



Winchester City Council

# Winchester District Carbon Neutrality Action Plan 2023-2030

Final – December 2023

## INTRODUCTION

The council remains committed to its climate emergency declaration and the ambitious targets it set to be carbon neutral organisation by 2024 and district by 2030.

This year it has an enhanced focus of Greener Faster in its council plan and “the pressing need to reduce the Winchester district’s carbon footprint”

“Dealing with the climate crisis and reaching carbon neutrality is the city council’s overarching priority. Recent extreme weather events have demonstrated urgent action is needed to avoid catastrophic climate change and the associated nature crisis. We all need to play our part in tackling this challenge and hand our district to our children and grandchildren in a better state than it is now.”



We commissioned the Winchester District Carbon Neutrality Roadmap to show us the pathways and nature and scale of interventions needed if we are to achieve our targets. This forms the basis and foundation for this new Carbon Neutrality Action Plan

When the council adopted the Carbon Neutrality Roadmap (October 2022) as the evidence base from which to develop future carbon reduction strategy it stated:

“This Roadmap is an important stage in providing the guidance needed to focus everyone’s efforts to the most effective carbon reduction strategies to help meet the carbon neutrality target for the district. Vital to its success will be the contribution made by not only the council but also the district residents, businesses and institutions. The reports key messages are:

- Net zero strategies should sit within a broader policy framework that connects with issues such as wellbeing, inequality, and biodiversity.
- Communication is a key issue and working with local partners and citizens is vital in achieving carbon neutrality and a just transition.
- Winchester needs to be realistic and targeted in what it can achieve.”

We have heard from our stakeholder on what is important to them and what action should be taken.

In January 2023 the council formally received and noted the Winchester District Climate Assembly 2022 report from WinACC/Winchester Together for our Planet.

The Assembly saw around 70 people come together on 22nd October 2022 to debate “*what changes would they support to enable a fair transition to a cleaner, greener, more affordable District?*” Topics discussed included energy, transport,

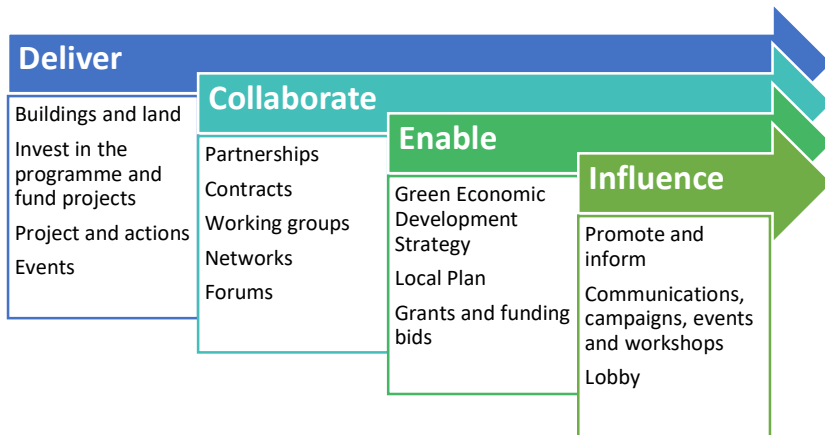
reversing our throwaway culture and food. The Assembly concluded with six prioritised calls for action:

1. Increasing local supply of renewable energy
2. Enabling active travel: less vehicle traffic
3. Encouraging a circular economy
4. Eating local seasonal food and cutting food waste
5. Greener homes and buildings
6. Enabling active travel: better buses

**Delivery and Future Engagement**

Delivery Levers

The City Council will play a leading and active role to drive change at the scale and pace needed to be greener faster. It will use the following levers:



Engagement

The council will organise and or help facilitate as range of ways to engage the public, stakeholders, partners and delivery organisations. This includes:

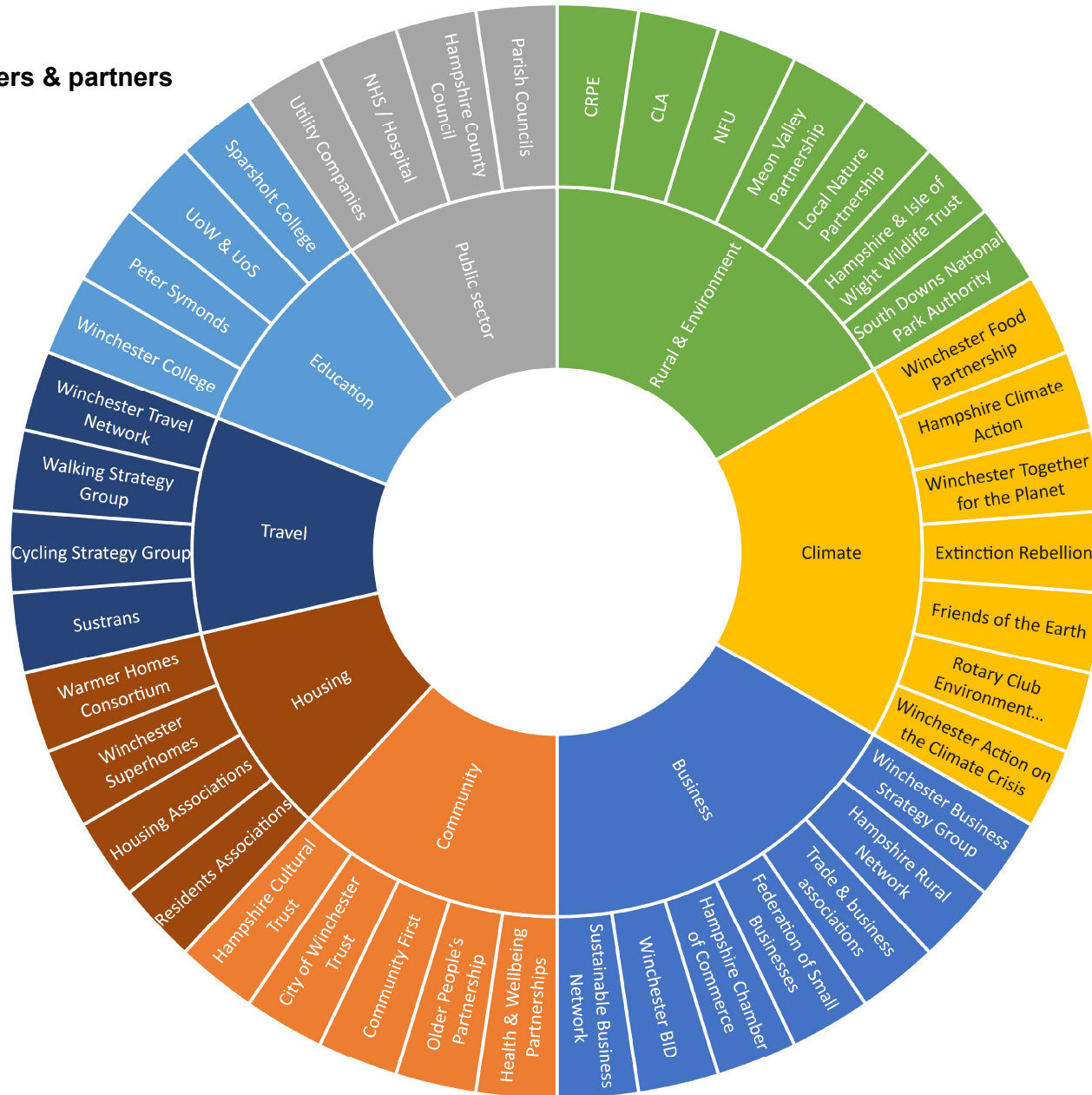
- Annual Sustainability / Climate Change Conference
- Regular Carbon Neutrality Open Forums
- Climate and Green Economy Strategic Partnership
  - Key partners and initiator of change; County Council; EM3 LEP; Universities and Colleges, Chamber of Commerce, Housing / Landlords etc.
- Task & Finish / Sector Groups
  - Transport
  - Renewable energy
  - sustainable tourism and culture
  - others as required.

We will support and participate in the Annual Winchester district Green Week as well as promoting and taking part in national awareness raising campaign days (when viable and feasible to do so).

Networks and Groups

The following diagram shows the range of organisations we work with. It is not exhaustive but demonstrates the breadth of this interested and involved in support this work.

Local stakeholders & partners



**SECTION 1: Winchester District 2030 carbon neutrality**

**District territorial greenhouse gas emissions**

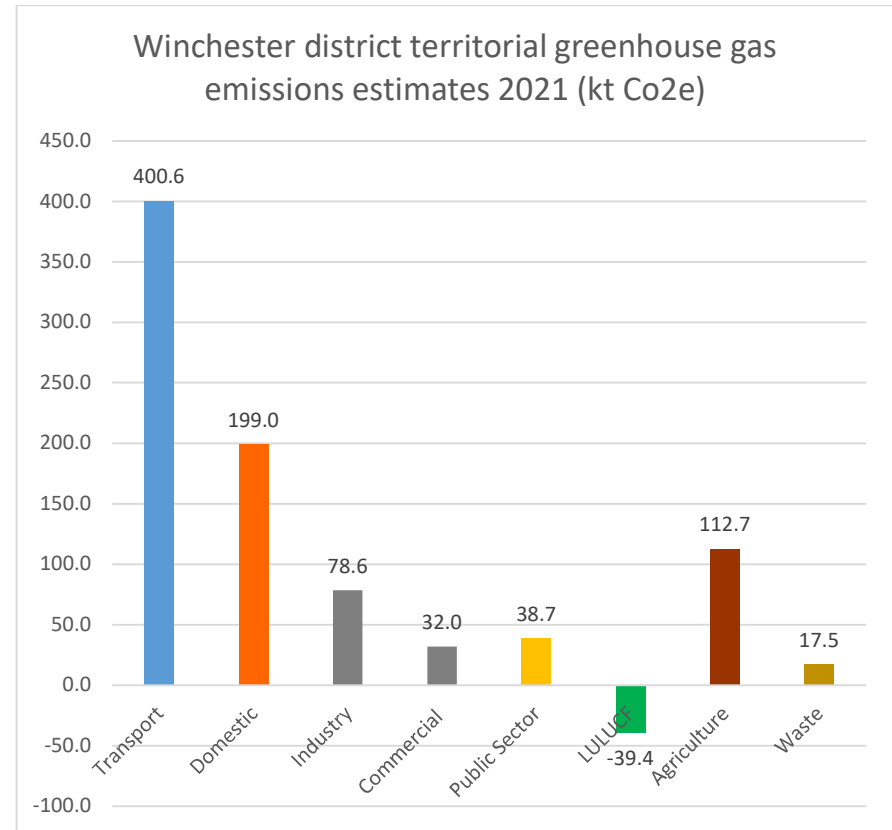
Winchester Action on Climate Crisis (WinACC) produce a detailed annual report analysing the Department for Energy Security and Net Zero (DESNZ) emission data. The reports can be accessed on their website. For this reason only a summary of the national data is included in this action plan. The most recent national data was published in June 2023 by for the 2021 territorial emissions in Winchester district.

Since 2020 DESNZ has published emissions data that includes carbon dioxide, with methane and nitrous oxide. This means that data for the district now includes waste management and agricultural land use.

In 2021 total missions for Winchester district were just under 840 ktCo2e

Source	2021 (kt CO2e)	% of net total emissions
Transport	400.6	47.7%
Domestic	199.0	23.7%
Industry	78.6	9.4%
Commercial	32.0	3.8%
Public Sector	38.7	4.6%
LULUCF	-39.4	-4.7%
Agriculture	112.7	13.4%
Waste	17.5	2.1%
<b>Total</b>	<b>839.6</b>	<b>100.0%</b>

The data shows that transport remains the highest contributor to the Winchester district emissions, with domestic (housing) next. These two sources account for just over 71% of all emissions for the district.

