STATES OF JERSEY

CARBON NEUTRAL STRATEGY 2019

Lodged au Greffe on 31st December 2019
by the Minister for the Environment

STATES GREFFE

PROPOSITION

THE STATES are asked to decide whether they are of opinion –

to receive the Carbon Neutral Strategy 2019 as set out in the Appendix to the Report and –

(a) to adopt the defining principles for the Carbon Neutral Strategy, as set out in section 3 of the Appendix to the Report;

(b) to agree to the establishment of a citizens' assembly as defined by the mandate for a carbon neutral citizens' assembly, as set out in Appendix 3 to the Appendix to the Report; and

(c) to request the Minister for the Environment to lodge by the end of 2020 a proposition containing a long-term climate action plan for debate by the States Assembly.

MINISTER FOR THE ENVIRONMENT

Note: The full carbon neutral strategy which outlines the principles and mandate for the citizens' assembly is published as an Appendix.

REPORT

Background

P.27/2019 required a carbon neutral strategy to be lodged by the end of 2019. The strategy has been developed and commitments are made to further work that is necessary to fully achieve the objectives set in the strategy.

The carbon neutral strategy is based on principles that have been discussed and agreed by Ministers since the declaration of the climate change emergency in May 2019.

The strategy has the following 3 parts.

Part A – Context for the carbon neutral strategy

- Section 2 sets out the strategic context for the carbon neutral strategy. It signposts to current scientific evidence and summarises Jersey's existing international obligations and energy policy;
- Section 3 sets out the defining principles that the Council of Ministers believe should shape our carbon neutral journey.

Part B – Planning and developing a long-term climate action plan

- Section 4 sets out –
  - the proposal for a people-powered approach to deliberating and recommending a climate emergency action plan, including advising on what Jersey's carbon neutral ambition should be;
  - the policy objectives and rationale behind this approach; the process to be followed; and
  - the roles and responsibilities of different groups, including a mandate for Jersey's first citizens' assembly.
- Section 5 presents a high-level review of policies to drive radical reductions in Jersey's emissions by 2030 and summarises key considerations related to offsetting residual emissions. As comparison, and to inform the public debate, the quantified elements of this review are also presented for 2040 and 2050 deadlines.

Part C – Delivering together in 2020

- Recognising the urgent nature of the climate emergency, Section 6 sets out an initial delivery plan of foundation policies that will be implemented in 2020, alongside the development of the long-term climate action plan.
- Section 7 sets out –
  - how delivery will be governed, and the need to review existing Energy Partnership that was established by Pathway 2050;
  - key financial considerations;
  - an initial investment plan for the Climate Emergency Fund; and
  - the basis of a future performance and review framework to track and assess progress.
- Section 8 concludes the strategy and sets out key next steps.

Financial and manpower implications

Development of the Carbon Neutral Strategy has drawn on existing policy resources and additional in-year funding of £212,500. Further development of the work identified in the strategy will draw on existing policy resources and additional funding from Climate Emergency Fund as approved in 2019 in the Government Plan.

Re-issue Note

This Projet is re-issued in order to correct typographical errors in the Appendix to the Report.

APPENDIX

Carbon Neutral Strategy 2019

CLIMATE EMERGENCY

Government of JERSEY

Contents


Meat&Eat

Minister’s foreword

Deputy John Young
Minister for the Environment

December 2019

Like many people of my post-war generation, in the early 1970s I first became aware of enlightened scientists’ concern over the impact of human activity on our planet.

In the decades that followed, the environment was seen as the province of concerned, far-out groups and ignored by mainstream politicians who focused on the big political issues: taxes, the economy and public services.

In my short time in politics, I realised that the environment would only receive political attention when it became a priority of the public. The last decade has brought home the environmental realities – storm events, extreme weather, changes in polar ice flows, species extinction and pollution being just a few.

Public attitudes have suddenly changed, particularly in response to the leadership shown by young people, a movement which I personally find inspiring. Our planet is their future – our children, grandchildren and future generations.

In response to community concerns voiced by a backbench States Member, the States Assembly voted in May this year to declare a climate emergency, and asked for a plan to aim to achieve carbon neutrality by 2030.

It’s hard to put an effective plan together in such a short timescale, but I’m very confident that we’ve set a route map for the long-term, not just the next few years.

I believe Jersey can and should become the first carbon neutral jurisdiction in the British Isles.

The Government and the States Assembly will take the tough decisions to change laws, taxes and regulations and to build new sustainable infrastructure.

But this will not be enough unless each of us faces up to the impact that being carbon neutral will have on our daily lives.

This is why our strategy is to unleash the power of people across our Island and to make carbon neutrality the defining mission of our next decade. Together, we can show ourselves, our peers and future generations of Islanders, the great things we can achieve when we all work together.

Introduction

1.1 Taking the time to think about the future

Jersey has a good record of tackling its carbon impact; on-Island emissions have fallen by over a third since 1990. As a jurisdiction, we take our global responsibilities seriously and act in accordance with ratified international treaties on climate change.

Jersey has lower per capita carbon emissions than many jurisdictions of a similar size, and the lowest of all jurisdictions in the British Isles. Some people will feel this is enough, and that the existing policies set out in Pathway 2050[1] should be retained and delivered. Others, including our elected representatives in the States Assembly, leading businesses and many Islanders, believe we need to go further, act faster and continue to use our privileged position to demonstrate what a concerted effort to decarbonise our Island can look like.

Some will say it is not worth Jersey becoming carbon neutral when other countries have not committed to do the same. We reject that view. While we are global citizens, our strongest moral and legal responsibility is to the future generations of Islanders that will live in and look after Jersey; our children and our children's children. Our responsibilities are not lessened because others fail to act. It is our responsibility to improve Jersey's air quality, protect and enhance its natural environment, create the infrastructure to lead healthier lives and replace polluting technologies for the longer-term. These local benefits of carbon neutrality are significant and (as shown in section five) outweigh the upfront costs of change.

There will be much discussion of the costs of becoming carbon neutral. These costs are significant, and will be shaped by the timing and level of our ambition. When we are counting these costs, we should acknowledge that the choice facing Jersey is not whether to become carbon neutral, but when. The UK has made a legal commitment to become carbon neutral by 2050, and our nearest neighbours in the EU are likely to agree the same[2]. Jersey will surely follow suite, willingly or under international obligation. The cost of our ambition is the cost difference between acting sooner and acting later; the cost of acting is a given.

If we act sooner we can secure the local benefits of carbon neutrality earlier, improving the quality of life for more children and families. Acting sooner, and in a bold and inclusive way, also presents the chance to differentiate Jersey on the global stage, and to use this reputational capital to support existing strategic priorities, such as protecting and developing our finance and digital sectors.

We are not alone in looking again at our long-term environmental plans. Driven by new findings in climate science[3], a global movement is underway to secure more ambitious action and to limit the worst impacts of the fossil fuel economies and societies that have developed in the last 200 years.

Many will feel the start has been too slow but, in 2019, we can at least see that the international race to carbon neutrality is underway.

[1] *https://www.gov.je/Government/Pages/StatesReports.aspx?ReportID=1039*
[2] *https://www.europarl.europa.eu/news/en/press-room/20191121IPR67110/the-european-parliament-declares-climate-emergency*
[3] *https://www.ipcc.ch/*

This carbon neutral strategy presents Jersey with an opportunity to agree where it wants to stand in this race:

Will we act quickly in ways that strengthen our communities, improve our health and wellbeing, protect and enhance our natural and built environments, and seek influence and early mover advantages in the new global economy?

or

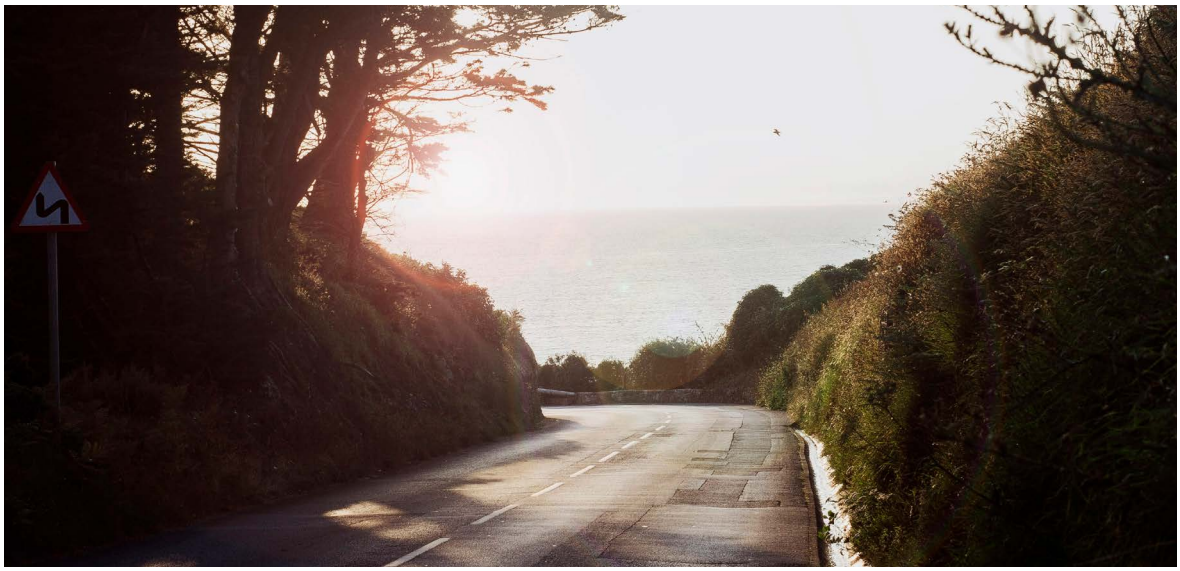
Will we maintain our strong but steady progress, align plans with global norms and make a gradual, though not insignificant transition in line with similar jurisdictions?

These choices, and the pace of a transition to a low carbon future, have significant social and financial implications. That is why the central strategic choice laid out here is to pursue a wide-ranging programme of public deliberation and planning, including Jersey's first large-scale citizens' assembly. We will come together as an Island to explore the options open to us, and the implications of our choices, before agreeing a final pathway and long-term climate action plan by the end of 2020.

This is a mature approach, aimed at creating the foundations for long-term social and economic change, and it will require us all to make time and space for the reasoned, long-term thinking that this issue requires.

Some of the world's best scientists are beginning to question the viability of many of our natural environments and the long-term future of the human race. This, if nothing else, should make us stop and think, should encourage us to make space in our daily lives to discuss – with our friends, family and loved ones – how we want to move forward as a community, and the choices and changes we are willing to make as a result.

This carbon neutral strategy makes that time and space available to us as an Island. How we choose to use it will be down to each and every one of us.



1.2 Route map for the carbon neutral journey

Navigating our path to carbon neutrality will not be easy. There are different routes that might be taken, over different time frames; different investments can be made and paid for in different ways. The impact of any programme of decarbonisation on other social, economic and environmental priorities will be significant and will vary in different communities and places, and over time.

This strategy acknowledges the complexity inherent in trying to decarbonise our society and economy. Instead of proposing a simple menu of policies, it presents the strategic groundwork necessary to undertake a thorough shared conversation about how best to proceed, together, over the long term.

This strategic framework has the following three parts, which are reflected in the structure of this document.

Part A – Context for the carbon neutral strategy

- Section 2 sets out the strategic context for the carbon neutral strategy. It signposts to current scientific evidence and summarises Jersey's existing international obligations and energy policy;
- Section 3 sets out the defining principles that the Council of Ministers believe should shape our carbon neutral journey.

Part B – Planning and developing a long-term climate action plan

- Section 4 sets out:
    - the proposal for a people-powered approach to deliberating and recommending how Jersey should become carbon neutral;
    - the policy objectives and rationale behind this approach;
    - the process to be followed; and
    - the roles and responsibilities of different groups, including a mandate for Jersey's first citizens' assembly.
- Section 5 presents a high-level review of policies that could drive radical reductions in Jersey's emissions by 2030 and summarises key considerations related to offsetting residual emissions.

Part C – Delivering together in 2020

- Recognising the urgent nature of the climate emergency, Section 6 sets out an initial delivery plan of foundation policies that will be implemented in 2020, alongside the development of the long-term climate action plan.

- Section 7 sets out:
    - how delivery will be governed;
    - key financial considerations; and
    - considerations for our energy markets.
- Section 8 concludes the strategy and sets out key next steps.

Each part of the strategy is underpinned by the available technical evidence base, which will be published alongside this strategy on gov.je/climateemergency.

1.3 Declaring a climate emergency

In May 2019, the States of Jersey Assembly voted to agree P.27/2019, and declare that[4]:

there exists a climate emergency likely to have profound effects in Jersey, and that in order to deal with this situation...

Jersey should aim to be carbon-neutral by 2030, and the Council of Ministers is accordingly requested to draw up a plan to achieve this, for presentation to the States by the end of 2019

This carbon neutral strategy responds to P.27/2019 and builds on the progress made through the energy plan, Pathway 2050.

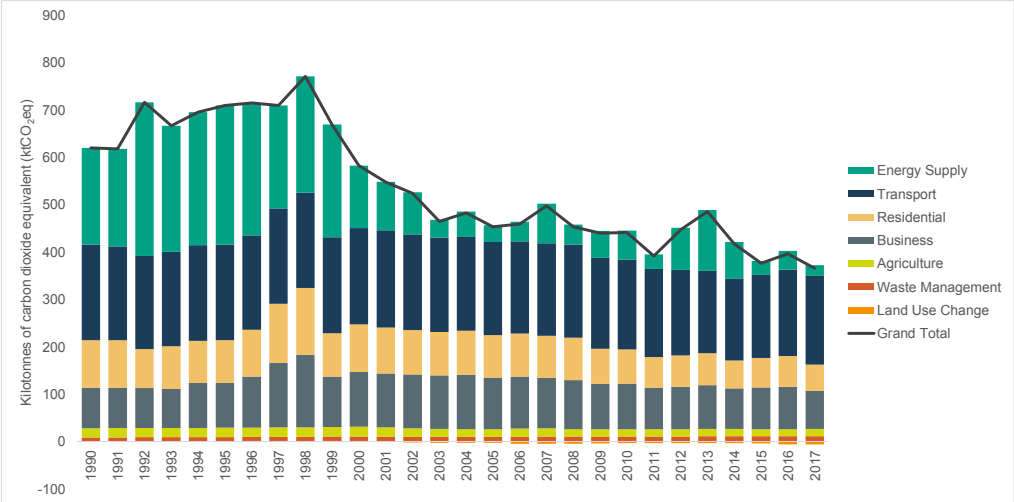
In March 2007, the UKs ratification of the Kyoto Protocol was extended to the Bailiwick of Jersey. The protocol requires Jersey to reduce its carbon emissions by 80% by 2050, relative to 1990 levels. In 2014, the States Assembly adopted the energy plan for Jersey detailing a set of actions designed to help Jersey achieve the 80% emission reduction target.

Jersey has already made progress in implementing of the 2014 Energy Plan, and emissions have been reduced by 47% relative to the levels in 1990. The figure below illustrates the emissions pathway since 1990.

The adopted Energy Plan policies addressing affordability and security of energy of supply remain and underpin this work. Whilst this strategy focuses on building the foundations for long-term change; it also includes a 2020 delivery plan that continues many of the agreed action statements from the energy plan, and implements them over an accelerated timescale.

[4] https://statesassembly.gov.je/assemblypropositions/2019/p.27-2019.pdf
Voting record https://statesassembly.gov.je/Pages/Votes.aspx?VotingId=5415

Fig. 1 – annual on-island emissions 1990 - 2017



P.27/2019 also set out that:

the Minister for the Environment is requested to carry out, as part of the process for drawing up the forthcoming Government Plan for 2020, an examination and assessment of more ambitious policies to accelerate carbon reduction. This will include an assessment of the use of fiscal levers to change behaviour and raise awareness.

The Chief Minister is requested to ensure that consideration of action to tackle climate change in Jersey is included as a standing item on the agenda of the Council of Ministers.

The strategy responds in the following ways:

- The review of ambitious policies is set out in Section 5;
- An initial review of fiscal levers led to the creation of a Climate Emergency Fund in the agreed Government Plan and to allocate annual increases in fuel duty to the Fund; and
- The Council of Ministers have considered action to tackle climate change at each meeting. Having now proposed this strategy, a new reporting schedule will be put in place to ensure that the Council of Ministers retains a strong focus on climate change, while ensuring that resources are focussed on delivering the strategy.

In July 2019, the Council of Ministers published an initial report on tackling the climate emergency which outlined the case for the direct and indirect benefits of Jersey pursuing a carbon neutral future. This strategy has been developed in accordance with the principles set out in the initial response published in July 2019, which are included at Appendix 1.

Shortly after the declaration of a climate emergency, in June 2019, the States Assembly agreed another proposition, P.52/2019, and asked the Minister for Infrastructure to:

> ...research, consult upon and identify funding for a sustainable transport strategy, including safe routes for walking and cycling, and provision for those with impaired mobility, by the end of 2019.

The carbon neutral strategy and the sustainable transport policy are complementary documents. Around one-third of on-Island emissions in Jersey accrue from transport. The sustainable transport policy (STP), published alongside this report, sets a range of initial plans and an ambitious future vision of,

> ...a transport system that makes our everyday lives better, supports businesses, encourages us and our children to be healthier and makes our Island greener, today and for tomorrow.

Working with the STP, this carbon neutral strategy sets the context for how we seek to deliver our transport vision in future years.

Establishing a carbon neutral strategy

2 Context for the carbon neutral strategy

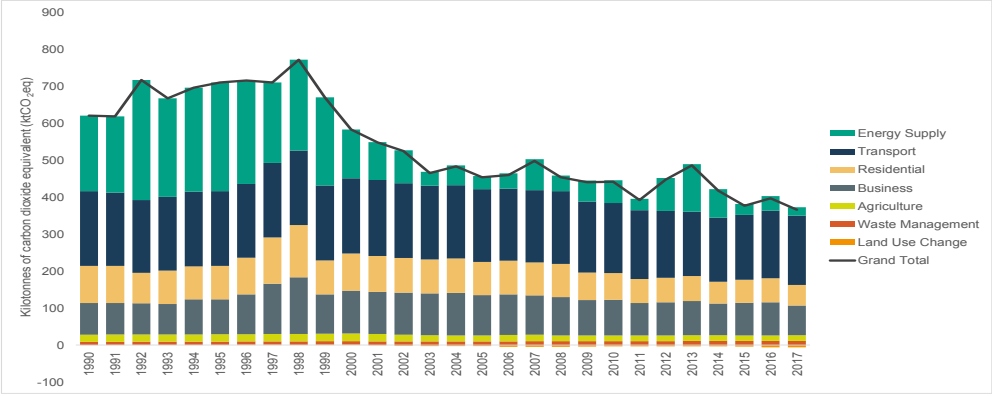
This section builds on the Initial Report on Tackling the Climate Emergency[5] published by the Council of Ministers in July 2019. It sets out some of the key considerations that inform the proposals set out in this strategy.

2.1 Global scientific context

In March 2007, the UKs ratification of the Kyoto Protocol of the United Nations Framework Convention on Climate Change was extended to the Bailiwick of Jersey. The protocol requires Jersey to reduce its on-island ('scope 1') carbon emissions by 80% by 2050, relative to 1990 levels.

Fig. 1 shows how, by 2012, Jersey had managed to achieve a 28% reduction in carbon emissions relative to 1990 levels. This reduction was primarily a result of switching from on-island electricity generation to a supply of low carbon electricity imported from France.

Fig. 1 – annual on-island emissions 1990 - 2017



[5] https://www.gov.je/environment/generateenergy/pages/climateemergency.aspx

In December 2015, the Paris Agreement was adopted, proposing a set of stricter carbon reduction targets. Jersey became a signatory to the Doha amendment[6] to the Kyoto protocol in 2018 and has subsequently requested that the Paris agreement is extended to Jersey through the UK in line with the process for ratification of international conventions.

The latest scientific evidence tells us that the previous emissions reduction targets are not ambitious enough to stabilise the climate and reduce the negative impacts of climate change.

In October 2018, the Intergovernmental Panel on Climate Change (IPCC) published a report that was two years in the production and included the assessment of more than 6,000 scientific studies. It gathered all the available scientific literature and laid out two future scenarios: one in which the Earth's average temperature increases by 1.5°C above pre-industrial temperatures (since around 1850); and one in which it increased by 2°C.

The report concluded that we are on track to reach 1.5°C between 2030 and 2052 if temperatures continued to increase at the current rate, and 3°C by the end of the century. Once we hit 2°C warming, the world will be a profoundly different place. There will be almost no coral reefs remaining, the Arctic will be completely devoid of ice during summer at least once a decade, and a huge number of animals and plants will become extinct as their habitats decrease. The IPCC also concluded that it was extremely likely that most of the observed increase in global temperature since the 1950s is due to human activity.

The impact for humans of future temperature rises will be enormous, particularly in areas already vulnerable to rising sea levels. The IPCC warn that sea level rise will drive millions from their homes, and crop yields will fall dramatically in sub-Saharan Africa, Southeast Asia, and Central and South America.

Jersey is already planning for the impact of sea level rise and has prepared a draft Shoreline Management Plan[7], which models the impact of sea water flooding, and sets a range of policies to manage the different parts of the Island's coast over the next 100 years.

To stay below the 1.5°C target, and avoid the impacts of 2°C temperature rise, the IPCC advised that "unprecedented" changes will be needed, requiring serious effort at every level of society.

