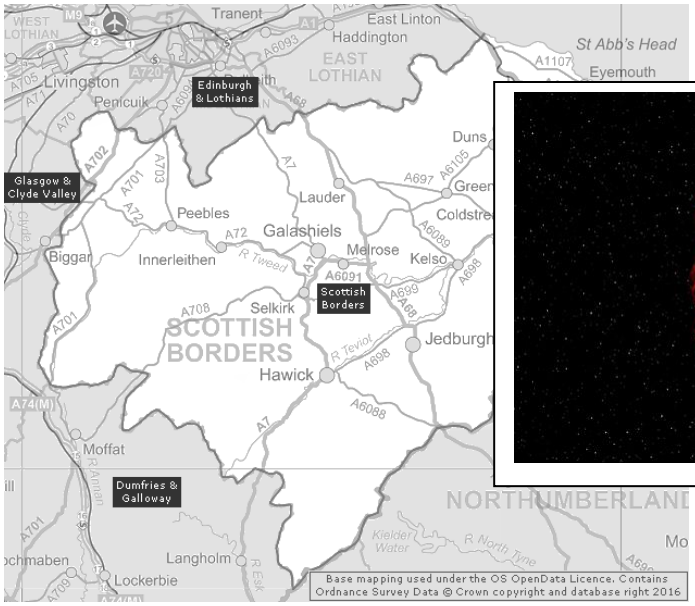
OUR CLIMATE CHANGE ROUTE MAP (CCRM)

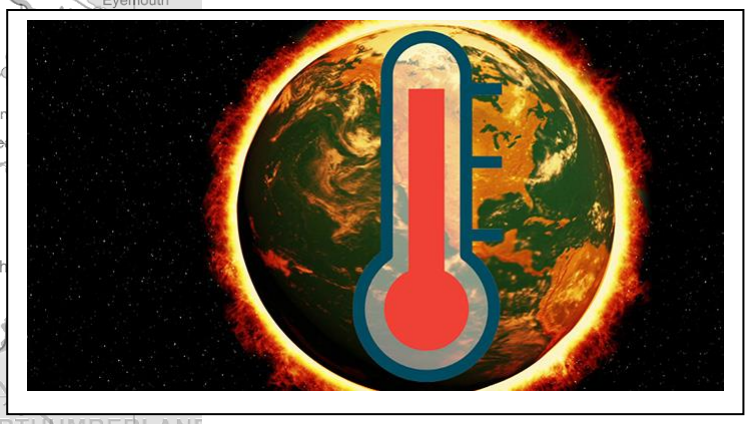
For

The SCOTTISH BORDERS

Scottish Borders Council

June 2021





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1. Climate change is down to more greenhouse gases or GHGs, mainly carbon dioxide (CO2), nitrous oxide (N20) and methane (CH4) in our atmosphere than are produced naturally. Our world is heating up, ice is melting, seas are warming, and our climate is becoming less stable with disastrous consequences. It is the most pressing challenge of our time.

2. We are the source of these additional GHGs through our carbon footprint. Since the Industrial Revolution, people have added more and more GHGs into our air. Instead of keeping Earth at a warm, stable temperature, these additional gases are intensifying the 'greenhouse effect' and our planet is heating up.

3. We now accept the cause is human activity like burning fossil fuels for energy and transport, cutting trees, and cultivating soils and nurturing livestock, alongside our industry, construction, and our homes. Historic emissions have already changed our climate and will continue to do so in decades to come.

4. These activities are undertaken to provide the goods and services we buy or use through their associated international or domestic supply chains; in short, our current way of life in the Scottish Borders. Locally and globally, we must reduce our consumption.

5. We need to accept that we cannot readily reverse climate change effects and while reducing our GHG emissions we will all have to learn how to adapt and mitigate for some unavoidable detrimental impacts.

6. We must also embrace the potential of the 'green economy' and the development of new industries that create jobs and wealth while at the same time reducing or even reversing GHG emissions. Net Zero refers to achieving a balance between the amount of GHG emissions we produce, and the amount removed from the atmosphere.

7. The next decade will be critical in our just transition to a Scottish Borders future we want. No-one has all the answers on what emerging technologies will work efficiently at scale and how we may deliver the transition to Net Zero in 2045.

8. Impacts are likely to intensify. Solutions will rely on further innovation, market development, and wider take up and adoption, and decisions by both us and others. Adaptation will be necessary regardless of how much we manage to cut our emissions.

9. Progress will require measurement and monitoring, updating, and adjusting our Route Map and our journey to Net Zero while seizing new opportunities when we can.

10. Flexibility and preparedness are essential if we are to meet our duties under the Climate Change (Scotland) Act 2009 and Climate Change (Emissions Reduction

Targets) (Scotland) Act 2019, and, from 2022, mandatory reporting of targets for achieving zero direct emissions and reduced indirect emissions.

11. Lastly, we need to understand that Climate Change is a very 'human story'. Collectively, it is a story that we have authored and, looking forward, together we need to write a better future, one which is fair to future generations and to the planet they inhabit. This means, in the Scottish Borders as elsewhere, developing policies and delivering actions which are 'just', ensuring the benefits of climate change action are shared widely, while the costs do not unfairly burden those less able to pay, or whose livelihoods are directly or indirectly at risk as the economy shifts and changes. As the Just Transition Commission recognised: 'People need to see and experience the transition as being fair; pushing ahead without giving attention to a just transition will see progress stalled. Achieving climate targets and a just transition cannot be separated.'

II Path to 2045? Living with Climate Change in the Scottish Borders

So, what can we do - let's think on that? **First, imagine a better Scottish Borders. That's what change looks like! Second, fast forward to 2045.**

Our **Climate Change Route Map (CCRM) to Net Zero** has led us to a Scottish Borders where big changes have taken place. Scotland's ambitious Net Zero targets to address the causes and effects of climate change have been front of mind for people for two decades. Hard work, but we got there.

New housing in the Borders is comfortable, durable, fits with its surroundings and is future proofed with convertible attics and extra-large ground-floor loos that can fit a shower or all ability access if needed. Homes are warmed by affordable to run heat pumps, fitted by engineers trained in the Borders and use clean electricity. High carbon fuel systems and fuel poverty are gone. Natural polymers from Border trees insulate our older homes and businesses and provide textiles for clothes and furnishing.

Our children walk and cycle to school on safe paths and a hydrogen powered bus picks up pupils who live in our villages and countryside. Most of us no longer own a car, but lease or hire them when needed. Demand responsive minibuses, Uber-style taxis and micro-modes – such as shared bicycles, electric bikes and hoverboards – convey residents and tourists the 'last mile' from our railway and bus stations, with rail and bus the dominant means of long distance travel.

Ultra-fast broadband is in all our businesses, houses, or garden sheds, where new knowledge workers and creatives work in the Scottish Borders for themselves, for local businesses and world-wide companies. Artificial Intelligence (AI) and the Internet of Things (IoT) will have transformed education, politics, finance and how we live work and play. We still move about, but fewer people regularly commute to work. Our pension pots are invested in green finance schemes.

Based on high quality food and drink, woodland creation and timber processing, peatland restoration and biodiversity as well as sustainable tourism and renewable energy we have a thriving green economy. For local consumption and export, high-quality livestock and crops are growing in the Borders. Temperature during storage and transportation are key GHG

emission factors, so our strawberries are from Kelso, not Morocco and vertical farms in Hawick with robots named Tweed and Teviot produce salad crops year-round.

The COVID pandemic that began in 2020 and impacted for several more years changed retailing and shops in our high streets in towns and villages across the Scottish Borders. Since then, we have adapted and invested in street spaces to improve the environment, create mixed use opportunities, delivered clean mobility, walking and cycle paths and good integrated public transport. There has been further investment in parks, green space and along the waterways that are so much a part of the Borders.

We have added to the social infrastructure of our settlements through engagement with businesses and communities as local populations are encouraged to invest, spend time and money with local businesses and create a more "profit for purpose" adaptable local circular economy. Sustainability underpins our prosperity – in our fields, factories, forests, towns and villages, in the energy which powers homes and businesses and in our reduced demand/consumption, repurposing, maintenance, repair and, where necessary, recycling of goods. Waste has been largely designed out of how we live now.

Border identity and pride are as strong as ever in Common Ridings and local festivals, sport, and culture. Our resilient communities are more skilled, adaptable, and educated. We have a much greater understanding and appreciation of how important those people are who keep our communities running smoothly, those that care for us, keep our places running and protect our vulnerable citizens.

III At a glance – CC Route Map Scope

This is a Scottish Borders Council (SBC) document and is a first edition of our coordinated Climate Change Route Map (CCRM) to achieve Net Zero GHG emission status by 2045, for both SBC and our partners across the region. It sets out 25 milestones across five core themes.

IV At a glance – CC Route Map Facts

Scottish Borders	
Resident Scottish Borders population in 2020	115,510 Aged 16-64 - 67,900 (58.8%) Scotland = 64% Aged 65+ - 28646 (24.8%) Scotland = 19.1%
Households in 2020	54,413 households (48% located in rural areas)
Total GHG emissions in 2018/19	782,900 t CO2e Net 510,700 t CO2e (includes land use positive balance of -229,400 t CO2e)
Per capita GHG emissions in 2018/19	Net 4.4t CO2e/person/year Scottish average 5.3t CO2 e/person/year
Household waste emissions	1.07t CO2e per person/year of GHG
Area of Scottish Borders	1,827m2 (4732 km2) - Pop density 24.4/km2 4th lowest density in mainland Scotland. Over 80% agriculture, 20% woodland, 15% peatland, 30 km coast
Net area emissions in 2018/19	100 tCO2e/km2 - Scottish average 400 tCO2e/km2
Largest settlements 2019	Hawick (13,859), Galashiels (12,622), Peebles (8,577) Kelso (6,843), Selkirk (5,503), Jedburgh (3,826)

Visitors (3-year averages 2017-19)	Day trips 2,700,000 Overnight 396,000 (1,300,000 nights)
Businesses in Scottish Borders	Micro (0-9) 4,485, Small (10-49) 420 Medium (50-249) 60, Large (250+) 10 Total 4,980
Main 'A' roads length/vehicle numbers (e)	200km A7 (6000/day), A68 (6200/day), A1 (10,000/day)
Vehicle miles travelled	0.81 billion vehicle miles in 2019 across SB
Number of EVs and Chargers in Scottish Borders 2020	312 EVs 42 Public charging devices 13 Devices per EV
Community Councils	69
Scottish Borders SBC	
SBC Aggregate external finance 2020/21	£295,757,000 (including Scottish Government settlement, 20% from SBC Council tax plus other revenues)
Per capita spend	£2560
SBC Estate/floor space	935717.8m2
SBC Land (m2)	572.07 ha (not including Common Good land)
SBC Vehicles (numbers)	424 (94 cars, 137 LCVs and 193 HDV)
SBC % of total SB GHG emissions	2%
Household waste collected and treated	52,300 tonnes per annum. Per person 0.45t recycled 0.22t, diverted 0.1t, land filled 0.13t
SBC Employees 2020	4992
Roads SBC managed	3,000km

1.0 OUR RACE TO ZERO

Climate change is an urgent global issue. We are already feeling its impact in the Scottish Borders. We can and we must act on it now. **In August 2019 SBC committed to implementing the UN Sustainable Development Goals and in September 2020 declared a Climate Emergency**. This commitment and declaration frame the climate challenge we face. They give impetus to the **Race to Zero** by SBC members, employees, and partners to reach a Net Zero destination and to **transition to a low carbon economy by 2045 and to avoid a catastrophic level of 'runaway' climate change.**

Robert Swann the polar explorer said, *"The greatest threat to our planet is the belief that someone else will save it*" Our journey to Net Zero and climate-readiness through adaptation and mitigation will take leadership, energy, creativity, and passion from SBC people and our partners.

Changes we make must be **socially, organisationally, and regionally fair and just**. Measures must ensure the benefits of climate change action are shared widely, while the costs do not unfairly burden people less able to pay, or whose livelihoods are directly or indirectly at risk as the economy shifts and changes. SBC agreed an Anti-Poverty Strategy in February 2021.

People's attitudes to the causes and impacts of climate change will take time to develop and evolve.

"Changing attitudes towards climate change is not like selling a particular brand of soap — it's like convincing someone to use soap in the first place." Futerra www.futera.co.uk

People are being **asked to make major alterations** to their way of life: to the way they heat their homes, drive their cars, chuck their waste and to the food they eat within a new green economy. It will not be a straight swap from old to new but change we must. Reducing demand and increasing efficiency are not simply prudent housekeeping. Our future depends on it.

We are entering a decisive decade for reducing the worst impacts of climate change. This is our Route Map for what **will be a change marathon and not a sprint**. But SBC plan to be beside people for the long term and consistently sustain our messages, advice and stories and to adjust our own actions.

Uncertainty and complexity will affect our ability to forecast potential outcomes. We don't know what is ahead. So, **we won't always get it right first time** and, yes, we may make some miss turns along the route. As pressures heighten it may also be tempting to cut corners. But keeping integrity and transparency at the core of our decision making is the strongest way forward and, yes, **we should be held to account**, to rectify errors to the best of our ability, and focus on doing the right thing.

We must not be complacent and a status quo attitude of *'it's aye been'* cannot prevail when emerging evidence, research or technology enable us to adopt new and better ways. We must evaluate and prioritise current activities to decide which may be altered or discontinued in order to come to the right decision and the most effective way to implement our Route Map.

But none of us in the Borders, rich, poor, young, or old can make this journey on our own. We live in a complex and connected world. Almost everything we do that uses energy, needs transport, or produces waste that affects someone else and the places where we live and love. **Travelling together on our journey makes us a more formidable force.**

We hope the people of the Scottish Borders will join with us on a shared journey to allow our children, grandchildren, and future generations beyond them to live, work and play successfully and flourish as we have done.

2.0 WHY A CLIMATE CHANGE ROUTE MAP?

Our **Race to Zero is guided by this Climate Change Route Map (CCRM**) showing a pathway to climate change resilience and to Net Zero GHG emissions for the Scottish Borders, over a 25-year time horizon.

Still in its first edition, our CC Route Map cannot yet cover the full breadth and scope of the excellent work the SBC and its partners are accomplishing. But their expertise and views must urgently be brought together in the CC Route Map to:

1. Chart the SBC's own journey to net-zero GHG by targeting our major emissions sources: fleet, and transport, energy consumption in public buildings and spaces and waste management. And ensuring that our services, buildings and supporting infrastructure, which includes our people, are climate ready.
2. Develop strong pathways and measures region-wide to reduce GHG emissions on a prioritised consumption basis and secure adaptation to those impacts which cannot be readily mitigated by emissions reduction.

2.1 The rationale behind our CC Route Map is 3-fold:

1 **Having a crystal-clear acceptance of climate change** - Evidence that global warming and thereby climate change effects are indisputable, because:

- The evidence is clear sometimes tragically so. Storms Ciara and Dennis caused significant damage to the Borders during February 2020. Further flooding, wildfires and disease will impact our landscapes, infrastructures, supply chains, markets and disrupt our way of life and drive-up costs for every one of us.
- GHG emissions are not falling fast enough. In 2020, when COVID-19 brought the world to a virtual halt, carbon emissions fell by more than in any year since WW II. Yet a similar drop will be needed every other year for a decade to achieve the goals of the landmark 2015 Paris Agreement on Climate Change.

2 Meeting Scottish climate change legislation - Action is a statutory duty and a policy imperative, because:

- Net Zero is now law. The Climate Change (Emissions Reduction Targets)(Scotland) Act 2019 sets a legally-binding "net-zero" target of all greenhouse gases by 2045, with interim targets for reductions of at least 56% by 2020, 75% by 2030, 90% by 2040.
- From 2022, all public sector bodies – including SBC - must set targets for achieving zero direct emissions from the 2010/11 baseline year, and for reduced indirect emissions.
- Resource allocation will be subject to ongoing assessments of the Scottish and the UK climate change situation. SBC must report annually on compliance with climate change duties.

