Completed and ongoing carbon reduction initiatives

1.0 Switching our Fleet to Hydrotreated Vegetable Oil (HVO)

1.1 Feasibility work has been undertaken to explore the benefits that may be available should we switch to HVO usage across our fleet. HVO offers a wide range of benefits that make it an excellent environmentally friendly alternative to diesel fuels:

- HVO is made from 100% renewable Raw Materials.
- A drop-in replacement for regular diesel with no change to infrastructure or modifications.
- Up to net 90% Net reduction of Green House Gas emissions.
- Reduction in regulated air pollutants (NOx/SOx/PM/CO)
- Biodegradable
- Shelf life of ten years in comparison with two years for Regular Diesel, depending on storage conditions.
- Tried and tested product; its clean and safe and endorsed by a wide range of OEMS.
- Excellent cold weather performance, with a high cetane number of up to 90, HVO provides improved cold start performance, clean combustion and less chance of waxing in extreme temperatures.
- Average 10% reduction on Ad blue consumption
- Potential saving Fuel economy (current data suggest 4-10% dependent upon engine)

1.2 On Switching to HVO we would immediately see a reduction in CO2 of up to 90% in the fleet emissions, which would be a reduction of approximately 33% of our total carbon footprint. That's a saving of 1,018.8 tonnes of CO2**.** That is the equivalent of having 46,864.8 adult trees offsetting our carbon, which about 30 hectares of trees. That is an area of about thirty times as big as Trafalgar Square. This is an initiative that is built into the budget for 2025/2026 and once full feasibility and risk assessment is complete could be introduced if approved by all stakeholders.

2.0 Decarbonisation Plan

As part of the Climate Emergency action plan NSDC are committed to delivering and installing low carbon heating measures at a range of Council buildings before 2035. The Carbon Trust recommended Air Source Heat Pumps as the low carbon technology. However, before installing this technology on large scale sites (which requires significant investment) we must ensure this new technology is appropriate and consider all fossil fuel free options.

2.1 As such, we engaged BE Design, Newark-based consultants, to develop a Decarbonisation Plan for our corporate and leisure buildings. This plan will advise on the energy efficiency measures and carbon reduction improvements we can put in place at each site.

2.2 The Decarbonisation Plan has recently been completed and shows a detailed road map of the technologies and strategies we could put in place as well as the associated costs to achieve the energy savings and reduction in carbon emissions. The sites included in this review are listed below.

- Blidworth Leisure Centre
- Brunel Drive Depot
- Car Parks
- Castle House
- Dukeries Leisure Centre
- Farrar Close
- Newark Beacon
- NSFC
- Palace and Civil War Museum
- Sconce and Devon
- Sherwood Arts and Craft Centre
- Vicar Water

2.3 Each site has its own breakdown of consumption, improvement areas and associated CO2 reduction and costings that give a very granular level of detail, which is essential when calculating the CO2 reduction we are looking for.

3.0 Solar PV installation

3.1 Our Climate Emergency Strategy Action plan outlines recommended carbon reduction initiatives which the Council can undertake to improve energy efficiency and reduce its overall carbon footprint. This includes the installation of Solar PV. As such we undertook feasibility works in collaboration with specialist consultants to consider the intricacies of Solar PV installation on a range of its corporate and leisure sites to gain further understanding in relation to costs involved, payback, carbon savings and if installation is practical.

3.2 The outcome of the feasibility study was presented to members at Policy & Finance Committee in November 2021 with a £685,250 budget approved for installation on the sites listed below. Due to tight management and efficiencies the work will be delivered for considerably less. The monies saved will be recycled into further projects to help reduce our carbon footprint. All sites are now installed.

Installation site	Forecast annual electricity generation (Kwh)	Carbon reduction (tonnes per annum)
Newark Leisure Centre	160078	33.933
Dukeries Leisure Centre	73463	15.568
Newark Beacon	46919	9.941
Sconce and Devon Park	896.05	4.032
Vicar Water	19120	4.032
Broadleaves	77350	17.43
Gladstone	92820	20.92
	Total energy generation	**Total CO2e reduction**
	470,646.05 Kwh/year	105.856 tCO2e

3.3 The savings above are indicative of what will be saved throughout the year and will be recalculated after 12 months post installation when actual figures are available.

3.4 Potential additional sites and indicative costs. (These are taken from 2021's feasibility study and therefore these costs are illustrated as a minimum for awareness of the level of investment that would be required.)