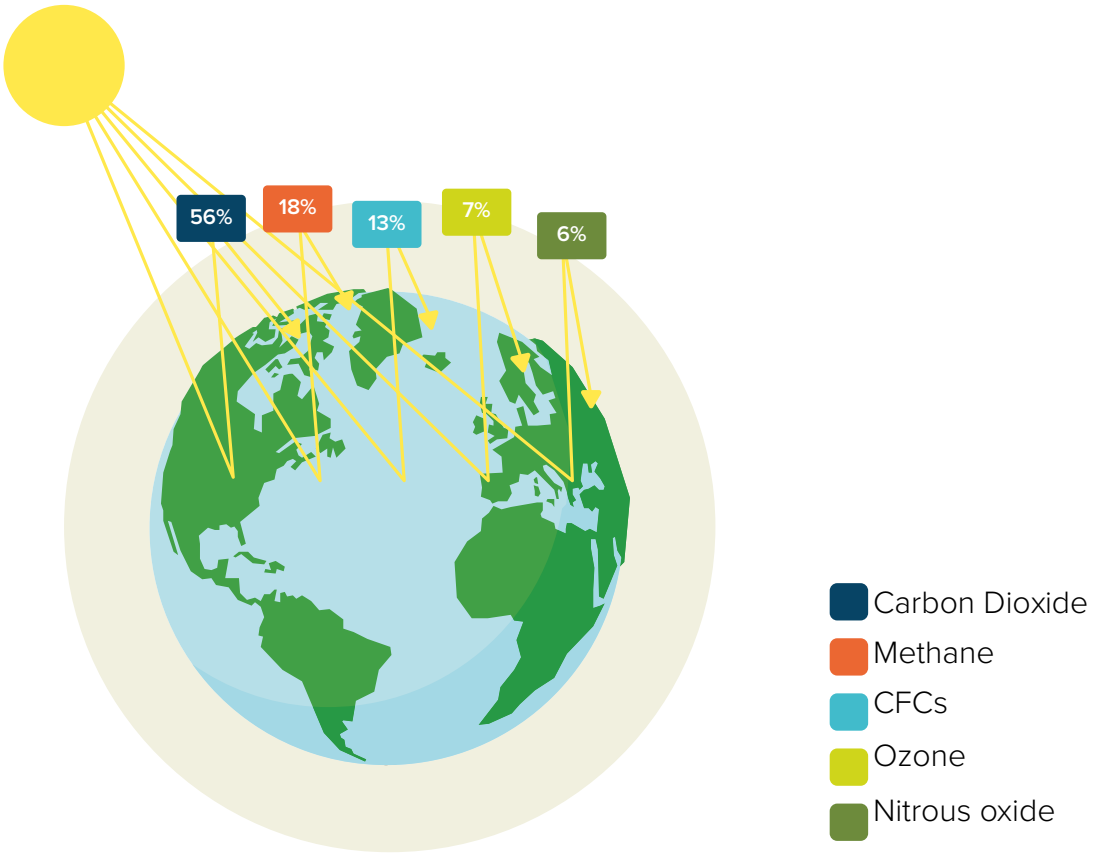
Understanding greenhouse gas emissions

As part of international emissions reporting, all greenhouse gasses are calculated and reported as carbon equivalents, using a range of agreed formula. For the purposes of this report reference to 'carbon emissions' also includes emissions from other greenhouse gases. The six main greenhouse gases (GHG) are:

- Methane (CH4);
- Carbon dioxide (CO2);
- Nitrous oxide (N2O);
- Hydrofluorocarbons (HFCs);
- Perfluorocarbons (PFCs); and
- Sulphur hexafluoride (SF6).

HFCs, PFCs and SF6 are commonly referred to as 'F-gases'.

[6] https://www.aether-uk.com/Resources/Jersey-Infographic
[7] https://www.gov.je/environment/generateenergy/pages/shorelinemanagementplan.aspx



As well as different greenhouse gases, it is necessary to distinguish the different scope of emissions that is being considered. There are three key areas discussed in this strategy:

Scope 1 emissions are the direct emissions generated from on-Island activities. Examples include the emissions that come from burning oil or gas to heat buildings, or emissions from driving petrol or diesel vehicles. Our international obligations currently extend only to our scope 1 emissions which are monitored, independently validated and reported on an annual basis via the UK's accredited auditor, Aether[8].

Scope 2 emissions are those arising from the generation of any imported energy. In the case of Jersey this includes the 95% of our electricity that we import. Global emissions accounting considers the emissions from energy production to accrue to the country in which it is generated (in this case, France), but it is clear that the emissions are the result of energy use in Jersey.

[8] https://www.aether-uk.com/Resources/Jersey-Infographic

Scope 3 describes the emissions associated with the manufacture and transport of the goods and services consumed in Jersey. This includes the full life cycle emissions throughout a supply chain (including those associated with end of life recycling and/or disposal) and emissions arising from global activities of Jersey businesses. Scope 3 emissions are driven by the choices and behaviours of jersey residents and businesses but are accounted for as scope 1 emissions in the country in which they were generated. Obvious examples of scope 3 emissions include those from:

- energy used to manufacture the phones, cars and computers we buy;
- the burning of marine diesel when shipping food to Jersey; ande
- any aviation fuel consumed when people from Jersey fly, where that fuel was not taken on-board at Jersey Airport.

Supporting documents are published alongside this strategy[9] that explain in more detail how Jersey's local and global emissions are scoped and accounted for. These documents help to make clear the evidence that underpins decisions made by the Council of Ministers in respect of scope 1, 2 and 3 emissions. Most of this work has been co-commissioned by the Government of Jersey and the States of Guernsey, which have agreed to take a joint approach to development of a shared technical evidence base.

[9] https://www.gov.je/climateemergency

2.2. Policy Context

Climate change impacts on all aspects of policy. The context in which this carbon neutral strategy is set is therefore extremely wide-ranging and the inter-relationships between the plans set out in this document and wider aims and objectives are necessarily complex and will evolve over time. This section sets out a summary of a small number of key strategic issues that have significant policy implications for the carbon neutral strategy.

Future Jersey

The Future Jersey community vision, published in March 2018, sets out a range of priorities across ten social, environmental and economic areas. It presents an aspirational vision for how people want Jersey to develop in the coming years.

Future Jersey is clear that people in Jersey are concerned about climate change and want to see and support more action.

Long-term strategic framework

The Council of Ministers has agreed that Jersey needs to pursue a long-term strategic approach that ensures that decisions taken in the short- and medium-term work towards creating a sustainable society, a sustainable economy and a strong partnership between a modern government, responsible businesses, Jersey's stakeholders and Islanders.

This is important, because many of the changes that Jersey needs to make will only bear fruit over a long-term timeframe. Decisions on whether, when and where to invest in infrastructure, for instance, will benefit Islanders over decades, not just years.

We have made significant progress in supporting and setting a strategic framework, which brings together the relationship between the ambitions of a new long-term Island Plan and practical actions that will be set out in the medium-term Government Plan. This includes early consideration of how best to meet the requirement of the new Public Finances Law to consider and plan for the long-term sustainable wellbeing of Islanders.

Common Strategic Policy

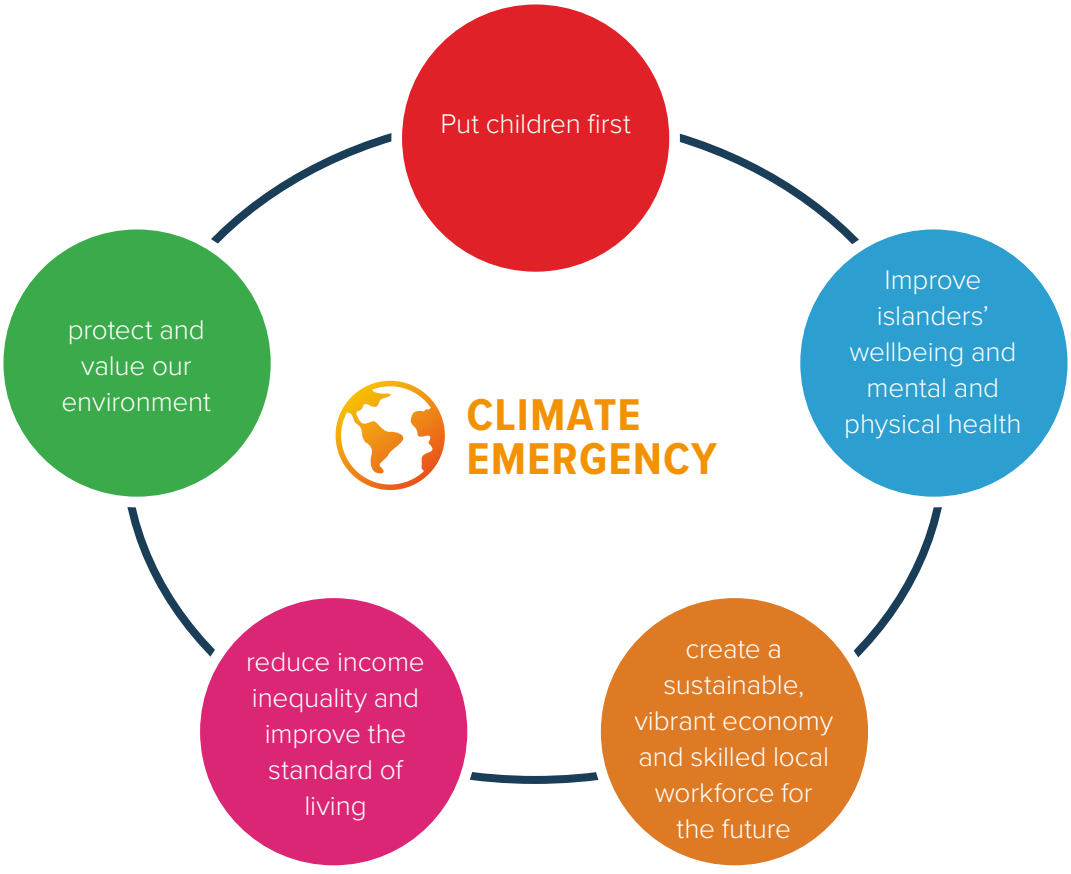
The Common Strategic Policy[10], setting out the Council of Ministers' five strategic priorities of this Government's term of office, was agreed unanimously by the States Assembly in December 2018. This carbon neutral strategy impacts each of the strategic priorities, as outlined below.

[10] https://www.gov.je/government/planningperformance/commonstrategicpolicy/pages/commonstrategicpolicy.aspx

Common Strategic Priority Theme	Examples of how the Carbon Neutral Strategy can support this theme
We will put children first by protecting and supporting children, by improving their educational outcomes and by involving and engaging children in decisions that affect their everyday lives.	• Recognising that climate change and tackling climate emergency is a long-term issue affecting future generations. • Ensuring the voice of children and young people is heard and, where appropriate, amplified, in our people powered approach; • Working with eco schools, including UN accreditation of climate change teachers
We will improve islanders' wellbeing and mental and physical health by supporting islanders to live healthier, active, longer lives, improving the quality of and access to mental health services, and by putting patients, families and carers at the heart of Jersey's health and care system.	• Cleaner, greener environment, enhancing public realm to provide climate resilience and adaptation through environmental improvements and use of green and blue spaces. • Sustainable transport policies to reduce air pollution and increase active travel • Community climate action plans can bring people together, strengthening social capital
We will create a sustainable, vibrant economy and skilled local workforce for the future by delivering an economic framework to improve productivity, by nurturing and strengthening our financial services industry, by enhancing our international profile and promoting our island identity, by delivering the best outcomes from Brexit, and by improving skills in the local workforce to reduce Jersey's reliance on inward migration.	• Working with businesses to support them to address their carbon footprint and promote sustainable ways of working • Establishing Jersey's reputation as a responsible, low-carbon jurisdiction • Exploring opportunities to attract and nurture high-value businesses • Upskilling our workforce through on-Island training schemes to enable implementation of carbon reduction measures.
We will reduce income inequality and improve the standard of living by improving the quality and affordability of housing, improving social inclusion, and by removing barriers to and at work.	• Improved housing stock quality through investment in insulation, energy performance standards and construction methods. • Ensuring a just transition to carbon neutrality as a key principle in fiscal policy development. • Upskilling our workforce through on-Island training schemes to enable implementation of carbon reduction measures.

We will protect and value our environment by embracing environmental innovation and ambition, by protecting the natural environment through conservation, protection, sustainable resource use and demand management, and by improving the built environment, to retain the sense of place, culture and distinctive local identity.

- Ambitious contribution to global carbon reduction targets
- Investing in environmental enhancement and restoration, recognising the value and contribution of biodiversity and natural carbon sinks on-Island.
- Creation of liveable places and spaces through links with the sustainable transport policy and Island Plan.



Government Plan

The Government Plan 2020-23[11], is a rolling four-year plan. It integrates business planning with the necessary funding framework, and replaces the Medium-Term Financial Plan. It sets out how public money will be spent to deliver the day-to-day business of government and on strategic priorities and areas for improvement. The plan includes commitments that government will:

- act with energy and pace to respond to the climate emergency, and become a sustainable low-carbon Island; and
- establish a Climate Emergency Fund, with an initial allocation of £5 million and additional funds from annual increases in fuel duty.

Future Government Plans will in turn respond to the long-term climate action plan developed in 2020.

Island Plan

Preparation has begun on the new Island Plan 2021-30, which will be developed during 2020. It will replace the current Island Plan, which is predominantly a spatial land-use plan, guiding planning decisions. The Island Plan doesn't just govern where buildings can and can't be built, it determines how we'll protect our natural environment; it shapes the Island that our children will grow up in, the places and communities in which we'll grow older; and how we support Jersey's changing needs.

Climate Change is identified as a key strategic issue for the new Island Plan, and it is anticipated that the Island Plan Review will be bold in providing the strategic planning framework for the Climate Emergency and will consider how technologies that can support the Island's transition to a low carbon future can be accommodated.

Creating good quality places, which nurture strong communities, is a priority, as is continuing to support a sustainable Island economy.

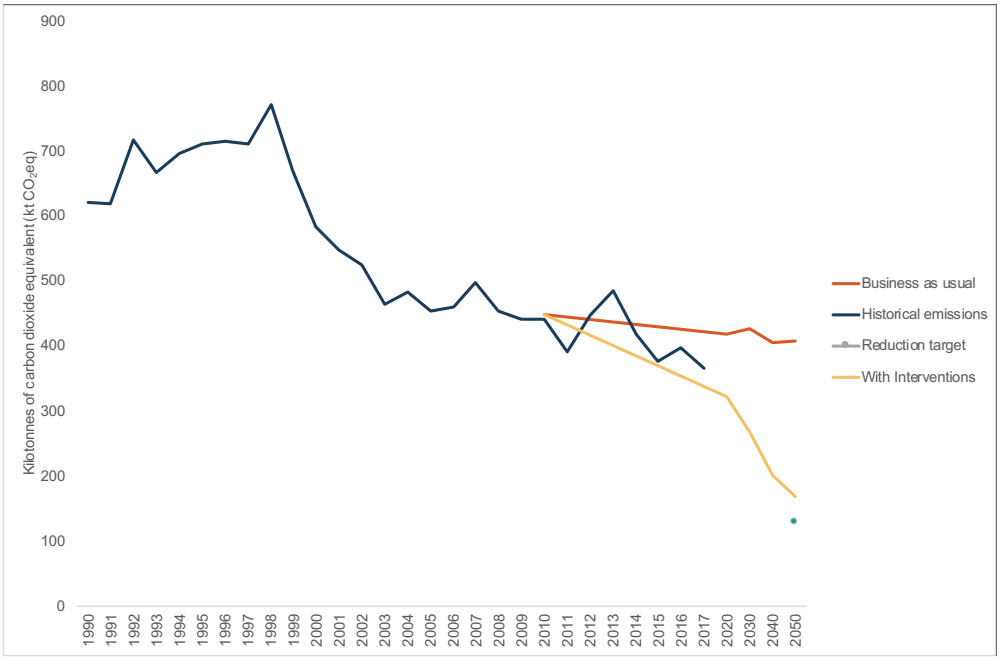
Pathway 2050 – an energy plan for Jersey

The States Assembly, in 2014, agreed a carbon reduction plan, Pathway 2050 – An Energy Plan for Jersey[12].

In line with our Kyoto obligations, successful implementation of the polices in Pathway 2050 should deliver the projected reduction in scope 1 emissions shown by the yellow line on the graph below; nearly 80% lower than 1990 levels by 2050. Without any policies to reduce emissions, conservative projections are that emissions will follow a business as usual trajectory indicated by the red line.

[11] https://www.gov.je/government/planningperformance/governmentplan/pages/governmentplan.aspx
[12] https://www.gov.je/Environment/GenerateEnergy/GreenHouseEmissions/JerseyEnergyPlan/Pages/index.aspx

Fig. 2 – annual on-island emissions 1990 - 2017



The trajectory of historic emissions (dark green line) demonstrate that Jersey has made good progress in reducing emissions since 1990. This is primarily due to the transition from heavy fuel oil power generation in the Island to imported electricity. Around 70% of our imported electricity is nuclear generated, and around 30% is certified renewable generation from the tidal barrage at La Rance. As noted above, carbon emissions associated with the production of electricity used in Jersey are accounted for in France.

Pathway 2050, proposed 27 targeted actions to:

- reduce energy demand;
- ensure energy security and resilience; and
- ensure energy was affordable.

Nearly 70% of the total reduction in greenhouse gas emissions was planned to come from the following four policies:

- applying energy-efficient measures to houses built before 1997;
- increasing the number of ultra-low emission vehicles on Jersey roads;
- the received benefit of improved EU emissions standards for traditional cars; and
- energy efficiency improvements in the private sector.

Pathway 2050 was the product of several years research and development. Without the underpinning analysis that informs it, and the learning accrued in recent years from the policy capability that has been funded to implement it, it would not have been possible to prepare this

carbon neutral strategy in time to meet the end of 2019 deadline set by the States Assembly. Accordingly, the 2020 delivery plan set out in Appendix 4 recommends the continuation of many of the agreed actions, over an accelerated timescale.

Similarly it has not been possible, or at this stage necessary, to revisit the policies of affordability and security of energy of supply set out in Pathway 2050. Further work in these areas will continue and will be set out in the long-term climate emergency action plan brought to the States Assembly in 2020.

P.88/2017

In 2018, an independent study[13] was undertaken in response to part (b) of P.88/2017 to consider the introduction of a standby charge by Jersey Electricity for embedded energy generators. Part (b) required '...to research into the implications of such charges for the competitiveness of the market for the generation and supply of electricity in Jersey'.

The report and findings provide the basis for carrying out two other pieces of work which inform the strategic context of the climate emergency response and implementation of this strategy. These are firstly, the development of a policy position on renewable energy, grid investment and Jersey Electricity's tariff structure; and secondly, the update of the Electricity (Jersey) 1937 Law. It is recognised that this is a substantial and far-reaching piece of work that will require very careful consideration and wide stakeholder consultation before proposals can be bought before the Assembly. Outstanding work to respond to P88/2017 will be brought within the scope of this strategy, as set out in section 7.

Adapting to climate change

Regardless of the approach we take to becoming carbon neutral, Jersey will have to adapt to the existing inevitable effects of climate change. These include increased flood risk, temperature increases resulting in overheating, changes to weather patterns and the arrival of new non-native or invasive species. Adapting to these impacts will be addressed by a range of other strategies and policies.

We have already started to take action to prepare for the impacts of climate change. The Jersey Shoreline Management Plan (SMP), to be published in January 2020, details the management intent for the Island's coastline over the next 100 years (up to 2120) to prevent and manage the effects of coastal erosion and flooding. The impact of climate change on rising sea levels over time has been assessed, and the plan considers risks to the community, environment and economy of Jersey. It takes into account the coastal defences that are around the Island and assesses how they might need to be improved to provide better protection where needed.

The risk of coastal erosion and flooding has been assessed for the next 100 years using hydraulic modelling, historic maps and beach surveys to identify the areas of the coastline which are likely to flood and where erosion is likely to occur. Coastal flood risk from still water levels and wave overtopping is shown on Island-wide flood maps.

The SMP proposes management options over three time periods over the next 100 years. The best option for the shoreline, nearby communities and infrastructure is proposed. This makes it easier for the Government of Jersey to plan how to put improvements in place. The SMP management options and flood risk maps will be used to inform the development of the Island Plan during 2020.

[13] https://www.gov.je/Government/Pages/StatesReports.aspx?ReportID=4271

The Government Plan also provides additional funding for adapting to climate change, including funding for a series of measures to improve the protection offered to natural habitats and species. New partnerships and approaches will be supported to explore indicators of 'connectedness to nature' and support for initiatives to improve connectedness, such as 'Wild about Jersey', eco active, volunteer activities and citizen science; alongside improved access to the countryside and wild places through investment in country access infrastructure and the National Park.

Additional scientific research into Jersey's marine environment will be undertaken. This is an area of both local and international focus, for example on the 'blue economy', 'blue carbon', species protection, marine plastics, fisheries management and fisheries agreements (in particular during and beyond Brexit).

The challenge invasive and non-native species arriving in Jersey as a result of climate change is also addressed. The aim is to prevent their further advancement and establishment where possible, particularly with regard to Asian hornets, sea squirts and Japanese knotweed.

Population and migration

The Migration Policy Development Board was set up to develop comprehensive migration policy proposals which will deliver more responsive controls over who can come to live, work and access public services in Jersey, improving consistency wherever practical and helping to reduce the Island's reliance on inward migration.

The Migration Policy Development Board has published an interim report[14] summarising its research surrounding migration controls and how any changes could be used to help reduce the Island's reliance on inward migration. The findings of the board will be published in early 2020 and will form an important part of the future strategic context for climate change.

Economic context

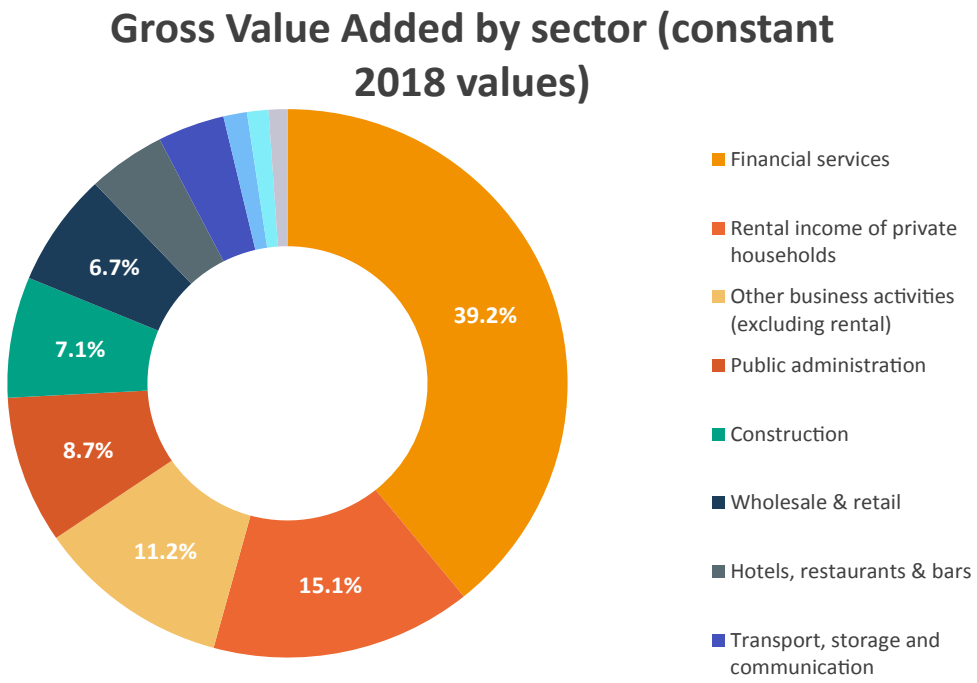
The prosperity of our Island, and the funding of the services on which we rely, depends on a sustainable, vibrant and inclusive economy, underpinned by a skilled local workforce to serve it. We will need to consider how our economy needs to respond and adapt to the climate emergency.

