# STRATEGIC OUTLINE PROGRAMME (SOP)

## Project Title:

## Climate Change

Version No: 1.1

Issue Date: 13th January 2020

***Purpose of this document***

*This document provides a template for the Strategic Outline Programme (SOP), which should be used where there is a likelihood that the proposal will result in a number of related projects.*

*SOPs support the development and agreement of programmes in support of an agreed strategy/ strategies. The functional content of the programme may be scoped on either a national, regional or organisational basis.*

*Following agreement to the SOP, the projects comprising the programme must be subject to individual business cases.*

*Importantly, programmes are subject to choice in terms of their key components and critical paths – hence the need to address the available 'macro' options at the outset, thus minimising analysis at subsequent stages.*

*Please note that this template is for guidance only. Where the template does not allow you too adequately explain the case for change, or the impacts, additional sections should be included.*

*Best practice guidance on the management of programmes is available on the Office of Government Commerce's (OGC) website.*

**VERSION HISTORY**

| Version | Date Issued | Brief Summary of Change | Owner's Name |
|---|---|---|---|
| 0.1 | 09.10.19 | First Draft | John Smith |
| 0.2 | 16.10.19 | Workshop edit | John Smith |
| 0.3 | 28.10.19 | Pre-agenda management draft | John Smith |
| 0.4 | 05.11.19 | November Agenda Management Draft | John Smith |
| 0.5 | 25.11.19 | Members Sustainability Seminar Draft | John Smith |
| 1.0 | 19.12.19 | January Agenda Management Draft | John Smith |
| 1.1 | 13.01.20 | Cleared Committee Version | John Smith |
| | | | |

**OVERVIEW OF THE SOP PRODUCTION PROCESS**

*The table below shows the systematic approach to the preparation of the SOP development phase of the business case:*

| Stages | Development Process | Deliverables |
|---|---|---|
| **Phase 0 –** | **Determining strategic context** | |
| **Step 1/ action1** | **Ascertain strategic fit** | **Strategic context** |
| ***Output*** | ***Strategic Outline Programme (SOP)*** | |
| ***Outcome*** | ***Strategic fit*** | |
| ***Review point*** | ***Gateway 0 – strategic fit*** | |

**CONTENTS – STRATEGIC OUTLINE PROGRAMME**

**TEMPLATE AND SUPPORTING GUIDANCE**

**1. Executive summary**

*Please provide a concise and comprehensive overview of the SOP's content, key conclusions and principal recommendations.*

The Climate Change Strategic Outline Programme is intended to provide an overview of the strategy, governance arrangements, target development and action planning required to address, adapt to, and mitigate, Climate Change in Shetland and contribute to an effective Scotland, United Kingdom and international response.

The Climate Change Strategic Outline Programme will help inform the identification of issues and options and it will assist evidence based planning and decision-making. This will enable environmental, economic and social needs are recognised, balanced and met efficiently, effectively and economically to support key outcomes for Shetland and its residents

Climate is a fundamental determinant of all aspects of wellbeing all across the world. In Shetland we are keenly aware of our environment and the day to day effects our climate has on our activities, social and economic opportunities, safety and lifestyles.

It is internationally accepted that we are now experiencing significant climate change and that significant steps need to be taken to prepare and deliver adaption and mitigation plans and actions to respond to those changes

There is a growing evidence base available on what climate impacts will be. Fifteen Key Consequences were highlighted in the Scottish Climate Change Adaptation Programme (2014):

- The productivity of our agriculture and forests
- The occurrence of pests and diseases
- The quality of our soils
- The health of our natural environment
- The security of our food supply
- The availability and quality of water
- The increased risk of flooding
- The health of our marine environment
- The resilience of our businesses
- The health and wellbeing of our people
- Our cultural heritage and identity
- The security and efficiency of our energy supply
- The performance of our buildings
- Infrastructure – network connectivity and interdependencies

These consequences will be highly significant across a wide spectrum of the Shetland environment, economy and society.

All public bodies have duties and obligations under legislation to produce adaption plans to help cope with these changes, and to produce mitigation plans to reduce climate emissions against very challenging targets. These actions will require very significant resources and focus to deliver. They will require review and potential restructure of many aspects of social and economic organisation and service delivery. This planning and activity has to take place in Shetland as critically as anywhere.

Shetland Islands Council is obliged to act as part of its duties as a public body, as are all other Government agencies. Shetland Islands Council also understands its leadership role in the Shetland community. The Council has no doubt that there is a clear understanding and strong commitment across our community to play our part in addressing this global issue.

Shetland Islands Council also recognises that the fundamental actions which will be required to achieve such substantive change will require widespread partnership; they will be impossible for the Council to deliver in isolation. That partnership will be needed right across Shetland, and with the wider national and international community.

It will be very important to understand and communicate critical "Island Proofing" dimensions around particular issues and possible changes. This will be essential if areas like Shetland are to avoid being left behind as general and national solutions are implemented outwards from the centre. We will have to work proactively to find solutions that address our local needs and issues. "One size" answers may generally work in most places, but they do not always work well here.

We have demonstrated our ability to find innovative approaches that match our circumstances and needs in the past. For example the Energy Recovery Plant/Shetland Heat Energy and Power, Lerwick District Heating Scheme delivers significant affordable, low emissions heating to many homes and public buildings in Lerwick. Given the abundance of renewable energy sources surrounding Shetland, it should be more than possible to generate other solutions that deliver affordable low carbon transport fuel and heating.

The scope of the challenge is however very wide. It means that all key service strategies and plans across the Council, and with our partners, need to be reviewed to ensure "Climate Change" implications are being considered. That must be an early and recurring activity in any overall response.

The Strategic Outline Programme is not trying to determine what specific changes might be required in those strategies or accompanying arrangements at this point, that detailed work needs to be carried out area by area.

However it does make initial reccomendations:

- a core "Climate Change Programme" team should be established in addition to existing resources. That team would act to co-ordinate, facilitate and catalyse accelerated internal Council actions and support strategy and key plan review. It would also act to identify partnership activity and leverage additional external resources which would support wider Shetland activity;

- consideration should be given to a review of the Council's Change Fund to understand whether that is an appropriate route to contribute to any further funding implications arising from strategy and key plan review;

- the guidance for the "Environmental Implications" section of committee reports should be reviewed to clarify the need to consider and report "Climate Change" implications clearly.

This Strategic Outline Programme, seeks to recommend the overall arrangements to deliver an effective Shetland response to Climate Change based on objective "Business Case" analysis. It goes on to propose a proactive approach designed to systematically and realistically tackle the issues alongside our partners, then and identify and deliver shared solutions together.

It is apparent that everyone across the world is likely to face significant environmental challenges arising from climate change. There is also a clear risk that systematic and structural problems, such as widespread fuel poverty and the very high transport costs, already experienced in Shetland, could be made worse as changes in energy sources and systems happen. Solutions that clearly recognise these existing inequalities, are actively designed to reduce them, and aim to deliver a "Just Transition" will be our most effective climate change response.

**2. Purpose**

*Please state the programme, for which approval to proceed is being sought.*

*Please note that the primary purpose of the SOP is to:*

- *facilitate strategic ('macro') and collaborative planning and the setting of associated budgets*
- *identify and cost key components of the strategy (programmes) and enabling deliverables (projects)*
- *provide the strategic context for subsequent investments*
- *facilitate the speedy production of subsequent business cases for related investment.*

The Climate Change Programme is intended to provide an overview of the strategy, governance arrangements, target development and action planning required to address the internationally recognised issues and responses required to adapt to, and mitigate, climate change in Shetland and contribute to an effective Scotland, UK and international response.

It will help inform the identification of issues and options and assist in evidence based planning and decision making so that environmental, economic and social needs are recognised, balanced and met efficiently, effectively and economically to support key outcomes for Shetland and it's residents.

**3. Strategic case**

*Please describe the strategic drivers for this investment and associated strategies, programmes and plans.*

*State clearly how your application assists in the progression of Corporate Priorities and Business Transformation, including how it improves long-term outcomes.*

Climate is a fundamental determinant of all aspects of well-being all across the world. In Shetland we are keenly aware of our environment and the day to day effects climate has on our activities, social and economic opportunities, safety and lifestyles.

It is internationally accepted that we are now experiencing significant climate change and that substantive steps need to be taken to prepare and deliver adaption and mitigation plans and actions.

This planning and activity has to take place in Shetland as critically as anywhere else. Shetland Islands Council is obliged to act as part of it's duties as a public body, as are all other Government agencies. Shetland Islands Council also understands its leadership role in the Shetland community and has no doubt that there is a clear understanding and strong commitment across our community to play our part in addressing this global issue.

Shetland Islands Council also recognises that the range of actions which will be required to achieve such a fundamental change will require widespread partnership. That will be needed right across Shetland and with the wider national and international community.

We also recognise that it will be very important to understand the Shetland dimensions around particular issues and possible changes to avoid being left behind as general and national solutions are implemented outwards from the centre.

We also understand that we will have to work actively to find solutions that meet Shetland needs and issues rather than just rely on centrally generated and sometimes inappropriate "one size" answers which may work elsewhere but not in Shetland.

The scope of this challenge is so wide that all key service strategies and plans across the Council, and those of our partners, will need to be revised to ensure that appropriate consideration of "Climate Change" implications is fully reflected in each as an early activity in our overall response.

Climate change is directly relevant to all local strategies and plans, including;

- The Shetland Partnership Plan,
- the Councils "Our Plan",
- the Shetland Transport Strategy,
- the Local Housing Strategy,

- the Local Development Plan and
- the 10 Year Plan.

Within each of these plans, and many others, the implications of Climate Change and the requirements for adaption and mitigation will have significant relevance and implications.

For example the shared vision and shared priorities articulated in the Shetland Partnership Plan are;

The Shetland Partnership Plan - Our shared vision

> *"Shetland is a place where everyone is able to thrive; living well in strong, resilient communities; and where people and communities are able to help plan and deliver solutions to future challenges"*

Shetland Partnership Plan - Our shared priorities

- Participation – People participate and influence decisions on services and use of resources
- People – Individuals and families thrive and reach their full potential
- Place – Shetland is an attractive place to live, work, study and invest
- Money – All Households can afford to have a good standard of living

Each of these will have to be evaluated carefully as the actions required to address climate change in Shetland are considered.

The challenge is considerable, but it should also be recognised that a challenge of this magnitude can create opportunities to address some of the structural issues associated with these priorities and outcomes in a transformational fashion, perhaps not otherwise achievable.

Fundamentally Shetland is a very energy rich community, we are still in the middle of the UK's substantial oil and gas production activity and surrounded by most of the UK's remaining hydrocarbon reserves.

While climate change mitigation plans are about phasing these out as emission sources, hydrocarbons will undoubtedly have a role to play in energy transition during that process.

There will also be emerging opportunities around decarbonisation, carbon capture and storage and other developments which could continue to utilise oil and gas infrastructure and skills.

Even if Hydrocarbons are ultimately phased out Shetland will still be in the middle of the UK's most productive wind, wave and tidal regimes and these rich renewable resources will have a critical role to play in every low carbon future. The renewables industry will also need much of the marine infrastructure, engineering skills and technical expertise which Shetland already possesses.

We must seek to combine the inevitable change that energy transition requires, with the opportunity that our underlying energy rich positioning continues to offer, to resolve a perplexing conundrum.

**Despite the fact that Shetland provides energy supplies that power big cities and key industries, we endure the highest energy prices and some of the highest levels of fuel poverty in the whole of the UK.**

The structural and systematic burdens of high energy costs for all transport, heating and business processes creates a constant downward drag on the economic and social sustainability of communities, families and individuals in Shetland.

These very high energy costs are most likely part of the explanation why Shetland's population is now persistently declining while the rest of Scotland and the UK is growing.

This decline in the midst of plenty does not have to be an inevitable predicament, but we will need to understand the issues, understand the ways to progress and spread that understanding across partners if we are to turn things around and find just solutions.

We will not, and cannot, develop and implement those solutions in isolation. This is a global problem and our neighbours and partners will also be working hard to find answers.

We will also be working within national and international frameworks which require us to develop our responses with due regard to sustainable development, climate justice, just transition principles, human rights and equalities obligations.

If we embed these essential principles in our solutions then we can develop an effective climate change response, and we can make substantial gains in areas of fuel poverty, rural isolation and exclusion, transport poverty and potentially other structural issues.

Finding the best approaches for Shetland, and remote and rural communities and islands generally, will be a challenge. It will be very important to ensure that national initiatives are "island proofed" when considering climate change responses and plans and strategies like the "National Islands Act" and the proposed "Islands Deal" also recognise and help address issues.

### 3.1 Organisation overview

*Please provide a snapshot of the organisation or geographical area to which the proposed programme applies.*

This programme has two associated and overlapping scopes;

- Firstly, issues and actions directly related with our own estate and operations, and;
- Secondly, issues and actions for the whole of Shetland, our Local Authority area.

At this stage it is not fully established what precise duties or obligations in terms of planning, target setting or delivery will be the formal duty of the Council.

These are the subject of the consultation on "The role of Public Sector Bodies in tackling climate change".