Additional Solar PV options

	For future review			Not at this time
Narrative	**Castle House**	**Brunel Drive Depot**	**Total**	**Blidworth Leisure Centre**
Construction	72,550.00	166,300.00	**238,850.00**	32,550.00
Project Management	4,500.00	4,500.00	**9,000.00**	4,500.00
Capital Costs	**77,050.00**	**170,800.00**	**247,850.00**	**37,050.00**
Financing				
Annual MRP (25 year life)	3,082.00	6,832.00	**9,914.00**	1,482.00
Interest - 2.23%	1,718.22	3,825.92	**5,544.14**	826.22
	4,800.22	**10,657.92**	**15,458.14**	**2,308.22**
Cost of Maintenance	305.00	762.50	**1,067.50**	109.80
Annual Costs	**305.00**	**762.50**	**1,067.50**	**109.80**
Total Annual Costs	**5,105.22**	**11,420.42**	**16,525.64**	**2,418.02**
Annual Electricity Savings	4,639.29	10,747.68	**15,386.96**	2,182.32
Net Annual Surplus/Loss	**-465.93**	**-672.74**	**-1,138.67**	**-235.70**
Payback Period	**27.51**	**26.56**	**26.85**	**27.70**
Annual Carbon Savings (ICO2e)	**10.00**	**TBC**	**10.00**	**4.00**

3.5 The completion of this project will assist the Council with making carbon savings and generating renewable energy which will assist us with reaching our 2035 net zero target.

4.0 New build program

The Council's new build properties are designed and built to an excellent specification around net zero efficiencies. This is allowing us to provide energy efficient homes to our residents. Our properties have been benefiting from these net zero efficiencies for the last 4 years. Alexander Lodge was shortlisted for a carbon reduction reward in 2024 and came runner up. However, our new build scheme in Blidworth was announced the winner of the LABC regional award for best social housing new build 2024.

4.1 **Insulation**. The standard building regulations cavity wall insulation is 150mm, Newark and Sherwood new build properties, are now built with an increased 185mm of cavity wall insulation. The standard insulation for lofts is 270mm our standard loft insulation thickness is 300mm

4.2 **Air sealing**. Building regulations require an air tightness result of 10m2 hr. The Council's new build properties' average test results are below 5m2 hr.

4.3 **Energy-Efficient appliances**. The Council's new build properties, use low energy appliances NSDC install as standard A rated electric combi boilers, LED lighting, EV chargers, and in many situations waste water heat recovery systems.

4.4 Solar panels. These can deliver electricity at 60-70% of the cost of grid electricity and when batteries are also fitted this can rise to 80 - 90% by using cheaper night tariffs to force charge

5.0 Solar installations within the Council's housing stock

5.1 There are 430 properties fitted with income generating solar panels and approx. 107 properties that have had solar panels and batteries fitted as part of our Social Housing Decarb Funding and funding received from Devolution. This is representative of around 10% of the council's housing stock.

6.0 Electric Vehicle Charge Points

6.1 The Climate Emergency action plan commits us to exploring the implementation of electric vehicles within the Council owned fleet of vehicles. It was agreed at Leisure and Environment Committee on 16 March 2021 to adopt a phased approach towards electrification. This began with the pilot of two vehicles which have been used by our Community Protection team for short journeys in the district within the past two years. There are now 3 charge points at Brunel Drive and work is currently ongoing to upgrade the EV charge points outside the back of Castle House to enable faster charging of our Community Protection vehicles.

7.0 Tree planting

7.1 Since Q4 2019/2020 The Council have facilitated the planting of 26,982 trees in the district (gifted 15,944 and planted 11,038). This year, plans are in place to eclipse this in a shorter timeframe by planting 34,000 trees as part of a wider woodland regeneration scheme. Once fully matured we expect these trees to sequester at least 845 tonnes of CO2 per year

Tree Sequestration (Kg Per Annum)		Number of Trees Planted			75% survival rate			Tree Sequestration (Co2t Per Annum)		
Min	Max	Thorney Abbey & Little Carlton	NSDC sites	Total	Thorney Abbey & Little Carlton	NSDC sites	Total	Min	Median	Max
10	40	34,000	11,038	45,038	25,500	8,279	33,779	338	**845**	1,351

8.0 Utility tariff review

8.1 A full review of our electricity tariffs is well underway and in the final stages. The hope here is that we can secure a 'green tariff' that will not only provide financial savings but also offer significant carbon savings which would reduce our scope 2 and scope 3 emissions associated with electricity use.

9.0 Green Rewards programme

9.1 Green Rewards is an app encouraging users to perform sustainable actions through incentivisation. The app provides a number of activities that fall under 7 categories. Fashion Footprint, Food, Travel, Energy and Carbon, Reduce, Reuse, Recycle, Consumption and Nature. Completing activities will earn users varying amounts of 'Green Points' and the user with the most Green Points each month will win £20 vouchers. Being signed up to the app alone will provide users with access to discounts and alongside that, a user will be selected at random each month to win a £20 voucher.