Jersey has a rich economic history, based on fisheries, agriculture, tourism and the now dominant financial sector. As such we have little carbon intensive industry apart from on-Island back up power generation and some quarrying and reprocessing activity (see Fig. 3, below). We have successfully maintained all these sectors within our economy, and recognise their importance in our shared history, culture and prosperity.

The financial and professional services sector has been the bedrock of our economy over recent decades. This means that Jersey has an extensive global reach in terms of the nature, influence and impact of its economic activity across the world, necessarily underpinned by regular off-Island travel. Many of the leading businesses in this sector recognise both the environmental benefits and potential competitive advantage of pursuing ambitious carbon neutral programmes. There are opportunities to support, work with and learn from these businesses in developing and delivering of our long-term climate action plan.

[14] https://www.gov.je/SiteCollectionDocuments/Government%20and%20administration/MPDB%20Interim%20Report%20191023.pdf

Fig.3 – Gross Value Added (GVA) by sector



3 Our defining principles

This section sets out a series of principles that establish the scope of the emissions addressed by this carbon neutral strategy, define carbon neutrality for Jersey, establish priorities and underpin the people-powered approach that we will take to agree and implement future policies and programmes.

Each principle has been considered and agreed separately and in their collective form by the Council of Ministers. The principles have also been shared and considered by the multi stakeholder energy forum[15].

Members of the States Assembly will be asked to endorse the principles when adopting this strategy. Together, the principles set the initial parameters necessary to begin our shared future conversation about a low carbon future.

The overarching carbon reduction target of the Pathway 2050 energy plan was based on the principles of using secure, affordable sustainable energy. It provided a policy framework to recognise that secure and affordable energy underpins economic growth and contributes to social equity.

The agreed policies of affordability and security of supply as set out in the energy plan form part of the definition used in this strategy in addition to the four principles.

[15] https://www.gov.je/environment/generateenergy/greenhouseemissions/jerseyenergyplan/pages/jerseyenergypartnership.aspx

3.1 Principle 1

We will adopt a strategic focus on all emissions

This carbon neutral strategy, and the long-term climate action plan that we will develop together in 2020, will recognise and have a strategic focus on Jersey's scope 1, 2 and 3 emissions[16].

It is important that we understand the impact our local choices have across the world, including recognising the impact that Jersey based businesses can have.

3.2 Principle 2

We will work within a definition of carbon neutrality

Carbon neutral is defined as balancing the scope 1 and 2 emissions we produce against any activity that captures, absorbs or reduces global emissions so that they are equal. By including scope 2 emissions we are exceeding our international legal obligations.

Scope 3 emissions are recognised, and the long-term climate action plan will include policies and programmes to support people, businesses and government to make more sustainable choices that reduce Scope 3 emissions created on our behalf across the world, but Scope 3 emissions do not form part of the baseline for carbon neutrality.

3.3 Principle 3

We will require high standards in the use of carbon offsetting

A. It is appropriate to use carbon offsetting where emissions cannot be abated, but offsets on their own are not a route to carbon neutral and should only be used where they are accompanied by a robust and ambitious measures to reduce emissions.

B. As a responsible and ambitious jurisdiction any offset arrangements that Jersey enters into will be of the highest recognised standards.

3.4 Principle 4

We will make sure that everyone can play their part

Whole Island ownership of the climate challenge is critical to its success. Government will use all available options to deliver the long-term climate action plan, but government action must form part of a wider, collaborative approach.

[16] See Scientific Context in Section 2

Planning and developing a long-term climate action plan

B

4 A people-powered approach

Giving people a say over the level and timing of our carbon neutral ambition is key to encouraging a sense of public ownership. This section describes the people-powered approach we will follow in order to achieve this, and sets out the different ways we can all get involved.

4.1 A people-powered approach

The climate emergency is a global challenge, but action at a global level alone will not be enough. The choices we each make on a daily basis – in our businesses and organisations; and as members of our local communities – drive the political and economic forces that global actors respond to. Changing our personal and shared behaviour at the local level is a necessary first step if we are to live more sustainably and slow the rate of climate change.

As we set out in our initial report on tackling the climate emergency[17]:

> Whole-Island ownership of the climate emergency challenge is critical to its success, and to agreeing and achieving an ambitious pathway to a carbon neutral future.

Government has an important role to play to shape this action at the local level. It can use the tax, regulatory and legal systems to shape local markets and to incentivise and disincentivise certain choices. It can bring people together, share information and make available the space and time necessary to discuss and agree plans and shared actions. There is a clear commitment from the States Assembly, through this strategy, to use these and other means to help tackle the climate emergency.

Government action though must form part of a wider, collaborative approach. Our initial report made clear that the Government would:

> Explore opportunities to put individual citizen and community action at the heart of our response, creating the conditions in which bottom-up initiatives flourish and Islanders support each other to change their behaviours and adapt to lower carbon lifestyles.

[17] https://www.gov.je/Government/Pages/StatesReports.aspx?ReportID=4762

That is why, for the first time in Jersey – and ahead of many other jurisdictions – we are making a firm commitment to putting people-power at the heart of our approach to tackling the climate emergency. This open, inclusive approach goes far beyond consulting on plans that have been prepared on behalf of Islanders, or workshopping ideas about how to implement existing strategies. It is a bold and wide-ranging commitment to share with local people the responsibility to design our ambition for the future and the policies and programmes that can see us achieve it.

From crowd-sourcing policy ideas, to engaging in a formal, Island-wide citizens' assembly or playing your part in designing and implementing community action plans, Jersey will lead the way in developing a people-powered response to the climate emergency.

4.2 The elements of the people-powered approach?

The people-powered approach follows an understanding of the different aspects of, and accountability for, good decision making. This understanding is based on a model developed by global management consultants, Bain and Company[18], as re-imagined for participatory decision making by the New Citizenship Project[19] which describes the following stages:

- **providing input: this might include ideas, experience, information or views (which may or may not be reflected in the final proposals);**
- **recommending one or more decisions or actions, based on the input received;**
- **deciding which of these recommendations to follow and proposing a plan;**
- **agreeing to the proposed course of action; and**
- **performing, together, to deliver the agreed course of action.**

The people-powered approach reinforces the importance of Government, elected politicians and citizens (including businesses as corporate citizens) working side by side in the roles that they are best suited to. These suggested roles are set out in detail, across each stage of the participatory process, in the table at Appendix 3.

There is a need for robust scrutiny by the States Assembly, media, and social media and ongoing debate and decision making throughout the process. Citizen participation and deliberation is designed to enhance and support existing democratic institutions and norms and all decision-making power remains with elected representatives in Government and the States Assembly.

Parish and other community governance and engagement will also play a key role. Drawing on the honorary tradition, and recognising the parish assembly as an institution rooted in direct democracy, the people-powered approach provides an opportunity to catalyse local community planning and action, to give all Islanders a clear role and to begin to address climate change from the grassroots. Support will be available through eco active to support parishes and community groups to build an infrastructure of local delivery and, where they wish, to agree community action plans so that people across the Island can play their part in tackling the climate emergency.

[18] https://www.bain.com/insights/rapid-tool-to-clarify-decision-accountability/
[19] newcitizenship.org.uk

4.3. Why we need to start with people-power

The science of climate change is not new. Governments, businesses and civil society across the world have made significant commitments to addressing the drivers of climate change for several decades.

Despite these commitments and the associated efforts of many, progress has been slow and hard to achieve. There are many reasons for this:

- **the use of hydrocarbon technologies is deeply woven into the fabric of our daily lives and underpins our economy and society;**
- **there are an abundance of policies that might be implemented, uncertainty about future technologies and on-going disagreement about where to invest and at what pace ;**
- **the scale of the challenge and lack of progress to date can its self be a barrier to action[20];**
- **despite international frameworks for action, climate change – especially in a small jurisdiction like Jersey – is a text book example of the free-rider problem[21]; and**
- **the costs and benefits of climate change are inter-generational: future generations will pay the cost of the choices we make today and (perhaps a greater challenge) concerted action requires current tax payers to bear the costs of investing for the benefit of those not yet born.**

Each of these characteristics alone presents a barrier to taking collective action. Together, they present a uniquely difficult challenge to the way we discuss and make decisions on public matters, both in Jersey and across the world. While we have made good progress in implementing existing policies, the challenge to achieve carbon neutrality requires us to think and act differently and to share power and responsibility more widely.

Given these challenges, it is no surprise that governments across the world are looking to work more closely with people in response to climate change. In the UK alone at least 11 local authorities have implemented citizens' assemblies, in places such as Camden, Oxford and Leeds, and six Parliamentary Select Committees recently launched a citizens' assembly to consider a pathway to carbon neutrality.

Our people-powered approach incorporates a major citizens' assembly, but also includes other participatory processes that will give a wider group of people the opportunity to be involved in setting out ideas and taking action to tackle climate change.

[20] In a recent UK poll, 38% of people agreed that 38% agree that if they had more hope that we could reduce climate change, they would be more likely to act: https://www.kcl.ac.uk/policy-institute/assets/climate-misperceptions.pdf
[21] https://en.wikipedia.org/wiki/Free-rider_problem

4.4. What are the benefits of a people-powered approach?

There are good reasons to take a people-powered approach to defining, designing and delivering our carbon neutral ambition in Jersey. These are set out below to show the intention behind this way of working.

In developing this approach we have drawn on the wide range of learning from innovative programmes that have in recent years explored how best to develop public policy and programmes on a collaborative basis. These include the UK Cabinet Office Open Policy Making Model[22], NESTA work on people-powered public services[23], the OECD Open Government programme[24] and a range of international approaches to applying design practice to public policy development[25].

Benefit 1:

By working with people, we hope to increase the public's sense of ownership of Jersey's carbon neutral journey and their commitment to the changes it requires

Giving people a say over the level and timing of our carbon neutral ambition is key to encouraging this sense of ownership. People will be at the heart of identifying the best steps to take to deliver our ambition – but they will also be asked what they think about the pace and nature of the transition to a low carbon future.

This sense of ownership is a key foundation for a long-term shift in behaviours. Evidence from behavioural economics[26] supports the idea that making a clear public commitment to achieve something can significantly increase the likelihood that the achievement is sustained.

An extensive public engagement exercise should help facilitate large scale public commitment to tackling climate change in Jersey. If successful, this should act as a 'protective factor' and foundation for sustainable change over the coming years.

Benefit 2:

Working with people will improve the quality of our long-termclimate action plan:

Our approach will open the process of:

- **considering what our carbon neutral ambition should be;**
- **considering what opportunities exist to reduce and sequester carbon on-Island, and to develop our international offset programme; and**
- **exploring people's opinions.**

[22] https://openpolicy.blog.gov.uk/what-is-open-policy-making/
[23] https://www.nesta.org.uk/blog/how-people-powered-public-services-can-help-bring-us-closer-together/
[24] http://www.oecd.org/gov/open-government.htm
[25] See, for example: https://www.aucklandco-lab.nz/policy-by-design and https://www.designcouncil.org.uk/news-opinion/using-design-improve-policy
[26] See, for example: https://www.behaviouralinsights.co.uk/wp-content/uploads/2015/07/BIT-Publication-EAST_FA_WEB.pdf p.33

A rich public discussion about these issues should improve the quality of our carbon neutral strategy, by;

- **increasing the range of ideas that policy makers and local communities can draw on in deciding how best to act,**
- **increase understanding about the potential impact and implications of policy options; and**
- **helping Islanders understand the intention behind policies and how they fit into the larger, shared journey towards carbon neutrality.**

Benefit 3:

By working with people we increase the chances that carbon neutrality can become a focal point for increased public engagement and civic action; over time, this increased activity should strengthen social bonds and may increase trust in public institutions

The importance of social capital in building strong communities is widely recognised.

Jersey has strong local communities and a historic tradition of parish assembly and debate. Drawing on these foundations, the Island is well placed to put participatory approaches to policy making at the heart of it's carbon neutral journey.

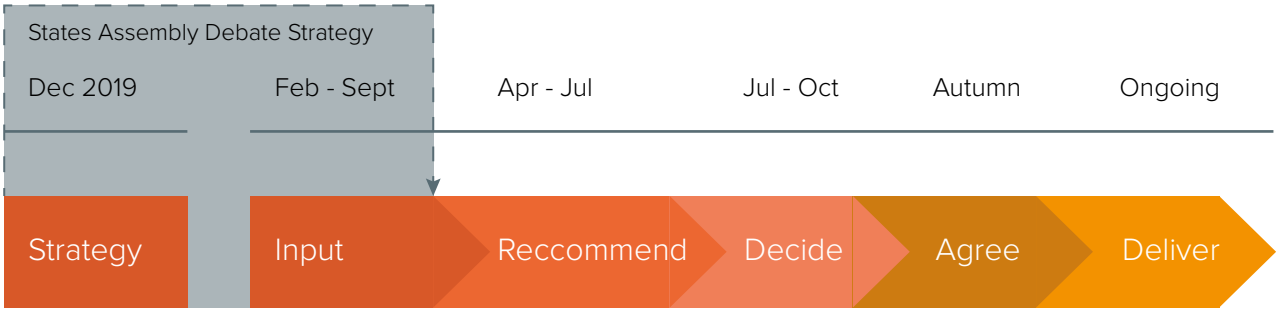
In contrast to these deep roots of community participation, Jersey under performs in comparison to its peers on many modern indicators of civic engagement[27].

Evidence from other deliberative processes shows that they can increase political efficacy in both participants and non-participants[28]. Pursuing a people-powered approach to carbon neutrality, including a formal citizens' assembly and extensive local community engagement and activity, should create new opportunities for people to understand the institutions and systems of governance on the Island and may over time help increase trust in public institutions.

[27] Jersey comes bottom in its group of 39 peers on the OECD Better Life Index measure of civic engagement: https://www.gov.je/Government/JerseyInFigures/HousingLiving/pages/betterlifeindex.aspx
[28] https://journals.sagepub.com/doi/abs/10.1177/0032321719852254?ui=3gwuk&af=T&ai=46wv6&journalCode=psxa&

4.5. Timeline for the people-powered process

This section outlines the different phases of the people-powered approach that will run throughout 2020. The key phases overlap and are summarised in the diagram below.



Input phase (February – September)

This phase is launched by the Government, which will pose the question,

"How should we work together to become carbon neutral?"

An Island-wide call for ideas begins, which is anchored in the following ways:

- Aan ideas website will be launched and widely promoted. The website will allow anyone to suggest an initiative or policy idea. Events will be held to help people engage with the process and to encourage schools, businesses, faith and community groups and others to take up and ask the question, directing ideas and responses to the website, written responses will also be welcomed;
- parishes will be invited to build on their early action to lead community climate action networks involving local people and businesses. eco active will continue to provide support and advice to these networks, and strong ideas that emerge from this work will be considered for future investment from the climate emergency fund;
- an Island-wide youth engagement programme will begin, working with the youth service, schools and youth groups to develop a climate emergency youth action plan, strong ideas from which will be considered for future investment from the climate emergency fund; and
- the eco active business network will work together to understand the range of ways they are responding to the climate emergency and new ways they might contribute to a carbon neutral future.

The Government has published a range of evidence alongside this carbon neutral strategy, and further information and advice materials will be provided online throughout the input phase.

Recommend Citizens' Assembly (April-July)

The strategy invites the States Assembly to call a citizens' assembly to explore key issues related to the nature and pace of Jersey's transition to carbon neutrality.

If the Mandate (set out at Appendix 3) is agreed, a citizens' assembly will be convened that will: be tasked to respond to the question "How should we work together to become carbon neutral?"; and to produce a report including recommendations, that will be shared with States Assembly Members and the Government.

The mandate provides that the citizens' assembly should consider:

- the implications and trade-offs of a range of scenarios for achieving carbon neutrality and
- when and how a full transition to zero (or almost zero) emissions in key sectors might be achieved.

This includes considering alternative deadlines for carbon neutrality, and for zero carbon, that might fall before or after 2030.

The citizens' assembly will be supported by independent trained facilitators, who will help the assembly deliberate key issues in a way that promotes critical thinking and consensus. Logistical and other support will also be provided by the States Greffe. This will include a dedicated clerk to the citizens' assembly.

The report of the citizens assembly will be published and sent to all States Members. Ministers will respond to the report and take any recomendations into account in the decide phase.

Decide (July – October)

The Government will prepare and propose a long-term climate action plan that draws on:

- the policy framework and principles for carbon neutrality set out in this strategy;
- the recommendations and report of the citizens' assembly;
- the existing evidence base, further planned studies and any additional research available at that time;
- community and youth climate action plans; and
- suggestions from the iinput phase, where appropriate.

The long-term climate action plan will set out a clear target date for carbon neutrality and the range of policies, including fiscal measures, required to deliver that ambition.

The Government will also publish a response to the citizens' assembly. This will set out where recommendations are accepted and how they will be implemented. Where the Government does

not propose to implement a recommendation of the citizens' assembly a clear and reasoned justification will be given.

Agreement (Autumn)

A full, Island-wide public consultation will be held on the final proposed strategy. The Strategy will be scrutinised by the States Assembly.

Following any amendments, the Government will lodge the long-term climate action plan in the States Assembly as a report and proposition.

Upon agreement, any policies to be given effect via the planning system may be brought as amendments to the draft Island Plan, and any measures requiring funding in 2021 may be brought as amendments to the Government Plan.

Delivery phase

Upon adoption, a range of policies will be implemented and further developed for agreement.

A collaborative approach to delivering these new policies and programmes, that builds on the established local plans and networks, will bring together all stakeholders on an on-going basis.

5 How might we make progress towards carbon neutrality?

The primary focus of this section is on policy scenarios that could make significant progress towards carbon neutrality, defined as balancing the scope 1 and 2 emissions we produce against any activity that captures, absorbs or reduces global emissions so that they are equal.

The request for a carbon neutral strategy by the end of 2019 necessarily means that only a first phase of analysis has been completed[29]. In this first phase, the most significant questions in relation to the most significant challenges (reducing emissions from road transport and heating) have been considered; this does not preclude further policy research in other areas in the future.

There are two caveats to be kept in mind when considering this section:

- The measures explored are not policy proposals for Jersey, they are illustrative scenarios based on an analysis of politics in place in other jurisdictions; and
- The identified costs are the costs to Government of the policy scenarios if they were to be implemented. This is not the same as the cost of the carbon neutrality for Jersey.

The information below is provided to inform discussions about key carbon neutral challenges and to show the type and level of analysis necessary to develop and prioritise a full suite of carbon abatement policies.

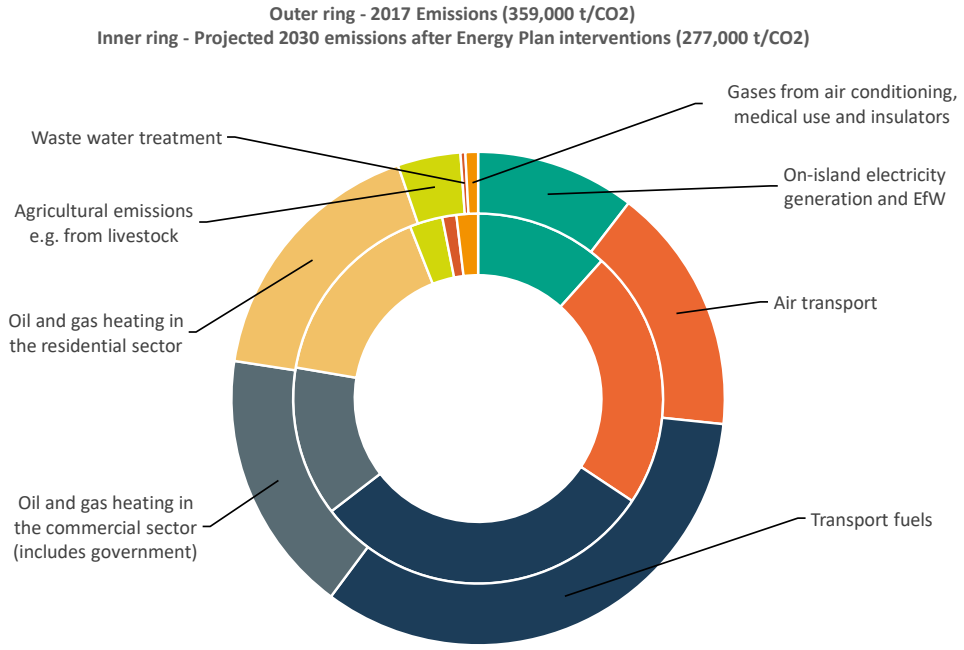
[29] gov.je/climateemergency

5.1 Establishing a baseline for carbon neutrality

Jersey's Scope 1 greenhouse gas emissions are monitored and reported through the annual greenhouse gas emissions inventory[30] and the Jersey Energy Trends Report[31]. The information used to compile the emissions inventory is provided by Government and Island fuel suppliers and is submitted to UK emissions inventory experts for independent analysis and verification[32]. The provision of this information is a requirement of the UK's Kyoto reporting, which has been extended to Jersey. The Jersey inventory is returned for publication 12 months after submission. The time lag is due to the extensive quality assurance and verification process which is carried out externally to meet international emissions reporting standards.