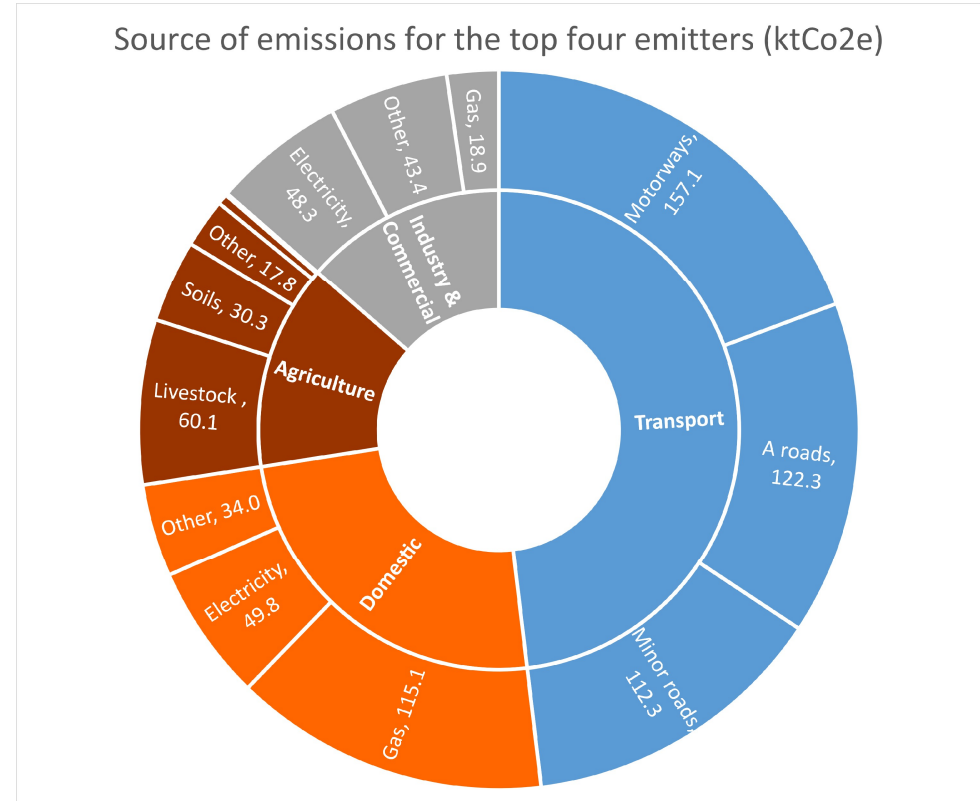


There are four sources that generate 97% of the district emissions. These are transport, domestic housing, industrial and commercial and agriculture. When looking at what is creating the emission it shows that:

- 39% of transport emissions comes from motorways
- 58% of domestic emissions comes from gas
- 53% of agricultural emissions come from livestock
- 44% of commercial & industrial emissions come from electricity

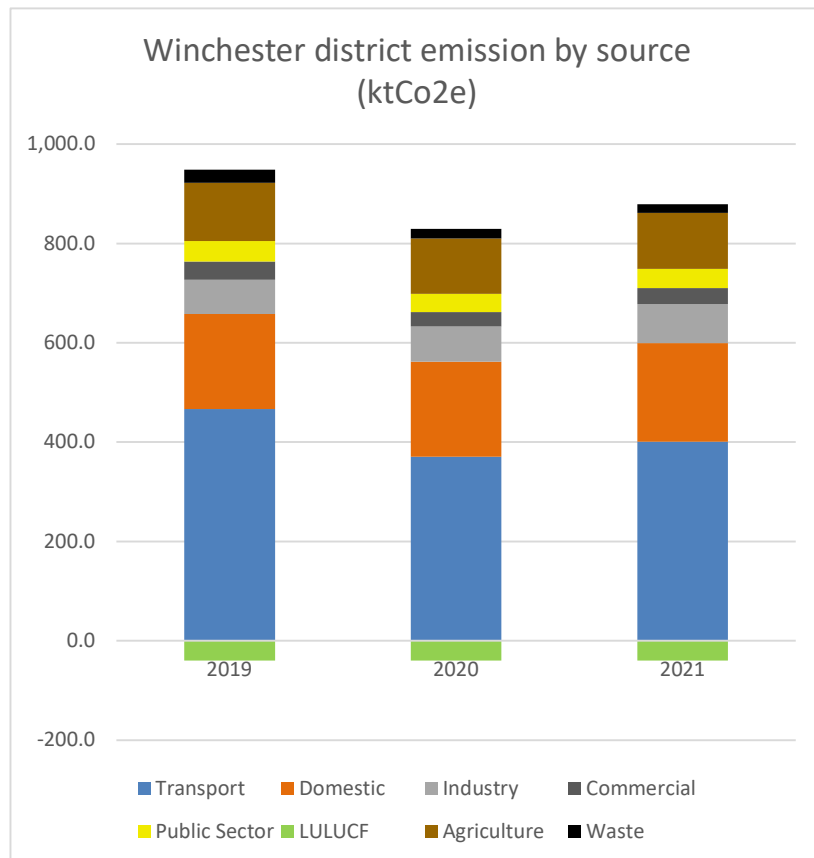
This is useful in helping to target and prioritise those areas over which we have the greatest control to change and those that will have the greatest impact.

<b>Transport</b>	<b>Motorways</b>	<b>157.1</b>	<b>39.2%</b>
	A roads	122.3	30.5%
	Minor roads	112.3	28.0%
<b>Domestic</b>	Electricity	49.8	25.0%
	<b>Gas</b>	<b>115.1</b>	<b>57.9%</b>
	Other	34.0	17.1%
<b>Industry &amp; Commercial</b>	<b>Electricity</b>	<b>48.3</b>	<b>43.6%</b>
	Gas	18.9	17.1%
	Other	43.4	39.3%
<b>Agriculture</b>	Electricity	3.9	3.4%
	Gas	0.6	0.6%
	Other	17.8	15.8%
	<b>Livestock</b>	<b>60.1</b>	<b>53.3%</b>
	Soils	30.3	26.9%

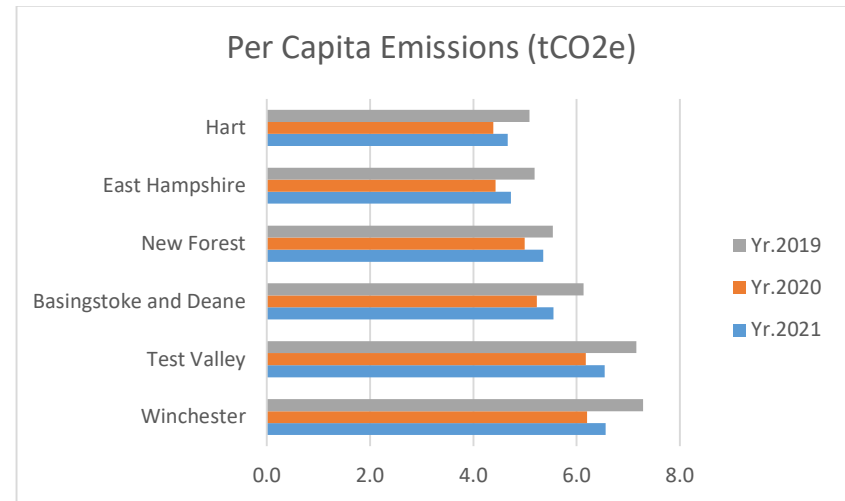


Trend data tables

It can be seen that after a 119.5 ktCo2e reduction overall emissions in 2020 from 2019 (due to reduced transport emissions during the Covid-19 lockdown) there has been a bounce back in 2021 with an increase of 49.9 ktCo2e. However overall emissions do remain under those pre-pandemic.

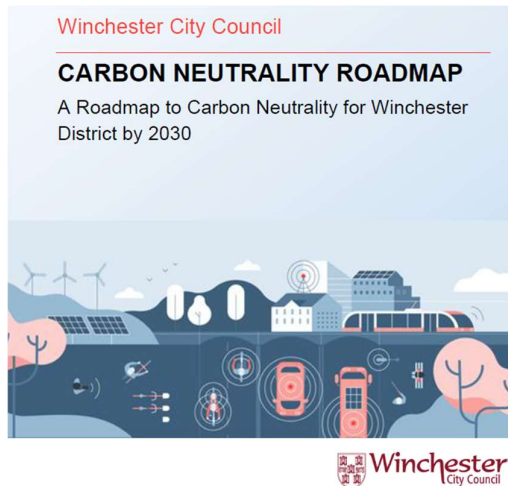


In comparing emissions per resident, the district has been consistently the highest of all Hampshire authorities. Over the past three year six local authorities have been above the Hampshire average.



Per Capita Emissions (tCO2e)	Yr.2019	Yr.2020	Yr.2021
Winchester	7.3	6.2	6.6
Test Valley	7.2	6.2	6.5
Basingstoke and Deane	6.1	5.2	5.6
New Forest	5.5	5.0	5.4
East Hampshire	5.2	4.4	4.7
Hart	5.1	4.4	4.7
<b>Hampshire average</b>	<b>5.0</b>	<b>4.4</b>	<b>4.6</b>

**Winchester District Carbon Neutrality Roadmap  
A pathway to carbon neutrality**



Carbon Neutrality Roadmap is an extensive and comprehensive piece of work that advises the council, its partners and stakeholders on the nature and scale of interventions that would be required to help the district reach carbon neutrality.

This Roadmap is an important stage in providing the guidance needed to target everyone's efforts to the most effective carbon reduction strategies to help meet the carbon neutrality target for the district. Vital to its success will be the contribution made by not only the council but also the district residents, businesses and institutions.

It provides the quantitative interventions and qualitative approaches for the council, residents, businesses and stakeholders to achieving carbon neutrality.

The Council's Business & Housing Policy Committee debated the Roadmap and, in recognition of the drive to be greener faster and as a matter of urgency, it recommended the need to:

- Prioritise and seek funding for highest impact actions within our scope.
- Identify ways to use developer (Community Infrastructure Levy) and other funding to drive or unlock change.
- Put carbon at heart of relationship with key partners to accelerate delivery.
- Scale up actions and increase pace of delivery.

Key stakeholders have provided extensive feedback on the Roadmap and in particular thanks is given to WinACC for the time they have taken to review and assess the Roadmap. The following points were raised in that feedback and responses are provided here to address queries and matters of clarity.

### 1. Consistent definitions

There are various commonly used terms for carbon emissions such as "greenhouse gases", "CO<sub>2</sub>", "CO<sub>2</sub>e", and "carbon". A greenhouse gas (GHG) is any gas in the atmosphere which absorbs and re-emits heat from the sun, thereby warming the atmosphere.

The most common GHGs in the atmosphere are water vapour (the most abundant), carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O) and ozone. GHGs occur naturally in the



Earth's atmosphere, but human activities, particularly the burning of fossil fuels, are increasing the levels of GHG's, causing global warming and climate change.

The Kyoto Protocol is an international treaty for controlling the release of GHGs from human activities and names a basket of gases often referred to as the "Kyoto gases". Carbon dioxide equivalent or CO<sub>2</sub>e means the number of metric tons of CO<sub>2</sub> emissions with the same global warming potential as one metric ton of another greenhouse gas.

## 2. Territorial emission

The nationally available data issued by DESNZ is based on territorial emissions and therefore these will be used as verified and comparable data. The territorial emissions data for Greenhouse Gases (GHG) that includes methane and nitrous oxide are included in this report.

## 3. Large Scale Renewable Energy Scheme

The Roadmap identifies 50MW requirement from large scale renewable energy as one of the key levers to achieving a carbon neutral district, However this is viewed as insufficient and unclear as the scale and number of schemes. Therefore, the council fully accepts the Roadmap recommendation with regard to the need for utility scale solar PV but is not stipulating the 50MW quantity form of limit. The council is working to encourage further utility scale renewable energy through its own activities and through the emerging local plan.