However, the requirements on the Council are likely to be unavoidably "direct" in respect of the first scope and we will be expected to at least "lead and influence" with respect to the second.

It is also inevitable that achievement in the first scope, the Council estate and services, will be heavily determined by progress on the wider front, e.g. development of locally available and affordable alternative fuel sources, distribution infrastructure and commercial availability of new propulsion and heating technologies.

Therefore, this overall programme is being designed to consider and address both scopes.

**3.2 Strategy and programme investment aims**

*Please provide an overview of the strategy and its component programmes, together with the specific investment aims for the programme for which approval is being sought.*

The investment objectives of the Climate Change programme are to ensure that the Council, and Shetland as far as we can influence that, meets its Climate Change targets and protects and where possible enhances outcomes for Shetland's people and places.

It is intended to ensure that significant actions or developments are considered in a planned fashion and that the information is identified and presented in a fashion that helps structured management and effective decision making.

Key investment objectives proposed for the Climate Change programme are;

- The Council has appropriate and robust;
    - Climate Change Adaption plans (sea level change, extreme weather events, global warming etc.) and
    - Climate Change Mitigation plans (Carbon and other greenhouse gas reduction)

  for its own estate and services; and provides leadership and positive influence in this area for the whole of Shetland. **(adaption and mitigation delivery actions)**

  These plans need to sustain, and where possible advance, key Shetland priorities and outcomes; (**integration with Shetland priority outcomes)**

    - Participation – People participate and influence decisions on services and use of resources

- People – Individuals and families thrive and reach their full potential
- Place – Shetland is an attractive place to live, work, study and invest
- Money – All Households can afford to have a good standard of living

These plans need to consider and address Climate Change across all sectors, the sector list below is the one used by the Scottish Government in the Climate Bill; (**whole system coverage**)

(a) energy supply,

(b) transport (including aviation and shipping),

(c) business and industrial process,

(d) residential and public buildings,

(e) waste management,

(f) land use, land use change and forestry,

(g) agriculture.

- There is wide understanding and awareness, inside organisations and across the whole of Shetland, about issues and opportunities to best promote a collaborative and sustainable solution**. (awareness and capacity building)**
- The Council has appropriate and robust support processes across administrative schemes, financial regulations, procurement and commissioning regulations, asset investment strategies, HR policies, ICT policies etc. and encourages other agencies and organisations to develop similar arrangements. **(organisational support arrangements)**

**3.3 Existing arrangements**

*Please state what the existing arrangements are in relation to the programme for which approval is being sought.*

Climate Change and carbon reduction has been recognised as an issue for a number of years and significant mitigations have been delivered locally and nationally over that period, however much remains to be done.

Reporting on Council energy use and emissions is provided periodically through the Carbon Management Plan. The 2018-19 update report is included as Appendix A. The Council also submits a statutory annual Climate Change Duties Report to the Scottish Government as required by the The Climate Change (Duties of Public Bodies: Reporting Requirements) (Scotland) Order 2015 (secondary legislation to the Climate Change (Scotland) Act 2009).

The recent Climate Change (Emissions Reduction Targets) (Scotland) Bill has brought forward the obligation on public bodies to achieve "net Zero" carbon emissions and developed the responsibilities of local authorities in target setting, reporting and facilitating local arrangements.

The Council has a "Carbon Reduction" strategy for its own built estate and vehicle fleet with associated action plans. There are also substantive strategies and plans for waste management.

Other sectors, such as transport and land use have well developed strategies that include objectives around climate change and carbon reduction, the issue is also recognised in corporate strategies including procurement, finance and HR.

It is less clear how far some other sectors such as fisheries, aquaculture and agriculture have developed responses and plans at this point in time.

While much work has been done, individual workstreams are not fully co-ordinated to address the explicit duties, targets and timelines for Climate Change adaption and carbon reduction, which we will now be required to meet.

This Strategic Outline Programme is intended to collate the information that could help to address that integration issue and allow structured forward planning.

The format for future reporting will have to be integrated with public bodies reporting requirements currently being consulted on. That update will also be required to review targets, bearing in mind the emissions targets recently adopted by the Scottish Government.

That new reporting format will be implemented in the Shetland Climate Change Plan proposed as a key action from this programme. It is anticipated that the first revision of that plan will be reported in parallel with the publication of the updated Scottish Climate Change Plan, due March/ April 2020.

**3.4 Business needs**

*Please state what the current and future business needs are in relation to the existing position within the proposed programme.*

The Council is the Local Authority for Shetland and has a duty as a public body to reduce greenhouse gas emissions and support Scotland's adaptation to a changing climate. Scottish Ministers, in turn, are legally required to provide guidance to Public Sector Bodies to help them with this.

Public Sector Bodies, including the Council, are also legally required to report annually on their greenhouse gas emissions and what they are doing to help adapt to a changing climate.

The Scottish Ministers must ensure that the net Scottish emissions account for the year—

(a) 2020 is at least 56% lower than the 1990 baseline,

(b) 2030 is at least 75% lower than the baseline, and

(c) 2040 is at least 90% lower than the baseline.

(d) 2045 is net zero

It is understood that all sectors, as listed above, are expected to meet these targets. The 2045 scenario for net-zero has all sectors at zero, or virtually zero, emissions except for agriculture, some parts of industry, and international aviation.

Remaining emissions from these sectors will need to be balanced, or outweighed, by negative emissions solutions such as tree planting and bioenergy with carbon capture and storage across the whole economy.

Currently there is no requirement for Public Sector Bodies to report on the year by which they intend to achieve zero greenhouse gas emissions, either from their own estate and operations (their direct emissions) or, in the case of Local Authorities, for their Local Authority area.

It is accepted by the Scottish Government that a lot of what individual Public Sector Bodies will be able to achieve in terms of reducing their emissions will be dependent on what progress is made in the rest of society.

Within 6 months of the Climate Change (Emissions Reduction Targets) (Scotland) Bill receiving Royal Assent the Government will update the Climate Change Plan, setting out the pathway to decarbonisation for Scotland as a whole.

We also expect that further clarity will emerge on a similar time frame about other obligations and duties in particular sectors, such as road vehicles, shipping and aviation, which inform around other targets or regulations.

Following the update to the Climate Change Plan, the Scottish Government propose that in their future annual reports, all Public Sector Bodies will report the date by which they intend to achieve zero direct emissions – those are the emissions that the bodies are directly responsible for.

While the specifics of how Public Bodies set their individual targets is being consulted on, it is expected that any discretion will be within the overall limits legislated for Scotland as a whole.

Local Authorities may not be required to “ensure” that targets for their overall geographical area are met, but it is anticipated they will be expected to lead the process of setting these targets, influence their delivery and play a significant role in annually reporting progress.

The targets that Public Sector Bodies set themselves are not expected to be legislative, and it is anticipated that targets set in the first year of reporting may need to be amended in subsequent years reporting when further information becomes available, as progress in other parts of society become apparent, or to align with future Climate Change Plans.

### 3.5 Potential scope and service requirements

*In relation to the above needs, please outline the potential scope for the proposed programme and associated service needs.*

This programme has two associated but overlapping scopes;

- Firstly, adaptations and mitigations of greenhouse gas emissions from our own estate and operations, and;
- Secondly, adaptations and mitigations for the whole of Shetland, our Local Authority area.

At this stage it is not fully established what precise duties or obligations in terms of planning, target setting or delivery will be the formal duty of the Council.

These are the subject of the current consultation on "The role of Public Sector Bodies in tackling climate change".

However it is likely to quite "direct" in respect of the first scope and we will be expected to at least "lead and influence" with respect to the second.

It is also inevitable that achievement in the narrow scope will be heavily determined by progress on the wider front, therefore the overall programme is being designed to address both.

### 3.6 Benefits, risks, dependencies and constraints

*Please provide a résumé of the main benefits and risks associated with the delivery of the programme, together with any dependencies (between this programme and other components of the strategy) and constraints.*

**Benefits**

Potential programme benefits have been considered in terms of beneficiaries

Direct public sector benefits (Council)

- Meet statutory obligations with respect to Climate Change
- Integrate organisational response to achieve best efficiency and protect services
- Better planning of spend, capital and revenue to manage financial implications
- Potential improvements to service organisation or efficiency

Indirect public sector benefits (Other public sector organisations)

- Support partners to meet statutory obligations with respect to Climate Change
- Integrate cross-organisational response to achieve best efficiency and protect services

- Better planning of potentially shared spend, capital and revenue to manage financial implications
- Potential Improvements to service organisation or efficiency

Wider benefits to communities, individuals and businesses

- Leadership and influence in planning and delivering an effective response to Climate Change that protects, and if possible enhances, key priorities and outcomes.

**Risk Analysis and SWOT Analysis**

The global risks associated with climate change have been widely discussed, however it is important to ensure that these are understood in a Shetland context as well as describing their wider significance.

The tables below are the output from workshops considerations these issues in general. These type of risk / SWOT exercises would be repeated during sectoral analysis as the Shetland Climate Change Plan is developed.

**Strengths / Weaknesses / Opportunities / Threats (SWOT) Analysis**

**Shetland as a whole – (the Wide Scope)**

**Strengths**

- Abundance of largely untapped renewable energy sources (wind, wave and tidal)
- Measurable progress in energy efficiency in buildings, vehicles and marine transport
- Successful SME participation in renewables (2 small scale windfarms, 1 tidal research project and 1 H2 specialist trading + 1 biofuel provider + other minor developments)
- One potential large scale windfarm at consented status
- Three medium to large scale windfarms at various stages of development
- Successful District Heating Scheme in Lerwick
- Private and social enterprise businesses eager to develop renewable energy projects if viable opportunities identified
- Public bodies eager to act on identifying climate change solutions
- Elected Members appearing keen to incorporate climate issues in debate
- Active engineering supply chain for renewable energy with capacity for development
- Public opinion favouring action to introduce climate change measures
- Some success and expertise in levering in external and Government funding for energy efficiency and carbon reduction works
- Good level of good practice success cases available to use as encouragement for others to follow suite in energy efficiency upgrades in the domestic sector
- Good practice and local knowledge cases available for food growing locally to expand that sector

- More Electric vehicle brands now available locally with back up service expertise to support uptake
- Expanding public EV Charge network available through Government grant funding and grants available for home chargers
- Award winning expertise available locally for expansion of peat restoration work
- New Government funded facilities available locally to support waste changes
- Reliable baseline and data available locally on bird mortality, sea level and flooding impacts on which to build plans
- Young people and a growing group of adults actively engaged in the matter

**Weaknesses**

- A very remote location unconnected to national grid, depending heavily on diesel generated power with no immediate operational alternative options
- Dependency on diesel generated fuel for majority of energy requirements including electric vehicle charging
- Limited range of domestic and commercial fuels, e.g. no mains gas limits choice and increases costs.
- Shetland grid at maximum capacity for renewable sourced energy
- Energy companies slow at grid strengthening to ease this problem
- Indecision on interconnector delays planning and development of next generation solutions
- Dependence on remote external decision making processes.
- No currently scalable sources of renewable energy other than wind generated electricity and green H2 derived from wind generated electricity
- Lack of an up to date Shetland wide baseline for energy consumption and carbon emission
- Too many energy inefficient buildings - domestic, public and commercial -resulting in much higher usage of energy than need be
- Public sector resource constraints unless actively levering in external funding to deliver works
- Proliferation of micro SME's unwilling to take on paper heavy accreditations needed for work in certain areas detracts from volume of work which could be carried out under grant funding
- High cost of local construction projects compared with mainland prices for similar works limit measures developable within given grant funding
- Little uptake of small scale renewables and limited self generation measures as confused with debate round large scale renewable projects
- Geographical position of Shetland lays it more open to transport disruption from increased storm events
- Geographical characteristics of Shetland lead to heavy reliance on motorised transport with car ownership significantly above the national average.
- Financially challenging to improve green performance of public transport when operators already reliant on public subsity.
- Increased problems will occur for import and export of food, aquaculture/livestock fuel stocks and materials
- Good number of important facilities directly adjacent to the sea so likely to be affected by storms and surge eg Tesco, Sumburgh airport, fire station , care homes

- Council internal ferry fleet in need of replacement
- No bridges or tunnels to use as alternative routes if ferry inoperable
- Layout and quantity of roads network which if blocked due to storms, flooding, landslide etc would cut areas off
- Likelihood of increased power outages due to increased storm events
- Little development of tree planting and agri green developments – possibly due to dispersed, small scale and part time nature of local crofting
- Limited experience of and appetite for trialling new ideas instead of following usual methods
- No joined up forum for considering Climate Change Shetland wide and its impacts
- Poor quality peatland not maximising carbon storage