3 Being in the Net Zero race to win it – Getting involved is in the interests of people in the Scottish Borders, because:

- Though there will be a cost, inaction carries a much greater price tag and, if SBC and our region are to get a proportionate share of resourcing and Green Recovery opportunities, they must demonstrate significant and innovative action on GHG emission reductions.
- Better understanding the changing landscape of risk and opportunity for business as a result of climate change measures and the transition to Net Zero is a competitive advantage we must not miss.

- High quality, higher paying jobs will be won from these efforts, allowing us to respond to challenges around economic growth in the region, and better retain our young people.
- We can develop a virtuous circle around our natural capital that supports innovative developments in farming and land management practice… with substantial dividends for emissions reduction.

Table 1: What SBC has already done in the race – some examples:

Flooding	In February 2020 SBC approved a £82.6m scheme to deliver 1: 75-year flood protection for Hawick. Romano Bridge flood protection scheme to be constructed in 2021. Flood scheme preparation assessment is underway for Peebles, Newcastleton, Ettrick Valley, Lindean and Whitlaw/Crowbyres. An assessment of climate change is also included, allowing for a +33% increase on existing river flows.
Energy consumption	In 2019/20 SBC electricity use was 4.5% less than in 2018/19. (But SBC gas use increased by 3.7% over the same period.)
Innovation	Jedburgh Intergenerational Community Campus has 600m2 of roof mounted solar PV to contribute to the electrical demands which will have an estimated 100kW peak electrical generation capacity. 35% of the heat pumps annual electricity demand can be met by the 600m2 solar PV installation.
Emission reductions	In 2019/20 projects completed under the Energy Efficiency Programme are forecasted to reduce CO2 emissions by 626 tonnes/year and 7,510 tonnes over the project lifespan representing a reduction of 6.1%/year from SBC buildings.
Recycling	In 2019 49.2% of Scottish Borders household waste was recycled – up from 38.8% in 2018. And 28.8% of household waste was sent to landfill down from 58.4% in 2018.
Woodland carbon	Penmanshiel Compensatory Replanting Grant Scheme – over 112ha of productive, amenity and native woodland planted delivering multiple benefits including sites on SBC Estate. Native and Riparian Woodland planting is ongoing in the Upper Teviot catchment with 77ha planted so far covering 7 schemes, supported by natural flood management measures such as attenuation ponds.
Transport	To encourage behavioural change and increase the use of Public Transport: • in the last 12 months, new bus services have been introduced providing improved links for residents of St Boswells, Newtown St Boswells, Bowden and Galashiels to the Borders General Hospital, and • reduced cost travel to NHS staff and Kickstart Scheme members has been introduced in partnership with local bus operators

2.2 What the future holds?

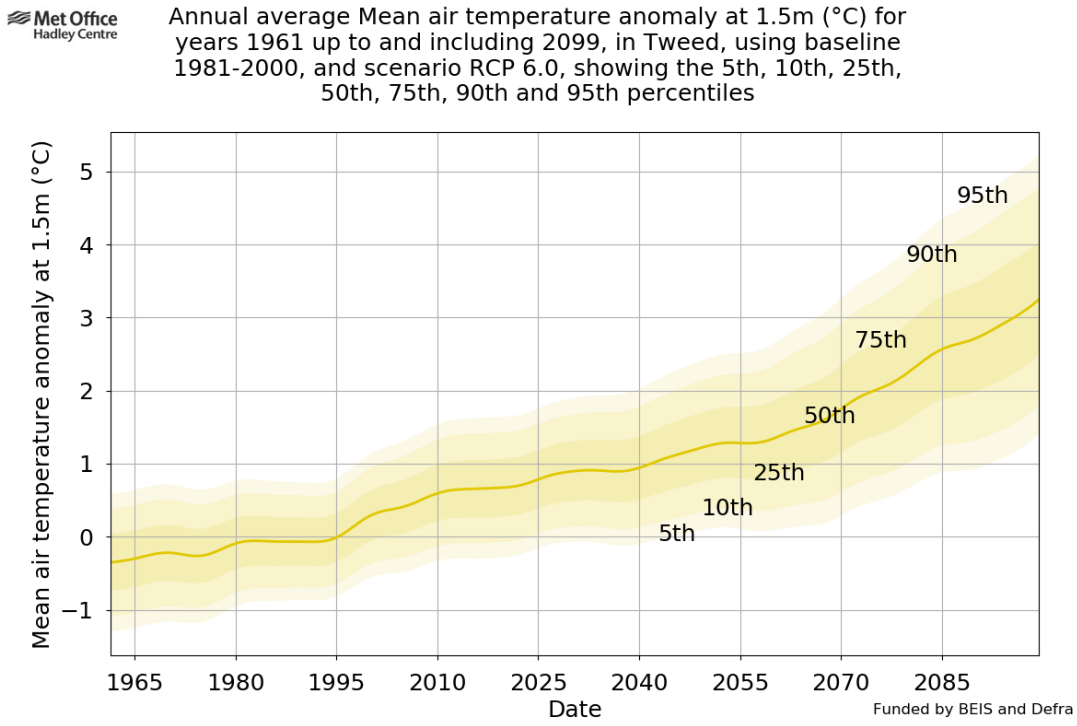
If we don't reach our 2030 and our 2045 destination, the financial and quality of life consequences could be severe. Temperature anomalies are a measure of how the overall average temperature of the surface of the Earth deviates from what is expected from historic measurements.

Figure 1 shows how temperatures in the Scottish Borders are predicted to change over the next 80 years based on RCP[1] 6.0 which include continuous global warming to 2080 where CO2 levels rise to

[1] RCP – Representative Concentrated Pathway is a GHG concentration (not emissions) trajectory adopted by the IPCC. RCP 6 is a worst-case scenario.

670 parts per million (ppm) making the global temperature rise by about 3-4°C (a worst case scenario). We are currently at 417 ppm atmospheric CO2 and rising.

Figure 1: Graph showing the predicted surface temperature anomalies over future decades in the Borders.



It is important to highlight that any projects, for example, infrastructure upgrades which are undertaken but do not achieve net zero emissions, will simply create a capital or revenue burden downstream. The opportunity must be taken to carefully revisit and examine the SBC capital programme to ensure that all projects, wherever possible, are contributing to the net zero agenda.

Adaptation and resilience will not happen immediately. For example, while there will be scope to gain carbon sequestration from woodland planting on the SBC estate, or elsewhere in the region, optimum sequestration rates occur around 25-30 years after planting (i.e. 2050). The longer woodland planting is delayed, the lower the rate of sequestration in 2045.

3.0 DEVELOPING OUR CLIMATE CHANGE ROUTE MAP

3.1 Working together

Following our CC Route Map **will require increased collaboration and support** across the Scottish Borders amongst elected members, community leaders, businesses, financiers, educationalists, land managers, scientists and especially with young people. **Together we can do more**. We have 'high class' education and training networks in the Borders and these must be harnessed to further propel the skill base in the area towards greater low carbon activity and sustainability. And, with its rural hinterland and expertise in agricultural and forestry matters, the Scottish Borders can become a 'hub' for innovative land management activities with development and testing of low emission and carbon sequestration measures.

3.2 Leading from the front

SBC want to lead people along our CCRM by controlling our own estate and through enabling and motivating change by others. We face a double challenge; not only must we manage our own operations, but we are helping to drive regional change too.

SBC will prioritise, progress, and embed GHG reduction and lifecycle design in our own procurement and service implementation policies. Sustainability initiatives frequently lead to cost saving, innovation, and greater efficiencies through using fewer materials and less energy. SBC has begun the process with our Fit for 2024 programme.

A staggered transition will be necessary as new technologies, jobs and ways of living and working will take time to embed. Our employees will be encouraged to become life cycle and holistic thinkers to see the 'bigger picture' whilst still balancing budget outcomes. Thinking about service provision in joined up ways helps to understand complexity and connectivity in the green value chain and gives opportunities for collaboration and new ways of working.

In setting our own targets and taking active steps towards SMART sustainability goals, SBC will be in a more confident position to mitigate risk and work with other partners and stakeholders.

We are seeking agreement on goal meaning and intent. At this early stage in the CCRM, like the Scottish Government's Update of the Climate Change Plan 2018-2032, our approach is iterative, we must learn by doing. We do not yet have the ability to pin down the detail of every goal and target. Developing sound data and measures is an essential corollary to our progress. Goals must stretch us, and we should always set deadlines. But our goals and deadlines must also be realistic and not in conflict, so we are all moving in the same direction.

3.3 Talking openly about climate risk and our vulnerabilities

SBC want to talk about climate change causes and impacts honestly and openly. We need to view climate change for what it is – a problem with our climate that affects the wellbeing and economic prosperity of us all and, crucially, our children's ability to live better lives. The truth is that speaking up about these challenges is the only way to break any inertia to making changes.

SBC has a commitment to strengthen its resilience and capacity and that of its partners to adapt to adverse climate change impacts across the region. We need to know more about the risks we face so we can best direct our resources and energies into mitigating their effects and protecting the vulnerable.

Work is underway to examine that nature and extent of climate-related risks in the Scottish Borders by analysing potential hazards and assessing the vulnerabilities that could pose a potential threat or harm to people, property, livelihoods, and our environment. This assessment must be done in collaboration with people and partners to consider the scale and seriousness of what, where and who? T**he evidence points to a question of WHEN - NOT IF.**

We will not pillory people around their energy, transport and waste disposal choices if, at present, they have little choice financially, by geography, or infrastructure. **But we do need transformational change to happen as soon as we can deliver it practically.**

3.4 Strategic environmental assessment

The CCRM has been influenced by Strategic Environmental Assessments (SEA) required by the Environmental Assessment (Scotland) Act 2005. There are 41 registered SEAs for the 10 years between March 2011 and April 2021 for associated PPS in the Scottish Borders. These may be seen on the Scottish Government's database here.

An SEA is a systematic method for considering the likely environmental effects of certain Plans, Programmes or Strategies (PPS) and aims to:

- integrate environmental factors into PPS preparation and decision making.
- improve PPS and enhance environmental protection.
- increase public participation in decision making.
- facilitate openness and transparency of decision making.

The SEA's purpose is to minimise potential negative effects of PPS on the environment and to enhance positive effects. This first edition of our CC Route Map is overarching and forward looking in purpose, hence there is no dedicated SEA. However, in due course, as PPS emerge for certain elements as detail is formed, SEAs will be undertaken.

3.5 Scottish Borders's emissions

Our CCRM is a pathway to meeting the Scottish Government target of 75% reduction in greenhouse gas emissions by 2030 and ultimately to achieve a target of net-zero greenhouse gas emissions by 2045, in line with targets in the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019. Tables 2 and 3 shows a summary of GHG emissions for both the Scottish Borders and Scottish Borders Council.

GHG emissions released in the Scottish Borders are primarily considered to be carbon dioxide (CO2). To a lesser extent nitrous oxides (N20) and methane (CH4). Methane from natural gas, landfill, and livestock traps atmospheric heat almost 90 times more effectively than CO2, breaking down to CO2 itself after 20 years. Nitrous oxides are 300 time more potent and mainly arise from agricultural fertilizers.

SBC GHG emissions can be split into three headings.

1. Direct Emissions from the activities under our control. Including fuel combustion on site such as, gas boilers and fleet vehicles and electricity consumed.
2. Indirect Emissions from supply of electricity to the point of consumption.
3. Other Indirect Emissions from SBC activities with emissions from sources that they do not own or control and may include waste, water, goods/services, and their supply chain, IT etc.

SBC contributes about 2% of total emissions in the Scottish Borders but has relatively little influence over many types of emissions. The Borders geography means that some economic activity and transport take place across local and national boundaries. External influences on actions includes Scottish Government and UK Government financial settlements, policies and initiatives.

Table 2: Scottish Borders GHG Emissions

Source **As of 2018**	**GHG Emissions** **kt CO2**	**%**	**Emission Trend** **2010 – 2018**
Transport	264.3	33.8	Increase in emissions (But mainly A roads)
Agriculture	119.9	15.3	Emissions mostly stable over last 10 years
Energy - industry	175.7	22.4	Decrease (due to 50% fall in electricity related emissions) Gas and other fuel emissions stable over last 10 years
Energy – domestic	222.9	28.5	Decrease (due to 60% fall in electricity related emissions) Gas and other fuel emissions stable over last 10 years
Sub Total	**782.8**	**100**	
Household Waste	134		Decrease in emissions (due to fall in waste volume and better management)
Total	**916.8**		

Note: Does not include water supply and treatment emissions. 'Positive' emissions from GHG sequestration in soils and woodland are not included.

Table 3: Scottish Borders Council Estate GHG Direct and some indirect Emissions

Source **As of 2018**	**GHG Emissions** **CO2t E**	**%**	**Emission Trend** **2014 – 2018**
Transport Core Fleet (Diesel)	4483.2	30	15% decrease in emissions
Energy - (Electric, Gas, Oil, Biomass, LPG)	10293.2	70	42% decrease in emissions (mainly due to fall in electricity related emissions
Total	**14776**	**100**	

Note: Does not include indirect 'grey' emissions such as staff travelling for work in personal vehicles or staff travelling to work. Does not include 'supply chain' goods/services, waste (solid/liquid) emissions.

3.6 Net Zero options unpacked

Meeting Net Zero GHG targets in the Scottish Borders will be challenging, whatever path we take. We have considered several options for reaching our CC Route Map destination.

Option 1: Net Zero by 2045 - using pathways to our destination aligned with Scottish Government milestones.

Option 2: Net Zero before 2045 - using more ambitious pathways and tougher targets to reach our destination more quickly.

Option 3: Net Zero before 2045 - using more creative carbon accounting to reach our destination by deducting our accumulations of 'positive' GHG offsets, for example, from peatland soils or forestry, (renewable energy generation (mainly wind turbines) is already accounted for at a national level)

from our 'negative' GHG emissions. See Table 4 and Figure 3 for 'gross and net' trends. Offsets may obscure gross trends and places a reliance on positive offsets increasing over time.

There are pros and cons for each option. Our small population means that the Scottish Borders total GHG emissions are modest, in comparison to some local authority areas, but per person our emissions tend to be higher. The challenge of achieving significant emission reduction in our rural area with a dispersed population, older housing and car reliance will be significant and will take time.

Accelerating our time horizons to meet targets faster is attractive, but this could be onerous and may impose on achieving a just transition. Natural offsets do not reduce our gross GHG emissions, and the absolute importance of emission reduction must remain central to our purpose. Hence, **we have adopted the Option 1 approach and timescale as the most secure and fair option.** Parallel activity to the CC Route Map will promote GHG sequestration in actions such as organic soil restoration and woodland enhancement.

3.7 Our baselines

To set an emission baseline and then set reduction targets and actions for the CC Route Map it was essential for us to establish the following information:

- An understanding of GHG emissions for the Scottish Borders at a set starting point. Our baseline year is 2010/11. Our per capita population baseline is assumed as 2020 – 115,500 residents.
- An understanding of our GHG emissions reduction for the Scottish Borders since 2010. Our position is summarised in Table 4. This is taken from the 2018 Local Authority Carbon Dioxide Emissions (publishing.service.gov.uk)
- The scale of future emissions reduction projections illustrated in Figure 2 we will need to achieve to meet the interim target of 75% GHG emission reductions on base levels by 2030.