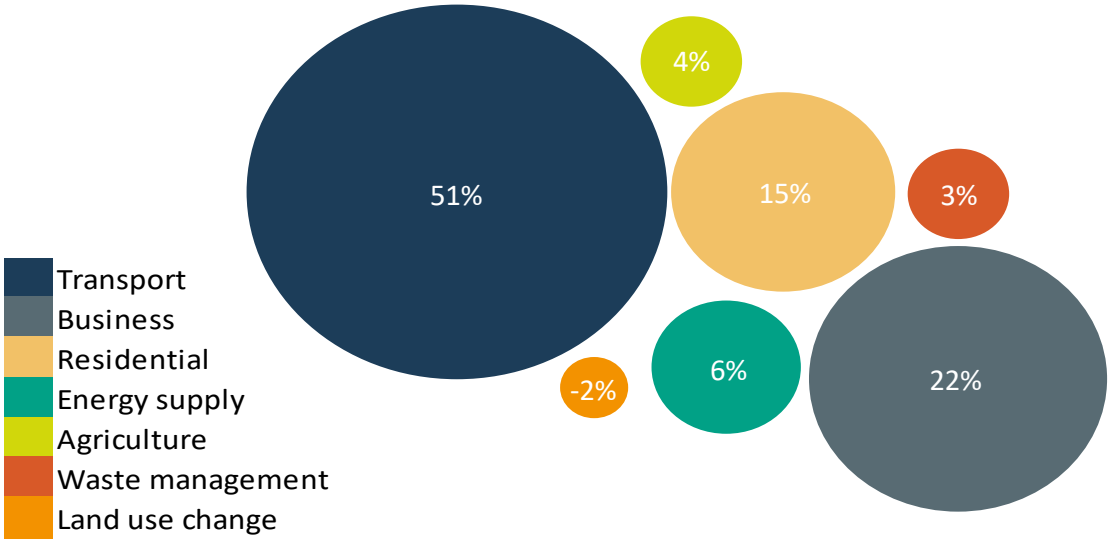
The ring chart at Fig. 4 below shows that current emissions from key areas of activity in 2017 are around 359,000 tonnes of CO_2eq. Successful implementation of the agreed policies set out in Pathway 2050 would see our Scope 1 emissions reduce to around 277,000 tonnes of CO_2eq.

Fig.4 2017 and 2030 emissions profiles



[30] Greenhouse gas emissions inventory:
https://www.gov.je/Environment/GenerateEnergy/GreenHouseEmissions/Pages/GreenhouseGasEmissions.aspx#anchor-1
[31] Energy Trends Reports published on gov.je:
https://www.gov.je/SiteCollectionDocuments/Government%20and%20administration/R%20Jersey%20Energy%20trends%202018%2020191128%20SJ.pdf
[32] The UK emissions information for overseas territories and crown dependencies is compiled by Aether
http://www.aether-uk.com/

Fig.5 – Scope 1 emissions by inventory reporting sector
Fig 5. also shows the key sectors in which these emissions arise.



This baseline shows that nearly 90% of Jersey's scope 1 emissions originate from three sources: transport fuels (including land, air and marine transport) and oil and gas used for space heating in the business and residential sectors. In line with Principle 2, the Government has commissioned research to understand the total scope 2 emissions associated with Jersey's imported electricity. Total scope 2 emissions from electricity and their % contribution to the combined emissions for scope 1 and 2 for Jersey are presented in Fig. 6 below.

In 2017 a total of 3 kt CO^2eq are associated with imported electricity. This accounts for less than 1% (0.8%) of the total scope 1 and 2 emissions for Jersey for 2017. The methodology for estimating these emissions is described in a supporting document[33].

Together, these scope 1 and 2 emissions provide the baseline from which we will aim for carbon neutrality.

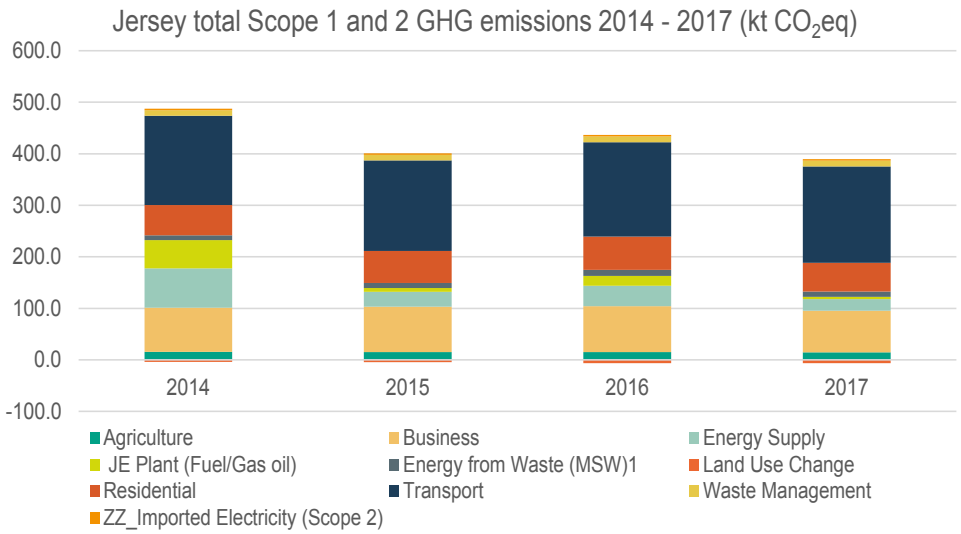
[33] gov.je/climateemergency

Fig.6 – Jersey total Scope 1 and 2 emissions 2014-2017 9kt CO^2eq)
Source: Aether scope 2 emissions report

Jersey total Scope 1 and 2 GHG emissions 2014 - 2017 (kt CO_2eq)

NCFormat (kt CO_2eq)	2014	2015	2016	2017	% for 2017
Agriculture	**15.6**	**14.9**	**14.9**	**14.8**	4%
Business	**85.4**	**88.1**	**89.1**	**80.3**	22%
Energy Supply	**76.8**	**29.1**	**39.7**	**22.7**	6%
JE Plant (Fuel/Gas oil)	54.6	7.5	19.1	4.3	1%
Energy from Waste (MSW)[1]	9.1	9.8	11.8	10.4	3%
Land Use Change	**-3.8**	**-4.5**	**-6.3**	**-6.5**	-2%
Residential	**59.1**	**62.1**	**64.9**	**56.0**	15%
Transport	**173.0**	**175.3**	**182.7**	**186.9**	51%
Waste Management	**10.9**	**11.1**	**11.2**	**11.4**	3%
Grand Total Scope 1	**417.1**	**376.2**	**396.3**	**365.6**	
ZZ_Imported Electricity (Scope 2)	2.8	2.9	2.9	3.0	
Total including scope 2 (imported electricity emissions)	**419.9**	**379.1**	**399.2**	**368.5**	
% of total emissions from imported electricity	0.66%	0.78%	0.73%	0.80%	

1) Based on new estimates provided by Jersey Electricity using total mass of waste burned for energy and default IPCC emission factors. Jersey Electricity estimates (10.5 kt CO_2 eq in 2017) need further exploration but are significantly lower than the current cruder NAEI based estimates (which are 18 kt CO_2eq in 2017).



5.2 Developing long-term policy options

Principle 2 acknowledges that we are not planning to abate all Jersey's carbon emissions by 2030, but rather to make faster progress in abating emissions, alongside the introduction of new offsetting measures. Together with the profile of Jersey's emissions outlined above, this suggests that the priority policy actions for carbon neutrality should focus on reducing scope 1 emissions associated with transport and heating.

The key questions that shape carbon neutral policy – and a central focus of the people-powered approach to be followed in 2020 – are, therefore:

- what amount of carbon emissions do we want to abate by 2030 and what amount of residual emissions will we need to off-set after this date, both in total and in the transport and heating sectors;
- how quickly do we want to reduce and remove those carbon emissions that remain after 2030, both in total and in the transport and heating sectors; and
- drawing from these two questions, which policies are most likely to reduce emissions from the transport and heating sectors and what are the costs and benefits associated with them.

> In other words, considering the challenge of carbon reduction over the long-term requires us to look both at the point at which we become carbon neutral, but also beyond this point, in order to understand and plan for what our trajectory to a sustainable low-carbon future looks like.

Accordingly, the policy research outlined below analyses the options for, and implications of, the abatement of emissions from the transport and heating sectors over a range of timescales.

This approach ensures that, in line with the expectations of P.27/2019 and in the extremely limited time available to produce it, this strategy:

- illustrates a range of policy scenarios that would deliver against the aim for Jersey to be carbon neutral by 2030, with a focus on achieving net zero in the road transport and heating sectors, which account for approximately 70% of emissions;
- does not provide policy options or expenditure estimates in relation to abatement or offsets in the rest of the economy of Jersey, which account for approximately 30% of emissions; and
- also provides the range of information necessary for the citizens' assembly to undertake its deliberations.

5.3 Policy approaches in other jurisdictions

To identify the best policy options for Jersey, an analysis of decarbonisation policies in other jurisdictions has been carried out. Jurisdictions were selected on the basis of having ambitious carbon reduction plans in place and sharing some legal, political or physical characteristics with Jersey, as set out in Fig.6 below.

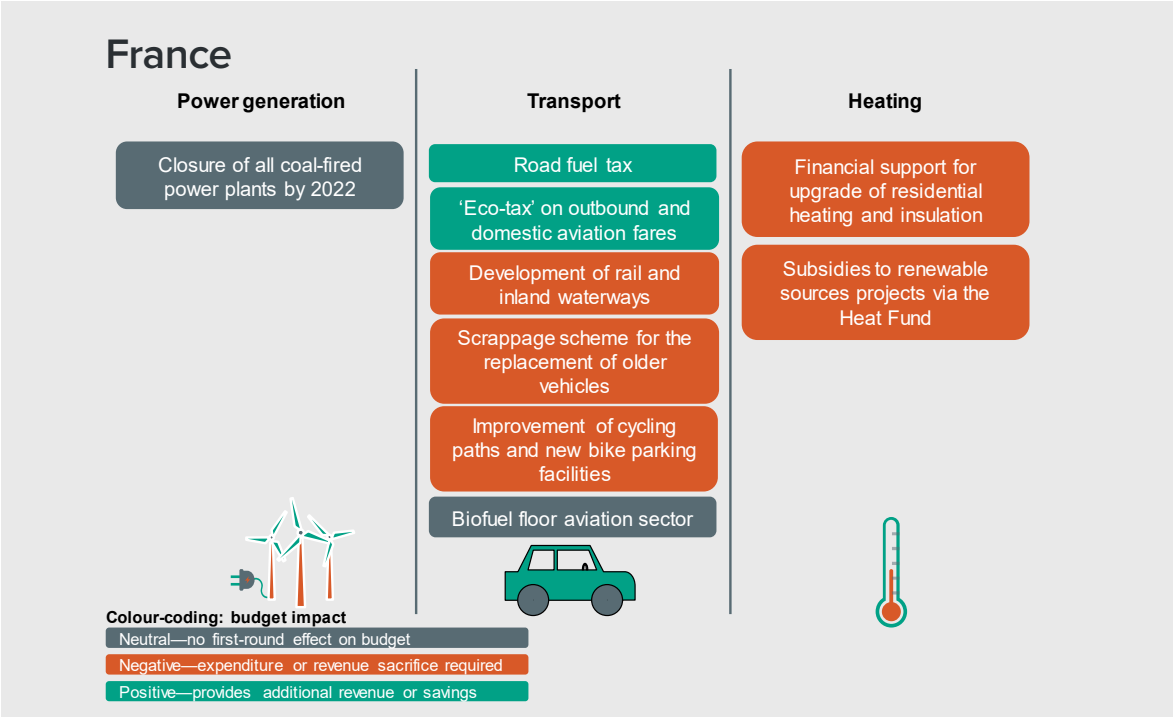
Fig.6 – Jersey total Scope 1 and 2 emissions 2014-2017 9kt CO_2eq)

Country	Net zero target year	Target in law?	Island economy?
France	2050	✓	
Iceland	2040		✓
Malta	2050		✓
Netherlands	2050		
Norway	2030	✓	
Sweden	2045	✓	
UK	2050	✓	✓

Note: Although the UK is technically as islan economy, it's size and scale of it's economic activity differentiates it consiferably from the other island economy comparators. - Source: Oxera analysis

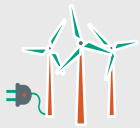
The diagrams below summarise the decarbonisation policies that have been considered or implemented in the jurisdictions listed, particularly in the spheres of power generation, transport and heating. The policies are colour-coded according to their effect on public (rather than household) finances.

Figure 7.1 –Summary of policy approaches in other jurisdictions



Iceland

Power generation	Transport	Heating
Already decarbonised	Ban on registration of conventional vehicles	Financial support for geothermal research
	Free EV parking	Investments in district heating options
	State enterprises switch to EVs	
	VAT exemptions to LEVs	
	Investments in cycling lanes and public transport	
	Electric charging options for road and marine transport	
	Road fuel and vehicle tax	
	Biofuel floor aviation sector	



Colour-coding: budget impact

- Neutral—no first-round effect on budget
- Negative—expenditure or revenue sacrifice required
- Positive—provides additional revenue or savings

Malta

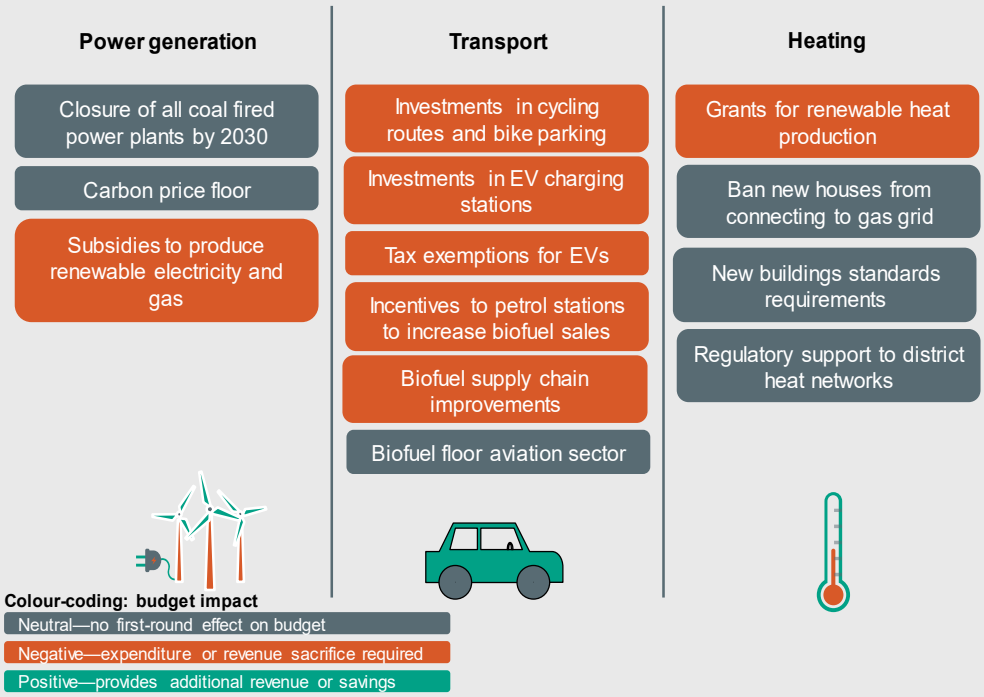
Power generation	Transport	Heating
Grant schemes for domestic PV systems	Subsidy on the conversion of vehicles from petrol to LPG	Subsidies for domestic heat pump heating and solar water heaters
Deployment of PV panels on public buildings	Grants for buying EVs	Grants for solar water heaters in non-residential buildings
Support to technologies that process animal waste	Reduced registration and excise duty for EVs	Utilisation of smart meters
Identification of sites for PV farms	New EV charging stations	New tariffs to incentivise energy efficiency
	Regulatory requirements to increase biofuel use	
	Biofuel floor aviation sector	



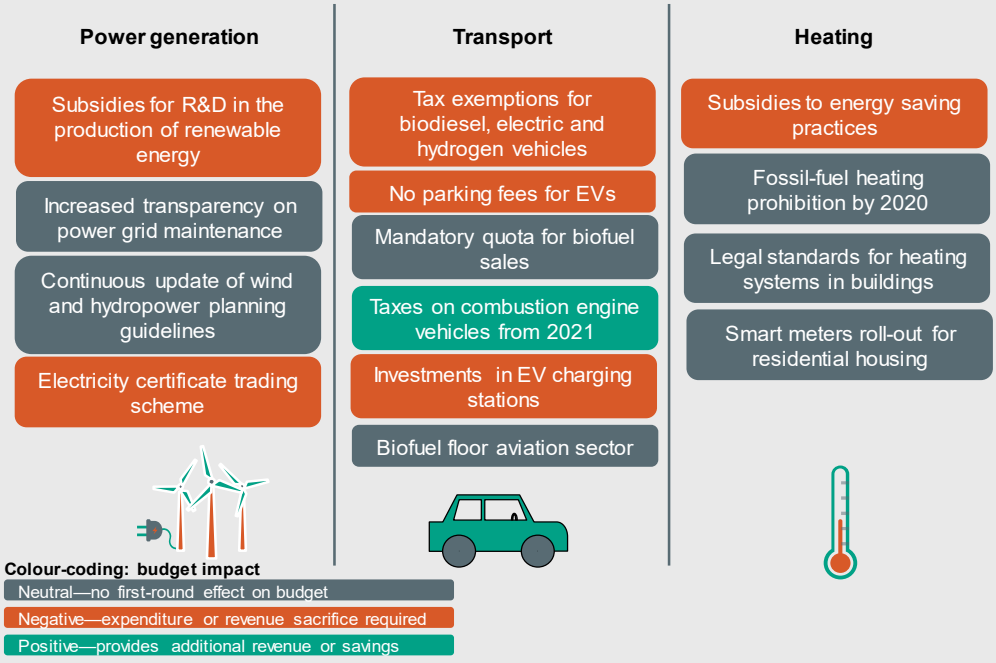
Colour-coding: budget impact

- Neutral—no first-round effect on budget
- Negative—expenditure or revenue sacrifice required
- Positive—provides additional revenue or savings

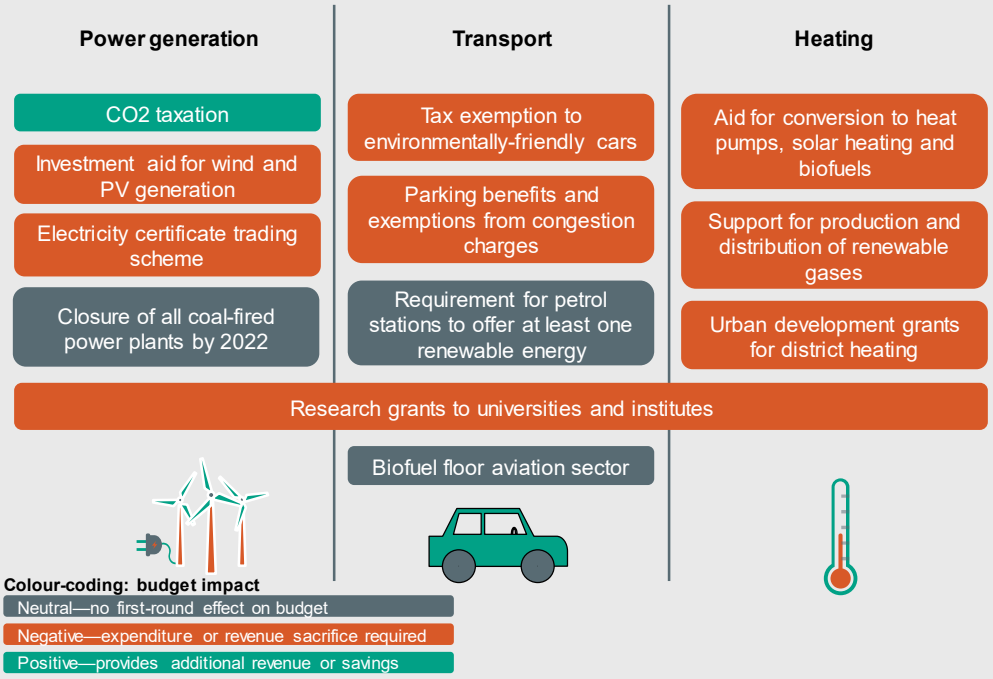
Netherlands



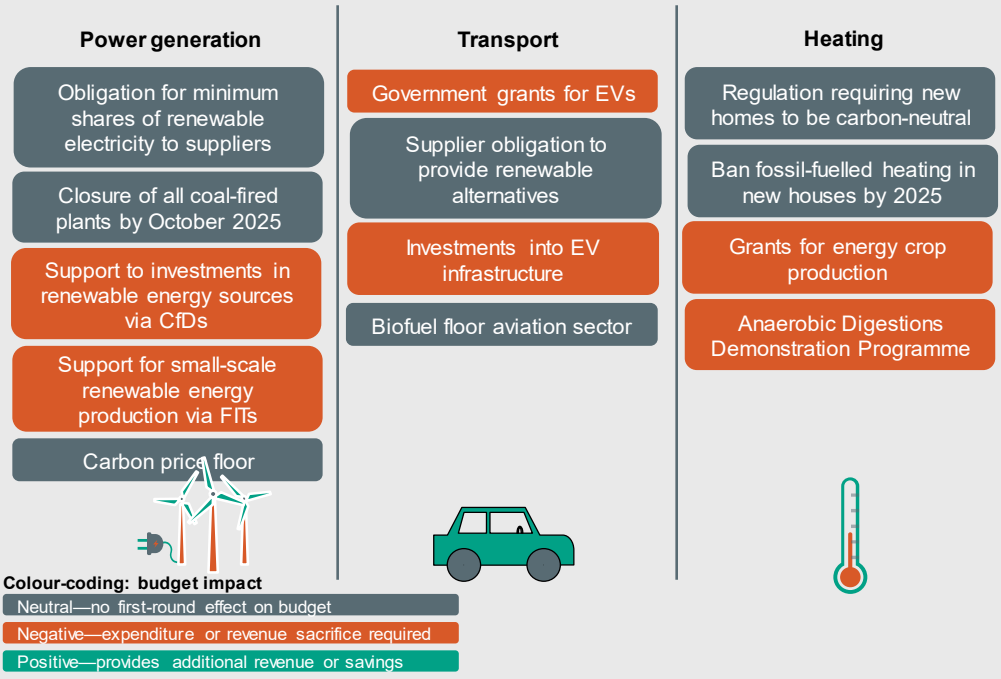
Norway



Sweden


Power generation
Transport
Heating
CO2 taxation
Investment aid for wind and PV generation
Electricity certificate trading scheme
Closure of all coal-fired power plants by 2022
Tax exemption to environmentally-friendly cars
Parking benefits and exemptions from congestion charges
Requirement for petrol stations to offer at least one renewable energy
Aid for conversion to heat pumps, solar heating and biofuels
Support for production and distribution of renewable gases
Urban development grants for district heating
Research grants to universities and institutes
Biofuel floor aviation sector
Colour-coding: budget impact
Neutral—no first-round effect on budget
Negative—expenditure or revenue sacrifice required
Positive—provides additional revenue or savings

UK

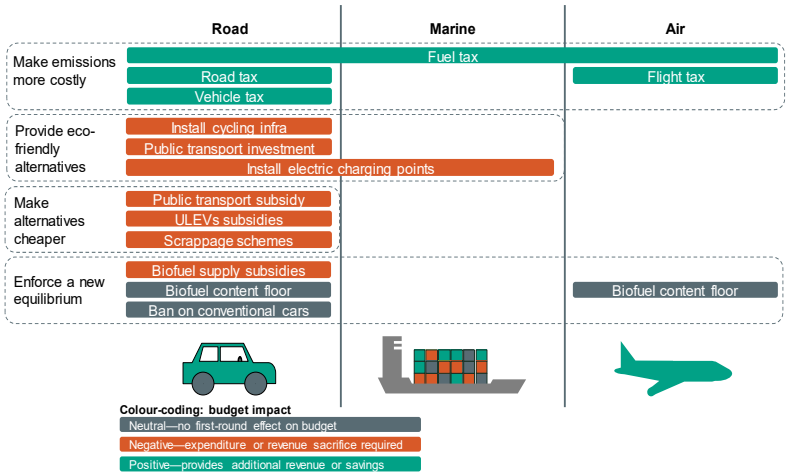

Power generation
Transport
Heating
Obligation for minimum shares of renewable electricity to suppliers
Closure of all coal-fired plants by October 2025
Support to investments in renewable energy sources via CfDs
Support for small-scale renewable energy production via FITs
Carbon price floor
Government grants for EVs
Supplier obligation to provide renewable alternatives
Investments into EV infrastructure
Biofuel floor aviation sector
Regulation requiring new homes to be carbon-neutral
Ban fossil-fuelled heating in new houses by 2025
Grants for energy crop production
Anaerobic Digestions Demonstration Programme
Colour-coding: budget impact
Neutral—no first-round effect on budget
Negative—expenditure or revenue sacrifice required
Positive—provides additional revenue or savings

5.4 Policy scenarios related to transport

The transport sector is the largest emissions source in Jersey, representing 51% of total greenhouse gas emissions according to the latest available statistics[34]. Emissions in this sector are generated by road transport, aviation and domestic shipping.