The national picture is shifting regarding other forms of renewable energy generation, including onshore wind and a planning application has recently been granted for an anaerobic digestion plant at Three Maids Hill. Planning has

also been granted for 59 MW capacity battery storage in the district.

The council has designed its emerging Local Plan to encourage large scale renewable energy schemes. Policies CN1, CN2 & CN5 should make it easier for renewable energy schemes to come forward.

The inclusion of the LETI requirement for low energy housing will mean new housing development will include renewable energy sufficient to power the homes as standard and PV arrays will accompany new housing developments.

## 4. How is the carbon saving for industry calculated.

The carbon saving figures used in the report are total estimated saving between 2022 (the baseline year) and 2030 opposed to annual emissions.

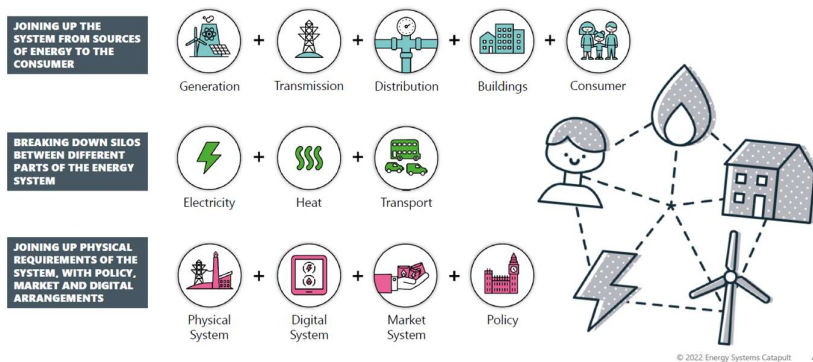
## 5. Transport and decarbonising energy supply

The Roadmap recommends the installation of EV charging infrastructure to support the decarbonation private cars. We do acknowledge that the report does not sufficiently mention the need to decarbonise the energy supply to achieve carbon emission reductions. See point 6. Energy generation and demand planning.

We also recognise the importance of continuing to work with Hampshire County Council, and other partners, on decarbonising passenger fleets and increasing active travel.

## 6. Grid capacity for future supply and demand

It is clear that future demand for electricity driven by EVs, ASHPs and removal of gas boilers will require a well planned upgrade of the electricity supply grid. The council is proposing to develop a Local Area Energy Plan (LAEP) to facilitate the process. In working with the DNO (electric supply network operator) to develop a strategic approach, the council hopes to facilitate a smoother and faster transition to achieve the 2030 actions.



A LAEP sets out the change required to transition an area’s energy system to Net Zero in a given timeframe.

Demand for electricity will continue to grow arising from electrifying transport and heating systems, new housing development and renewable energy connections to name a few.

The council has initiated the process through initial meetings with SSE via the Greater South East Net Zero Hub. Funding will be required for this process and Hampshire County Council’s involvement will also be needed. The ambition is to

have a LAEP in place for the Winchester District by early 2025.

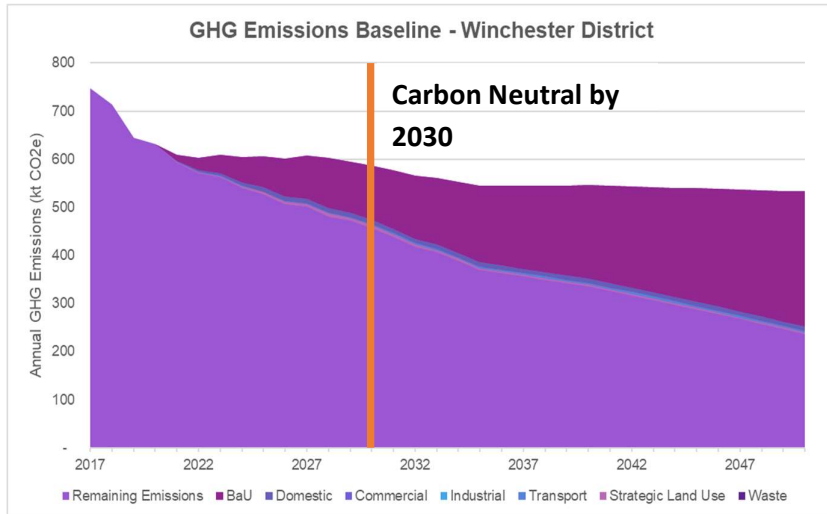
7. Tree planting rationale for number

We agree that tree planting in and of itself provides limited carbon sequestration and setting an arbitrary annual target is not meaningful. We do agree that ensuring the health and ability of existing trees to flourish is important.

The road map estimated that there is currently nearly 13,000 ha of land planted with trees in the district and the total carbon stored in the district habitats is 11,484 ktCo2. Further, their projection for carbon stored through carbon sequestration by 2023 would be an extra 557 ktCo2. This demonstrates that the protection and health of the existing trees and habitats is of prime importance and this is reflected in the approach adopted in the council’s Tree Strategy 2022.

**Carbon Roadmap - High level conclusions**

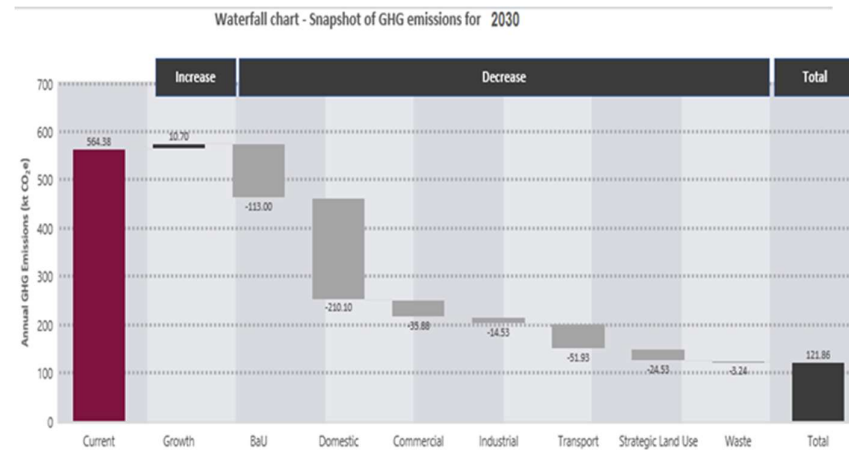
Using the data available at the time, the CNAP actions modelled in the Carbon Roadmap represented only 7.5 KtCO<sub>2</sub> avoided by 2030. This will not be sufficient to reduce emissions to reach carbon neutrality.



Therefore an additional 16 interventions were proposed and modelled to set out a new pathway. The graph shows the impacts of implementing the interventions modelled at medium scenario. This leaves a residual 377 ktCO<sub>2</sub>e from 2022 baseline created in the Roadmap emission levels.

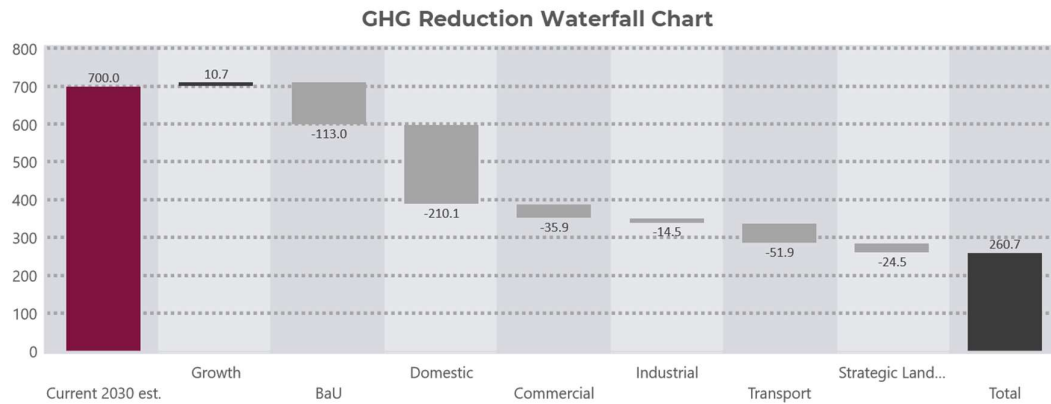


By looking at a scenario of a very high delivery rate the impact is reduced level of residual emissions to 121 ktCO<sub>2</sub>e by 2030 or a 78% reduction.



These trajectory charts have been up-dated with the new baseline data and carbon savings achieved from implementation of projects under the interventions and pathways.

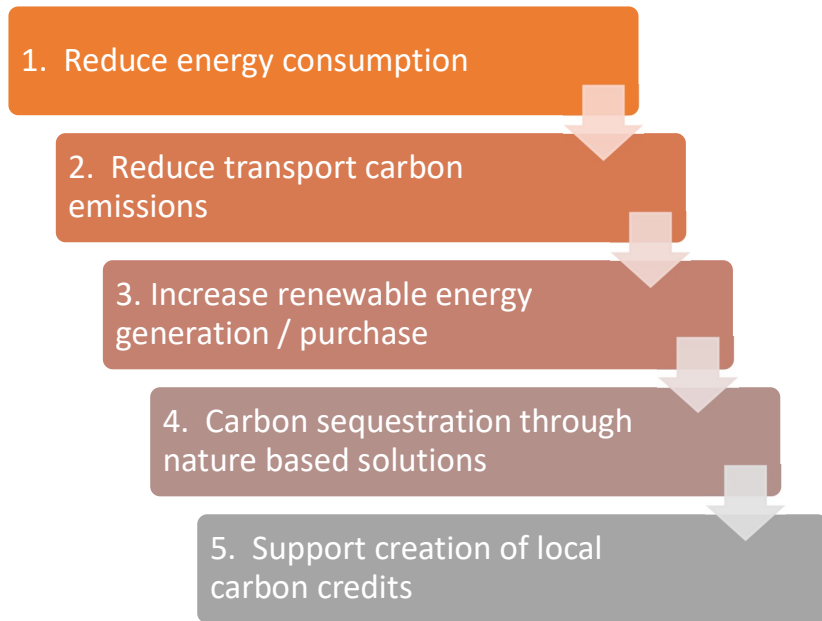
The figure below shows the impact of updating the model baseline with the 2021 DESNZ district GHG emissions data. The residual emissions in 2030 is now 260.7 ktCo2e.



**PATHWAY TO REACHING CARBON NEUTRALITY  
A NEW APPROACH**

To focus efforts and prioritise actions five pathways will be used to frame the actions and interventions needed for the district and the council to be net zero.

Five pathways:



**Roadmap Interventions by pathways**

The 16 Roadmap interventions are grouped into the pathways with total carbon (CO<sub>2</sub>e) by 2030 for each. This gives a total carbon saving of 1116 ktCo<sub>2</sub>e. For each of these pathways and to show how the carbon saving will be made the 16 Roadmap intervention are collated in the following tables.