**Opportunities**

- National Grid Interconnector to ensure security of supply
- One potential large scale windfarm at consented stage
- Abundant wind, wave and tidal resources for renewable electricity generation
- Opportunities for development of small and medium scale projects relating to specific localised demand
- Opportunities for mini local district heating networks at better energy cost to local property owners than current national network reliance supports local families and businesses and improves available income spend through reduced energy costs
- Growing availability of renewable technology solutions eg. Electric cars
- Projects emerging from increasing levels of community resilience
- Development of hydrogen economy from constrained wind
- Development of carbon capture and storage using Sullom Voe as a base with ease of access to exhausted oil/gas fields for storage facilities
- Development of tree planting
- Increased peatland restoration for biological carbon capture
- Development of local food growing networks – perhaps using polycrubs to increase local food resilience
- Improved domestic sector energy efficiency / energy affordability could improve health and well being
- Improved domestic energy efficiency leading to better homes and smaller bills makes moving to Shetland a more attractive package – especially when linked to green environment opportunities
- Longer warmer growing season enables agricultural diversification
- Longer warmer summers enable development of tourist businesses such as Outdoor Activity Centres offering canoeing/kayaking, wind surfing, orienteering similar to such centre in Lake District currently
- Longer warmer summers support more tourists and give greater access to outdoors for all – again business opportunities
- Longer warmer summers mean locals become more active and health improves saving on NHS budgets

- As summers improve staycation holidays in Shetland increase – business opportunity
- Change in ranges of animals makes holiday diversification opportunities eg more whale watching
- Energy Improvements particularly to lighting make Shetland able to become a Dark Sky Park with increased tourism in winter and longer tourist season
- Opportunities to take advantage of increased government funding and initiatives in support of active travel

**Threats**

- An increase in fuel poverty or transport costs leads to Shetland becoming much less attractive as a place to live, work, study etc.
- More expensive energy solutions divert limited public and private funds away from services
- Increased energy costs increase the cost of travel and make imports, exports and lifeline services more expensive and less available.
- Lack of effective alternative energy sources make some marginal businesses uncompetitive, perhaps fisheries and crofting.
- Not meeting climate change targets leaves Shetland with a reputation as an unclean place with severe consequences for exporting industries such as fisheries, attracting visitors and retaining oil industry business
- Failure to comply with Climate Change legislation leads to fines and inability to sell or let properties effecting commercial viability
- Failure to deliver on Public Bodies Duties leads to reduced Government funding as climate change viewed by Government as matter of public wellbeing – not just an environmental issue
- Increase in ill health due to cold wet homes adds a burden onto already pressured health service and care systems
- Food and energy security threatened as no plans in place for major and increased level of storm disruption affecting island communities
- Increased flooding risk due to more storms and sea level rise
- Increased landslip risk affecting roads and cutting off areas for periods affecting import and export of local goods
- Coastal erosion effects cultural assets eg graveyards, historical assets
- Increased disease risk for animals and humans
- Increased maintenance costs for property (houses, businesses premises, piers) due to climate effects
- Limited FE College courses to upskill locals for works needed
- Change in range of fish due to sea temperature rise (already noticed by fishermen) makes it more difficult to catch usual stock as fish move to cooler waters north
- Sea acidification impacts on productivity of shellfish market as acid sea damages shells and reduces quality and quantity of shellfish available
- Rise in sea temperature reduces productivity of salmon industry (salmon are a cold water fish) This is already noticed off Alaska
- Changes in sea water quality creates more diseases in fish stocks
- Floods and droughts in our external to Shetland food growing areas reduces availability of food for humans and animals requiring a greater level of self sufficiency on food production
- Storms take down electricity grid locally for prolonged period.

**Shetland Islands Council - Estate and Services – (the Narrow Scope)**

**Strengths**

- An established collaborative approach for providing public services
- Council staff with experience in implementing successful energy efficiency measures
- Proficient in achieving bespoke island solutions
- Ability to invest moderate sums in service renewable solutions
- Some plans already in place as basis for updating under Climate Change strategy eg Flood Prevention, Carbon Management
- Some Government funded trails already carried out on energy efficiency problems locally eg SEEP 1, SEEP 2, LHEES, Transition (Domestic and Commercial/SME) and good Government links
- Public bodies eager to act on identifying climate change solutions
- Success in co-ordinating and facilitating large scale energy public / private partnerships

**Weaknesses**

- Dependency on diesel generated fuel for majority of energy requirements
- Limited range of domestic and commercial fuels, e.g. no mains gas limits choice and increases costs.
- No whole life costing consideration before purchasing goods means buy cheap and pay more for use continues
- Failure to lever in existing external funding to assist in implementing better solutions means seed funding disappears, legislation hits and we are faced with full costs to comply with law
- Lack of a systematic approach to researching climate change measures and then sharing the information
- Lack of in-house body/board to discuss and share information on climate change
- Increased burden on Social Care/ Care in community budgets by increasing volume of needy clients due to health issues from living in cold homes
- Considerably increased maintenance cost across the board due to storm etc effects to buildings, plant and piers
- Increased costs for road repair due to erosion, flooding, landslides
- Failure of supply due to power outages effecting critical services
- Failure of goods/materials needed being available due to freight boat issues
- Lack of adequate stocks being maintained for goods
- Lack of fixed links means critical support services unable to access clients if ferry problems continue
- Many critical buildings/assets at risk of flood, inundation and damage eg beside sea, at near sea level just now
- Increased fuel oil energy costs following national legislation against use of fossil fuel will lead to oil industry contraction of supply and increasing costs to run within Council estate#
- Failure to maximise use of small scale renewables to self- generate on every available Council building

- Failure of Spend to Save criteria to understand that a payback of at least 10 years (instead of the very limited 7) is needed to ensure technology can be introduced. A ten year payback on a 30+ year asset is still a very good bargain.

**Opportunities**

- Make full use of existing and future Scottish and UK Government funding schemes to develop specific service outcome projects
- Use National Islands Plan to support cases for additional funding where required on grounds of 'island proofing'
- Identify and plan all those energy efficiency projects that can be implemented for use in the council based on current technology
- Rewrite/write all required service strategies/plans to take cognisance of climate change
- Include section in every Council report on carbon considerations to assist in appropriate decisions being taken
- Re-introduce programmes such as ECO Schools to assist families and pupils gain knowledge
- Implement measures of best practice developed in other places
- Growing availability of renewable technology solutions eg. Electric cars
- Revisit fixed link debate and possible end up with a mixed solution of some tunnels and fewer ferries to support area resilience
- Use Council owned land to build turbines and use sell the output to the advantage of the estate eg private wires
- Development of hydrogen economy using Council heating systems as base market
- Capacity to influence community to action by including carbon metrics in all tenders and grants/loans
- Capacity to use Council land for local food growing to support community resilience
- Ability to use small scale renewables in rural areas on public buildings will encourage other property owners in the area to make the change and help to reduce the overall Shetland footprint.
- Ability to reduce costs on rural schools/care homes by use of small scale self generation of energy (solar and small scale wind) increases resilience of rural community assets

**Threats**

- Failure to comply with national legislation leads to fines
- Replacement programmes (ferries, vehicles etc) become unmanageable due to delays caused by information on renewable technical developments
- Danger of putting in already redundant solutions (oil boilers into schools instead of heat pumps) and thus locking in energy inefficiency to the estate for a further 30+ years
- Silo mentality leads to important information not being shared and essential collaborative work being restricted
- Council reserves become depleted by preparing and developing Climate Change measures
- Reduced ability to recruit staff for providing essential services if living costs in Shetland continue to rise in comparison to the rest of the Country

- High cost of implementing Climate Change measures impacts on service delivery
- Speed of renewable energy development making capital investment in early solutions obsolete
- Loss of public support due to perception of Council inactivity
- Lack of public and wider stakeholder support on contentious issues such as large scale renewables and fixed links
- Reputational damage with Government and public alike
- Legislative requirement for action after all the available seed funding national pots are exhausted, leading to service reductions to meet these unavoidable costs

**Programme Risk Analysis**

It also important to identify the key risks that might stop this programme from achieving its objectives. These are likely to include risks associated with uncertain technical factors, the scale of resources which will have to be applied or redirected, legislative, regulatory and fiscal obstacles in developing locally appropriate solutions, the complexity and interdependency of actions, political disagreements on the right way forward etc.

| General Risks | Description | Mitigating Actions |
|---|---|---|
| Operational and Performance | Increase in the cost of providing services and reduction in the volumes of service provided | Early planning for introduction of Climate Change measures across all services |
| Technology | Implementing sub-optimal technical solutions that are overtaken by transformational changes | Understanding the work being done in climate change technology and making a commitment to be an early adopter of proven technology |
| Funding | Constrained funding leads to delay/ reduction in scope of Climate Change measures | A planned programme of professionally scoped measures combined with full knowledge of external funding to augment Council budgets |
| Legal and Fiscal | Law changes mean that certain sources of energy become illegal or are subject to high taxation e.g. diesel | Need to be sighted on the legal and fiscal developments combined with an early understanding of what changes are likely |
| Policy | Government policy targets for reducing carbon emissions towards zero are accelerated in response to heightened public opinion and/ or new scientific evidence | Adoption of a full-scale approach for bringing in practical Climate Change measures as soon as resources permit |

| **Specific Risks** | | |
|---|---|---|
| Ignorance | Lack of knowledge on the Council's use of energy, how energy efficient operations are, funding opportunities and global best practice in Climate Change measures | Coordinate staff and resources to provide the best up to date information possible so that project planning can be done based on a sound basis |
| Geographical | Dependence on mains electricity from diesel generated source with only localised project based alternatives available | Make representation to UK and Scottish Governments, Ofgem, SSE etc to stress that Shetland cannot meet Climate Change targets without a base renewable energy supply. We should also plan to be as energy self-sufficient as practicable. |
| Political | Shetland is at the end of the line as governments roll out Climate Change solutions from the main population centres | Making representation to Governments combined with identifying all the practical Climate Change measures that can be achieved internally |
| Population Loss | Shetland becomes a less attractive place to live and work as energy costs rise faster than in the rest of the UK. Demand for Council services fall and staff are more difficult to recruit | As above |
| Complacency | Not responding adequately and early to the challenges posed by Climate Change leads to severe future pressure to introduce rapid measures with very high costs | The Council needs to understand the scale of the task ahead and to plan measures early and well to avoid future operational and financial difficulties |
| Fuel Poverty | Increased energy costs causes fuel poverty levels to rise further with a greater demand on support services | Impacts on the less well-off members of the community need to be built into all Climate Change measures |
| Public Opinion | A perceived inadequate Council response to the Climate Change issue results in negative publicity and undermines the Council's role as a Community leader on the | Adopting the Climate Change Strategic Outline Programme and progressing with early achievable outcomes on an evidence led basis |

| | | |
|---|---|---|
| | subject | |
| Option Confusion | Finding the more practical and deliverable solutions is made difficult by many different external and in-house approaches pushing particular interest focused options. Thus leading to delayed decision taking. | The Council has to be guided by established evidence based methods for option appraisal based on sound baseline information on energy use, emissions and Climate Change measures |

**Dependencies and Constraints**

A programme of this complexity has many dependencies; these will include technology development, national and local decision making, choices between alternative approaches and uncertainty.

Competing priorities, available technology, financial and human resources, commercial developments and legal obligations and limitations are all likely to be significant constraints across this programme.

Understanding the relationships between potential adaption and mitigation actions and the constraints and dependencies which will affect them will be a very important part of the development of sectoral plans.

It will be crucial to understand how the sequence of activity can be best progressed in light of some very fundamental constraints around alternative energy sources and very material dependencies around the development of alternatives such as an interconnector or a substantive hydrogen infrastructure.

The information which emerges from these sectoral plans will then allow a better identification of the critical paths that will have to be followed to reach solutions that work for Climate Change, and work for and in Shetland. Perhaps the most critical component of this overarching programme will be the identification and management of these dependencies and constraints.

At this time the most significant constraint and dependency is how and when an alternative electricity grid supply solution is going to be implemented.

Resolution of the uncertainty around that would then allow a wide range of other activity to be planned with some confidence and address the wide range of very important but dependent matters.

**4. Economic case**

**4.1 Critical success factors**

*Please list the criteria (critical success factors – CSFs) against which you will assess the successful delivery of the programme and the evaluation of options.*

The critical success factors (CSFs) for this programme, and the individual projects which will be considered within it, are closely linked to the Shetland Partnership Agreement and Our Plan Key outcomes which also underwrite the key investment objectives;

- CSF1: business needs – how well the option satisfies the existing and future business needs of the organisation.
    - Will it help to deliver the Councils statutory duties and obligations?
    - Will it help with long term financial sustainability of the Council and for communities, families and individuals in Shetland?
- CSF2: strategic fit – how well the option provides holistic fit and synergy with other key elements of national, regional and local strategies e.g. : -
    - Alignment with national Climate Change strategies
    - Alignment with "Shetland Partnership Plan" outcome objectives
    - Alignment with Regional Transport Strategy
    - Alignment with National Transport Strategy
    - Alignment with Carbon Management Strategy
    - Alignment with Local Development Plan
    - Alignment with Housing Strategy
    - Etc.
- CSF3: benefits optimisation – how well the option optimises the potential return on expenditure – business outcomes and benefits (qualitative and quantitative, direct and indirect to the organisation) – and assists in improving overall VFM (economy, efficiency and effectiveness).
    - Best delivery on Climate Change progress, reduction in emissions etc, for the financial cost of that investment or action.
    - Sustains and/or promotes key Shetland Outcomes
    - Promotes long term sustainability

- CSF4: potential achievability – the organisation's ability to innovate, adapt, introduce, support and manage the required level of change, including the management of associated risks and the need for supporting skills (capacity and capability). Also the organisation's ability to engender acceptance by staff.
    - Technical feasibility, is the option or action technically achievable?
    - Organisational resource feasibility, could we / Shetland practically deliver that kind of change?
    - Cultural achievability, could the Council / Shetland enable the change?
- CSF5: supply side capacity and capability – the ability of the market place and potential suppliers to deliver the required services and deliverables.
    - Is there a technical solution available and is there a partner who would deliver?
    - Could we do a deal in the market for that service or energy supply at an acceptable price?
- CSF6: potential affordability – the organisation's ability to fund the required level of expenditure – namely, the capital and revenue consequences associated with the proposed investment.
    - Is the change affordable to the Council / Shetland?
    - Could we find partnership funding to allow it to be affordable?

