Intensity KPI (tCO_2e/passenger mile)	=	Absolute Carbon Emissions for a set period of time (tCO_2e)	÷	total number of passenger miles within the same given time (passenger miles)

Figure 4: Carbon Emissions Intensity KPI example method for normalisation using passenger miles

Your Decarbonisation Plan

To help understand the impact of each vehicle change the reductions from these swaps are outlined in Table 3 and are based on assumed units costs as in Table 4.

Table 3: Recommended Carbon Reduction Action Plan

Measure	Savings (kWh)	Annual Cost Savings	Savings (tCO_2e)	Estimated Cost (Excl. VAT)
2021 Mercedes Sprinter Minibus Replacement to Maxus eDeliver 9	N/A	£1,635	5.37	£52,995
2018 Renualt Master Minibus to Maxus eDeliver 9	N/A	£389	1.76	£52,995
2016 Peugeot Boxer Minibus EBV to Maxus eDeliver 9	N/A	£505	2.11	£52,995
2016 Peugeot Boxer Minibus DNN to Maxus eDeliver 9	N/A	£464	1.84	£52,995
2014 Mercedes Sprinter Minibus to Maxus eDeliver 9	N/A	£983	3.19	£52,995
2012 Renualt Master Minibus to Maxus eDeliver 9	N/A	£517	1.90	£52,995
2017 Vauxhall Vivaro WAV to Vauxhall Vivaro e-Life	N/A	£687	1.31	£40,995
2021 Ford Toureno E ford toureno	N/A	£1,320	2.89	£35,000
Fleet Driver training	N/A	£2,423	5.3 *	TBC
Annual Total savings:		**£6,700**	**23.98**	**N/A**
Future savings from Solar PV	26,900	£10,760	7.4	£45,500

*estimated against the 2023 diesel consumption (not additional to the future EV savings and excluded from the total savings shown here)

Table 4: Estimated Energy Costs

Assumed Energy Costs
~ £17,733 annual total energy cost
~£0.24 per kWh for electricity
~£1.44 per litre for Diesel

Action 1: Fleet vehicle swaps

The savings from switching the current fleet in the table above to EV equivalents are based on the following assumptions and estimates:

- The Maxus eDeliver 9 is used as an example vehicle swap, with a 88.55 kWh battery, WLTP in City driving of 219 & WLTP Combined of 185miles. These savings calculations are based on 80% of this range.
- Vauxhall Vivaro e-Life is used as an example vehicle swap for the current Diesel Vauxhall Vivaro WAV. With a 50 kWh battery and WLTP of 143. These savings calculations are based on 80% of this range.
- E Ford Toureno is used as an example vehicle swap for the current Diesel Ford Toureno. With an anticipated 54 kWh battery and WLTP of 200. These savings calculations are based on 80% of this range.

Action 2: Fleet Driver Training:

It may be worth exploring the options for Driver training in fuel efficient methods of driving. The energy savings trust advise that 15% is the typical reduction in fuel consumption that most fleet drivers could achieve immediately after training. On the company's current fuel consumption this could save £2,423 and 5.3 tCO_2e each year.

For more information please see the guides below.

https://energysavingtrust.org.uk/business/transport/efficient-driving/

https://www.energysavingtrust.org.uk/sites/default/files/reports/5984%20EST%20A4%20ecodriving%20guide_v6.pdf

Action 3: Solar

Particularly as your demand for electricity grows you may want to consider premises which allow for Solar PV arrays to be installed that you are able to benefit from.

By the end of your fleet EV switch it is estimated that your electricity demand could reach approx. 49,000kWh if charging the vehicles at your premises (based on 2023 usage data and no growth projections). This is compared to 6,589 kWh in 2023.

Based on a 40.0kWp system that could provide an estimated 26,900 kWh/year, the system would meet approximately 55% of the forecast electricity demand.

This is assuming an array of 100x 400W PV south facing panels.

To get the most usage out of this array without batteries you would ideally need to be charging some of the fleet vehicles during the daytime use. If this is not possible a battery storage system would be worth considering.

Battery storage systems can be relatively costly, so careful consideration as appropriate sizing is required.

An appropriately paired battery system would store unused generation which otherwise would be exported, to subsequently be used when site electrical demand exceeds PV generation.

Professional advice is required to establish the suitability and exact specification required for any specific measure and Groundwork are unable to recommend or endorse any particular supplier, material or process.

Local Support & Grant Funding

North Norfolk Carbon Reduction Grants

The North Norfolk Carbon Reduction Grants pilot programme is aimed at supporting local small to medium-sized businesses and not-for-profit organizations (with fewer than 250 FTEs) that have ambitions to reduce their carbon footprint and increase productivity.

The grants will support energy efficiency or net-zero adaptations for businesses to make them more sustainable and efficient.

Applicants will need to have received support through the North Norfolk net zero business advisor service (delivered by Groundwork East) in order to apply.

The grant value ranges from £2,000 to £10,000 per application with an intervention rate of up to 50%.

Types of projects

This fund can support the following types of projects, ensuring that all either support a move to net zero or energy efficiency to reduce overall carbon reduction of the business.