<b>1. Reduce Energy Consumption</b>		• 130 ktCo <sub>2</sub> e	Carbon saving ktCo <sub>2</sub> e
<i>Domestic</i>	1. Installation of energy efficiency measures (EEMs) within domestic dwellings		26
<i>Commercial</i>	4: Support installation of energy efficiency measures in offices, retail, and other commercial property types		44
<i>Industrial</i>	7: Support (and mandate) installation of energy efficiency and heating retrofit measures within industry		60
<i>Total ktCO<sub>2</sub>e saving by 2030</i>			130

<b>2. Reduce transport carbon emissions</b>		<b>• 717ktCo2e</b>	Carbon saving ktCo2e
<i>Reduce vehicle use</i>	9: Promote hybrid working to reduce carbon emissions from commuting	10	
	10: Improve active travel infrastructure and public transit options	17	
<i>Carbon saving sub total</i>		27	
<i>Decarbonise vehicles / low carbon fuels</i>	11: Decarbonise passenger service fleets through Hampshire County Council procurement (bus and taxis)	56	
	12: Work with local business and procurement teams to decarbonise freight fleets	34	
	13: Invest in EV charging to decarbonise private cars	600	
<i>Total ktCO2e saving by 2030</i>		717	

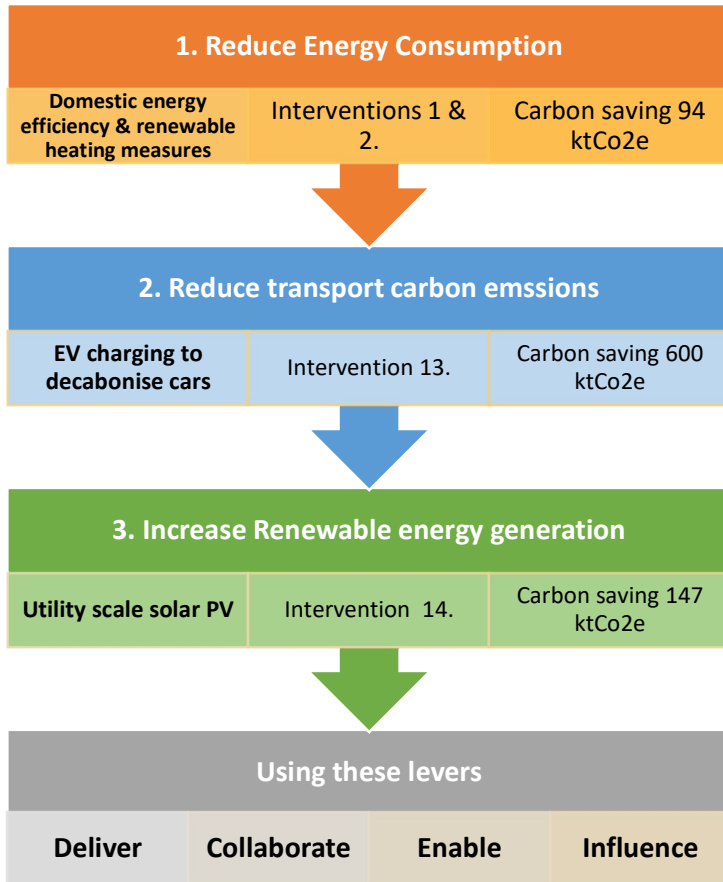
<b>3. Increase renewable energy generation / purchase</b>		<b>• 251 kt CO2</b>	Carbon saving ktCo2e
<i>Domestic</i>	2: Install renewable heating measures to provide heating and hot water within domestic dwellings	68	
	3: Install solar PV microgeneration (primary or rooftop solar) within domestic dwellings	22	

<i>Commercial</i>	5: Low carbon heating systems installed in commercial properties	4
	6: Install 8MW of rooftop solar PV on commercial properties across Winchester district	7
<i>Industrial</i>	8: Support and incentivise businesses to install Solar PV on industrial units	3
<i>Land use</i>	14: 50MW of utility scale solar PV installed on poorer quality land	147
<i>Total ktCO2e saving by 2030</i>		251

<b>4. Carbon removal / Waste Management</b>		<b>• 18.1 ktCo2</b>	Carbon saving ktCo2e
<i>Create natural based solution for carbon removal</i>	Land use 15: Plant a minimum of 400 trees per year (enhanced CNAP target of 100 trees)	0.1	
<i>Waste / Circular economy</i>	16: Increase recycling to 65% by 2035	18	
<i>Total ktCO2e saving by 2030</i>		18.1	

Priority interventions

To provide focus for delivery three interventions have been identified as contributing nearly 75% of the emissions reduction modelled. These are:

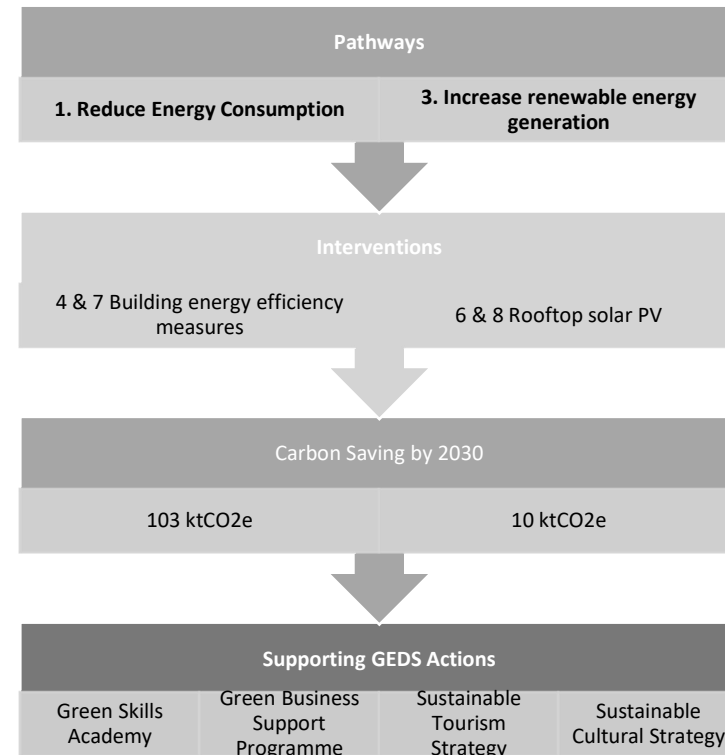


Supporting interventions

To support these priority interventions and to address the key issues for the district, supporting and complementary activity will also be progressed. This includes:

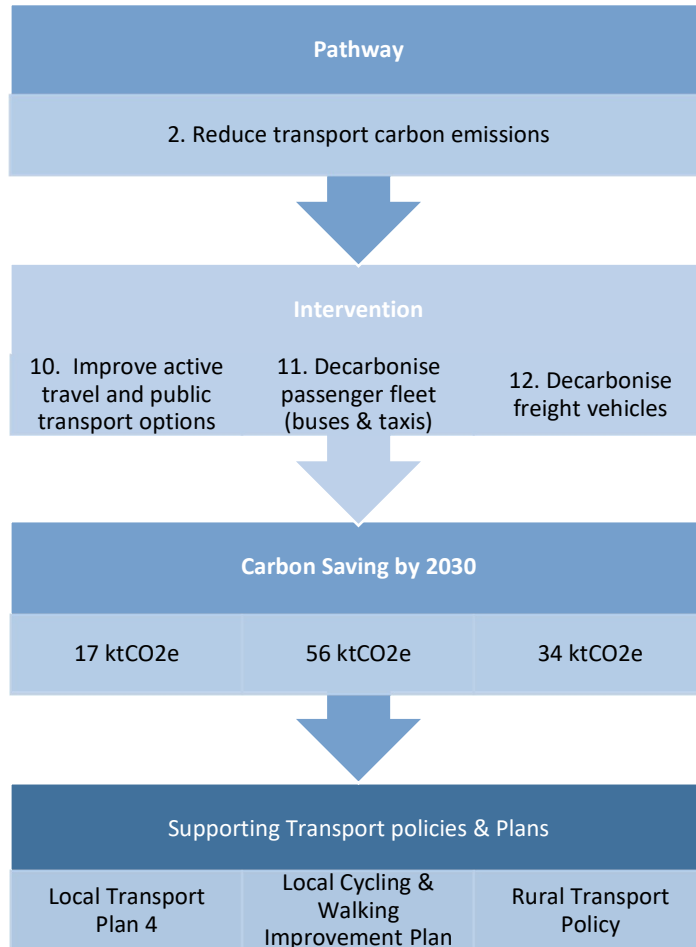
*Commercial & Industrial*

Business investment in energy efficiency & generation aligned with actions in the Winchester District Green Economic Development Strategy with a potential total carbon saving by 2030 of 113 ktCO<sub>2</sub>e.



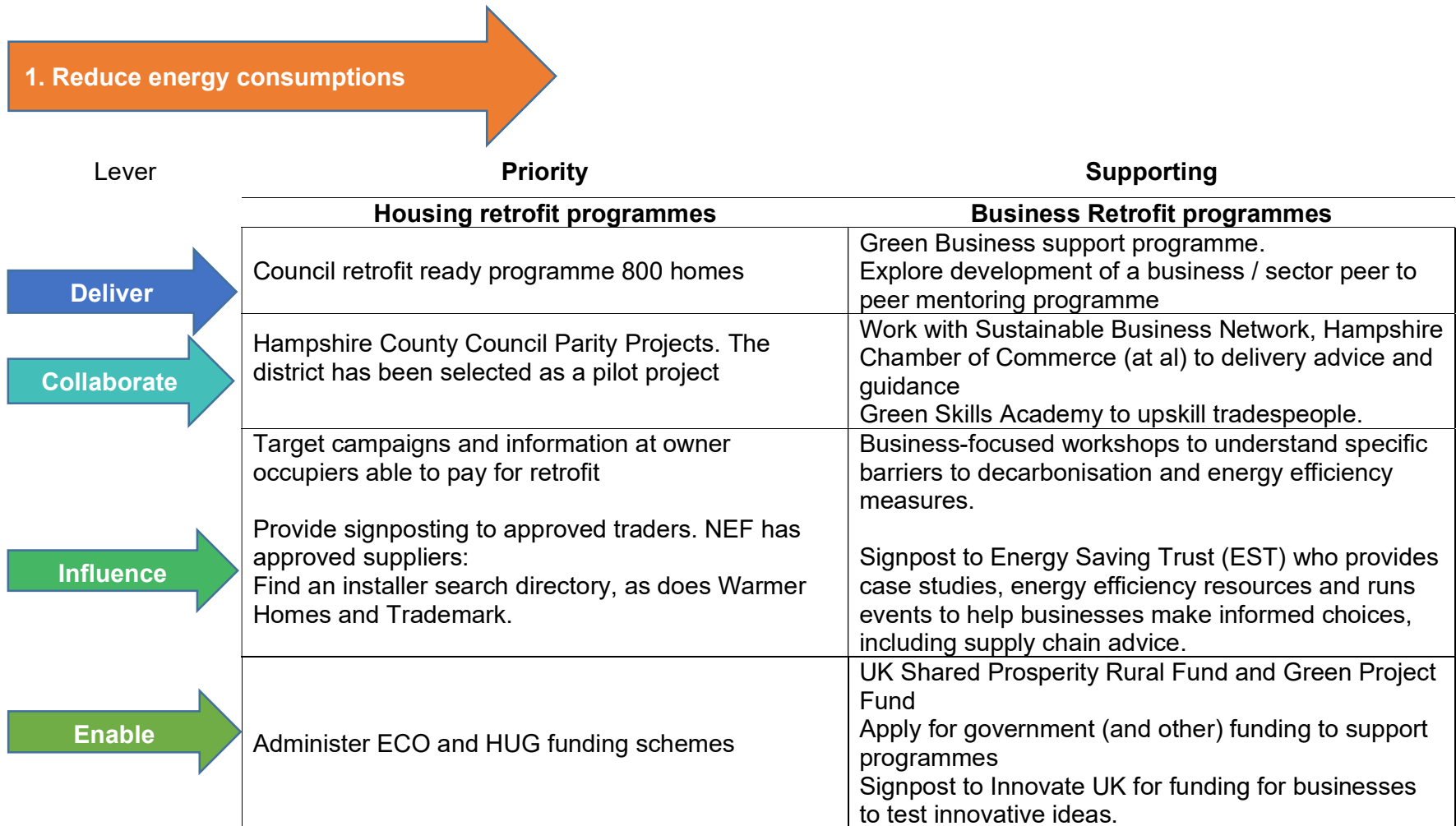
*Transport*

Active travel and decarbonising passenger vehicles initiatives has the potential for 107 ktrCO<sub>2</sub>e by 2030. This are of work will require policy and investment at both county and national level.





