

Newcastle City Council

Climate Change (Mitigation) Strategy 2018

December 2018

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Overview

Newcastle City Council has made a series of commitments to reducing CO₂ emissions within the area. These commitments date back to 2006 – when Newcastle signed the Nottingham Declaration, and are set to ensure Newcastle delivers on the UK's national commitments to reduce greenhouse gas (GHG) emissions in line with the UK Climate Change Act, and other national commitments (such as the Paris Climate Agreement).

Subsequently Newcastle became a signatory to the Covenant of Mayors in 2008, committing to reducing CO₂ emissions in the local authority area by **21%** from the 2005 levels. Progress against these targets has been good – with overall emissions from homes, buildings and road transport dropping by **29%** from 1.95 million tCO₂/year in 2005 to 1.38 million tCO₂/yr in 2015. These reductions in CO₂ emission are due to several influences – some are local (such as improvements to the energy performance of the housing stock in the city) and some are national (including increased use of renewable energy in the generation of electrical power).

Emissions Source	2005 CO ₂ emissions ('000 tCO ₂)	2015 CO ₂ emissions ('000 tCO ₂)
Domestic buildings	668	440
Industrial and commercial buildings	795	539
Road transport	485	405
Total	1,948	1,384

Table 1 2005 and 2015 CO₂ emissions for Newcastle upon Tyne by sector

The future of UK energy and transport

The future for energy and transport in the UK is uncertain:

- Recent years have seen increased renewable energy generation of electricity. Moving from coal/gas to renewables means that (nationally) CO₂ reduces per unit of electricity consumed. This trend is expected to continue
- In addition, the UK is increasingly focusing on how to provide low carbon heat, rather than the present approach which predominantly uses natural gas
- The increased use of electric vehicles will reduce the emissions from road transport (as cars and vans move away from being powered by petrol and diesel). However, the benefit this brings (in reducing CO₂) will depend on how the electricity is generated.

These are significant uncertainties as they will affect how both local and national emissions change over time. They will also affect what projects Newcastle chooses to focus on to meet CO₂ targets. For example, if the emissions produced from consuming a unit of electricity continue to fall then it might become more carbon-efficient to heat houses using electricity rather than by consuming natural gas.

Where are CO₂ emissions generated

Emissions data is calculated by the Department for Business, Energy & Industrial Strategy (BEIS) for all local authorities in the UK. CO₂ emissions arise from different sources, but for this main dataset the sources included are domestic buildings, industrial and commercial buildings, and road transport. The figures do not include emissions associated with air travel or rail travel. They also exclude any production emissions (Scope 3 emissions) associated with the manufacture of goods/services.

In 2015 the CO₂ emissions calculated in the BEIS dataset totalled **1,384,478 tCO₂** (1,384 ktCO₂). These include:

- Domestic buildings - 440 ktCO₂
- Industrial/commercial - 539 ktCO₂
- Road transport - 406 ktCO₂