9.2 There are currently 656 residents signed up to the Green Rewards app, this is an increase of 13.7% since March 2024 and the number is growing each month. Out of the six Councils involved in the Green Rewards programme, our residents are the most active, completing 72.1 actions on average per person. Due to the consistent and high number of actions completed by our residents, Newark & Sherwood District has avoided 101,619kg of CO_2e since beginning our involvement in the programme in 2021.

10.0 NSDC Corporate decarbonisation plan delivery forecast

	Carbon trust proposals	NSDC revised program of site improvements. Taking account of building age and recent capital investment improvements.	Carbon Reduction Update 2025	Implementation timeframe, 2030 Target (Scenarios 1 and 3)	Implementation timeframe, 2035 Target (Scenarios 2 and 4)
Phase 1	Newark Leisure Centre Dukeries Leisure Centre Southwell Leisure entre* Blidworth Leisure Centre*	Vicar Water Blidworth Leisure Centre* Newark Beacon Sconce and Devon Park Newark Leisure Centre Dukeries Leisure Centre	Solar Completed Air Source Heating Completed Solar Completed LED Planned 2025 Solar Completed LED Completed Solar Completed LED Planned 2025 Solar Completed	2025-26	2025-28
Phase 2	Palace Theatre Brunel Drive Depot Newark Beacon National Civil War Centre Farrar Close Store & Office*	Brunel Drive Depot Castle House Sherwood Arts & Crafts Centre	Part LED completed Part Solar Completed Efficient Air Con /part LED Completed	2027-28	2029-31
Phase 3	Castle House Vicar Water Sconce and Devon Park Sherwood Arts & Crafts	Palace Theatre National Civil War Centre	Conservation and listed building Conservation and listed building	2029-30	2032-35
***On Hold**		Southwell Leisure centre Farrar Close Store & Office Blidworth Leisure Centre	Pending Investment Decisions Planned Demolition in 2025/26 Not Solar suitable		

Local Area Energy Plan (LAEP)

What is it?

- The LAEP is an evidence-based approach led by local government and developed collaboratively. The information gathered will lead to the development of a masterplan identifying the most cost-effective pathway for local areas to reach net zero targets and realise local benefits.

Timeline:

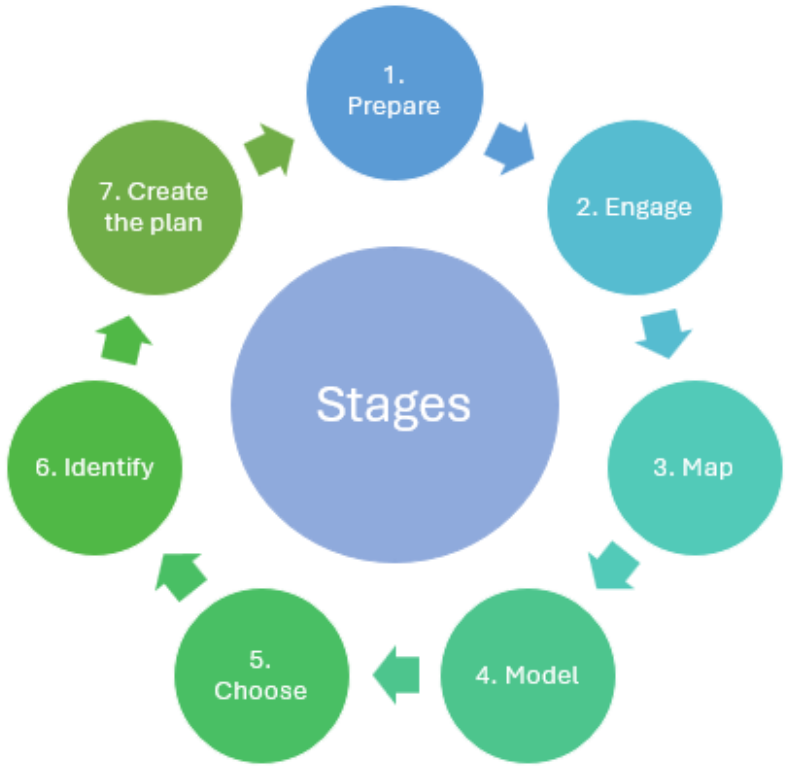
- Phase 1: Sept 24 – May 25 (Stage 1-4)
- Phase 2: June – July 25 (Stage 5-6)
- Phase 3: July – Sept 25 (Stage 7)

Scope:

- Carbon Emissions across the District
- Energy Use across the District

Targets:

- Reach Carbon Net Neutrality by 2035



Local Area Energy Plan (LAEP)

Energy Use Scope