**Winchester District Pathway to Carbon Neutrality – Action Plan**

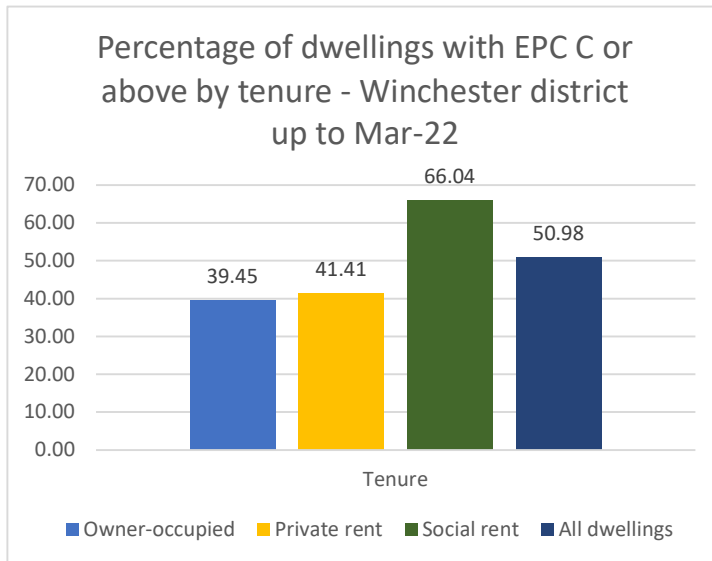
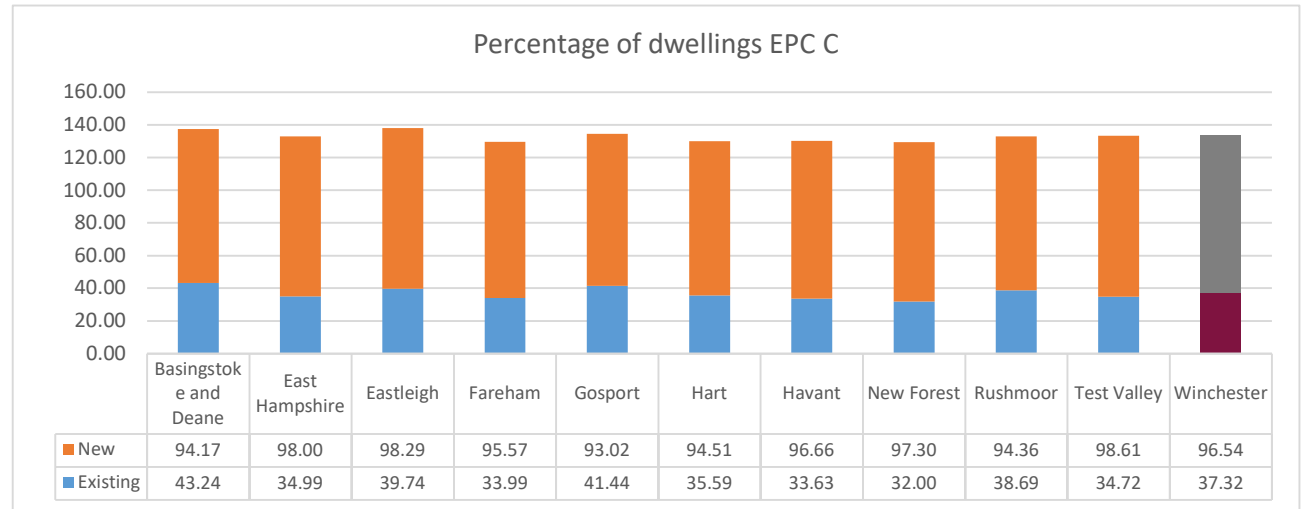


Interventions and targets

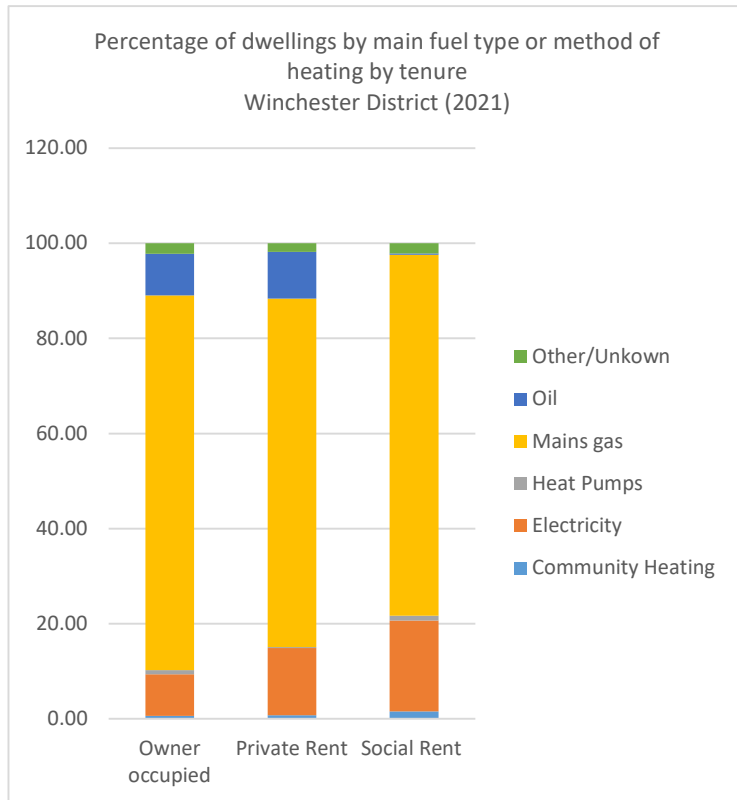
	<b>Intervention</b>	<b>Carbon Saving by 2030 ktCO2e</b>	<b>2030 targets</b>	<b>Baseline</b> (latest data as at June 2023)	<b>Target/Focus</b>	<b>Annual rates (total/seven years)</b>
Priority	1. Energy efficiency measures in housing	26	Measures installed in third (33%) of dwellings	Total no. of dwellings = 54,000	Target private ownership with below EPC rating C = 22,000	850 p.a.
	2. Renewable heating measures in housing -	68	Measures installed in 11% of dwellings	Total no. of dwellings = 54,000		5,950 total
Supporting	4. Commercial & 7. Industrial energy efficiency retrofit measures in buildings	103	Measures installed in 17% of commercial & industrial buildings	2257 commercial buildings 1217 industrial buildings  Total = 3474	Commercial <ul style="list-style-type: none"> <li>Offices = 1062</li> <li>Visitor economy: Arts, community and leisure, hospitality = 455</li> </ul> Industrial <ul style="list-style-type: none"> <li>Factories = 778</li> <li>Warehouses = 439</li> </ul>	85 p.a.  590 total

Supporting data

*Housing (Domestic Dwellings)*



Housing Heating sources Winchester District		
	2021	
	Total No.	% of total
No central heating	467	0.9%
Mains gas only	35535	68.7%
Electric only	3986	7.7%
Tank or bottled gas only	1303	2.5%
Oil only	3921	7.6%
Wood only	157	0.3%
Solid fuel only	89	0.2%
<b>Renewable energy only</b>	<b>488</b>	<b>0.9%</b>
<b>District or communal heat networks only</b>	<b>99</b>	<b>0.2%</b>
Other central heating only	193	0.4%
Two or more types of central heating (not including renewable energy)	4784	9.3%
<b>Two or more types of central heating (including renewable energy)</b>	<b>693</b>	<b>1.3%</b>
<b>Total count</b>	<b>51715</b>	



*Commercial/Industrial*

Number non-domestic buildings by sector 2020		
<b>Commercial</b>	Arts, Community and Leisure	152
	Hospitality	303
	Offices	1062
	Shops	740
	<b>Sub total</b>	<b>2257</b>
<b>Industrial</b>	Factories	778
	Warehouse	439
	<b>Sub total</b>	<b>1217</b>
<b>Public sector</b>	Education	94
	Emergency Services	8
	Health	57
	<b>Sub total</b>	<b>195</b>
<b>Other</b>		476
<b>Total</b>		<b>4109</b>

**2. Reduce transport carbon emissions**

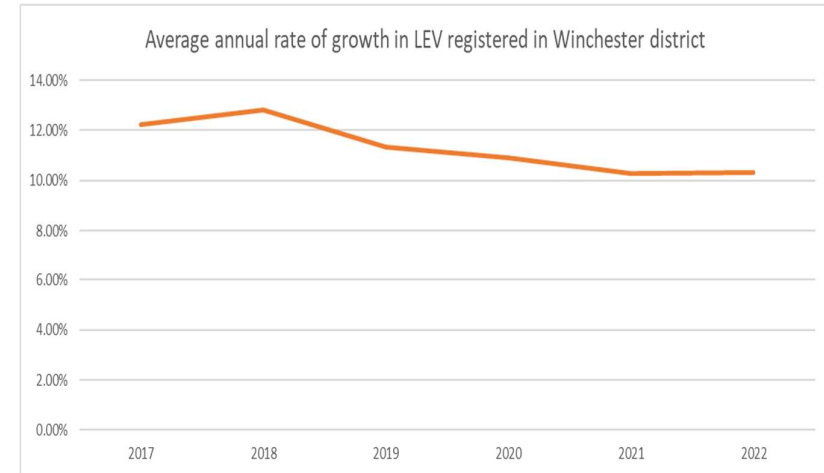
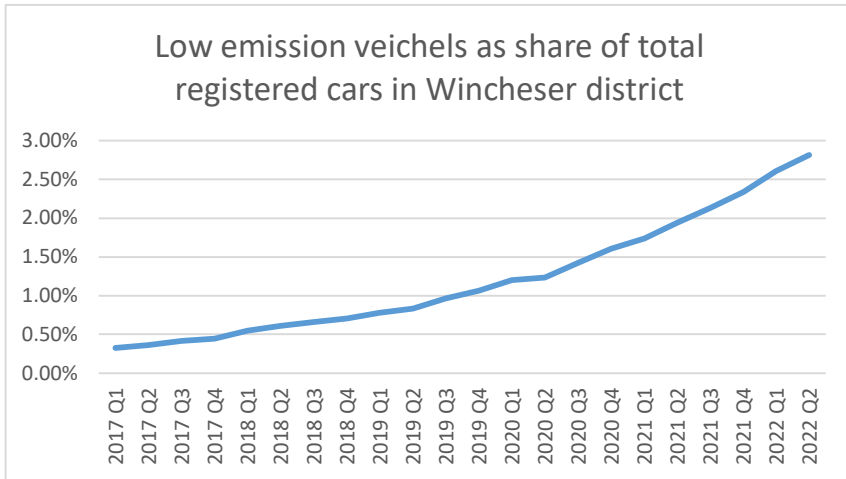
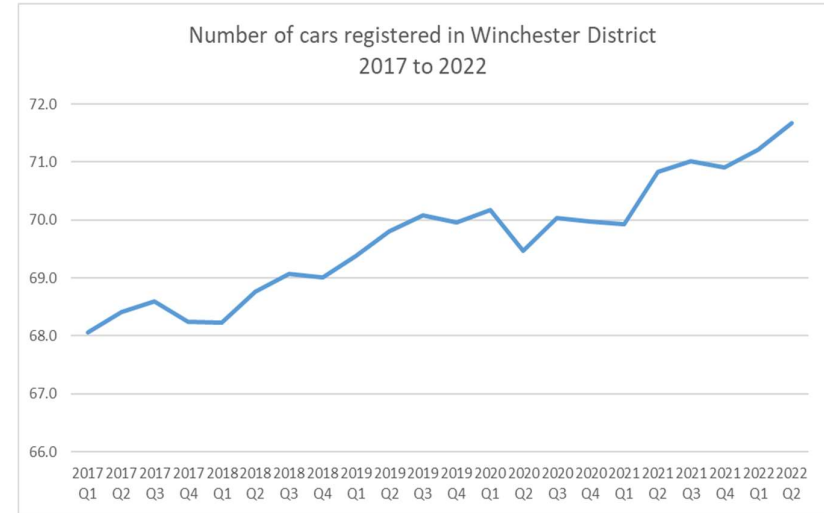
Lever	Priority		Supporting
	EV Charging infrastructure	Active travel / reduce car use	Low carbon bus & taxis
<b>Deliver</b>	Local Plan requires new developments to install EV charging	District LCWIP will bring forward plan for improved cycling and walking routes across district.  Local Plan requires new developments in the district to consider mobility hubs.	Park & Ride bus fleet new contract to include low carbon fuel options
<b>Collaborate</b>	Work with HCC and £6.62m allocated under the LEVI fund for provision of on-street EVCPs.	Electric Car Clubs – investigate capacity to roll out across market towns  Work with HCC on Local Transport Plan 4 & implications for Winchester district	Work with HCC on bus services including its Enhanced Bus Partnership Plan; liaise with operators to discuss opportunities
<b>Influence</b>		Campaigns, events and information to change behaviours	
<b>Enable</b>	UK Rural England Fund grants to March 2025	Delivery Hubs – working with Solent Transport on a potential hub for the city centre.	