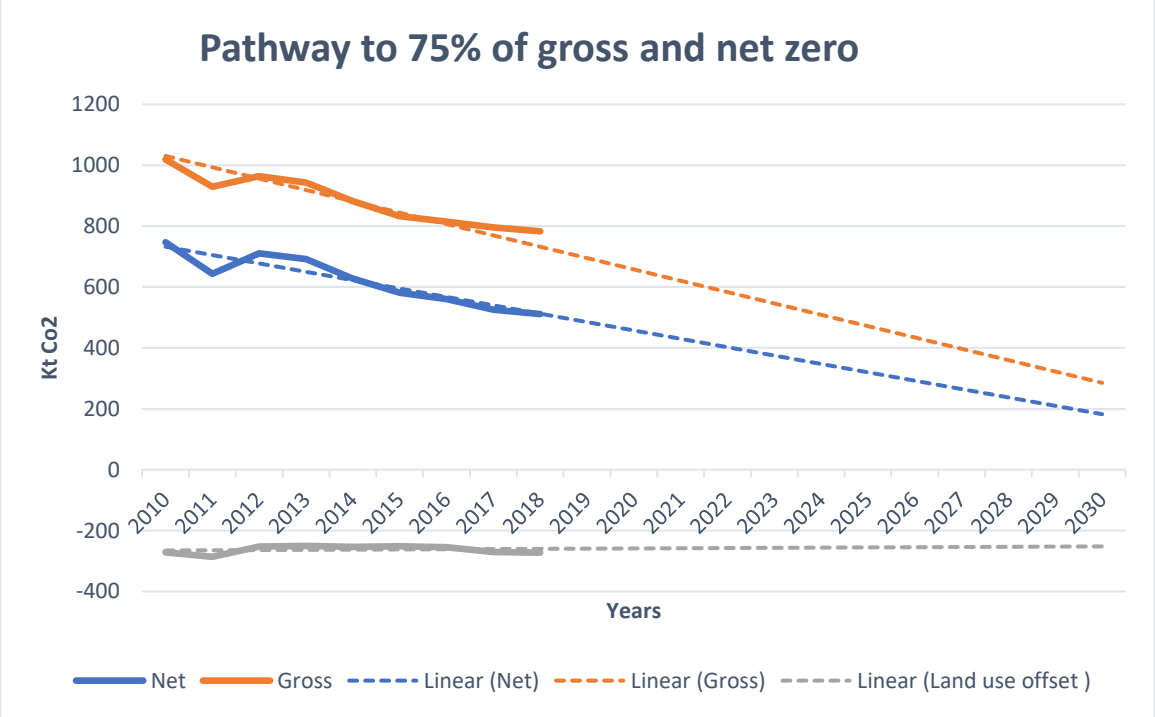
The following performance indicators (total and per capita) that will be used to measure our emissions reduction progress to 2030 against the targets are set out in Table 2 and illustrated in Figure 2.

Table 4: CO2 reduction targets

Year	To meet 75% NET reduction (e)		Total actual emissions Gross	Land use NET Emissions	Emissions NET	Actual emissions Gross	Emissions NET
	Overall - kt	Per capita - t			Overall - kt	Per capita t CO2	Per capita t CO2
2010-11	747	6.6	1019	-272	747	8.8	6.6
2011-12	719	6.2	929	-286.2	642.8	8	5.6
2012-13	691	6	963.8	-252.5	711.3	8.3	6.3
2013-14	663	5.7	943.2	-250	692.8	8.2	6.1
2014-15	635	5.5	881.6	-254	627.6	7.6	5.5
2015-16	607	5.3	832	-251	581	7.2	5.1
2016-17	579	5.0	814.9	-245.9	560	7.1	4.9
2017-18	551	4.8	795.8	-270.9	524.9	6.9	4.6
2018-19	523	4.5	782.9	-272.2	510.7	6.8	4.4
2019-20	495	4.3			Determined in 11/2020		

2020-21	467	4			Determined in 11/2021		
2021-22	439	3.8			Determined in 11/2022		
2022-23	411	3.6			Determined in 11/2023		
2023-24	383	3.3			Determined in 11/2024		
2024-25	355	3.1			Determined in 11/2025		
2025-26	327	2.8			Determined in 11/2026		
2026-27	299	2.6			Determined in 11/2027		
2027-28	271	2.3			Determined in 11/2028		
2028-29	243	2.1			Determined in 11/2029		
2029-30	215	1.9			Determined in 11/2030		
2030 - 31	187	1.6			Determined in 11/2031		

Figure 2: Graph showing Scottish Borders GHG emission decline projections necessary to meet 2030 reduction target



Where GHG emissions from SBC activities cannot be avoided it will be necessary to sequester or 'store' the equivalent amount of carbon. It is recommended that any carbon sequestration used in the calculations of emissions should be done on SBC's estate.

3.8 Moving forward

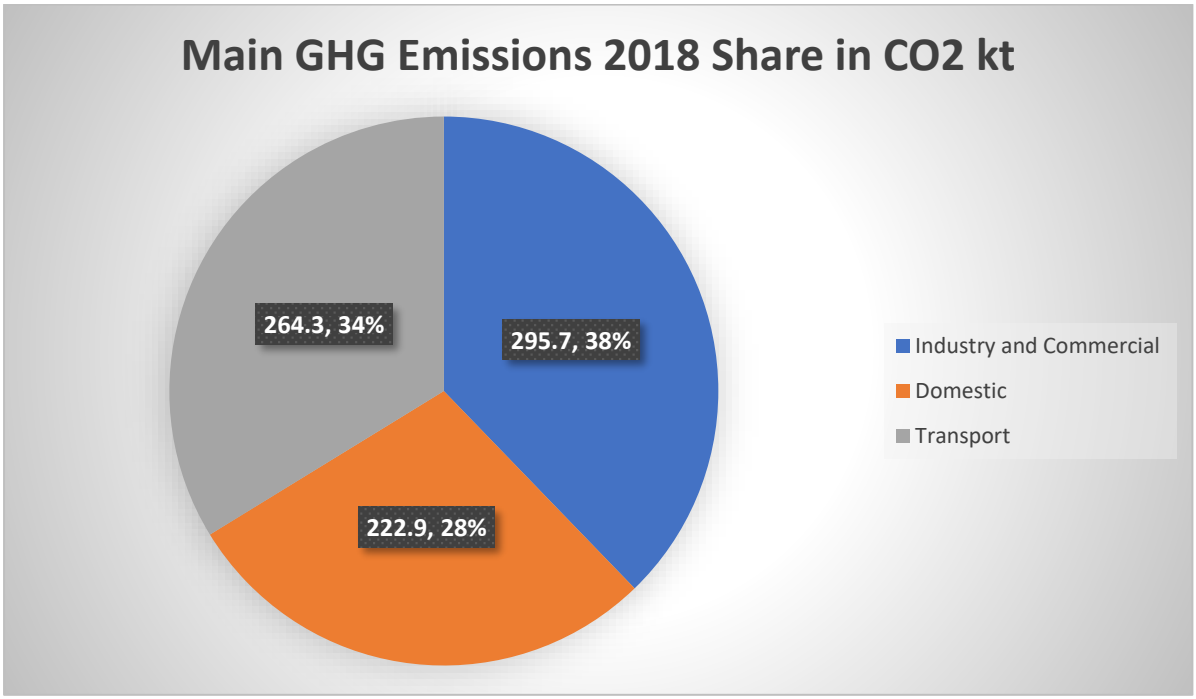
Measurement of emissions is complex. As far as possible, actions in our CCRM will be quantified in terms of their emissions reduction impact. We have more work to do in this field. For specific initiatives, further analysis will be required to provide a better measurement of impact. For different sectors, their scale is likely to be the crucial factor and consequently only best cumulative estimates may be available.

Technological advances, behaviour changes, societal norms, and our understanding of climate change and GHG emissions will change throughout our journey along the CCRM. An annual review of the SBC's emissions and future projections will therefore be undertaken to ensure the plan remains up to date and fit for purpose

4.0 CLIMATE CHANGE ROUTE MAP THEMES

The following CCRM sections look more closely at the crosscutting resilience theme and the four-consumption based GHG emission hotspot and source themes (transport, land management, energy, waste) for SBC and the Scottish Borders, see Figure 3. These five themes are the primary focus for our achievement of Net Zero. So called 'low hanging fruit', in terms of emission reduction opportunities, has been or is being picked. After that it gets harder and, remember, we have opted not to directly count positive offsets from land-based sources like forests and peatlands in our emissions tally.

Figure 3: Main GHG Emissions in the Scottish Borders in 2018



4.1 Theme 1 - Resilience

Resilience is our ability to anticipate, prepare for, and respond to hazardous events, trends, or disturbances related to climate. Our climate is already changing, and impacts are already affecting our natural environment, buildings, infrastructure, and our society. Severe weather events are already impacting our communities and service delivery across the Scottish Borders, with operational, reputational, financial, and legal consequences.

The latest UK Climate Projections (UKCP18) show that uncertainties are set to increase in the future and the impacts we see today are likely to occur more frequently. Meaning higher average temperatures, increased flooding, and more extreme, unpredictable weather patterns.

The Scottish Climate Change Adaptation Programme (SCCAP) addresses the impacts identified for Scotland in the UK Climate Change Risk Assessment (CCRA). It sets out the Scottish Government's objectives in relation to adaptation to climate change.

The first Scottish Climate Change Adaptation Programme (SCCAP) was released in May 2014, followed by Climate Ready Scotland: Second Scottish Climate Change Adaptation Programme 2019-2024 , published in September 2019. The Programme takes an outcomes-based approach, derived from both

the UN Sustainable Development Goals and Scotland's National Performance Framework. SBC is tied to both.

In the Scottish Borders, the consequences of climate change will be increasingly severe, compounding many other long-term challenges faced by the area such as rising energy and commodity prices, an ageing population, lower than average incomes, transport and connectivity issues and social and economic inequalities.

SBC climate change policy for resilience responds to both a UK and a Scottish framework. There are two key pieces of legislation: the UK Climate Change Act 2008 and the Climate Change (Scotland) Act 2009. The UK Act requires a Climate Change Risk Assessment (CCRA) every five years. It is the basis for adaptation policy in both Scotland and the UK.

4.2 Theme 2 - Transport

Mobility to keep our people, communities and businesses moving and serviced is a primary source of GHG emissions in the Scottish Borders. The policy landscape for transport throughout Scotland has recently taken a fundamental shift and the focus on sustainability in business practices, low carbon improvements in vehicle manufacture and alternative travel modes will help to reduce emissions

While it is sometimes assumed that our future transport pattern will be similar to current ones, Scottish Government has confirmed that it will not accept a growth in traffic. In the future we will of course still need to move goods and people but, if we can buy mobility services when and where we need them, instead of buying transport assets we only use occasionally, we can further reduce emissions and costs. The Scottish Government commitment is to reduce private car mileage by 20% by 2030 and phase out sale of new diesel and petrol vehicles by 2030, with the public sector required to phase out the need for new petrol or diesel light commercial vehicles by 2025, and any new petrol or diesel vehicles in public sector fleets by 2025.

The private car is far from obsolete yet. Short term, COVID-19 has boosted the car's pole position and due to concerns over virus transmission people have been discouraged from using public transport. The International Energy Agency IEA also expects advances in battery technology and mass manufacturing of electric cars will continue to reduce their cost – and decrease the need for government subsidies. But, individual journeys are still more efficient on mass transport than the private car, even accepting a shift to EV or other renewable fuels.

In the medium to long term the need for a cultural change and modal shift to sustainable modes will be a fundamental requirements to reduce transport emissions. The availability, integration and cost of active travel, public transport, the development of demand responsive transport, Real Time information, Multi-modal ticketing, and the development of Mobility as a Service (MaaS) concepts will support the delivery of a network that is a viable alternative to the private car and enable many people to avoid having a car sitting on the driveway, remaining unproductive for long periods.

In the transport sector, sustainable biofuels, and electro-fuels (e.g. hydrogen) produced from renewable electricity will enable more renewable energy usage in commercial road transport, as well as in shipping and aviation. But the 2020s will also need government policies that promote the introduction of low-carbon medium- and heavy-duty vehicles and greater investment in installing fast-charging infrastructure. A diverse portfolio of solutions is key to securing a rapid and cost-effective transition to a renewable energy future.

Moving people and goods accounts for 36% of Scotland's total GHG emissions and the private car accounts for 40% of that proportion. Given that in the Borders, people are scattered in towns, villages, and the wider countryside this figure is probably higher. This is where we need to start.

We must change our travel behaviour and embrace more sustainable and healthy travel modes such as walking and cycling, especially for shorter journeys.

The National Transport Strategy – Second Edition (NTS2) 2020 Sustainable Travel Hierarchy emphasises active travel and public transport over the private car: walking and cycling at the top and the private car at the bottom. Electric vehicles and a growing network of charging points located throughout Scotland raise questions regarding where electric vehicles sit within the hierarchy and therefore this approach may need to be revisited in coming years. Furthermore, 2030 will see the sale of petrol and diesel cars and vans banned in Scotland.

4.3 Theme 3 – Nature-based solutions to Climate Change

Agriculture and related land uses are a primary source of GHG emissions in the Scottish Borders. Conversely, they are a major source of GHG sequestration or offset. Farmlands are inescapably entwined with Scottish Border's landscapes, and any changes to our climate will impact on the types of crop that can be grown and how much food they produce.

Scotland only produces about 55% of the food and 20% of the timber it consumes, relying on imports for the rest. This supply chain extends our GHG emissions and climate change impacts to other countries overseas

Methane is the main net gas emitted in the agriculture and related land use sector, followed by carbon dioxide and nitrous oxide. But simply reducing livestock numbers is not the full answer. Soils store carbon that would otherwise end up in the atmosphere and intensive agriculture can cause a loss of organic carbon, soil erosion and loss of fertility. Changes to soil temperature and moisture levels will make farm planning more difficult. There may be both opportunities and risks from farmers growing different crops.

There is a huge opportunity for new schemes that incentivise land mangers by rewarding them for protecting and regenerating soils. Soil holds three times as much carbon as the atmosphere, it reduces the risk of flooding by absorbing water, it is a wildlife habitat, and underpins agriculture.

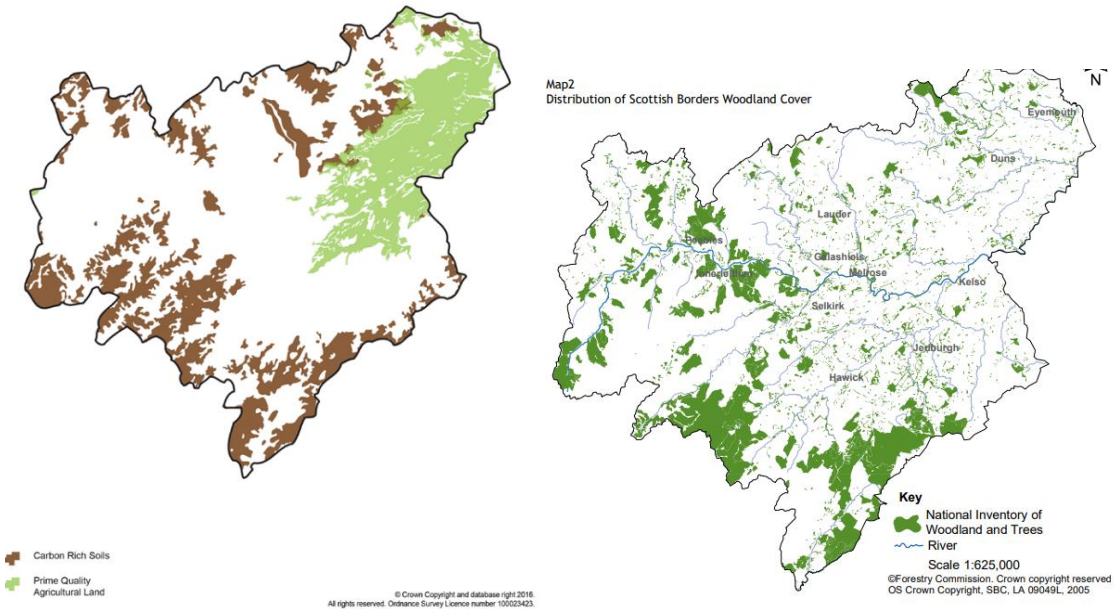
The Scottish Borders has a skilled and professional farming sector which can reduce GHG emissions by taking a holistic approach to protecting and enhancing their soil, optimising land use, tackling livestock disease, utilising the best technology, maximising input efficiency, and turning wastes into a resource.