**4.2 Main options**

*Within the potential scope for the programme, please list and evaluate the main choices (or options) for the successful delivery of the potential scope and/or required services.*

*This should be done by:*

- *describing the options for the programme*

*And then in relation to the investment aims and CSFs:*

- *assessing its main advantages*
- *assessing its main weaknesses*
- *outlining the potential projects (or investments) within the defined scope for the programme.*

*Please note that:*

*these options may differ in relation to potential configuration and services, service solution, service delivery, implementation timescale and funding*

*the minimum level of activity (or 'do minimum') should be identified as a baseline option.*

The Options Framework

The Options Framework recommended by the Green Book 2018 provides a structured approach to identifying and filtering a broad range of options for delivering policies, strategies, programmes and projects.

This tool and technique has been used on a wide range of public sector schemes. It has proven useful in getting senior management, stakeholders and customers signed up to a preferred way forward early on in the scoping and planning stage in the development of schemes.

The Options Framework identifies and filters these choices for the operational scope, service solutions, service delivery vehicles, implementation timeframes and funding mechanism for the programme.

| **Key dimensions** | **Description** |
|---|---|
| Scope | The 'what', in terms of the potential coverage of the programme.<br>Potential scopes are driven by business needs, service requirements and the scale of organisational change required to improve service capabilities.<br>Examples include coverage in terms of: business functions, levels of service, geography, population, user base and other parts of the business. |
| Service solution | The 'how' in terms of delivering the 'preferred' scope for the programme.<br>Potential service solutions are driven by available technologies, recognised best practice, and what the market place can deliver.<br>These solutions provide the potential **'outputs'** and key activities for the programme, and as such the portfolio of enabling projects and activities required. |
| Service delivery | The 'who' in terms of delivering the 'preferred' scope and service solution for the programme.<br>Potential options for service delivery are driven by available resources, competencies and capabilities – both internal and external to the organisation.<br>Examples include: in-house provision, outsourcing, alliances and strategic partners. |

| | |
|---|---|
| Service implementation | The 'when' in terms of delivering the 'preferred' scope, solution and service delivery arrangements for the programme.<br>Potential implementation options are driven by deadlines, milestones, dependencies (between outputs), economies of scale, benefit realisation, and risk management.<br>The optimal option provides the critical path for delivery of the agreed projects and activities and the basis for the programme plan. Options for implementation include: piloting, modular delivery, big bang and phasing (tranches). |
| Funding | The 'funding' required for delivering the 'preferred' scope, solution, service delivery and implementation path for the programme.<br>Potential funding options are driven by the availability and opportunity cost of public funding, Value for Money and the characteristics of the programme.<br>Potential funding options include the public or private capital, the generation of alternative revenue streams, operating and financial leases, and mixed market arrangements. |

*Using the Options Framework to identify the long-list*

*The Options Framework should be used as follows:*

*1. **Convene at least one workshop** comprising of senior managers (business), customers and stakeholders (users) and experts in relevant fields (technical) to be facilitated by an experienced and trained practitioner.*

*2. **Confirm the spending objectives and potential scope for the programme,** as set out in the strategic case section.*

*3. **Agree the critical success factors** for the programme.*

*4. **Identify potential 'scopes'** for the coverage of the programme, ranging from the BAU, through to the 'do minimum' and 'do maximum' and intermediate options.*

***These options focus on the scale of potential change required.** To avoid 'scope creep', they must not exceed the potential scope for the programme as defined within the strategic case section: if they do, the 'case for change' requires revisiting and updating.*

*The 'do minimum' scope must be a realistic option that meets the 'core' scope and essential business needs of the programme. The 'do maximum' is predicated on meeting the full scope of the programme and all needs. The intermediate options focus on key differences in relation to the desirable and optional scopes for the programme.*

*Be pragmatic: scoping options discounted for delivery in the short to medium terms may be retained in the strategic portfolio for delivery in the longer term.*

*i. Subject each option to SWOT analysis – noting advantages and disadvantages and how well it meets the agreed spending objectives and CSF's.*

*ii. Discount unrealistic options. Carry forward (C/F) possible options, including the BAU and 'do minimum' scopes.*

*iii. Identify the preferred way forward (PWF) – the 'scope' which is considered most likely to optimise social value.*

*Scopes identified for the programme that are more ambitious than the 'do minimum' must be justified on their potential for optimising benefits in relation to costs.*

*Consider numbering the options and colour coding the results.*

**Options Framework for the Climate Change Programme**

| **Dimension** | Business as usual – Do nothing else | Do minimum – Reactive | Do more - Pro-active | Do maximum |
|---|---|---|---|---|
| Scope | Continue with existing efficiency and best value initiatives | Develop strategies, plans and projects to meet Council estate and service obligations for emissions reductions as opportunities arise to seek to meet government targets with current infrastructure and arrangements<br>Support community and other agency initiatives reactively | Develop strategies, plans and projects both to achieve emissions reduction targets and promote the underlying structural, infrastructure and regulatory/fiscal arrangements that would most enable those reductions<br>Support community and other agency initiatives proactively | Develop strategies, plans and projects that create conditions that enable targets to be exceeded and/or reached early<br>Assume responsibilities to enable and deliver whole Shetland solutions |
| Service solution portfolio of enabling projects and activities<br><br>(see following sec- | Continue Carbon management Plan<br>Leave additional actions to be decided | Review key strategies and plans and seek opportunities within their existing priori- | Require review of all strategies and plans systematically including alignment with Cli- | Restructure and manage all projects and activities centrally under Climate Change direction |

| | | | | |
|---|---|---|---|---|
| tion) | within other projects at their discretion | ties | mate Change key outcomes | |
| Service delivery<br>• in-house provision,<br>• outsourcing,<br>• alliances<br>• strategic partners. | Continue as is unless change is prompted by efficiency or best value | Reactively assess opportunities for alternative service delivery should any arise | Proactively consider service delivery alternatives in critical areas for climate change to identify more effective models | Create a new corporate body to plan and deliver all activity affecting climate change |
| Service implementation<br>• piloting,<br>• modular delivery,<br>• big bang<br>• phasing (tranches). | Continue to pilot limited scale alternative approaches | Consider individual sectors and/or service areas individually for implementation of alternative methods | Develop a tranch based approach to considering ranges of interdependent sectors and service areas for phased improvement | Identify all currently possible adaptations and mitigations and implement all as quickly as possible. Repeat this exercise every 5 years as technologies and options develop. |
| Funding<br>• Council funding<br>• Other public funding<br>• private capital,<br>• generation of alternative revenue streams,<br>• operating and financial leases,<br>• mixed market arrangements. | Fund from existing Council budgets if efficiencies and alternatives are cost neutral.<br>Seek external funding if opportunities arise | Fund from existing Council budgets through cost neutral changes and fund changes which demonstrate spend to save. | Review main budgets associated with areas of greatest climate change impact to ensure climate change objectives are being fully considered in budget allocation.<br>Actively investigate opportunities for external and other funding mechanisms | Redirect budgets centrally based on climate change adaptation and mitigation impacts |

**4.3 Preferred way forward**

*Please state the preferred way forward in relation to the options identified for the successful implementation of the programme.*

*This should outline:*

- *the key investments within the programme*
- *those that will lead to separate procurements in their own right (and thus be subject to individual business cases – SOCs, OBCs, FBCs)*
- *related timescales*
- *the indicative economic cost (in £s), taking into account any attributable costs (including those falling to other organisations); quantifiable benefits (in £s) and risks (in £s). The use of optimism bias should be considered here.*

**Do nothing beyond Business as Usual**

This approach is **not recommended**. It would not appear to offer a feasible path to meeting the Councils statutory obligations and duties to meet the climate change targets adopted by the Scottish Government.

**Do Minimum – Reactive**

This approach is **not recommended**. While minimum Council action might deliver technical compliance with its public duties to meet statutory duties and obligation relating to the Councils estate and services it would not be likely to address structural and systematic Shetland energy infrastructure, availability and cost issues.

**Do More - Proactive**

This approach is **recommended**. Proactively assessing key issues systematically through a wide partnership and in tranches, both sectorally and over time is most likely to achieve best outcomes. It offers the possibility of identifying further "quick wins" accessible through existing technology and within available shared resources while also identifying underlying issues which can only be effectively addressed through legislative or regulatory change, substantial investment, complex collaboration and new technology development. This whole system approach can then plan the delivery of these more complex and longer term actions with greater likelihood of successful outcomes.

**Do Maximum**

This approach is **not recommended**. Implementing all possible adaption and mitigation actions available currently risks a disproportionate re-direction of resources to limited effect when a number of the core issues are systematic and structural. This approach would also require a very directive

approach which may well disengage many partners, communities and individuals. It is also likely that it would be necessary to repeat successive "big bang" change programmes as changes to technology and culture developed over time.

**Service solutions - portfolio of enabling projects and activities**

Overarching Shetland Plan - The Shetland Partnership Plan

- Participation Delivery Plan
- People Delivery Plan
- Place Delivery Plan
- Money Delivery Plan

Shetland Islands Council – Our Plan

- Service Redesign Programme
- Business Transformation Programme
- Medium & Long Term Financial Plan
- Asset Investment Strategy and Plans
- Carbon Management Plan
- Procurement Plans
- Workforce Plans
- ICT Plans
- Community Development and Locality Plans

Sectoral Plans (each needs to cover adaption and mitigation)

(a) Energy Supply

- Electricity Generation, Infrastructure and Supply Plan(s)
- Hydrogen Generation, Infrastructure and Supply Plan(s)

- Other Energy Generation, Infrastructure and Supply Plan(s)
- Transitional Energy Generation, Infrastructure and Supply Plan(s)

(b) Transport (including aviation & shipping)

- Shetland Transport Strategy
    - Inter Island Ferry Plans
    - Bus Plans
    - Inter-Island Air Plans
    - Fixed Links
    - Private Car Plans
    - External Ferries
    - External Air-Services
- Shetland Active Travel Strategy
- National Transport Strategy
    - External Ferries
    - External Air-Services
    - Commercial shipping transport plans
    - Commercial aviation plansCommercial land transport, van and truck etc. plans

(c) Business and industrial process,

- Economic Development Strategy / 10 year Plan
- Fisheries Plans
- Aquaculture Plans
- Construction Plans
- Shetland Tourism Strategy

- Oil & Gas Plans
- Other Energy Sector Plans
- Other Business and Industrial Plans
- Council Fleet Management Plan
- Port of Sullom Voe Plans
- Small Ports Plans
- Lerwick Port Authority Plans

(d) residential and public buildings,

- Council Housing Strategy & Plans
- Housing Association Plans
- Private Households Plans
- Council Public Buildings Plans
- Other Public Buildings Plans

(e) waste management,

- Zero Waste Shetland Plans
- Domestic waste management & recycling plans
- Commercial waste management & recycling plans
- Landfill, ERP, other recycling / reuse plans

(f) land use, land use change and forestry,

- Shetland Local Development Plan
- Shetland Marine Spatial Plan

(g) agriculture.

- Agriculture Plans

This list is not intended to be exhaustive but starts to illustrate the range of areas and issues that need to be considered within this programme. Equally, the initial identification of a strategy / programme / plan in one sectoral area does not limit the relevance and influence of that plan, there will be many overlaps and dependencies.

None of these plans and programmes belong to the Council exclusively, indeed some will be "owned" by other agencies or bodies, all certainly have overlaps between organisations and include many interests.

There will also need to be a number of "community" based and led plans / strategies and programmes, both for geographical plans, perhaps relating to one specific island and for communities of interest, perhaps relating to young people, vulnerable or low income individuals and families.

The critical need for the responses to climate change to be considered from the perspective of multiple groups will be very important if we are to make sure they support sustainable development, climate justice, just transition principles, human rights and equalities objectives and obligations.

These programmes are currently at very different stages of development and have differing levels of direct Council control and/or influence. All strategies, programmes and plans will however need effective partnership working.

Further clarification of this mapping exercise and then designing arrangements that promote inclusion, collaboration, innovation and aligned decision-making across many partnerships will be one of the most considerable challenges in delivering an effective response.