Figure 7.2 provides an overview of policies employed in other jurisdictions to reduce emissions from transport.

Fig.7.2 – Overview of decarbonisation policies in transport



In Jersey, carbon emissions from road transport amount to 118 kt CO_2eq, which accounts for the majority (63%) of the 187 kt CO_2eq of carbon emissions from transport. It is also a segment within transport sector over which the Government has a relatively high degree of control (as opposed to marine and air transport, which require international cooperation for successful abatement). Therefore, this phase of analysis focuses on road transport in particular.

Based on the approaches adopted in other jurisdictions and taking into account policies already embedded within the 2014 Energy Plan, the following three measures, described as T1, T2 and T3 have been considered:

- **Measure T1:** facilitating the uptake of electric vehicles (EV's), by:
    a. escalating existing fuel taxes to discourage the use of petrol and diesel vehicles; and
    b. providing financial incentive(s) for the purchase of EVs, either in the form of a purchase grant, and/or in the form of a scrappage payment for owners of fossil fuel vehicles;
- **Measure T2:** imposing a ban on the registration of new or second-hand petrol and diesel vehicles, so that they are gradually replaced by EVs over time. There would be an option to exempt diesel vehicles from the ban if they are able to transition to hydrotreated vegetable oil (HVO) (T3) while maintaining a sufficiently low emission intensity; and
- **Measure T3:** facilitating the use of second generation biodiesel (HVO) for all diesel vehicles, subject to further technical due diligence of the feasibility of such a transition in Jersey. This could involve fuel taxation concessions for HVO[35].

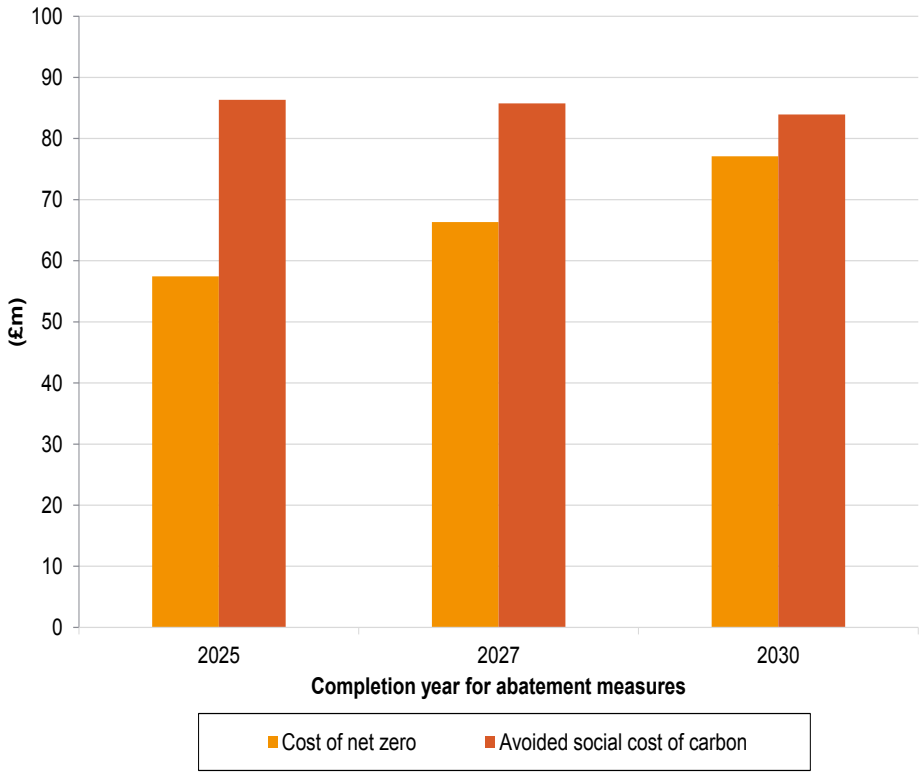
[34] *https://www.aether-uk.com/Resources/Jersey-Infographic*
[35] According to feedback received from industry representatives, HVO is fully compatible with usage by the existing diesel fleet in Jersey. While HVO is costlier than diesel, industry feedback suggests that a fuel tax exemption would enable HVO to compete against diesel. Technical feasibility of the compatibility of HVO with the existing fleet and Jersey infrastructure is currently being conducted.

Of the measures above, measures T1 and T2 were subjected to the quantitative analysis. Measure T3 was not included, due to uncertainty around technical feasibility, potential carbon savings and the associated costs of the measure[35.1].

5.4.1 Summary of quantitative assessment for the road transport sector

Figure 7.3 below shows a mid-range estimate of the potential cossts across measures T1-T2 implemented up to 2025, 2027 or 2030 (depending on the scenario) plus the cost of offsetting residual emissions from transport (cost of net zero). This is set against the social cost of carbon, which is proxy for the negative impacts of carbon emissions, that would be avoided as a result of the abatement measures[36].

Figure 7.3 - Illustrative costs of net zero measures relative to the avoided social cost of carbon in the road transport sector



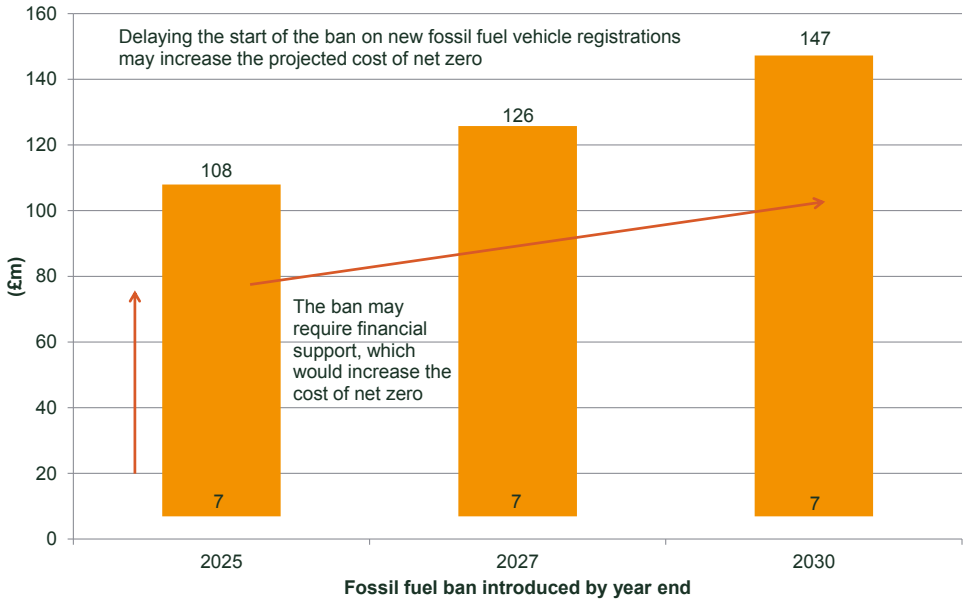
Note: The avoided social cost of carbon is calculated using the non-traded cost of carbon, sourced from HM Treasury Green Book guidance. The amount of emission abated is calculated as the difference between the level of emissions under the proposed abatement measures and the level of emissions projected in absence of those measures. The costs of net zero represent the midpoint of the range and include both the present value of the costs of abatement, as well as the present value of the expenditure of offsetting the unabated emissions. Throughout all scenarios it is assumed that unabated emissions are being offset from 2030 onwards. All figures are presented in present value terms, discounted at 3.5%, as per the HM Treasury Green Book guidance. The assessment period covers the years 2019–50. The expenditure on offsets is estimated using the forecast for the prices of ETS from National Grid.

[35.1] For instance, the feedback received from the industry suggests a broad range of uncertainty around the cost differential between HVO and diesel.

[36] As prescribed by the Green Book *https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/794737/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal-2018.pdf*

The actual costs associated, particularly with transport measure T1, facilitating the uptake of EVs, may vary significantly depending on the financial incentive(s) offered, the timing of measures and the extent to which the wider economic and social environment influences people to travel differently. This range of uncertainty is illustrated by the spread of the bars in Figure 7.4.

Figure 7.4 - Illustrative range of the cost of net zero measures in the road transport sector



Note: The years on the horizontal axis denote the year at the end of which the ban is introduced. The low end of the range assumes no requirement for EV purchase grants and/or scrappage schemes for fossil-fuel vehicles, and an annual vehicle retirement rate of 10% (as per the modelling conducted for the 2014 Energy Plan, see 2014 Supporting document B for Oxera 07.08.2019.xls, tab transport, cell B52). For the low end of the range only, the ban on the registration of fossil fuel vehicles is assumed to be 2030 across all the bars. The high end of the range assumes an adoption of a purchase grant for EVs of £3,500 per vehicle. It is assumed that the EV grant causes an increasing the standard vehicle retirement rate of 10% for petrol and diesel cars, to 17.5% per year during the functioning of the grant scheme (it is assumed that the grant scheme starts in 2020 and terminates with the introduction of the fossil fuel vehicle ban). The costs of net zero include both the present value of the costs of abatement, as well as the present value of the expenditure of offsetting the unabated emissions. Throughout all scenarios it is assumed that unabated emissions are being offset from 2030 onwards. All costs are presented in present value terms, discounted at 3.5%, as per the HM Treasury Green Book guidance. The assessment period covers the years 2019–50. The expenditure on offsets is estimated using the forecast for the prices of ETS from National Grid.

As figure 7.4 demonstrates, a more rapid abatement programme (for example, through an earlier implementation of a ban on the registration of fossil-fuel vehicles) can lead to a lower overall cost because funding for financial incentives (measure T1b, financial incentives for EVs) is only required over a shorter period. At the same time, there may be other costs associated with implementing a ban at such an early date, such as additional support for those less able to afford to purchase a new vehicle, that are not reflected here.

The timing of any ban on registration of new or second-hand fossil fuel vehicles (measure T2) and the degree of financial support required are closely linked to the uptake of ultra-low emissions vehicles in comparison to conventional vehicles.

Industry evidence appears to suggest that EVs are likely to reach price parity with conventional vehicles within the next ten years and, potentially, by as early as 2022. Further investigation would be needed to understand how closely the Jersey market tracks the wider market and, for example, if there might be any delay in these trends because of the scale of the local market, vehicle policies or island nature.

Figure 7.5 Industry estimates on the timing of price parity between EVs and conventional vehicles

Project	Area	Predicted year of price parity between fossil-fuel vehicles and EVs
McKinsey & Co.	U.S.	2025
Deloitte	UK	2024
Bloomberg	N/A	2024
Bloomberg	EU	2022 - 2029

Source: See Bloomberg (2017), "When will electric vehicles be cheaper than conventional vehicles?", 12 April, p.5, https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/making-electric-vehicles-profitable, https://www.bloomberg.com/opinion/articles/2019-04-12/electric-vehicle-battery-shrinks-and-so-does-the-total-cost, https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/manufacturing/deloitte-uk-battery-electric-vehicles.pdf.

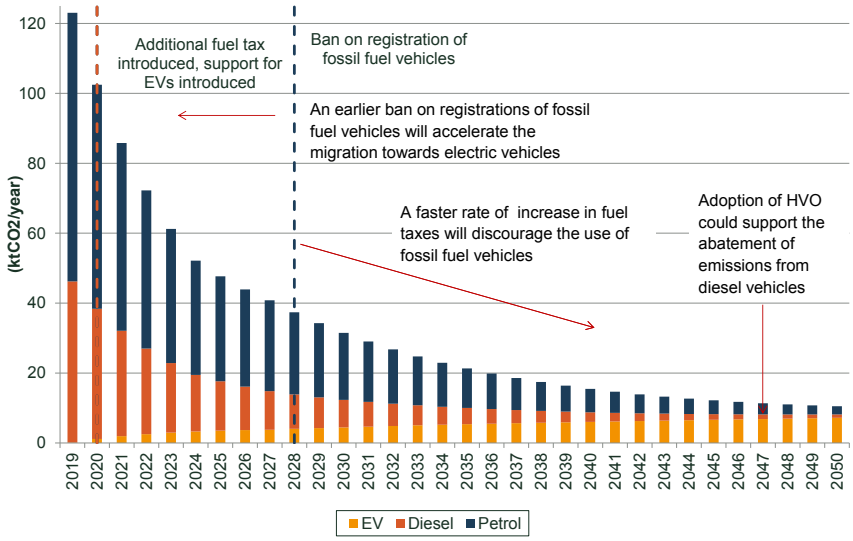
Drawing on the above, Figure 7.6 illustrates the potential future trajectory of emissions from the road transport sector. The illustration assumes:

- an average vehicle retirement rate of 10% per year (in line with the modelling conducted for the 2014 Energy Plan[37]);
- a doubling of fuel tax, introduced uniformly over 2020–25;
- a ban on the registration of conventional vehicles instated at the end of 2027 (by which point, as suggested by evidence in Table 5.1, it appears likely that EVs will achieve price parity with conventional vehicles); and
- a provision of a £3,500 grant per vehicle (in line with the grant currently offered in the UK[38]), for the purchase of an EV until the end of 2027.

[37] gov.je/climateemergency

[38] ***https://www.gov.uk/plug-in-car-van-grants***

Figure 7.6 – Evolution of emissions from road transport



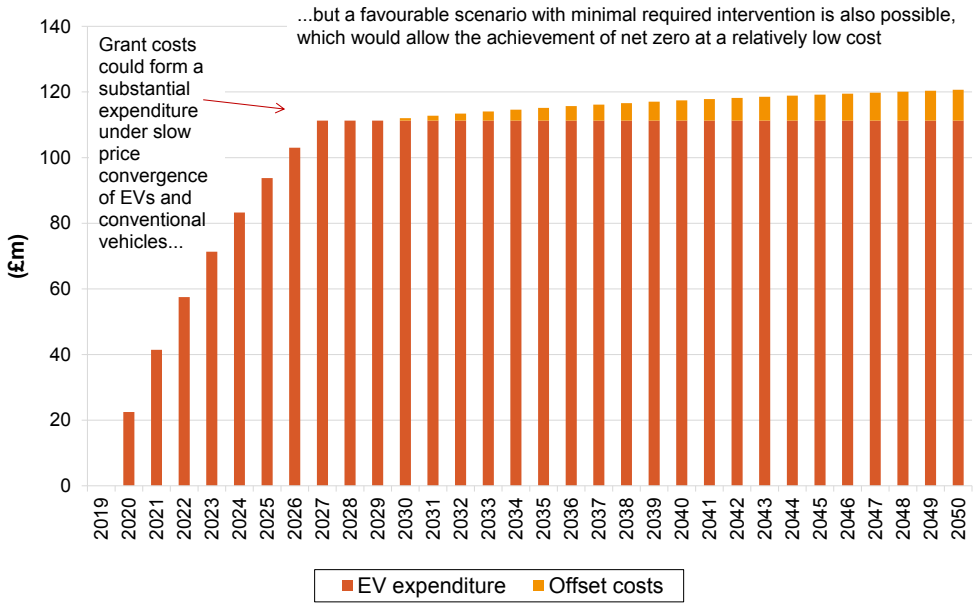
The scenario above envisages that following the implementation of the measures, the remaining emissions from road transport will be driven by:

- emissions from the remaining petrol and diesel vehicle fleet that is yet to be fully depreciated and replaced;
- the carbon footprint of electricity used to power EVs; and
- emissions from diesel vehicles that cannot be replaced by an electric substitute[39]. To the extent that the adoption of HVO proves feasible in Jersey, further emission abatement could be achieved.

Figure 7.7 illustrates a possible cumulative cost path associated with the implementation of the scenario that underlies Figure 7.6. In comparison, a passive transition by 2050 without government incentives, as envisaged in the Pathway 2050 energy plan would cost just under £40 million in cumulative offset payments.

[39] From our engagement with industry we understand that these are largely agricultural vehicles.

Figure 7.7 - Illustration of cumulative costs of net zero measures in the road transport sector



Note: The costs of net zero include both the present value of the costs of abatement, as well as the present value of the expenditure of offsetting the unabated emissions. Throughout all scenarios it is assumed that unabated emissions are being offset from 2030 onwards. All costs are presented in present value terms, discounted at 3.5%, as per the HM Treasury Green Book guidance. The assessment period covers the years 2019–50. The expenditure on offsets is estimated using the base case forecast for the prices of ETS from National Grid.

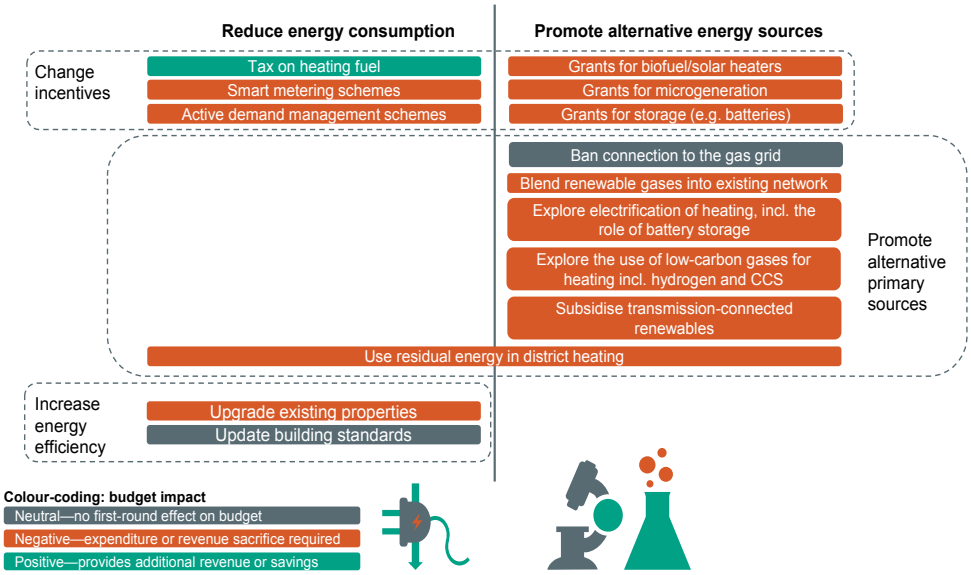
In the figure above a large proportion of the identified costs come from offering financial incentives for switching. No alternative assumption has been presented in this figure regarding differing levels of financial incentive. Also, the modelled cost does not net off any revenue raised (either through measure T1a or any other source). The costs presented in Fig. 7.7 therefore fall at the higher end of the range presented in Fig 7.4.

Should the uptake of ultra-low emission vehicles be faster than currently expected, it may be possible to introduce an earlier ban on the registration of fossil fuel vehicles without the need to provide financial support to switching for the same period. In those circumstances, abatement costs would be lower.

5.5 Policy scenarios related to heating

Heating is the second largest emissions source in Jersey, representing over 30% of total greenhouse gas emissions according to the latest (2017) statistics[40]. This includes emissions from both domestic and commercial heating. Figure 7.8 summarises policies employed in other jurisdictions to reduce emissions from heating.

Figure 7.8 - Overview of heating decarbonisation policies



For Jersey, electrification appears to have the most significant potential for decarbonisation of heating. Jersey has high levels of installed interconnection capacity with access to low-carbon imported electricity and relatively high penetration rates for electricity in the heating sector. Electrification reduces carbon emissions in two ways:

- electric heating systems are more efficient than systems running on oil (which is the second most widely used energy source for domestic heating on the Island, after electricity). This means that, all other things being equal, a property heated with electricity consumes less energy than one heated with oil; and
- electricity has a lower carbon factor than any other heating energy source available on the Island. This means that for any given amount of energy consumed, an electric heating system emits the least carbon.

Based on the review of approaches adopted in other jurisdictions and taking into account policies already embedded within the 2014 Energy Plan, the following measures, H1 and H2 have been assessed:

- **Measure H1:** facilitating the replacement of oil and LPG[41] heating systems in both domestic and commercial properties with electric heating systems; and
- **Measure H2:** upgrading the insulation of the domestic housing stock constructed prior to the 2001 Building Bye Laws which introduced energy efficiency requirements.