Our natural capital is one of the Scottish Borders' greatest assets and is central to Scotland's future Net Zero economy and the nation's well-being. Land use planning can help mitigate the impact of climate change by storing more carbon, and also reduce the impacts of flooding and improve water quality. Natural resources such as peatlands (15% land cover), soil carbon, forestry and woodland (20% land cover), fresh and marine waterways are immensely valuable carbon sinks if we manage them well. (See Figure 4). The Scottish Borders has huge natural reserves of heat locked up in its water ways and under its greenspaces, yet we have barely considered their utilisation.

The Scottish Borders is ideally placed to capitalise on nature-based solutions. SBC is working with partners to develop a Borderlands Natural Capital proposition as part of the Borderland Growth deal to trial natural capital pilot projects, and is a principal partner in the South of Scotland Regional Land Use Partnership Pilot, aimed at developing Scotland's approach to land use in support of our green

recovery and transition to net-zero. The future must be one of thriving low emission rural economies, based around self-sustaining natural ecosystems with woodland creation, peatland restoration and biodiversity enhancement on a landscape scale as well as responsible outdoor recreation and tourism, quality food and drink and renewable energy.

Figure: 4 Distribution of carbon rich soils and forestry across the Scottish Borders



4.4 Theme 4 – Energy

Energy consumption in our businesses and industrial process and in our homes and lives are a primary source of GHG emissions in the Scottish Borders. Energy consumption in the food chain, for example, is almost equal to 18% of UK's overall energy use, but most is consumed in space heating our homes and workplaces.

Thinking about energy in a holistic and strategic manner will allow us to find ways to optimise the flexibility of the system and deliver the twin benefits of reduced emissions and reduced costs. For example, by storing and even generating electricity, businesses, and individuals (e.g. overnight charging of electric vehicles) can shift peak demand and avoid higher costs, and also reduce overall consumption from the grid.

Higher energy costs and capacity on grid networks delivering energy to customers are an ever-increasing challenge for industry. Embracing new energy networks, technologies, and solutions such

as new EV infrastructure, battery storage systems and even microgrids can support communities and businesses to reduce energy costs, increase resilience and achieve Net Zero targets.

Collectively, emissions from domestic use have decreased over past years mainly due to a switch from less efficient solid and liquid fuels to heat space in households to natural gas and electricity and improvements in energy efficiency like LEDs. Warmer mean temperatures may mean less heating is required. However, much of the housing stock, business premises and public buildings in the Scottish Borders are older (pre-1945) and dispersed making improvements at scale harder to achieve.

Cold and energy inefficient homes are detrimental to health and in 2018 29% of Borders households were in fuel poverty, with 15% living in extreme fuel poverty. These figures are worse than the Scottish average and occur particularly amongst vulnerable households, and people on low incomes. History and topography have placed housing in valleys in off gas grid places where frost pockets occur and initiatives like district heating schemes are more difficult and expensive to retrofit. Registered Social Landlords (RSLs) are the main providers of new and affordable rented housing for people in the Scottish Borders and have a key role in shaping our region's response to the drive for energy efficiency in the housing sector.

Renewable power has become mainstream, although political choices and fossil fuel subsidies still slow down the wide deployment of renewables across all sectors. After years of steady growth, renewable energy has become a fully mainstream option in the power sector. Falling costs, namely in wind (a fast-growing source of clean electricity in the Borders) and hydro, have helped Scotland to a point where, in 2020, we narrowly missed a target to generate the equivalent of 100% of our electricity demand from renewables. There are 394 approved turbines over 5 MW with an estimated total installed max capacity of 892.77 MW and 156 approved turbines under 5 MW with an estimated total installed max capacity of 10.93 MW geographically within the Scottish Borders Council boundary. Hydro and biomass output is small.

A principal GHG emissions factor associated with supply will be how fast the national electricity supply grid is decarbonised, and the CO2 (tCO2/MWh) associated with each unit of electricity used in the Scottish Borders and the region's associated supply chains.

Table 5: GHG emissions per unit of electricity used

Activity[2]	Country	Unit	Year	kg CO_2e	kg CO_2	kg CH_4	kg N_2O
Electricity generated	Electricity: UK	kWh	2019	0.2556	0.25358	0.00065	0.00137

The Borderlands Energy Masterplan is a vital tool for taking forward our future response to Energy in the Scottish Borders. The Energy Masterplan is a programme within the Borderlands Partnership, a partnership of local authorities and stakeholders, brings the five cross-border local authorities of Carlisle, Cumbria, Dumfries and Galloway, Northumberland and Scottish Borders together with UK Government and Scottish Government to promote the economic growth of the area. The partnership has contracted to develop an energy strategy for the region that will:

- identify strategically important projects;
- support and facilitate future local area energy plans; and

[2] Greenhouse gas reporting: conversion factors 2019 - GOV.UK (www.gov.uk)

- engage stakeholders in the development of the energy strategy and projects.

The Masterplan will model the region's energy system to develop pathways towards the region achieving net zero decarbonisation. An interconnected thematic modelling approach will be taken, with domestic, commercial and industrial, transport, electricity generation, energy efficiency, and smart and flexible sector pathways modelled and reported on. In addition, spatial information will be collated on energy modelling factors, for example building energy efficiency data, energy generation projects and resource opportunities. This spatial information will support future local area energy plans across the Borderlands and within the Scottish Borders.

4.5 Theme 5 – Waste

Waste is the endpoint of most of our consumption: the more we consume, the more we throw away, in terms of food, construction waste or other products. Basically, the waste management part of the product life cycle (manufacture/growth, distribution, packaging, purchase, use and ultimate redundancy) makes a secondary contribution to total GHG emissions.

Across the region SBC is charged with the management of waste from domestic sources and some trade premises. There is very little capacity to treat waste within the Scottish Borders. Some businesses use commercial waste collections. Both potable water and wastewater treatment are provided through Scottish Water which is also responsible for associated GHG emissions reduction.

Management of waste, meaning the collection, treatment and onwards disposal of unwanted or unusable material from our homes and businesses is a direct consequence of the products and services we consume and use. Some GHG emissions are released through the waste management process, but much of the emissions burden control lies elsewhere with other stakeholders in the product lifecycle from the manufacturer to the distributer and ultimately with the consumer.

The prevention, recovery and reuse of wastes will directly help to reduce GHG emissions. The sound management of waste can have substantial co-benefits alongside efforts to address climate change impacts. Priority should be given in descending order to waste minimisation, re-use, recycling, waste-to-energy, and landfill as the least desirable option.

The five main policy drivers for reducing waste GHG emissions in Scotland are:

1. Ban on biodegradable municipal waste to landfill from 2025
2. Reduce waste arising's in Scotland by 15% against 2011 levels by 2025
3. Reduce food waste arising's in Scotland by 33% against 2013 levels by 2025
4. Achieve 70% recycle rate for all waste by 2025
5. Landfill no more than 5% of waste by 2025
6. Scotland's Circular Economy Bill
7. Deposit Return Scheme
8. Extended Producer Responsibility Review

Certain waste products are harder to process, and priority should be given to their reduction or even elimination. Plastic, for example, even single use plastic, can be a persistent pollutant and is made to last - and it does, often for 400 years or more. Throughout its lifecycle, long after it has been discarded, plastic creates GHG emissions and can breakdown to micro particles that enter the food chain of many species including people. Reducing plastic packaging also reduces physical waste in landfills

Adopting modular systems, are one way of reducing waste. For example, making homes in offsite factories turns their construction into a manufacturing process rather than a building process. In

controlled factory environments, building becomes more efficient and faster while ensuring a quality finish, thereby reducing much of the waste found on building sites.

Waste is assessed in terms of its carbon Impact – a measure of the whole-life carbon impacts of waste, from resource extraction and manufacturing emissions, right through to waste management emissions, regardless of where in the world these impacts occur. SBC is not only responsible for managing waste, but also for providing these services in a way that reduces GHG emissions. While the Council is not accountable for individual choices, it has a responsibility to educate citizens to support them in making the best judgements about how to reduce their emissions from waste.

Carbon impacts are measured in TCO2e – tonnes of carbon dioxide equivalent, which is a measure that allows the comparison of the effect of all GHG emissions (like methane from landfill which, for the same volume, is up to 90 times more impactful on the greenhouse effect than carbon dioxide) associated with waste relative to one unit of CO2.

One frequently overlooked element of waste is waste water. Management of waste water is not a direct Council responsibility, but the responsibility of Scottish Water. The Council has a role to work with partners, including Scottish Water in planning how to minimise the emissions consequences of waste water treatment. Emissions from waste water are proportionate to the amount of water supply that requires collection, distribution and treatment, the standard to which both potable and wastewater is treated, and the methods used. A major factor is the volume of water used by consumers. Scottish Water advise that we use about 165 litres of water per person per day in the Scottish Borders. Overnight visitors to the region can use over twice as much. Much of the raw water for Edinburgh is collected in the Scottish Borders.

Collecting, treating, and distributing drinking water to homes and businesses and treating waste water before returning it to the environment means Scottish Water is one of the largest single users of electricity in Scotland. Water use accounts for 6% of total UK GHG emissions – this is same as the aviation industry.

It is estimated that 65% of energy consumption derives from distribution with 25% from collection and 10% from treatment. On the sewerage side, 60% of energy consumption is associated with treatment, with the remainder attributable to sewerage pumping (25%) and disposal (15%). The dispersed nature of the region's population and terrain means unit energy consumption is greater. Notwithstanding, all of us have a role in minimising our use of water.

5.0 CLIMATE CHANGE ROUTE MAP THEME PRESENTATION

This section lays out our 25 CCRM theme milestones and our core actions for each milestone and our phasing timetable below.

(i) ClimateChange@SBC CCRM – Phasing

CCRM phasing is not an exact science, and the following three principal phases and timings across all our main themes should be seen as indicative.

June 2021: Climate Change Route Map (CCRM) – First Edition

November 2021: United Nations Climate Change Conference (COP26) in Glasgow

April 2023 and annually thereafter: The Climate Change (Duties of Public Bodies: Reporting Requirements) (Scotland) Amendment Order 2020 requires SBC to provide in their annual reports:

- target date for achieving zero direct GHG emissions
- where applicable, targets for reducing indirect GHG emissions
- how spending plans and use of resources will be aligned to contribute to GHG emission reductions and targets
- how progress to achieving targets will be published or made available
- contribution made to helping deliver Scotland's Climate Change Adaptation Programme.

Phase 1 – 2021-23: Projects which are already planned/we know will be delivered and strategy development

Phase 2 – 2024-30: Implementation of projects/programmes which we wish to commit to which will contribute to overall carbon reduction, but have not yet been detailed

Phase 3 – 2030 and beyond: Future programmes which will support achievement of Net Zero target but as yet have not been specified (longer term policy, national guidance, funding mechanisms).

Destination: 2045 - Net Zero target Scottish Borders and Scotland

(ii) COVID impacts on the CCRM

It is impossible not to consider the effects of the recent pandemic on behaviours and practices compared to pre-2020 and our recovery process, as controls are lifted. Beyond the economic downturn, key behaviour changes have been noted that will impact on GHG emissions, at least in the short term, include:

- Changes to travel and work patterns. For example, more home working, less office space required, less commuting and less use of public transport
- Less commercial activity but greater value placed on local suppliers
- Valuing local green spaces and the outdoors as a recreational and tourism destination

Pandemic-induced economic shocks may have little direct effect on long-term emissions as the economy restarts. But they may well have a significant indirect effect on the level of investment that businesses, and the public sector, are willing or able to commit to meet GHG emission targets.

(iii) Key References

- Low Carbon Economic Strategy 2013 and Scottish Borders Economic Strategy

- Scottish Borders Regional Land Use Framework 2015 – now SOS RLU Partnership
- Local Development Plan 2016 (New plan in preparation)
- Scottish Borders Local Biodiversity Action Plan 2018 -28 (Supplementary Guidance)
- Embedding Sustainable Development Report August 2019
- SBC Annual Public Bodies Duties (CC Act 2009) Climate Change Report 2019-2020
- Sustainable Procurement Charter (updated annually)
- Commercial and Commissioned Service Strategy 2018-23
- Flood Risk Management Strategies 2015-2021
- Local Flood Risk Management Plans 2016 -22
- Responding to the Climate Emergency Report September 2020
- Anti-Poverty Strategy February 2021
- Fleet decarbonisation report EST 2021
- SBC Corporate Plan 2018 -2023, Connected Borders 2017 -22 and Fit For 2024
- South of Scotland Regional Economic Strategy, the Borderlands Inclusive Growth Deal, the Edinburgh and South-East Scotland City Regional Deal

5.1 Building Resilience (BR)

5.1.1 Objective: To ensure that our communities, green networks, and infrastructure are able to adapt to the impacts of a changing climate and to reduce the risks and vulnerability to unavoidable impacts.

5.1.2 Purpose: Local government has a vital role to play in progressing community resilience. Building effective resilience requires thoughtful and systematic planning. A resilience approach can inform decision-making around interventions in the four GHG emission reduction themes, transport use, natural resource use, energy consumption and waste management.

5.1.3 Status: SBC, as the lead for community planning, has a role in delivering/leading climate change adaptation across the region. We must also prepare our own estate, buildings, infrastructure, vehicle and equipment and the services it provides for future climate change impacts and ensure business continuity in the face of extreme weather events.

5.1.4 Milestones: For our resilience journey to reduce GHG emissions

BR1 Align SBC organisational purpose, strategy, and regulation to Net Zero; while developing core skills and capacities

BR2 Set organisational goals and evidence-based targets, measure, and report progress

BR3 Embed Net Zero practices in SBC's own operations, capital programmes and value chains

BR4 Engage, collaborate, and advocate for change with partners across the region

BR5 Undertake an area wide climate risk assessment to identify key vulnerabilities and increase climate resilience of infrastructure, services and communities.