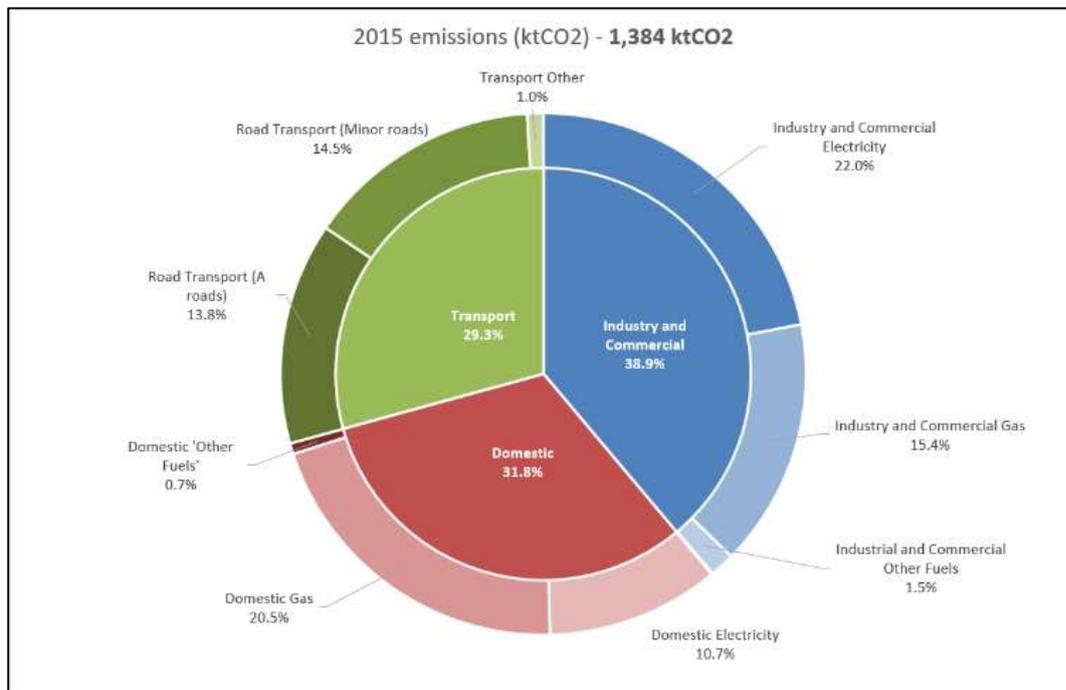


Figure 1 2015 CO₂ emissions by sector and fuel type

New targets for Newcastle upon Tyne

Having achieved a 29% reduction in overall CO₂ emissions since 2005 the city is now looking at the targets in the future. In 2016, Cabinet committed to:

- targeting a longer-term commitment to 100% clean energy by 2050 – interpreted as having zero net emissions from buildings and road transport by 2050

As an interim, Newcastle's new carbon target will be to achieve an 50% reduction on CO₂ emissions by 2030, based on the original 2005 baseline. This is equivalent to achieving target emissions of 974 ktCO₂ by 2030.

How will CO₂ emissions change without any local action?

CO₂ emissions from the city will change between now and 2030 because of a range of factors:

- the city's population is forecast to increase
- the city's Local Plan is set to deliver new housing, new industrial and new commercial buildings which will add additional energy consumption to the city
- national trends in energy and use of renewables will change how carbon intensive energy consumption is (i.e. how much CO₂ is emitted for each unit of energy, particularly electricity)
- road vehicles are projected to become more efficient, reducing the CO₂ emissions for every mile travelled
- a shift towards electric vehicles could also contribute to reducing CO₂ emissions

There is lots of uncertainty around how this will affect future emissions, and some factors will depend on the energy strategy for the UK. However, a set of conservative assumptions have been used to provide an estimate of what the CO₂ emissions would be from Newcastle in 2030 without action to reduce emissions further. Most significant among these are the assumptions that:

- the carbon intensity of grid electricity in the UK will reduce by 35% of the 2015 carbon intensity – i.e. in 2030 each kWh of electricity used will emit only 65% of the CO₂ emissions emitted in 2015
- overall road emissions will reduce by 10% between 2015 and 2030, due to improved vehicle efficiency and the transition to electric vehicles

The projection is that, without any local action, emissions in 2030 from Newcastle will be **1,254 ktCO₂**.

To meet the target of 974 ktCO₂ the city needs to identify ways to reduce emissions by around **280 ktCO₂**.