Interventions and targets

Intervention	Activity	Carbon Saving by 2030 ktCO2e	2030 targets	Baseline (latest data as at June 2023)	Target / Focus	Annual targets
Priority	13. Invest in EV charging to decarbonise private cars	600	16% of cars electrified	71,655 – registered cars Q2 2022  Total low emission vehicles = 2,018 = 2.8%	11,465	1,650
Supporting	10. Reduce car journeys by improving active travel infrastructure and public transit options	17	68% of journeys are currently made by car;	50% of trips by car;	18% reduction	2.6% reduction p.a.
	11. Decarbonised passenger service fleets	56	100% - Buses decarbonisation by 2030 100% - taxis to be decarbonised by 2030	700 registered buses and coaches  650 licenced taxis (by WCC)		100 p.a.  93 p.a.

Supporting Data

	Winchester District
Vehicle type	<b>2022 Q2</b>
Heavy goods vehicles	1,177
Light goods vehicles	10,720
Buses and coaches	700
Cars	71,665



**3. Increase renewable energy generation**

Lever	Priority	Supporting	
	Utility scale energy generation	Roof top solar	Community energy schemes
<b>Deliver</b>	<p>Consultant work to identify viable site and development business case for feasible site(s)</p> <p>Investment in development of local schemes</p>	<p>Investigate further sites for PV installation based on Biffa and Marwell model</p>	<p>Support through grants schemes. An example is communities working with Centre for Sustainable Energy’s to deliver Future Energy Landscapes workshops.</p>
<b>Collaborate</b>	<p>Share information and work with landowners on the potential of their sites for energy generation arise from the research feasibility work by consultants Buro Happold</p>	<p>HCC Solar Together scheme is providing low cost solar, ASHP and batteries.</p>	<p>Support and work with WinACC’s WeCAN project Work with HCC on the delivery of their funded programme.</p>
<b>Influence</b>	<p>Awareness campaigns and information sharing on renewable energy generation options</p>	<p>Commercial properties that are rented will require co-ordination between landlord, renter and supplier to install solar PV.</p>	<p>Support local networks, share information and case studies etc. Possible community energy forum</p>
<b>Enable</b>	<p>Emerging Local Plan polices to support renewable energy generation schemes</p>	<p>Business support programme to guide and advice on options. Case studies on models that have been used. Facilitate access to external grants</p>	<p>UK Shared Prosperity Rural Fund and council green project funds to support development of schemes</p>



Interventions and targets

Intervention	Activity	Carbon Saving Cumulative by 2030 ktCO <sub>2</sub> e	2030 targets	Baseline (2021)	Target / Focus	Annual targets
Priority	14. Utility scale renewable energy generation	147	A minimum of 261 MWp installed	123 MWp installed	50 MWp as a minimum in addition to 88 MWp in planning pipeline	21
Supporting	3. Domestic roof top solar	22	Equivalent of 27MWp	assuming 3kW installed per property).	9,000 dwellings	1,285
	6 & 8. Commercial & industrial roof top solar	10	8MW of rooftop solar PV on commercial property 3.5 MW on industrial property	400 panels = 0.16WM peak (Vaultex as example / mid-size)	50 installations	7 pa.
	Community energy schemes	tbd	tbd	tbd	tbd	tbd

Supporting Data

The district already hosts the following utility scale renewable energy installations with a total installed capacity of 123 MW. In addition, there are a further three solar farms schemes that have submitted planning applications (including Locks Farm recently granted), totalling 88 MW capacity. Therefore the council has set a minimum target of 261 MWp installed which incorporates planning schemes already in the pipeline with the addition of 50 MWp to this.

Operator (or Applicant)	Site Name	Technology Type	Installed Capacity (MWelec)
Winchester Power	Stockbridge Road	Battery	10.00
Balanced Grid Solutions	Titchfield Lane	Battery	49.00
Environmental Asset Management	Three Maids Hill Solar Farm	Battery	
Lightsource Renewable Energy	Bishops Sutton	Solar Photovoltaics	12.00
Solafields U/Bishop's Waltham Renewables Ltd	Bishop's Waltham Solar Farm	Solar Photovoltaics	12.00
NextEnergy Solar Fund (NESF)	Raglington Farm	Solar Photovoltaics	5.80
Bluefield Solar Income Fund	Southwick Estate	Solar Photovoltaics	48.00
Foresight	Field House Solar / Hursley Road	Solar Photovoltaics	6.40
NESF (formerly Earthworm/Waltham Solar)	Forest Farm	Solar Photovoltaics	3.00
Jardin Smith International	Fontley House Farm	Solar Photovoltaics	10.00
Environmental Asset Management	Three Maids Hill Solar Farm	Solar Photovoltaics	25.00
Solar Advanced Systems T/A SAS Energy	Concorde Way, Segensworth - Solar Panels	Solar Photovoltaics	1.04
Thompson Brothers (Esher) Limited	Pet Centre Garsons Garden Centre, Fontley Road - Solar Panels	Solar Photovoltaics	0.21
		<b>Total Solar Photovoltaics</b>	<b>123.445</b>

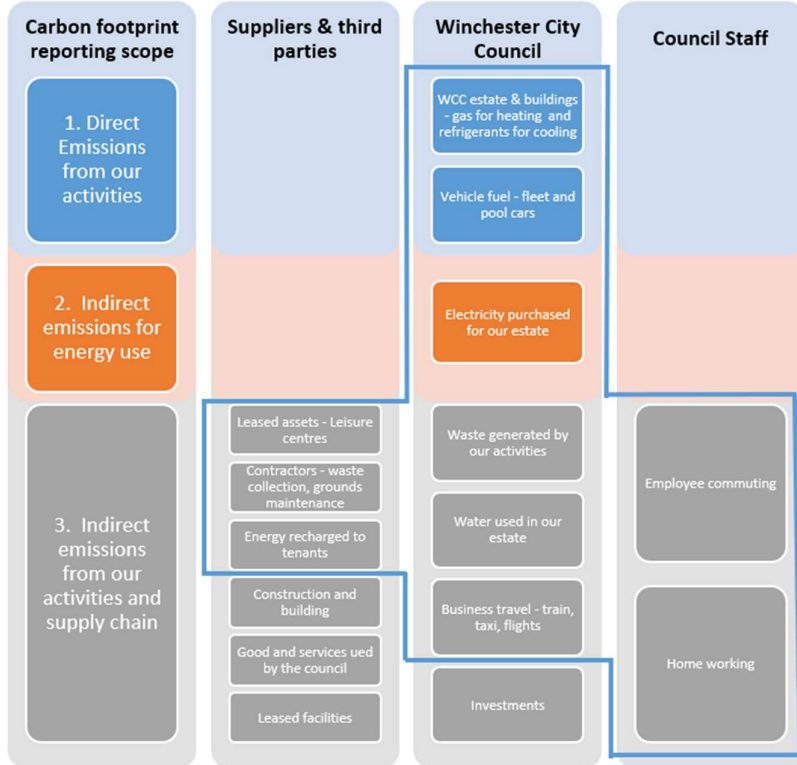
Site Name	Technology Type	Proposed Capacity (MWelec)
Locks Farm, Bishops Waltham	Solar Photovoltaics	18
Land South Of Crabwood Sarum Road Sparsholt Hampshire	Solar Photovoltaics	20
Denmead	Solar Photovoltaics	50
<b>Total</b>		<b>88</b>

**Section 2 Winchester City Council Carbon Emission and Pathways to Carbon Neutrality**

**Winchester City Council**  
**Meeting the 2024 carbon neutrality target**

**Council Carbon Footprint Report 2021-2022 - Scope of Emissions Reported**

The diagram below summarises the wide range of emissions that the council has included within the scope of our carbon footprint   and those that are excluded from scope.



Since the baseline year of 2017, there have been some substantial additions to council operations. These include:

- Chesil Lodge, an extra car housing scheme containing 52 flats.
- Winchester Sport and Leisure Centre
- Barfield 2 Park & Ride Multi-Storey Car Park
- Addition of Staff Commute & home working emissions to the scope.

*Added since Baseline year (2017):*  
*Chesil Lodge*



*Barfield 2 Park & Ride extension*



*Winchester Sport & Leisure*



*Staff Commute & home working*



Results of WCC’s carbon footprint assessment by scope and source activity

Scope	Activity	tCO2e	
		Location-Based	Market-Based
1	Natural Gas	335.8	335.8
	Council owned car and van travel	66.92	66.92
	Refrigerants	34.49	34.49
	Kerosene	2.54	2.54
	<b>Scope 1 Sub Total</b>	<b>439.76</b>	<b>439.76</b>
2	Electricity generation	463.74	60.59
	<b>Scope 2 Sub Total</b>	<b>463.74</b>	<b>60.59</b>
3	Managed Leisure Centres*	1310.72	1532.25
	Contractor emissions**	1037.27	1037.27
	Park and Ride bus service	371.36	371.36
	Commuting	286.51	286.51
	Energy recharged to tenants***	256.2	240.6
	Waste	102.62	102.62
	Electricity transmission & distribution	41.04	3.24
	Business Travel - Grey Fleet	39.26	39.26
	Home-working	23.16	22.06
	Water (and wastewater)	11.02	11.02
	Rail travel	0.56	0.56
	Taxi travel	0.01	0.01
	<b>Scope 3 Sub Total</b>	<b>3479.74</b>	<b>3646.76</b>
	<b>Total tonnes of CO2e</b>	<b>4383.23</b>	<b>4147.12</b>
	<b>Tonnes of CO2e per employee</b>	<b>11.24</b>	<b>10.9</b>
	<b>Tonnes of CO2e per capita</b>	<b>0.03</b>	<b>0.03</b>

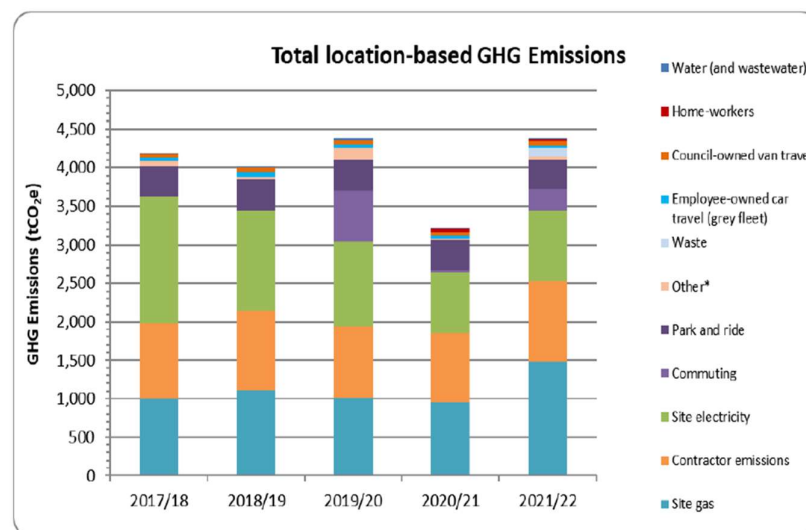
\*Includes natural gas and electricity (incl. transmission and distribution) for Winchester Sports and Leisure Park, Meadowside Leisure Centre and River Park Leisure Centre.