**Potential Next Steps across all key strategies and plans**

Each programme or project identified in the list above will be required to ensure that it;

- develops effective understanding of the challenge in terms of Climate Change adaption and mitigation that it will be expected to meet,
- revisit it's underpinning strategies and plans to see whether these challenges and obligations are sufficiently included,
- revisit and further develop actions plans for every area to ensure they include delivery of Climate Change objectives, targets and timelines,
- develop engagement, communication and reporting arrangements to ensure all parts of the overall Climate Change programme informs each other, and;

- ensure all this is done cross Council / cross Shetland and links into Scotland/UK/international assistance where that is available.

More understanding of the detailed actions and changes which will be required over a sustained period will emerge from this activity and will also need to be aligned with the detailed guidance which the Scottish Government have undertaken to produce within 6 months as a "Scotland Climate Change Plan".

The timing of a number of actions in Shetland will undoubtedly depend on key decisions taken elsewhere, the emergence and/or commercialisation of new technologies and the deployment of new infrastructures and regulatory regimes.

The table below does not seek to be exhaustive but highlights some potential developments etc. across the sectors as identified by the Scottish Government.

| | **Council role / Others role** | **Key issues** |
|---|---|---|
| (a) energy supply, | Limited direct Council, mostly Govt & private sector.<br><br>Will critically require leadership, co-ordination and facilitation. | Shetland power station(s) and/or interconnector and local grid capacity<br><br>Electricity renewable generation capacity and distribution<br><br>Hydrogen generation and distribution |
| (b) transport (including road transport, aviation,shipping and active travel), | Direct for ferries, tugs, internal planes and Council vehicle fleet.<br><br>Others include Govt agencies for external shipping and aviation, commercial for road haulage, fisheries and aquaculture and individuals for personal transport.<br><br>Direct in terms of staffing and funding ZetTrans which has functional responsibility for public transport provision as well as a remit for active travel. | Availability of alternative energy sources and their distribution infrastructure<br><br>Particular challenges for realistic alternative fuel sources for shipping and aviation<br><br>Pricing and regulatory arrangements<br><br>Encouraging behaviour change in terms of travel choices and use of private car |
| (c) business and industrial process, | Limited direct Council e.g. Waste to Energy plant and Scord Quarry.<br><br>Others include very large Oil & Gas + very significant fisheries and aquaculture + other quarries | Availability of alternative energy sources and their distribution infrastructure<br><br>Particular challenges for realistic alternative fuel sources for aquaculture |

| | | |
|---|---|---|
| | and construction. | and fisheries<br><br>Pricing and regulatory arrangements |
| (d) residential and public buildings | Direct for Council houses and public buildings, + agencies for Housing association and NHS etc. public buildings.<br><br>Others include private housing and commercial premises | Availability of alternative energy sources and their distribution infrastructure<br><br>Significant challenges around availability across Shetland<br><br>Pricing and regulatory arrangements<br><br>Transitional energy (LNG etc.) sources and distribution |
| (e) waste management, | Direct for collection, processing and disposal.<br><br>Government, commercial and individuals for waste generation | Circular waste economy and reuse / recycling |
| (f) land use, land use change and forestry, | Direct as land owner, some directive with aspects of planning authority influencing with wider aspects of planning<br><br>Others include farmers, crofters and other landowners. | Further determination of scale of changes required and potential in interventions |
| (g) agriculture. | Council limited Influence as land owner, planning authority and economic development agency<br><br>Others include farmers, crofters and other landowners. | Further determination of scale of changes required and potential in interventions |
| Sectoral Climate Change Adaption Programmes | Significant Council responsibility for Council services and general community resilience leadership<br><br>Shared responsibility and interest across agency partners, businesses and communities | Further determination of scale of changes required and potential in interventions |
| Supporting | Significant Council responsibility | Further determination of scale of changes |

| | | |
|---|---|---|
| programmes and activity | for Council services and general community resilience leadership<br><br>Shared responsibility and interest across agency partners, businesses and communities | required and potential in interventions |

Many of the choices that sectoral programmes have available to them, especially around moves to alternative fuel sources, will be determined by the energy market and supporting energy distribution infrastructures. This may well be the most complex local matter in determining the ability of the Council, and everyone else in Shetland's, to respond as they would wish.

Ultimately it will only be possible to achieve "net-zero" greenhouse gas emissions in Shetland if alternative energy sources are available for public bodies, businesses and households to utilise and the infrastructure to support them is in place.

Our experience of the development and roll-out of infrastructure for any national service or infrastructure has consistently been that we are at the most remote and last in the queue. This was historically the islands experience with electricity, water, telephones and even television, it is the continuing experience with broadband. There is a real danger that changes in widespread usage of energy sources away from petrol, diesel, domestic heating oil and bottled gas to new alternatives will be equally fraught, slow and challenging.

However, these risks and challenges in energy transition may also create what is perhaps a unique opportunity to address some of the most intractable structural and systematic difficulties around key living costs in Shetland.

The most significant element of the inflated cost of living in Shetland is the excess costs we have to bear for energy to heat our homes and the energy costs of the transport to and from Shetland and within the islands. These costs ultimately affect the prices of all the goods and services we fundamentally depend on. If necessary energy transition from high carbon sources to alternative fuels result in still higher costs, then that will be even more problematic for island life, especially if these costs end up being passed on to the user.

It will therefore be critical to identify how transition avoids inflating the cost of energy, and indeed seek to identify approaches that allow access to more affordable arrangements, especially for life-line services and those in the community least able to afford high costs.

At this stage it would appear that there are basically three scalable future sources of zero emission energy which might be available in Shetland; renewable generated electricity,"green" hydrogen and non-motorised transport solutions.

While there may be a range of transitional fuel sources that have relevance during the transition period, perhaps including lower emission hydrocarbons such as LNG, they cannot be zero-emission solutions. However some of these transitional energy sources may be an inevitable requirement for years or decades until technical availability and cost effectiveness of zero emission alternatives becomes available.

That might be most likely in shipping, fisheries, aquaculture and agriculture where the demands placed on fuel sources are very particular. If that transpires then much of the holistic work described below for renewable electricity and hydrogen, i.e. identification of sources for generation, distribution arrangements for supply and regulatory and pricing arrangements will also have to be delivered for that fuel source.

Other zero-emission technologies may also have some role to play such as solar, air & ground source, anaerobic digestion or bio-mass with carbon capture but practically these would seem to have more limited capacities in the Shetland context in comparison to renewable generated electricity and "green" hydrogen.

Therefore it will be necessary to develop realistic and deliverable plans for the availability of renewable generated electricity and "green" hydrogen energy supplies across Shetland to enable full achievement of sectoral mitigation plans.

It would seem critical that renewable electricity and hydrogen generation, distribution and regulation arrangements are considered holistically to seek to manage their availability and cost issues effectively. Neither fuel source is available widely in Shetland at the moment; much work will be required to develop arrangements likely to improve availability and ensure affordability.

In addition to mitigation programmes, Climate Change Adaption arrangements will need to be revisited and/or developed to address the potential impacts of global warming, sea level changes, species migration and extreme weather events etc.

These direct mitigation and adaption programmes will also have to be supported by a review and update of support arrangements across finance, procurement, asset management, HR, ICT etc.

A range of education, awareness, training and engagement activity will also need to be planned and delivered both within the Council and partner agencies and more widely with individuals, communities' young people, businesses etc. to develop and promote the widest understanding and engagement about issues and solutions.

## 5. Commercial case

### 5.1 Commercial strategy

*Please outline the commercial strategy for the programme.*

*This may differ for individual investments and describes how the organisation(s) will endeavour to 'leverage' the best available deal for each investment, or combination of investments, from the supply-side and market place.*

The Climate Change programme will require a wide range of commercial arrangements from a range of organisations to deliver this broad scope. This is likely to involve direct procurements, partnerships both with commercial, public sector and community partners.

A number of the commercial solutions are likely to be novel and innovative and may require regulatory realignment, particularly given our geographical context and scale.

Many projects will have to be evaluated and decided on individually and may require their own strategic, outline and full business cases before implementation.

### 5.2 Procurement strategy

*Please outline the procurement strategy for the programme and how its components (projects) will be procured in accordance with the Government Procurement Agreement (WTO) and the EU Consolidated Public Sector Procurement Directive (2004).*

*This may differ for individual investments and range from the use of existing call-off contracts and catalogues, to new procurements.*

Many projects will have to be evaluated and decided on individually within the responsibilities of other organisations and will require their own strategic, outline and full business cases before implementation. The key aim must be to ensure good alignment that optimises the opportunity for value for money solutions.

**6. Financial Case**

**6.1 Indicative costs**

*Please indicate the total financial cost (in £s) of the programme, broken down by constituent investments and/or procurements.*

*This should be based on the additional cash cost of these investments to the organisation(s), taking into account any cash releasing benefits or off-setting costs.*

Overall Council energy consumption was estimated to be c 100gwh in 2018/19. Council energy costs are current in excess of £6.5m per annum, c£2.5 on electricity, c£4m on marine, vehicle and heating fuel.

Whole Shetland energy consumption (excluding Oil & Gas terminals) was estimated to be c 1500gwh in 2008, this whole Shetland analysis is currently being updated. This would indicate an overall Shetland energy bill in the order of c£100m per annum.

Maintenance and replacement costs for the buildings, vessels, vehicles and other assets associated with that energy use are in excess of £100m for the Council estate over the next 5 years, perhaps £1b for the whole of Shetland when replacement vehicles, house builds, vessels and other plant is taken into account.

It will be a priority within the Shetland Climate Change Plan to review these cost estimates, however there is no doubt that very significant sums of public, commercial and household money is currently being spent on energy (transport, heating, lighting etc).

The costs of the interventions and actions required to respond to Climate Change effectively will require that spend to be restructured to alternative energy sources. The specific investments which will be required will be of a very significant scale.

| **Area** | **Financial implications** |
|---|---|
| (a) energy supply, | Very large government and private sector investment<br><br>Possible community participation.<br><br>Regulatory / community benefit arrangements around pricing |
| (b) transport (including road transport, active travel, aviation and shipping), | Very large investment required in new vehicles, boats, planes, alternative infrastructure by all parties, agencies, businesses and individuals. |

| | |
|---|---|
| (c) business and industrial process, | Very large for Oil & gas, substantial for fisheries, aquaculture and other business and industrial sectors especially in terms of SME business investment capacity. |
| (d) residential and public buildings | Very large for all parties across heating systems.<br><br>Significant Council actions required in terms of Council houses and public buildings.<br><br>Perhaps even larger in terms of private households. |
| (e) waste management, | Significant for waste management and waste to energy. |
| (f) land use, land use change and forestry, | Further analysis required |
| (g) agriculture. | Further analysis required |
| Sectoral Climate Change Adaption Programmes | Further analysis required |
| Supporting programmes and activity | Further analysis required |

**6.2 Funding arrangements**

*Please indicate how it is intended that these investments will be funded.*

Restructuring the capital investment and revenue spending on energy will require collaborative action between the Council, other public bodies, businesses, communities, families and individuals.

Existing funding sources, investment and spending arrangements will all have to be examined carefully to understand how they can be best redirected. Sources of additional funding, whether through external government support schemes, commercial partnerships or community action will also need examination.

Each sectoral programme will have to map out the potential funding implications for the activity required in its area. A key contribution of the Climate Change programme be to then seek to integrate these actions and investments together to best mutual benefit.

Meaningful climate change action will require long term adjustments to culture and spending activity. Current arrangements are already very costly and involve a significant proportion of public and private funds. Investing and spending that money differently will be the most significant way forward, however that will require careful planning and very effective collaboration if the most effective results are to be achieved.

**6.3 Affordability**

*Please confirm the affordability of the overall programme, indicating any agreements or understandings in place with commissioning bodies and/or any affordability gaps.*

Changes of the order required to transform our energy use away from the hydrocarbons on which we fundamentally depend at the moment will undoubtedly create affordability challenges.

These challenges will present themselves at a macro level, where the potential investment costs will compete with other priorities for access to limited overall funding both in terms of capital investment priorities and ongoing revenue funding.

There are also likely be significant affordability challenges at a local level for families, individuals and businesses around both one-off costs in changing energy sources and the ongoing implications that might create.

Sectoral analysis and planning will have to consider these issues specifically in each area and seek to develop mitigations as far as possible. Again the programme challenge will be to help integrate these plans and actions for overall benefit.

The changes required are long term, and affordability will have to be considered across that long term also. Much investment and ongoing spending is required around the arrangements and energy sources we use just now.

A key aspect of affordability will be finding ways to divert and enhance the effectiveness of that spend into activity and arrangements that support climate change objectives.

## 7. Management case

### 7.1 Programme management arrangements

*Please outline the programme management arrangements, including your framework (roles and responsibilities), strategy for dealing with stakeholders and customers, and outline plans.*

*In accordance with best practice, the programme must have a Senior Responsible Owner (SRO), who takes ownership of the programme and is responsible for its direction.*

Effective engagement, communication and governance arrangements for such a complex and wide reaching programme of activity will be unavoidably complex to design and manage.

This may require revision of arrangements at Council, Community Planning, Community and government levels.