5.1.5 Process: To achieve the milestones and future proof SBC Estate and wider community

BR1	• SBC to use its scale, purpose, strategy, and regulation as the region's largest public sector body to influence its own activities and those of others in pursuit of Net Zero • SBC to recognise its direct influence is limited by the fact that it is not accountable or responsible for all that takes place within the region and enter into appropriate partnerships • SBC will establish a central 'library' of GHG emission reduction and cost data with consistent methods of measurement from baseline and ways of feeding as-built data back into the library • SBC project design briefs to include robust consideration of the opportunities for emission reduction during construction phase and whole life. • SBC service designers and managers to demonstrate capability to include construction/establishment phase, operational and whole life reductions • A GHG emissions reduction operational standard for buildings is to be established and continually reviewed and improved • SBC will extend its scope of emission measurement to include business mileage by private car, hire car and public transport • SBC to expand staff training in Carbon Literacy
BR2	• Establish a comprehensive database of SBC associated GHG emissions and measurement systems (meters, loggers etc) by cost centre by 2023

	• Ensure the spectrum of SBC activity which either directly or indirectly influences the actions of others, including planning, transport, housing, social care, education waste and procurement includes appropriate Net Zero goals and targets • Set a target date for net zero emissions from SBC's directly controlled operations • Monitor and report on progress to Sustainable Development Committee and Council, as appropriate
BR3	• SBC spends approximately £180M per year on goods and services from third parties, and how it spends that money can shape the decisions and actions of the supply chain. The Council's Sustainable Procurement Charter is an important framework for this influence and the Council will continue to apply the principles and practice of the Charter with rigour • From 2030, SBC will ensure new Capital Programme investments deliver net zero emissions, to avoid further downstream capital or revenue burdens
BR4	• Regionally, a high-level Advisory Group will be established to provide external oversight and review of the CCRM • The Advisory Group will convene a Biennial Conference. • A Citizen's Assembly/Panel will be established with an independent chairperson and an SBC secretariat. See Section 6 for more details
BR 5	• SBC to pursue opportunities to work with South East Scotland partners to develop a regional Climate Risk Assessment Partnership • SBC to review and invest, as appropriate, in sections of areas of our current infrastructure (including, for example, roads and bridges, sea walls etc) and develop plans to make them more robust to meet extreme weather. Note - in some of our rural valleys or on the coast, this is more than just maintaining, but means enhancing, realigning or replacing certain pieces of infrastructure, and represents a potentially new cost burden. • SBC to work with partners to ensure that local built heritage assets are appropriately maintained to withstand the impacts of a changing climate.

5.2 Decarbonising our Transport Use (TU)

5.2.1 Objective: To help deliver Net Zero, reduce inequalities, deliver inclusive economic growth, and improve health and wellbeing across the region.

5.2.2 Purpose: Transport accounted for 34% of GHG emissions in the Scottish Borders in 2018. It is a priority sector for reduction.

5.2.3 Status: Transport has shown an increase in GHG emissions across the Scottish Borders, as shown in Figure 5. As shown in Figure 6, the source is mainly from the use of A class roads and, to a lesser extent, from the minor road network managed by SBC. Rail emissions are negligible.

Figure 5: Scottish Borders - Total Transport Emissions 2010 -18

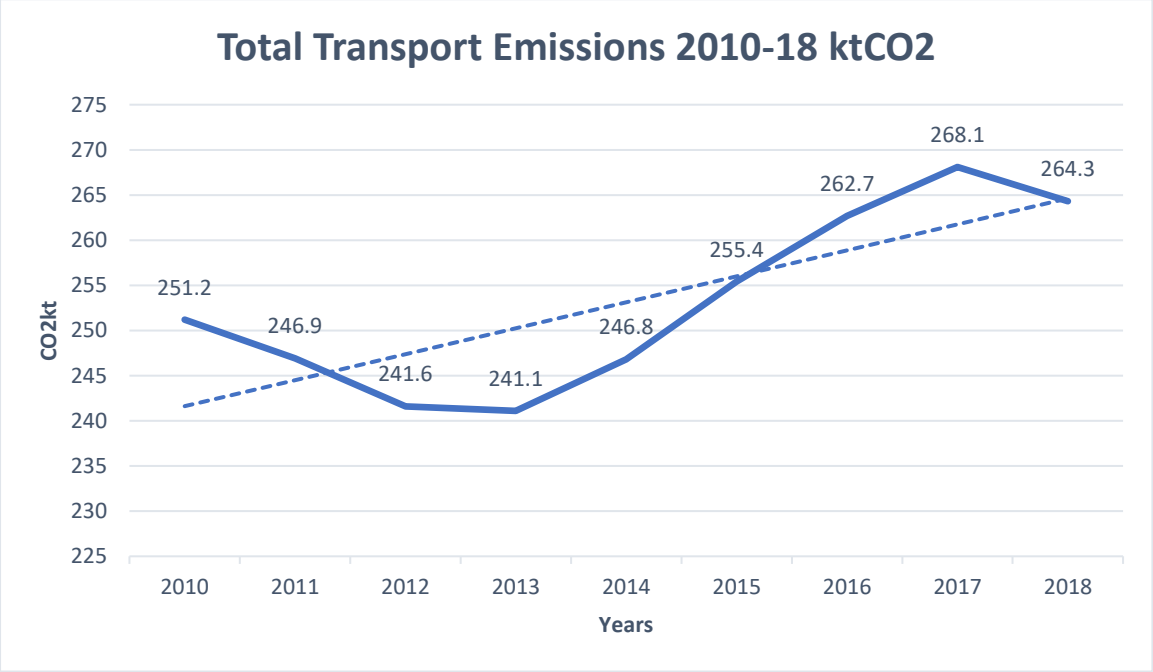


Figure 6: Scottish Borders - Source of Transport Emissions 2018

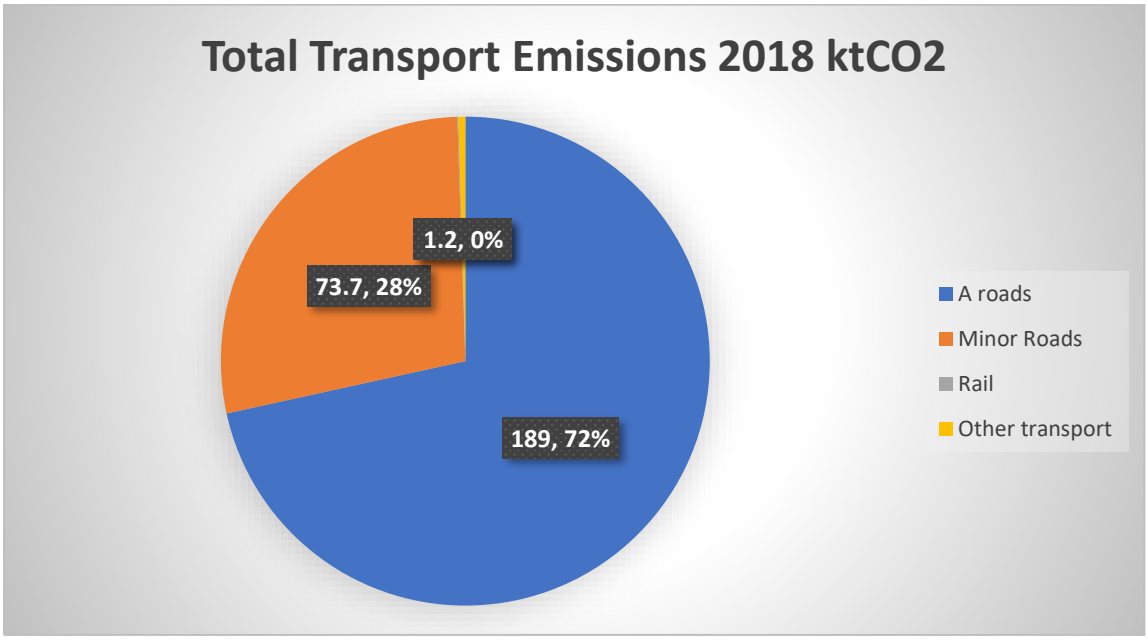
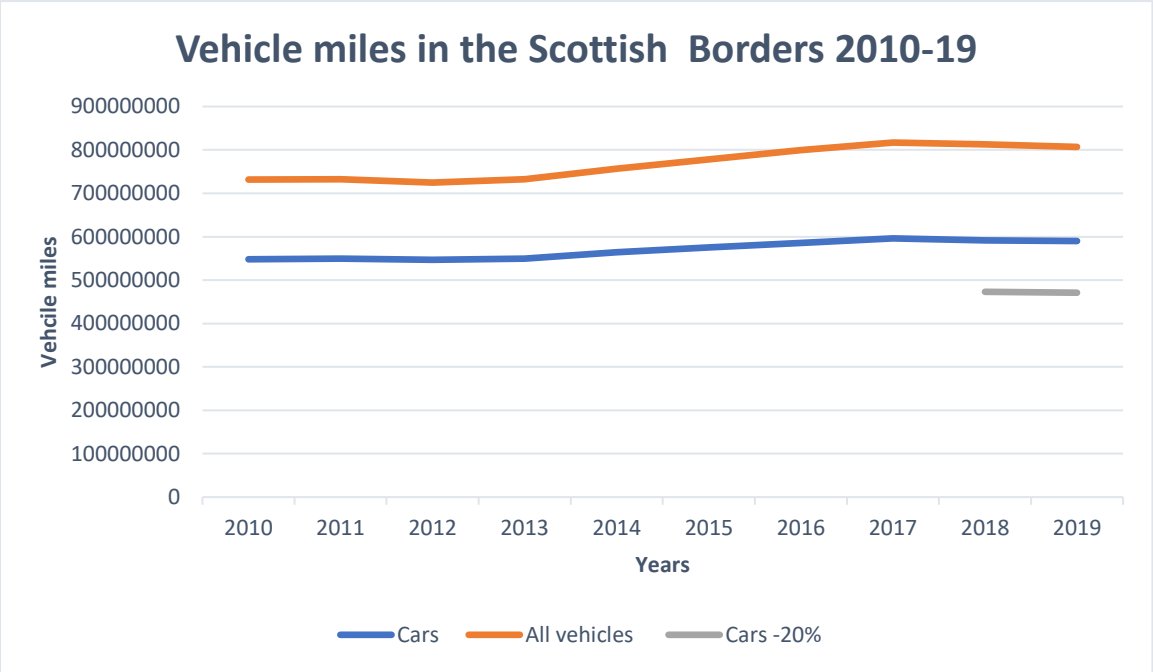


Figure 7: Total vehicle miles in Scottish Borders 2010-19



Total vehicle travel in the Scottish Borders in 2019 was 0.807 billion miles as shown in Figure 7. Minor road traffic accounts for about 30% of all traffic in the Scottish Borders. Overall vehicle miles have increased since 2010 although less steeply than emissions over a similar period suggesting that fuel efficiency is improving. Note: Scottish Government is seeking a 20% reduction in car miles by 2030 – represented by the grey line for 2018/19 in Figure 7.

The SBC 424-vehicle fleet travels over 6 million miles and produce 4,656 tonnes of CO2e. Most of SBC GHG transport emissions come from fuels consumed in core fleet vehicles (e.g. lorries, vans, and pool cars), See Table 6.

Additional emissions arise from grey fleet travel for business purposes (e.g., fuel consumed in staff-owned vehicles to conduct SBC business). These vehicles drive just under 1.5 million miles annually and cost SBC around £650,000. Data on the individual vehicles driven is not collected. Typically, a grey fleet is older and less inefficient than a company owned fleet. Annual GHG emissions are estimated at 415.7 tCO2e, equivalent to almost 10% of the core fleet.

The SBC core transport fleet shows a more positive reduction in transport related GHG emissions. As Figure 8 shows, there has been a reduction of 15% from 2014 -19 in GHG emissions from the diesel used by SBC's core fleet. The factors that are driving this reduction are:

- Efficiency measures among the fleet including more efficient vehicles and vehicle trackers
- Transition of fleet vehicles to electric vehicles

More work needs to be done on grey fleet emissions through the electrification of cars and vans, behaviour change and decarbonisation of public transport. Carbon emissions from the use of public transport on SBC business (buses, train, and aeroplane) has not been calculated.

Figure 8: SBC GHG Transport emissions

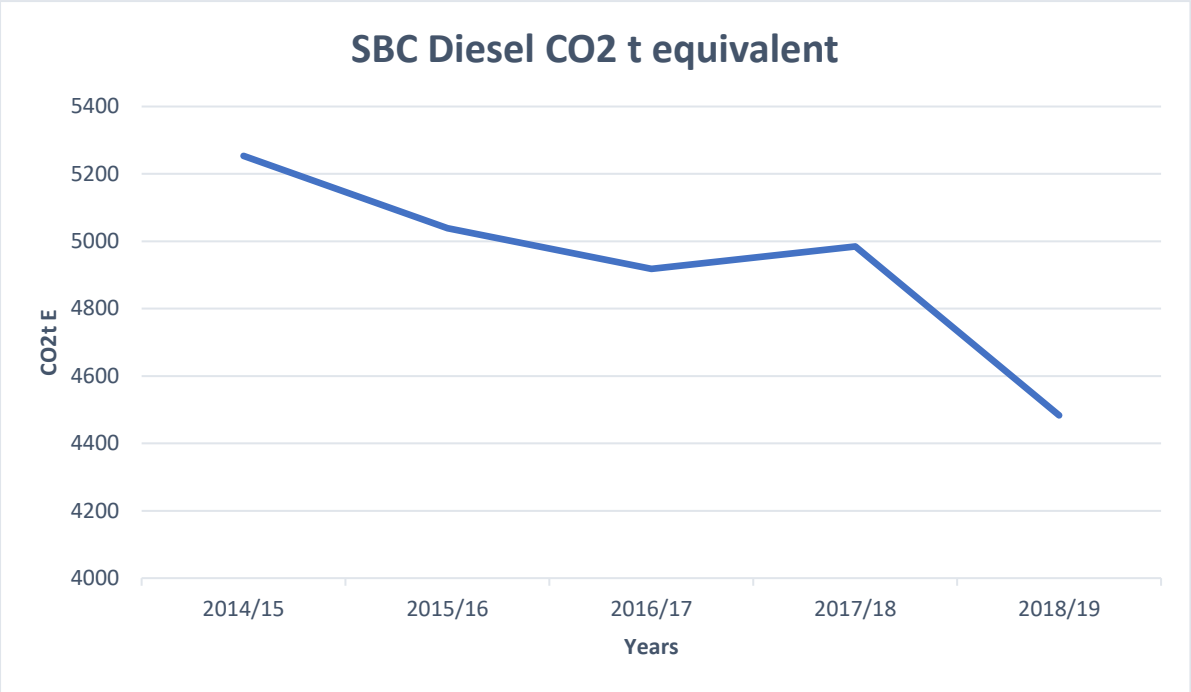


Table 6: SBC Vehicle fleet numbers

Vehicle type	Description	Quantity 2019/20	GHG Emissions estimates tCO2 e
Core fleet			
Car and car derived vans 25 EVs 1 PHEV 56 Petrol hybrids 5 petrol cars 7 other	Most cars are under 4 years old	94	309
Light commercial vehicles 85 panel vans 8 SUVs 7 MPVs 37 other	Range of ages from new to 10 years	137	584
Heavy duty vehicles 71 tipper trucks 35 Refuse vehicle 22 Gritters 65 other	Oldest vehicles are HDVs due to their longer lifecycle and high upfront costs.	193	3763
Total		424	4656
Grey Fleet			415.7
Combined total			**5071**

Note: Not included are fossil fuel powered unlicensed/non-road going vehicles and plant such as ride on lawn mowers, leaf blowers, strimmers and saws.

5.2.4 Milestones: For the transport journey to reduce GHG emissions

TU1 Accelerate active travel to be the natural first choice for our daily activities including the provision of additional multi-use trails between towns and villages throughout the Scottish Borders.

TU2 Enhance modal shifts for passenger transport services, including new transport modes, alternative energy sources including electric and potentially hydrogen powered vehicles, through programmes such as the Switched-on Towns and Cities Programme.

TU3 Help decarbonise how we get our goods by infrastructural improvements including a wider electric vehicle charging network and 'last mile' delivery for the South of Scotland

TU4 Decarbonise SBC core and grey fleet by supporting the promotion and purchase of zero emission alternative powered vehicles. By the early 2030s all our new cars and vans are low carbon. By 2040, so are all our new trucks.

TU5 Consider place-based solutions through Demand Responsive Transport and integration of Mobility as a Service (MAAS) through linking various forms of shared transport services into a single service that is accessible to people on demand.

5.2.5 Process: To achieve the milestones and future proof SBC Estate and wider community, working with partners, SBC will or will aim to deliver the following supporting actions.