\*\*Includes Contractor car, van, lorry and other fuel use.

\*\*\*Excluding the managed leisure centres. Please refer to section 2.2 for information on the boundary for inclusion of sites in scope 3.

### Overall Trend in our Carbon Emissions

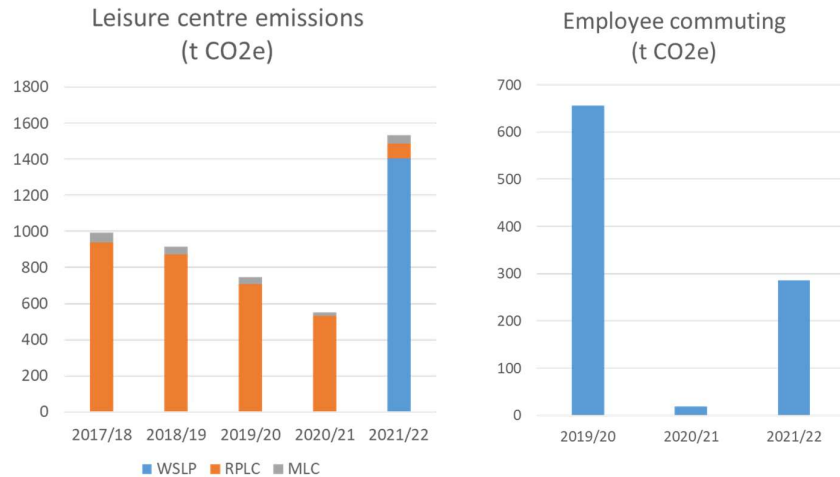
Since our CNAP footprint year of 2017/18, the council’s carbon footprint has increased by 5% on a Location Based calculation or reduced by 1% on a Market Based calculation.



The reductions in the carbon footprint that have been achieved are negated by new buildings and the staff commute being brought into scope within our carbon reporting.

- Bringing the staff commute within scope (2019/20) has increased the footprint by around 7%;

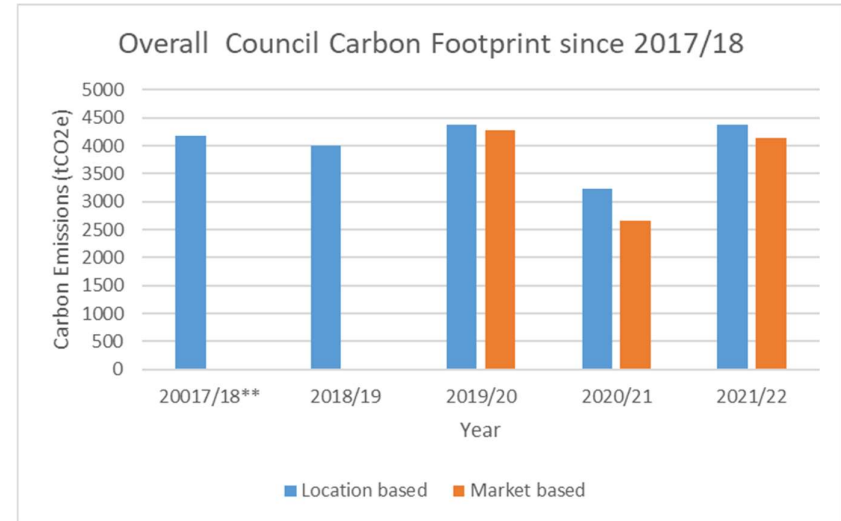
- Opening of Chesil Lodge, an adult social care centre with sheltered accommodation for over-55s has added 3.5% to our footprint;
- Opening of the Winchester Sport and Leisure Centre (2021/22) which is a significantly larger size and foot than the River Park Leisure Centre means that gas and electricity use have increase significantly. Electricity use from the leisure centres has increased by 32% since the baseline year on a Location Based calculation (or 54% on a Market Based calculation).



The council saw a reduction in footprint during the Covid-19 pandemic period, with office closures, considerable reduction in staff commuting and travel and closure of leisure centres. However, this has bounced back as the council and its services reopened.

Total emissions for the period 1st April 2021 – 31st March 2022 are:

- 4,383.23 tCO2e (location-based)
- 4,147.12 tCO2e (market-based)



The **location-based** method calculates carbon emissions based on the emissions intensity of the local grid area where the electricity usage occurs.

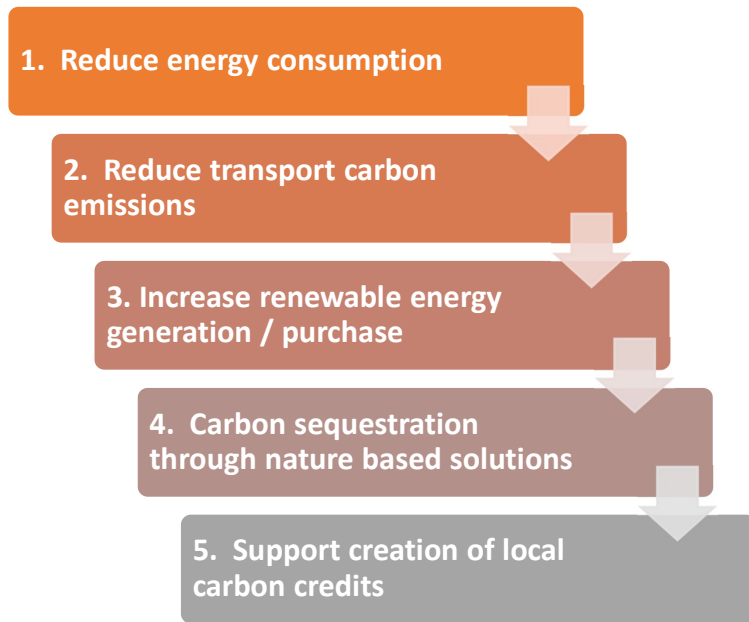
The **market-based** method calculates carbon emissions based on the electricity that organizations have chosen to purchase, usually evidenced through instruments like OFGEM’s Renewable Energy Generation of Origin (REGO) Certificates which demonstrate electricity purchased has been generated from renewable sources.

**PATHWAY TO REACHING A CARBON NEUTRAL COUNCIL**

By the end of 2024 the council needs to make carbon savings of nearly 4,400 tCo2e (location based).

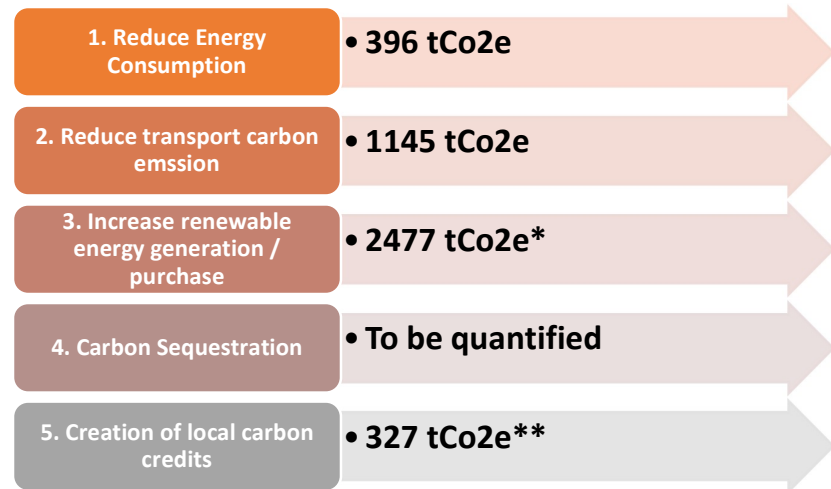
To focus efforts and prioritise actions five pathways will be used to frame the council’s work to the end of 2024.

Five pathways:



Residual Carbon Emissions and Off Setting Approach

Based on a forward trajectory of carbon reductions, using the latest annual Carbon Footprint report, the council is likely to need to offset an estimated 2,525 tCO2e in residual carbon emissions at the end of 2024 to meet the target set in its 2019 Climate Emergency Declaration. In line with the council’s approved Offsetting Policy, this will be met through investment in renewable energy generation (pathway 3) and the purchase of RGGOS i.e. green gas generated from non-fossil fuel sources such as anaerobic digestion plants (pathway 5).



**Location Based Scenario**

\* equates to 37 tCO2e additional solar energy from council operations, 2,445 tCO2e from large scale renewable energy generation.

\*\*Offset will comprise purchase of 'Green Gas' RGGO equating to gas use. Under this scenario, no carbon credits will be required.

The clear direction of the council's off setting policy is that purchase of carbon credits only be considered as the last option and that carbon elimination, reduction and removal actions should be taken first. Should the purchase of carbon offset credits be required then they need to be from verified local or UK schemes.

### **Forward trajectory of carbon reduction and measures**

#### 1. Reduce energy consumption / carbon emissions

The council will continue to deliver and invest in energy efficiency measures in its housing, public buildings and estate. Our trajectory predicts a reduction of 396 tCO<sub>2</sub>e (location based) if all measures are completed.

#### 2. Reduce transport carbon emissions

Our trajectory predicts a reduction of 1145 tCO<sub>2</sub>e in our transport emissions by 2024. Projects that will contribute to reducing transport emissions include:

- Waste vehicle fleet and contract vehicles moving to HVO fuel or electrification
- Electrification of council cars and small vans; council large vans & HGV moving to HVO fuel or electrification
- Park & Ride buses moving to HVO fuel in 2024 and then moving to direct electrification. A successful trial was held in March 2023 of an electric bus on the P&R route.
- Reducing staff travel emissions including introducing electric Car club vehicles and electric bikes for business travel by non-essential car users. A showcase of a Hydrogen fuelled car was held in July 2023.

To note; electrification of waste and park & ride services come with significant capital and infrastructure costs as well as

market constraints. Implementation may depend on obtaining grant funding.

#### 3. Increase renewable energy generation / purchase

Increasing the supply of renewable energy decarbonises the grid and strengthens local energy security. Although the council may not benefit from this (or be able to discount the carbon emissions from its carbon footprint) as the asset owner it can sell the surplus generated and create carbon credits which can be used to offset its emissions. There are four strands to this pathway.

- a) Build / invest in a large-scale energy generation projects. An options appraisal for a viable scheme will be completed by the end of 2023. This will include the site identification, feasibility and viability work and a pre-planning application package to enable the construction of utility scale solar farm. This could produce a projected generation of up to 2,440 tCO<sub>2</sub>e producing an effective carbon offset evidence by a REGO Certificate based on an 11.36MWp sized solar PV facility. This should be sufficient to match the council's carbon footprint when the CNAP actions are fully implemented and leave some headroom. Permission to connect to the grid may constrain the project as there are long delays at present.
- b) Continue to install small scale / roof top solar PV on the council estate to secure a carbon offset of 30tCO<sub>2</sub>e.
- c) Secure credits from existing council solar PV installations in the form of REGOs (Renewable Energy Generation of Origin certificates issued by OFGEM).



d) Switch to purchasing green gas generated in UK based plants. Carbon reduction of 322 tCO<sub>2</sub>e based on 2021/22 carbon footprint. Green gas is not currently recognised by the GHG Protocol as a market based measure but RGGOs (Renewable Gas Generation of Origen Certificates)

e) Investigate with Everyone Active the impactions (contractual and cost) for switching to renewable energy purchase by the end of 2024. Carbon reduction of 287 tCO<sub>2</sub>e (location based) based on 2021/22 carbon footprint.

#### 4. Carbon sequestration through nature based solutions

By working with the South Downs Nation Park Authority on its Net Zero with Nature and supported by the council's UK Shared Prosperity Fund investment plan aim to create local nature based projects within the district. Carbon removal figures cannot yet be estimated as this project is in the early stages, however developing opportunities for local offsetting projects that build skills and support economic development in the district is a promising opportunity.