Proposals for these arrangements will require some thought, discussion and time to develop but must recognise and be aligned with the key obligations and objectives of the programme as well as the key obligations and objectives of individual partners recognising these will be driven by individual statutory roles and requirements.

Given the wide reaching scope of this matter, it is proposed that initial programme managerial arrangements are through the Councils Corporate Management Team.

The Chief Executive who chairs that group will operate as the programme Chair / Senior Responsible Officer.

Overall strategic decisions relating to a matter of the significance of Climate Change lie with a range of bodies in Shetland. In relation to the Councils' duties there is a need to ensure a coherent approach and it will be essential that all committees work to build these issues into their strategy development, monitoring and decision making.

Initial political governance within the Council is proposed through consultation with Committee Chairs, who will convene as required as a Climate Change Sounding Board with reporting through the Environment and Transport Committee and the Policy and Resources Committee.

The Shetland Partnership will be expected to function as a "whole Shetland" co-ordinating group for Climate Change consideration and response, and development of further collaborative mechanisms will be required to ensure alignment in planning and delivery of solutions.

This programme and any resultant programmes and projects will be managed to Prince2 standards.

### 7.2 Programme milestones

*Please outline the main milestones for the programme in the years ahead.*

Programme milestones will be established in relation to individual project evaluation, decision making and implementation.

It is also necessary to establish overall anticipated milestones for this overarching programme including establishment of overall governance arrangements, target setting, monitoring and reporting arrangements, partnership engagement and community engagement.

The Climate Change Bill targets legislated by the Scottish Government are;

(a) 2020 is at least 56% lower than the 1990 baseline,

(b) 2030 is at least 75% lower than the 1990 baseline, and

(c) 2040 is at least 90% lower than the 1990 baseline.

(d) 2045 is net zero

The Council will have to respond effectively to these.

A further significant milestone should be around March / April 2020. This is the date when the Scottish Government has committed to update their Climate Change Plan, setting out the pathway to decarbonisation for Scotland as a whole.

Influencing the content of that updated plan, as well as reacting to it will be very important.

March / April 2022 is also the recommended target for the completing of initial development of sectoral plans and further reporting to Council.

**7.3 Programme assurance**

*Please state what these arrangements are, including any provision for gateway reviews on an ongoing basis for strategic fit (Gate 0).*

Programme assurance will be managed to Prince Project Management standards and in line with the Better Business Case planning guidance.

## Appendix A – Carbon Management Plan - Energy / Emissions Report

### 1. Introduction

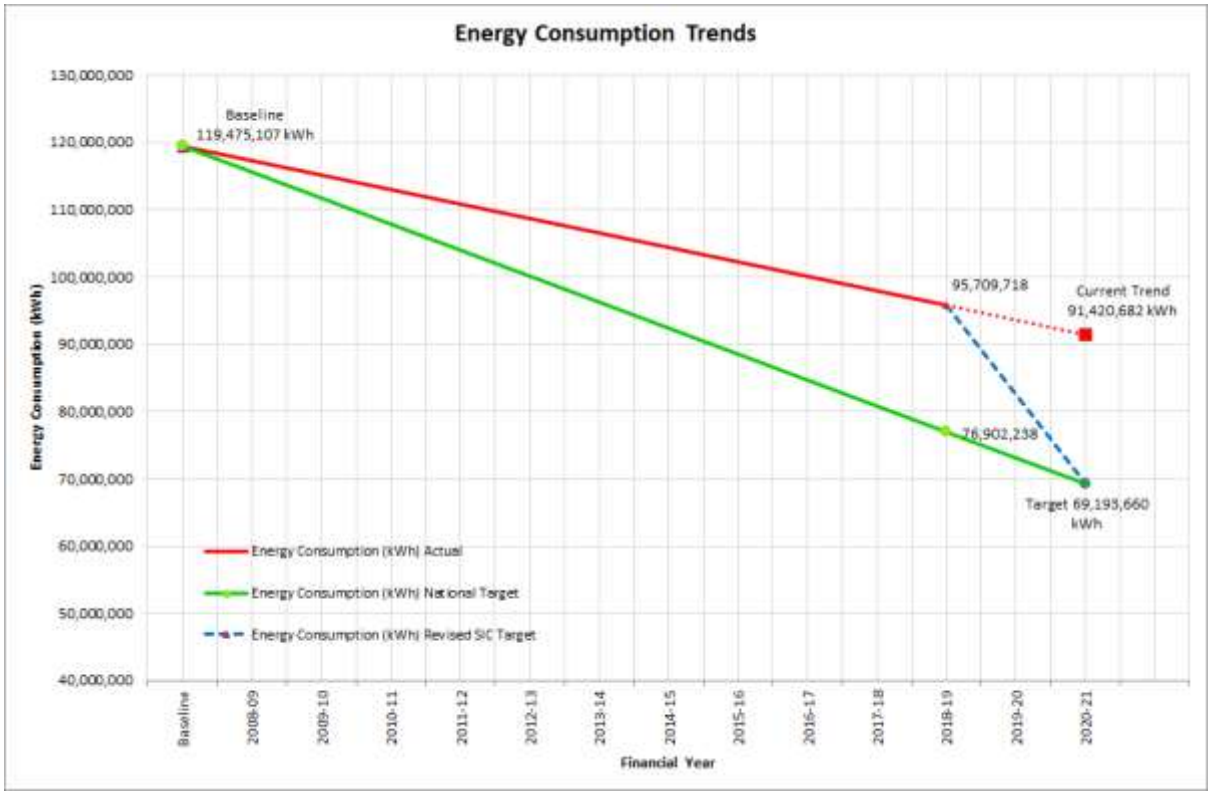
This report provides an update on the Council's position in terms of energy and carbon reduction.

The report provides an update of the data presented in the Carbon Management Plan 2015-2020.

### 2. Trends

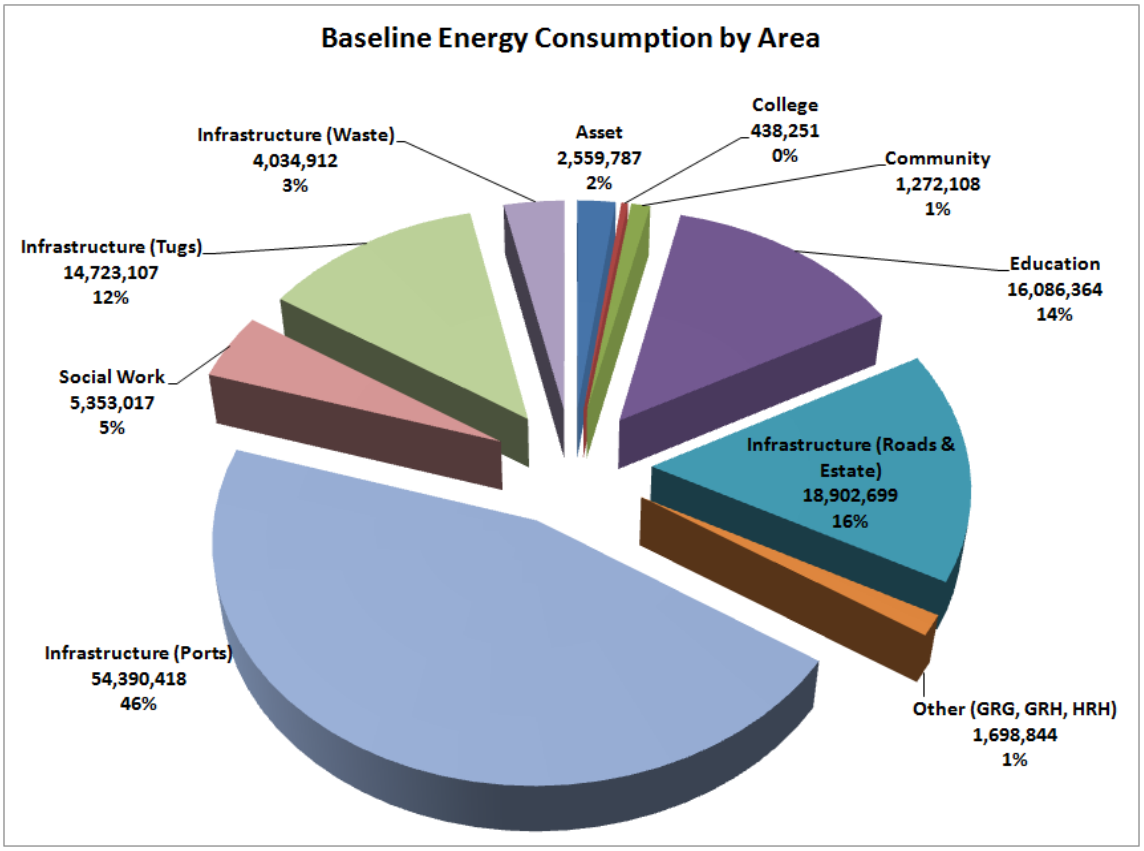
The following graph presents the consumption trend compared with the 42% reduction target (from the baseline) set for 2020/21.

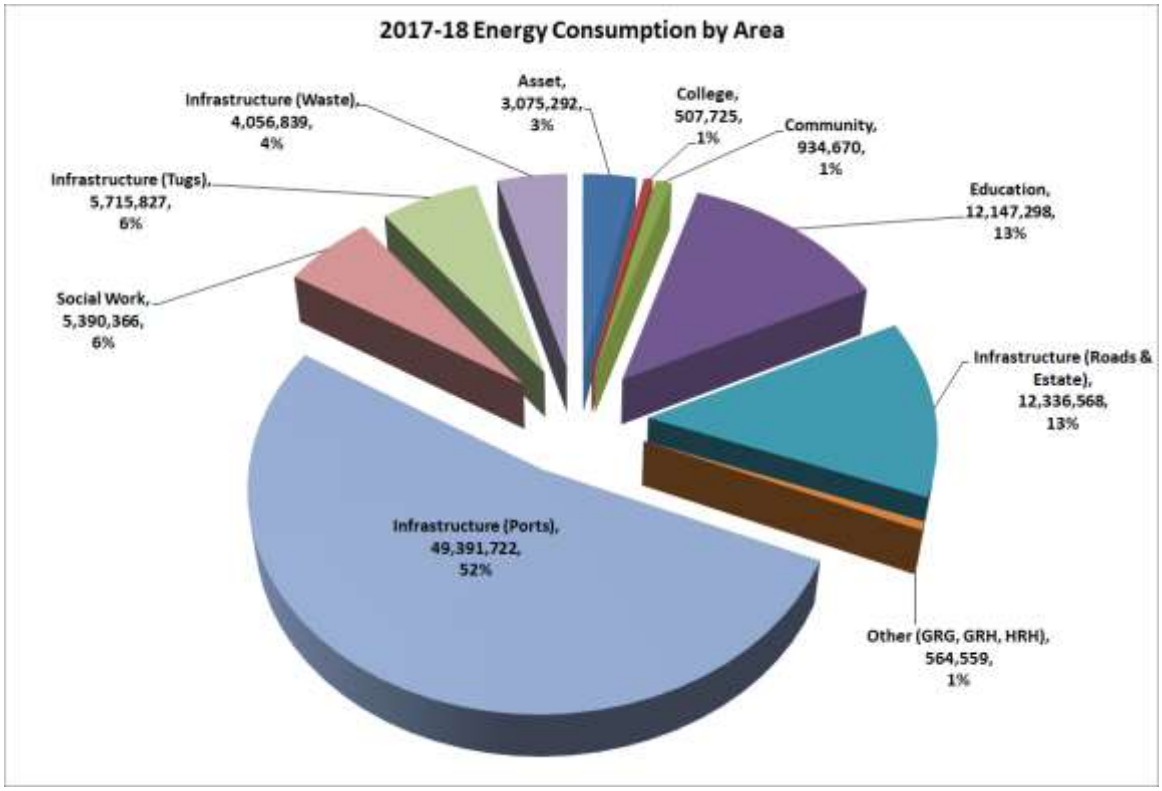
There is still a significant difference between target trend and current trend and the current trend has increased to a 2020/21 consumption of 91,420,682kWh at current projections from the 2017/18 figure of 86,514,594kWh.