TU1	• Promote and develop approaches to support First Mile/Last Mile. • Promote and support expansion of Bike and E- bike Sharing. • Promote existing Walking and Cycling infrastructure and links into the wider transport network. • Promote Active Travel Neighbourhoods
TU2	• Support the feasibility study for the extension of the Borders Railway • Commission a feasibility study into bus connectivity and integration into the Borders Railway extension to maximise connections between bus and rail and increase passenger journeys on public transport. • Review the current Home to School transport network using transport modelling software to reduce miles operated and journey times. • SBC will lead on a Review of the existing transport network and work in partnership with communities, elected members, neighbouring authorities, and local transport providers to ensure that barriers to public transport connectivity and accessibility are removed and connections across boundaries and to communities that lie off key transport arteries are enhanced promoting modal shift away from private car use on to more sustainable modes of transport. • Improve passenger information by implementing Real time information screens at key transport hubs across the region. • Net Zero tender strategy for 'cleaner' passenger transport vehicles • Car and E car sharing, cars available in more rural locations •
TU3	Increase number of EV Charging Stations Explore opportunities around Hydrogen Fuel Cell Charging • Develop Road Network Improvements to support transport network. • With neighbouring authorities and operators identify key sites where congestion impacts on interurban routes and assess where (TLP) can be implemented to decrease journey times on key commuter corridors.

	• Develop Park and Ride facilities at (Tweedbank) (Reston) and at City Boundaries • Explore options with passenger transport operators to deploy hydrogen and electric vehicles in the region and identify strategic locations where Rapid EV charging points can be installed to enable operators to make the change to alternative powered vehicles. • Continue to develop 20 MPH zones in settlements
TU4	• Review core SBC vehicles, fleet, and plant to identify opportunities for the implementation of Electric/Hydrogen vehicles • Increase the number of electric pool cars to replace some of the grey fleet mileage • Pursue a reduction in SBC business mileage by a minimum of 3% each year for ten years through an awareness and behaviour change programme e.g., through increasing use of videoconferencing to reduce the need to travel or service redesign • All taxis contracted by the Council to be electric by 2030 and aspire to all taxis operating in the region to be electric by the same date, 2030
TU5	• Test, in a practical pilot application, the viability of Demand Responsive Transport and Mobility as a Service in the Scottish Borders so more people feel empowered to use alternative ways to travel, encouraging them out of cars and private car ownership, and so reducing carbon emissions.

5.3 Nature-based solutions (NBS) to Climate Change

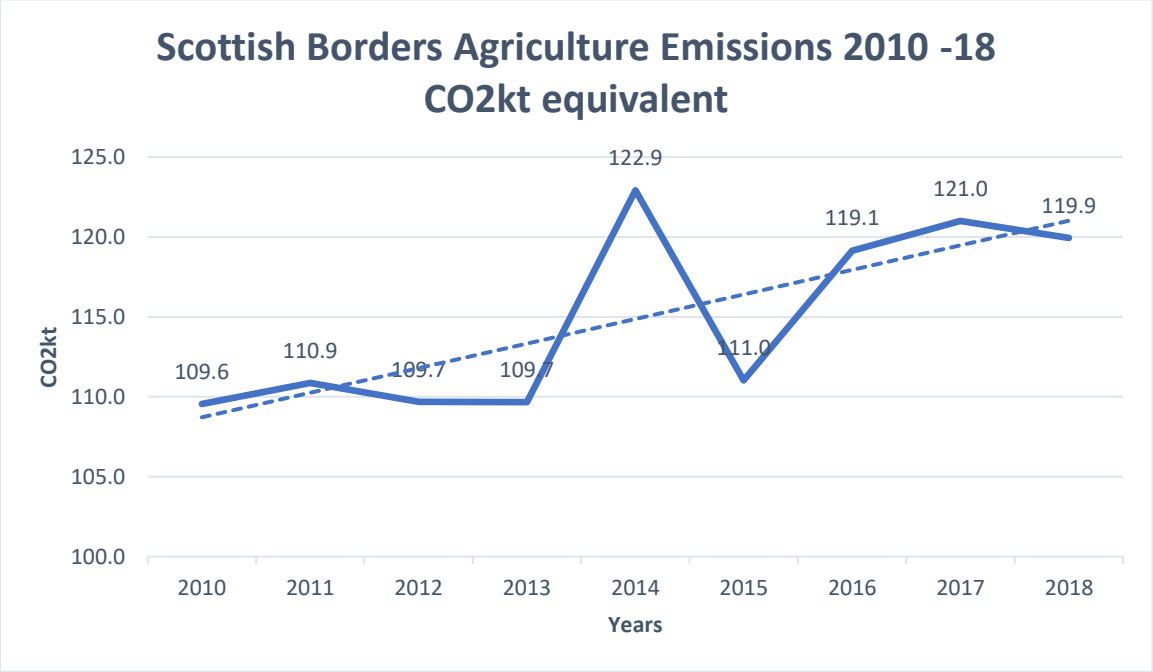
5.3.1 Objective: A transformation in agriculture and the use of farmland while maintaining the same levels of food per head produced today and region where woodlands, peatlands, heathlands and pastures are widely restored and managed sustainably.

5.3.2 Purpose: There are three main GHGs produced in agriculture, carbon dioxide, methane, and nitrous oxide. Different GHGs have different impacts on climate change. Methane and nitrous oxide make up over two thirds of Scottish agriculture's total emissions. Emissions of both have fallen due to lower livestock numbers and less use of fertilisers. There is still room for improvement.

Conversely, forestry and the low embodied energy of timber makes it an excellent choice in reducing GHG emissions. Using home grown solid timber for structural and cladding applications also minimises transport and commercial processing emissions.

5.3.3 Status: Agricultural GHG emissions have increased across the Scottish Borders by around 10% since 2010 and shown in Figure 9. Although massively positive, sequestration of GHGs in forestry and other land uses has also fallen by around 13% and maybe due to harvesting.

Figure 9: Scottish Borders emissions from agriculture



5.3.4 Milestones: For the nature-based solutions journey to reduce GHG emissions

NR1 Utilise SBC greenspace and other publicly owned land to contribute positively to biodiversity and GHG emission reductions

NR2 Woodland cover across the Scottish Borders rises from 20% of land today to 22% by 2030 and 25% by 2045.

NR3 Developing Scottish Borders as a Natural Capital Region

NR4 Prioritise natural flood management schemes in our river catchments

NR5 In its operations and as an example, incentivise diet change to favour high quality locally produced meat and dairy products with import substitution and reductions in overall consumption where appropriate.

Note on woodland target derivation: The current woodland cover in Scottish Borders is 95,500ha which equates to around 20% land cover (total area of Scottish Borders =473,200ha). Of the Scottish Government target of £18,000ha by 2024/25, Scottish Forestry expect around 2-3,000ha to be delivered in Scottish Borders, but planting rates may vary depending on market forces. The Scottish Borders Woodland Strategy target is 25% land cover by 2055, which would be 118,300ha. This equates to a little under 1kha p.a. if achieved by 2045, which is supported by Scottish Forestry. Therefore, it is proposed the region accelerates our 25% target from 2055 to 2045 based upon the milestones of: 22% land cover by 2030; and 25% land cover by 2045.

5.3.5 Process: To achieve the milestones and future proof SBC Estate and wider community

NR1	• Exploit opportunities around management of the SBC Estate and assets, including greenspace, that could reduce GHG emissions and provide adaptation (e.g., reduced cost of greenspace maintenance, planting regimes and initiatives to support greater biodiversity and multiple benefits such as natural flood management (trees and wetlands) and shading and cooling (trees) • Assess benefits of reduced or selective mowing regimes, on greenspace and road verges as contribution to minimising GHG emissions
NR2	• SBC to work with partner councils, SOSE, and businesses and communities to maximise opportunities, promoting quality and skilled forestry employment, training, and opportunities for businesses around, for example, local timber processing, tourism, and recreation, as well as garnering the benefits of GHG sequestration • SBC to work with Scottish Forestry and other partners on Regional Strategic Woodland Creation planning. Explore opportunities for new woodland creation across the region, on the SBC estate and linked to planning consents.
NR3	• SBC and partners to use the Local Biodiversity Action Plan to deliver actions across the region at a landscape scale with a focus on Natural Capital and the delivery of ecosystem services including carbon storage in woodlands, peatlands, and grasslands. • Set a framework for action to build resilience in our natural environment and contribute to the delivery of the SBC Biodiversity duty. • Develop and implement the Natural Capital Proposition within the Borderlands Inclusive Growth Deal and continue to develop our central involvement in the SOS Regional Land Use Partnership Pilot. • Continue to apply the principles of SBC's Local Development Plan (LDP) to support and protect the region's natural capital e.g. SBC LDP Policy ED10 supports the protection of carbon rich soils • Implement Priority Objectives & Actions in Local Biodiversity Action Plan 2018 -28, noting that the LBAP also provides statutory supplementary guidance to the LDP
NR4	• Support increasing resilience of coastal and river habitats to manage erosion, coastal flood risk and filter pollutants • Pursue targeted tree planting (Guided by Surface Water Management Plans and Forest Design Plans) to provide a range of benefits such as storing carbon, reducing surface water run-off, and providing a cooling effect to our towns and settlements, thereby building resilience in the local environment, and buffering our communities and keystone species like salmon from rising temperatures

	• Examine potential to create ponds, wetlands and management of rivers and burns to augment local flooding measures, provide a cooling effect, and support biodiversity
NR5	• SBC to prioritise low carbon, seasonal and locally produced foods that meet nutritional standards in its catering operations • SBC to implement its Community Food Growing Strategy and exploit the interrelationship with emissions reductions and help deliver extended benefits across wellbeing, inclusion, skills development, and sustainability goals. • With partners, SBC to work with the agricultural industry and other land uses across the region to improve efficiencies and reduce GHG emissions e.g. through the RLUP pilot

5.4 Lowering our Energy Consumption (EC)

5.4.1 Objective: To transition to Net Zero GHG emissions from the energy we consume in our industry, commerce and domestic buildings and related activities through clean fuels, energy efficiency and understanding how our infrastructures can be used more effectively.

5.4.2 Purpose: Renewable and low carbon energy will provide the foundation of Scotland's future energy system, offering the Scottish Borders opportunities for economic and industrial growth. The purpose of greater energy efficiency in housing in particular is to improve lives, make homes safe, and help remove poor fabric condition and outdated heating systems as causes of fuel poverty.

5.4.3 Status: Overall the Scottish Borders has seen a significant decline in industry and commerce energy related GHG emissions, see Figure 10. Most significant in terms of electricity has been both emissions reduction due to renewable and low carbon supply and grid transmission, but also through lowered use and efficiency. Less change has occurred in use of gas, oil, and other fuels which together are still the greatest GHG emitters as Figure 11 shows.

A similar story is seen in the 54,500 households across the Scottish Borders, see Figure 12. There has been a welcome drop overall from 2010 -18. However, emissions from domestic gas and other fuels are still significant as Figure 13 shows. That domestic sourced GHG emissions for these fuels remain at similar levels suggests little movement in replacement of gas and oil boilers.