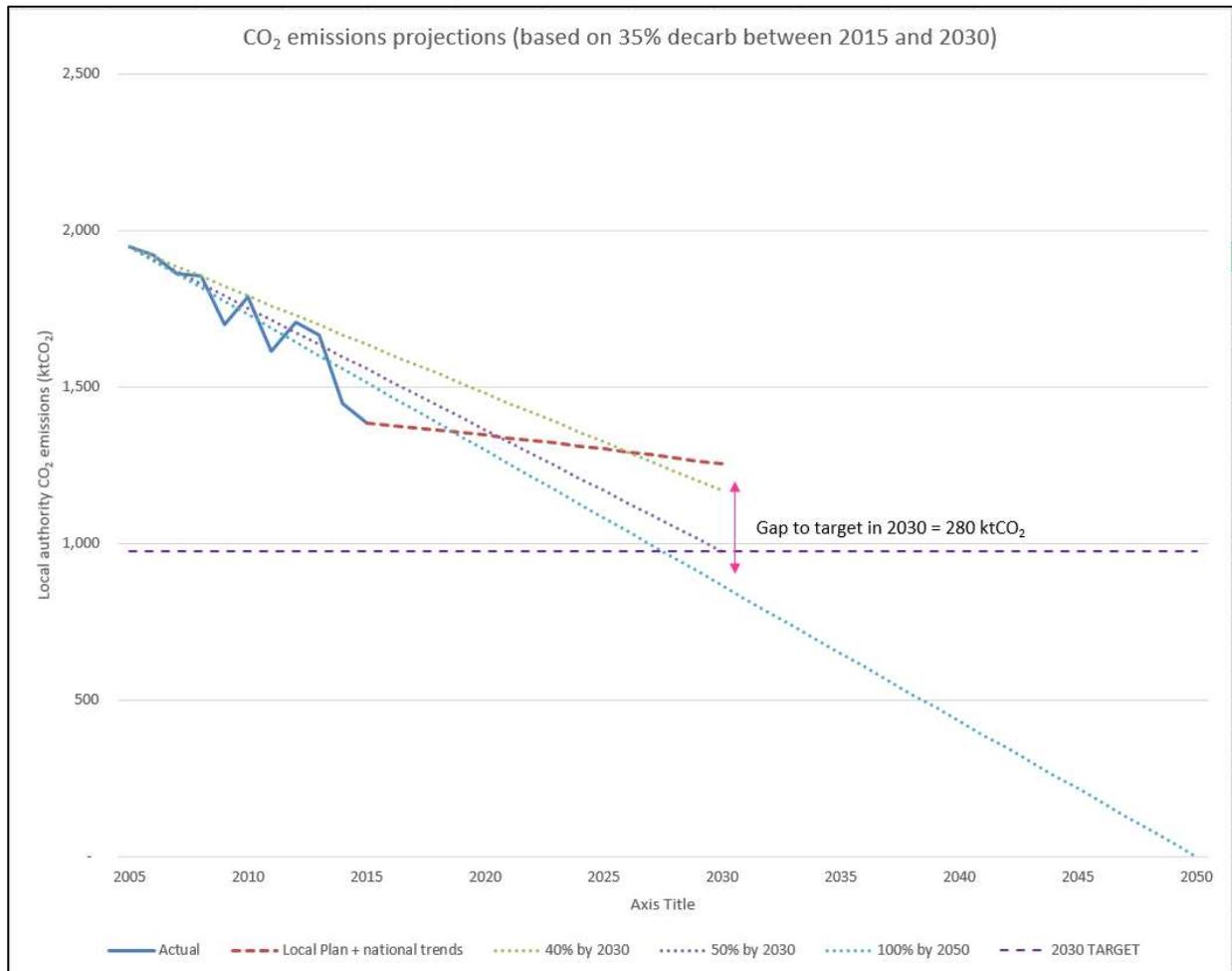


Figure 2 Historic and projected emissions for Local Plan and national trends and targets

How will Newcastle meet this gap?

The city has developed a scenario to meet this gap – identifying a range of projects and programmes to deliver around 284 ktCO₂ reduction against the ‘business as usual’ projection.

The programmes and projects which will meet the ‘CO₂ gap’ will come from different sectors of the economy in Newcastle, and will be delivered through a range of different routes.

- Some projects will reduce emissions from the Council’s own operations, across Council offices and other buildings (schools, care homes, etc);
- Some CO₂ reductions will be delivered by other large stakeholders in the city who also have established corporate commitments to reduce CO₂ emissions (such as the Universities and the NHS). These commitments are beyond the direct responsibility of Newcastle City Council, yet the emissions from these organisations contribute to the local authority emissions. It is in the interest of Newcastle City Council to support and work with these organisations so that they can achieve their targets on CO₂ reduction

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- Commercial and industrial buildings are challenging to deliver reductions in CO₂ emissions as the Council has relatively few levers to encourage change. However national policy in the UK will increasingly focus on energy efficiency measures from industry, many of which will provide a financial benefit to the operating organisation;
- On top of national trends in transport it is expected that CO₂ reductions can be achieved through other measures in the city – such as removing cars from the city centre and encouraging other modes of transport, and investigating strategies to reduce levels of freight transport in the city.

The following table shows the scale of CO₂ reductions expected from different project types:

Project		CO ₂ reductions (ktCO ₂)*
Municipal	Improvement to the Council operational estate	1.0
	Application of Minimum Energy Efficiency Standards to council buildings which are not used for operational (i.e. let to other parties)	0.6
	Council fleet replacement	1.5
	Delivery of Science Central and Civic Quarter West DH projects	7.6
	Delivery of remaining projects identified in the PB Report	5.9
Industrial and commercial	Working with other institutions in the city	36.5
	Identify and exploit low carbon heat opportunities across the city - SMALL	19.3
	Awareness raising and behaviour change support	0.6
	Commercial PV Programme	17.9
	Interventions on industrial emissions	28.9
Domestic	Awareness raising and behaviour change campaign	12.0
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	Improved efficiency of houses	7.2
	Improvements to energy performance of YHN stock.	18.8
	Improved thermal performance in Hard to Treat (OO / Private) houses	41.1
	Renewable energy at domestic scale - support for PV	19.1
	SSH - commitment and delivery	30.0
	Tighter performance requirements on new build domestic	3.7
Lighting	Streetlighting replacement	3.7
Transport	Mode shift from car to bike/walking for c. 5000 people	1.5
	Suite of measures to be determined	15.0
TOTAL		283.8