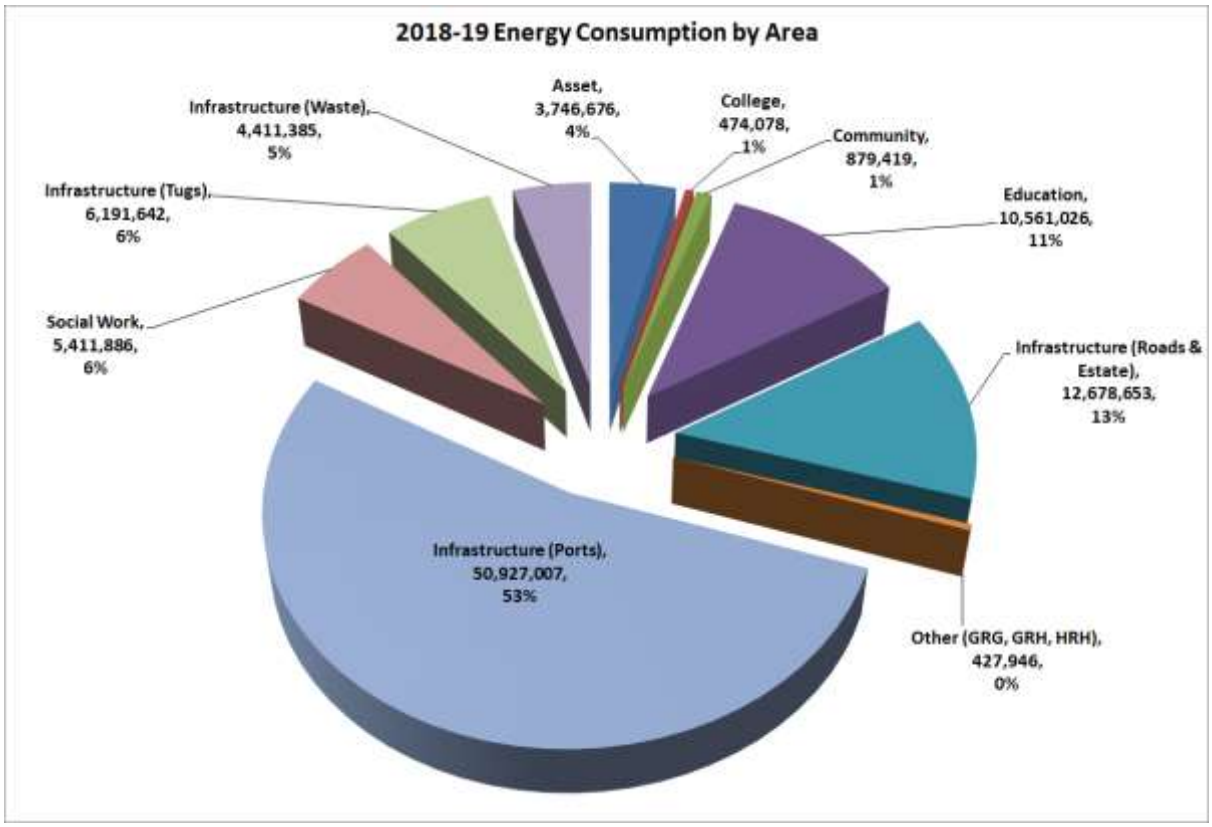


## 3. Baseline, 2017/18 and 2018/19 Consumption Breakdown

The following graphs provide a comparision of the above three periods.






The following paragraphs outline the main usage in each area:

**3.1** **Infrastructure Ports** – this is the largest area of energy use (the majority of which is gas oil use on ferries). Other usage in this area includes piers/ferry terminals and navigation aids as well as the Sellaness site.

**3.2** **Social Work** – this is mainly energy consumption in care homes but also includes the Eric Gray Centre, Annsbrae, the Independent Living Centre and the smaller ILP offices.

**3.3** **Infrastructure Tugs –** covers both gas oil and electricity use (shore power) for the tugs.

**3.4** **Infrastruture Waste** – consists mainly of consumption at the Energy Recovery Plant but includes the Waste Handling Facility and Rova Head.

**3.5** **Asset** – this area covers mainly office buildings and also vacant or empty sites.

**3.6** **College** – this is purely consumption at the Shetland College

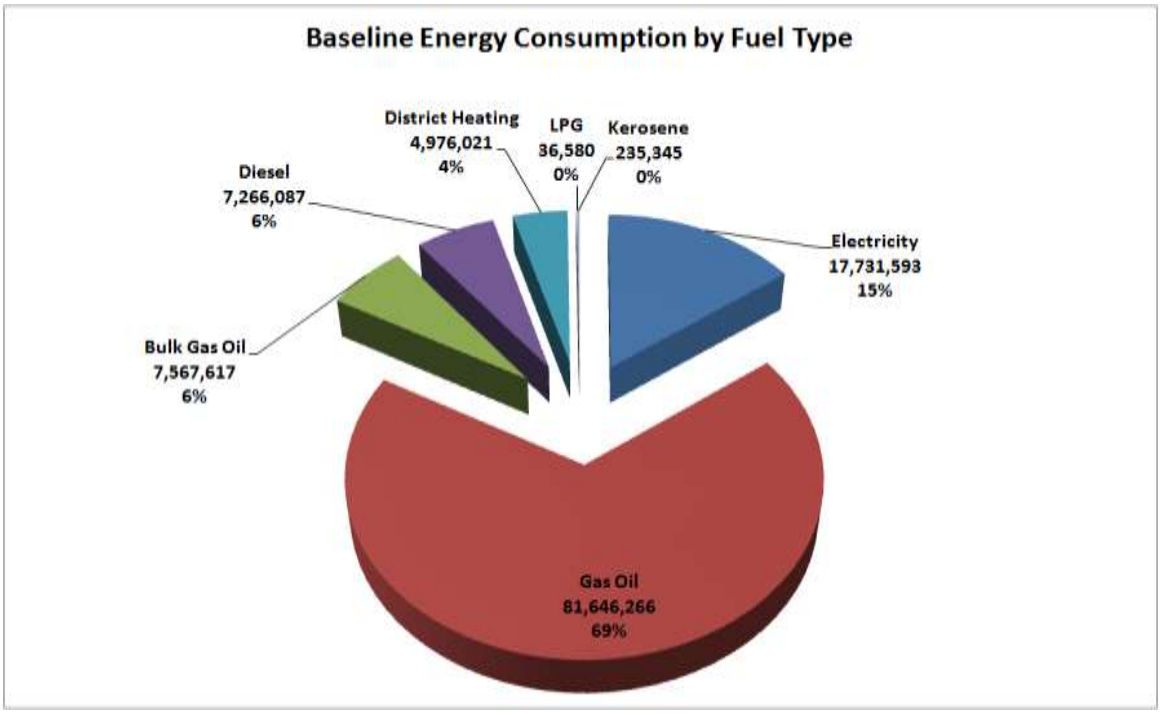
**3.7** **Community –** includes the Islesburgh complex, the pavilions and the St Sunniva Street store.

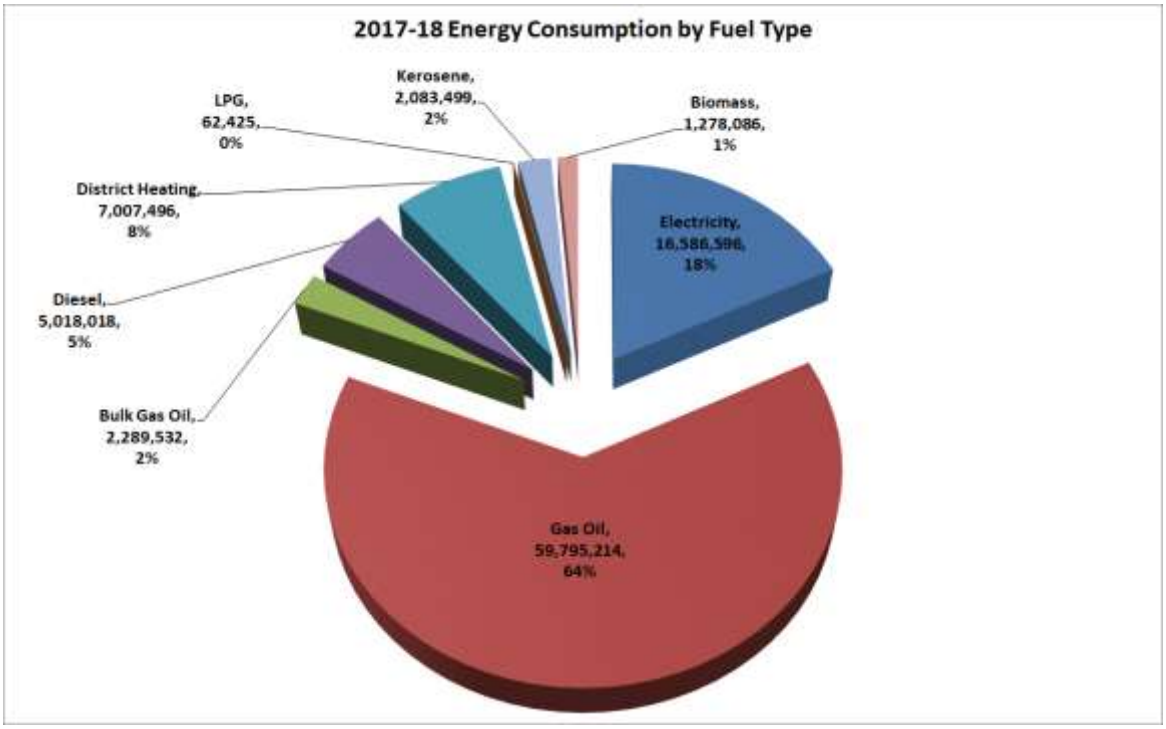
**3.8** **Education –** this covers all schools as well as the Library and the Bridges Project.

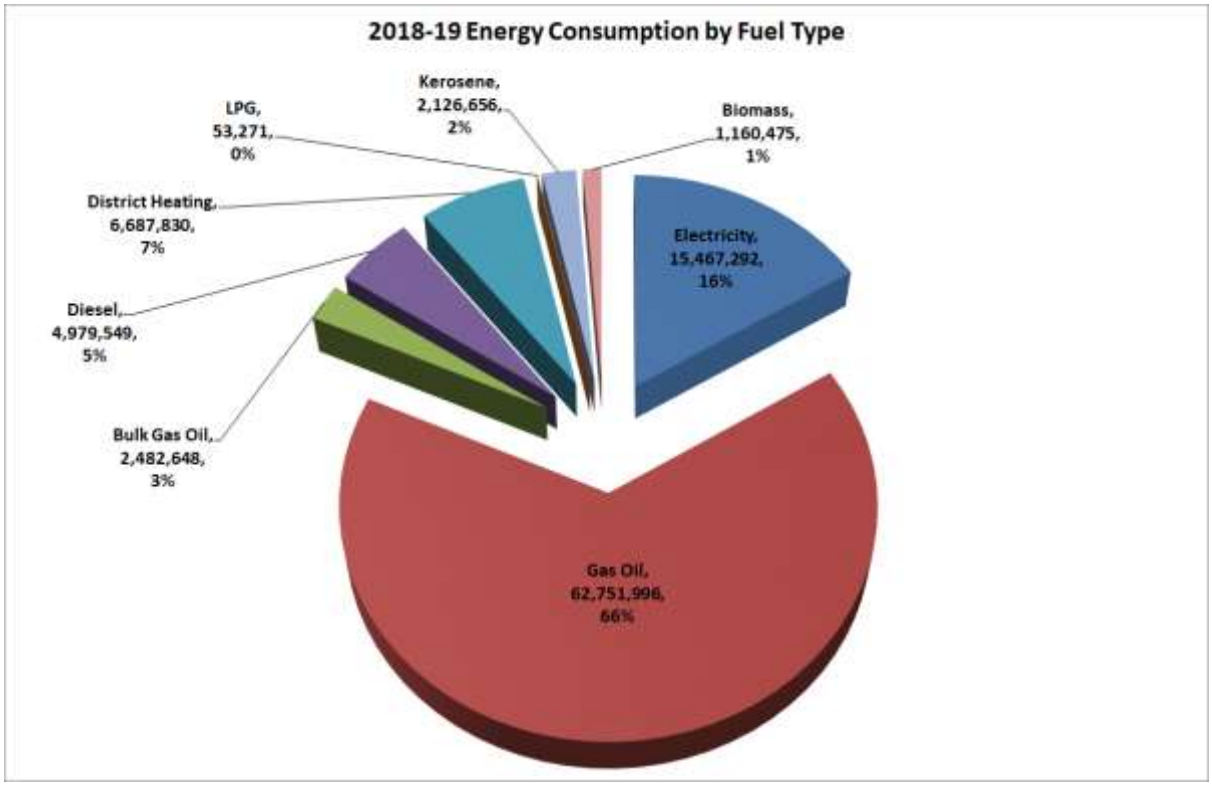
**3.9** **Infrastructure (Roads and Estate) –** this covers all bulk gas oil and diesel consumption (although fuel consumption is spread across a number of Services), street lighting, Scord Quarry as well as the various depots and workshops.

**3.10** **Other (GRG, GRH, HRH) –** this covers housing facilities, Laburnum and Windybrae and the nursery provision at King Harald Street

## 4. Baseline, 2017/18 and 2018/19 Fuel Type Breakdown






Reviewing the fuel types in turn:

### 4.1 Gas Oil

**Baseline to 2017/18** - significant reduction through the following:

- Intruduction of the tug shore power facility
- The sale of two of the tugs
- The reduction generally in buildings through efficiency programmes and conversions to alternative fuels
- Conversion of sheltered housing OPD blocks from centralised boiler plant to houses with individual heating systems
- Asset management.

**2017/18 to 2018/19** – increase in consumption through the following:

- Ferry oil consumption
- Tug oil consumption
- To a lesser extent oil for heating.