Figure 10: Scottish Borders Industry and Commerce Energy Emissions 2010-18

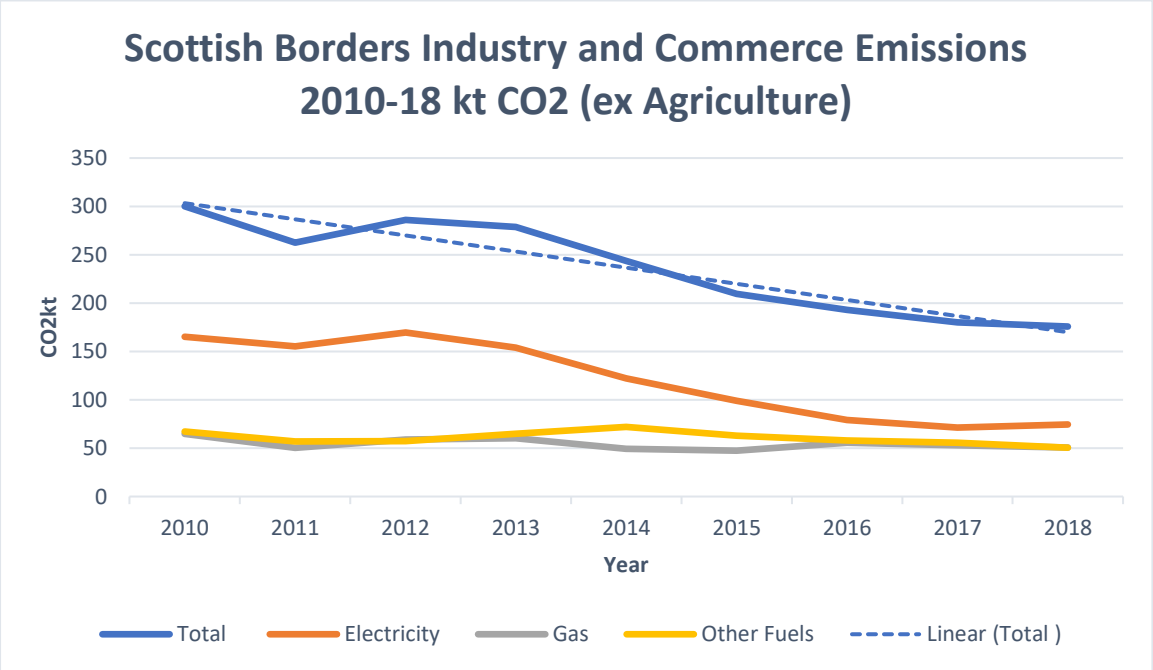


Figure 11: Scottish Borders Industry and Commerce Energy Emissions 2018

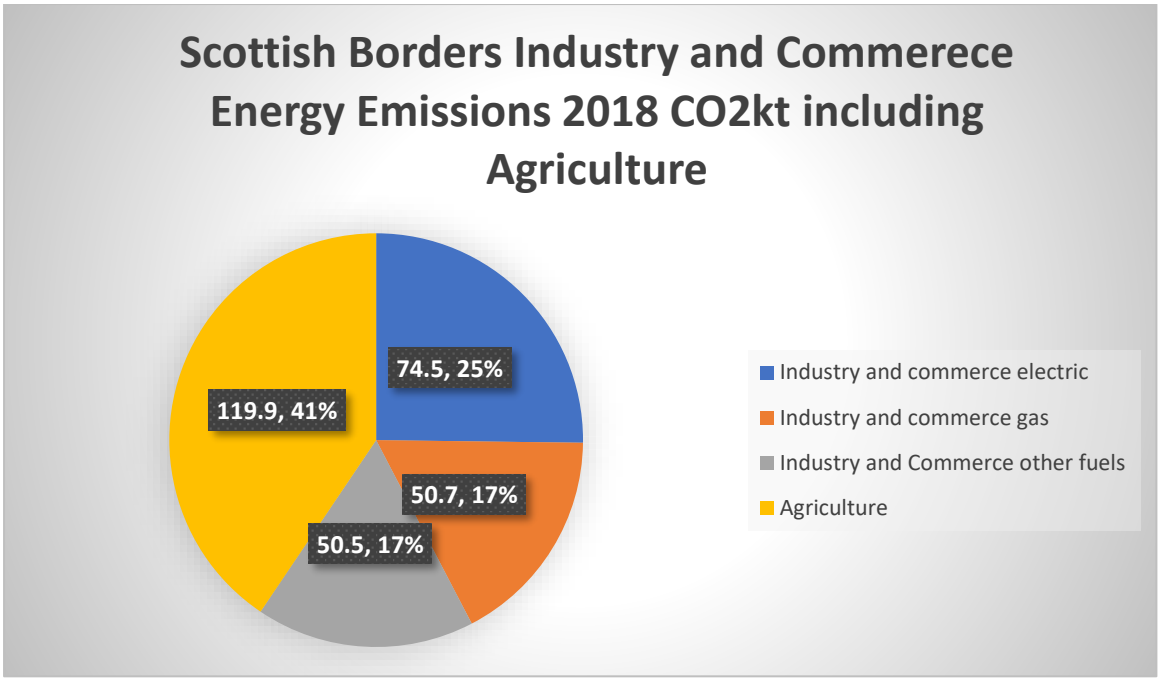


Figure 12: Scottish Borders Domestic Energy Emissions 2010-18

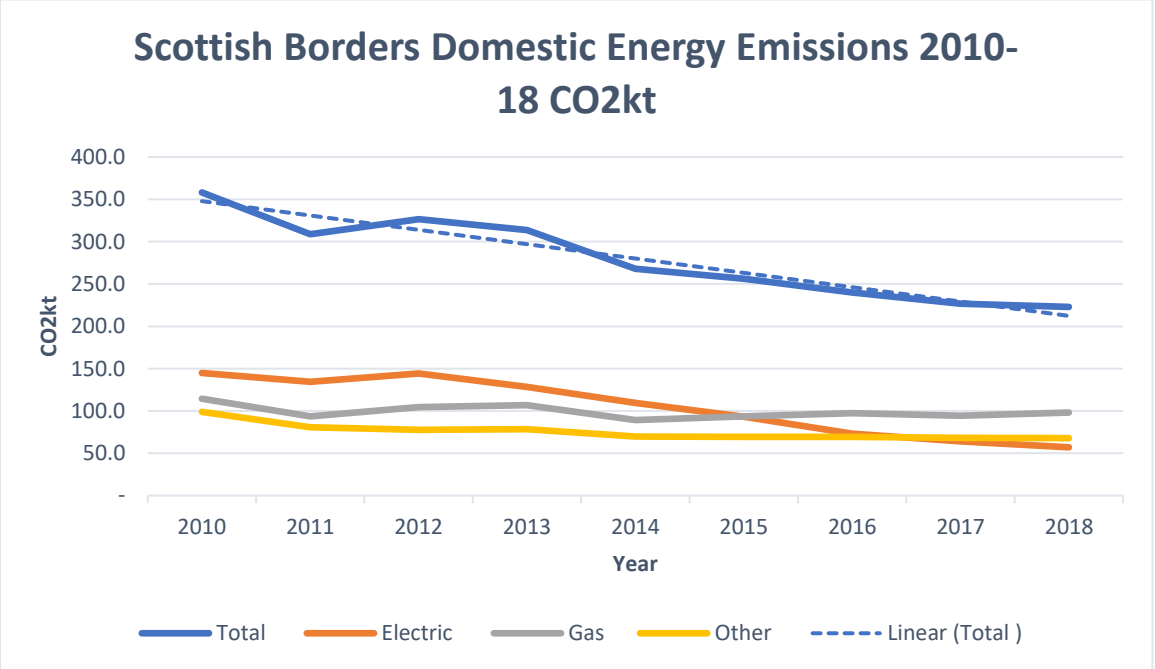
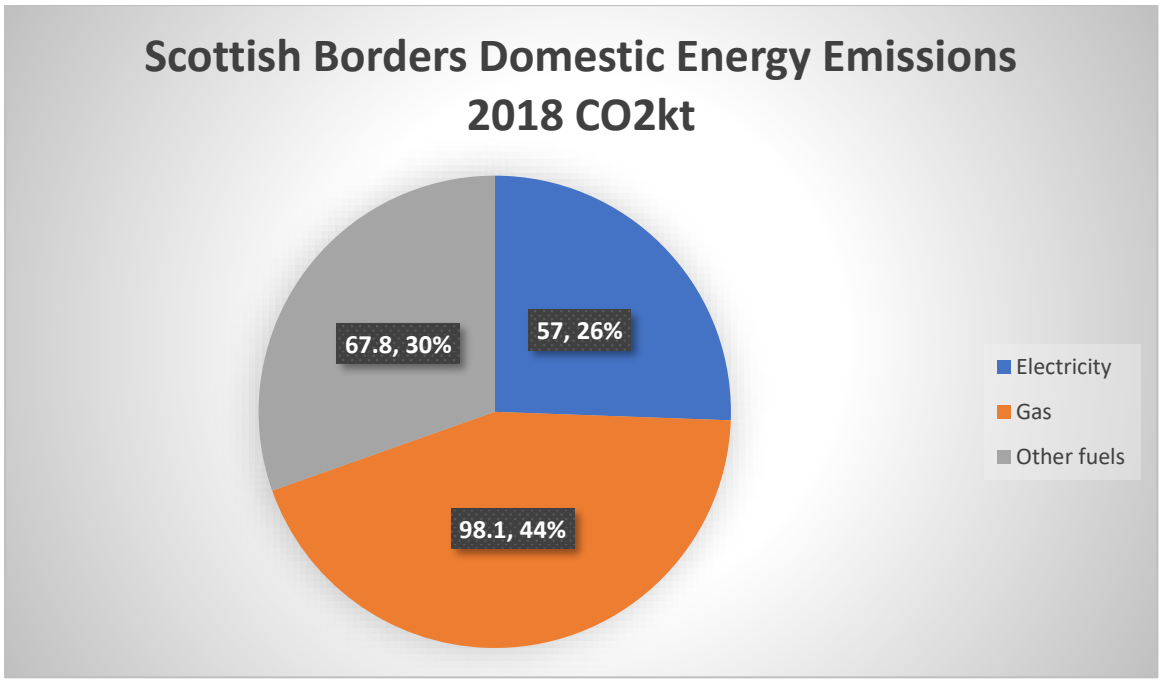


Figure 13: Scottish Borders Domestic Energy Emissions 2018

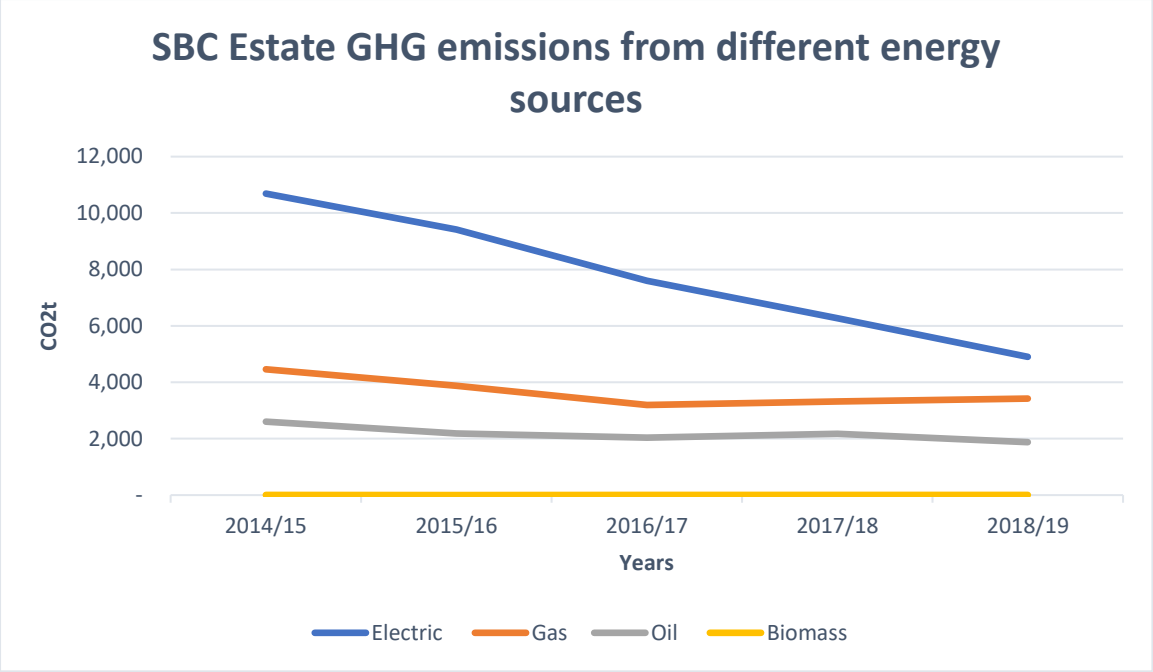


Most of SBC GHG emissions come from:

- Heating and electricity consumption in SBC operational sites (e.g., office buildings, schools, depots, leisure centres, car parks, sports pavilions, public toilets, and other miscellaneous sites)

There has been a reduction in GHG emissions from SBC's estate as shown in Figure 14. The factors that are driving this reduction are energy efficiency and renewable energy installation under the Energy Efficiency Programme and rationalisation of the SBC estate. Although here too, as in commercial and domestic properties, GHG emissions from burning oil and gas remain at similar levels, suggesting consumption has altered little. Blended models of working following the COVID pandemic highlight the potential of reduced energy use and costs for the Council, but at risk of displacement to domestic settings, reinforcing the need for a holistic approach to lowering our energy consumption. Clearly, this does not alter but simply reinforces the Council's responsibility to bear down on its usage and emissions. To achieve this, investment in new heating systems will be necessary, albeit within an estate adapting to meet new working practices.

Figure 14: SBC Estate GHG emission change 2014 -19



5.4.4 Milestones: For the energy consumption journey to reduce GHG emissions

EC1 Reduce overall domestic and community energy consumption

EC2 Embed low energy outcomes in all new build and majority of retrofits across the SBC built estate where feasible

EC3 Encourage and incentivise reduced commercial consumption in buildings and processes

EC4 Adopt emerging low energy technologies as they become available and viable

EC5 Mitigate the economic and social impact of the need to lower energy consumption to meet Scottish Government Targets

5.4.5 Process: To achieve the milestones and future proof SBC Estate and wider community

EC 1	• Ensure procurement of an optimum renewable electricity tariff and green gas supply through the SBC utility supply contracts • Support homeowner occupiers, eligible registered private sector landlords and RSLs to make energy and money-saving improvements to their homes. RSLs are required to retrofit all homes to a minimum of energy performance certificate (EPC) B by 2032 and low-carbon heating should be in all homes by 2045. • Work with partners to optimise benefits from the Borderlands Energy Masterplan through the development of a Scottish Borders Energy Atlas and Local Area Energy Plans • Work with SOSE and other partners, including through the Borderlands Energy Masterplan process, to provide support to small and medium-sized enterprises on energy efficiency with the aim of reducing energy consumption, resulting in fewer GHG emissions, financial savings and increase economic competitiveness
EC 2	• Scottish Borders LDP Policy PMD2 requires planning applications to demonstrate that the current GHG emissions reduction target has been met with at least half this target

	met through the use of low or zero carbon technology. The Building Standards target is a 30% CO2 reduction from 2007 levels. SBC will continue to implement Policy PMD2 • SBC will continue to pursue an ongoing target of implementing measures to reduce GHG emissions by an average of 5% per year over each 5 year period. This applies to our GHG emissions (CO2e) from heating and powering our buildings, and water consumption and treatment • Completion of LED, part-night, and night-dimming of SBC street light programme and conversion of our signs, bollards, and walkways to LEDs.
EC 3	• SBC to engage with SG and other statutory partners on the development of clear mechanisms to ensure the delivery of a green recovery, e.g. reduction of taxation levels on energy services installations. • The Edinburgh City Deal and the Borderlands Inclusive Growth Deal present opportunities to develop sustainable business parks and low carbon business opportunities at respectively Tweedbank (City Region) and Hawick and Coldstream (Borderlands). • Based on the Scottish Government's Heat Maps Data, SBC will seek strategically to co-locate industry within the region, based on balancing the re-use of wasted energy from industrial applications (heating & cooling).
EC 4	• Support development of the whole renewables industry through its planning and economic policies: wind, wave, and tidal energy, solar, hydro, biomass including potential for circular economy such as farm waste to create biofuel. • Support the development of grid balancing services including battery storage and an interconnected smart grid to balance generation and consumption. • Work with SGN, SOSE (around business opportunities) and other partners to support phasing out of natural gas and movement to the incorporation of biogas and hydrogen • Pursue development of the region as a 'demonstrator' of new and innovative technologies and systems, with the Borderlands Energy Masterplan offering a UK Government and Scottish Government supported initiative to maximise the low carbon and economic potential of the region's significant and expanding net energy contribution.
EC 5	• SBC to continue to work with partners in the Scottish Borders Home Energy Forum to deliver the priorities within the Affordable Warmth and Home Energy Efficiency Strategy https://www.scotborders.gov.uk/downloads/file/6766/affordable_warmth_and_home_energy_efficiency_-_main_strategy • SBC to adopt and implement an Anti-Poverty Strategy aligned to the Child Poverty Action Plan, ensuring that actions support a 'Just Transition' to a net zero economy.

5.5 Decarbonising our Waste Management (WM)

5.5.1 Objective: To address GHG emissions by ensuring waste is managed sustainably through reducing, reusing, recycling and recovering waste to improve resource efficiency,

5.5.2 Purpose: Local residents take a keen interest in what happens to their waste. SBC support high recycling rates for householders and businesses and we are working hard to reduce landfill and tackle climate change through increasing recycling.

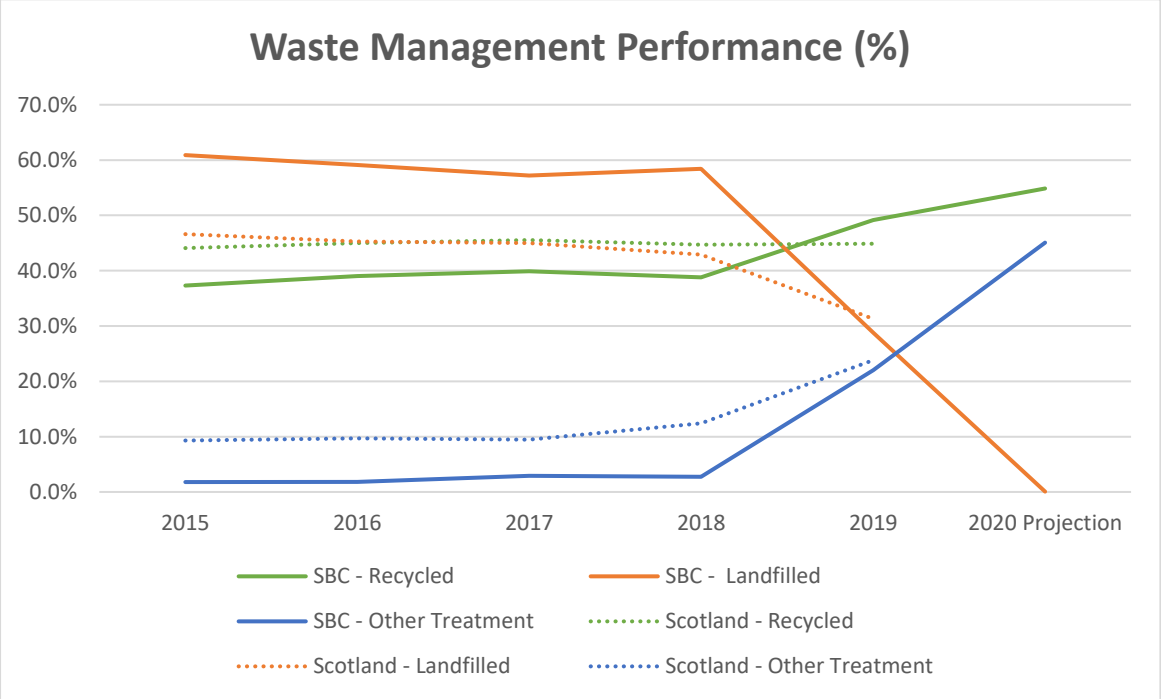
Cradle to grave GHG emissions from household waste generated in the Scottish Borders is estimated to be approximately 123,500 tonnes in 2019. The Council's 2021/22 Waste Management budget is £9.003m which includes both waste collection and treatment costs. Any reduction in waste volume before collection means a direct saving to SBC.