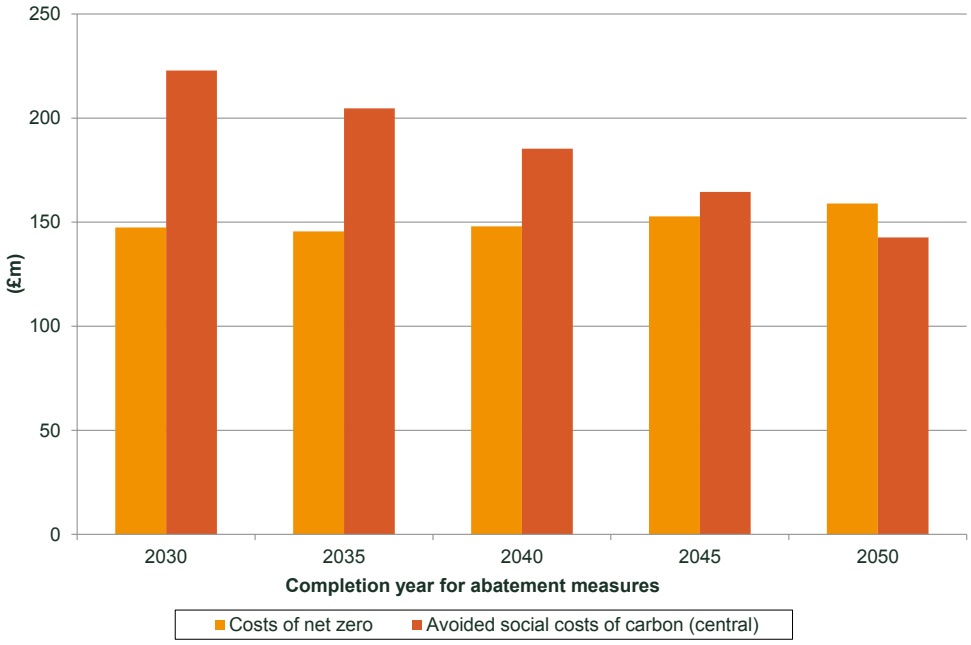
[40] *https://www.aether-uk.com/Resources/Jersey-Infographic*

[41] Jersey Energy Trends, p. 10, available at *https://www.gov.je/SiteCollectionDocuments/Government%20and%20administration/R%20Jersey%20Energy%20trends%202017%2020190529%20SJ.pdf*

5.5.1 Summary of quantitative assessment for the heating sector

Figure 7.9 presents the total cost of policies to abate heating emissions and the cost of offsetting residual emissions that are not abated (costs of net zero). This is set against the social cost of carbon that would be avoided as a result of the abatement measures[42].

Figure 7.9 - Illustrative costs of net zero measures relative to the avoided social cost of carbon in the heating sector



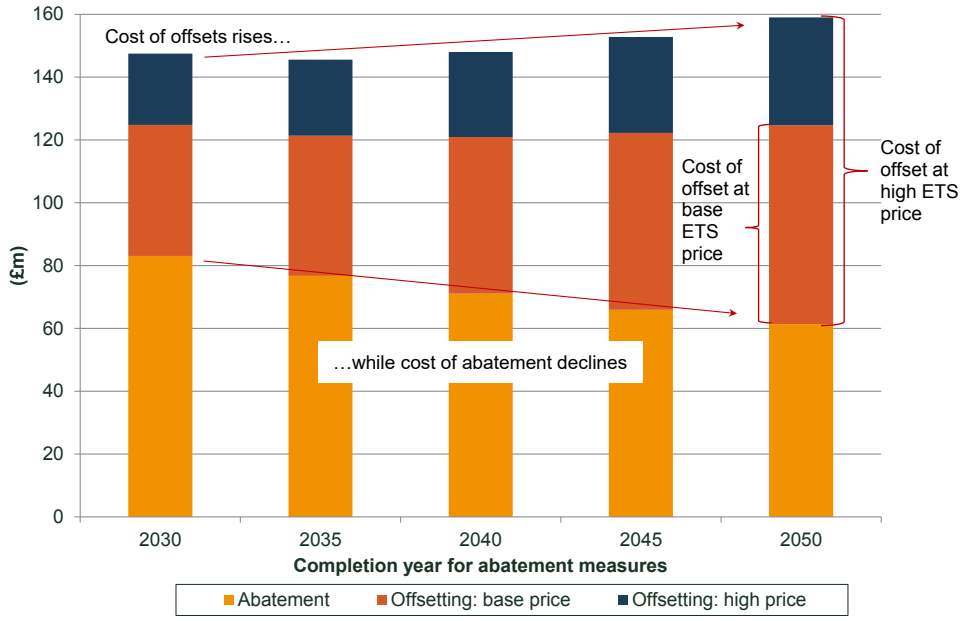
Note: The avoided social cost of carbon is calculated using the non-traded cost of carbon, sourced from HM Treasury Green Book guidance. The amount of emission abated is calculated as the difference between the level of emissions under the proposed abatement measures and the level of emissions at the end of 2019. The costs of net zero include both the present value of the costs of abatement, as well as the present value of the expenditure of offsetting the unabated emissions. Throughout all scenarios it is assumed that unabated emissions are being offset from 2030 onwards. All costs are presented in present value terms, discounted at 3.5%, as per the HM Treasury Green Book guidance. The assessment period covers the years 2019–50. The expenditure on offsets is estimated using the high forecast for the prices of ETS from National Grid.

[42] As prescribed by the Green Book *https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/794737/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal-2018.pdf*

Figure 7.10 illustrates how the costs of net zero are split between abatement and offsetting, depending on the specific timeframe for abatement measures. This shows that delaying the abatement measures has two effects:

- spreading the investment over a longer period of time decreases the total present value of costs (as costs incurred further away in the future are discounted more heavily); and
- a more prolonged abatement process comes with an increased exposure to the price of offsets. Current evidence suggests that the price of offsets is likely to substantially increase in the near future (see section 5.7), which suggests that delaying the abatement programme will likely increase the overall cost of delivering the net zero policy in Jersey.

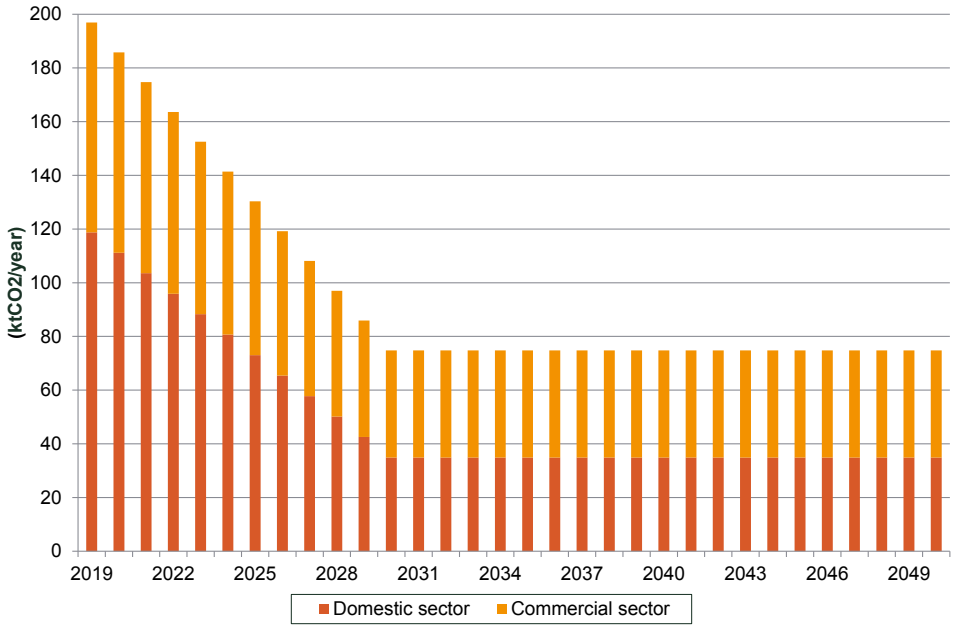
Figure 7.10 - Illustrative split of the cost of net zero measures in the heating sector between offset and abatement costs



Note: The costs of net zero include both the present value of the costs of abatement, as well as the present value of the expenditure of offsetting the unabated emissions. Throughout all scenarios it is assumed that unabated emissions are being offset from 2030 onwards. All costs are presented in present value terms, discounted at 3.5%, as per the HM Treasury Green Book guidance. The assessment period covers the years 2019–50. The expenditure on offsets is estimated using the forecast for the prices of ETS from National Grid.

Figure 7.11 shows how carbon emissions might evolve over time under a scenario of full electrification of domestic and commercial heating by 2030. The emissions produced after 2030 originate from the carbon footprint of electricity used to power the heating systems.

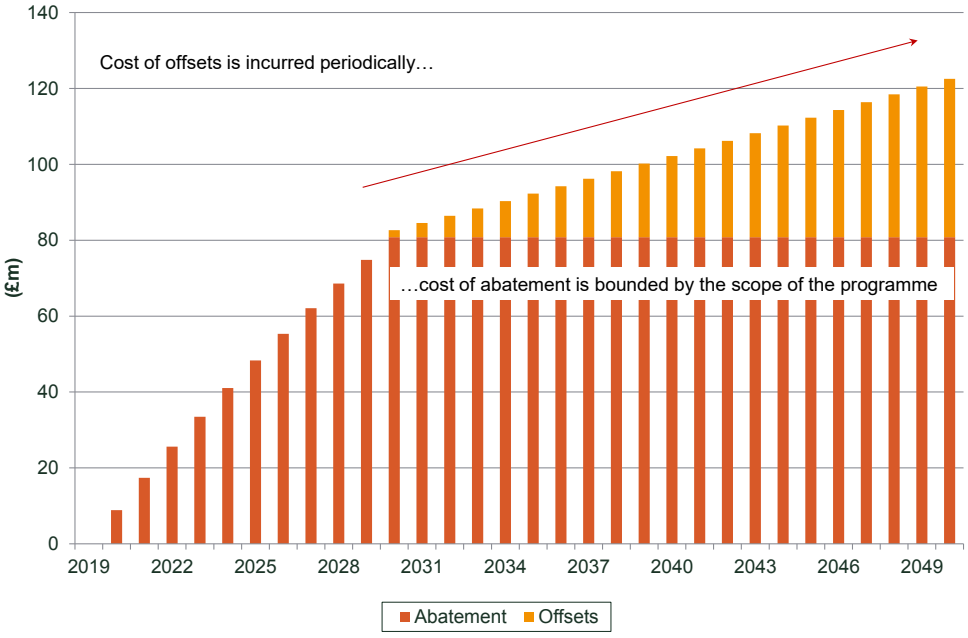
Figure 7.11 – Illustrative evolution of emissions from domestic and commercial heating



Note: The figure considers emissions from the existing property stock only. As the new properties are built in the future, all else equal, the overall emissions will increase. However, based on discussions with industry, it is unlikely that modern properties will be equipped with fossil-fuel heating systems, so are unlikely to require any further abatement. Moreover, to the extent that the energy management solutions become more efficient, the average consumption per property will tend to decrease over time across all properties, which may more than offset the upward pressure on emissions from the addition of new (relatively energy-efficient) housing stock.

Figure 7.12 presents the illustrative spilt of the total cost of implementing the heating emission abatement measures by 2030, split between abatement and offset expenditure.

Figure 7.12 – Illustration of cumulative costs of net zero measures in the heating sector



Note: The costs of net zero include both the present value of the costs of abatement, as well as the present value of the expenditure of offsetting the unabated emissions. Throughout all scenarios it is assumed that unabated emissions are being offset from 2030 onwards. All costs are presented in present value terms, discounted at 3.5%, as per the HM Treasury Green Book guidance. The assessment period covers the years 2019–50. The expenditure on offsets is estimated using the base case forecast for the prices of ETS from National Grid.

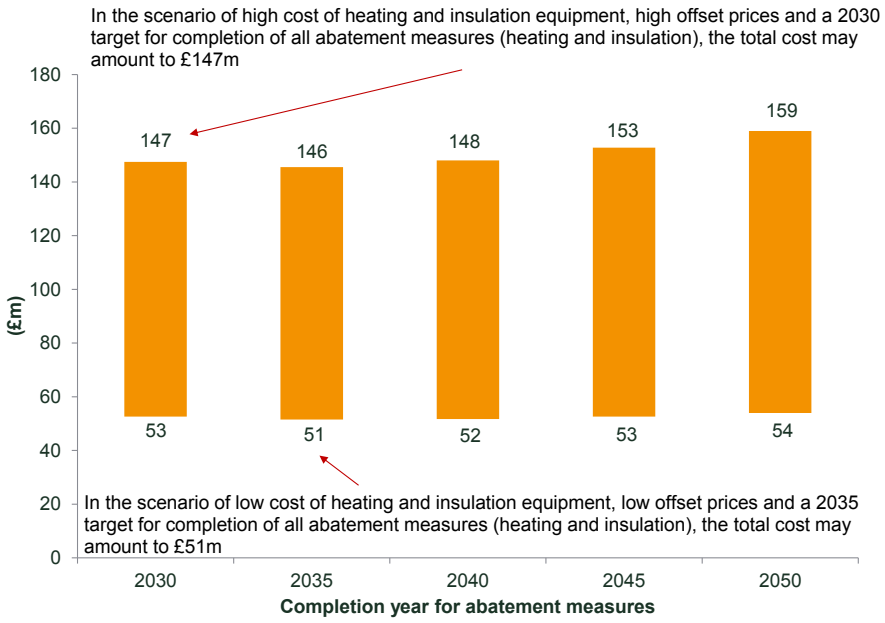
The costs presented in the figure above represent incentives necessary to ensure that consumers find it beneficial to switch to electric heating alternatives[43]. The distribution of costs between consumers, the electricity industry and government can vary, particularly in light of the choice of fiscal policy measure and the wider economic and social issues faced by households and businesses[44].

Figure 7.13 provides an illustration of what the cost of net zero in the domestic and commercial heating sectors could be, depending on the assumed average cost of equipment and insulation required for the abatement, the target year for completion of the abatement measures and the price of offsets.

[43] The illustration above assumes that the government bears 50% of the total cost associated with the new heating equipment and insulation. This, likely conservative, assumption stems from insight from the recent CMA investigation into the British energy market. The investigation has shown that average savings of 31% on the energy bill were not sufficient to induce consumer engagement and active switching across energy providers. The study found that consumers would neglect savings of around £330 against an average annual bill of £1,066. See *https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/531204/overview-modernising-the-energy-market.pdf*

[44] For example, the government may choose to subsidise a greater proportion of the upfront cost of insulation or switching to electrification as a fiscal policy measure. Alternatively, the electricity industry may choose to subsidise customers to switch to electricity, to increase its market share in the heating sector. Finally, households and businesses may increase uptake of electric heating systems driven by environmental concerns and other factors that induce switching (e.g. perceived risk of oil or LPG price rises relative to expected electricity running costs for heating systems, over time).

Figure 7.13 - Illustrative range of the cost of net zero measures in the heating sector



Note: The costs of net zero include both the present value of the costs of abatement, as well as the present value of the expenditure of offsetting the unabated emissions. Throughout all scenarios it is assumed that unabated emissions are being offset from 2030 onwards. All costs are presented in present value terms, discounted at 3.5%, as per the HM Treasury Green Book guidance. The assessment period covers the years 2019–50. The expenditure on offsets estimated using the base case forecast for the prices of ETS from National Grid.

The quantitative assessment for the net zero measures in the heating sector was conducted separately for domestic and commercial properties. The two subsections below describe the approach taken in the assessment.

Residential heating

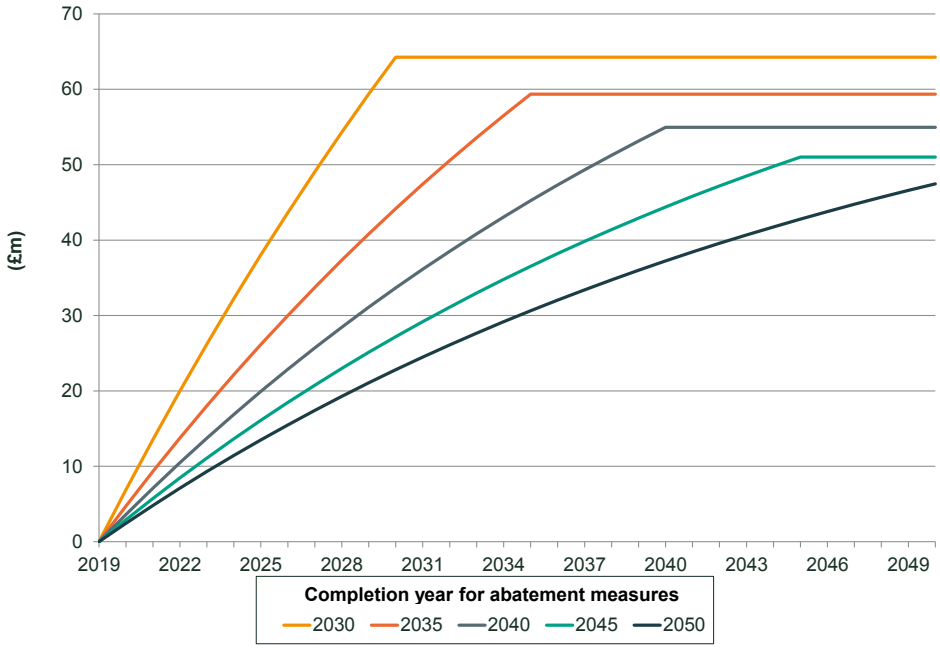
This scenario[45] assumes that:

- domestic properties in Jersey currently heated with oil and LPG will be retrofitted with air source heat pumps, electric boilers or a combination of smart panels and storage heaters; and that
- properties requiring insulation (depending on the type of property) are treated with one or more installations of loft insulation; cavity wall insulation; draught proofing; hot water cylinder insulation; and/or window upgrade.

[45] For more information on the modelling assumptions and data sources used to prepare the scenarios

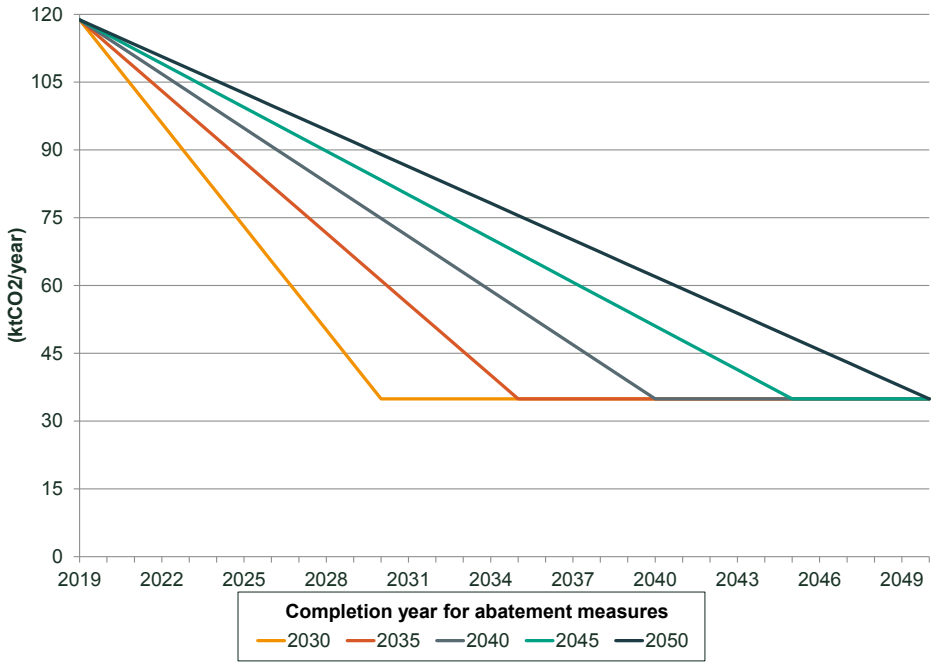
Figures 7.14 and 7.15 show the illustrative cumulative cost of emission abatement (no offsets included) in the domestic sector under different target years, and the associated emissions trajectory.

Figure 7.14 – Range of the costs of insulation and electrification upgrades in the domestic heating sector under different abatement timelines



Note: All costs are presented in present value terms, discounted at 3.5%, as per the HM Treasury Green Book guidance. The assessment period covers the years 2019–50. The expenditure presented in the figure above does not include the cost of offsets.

Figure 7.15 - Illustrative evolution of emissions in the domestic heating sector under different abatement timelines



Heating of commercial properties

Analysis of the heating of commercial properties was based on the total amount of energy consumed by industry and Government, as reported in the Jersey Energy Trends Report[46]. This approach was taken because the data limitations in relation to the distribution of size (and heating requirements) for commercial properties, do not permit for more granular modelling to be undertaken[47].

The scenario assumes that commercial properties relying on oil and LPG would be retrofitted with either an air source heat pump or with an electric boiler. Assuming half the energy requirement is to be served by heat pumps and the remaining half by electric boilers, it is then possible to derive the number of heating units required to service the energy presently consumed by commercial sector from fossil fuel sources. These estimates are presented in Table 7.15.