*totals do not sum due to rounding

Table 2 Project types and scales for CO₂ reductions

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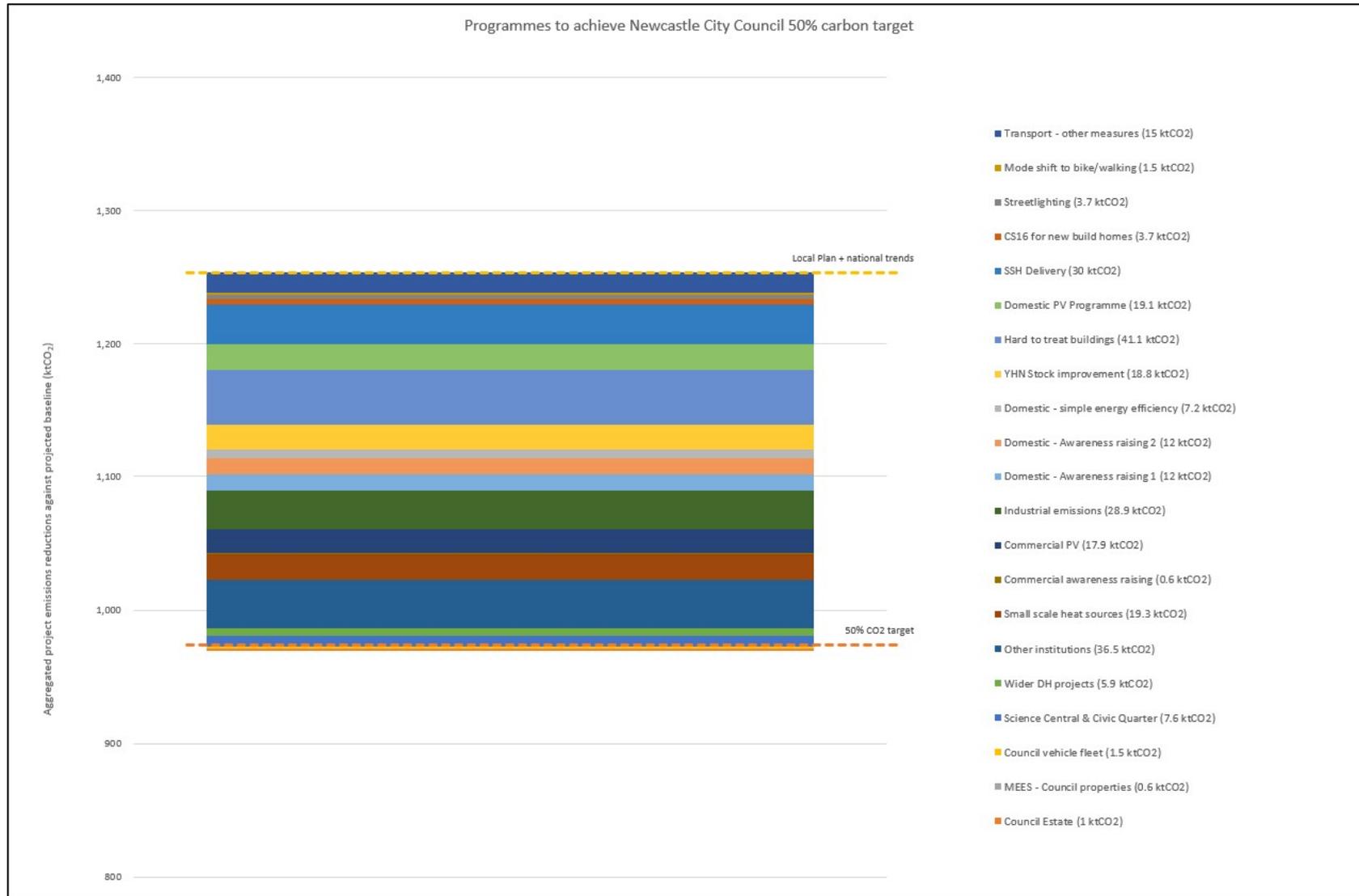


Figure 3 Contribution of projects to achieving 50% CO₂ target

Conclusions and next steps

Projects to achieve the targeted CO₂ reductions are being developed by Newcastle City Council and their partners.

If you would like to know more about these, or would like to discuss working with the City Council, please contact Energy Services on phone: 0191 278 3427 or by email: energy@newcastle.gov.uk.