#### 5. Purchase of carbon credits

As a final (and last resort) the option remains be to buy off set credits using accredited national nature-based projects under the Woodland Carbon Code or Hampshire & Isle of Wight Wildlife Trust's (HIWWT) Wilder Carbon Scheme. Carbon offset will depend on number of credits purchased.

#### **Carbon Reduction Trajectory**

The completion of many of the commitments within the original CNAP and the proximity of the 2024 carbon neutrality target means a renewed focus on our council carbon reduction trajectory. Having balanced the cost, complexity and practicalities of various options, the council has reforecast a series of measures and expects to follow the carbon reduction trajectory below.

This is based on the 2021-22 council carbon footprint, the latest available at time of publication. The details of the trajectory can be found in Table 1.

## Council Carbon Reduction Measures to 2024

Pathway and Projects	Project action	Carbon tCo2e		Scope
		Emission 2021	Saving	
<b>1. Reduce Energy Consumption</b>				
1. Energy Reduction Measures across Corporate Buildings	A range of energy reduction measures to include: - Further reducing energy use in both occupied and empty buildings = 85.7 tCo2e - Improved FGas controls = 30 tCo2e - Move all supply to green tariff = 53.2 tCo2e	169	169	1 & 2
2. Measure energy use of Guildhall tenants	Sub-metering project to identify energy use of tenants on sqm leases and apportion energy use to them.		40	1 & 2
3. Decarbonisation of corporate estate (owned & occupied)	Variety of decarbonisation measures to reduce energy use in the corporate buildings: Abbey House = 26.3 tCo2e Cipher House = 21.8 tCo2e Magdalen Hill Cemetery Lodge = 4.52 tCo2e	53	53	1 & 2
4. Energy Reduction Measures across Housing	Measure will cover behaviour changes, controls and management systems to drive an energy reduction through efficiencies Target is 10% reduction on location based emission for housing.	601	60	1 & 2
5. Install energy efficiency & generation measures	Installing measures at Meadowside Leisure Centre Target is 50% reduction	35	17.5	2
6. Energy efficiency work to Chesil Car Park	Further improvements to Chesil Car Park to reduce energy consumption to include lift replacement. Target reduction 50%	28.9	14.4	2
7. Reduction in home working emissions	Incentivise council employees to switch to green electricity and gas.	23	5	3
8. Waste reduction	Increased recycling of waste generated by council Target = 40% reduction	92.2	37	3

Pathway and Projects	Project action	Carbon tCo2e		Scope
		Emission 2021	Saving	
	<b>Sub total</b>		<b>396</b>	
<b>2. Reduce transport carbon emissions</b>				
9. Council vehicles to low carbon	Continued replacement of council cars and vans to electric or biodiesel (HVO) 14 Vans = 59.8 tCo2e and 2 cars = 7.2 tCo2e	67	67	1
10. Park and Ride – Transition to electric or low carbon fuel	Transition of Park & Ride bus service to low carbon fuel HVO = 90% reduction* target	371	334	3
11. BIFFA waste fleet conversion to HVO or electric	To transition our waste collection fleet to a low carbon fuel such as HVO (Hydrogenated Vegetable Oil). Target is 90% assuming HVO	799	719	3
12. Sustainable Staff Commute	Reduce staff commuting emissions through promotion of active transport and low emissions vehicles.	286	25	3
	<b>Sub total</b>		<b>1145</b>	
<b>3. Increase renewable energy generation / purchase</b>				
13. Solar PV on council estate	Install further Solar PV on council property and register for Smart Export Guarantee payments and REGOs by exporting PV-generated electricity.	-	30	2
14. Transition leased assets to renewable energy	Work with contractors of leased assets where we have no direct control on electricity purchased to transition to renewable energy. 2021-22 Emission (location based) Winchester Sport & Leisure Park = 1216.3 tCo2e Target = electricity emissions = 287 tCo2e	287	287	3
	<b>Sub-total</b>		<b>317</b>	
15. Renewable energy scheme	Develop utility scale renewable energy scheme		-2440	Offset
<b>4. Carbon sequestration through nature-based solutions</b>				

Pathway and Projects	Project action	Carbon tCo2e		Scope
		Emission 2021	Saving	
16. Generate and measure carbon removal from council land	Research and implement means of capturing carbon sequestered by council tree planting and nature based activities e.g. through Woodland Carbon Code.		tbc	3
	<i>Sub total</i>		0	
<b>5. Purchase of carbon credits</b>				
17. Generate own REGOs from solar electricity export	REGOS from exporting solar energy to grid from existing arrays.		-5	Offset
18. Purchase of green gas – RGGos	Purchase 'Green Gas' i.e. methane from anaerobic digestion plants equal to annual gas use.		-322	Offset
19. Purchase accredited carbon offset credits	Purchase carbon credits via the Revive platform under development by the SDNPA which WCC is supporting through SPF. Amount to be quantified in 2024.		0	Offset
	<i>Sub total</i>		<b>-327</b>	
<b>Carbon Footprint</b>	Location based (2021-22) tCO2e		<b>4383</b>	
<b>Total tCo2e reduction</b>	When all measures are implemented by 2024-25		<b>1858</b>	
<b>Carbon Offsets proposed tCO2e</b>	Export of self-generated renewable energy to grid and purchase of Green Gas RGGOs equivalent to gas use.		<b>-2767</b>	Offset
<b>Residual tCo2e</b>	Net position after all actions and measure 2024-25		<b>-242</b>	

\* 90% HVO reduction assumption

Winchester City Council is basing its figures for emissions avoided as a result of the switch to HVO on figures provided by the Renewable Fuels Assurance Scheme. This is a national scheme that verifies claims made by companies supplying renewable fuels regarding their product's GHG emission savings and provenance of raw material feedstocks. This indicates an average reduction of around 94% in emissions as compared to Diesel fuel. DEFRA also provides average figures via its UK GHG Conversion Factors.

### SECTION 3 - INVESTMENT & FUNDING APPROACH

#### Introduction

The Winchester District Carbon Neutrality Road Map estimated the capital expenditure of its recommended 16 interventions to be in the order of £350m-£650m. Clearly this cost is not to be met by the council but by all the stakeholders, business and individuals that will be taking action to reduce carbon emission, generate renewable energy and adapt to climate change.

For context a 2020 report by government advisory group, the Committee on Climate Change found: “that effectively eliminating all emissions by 2050 would require investment of 1 to 2 per cent of GDP per year – with the switch to renewable energy and better insulation for buildings costing between £20 and £40 billion a year.”

#### Funding and Investment approach

The council has two roles;

- Direct - providing and seeking funds to invest in its carbon projects and interventions
- Indirect - Supporting the others to invest and this will be by far the greatest value



Council Funding

Route	Funding Option	Description	Projects which can be funded
Raising Finance	Council Community Bonds	Abundance Investment Platform issues Community Municipal Investments (CMIs) which are an innovative new way of allowing the public to invest in climate projects.	Potential to fund EVCP, Rooftop Solar PPA and community solar – projects need to pay back.
	Selling Carbon Offsets e.g. HACT or Woodland Carbon Code	The council will sell carbon offsets to the amount it has retrofitted properties at £60/yr for 19 years.	Funding Social Housing upgrades - ring-fenced for HRA.  <a href="#">Woodland Carbon Code Credits</a> could also be developed that the council could retain or sell.
Investments & Borrowing	Council revenue budget allocation	Climate change reserve	Projects, research and to enable delivery.
	Reinvestment of council income	Reinvesting income from EVCP or Solar PV	Reinvesting income from EVCP or Solar PV to support low carbon measures.
	Borrowing	Capital Projects through Public Works Loan board	Capital schemes for which a full business case can be made
Project Grants	Community Investment Levy	Funds are aimed at community lead schemes with allocations between £10k and £200k, to support the delivery of development / infrastructure. Can be used to fund all a project or be combined with funding available.	Community decarbonisation measures.
	UK Shared Prosperity Fund (UKSPF)	Government's Levelling up grant programme. Winchester District Investment Plan include allocation for interventions that... Delivery timeframe up to 31 <sup>st</sup> March 2025.	SDNPA – developing Carbon Credits for local farmers Assistance in installing Solar PV on community Halls
	RSPF – Rural Shared Prosperity Fund	Extension for Government's UKSPF allocation for capital projects in rural areas. Winchester District's Investment Plan places emphasis on project that address net zero and green/bule	Potential to support community solar projects and EVCP in community centres

		infrastructure improvement s. Delivery timeframe to up to 31 <sup>st</sup> March 2025.	
	Council Community Grants	Greener Futures Fund, Small grants, and Project grants	

Public sector schemes. External, often government, competitive grant funds aimed council's etc. to enable delivery of their projects and interventions. Examples of are listed below. It should be noted that additional staff time would be required to apply for, administer and reporting on the larger funding to fully maximise them.

Route	Funding Option	Description	Projects which can be funded
Competitive Funding (Grant) Schemes	LEVI – Local Electric Vehicle Infrastructure Fund	The Local EV Infrastructure (LEVI) Fund supports local authorities in England to plan and deliver chargepoint infrastructure for residents without off-street parking.	Roll-out of ECVPs in association with HCC, should WCC wish to deploy further EVCPs.
	SDHD – Social Housing Decarbonisation Fund	Retrofit of social housing	Upgrading council housing stock to EPC C.
	Public Sector Decarbonisation Scheme - GOV.UK ( <a href="http://www.gov.uk">www.gov.uk</a> )	Retrofit of Corporate buildings	Potential to fund Guildhall Measures (application by Sept 2023).
	Join Lendology or form similar Community Investment Company to fund retrofit projects.	Home improvement loans for homeowners, funded by local councils via a CIC.	Retrofit of private housing.
	UK Power Networks	Transition to low carbon economy	Local Authority Energy Partnership to plan for and develop grid capacity within area
	Heritage Lottery Fund	Decarbonisation of historic buildings	Decarbonisation measures within Guildhall
	National Lottery Energy & Climate Fund		Community Solar
	Heat Networks Funding	Community Heat Networks	CWR Heat Network or Hospital/University scheme

Route	Funding Option	Description	Projects which can be funded
	Home Upgrade Grant: Phase 2 - HUG	Private Sector Home Retrofit	Private Residents and Tenants on low incomes under £30k and EPC D or below can retrofit homes.
	ECO4 Flexibility	Private Sector Home Retrofit	Private Residents and Tenants on low incomes under £30k and EPC D or below can retrofit homes.
	UK Infrastructure Bank	Supports large scale decarbonisation projects	Supports large scale decarbonisation projects e.g. hydrogen or battery infrastructure.
	ZEBRA Funding – Zero Emissions Regional Bus Funding	To support zero emissions buses	Electrification of Park & Ride (not currently open)

### Supporting others to investment

We will signpost to and promote investment funding and grant schemes open to individuals, communities and business, so that there is maximise exposure to the opportunities available.

Residents	Community	Business
LAD, HUG2 & ECO4 Flex schemes for retrofit.	<a href="https://www.tnlcommunityfund.org.uk">Climate Action Fund - Energy and Climate   The National Lottery Community Fund (tnlcommunityfund.org.uk)</a>	<a href="https://www.gov.uk/government/consultations/heat-networks-investment-project-hnip-overview-and-how-to-apply">Heat Networks Investment Project (HNIP): overview and how to apply - GOV.UK (www.gov.uk)</a>
Community Energy South has funding for pre-support work for households. <a href="https://www.futureproof.uk.net/">https://www.futureproof.uk.net/</a>		<a href="https://www.greeninvestmentgroup.co.uk/">Green Investment Group</a>
National Grid's Energy Affordability Fund: <a href="https://www.nationalgrid.com/national-grid-announces-ps50-million-energy-support-fund-winter-and-next">https://www.nationalgrid.com/national-grid-announces-ps50-million-energy-support-fund-winter-and-next</a>		
<a href="https://www.connectedforwarmth.org.uk/">https://www.connectedforwarmth.org.uk/</a>		