Table 7.15 - Total upgrades by technology type

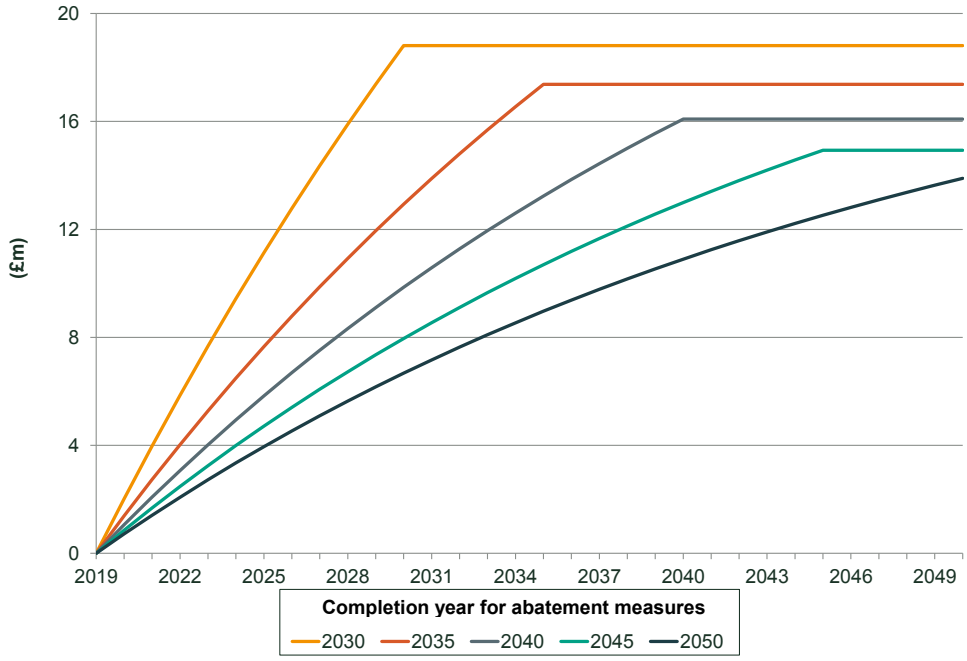
Currently used fuel	Total Upgrades Required	Air Source Heat Pumps	Electric Boilers
Oil	2,350	1,175	1,175
LPG	1,126	563	563

[46] Jersey Energy Trends, available at *https://www.gov.je/SiteCollectionDocuments/Government%20and%20administration/R%20Jersey%20Energy%20trends%202018%2020191128%20SJ.pdf*

[47] For more information on the modelling assumptions and data sources used to prepare the scenarios

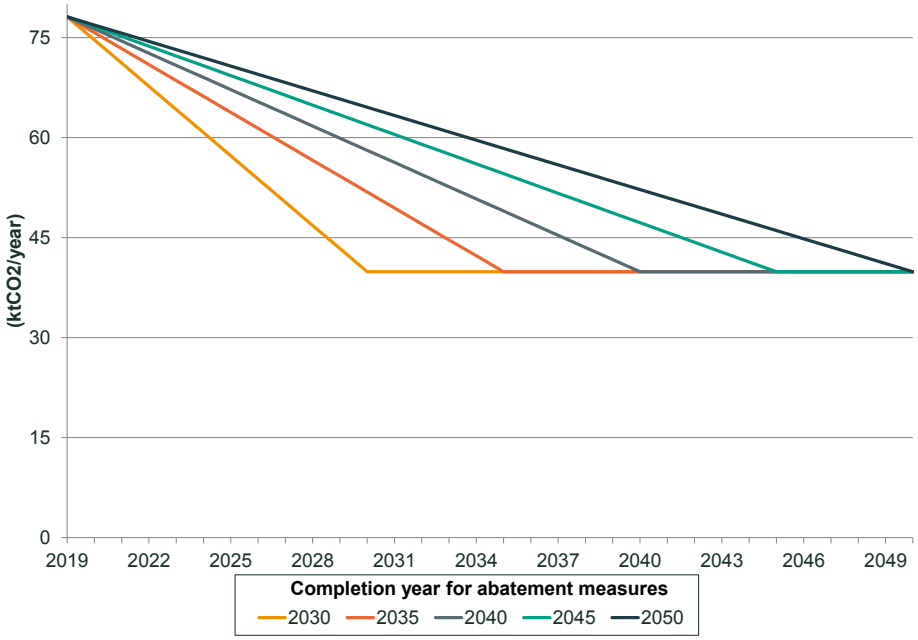
Figure 7.16 and 7.17 show the costs for the abatement of emissions (i.e. no cost of offsets is included) in the commercial heating sector under different target years for completion of the measures, and the associated emission paths. The trajectories of abatement costs and emissions are similar to those of domestic heating, in that the present value of abatement costs decreases if more time is taken to become carbon neutral, but this also leads to longer reliance on offsets and therefore exposure to likely increases in the price of offsets.

Figure 7.16 - Range of the costs of insulation and electrification upgrades in the commercial heating sector under different abatement timelines



Note: Due to lack of data of sufficient data granularity, it has not been feasible to estimate the costs requirements for insulation upgrades in the commercial property stock. To the extent that certain insulation upgrades would be necessary to switch to an electric heating system, the estimates presented in this table would underestimate the total costs of conversion. All costs are presented in present value terms, discounted at 3.5%, as per the HM Treasury Green Book guidance. The assessment period covers the years 2019–50. The expenditure presented in the figure above does not include the cost of offsets.

Figure 7.17 - Illustrative evolution of emissions in the commercial heating sector under different abatement timelines



5.6 Carbon offsetting

As recognised in Principle 2, the adoption and implementation of an ambitious set of carbon abatement policies will significantly reduce Jersey's carbon emissions but will not be sufficient to eliminate them completely. Regardless of how well these policies perform, there will remain some unavoidable activities for which carbon-free solutions have not yet been developed. To achieve its carbon neutral objective, Jersey will have to acquire emission allowances against its unavoidable emissions.

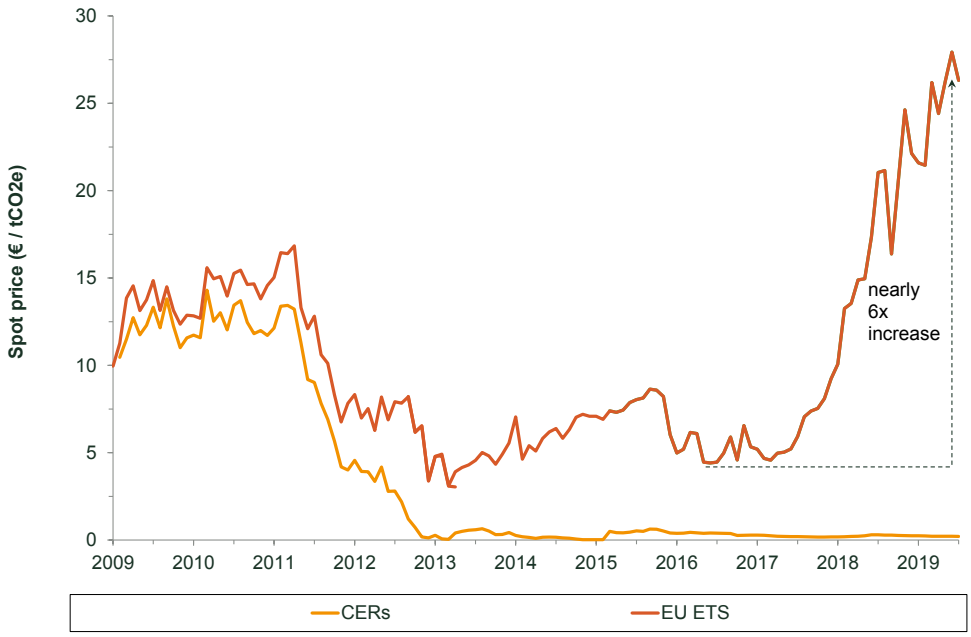
Accordingly, an analysis of the options for offsetting and emissions trading has been carried out in developing this strategy[48], including an analysis of the current and potential future cost of offsets. The Government has also been working closely with Jersey Overseas Aid and other local stakeholders to explore options and considerations in relation to offsetting.

Principle 3(b) commits that:

As a responsible and ambitious jurisdiction any offset arrangements that Jersey enters into will be of the highest recognised standards.

Analysis shows though that, even with established offsetting regimes operating to high standards, such as the EU Emissions Trading Scheme (EU ETS), prices for offsets vary significantly over time. Fig. 8 shows the prices for two certified emissions trading schemes over recent years.

Fig. 8 - Historical spot rates of emission allowances

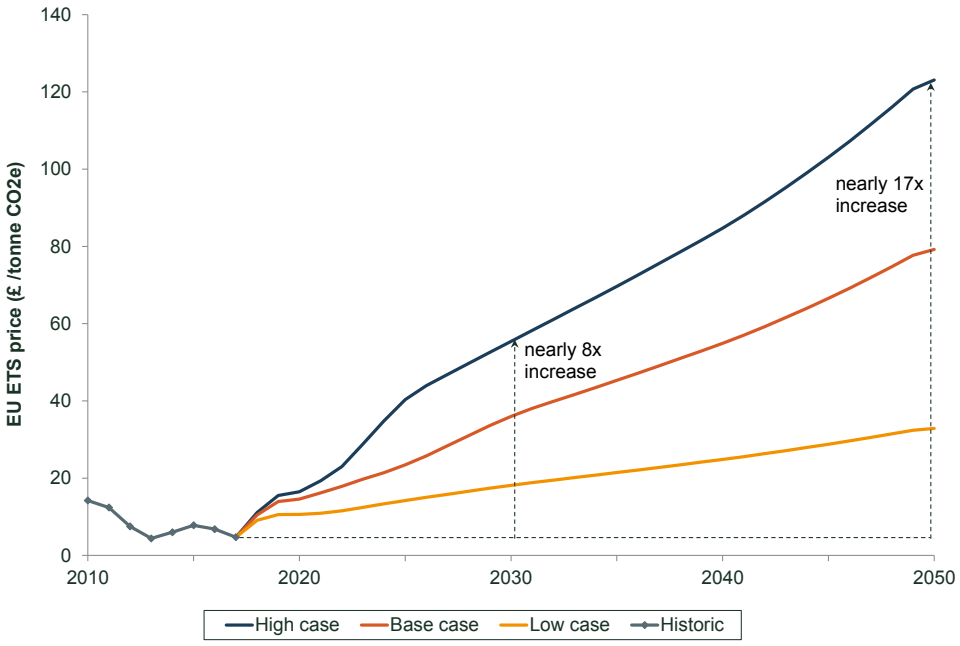


[48] gov.je/climatechange

The spot rate for EU ETS credits has undergone a six-fold increase from around 5 Euros/tonne of carbon equivalents in 2017 to nearer 30 Euros/tonne of carbon equivalents by early 2019.

Research also suggests that costs are likely to rise in the future. For example, Fig. 9 shows the UK National Grid forecasting scenarios for EU ETS spot prices. Costs are expected to increase under all scenarios, reflecting the expected increase in demand for certificates in light of widespread and increasing national and international commitments to carbon neutrality.

Fig. 9 – Forecasted EU ETS spot prices (UK National Grid)



The pricing of carbon allowances can vary significantly, depending on factors such as project type, cost, location, or type of transaction (for example, whether allowances are bought in bulk or smaller quantities). Costs are volatile and can be influenced significantly by geopolitical events.

Consideration is being given to how these risks might be managed through a proactive investment strategy, which will include exploring opportunities based on Jersey's world-class financial and legal skills, global reach and responsive governance.

If a programme of offsetting is coupled with robust emissions reductions policies (as required by Principle 3 of this strategy), the amount of carbon offsets required would decrease over time as we get progressively closer to zero on-Island emissions. Nevertheless, it is highly likely that offsetting will present significant recurrent annual costs from the date at which Jersey becomes carbon neutral. These considerations will be part of future investment plans, set out in both the long-term climate action plan and future Government Plans.

5.7 On-Island sequestration

A distinction can be made between global offsetting and the contribution that on-Island sequestration activities can make to achieving carbon neutrality. On-Island sequestration includes activities such as land use changes and tree and hedgerow planting, that increase the capacity of Jersey's natural environment to absorb carbon. Such activities typically also have strong positive impacts on biodiversity and help support both nature's recovery and wider social and economic objectives.

Sequestration activities are considered separately to offsetting as, in line with international reporting requirements, the net effect of sequestration is taken into account in establishing Jersey's scope 1 emissions baseline.

Investment in local sequestration projects does have an important role to play in achieving carbon neutrality, and in many cases will present better value for money (and hence should be considered before) investment in other carbon reduction and offsetting policies and programmes.

It is important to recognise though that Jersey's small geographical size limits the potential for on-Island sequestration at scale. Initial analysis suggests that even extensive reforestation of the Island would only achieve a net reduction of around 1% of our current scope 1 emissions.

5.8 Policy conclusions and considerations

The research and analysis set out in the previous sections leads to a number of conclusions that will frame further consideration of our route to carbon neutrality.

Significance of electrification

Broadly, the research presented here suggests that any quantifiable and viable route to carbon neutrality by 2030, regardless of the intended balance between emissions and offsets at that date, will require the rapid electrification of a large proportion of road transport and space heating in Jersey.

This does not exclude other important policies or actions that will need to be pursued in other sectors of our economy, at other times as technologies develop, and in respect of scope 2 and 3 emissions. It is simply to recognise that there is no path to carbon neutrality that does not start by tackling these issues. In turn, this will change the scale and nature of our reliance on electricity and make the future governance, management and development of our electricity infrastructure an issue of critical significance.

Costs and benefits of carbon neutrality

This strategy does not seek to cost carbon neutrality for Jersey because it does not specify a pathway to it. Nevertheless, it clearly shows the following:

- any early transition to carbon neutrality to an ambitious timescale will incur significant costs;
- the range of potential costs is broad and depends greatly on the nature of the policies adopted, and the timescales over which policies are implemented;
- the costs of policies adopted in comparable jurisdictions are far less than the social cost of carbon associated with not acting.

The policies quantified above show it could cost around £200-240m, under reasonably conservative assumptions, to reach net zero in heating and road transport by 2030.

If no abatements were made, the social cost of carbon produced by road transport and the heating sectors could be as high as £600m[49].

Assuming that the emissions are gradually abated over time, as illustrated in figures 7.6 and 7.11, the value of the social benefit achieved over the course of 2019–50 could be in the range of £230–310m, as shown in figures 7.3 and 7.9.

It is important to note though that these direct costs and benefits are only part of the equation. A range of other benefits might be considered, such as reputational or wider economic benefits to Jersey from delivering net zero to an ambitious timescale. Similarly, additional externalities and costs, such as those associated with upgrading infrastructure or developing and attracting the skills necessary to retrofit heating systems in a near-term timeframe, have not been identified or quantified at this stage.

Incremental and iterative design of policies

[49] Under the latest statistics on emission, provided by Aether, the emissions from road transport, business and commercial sectors (the latter two of which, largely produce emissions through the process of heating) amount to 118, 56 and 80 ktCO2e respectively. The present value of social costs of such emissions over the period of 2019–2050 amounts to £602.7m using the input of non-traded carbon prices and applying a discount rate of 3.5%, as featured in the HM Treasury Green Book and its Supplemental Guidance. See: *https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/685903/The_Green_Book.pdf* and *https://www.gov.uk/government/publications/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal*

A final conclusion is simply the complexity of policy design for carbon neutrality. There are a very wide range of options that might be pursued in areas such as investment in energy infrastructure; consideration of fiscal incentives and disincentives; new legislation or regulation relating to buildings, transport or use of our natural, built and marine environments; education and information campaigns; and coordinated action internationally and with our peers and neighbours.

Whilst the temptation to seek simple solutions is natural, it is important to recognise that in agreeing policies we are choosing the tools to create a better future. We can't know exactly how they will work, particularly given the complex interplay between carbon neutral policies and with other public policy priorities, and the need to ensure the transition to carbon neutral is socially, technologically and economically – as well as environmentally – sustainable.

In this context, and particularly in a small jurisdiction where government resources are constrained, it will never be possible to map, count and analyse everything before agreeing a way forward. The best course of action will be to build our shared capability to choose policies based on the best available evidence at the time, to test and incrementally grow their application and, based on the learning that is gathered through these processes, to iteratively improve and extend them.

Delivering together in 2020

6 Delivering in 2020

The focus of this section is the definition of our carbon neutral challenge and to build the foundations for long-term action on climate change. This requires further development of our evidence base and a people-powered approach to shaping our pathway to a carbon neutral future.

But that does not mean there are not obvious and meaningful actions that we can all take to make a strong start in 2020; this includes action to decarbonise government and action that everyone can take to reduce their indirect (scope 3) emissions.

This section sets out a range of policy interventions, including new actions, steps to accelerate and strengthen existing actions, and work to continue to build the evidence base for the long-term climate action plan. Actions are summarised below and set out in more detail in the table at Appendix 4; a number of pieces of strategic work are also outlined in section seven. The resources for implementing new strong start policies were agreed in the Government Plan.

Alongside the targeted steps set out here, the first and most important action that we can all take is to contribute actively to the Island-wide debate about our future response to climate change. Securing the maximum input of voices, hopes and experiences is vital to build a firm and lasting foundation for the type of long-term change that is necessary to make a real difference to our shared future. Government cannot dictate change on this scale; nor should it.

6.1 Tackling the climate emergency in 2020

The proposals below build on a range of existing evidence and research, engagement with key stakeholders and a rapid review of the Pathway 2050 energy plan.

Strong foundations have been built through four years of existing carbon reduction policies and new relationships and networks have been established. These will continue to evolve with the adoption of the strategy and provide a basis for action.

Actions have been identified where they have good potential to deliver carbon savings in the short term and are likely to underpin future policies regardless of the pace and focus of our transition to carbon neutral.

This approach provides that we can continue to make progress on tackling carbon emissions in parallel with the further development of the evidence base and the people-powered process that will commence in 2020.

Tackling emissions from transport

We will kick start a transition to replace diesel with second generation biodiesel, as a low carbon transition fuel, across the Island. Working in partnership, the Government of Jersey will launch a programme to test and deploy biodiesel in the public bus fleet and suitable government vehicles. The project will be monitored closely and will be subject to independent evaluation and technical review.

A wide-ranging programme of measures that will support reduced emissions from transport, primarily through modal shift, is set out in the Sustainable Transport Policy.

This programme includes £1.55m of new investment in:

- **cycling and walking**
- **bus travel**
- **school travel**
- **transition to electric vehicles and other forms of eMobility, and**
- **workplace travel planning**

Existing incentives for electric vehicles will be retained, including subsidies on parking and Vehicle Emissions Duty for ultra-low emissions vehicles. As part of the STP commitment to work with businesses that rely on road transport. Ecoactive will continue to support them to reduce fuel use and transition to ultra-low emission fleet.

Tackling emissions from heating

A feasibility study for a Commercial Energy Audit (CEA) programme will be undertaken and actions implemented in 2020 to support reductions in target buildings in the commercial sector. It will

use the experience from the current home energy audit programme to suggest a training and verification process for Commercial Energy Audit assessors, subsidised audits and a range of other support services. If approved, CEA assessors will be trained and available before the end of 2020.

Measures to accelerate the existing suite of policies to tackle domestic emissions will also be put in place, including:

- **increasing the subsidy available for a Home Energy Audit;**
- **further strengthening construction standards; and**
- **supporting the development of skills and expertise so our construction industry can help lead our transition to a carbon neutral future.**

Ensuring resilience and adaptation of natural capital

A package of measures will be put in place to urgently strengthen environmental protection systems and processes in areas that are already impacted by, or help to tackle the effects of, climate change.

The investment will centre on strengthening protection in the following key areas:

- species and habitat protection;
- invasive and non-native species;
- marine environment research; and
- the climate emergency and the Island Plan

Energy generation

We will explore, through the Island Plan Review, options to provide a more enabling land-use policy framework to support renewable energy generation. This will include considering the implications the work, set out in section seven, to better understand the long-term objectives and requirements of the energy market in Jersey.

Eco active

Measures will be taken to strengthen and extend the eco active network, and to ensure it plays a strategic convening role at the heart of the carbon neutral strategy.

Building the evidence base

A range of technical studies and reports will be commissioned to ensure full transparency and awareness of all the issues and to support the citizens' assembly and detailed policy development.

6.2 Reducing carbon emissions from Government activity

Regardless of the pace and focus of our transition to a low carbon future, there will be significant implications for the operations government.

In line with other carbon emitting sectors, wide-ranging interventions will be required to transition to sustainable heating and cooling solutions in government buildings; to transition to a low-carbon fleet and sustainable travel policies; to ensure future investment and development decisions utilise and promote sustainable design and construction practices; and to understand and address indirect emissions and the practices that drive them.

Government already publish information on operational sustainability on an annual basis[50]. To ensure senior input and visibility of carbon neutrality, the Government's Senior Leadership Group, consisting of the top two tiers from across the public service, considered the Carbon Neutral Strategy, and the support that might be required to deliver it, in October.

There are four areas of challenge and of opportunity for decarbonising Government

- **Our people:** supporting people to travel more sustainably and volunteer in support of carbon neutral projects
- **Our buildings:** putting carbon reductions at the heart of our new public estates strategy
- **Our services:** ensuring emissions reductions in our partners and suppliers and delivering services that support the reduction of emissions across the Island
- **Our vehicles:** trialling biodiesel as a transition fuel, acquiring electric fleet where available and providing sustainable transport solutions to reduce mileage.

The Government's Public Estate Strategy, adopted at the end of 2019, will be central to reducing the carbon impact of government. It sets out a programme of activity to carry out condition surveys and assess energy management across the public estate. This is a rolling programme and will commence implementation in early 2020. The aligned office modernisation programme will explore the potential for electric heating in building refurbishment and specification.

Beyond our buildings, the government has a fleet of more than 600 vehicles specified for operational performance and use. Some of these, such as our ambulances, are individually specified for Jersey and cannot easily be replaced with electric vehicles. The proportion of the fleet that is suitable for transition to electric will be identified in 2020. A trial of biodiesel will take place in suitable vehicles in 2020 to assess its validity as a transition fuel in those vehicles where electric replacements are not viable. Government will also develop a workplace travel plan for employees, Ministers and States Assembly Members in 2020 that will help them make sustainable travel choices, reduce their personal carbon footprint and off-set necessary travel.

As a major purchaser of goods and services, the Government has significant procurement power that can be harnessed to influence the supply chain. The Chief Operating Office will review current procurement advice with a view to strengthening standards in contract specification and procurement contracts.

[50] *https://www.gov.je/government/planningperformance/budgetaccounts/pages/statesofjerseyaccounts.aspx*

With around 7000 employees, nearly 13% of the total Island labour force, the Government has enormous potential to influence behaviour at work and encourage employees to take good practise into their homes. The launch of Team Jersey and creation of a network of change champions provides a great way to communicate consistent messages throughout the organisation at a time of enormous change as departments settle into their new structures, and sometimes new operating locations.

Further analysis of the challenges and opportunities summarised here will be drawn into a coordinated, strategic approach across government, and a derailed plan will be developed to feed into the long-term climate action plan in 2020.

6.3 Reducing our wider carbon footprint

In line with the Principle 1 of the carbon neutral strategy, it is important to have a strategic focus on all emissions.

Our off-island emissions are the direct result of the manufacture and transport of the products, goods and services we consume. This includes the full life-cycle emissions from production to disposal, and emissions that arise internationally from the global reach of the island through our finance industry. These emissions are not counted in the Jersey emissions inventory but are driven by the choices and behaviours that each of us make daily and that, collectively, we make over time.

Our wider global impact cannot be ignored. Equally though, the bulk of public policy support – particularly in the coming years – will be required to focus on achieved measured carbon neutrality and meeting our international obligations to reduce direct on-island emissions. Despite this, there is still much that government, its partners, business and islanders can do to understand and reduce our indirect impact on carbon emissions produced elsewhere in the world and the long-term climate action plan will include policies to address Jersey's wider carbon footprint.

Whilst there are several ways to assess Jersey's wider environmental impact, the focus of this strategy is carbon reduction, and hence Scope 3 emissions.