Purchase of capital investment to make small adaptions to businesses such as:

- Purchase of equipment to allow new operating processes, such as a move to digital services, optimisation of resources or enhanced waste management
- E-cargo bikes

Energy efficiency improvements such as:

- Changing to a low carbon heating system
- Installation of low and zero carbon generating technologies, such as solar PV, biomass or micro-wind
- Insulation, replacement windows, doors etc. to improve energy efficiency of buildings
- Heating e.g., Biomass, ASHP/WSHP etc. but not fossil fuel alternatives
- Solar Panels (building regs and planning permission may apply)

Building fabric upgrades such as:

- Insulation
- Energy efficient lighting
- Draught-proofing

Machinery upgrades such as:

- Energy efficient plant and machinery

These examples are given as a guide and are not exhaustive.

Timescale

Grant approval panels will be held June 2024, August 2024, October 24, and November 2024.

The programme will be open to grant applications from April 2024 to November 2024.

The projects must be completed in full by 15th February 2025 so we are looking for projects that are ready to proceed immediately and are not dependent on planning or any other permissions and which have confirmed delivery and completion dates.

UK Shared Prosperity Fund and Rural England Prosperity Fund

NNDC is also delivering a two-year programme of Rural England Prosperity Funding in the form of capital grants. These are aimed at businesses and community groups:

Community Groups

- Infrastructure Projects
- Culture, Historic and Heritage Projects
- Impact Volunteering and Social Action Projects

Businesses

- Small Business and Net Zero Diversification Projects

https://www.north-norfolk.gov.uk/tasks/projects/invest-north-norfolk/uk-shared-prosperity-fund-and-rural-england-prosperity-fund/

The North Norfolk Rural Business Grant Programme

This is available until March 2025. It is designed to support businesses in applying for larger capital projects to support the refurbishment of buildings to diversify their offer or to buy equipment to expand and grow.

This investment helps businesses:

- Improve or develop unused buildings or infrastructure
- Diversify away from agriculture as the primary businesses
- Buy equipment to grow and expand

https://www.north-norfolk.gov.uk/info/invest-north-norfolk/business-grant-scheme/

Carbon Charter Certification

The Carbon Charter is an environmental award scheme and sustainable business network for organisations based in Suffolk and Norfolk. Delivered by Groundwork East and overseen by the Environment Agency and Suffolk County Council on behalf of the Suffolk Climate Change Partnership, the Carbon Charter provides guidance, support, and recognition to small and medium-sized businesses throughout Suffolk and Norfolk as they take positive action towards Net Zero.

The Carbon Charter Award logo also allows you to market your progress to your customers and suppliers. Members join our sustainable business network, with access to impartial advice, like-minded SMEs and networking events held throughout the year.

For more information: https://carboncharter.org/

The New Anglia Growth Hub

Businesses within Suffolk and Norfolk can access free advice and support from the New Anglia Growth Hub for help with integrating technology into your business. Understanding business regulations, growing your business, intellectual property rights, accessing finance, grants and vouchers and much more.

They can also advise on the Business Transition to Net Zero Grant which can offer grants between £25k and £100k with a maximum intervention rate of 20% of the cost of the development. To be awarded the minimum of £25k, you must show total project costs of at least £125k.

For more information please see https://www.newangliagrowthhub.co.uk/business-support/

National Support and Funding

Grants for Electric Vehicles

Discounts are available off the price of brand new low-emission vehicles through a grant made to vehicle dealerships and manufacturers. You do not need to do anything if you want to buy one of these vehicles - the dealer will include the value of the grant in the vehicle's price.

The grant will pay for 35% of the purchase price for WAV vehicles, up to a maximum of £2,500.

The grant will pay for 35% of the purchase price for electric vans, up to a maximum of £5,000.

https://www.gov.uk/plug-in-vehicle-grants

Workplace Charging Scheme

The Government's Workplace Charging Scheme (WCS) is a voucher-based scheme that provides support towards the up-front costs of the purchase and installation of electric vehicle charge points.

The contribution is limited to 75% of purchase and installation costs, up to a maximum of £350 for each socket, up to a maximum of 40 across all sites for each applicant. Sockets must be installed on off-street parking for staff, visitor, or fleet use.

https://www.gov.uk/government/publications/workplace-charging-scheme-application-form

VAT Reduction and CCL Exemption for Charities and Non-Profits

Charities and Non-Profit organisations are entitled to discounts on their energy bills, including a VAT rate reduction and CCL Exemption. VAT is reduced from 20% to 5% on energy used for 'non-business' purposes, and there is exemption from the Climate Change Levy (CCL). Unfortunately, suppliers often do not automatically apply these discounts, so many UK charities end up paying significantly more than they should for their energy, however overpayments can be claimed back as far as 4 years.

If you have a mix of activities where some meet the government's criteria for domestic or charitable non-business use and some do not, you can estimate the split for each individual meter. Your estimate can be based on any method that is 'fair and reasonable', such as the energy rating of appliances, annual consumption, or square footage.

All of the following organisations may be eligible for the reduced VAT rate and CCL exemption:

- Charities (registered or unregistered)
- Non-profit organisations
- Village halls, sports clubs, community centres, etc.
- Free schools and academies
- Museums
- Care homes
- Businesses using less than 4,397 kWh/month of gas or 1,000 kWh/month of electricity

Those eligible for exemptions or rebates will need to complete a VAT Declaration form, which can be obtained from your supplier. Upon receiving the form, suppliers usually take around 14 days to review the application.

More details can be found here:
https://eaguk.org/energy-services/reduced-rate-vat/