5.4.3 Status There are approximately 54,500 households and 3,400 trade waste contracts across the region most of which require a weekly or fortnightly refuse and recycling collection. In total 52,300 tonnes of household waste was generated in 2019. Scottish Borders Council recycled 49.2% of its household waste in 2019 and this is projected to increase to around 55% in 2020. See figure 15.

The recent improvement in recycling performance coincides with a significant reduction in waste being sent to landfill, with less than 1% of waste projected to be sent to landfill in 2020. This is the result of the Council's decision to close its landfill site at Easter Langlee, Galashiels, invest over £5 million in its waste management infrastructure across the Borders and enter into a new residual waste contract.

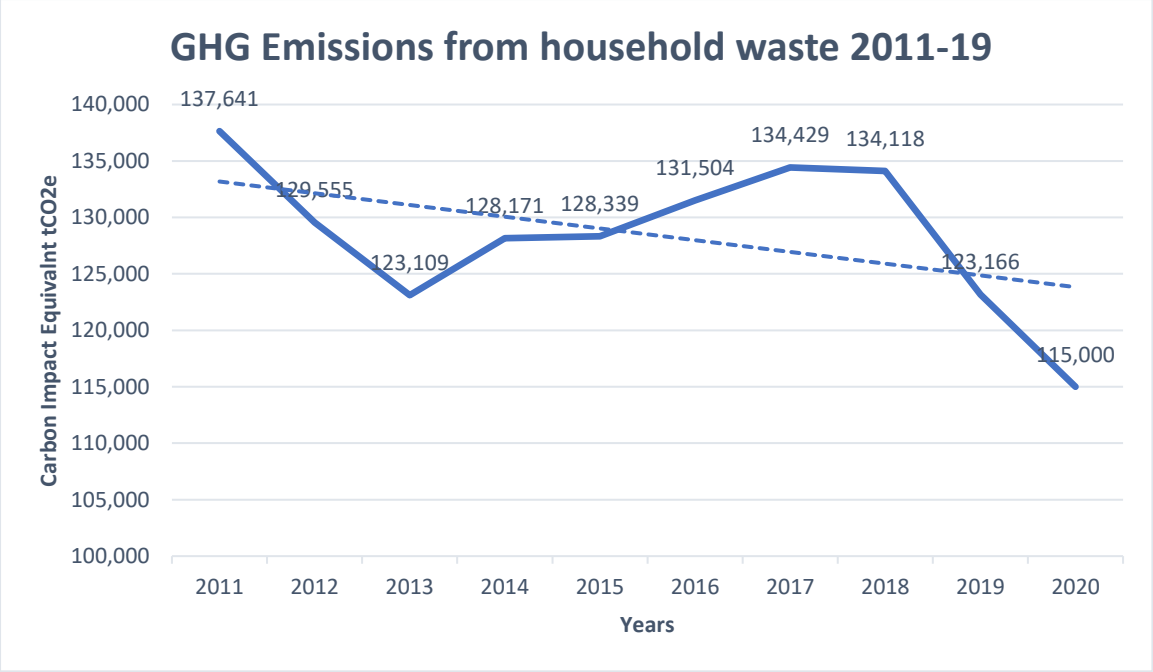
This step change in the approach to managing residual waste has ensured compliance with the ban on biodegradable waste going to landfill well ahead of it coming into force in 2025.

Figure 15: Waste Management Performance (%)



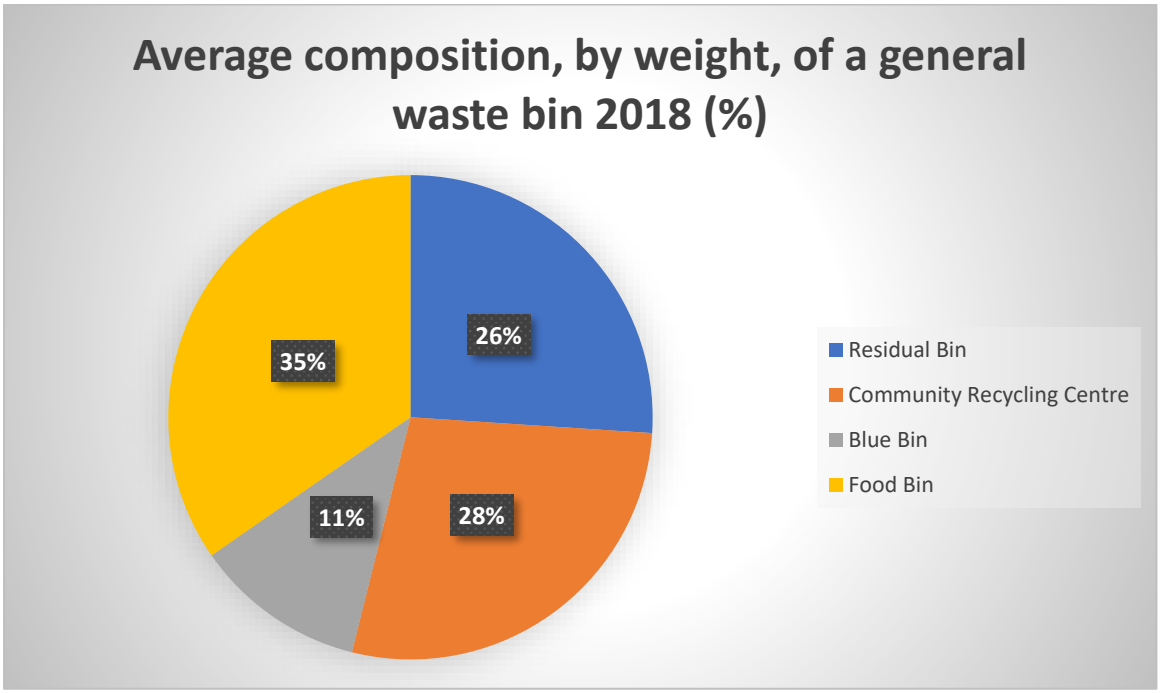
As figure 16 shows GHG emissions from waste management by SBC have declined and are seeing a welcome downward trend.

Figure 16: Scottish Borders GHG Emissions from household waste collected 2011-19



The Council regularly undertakes **Waste Compositional Analysis** of household wheeled bins to help inform communications plans and future service provision. The most recent analysis undertaken in September 2018 confirmed that over 70% of the waste placed in the average general waste bin could have been recycled through pre-existing Council Services, see figure 17 below.

Figure 17: Average composition, by weight, of a general waste bin (%)



The Council understands that it has a leadership role to play in providing recycling services to residents and ensuring its waste services are sustainable. However it is important to recognise that without the support of its residents the Borders will not achieve its full potential. Further work is therefore required to investigate the options to **increase participation** in Council services and **incentivise residents to 'play their part'**.

5.5.4 Milestones: For the waste management journey to reduce GHG emissions

WM1 Minimise waste generation and maximise effectiveness of the Council's waste services

WM2 Utilise technology to optimise service efficiency and improve customer experience

WM3 Improve recycling performance and diversion from landfill

WM4 Support the delivery of a circular economy in Scotland and the Scottish Borders

WM5 Improve performance of waste fleet to minimise carbon emissions

5.5.5 Process: To achieve the milestones and future proof SBC waste service and wider community

WM1	• Investigate the options to increase participation in the SBC recycling services and incentivise residents to 'play their part'. • Continue to communicate frequently with residents through education and awareness programmes • Develop 'Schools Resource Pack' through the Residual Waste Contract Community Benefits package. Aim to introduce as a pilot project to a limited number of schools from August 2021 with wider roll out in future years. • Support the Scottish Government's Deposit Return Scheme. • Support the review of the UK Packaging Producer Responsibility System. • Continue to work in partnership with Scottish Water on water use reduction campaigns.
WM2	• Introduce new technology to improve waste data monitoring and optimise collection efficiency across the Borders as part of SBC's IT transformation programme.
WM3	• Consider best practice and identify areas for improvement. • Consider setting performance targets to help drive change. • Take advantage of funding opportunities including the Scottish Government £70 million fund to improve local authority collection infrastructure. • Support the Scottish Government's Deposit Return Scheme. • Support the review of the UK Packaging Producer Responsibility System.
WM4	• Continue to explore opportunities to develop and support the Re-Use and Repair Sector in the Scottish Borders as part of the SBC commitment to the Circular Economy. • Support the Scottish Government's Deposit Return Scheme.

	• Support the review of the UK Packaging Producer Responsibility System
WM5	• Technology and service delivery permitting move waste fleet to ultra-low emission vehicles (ULEV) or electric vehicles.

6 CLIMATE CHANGE ROUTE MAP DELIVERY

SBC will try to be consistent in our CC Route Map delivery but joining up our actions with those of other public bodies will be tough and we will be working in a dynamic environment. You may see some holes at the start, but we will plug these as time and resources become available. Action really makes a difference when people know what to do, decide for themselves to do it, have access to the infrastructure in which to act, and understand that their contribution is important.

6.1 Communicating urgency

Information can't work alone. As a local authority, we are keenly aware that while we may provide evidence for climate change and its impacts, this evidence will be meaningless unless it is trusted, relied upon, and most importantly acted upon. We are intent on being a trusted, credible, and recognised voice on Climate Change in the Scottish Borders

Further engagement will be necessary to raise awareness amongst all stakeholders as the CCRM progresses. We will develop a communications plan to allow a coordinated approach for ongoing engagement and consultation to ensure people can follow progress and find out about climate change activities in the Scottish Borders.

Our main platforms for communication will be a CCRM Hub on the Scottish Borders SBC website, and the SBC social media channels and through our communications we will place the Climate Changes projects within the broader 'vision' and goals in the SBC Corporate Plan.

A campaign will raise awareness of, and link up, sustainability and climate change issues and progress, both internally and to the wider Scottish Borders community.

Appropriate branding will be developed in conjunction with the Council's #YourPart materials.

6.2 Increasing engagement with people

A just transition will be central to what we do in the CCRM. Achieving climate targets and a just transition cannot be separated. Business sectors, communities and individuals will be helped in their change process – and 'not hung out to dry'! We will work first with those groups and individuals who (a) by their actions are having the greatest impact on climate change (b) by their actions can enable the largest and quickest change for the better.

1. SBC will set the tone, highlighting the issues and how local action can make a difference. It will ask the community for ideas on what the Council can do and invite questions to the Council. People will be invited to reflect on what they can do themselves.
2. We will convene a Climate Citizens Assembly/Panel. Our aim here is twofold: first, to create a deliberative and collaborative space in which the public inform our climate decisions and policy, and second, to encourage co-governance of our approach, particularly in relation to the just transition to a green economy. Public engagement is essential if we are to effectively incentivise sustainable consumption and pro-environmental behaviour at an individual, and community level. SBC recognises that it cannot solve the whole challenge but has a part to play. SBC will issue a contract to develop a Citizen's Assembly to build on and enhance the work already undertaken and share knowledge and expertise across the region; engage, encourage, and support local activities; to further develop the CCRM towards SBC and regional climate goals.
3. In signing up to the Assembly, people will be asked to share their learning experience as members of the Assembly on how, collectively and individually, we can make a difference and the steps we need to take.

6.3 Governance

The urgency of climate change impacts will compete with seemingly more immediate issues for SBC. Successful implementation of the CCRM will require strong and robust governance internally, at consultative, strategic and action levels.

Internally, the SBC Sustainable Development Committee will provide internal oversight and scrutiny supported by the Sustainable Development Group of officers and reporting to full council.

Regionally, a high-level Advisory Group will be established to provide external oversight and review of the CCRM and to consider additional interventions required to achieve net-zero GHG emissions by 2045, or sooner. Membership is likely to include SBC, SOSE, SW, SEPA, SPEN, Borders College, NHS Borders, Chamber of Trade, perhaps also reps from the Citizens Assembly/Panel. The chair role and secretariat will be a shared responsibility between members.

The Advisory Group will convene a Biennial Conference. Here people will gather to consider progress. It will provide a forum, to involve interest groups, communities, local and national partners, and elected members in a review of climate change matters and the response in the Scottish Borders as well as an opportunity to influence the direction, policy, and investment of partners.

A Citizen's Assembly/Panel will be established with an independent chairperson and an SBC secretariat. Its purpose will be as a representative, consultative body of local residents, which shapes our approach and informs public discourse and behaviour. It shall not be populated by pressure or single interest groups. The panel will be used by statutory agencies, particularly SBC and their partners, to identify local priorities and to consult service users and non-users on GHG emission issues.

The relationship between the Citizens' Assembly, and the Advisory Panel and their interaction with SBC decision-making is a key consideration. While the exact arrangements require to be worked out, mechanisms will be put place to ensure a dialogue between the Assembly, Advisory Panel, the Council and partners.

6.4 Truth to power - monitoring and reporting

The CCRM sets out our long-term pathway across the five themes and highlights the initial steps we will be taking along the way. However, we cannot be sure what the future of our transport, commercial and residential sectors, land use, energy and waste systems will look like, given emerging technologies and increasingly localised approaches.

To take account of the anticipated changes, we will review progress regularly and evolve the CCRM over time reflecting changes to legislation, best practice, and attitudes. Monitoring of individual projects will be undertaken by project leaders and reported on a regular basis via SBC's performance management system.

Annual monitoring reports will be prepared for SBC's Sustainable Development Committee outlining progress on CC Route Map flagged projects. We will also explore new carbon footprint visualisation tools that can be used to model future emissions scenarios and interventions in the Scottish Borders and help measure progress in meeting our targets.

Recording the best possible quality of data is key to emissions management and helps with replacement and procurement of new assets, plant and vehicles, thereby making financial savings too. SBC will ensure transport, energy and waste data is validated and managed via an approved database package coupled with in-house expertise in these sectors. SBC will consider pursuing International Standard for Environmental Management (ISO14001) as an operating standard.

In house expertise should include a Certified Energy Manager and Certified Measurement & Verification Professional, Accredited Professionals and membership of appropriate and verifiable bodies.

6.5 Mobilising education and training

SBC staff are undertaking Carbon Literacy training providing knowledge and skills around the climate crisis, and what they can do about it, helping individuals and organisations to play their part in Scotland's drive for net-zero.

SBC staff will engage with local communities both informally, raising awareness and providing advice and formally through schools and the education system.

Schools and colleges provide a critical opportunity to prepare our young people for a world transformed by climate change. Pupils and students can be supported in learning about climate change and given the opportunity to explore and consider climate change solutions. These skills will increase the resilience of our communities as well as our competitiveness in a green economy. We intend to signpost or provide resources for teachers

Climate change-related advice and guidance also involves finding ways to translate the scientific findings and policy direction and incentives into practical advice for land managers, regulatory functions, and public sector officials.

6.6 Funding and Resourcing of actions

The successful delivery of the CCRM actions will depend on appropriate levels of funding and resources being in place. However, constrained external funding, escalating demand and pandemic commitments have severely reduced SBC's ability to act, and resources remain tight. This is particularly true for actions that require on-going spending (revenue spend). Reductions in staff numbers have also constrained capacity and reduced 'in house' expertise.

It is stressed that these actions represent a mix of committed and desired interventions across stakeholders, with many actions already having funding committed, whilst others will require feasibility studies or business cases in the first instance to determine their viability and funding to be secured to make them happen. This is particularly the case for some of the larger projects. What is clear is that significant additional investment will be needed for a number of projects if the targets are to be met. All stakeholders are therefore committed to exploring potential sources of funding through existing avenues as well any innovative approaches to ensuring projects can be delivered. We will look at innovative finance deals. It may cost a bit more, but we have to make choices that make sustainability happen and happen quicker to reduce and prevent more GHG being released.