Scope 3 emissions include all indirect emissions associated within the global value chain (GVC). The GVC typically describes the people and activities involved in the production of a good or service and its supply, distribution, and post-sales activities. This includes, for example, emissions from purchased goods and services, emissions from transportation and distribution of goods outside the jurisdiction boundaries and emissions associated with investments.

Category	Description	Example sources
Scope 3: Indirect emissions	All indirect emissions (not included in scope 2) that occur in the value chain of the reporting jurisdiction	Purchased goods and services Transportation and distribution of goods beyond the boundaries of the jurisdiction Processing and end-of-life of exported products Investments

Although Jersey cannot reduce all these emissions alone (as significant global cooperation and coordination are required), tackling the climate emergency will require ambitious action from individual behavioural change to deeper economic shifts.

6.3.1 Our individual actions

Individuals have an impact on the environment through their actions and choices including the products they buy, how they chose to travel and what they do with waste. The true impact of an individual goes beyond Scope 1 and Scope 2 emissions as this does not account for emissions from the production of imported goods. Reducing impact at the individual scale is strongly related to the choices individual's make and their behaviour and lifestyles. Many actions that an individual take may reduce greenhouse gas emissions but also have wider environmental benefits.

A range of tools can be useful in encouraging shifts in behaviour and encouraging personal action, these include personal action plans, pledges, carbon calculators and networking events. We will be work in partnership with Digital Jersey, education and voluntary sectors to consider the role such approches might play in the long-term climate action plan.

Islanders will be encouraged to collaborate and share their ideas on the participation platform to build a community of action.

Eco active will continue to run campaigns to raise awareness and encourage behaviour change, but the impact of these on our Scope 3 emissions is down to each Islander in terms of taking personal responsibility for their decision making and choices.

6.3.2 Our global economic reach

Scope 3 emissions are most commonly calculated on a company-by-company basis, as it is easier to align impact with accountability at this scale for example Jersey Electricity plc calculate their Scope three emissions and publish the information online[51].

The nature of Jersey's economy is a major driver of its global environmental impact. As an Island, importing and exporting sectors, including tourism, rely heavily on air and marine transport, where low-carbon technologies are still in the early stages of development.

Jersey is a well-established financial centre. The economic base is becoming increasingly diversified, with emerging niches in fintech, e-gaming and Cannabidiol products.

Given the prevalence of financial services, these activities dominate Jersey's global environmental impact (at the organisation scale). However, it is difficult to measure the global environmental impact of financial centres. Beyond direct emissions from their everyday operations, there is very little publicly available information regarding where their funds are invested, the process of allocating funds and what impact all of this could have on the environment.

> Many financial businesses are already acting to reduce their carbon emissions in a range of ways, and Jersey currently is well positioned on the Global Green Finance index, ranked 21st out of 64 finance centres[52].

Jersey Finance is working with leading on-Island businesses to explore how best to reduce and offset the carbon emissions from necessary flights. Several businesses are already well established in the green finance sector, and expansion of green finance products remains a key area of business development for many. At this stage, government will continue to provide a range of support through existing channels, including strategic support through Jersey Finance and support through eco active.

As a well-managed and transparent financial jurisdiction, Jersey Finance provide social impact investment guidance for companies based on the island. Jersey is positioning itself as a specialist in socially responsible investing (SRI) and impact investing[53]. The guidance makes it clear that the island will not host companies that invest or trade in illegal activities or those that are classified as high risk in terms of global reputational positioning. Whilst the guidance does not currently include activities that increase climate risk, further consideration will be given to a framework to monitor international progress in this area.

[51] https://www.jec.co.uk/about-us/responsibility/environment/
[52] https://www.zyen.com/publications/public-reports/global-green-finance-index-4/
[53] http://www.blglobal.co.uk/Features.aspx?id=green-finance-gathers-momentum

6.3.3 Our imports and exports

As recognised, the largest source of Scope 1 emissions in Jersey is transport. This includes emissions from cars, heavy goods vehicles and shipping vessels. There are also Scope 3 emissions from the transport such as emissions from international shipping and aviation; emissions from the production of cars or other vehicles made outside the Islands; and emissions from delivering and importing these vehicles into the Islands.

Thousands of tonnes of Jersey produce is exported around the world annually, including potatoes, milk, butter, plants and seafood[54]. Jersey businesses now export to globally, where high-quality dairy products are in demand. Products such as black butter reaches markets such as Germany and Japan. Our Scope 1 current inventory includes direct emissions from producing these products, such as agricultural emissions from producing milk from dairy cattle or fertiliser used to grow potatoes. However, in order for Jersey to reduce their global impact, it is important to understand the indirect emissions caused by exporting such goods.

These can include:

- emissions from fuel burned in shipping/aviation; and
- emissions from delivering the products once they have reached the country.

Eco active will continue to implement national campaigns to raise awareness of global impacts and Scope 3 emissions, and work with businesses to help them understand and seek to reduce their Scope 3 emissions.

The Government will also consider where it should use legal and regulatory menas to promote and, where necessary, require, the take up of lower carbon products, methods and services.

[54] *https://jerseyeveningpost.com/news/2015/07/25/food-for-thought-find-out-what-our-island-is-exporting/*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7 Governance and other considerations

7.1. Governance of the strategy

This strategy has wide-ranging implications across Jersey. Strong governance is required to oversee the delivery of identified policies, and of the range of participatory programmes that will run through 2020. Governance will also need to anchor and strategically align the many networks and groups that will need to work together.

Through the Energy Partnership[55], a range of key partners have – with Ministers – provided significant support to, and oversight of, delivery of the Pathway 2050 Energy Plan. At this point, and in light of the strategic implications of the increased ambition for carbon neutrality, and the open and participatory approach taken to the carbon neutral strategy, it is right to consider the appropriate governance arrangements for the future.

A review of governance will be undertaken in early 2020 and arrangements for a new Carbon Neutral Alliance will be set out within the long-term climate action plan. Ministers on the Energy Executive will continue to provide political oversight of the development and delivery of this strategy during the interim period.

[55] *https://www.gov.je/environment/generateenergy/greenhouseemissions/jerseyenergyplan/pages/jerseyenergypartnership.aspx*

7.2 Financing the strategy

All long-term policies entail an investment by current generations in the interests of future generations. It is important that people in Jersey can see, and come to value, the significant social, environmental and economic benefits from becoming carbon neutral, and can acknowledge the legitimacy of their providing financial support to the cost of transition.

The policy analysis set out in this document suggests some initial indications of these costs, which are significant. These include:

- one-off costs, for example to replace hydro-carbon vehicles with ultra-low emission vehicles, to invest in our electricity infrastructure and to re-skill our workforce; and
- recurrent costs, such as the annual cost of offsetting residual emissions.

The scale of the costs associated with carbon neutrality depend greatly on the speed of the transition. The distribution of these costs is largely driven by public policy choices, and is a key matter for the citizens' assembly and for wider public debate.

In light of this, Part B of P.27/2019 was amended to ask the Minister for the Environment to carry out:

> ...an examination and assessment of more ambitious policies to accelerate carbon reduction. This will include an assessment of the use of fiscal levers to change behaviour and raise awareness

The Revenue Policy Development Board[56] will oversee the continuation of this work and provide recommendations regarding the development of revenue raising measures to support the transition to carbon neutrality. This work will be undertaken alongside the people-powered approach set out in this strategy.

The revenue Policy Development Board brings together Ministers, States Members and independent experts to consider, amongst other things:

- reviewing and proposing the long-term tax policy principles;
- reviewing and considering changes to the current structure and incidence of taxation, contributions and charges; and
- should the need for additional revenue raising be required to fund public services, policy options to materially increase revenues, having consideration for the long-term tax policy principles.

[56] *https://www.gov.je/government/policydevelopmentboards/pages/migrationpolicydevelopmentboard.aspx*

Economic instruments are policies that act as a means to consider external costs, such as costs to the public incurred during the production, exchange or transport of goods and services. Principles to guide the development of economic instruments to support delivery of the carbon neutral strategy will be developed by the Board in 2020, drawing on the following considerations:

- **carbon is a pollutant of primary interest – carbon should be the primary focus of the investigation into economic instruments;**
- **we should create virtuous circles - revenue from economic instruments should be re-invested in policies, projects and initiatives that enable positive behaviours that help to tackle the climate emergency;**
- **economic instruments are not merely revenue raising – as environmentally positive behaviour increases, revenue from the economic instrument may decrease. This will be accounted for in the design of any proposed measures;**
- **there will be a 'just' transition to carbon neutrality – any new proposed economic instruments should be as fair as possible, taking account of and mitigating the likely negative social impacts for example changes in energy prices;**
- **economic instruments will be more effective as part of a wider policy package – they should be employed together with additional levers such as regulations, subsidies or other policy instruments.**

Revenue to support the transition to carbon neutrality will be deposited in the Climate Emergency Fund. Government acted with pace to establish this fund. The Government Plan[57] sets out the governance of the Fund and allocates an initial £5.0m, plus on-going revenues from fuel duty, to support early delivery of policies and to build the evidence base for the long-term climate action plan.

[57] *https://www.gov.je/government/planningperformance/governmentplan/pages/governmentplan.aspx*

7.3 Understanding the long-term requirements of our energy market

In simple terms, what is apparent from this strategy is that accelerating our departure from the use of hydrocarbons, and significantly increasing the use of centrally generated electricity using existing infrastructure, is the only realistic, achievable and affordable route to carbon neutrality in Jersey by 2030.

Ultimately, our long-term climate action plan may pursue a pathway to carbon neutrality by a different date, following public deliberation and the scrutiny and decision of States Members. This in turn may allow for an alternative to an all-electric pathway in the coming years. Nevertheless, given rapid changes in technology, and the increased potential to democratise power generation, distribution and storage, there will be a need to accommodate changes to our energy system in the future.

It is important to recognise that our current electricity model has served the Island well, and provides an affordable, low carbon, reliable and secure product with strong investment and a good return to shareholders. This model may continue to be the right one for Jersey in the future.

At this stage though there is a need to consider the objectives and requirements of the energy market in Jersey over the long-term, and for government to draw some strategic conclusions. This work will be undertaken in 2020 and will encompass existing commitments, stemming from P.88/2017[58], to review the Electricity Law.

[58] *https://statesassembly.gov.je/Pages/Propositions.aspx?ref=P.88/2017&refurl=%2fPages%2fPropositions.aspx%3fdocumentref%3dP.88%2f2017*

8 Conclusions and next steps

Ministers' initial report on tackling the climate emergency began by stating:

The Council of Ministers has heard, and acknowledges, the strength of public feeling about climate change, and the Assembly's ambition that Jersey plays its part in addressing this fundamental challenge. While our contribution to worldwide emissions is small, we have a unique opportunity (as a small jurisdiction) to show global leadership and help chart the course to a more sustainable future.

This strategy sets the route map that will guide us to a shared journey on that sustainable future.

At its heart is a people-powered approach that recognises that change of this scale cannot be affected top down, but must be based on our collective efforts, sustained over the long-term.

Following scrutiny and consideration of this strategy by the States Assembly, a public input phase will begin, as set out in section four. If mandated a citizens' assembly will be called and sit between April and July, making recommendations that will shape a long-term climate action plan to be presented for public consultation, and scrutiny and debate in States Assembly by the end of 2020.

During this period, the Government will continue to push forward by implementing the range of actions set out in the delivery plan for 2020 (see Appendix 4).

Becoming carbon neutral will not be easy. There will be many that question whether it is achievable, and whether the challenges, costs and changes it will require can be accommodated.

The choice we face is not whether to make meet these challenges, address these costs and make these changes, it is when. There is real opportunity to become a leading carbon neutral jurisdiction. The opportunity to use our Island's agility and world-class acumen to set ourselves on a course not only to improve the social, environmental and economic situation of our Island, but also to show others what is possible through concerted effort and focus on a shared mission.

This is a strategy to make Jersey the first carbon neutral jurisdiction in the British Isles. If we choose this as the defining mission of our next decade we can show ourselves, our peers and future generations of Islanders the great things we can achieve when we all work together.


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Appendices

Appendix 1 – Principles to inform the carbon neutral strategy

Extract from the initial report on tackling the climate emergency

The Council of Ministers, on 24 May 2019, discussed a series of principles and agreed the following:

- the need to act quickly, both by refocusing and reframing existing work in the light of the new ambition, and by developing some new policies while more detailed policy development is underway;
- the importance of acknowledging the public strength of feeling about these issues, and the ambition of the assembly and, in doing so, the importance of striking a balance between seizing the opportunity for ambitious policy without undermining the past;
- the importance of bringing critical stakeholders on board, recognising that the climate emergency represents a whole-Island challenge to which government, business and the public will need to respond together; and
- a strong desire to explore opportunities to put individual citizen and community action at the heart of our response, creating the conditions in which bottom-up initiatives florish and islanders support each other to change their behaviours and adapt to lower carbon lifestyles.

Appendix 2 – Roles and responsibilities in the people-powered approach

Phase	Citizens and community groups	Businesses	Parishes	States Assembly and States Members	Scrutiny	Government	Citizens' assembly
Input	Contribute ideas locally, through parishes, or via Island-wide ideas website	Contribute ideas locally, through parishes, or via Island-wide ideas website	Convene and support local engagement; contribute ideas; support community action networksw	Champion the process; convene local engagement and contribute ideas	Scrutinise key issues	Administer and communicate the process, make resources available as necessary	
Recommend	Stratified random group of citizens take part in the citizens, assembly; community groups observe, comment and discuss; contribute expertise at the assembly's request	Observe, comment and discuss; contribute expertise at the citizens' assembly's request	Observe, comment and discuss; contribute expertise at the assembly's request	Champion the process; observe, comment and discuss; contribute expertise at the assembly's request	Scrutinise the development and delivery of the citizens' assembly	Communicate and champion the process; observe, comment and discuss; contribute expertise at the assembly's request	Listen to evidence, deliberate and make recommendations.

Decide				Receive and consider the report of the citizens' assembly; scrutinise government	scrutinise key issues	Receive and consider the report of the citizens' assembly; respond to recommen-dations; propose a long-term climate action plan
Agree	Consider proposed long-term climate action plan and contribute to formal consultation	Consider proposed long-term climate action plan and contribute to formal consultation	Consider pro-posed long-term climate action plan and contrib-ute to formal consultation	Contribute to consulta-tion; debate and agree a proposition to adopt the final long-term climate action plan	scrutinising the long-term climate action plan	Administer the consulta-tion; reflect comments in final car-bon neutral strategy and lodge with the States Assembly
Perform	Collaborative delivery of parish and Island-wide action plans			Collaborative delivery of action plans; scrutiny of government; debate and agree further propositions as necessary	scrutinise delivery	Collaborative delivery of action plans; further policy development as necessary

Appendix 3 – Mandate for a carbon neutral citizens' assembly

Purpose of the citizens' assembly

i. The Assembly of the States of Jersey mandates the calling of a citizens' assembly as an exercise in deliberative democracy, to consider "How should we work together to become carbon neutral?" to make such recommendations as it sees fit and to report to the States Assembly and Government. In particular, the citizens' assembly should consider:

- the implications and trade offs of a range of scenarios for achieving carbon neutrality; and
- how a full transition to zero (or almost zero) emissions in key sectors might be achieved.

How the citizens' assembly will be constituted

ii. The citizens' assembly is constituted only to consider the matters set out at (i) above

iii. Membership of the citizens' assembly will consist of:

- a chairperson to be appointed by the Government; and
- at least 49 citizens, randomly selected to be broadly representative of Jersey society.

iv. The citizens' assembly will make a report with recommendations on the matter set out at (i) above. The report will be published and sent to all States Members.

v. The Council of Ministers, on receipt of the report, will make the necessary arrangements to ensure that:

- an in-committee debate is held in the States Assembly to give initial consideration to the report of the citizens' assembly;
- the recommendations of the citizens' assembly are considered as part of the development of a long-term climate action plan for Jersey; and
- the Government will publish a response to the citizens' assembly that sets out:
  - which recommendations are accepted and how these will be implemented, including an indicative timescale;
  - which recommendations the Government does not propose to implement, in which case a clear and reasoned justification will be given.

vi. An expert advisory group will be established to assist the work of the citizens' assembly in terms of preparing information and advice.

vii. A clerk to the citizens' assembly will be appointed by the Office of the States Greffe. The clerk will:

- prepare a draft report based on citizens' assembly's deliberations ; and
- make all necessary arrangements to ensure the smooth functioning of the citizens' assembly.

Protocols of the citizen's assembly

viii. The citizens' assembly will agree its own rules of procedure for the effective conduct of its business in as economical a manner as possible.

Appendix 4 – Strong start: delivery plan 2020

Emissions from transport	
Sustainable Transport Policy	£1.55m programme of investment in 2020 as set out in the sustainable transport policy. Includes measures to improve: • cycling and walking • bus travel • school travel • transition to electric vehicles and other forms of eMobility, and • workplace travel planning
Reducing emissions from diesel vehicles	Government will to work in partnership to carry out technical assessment of performance of biodiesel and economic implications for it as a replacement fuel for diesel. Government will to carry out a trial on a sample of fleet road vehicles in 2020, to monitor and analyse performance closely. If viable, biofuel will replace diesel until these vehicles are replaced with a low emission alternative.
Supporting businesses	Government will work with Jersey Finance and other partners to research the offset market and consider options for developing a local scheme. Provide information for businesses on offset options and existing airline programmes. Eco active support to businesses to consider travel in their action plans and reduce unnecessary trips.

Emissions from heating	
Commercial energy audits	Investigate feasibility and, if appropriate, develop a commercial energy audits (CEAs) programme with attached subsidy to encourage take up. If approved, CEA assessors to be trained and available before the end of 2020.
Incentives for electric heating	Review range of fiscal incentives that might be appropriate for enabling householders and landlords to switch to electric heating system, including consideration of how future building bye-laws could be applied.
Accelerate the transition to electric heating systems	The Home Energy Audits (HEAs) programme will be accelerated. The current level of subsidy will be reviewed and revised to encourage take up. This will be a preparatory action for the agreed outcomes in relation to accelerating electrification of heating systems. This will be supported by a proactive marketing and communications programme.
Making good choices	Eco active will work with a range of partners to provide advice and information for householders in all types of accommodation in relation to positive environmental behaviour and carbon reduction.
Rented properties	Minimum rental standards were introduced with the Public Health and Safety (Rented Dwellings) (Jersey) Law 2018 as a way of deciding if housing conditions of domestic rental premises (11k properties) were satisfactory. Once current standards are met, look to expand the criteria to incorporate energy efficiency, and by extension energy affordability of rental properties.
Ensuring resilience and adaptation of natural capital	
Species and habitat protection	Extend protection of species and habitats, including trees. Better enforcement of building permits to protect biodiversity.
Invasive non-native species	Additional support to control the spread and establishment of a range of invasive and non-native species (INNS) including Asian hornets, sea squirts and Japanese knotweed.
Marine environment research	Scientific research in the marine environment. This is an area of local and international focus on the ‘blue economy’; ‘blue carbon’; species protection; marine plastics; fisheries management and fisheries agreements (in particular during and beyond Brexit).

Climate emergency and the Island Plan	Additional support to ensure the Island Plan is fully responsive to the climate emergency in key areas, including an enhanced sustainability appraisal and key technical studies.
Support sequestration	Investigate the most efficient ways to further increase on-island sequestration through a range of planting schemes. This workstream will have implications for how we manage public land, and open spaces and how Government work with other local land owners.
Agricultural emissions	Work with agriculture businesses in receipt of Government support to comply with the strengthened LEAF standard and produce an Energy Action Plan.
Energy generation	
Policy framework for renewable energy	Through the Island Plan Review, consider and update the land-use policy framework for on-island and off-shore renewable energy generation, including considering revisions to the General Development Order.
Utility scale off-island renewable energy	Continue to work with the other channel islands through the Channel Islands Marine Renewable Energy Group (CIMREG) and British Irish Council energy work stream to develop the necessary framework for offshore utility scale renewable energy projects.
Eco active	
Strengthen the reach and carbon neutral focus of eco active	Provide additional strategic and operational support to the eco active programme to review and extend carbon neutral priorities. Ensure resource is in place to lead the input and delivery phases of the people powered approach. Further develop and strengthen networks with businesses, schools, parishes, community groups, young people and others.
Support for Government partners	Eco active will work with government owned enterprises and arms-length organisations to support them in developing carbon reduction plans. This will include a standard toolkit and programme of events and training.

UN climate change support for schools	The eco schools programme will continue to support schools to utilise teacher training through the UN climate change programme, with an objective for all schools to have at least one accredited teacher.
Information and innovation	Eco active will continue to work with Digital Jersey and other key partners to explore the opportunities to develop use innovative digital solutions to help people understand and act on climate change, especially harnessing the passion and enthusiasm of young people.
Personal action plans	Eco active will develop guidance on personal action planning and continue to provide public information, advice and guidance to support people to reduce their climate impact.
On-Island sequestration	Continue to work in partnership with Jersey Trees for Life to plant 7,000 trees, including support for the first 5 years of maintenance.
Building the evidence base	
Energy market: objectives and requirement study	A study to understand the implications of carbon neutrality and rapid technology change on the energy market, and to consider Jersey's objectives and requirements over the long-term.
Long-term climate action plan viability	Work will be required to quantify and cost the policies necessary to implement the long-term climate action plan.
Economic instruments options	Review a range of economic instruments in line with strategic tax policy and implications for forecasting and future fiscal policy.
Skills assessment	A high-level review to understand skills required to implement accelerated carbon reduction policies.

Decarbonising government	
Reducing emissions from heating of Government buildings	A plan to decarbonise Government will be adopted by the end 2020. Energy use and associated emissions will be monitored and EPCs generated for each building. Additional analysis of Government energy use will be undertaken to allow for identification of potential efficiency improvements.
Manage Government emissions	Develop a carbon neutral plan for the Government including adoption of UK Greening Government targets with aim of verification to appropriate carbon management standard. Integrate into corporate procurement strategy and chief operating office specifications and management plan. Supported by communications programme working with the Team Jersey leads.
Reporting of Government emissions and performance	Publish energy and carbon emissions as part of the revised corporate performance framework
Reducing emissions from Government vehicles	Increase the number of electric vehicles operating in the Government fleet. The principle of electric by default to be followed where a suitable electric option is available for operational requirements. Government House will upgrade their current Daimler (4.2L) from unleaded fuel to an electric system in 2020.

Designed by the Government Communications

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