### 4.2 Bulk Gas Oil

**Baseline to 2017/18** - significant reduction through the following:

- The conversion of Scord boiler plant to kerosene
- General reduction in bulk oil use across the depots

**2017/18 to 2018/19** – increase in consumption through the following:

- Scord, Mid Yell and Sellaness depots increase

### 4.3 Kerosene

**Baseline to 2017/18** – increase in consumption through the following:

- The conversion of Scord boiler plant to kerosene
- Spot increases due to more productive years e.g. the high output period experienced in 2015/16 as a result of the construction work at Total.

**2017/18 to 2018/19** – increase in consumption through the following:

- Increase in use at Scord Quarry
- Increased space heating use. Snagging issues with new boiler plant systems which have since been resolved

### 4.4 Diesel

**Baseline to 2017/18** - use has steadily reduced over the period through the following:

- Reduced mileage and efficiency programmes
- The tracking system has led to further efficiency savings; and,
- The 6 new electric vehicles in use (1 vans and 5 cars) now in use.

**2017/18 to 2018/19** – small decrease again through the continued impact of the above measures.

### 4.5 LPG

**Baseline to 2017/18** - use has increased due to the gas boilers installed as part of refurbishment of the Shetland College catering facility.

**2017/18 to 2018/19** – decrease in consumption through the following:

- Reduced use at the College

### 4.6 Biomass

**Baseline to 2017/18** - increased use through:

- The operation of the Mid Yell scheme (supplying the school and leisure centre)
- The replacement of oil boilers at Sellaness; and
- The operation of the Scalloway scheme (supplying the school and leisure centre)

**2017/18 to 2018/19** – increased use through:

- Slight decrease possibly due to milder weather.

### 4.7 District Heating

**Baseline to 2017/18** - increased use through:

- Decentralisation of the AHS (displacing remaining oil consumption)
- Additional sites e.g. Support Services at Montfield
- Displacement of oil consumption with district heating e.g. Islesburgh House and the Old Library Centre

**2017/18 to 2018/19** – decrease through the following:

- Currently both AHS sites are in use but old site to a lesser extent. The eventual demolition of part of the old site will see a significant drop in district heating consumption generally
- Increase at Bells Brae through displacement of storage heating in the ASN although this increase been relatively low through general improved efficiency of refurbished plant room
- Decreased space heating use due to warmer weather, see 4.7.

### 4.8 Electricity

**Baseline to 2017/18** – reduction in consumption through the following:

- The reduction generally in buildings through efficiency programmes (lighting, heating etc)
- ICT server virtualisation project
- Renewable projects including small scale wind turbines and solar PV
- Asset management

- Street lighting upgrades to LED, the impact of this measure will increase through the ongoing street lighting upgrade

The rate of reduction has been impacted upon through:

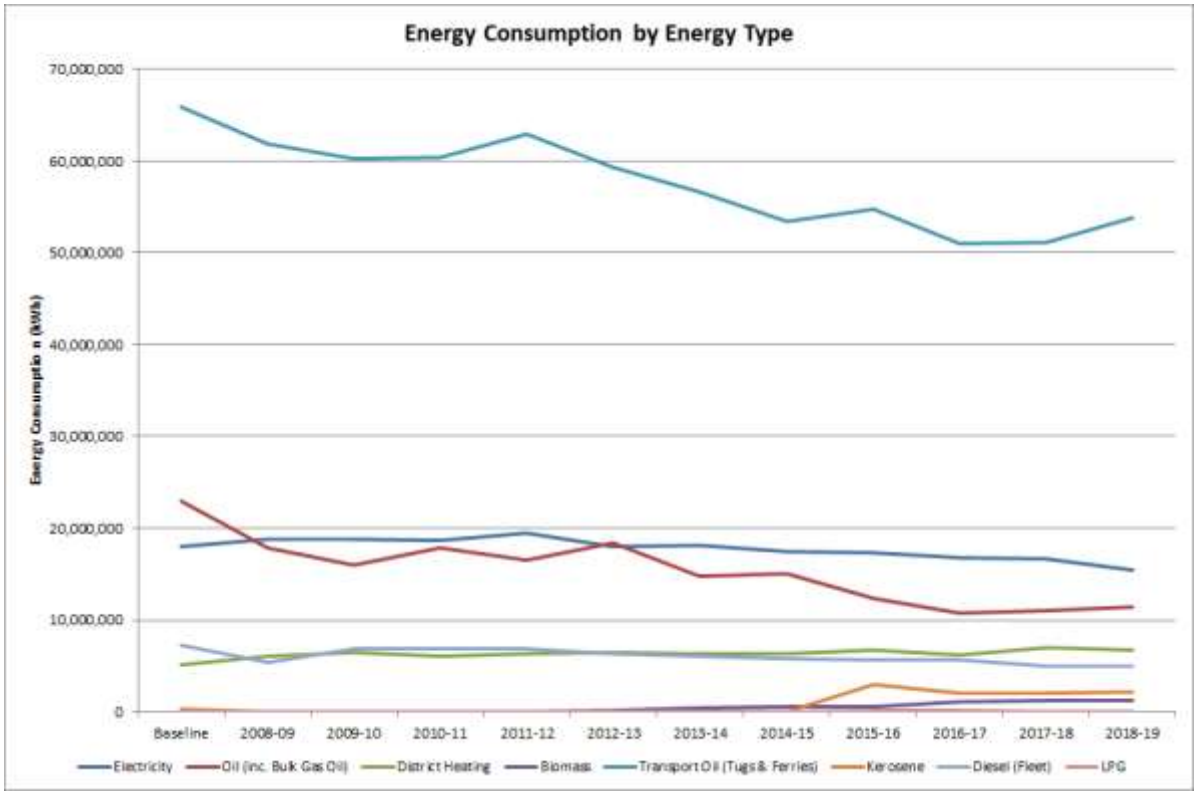
- The introduction of the shore power facility for the tugs (although this same facitlity achieved far higher reductions in oil use and this consumption has reduced significantly in this financial year)
- External usage e.g. shore power at Scalloway and also the old Rova Head site
- The extension at the College
- Other additional buildings e.g. Support Services at Montfield

**2017/18 to 2018/19** – There has been a decrease in electricity consumption again through the following:

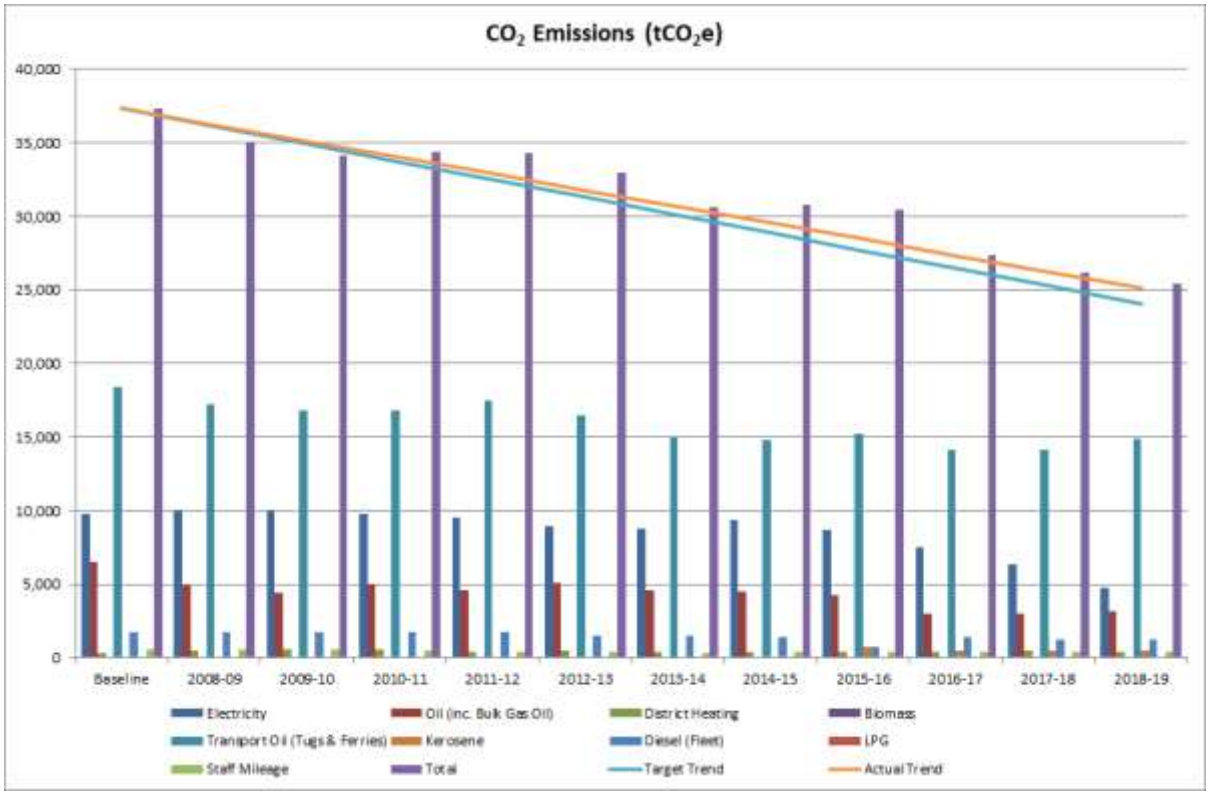
- The reduction generally in buildings through efficiency programmes (lighting, heating etc)
- Conversions to alternative fuels e.g. removal of Bells Brae storage heating
- Renewable projects including small scale wind turbines and solar PV
- Asset management although this has been impacted on by the continued use of the old AHS site

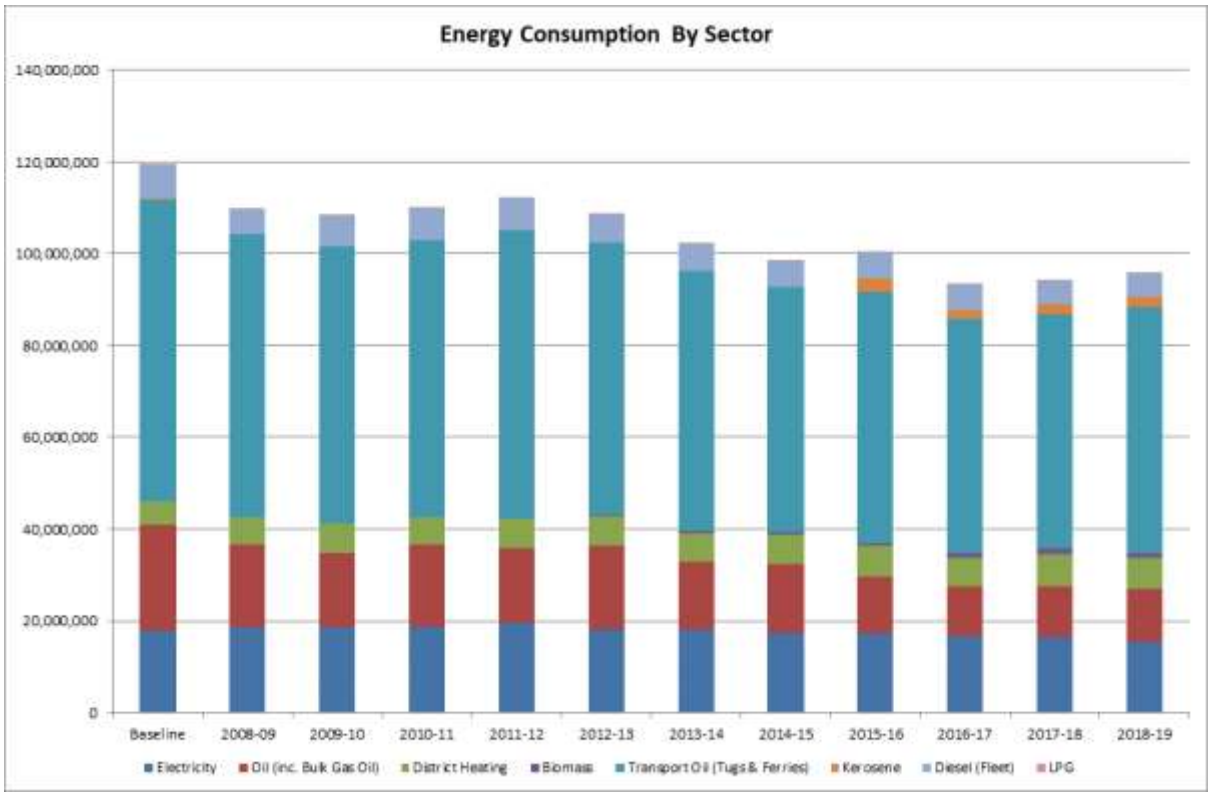
### 4.9 Temperature Data

From 2017/18 to 2018/19 any reductions in space heating use can be partly attributed to the warmer year in 2018/19 (measured in degree days).




## 5 Emissions Breakdown by Year



There has been a significant reduction in the UK average emissions factor for electricity which is the reason that although consumption has risen slightly emissions from electricity consumption has dropped impacting significantly on emissions overall.

Refering to the consumption trends graph in section 2 please note that for **emissions** the reduction from the baseline to the 2018/19 is closer to 32% compared with an **energy** consumption reduction of approximately 20% and this difference is due to the emissions factor noted above, cleaner fuels generally (relative to previous years) and the use of alternative fuels.