P.2020/127

THE STATES OF DELIBERATION

of the

ISLAND OF GUERNSEY

COMMITTEE FOR THE ENVIRONMENT & INFRASTRUCTURE

MITIGATE CLIMATE CHANGE – STATES OF GUERNSEY CLIMATE CHANGE POLICY & ACTION PLAN

The States are asked to decide:

Whether, after consideration of the Policy Letter titled 'Mitigate Climate Change – States of Guernsey Climate Change Policy & Action Plan', they are of the opinion:

1. To agree:

   a) to legislate for a target of net zero emissions (or carbon neutrality) in relation to greenhouse gas emissions to the atmosphere by 2050, and an interim target of reducing such emissions by 57% on 1990 levels by 2030, and

   b) to impose a legal requirement for annual statements, by the Committee *for the* Environment & Infrastructure, for all emissions for Scope 1 (all direct on-island emissions), Scope 2 (all imported electricity emissions), and Scope 3 (emissions relating to exported waste and off-island travel and cruise ships) with effect from the end of 2021,

   as set out in paragraphs 2.5 and 7.3.8 of the policy letter.

2. To approve the definition of net zero (or carbon neutrality) set out in paragraph 7.2.4 of the policy letter, encompassing Scope 1 emissions (all direct on-island emissions), Scope 2 emissions (all imported electricity emissions) and Scope 3 emissions (emissions relating to exported waste and off-island travel and cruise ships) for the purposes of the targets referred to in Proposition 1.

3. To approve the Climate Change Action Plan, as set out in Appendix A to the policy letter and summarised in section 10 of the policy letter, including the actions contained within that Plan, and to direct the Policy & Resources Committee to incorporate those actions, and any future or amended actions, into the recovery action plans to be developed under the Recovery Strategy, and into any future subsequent strategies and/or plans.

4. To direct the Committee *for the* Environment and Infrastructure to bring a review and update of the Climate Change Action Plan to the States at least once every 2 years, as set out in paragraph 10.1 of the policy letter.

5. To approve the approach to climate emissions set out in the emissions hierarchy in paragraph 7.4 of the policy letter, prioritising steps in the following order: avoid, reduce, replace, offset.

6. To direct the Committee *for the* Environment & Infrastructure:

   a) to prioritise opportunities to increase local carbon sequestration (the removal and storage of carbon from the atmosphere) in both the terrestrial and marine environments, and

   b) to consider opportunities for off-island offsetting, including off-island sequestration,

   as set out in paragraphs 7.5.8 and 7.5.15 of the policy letter.

7. To direct the Committee *for the* Environment & Infrastructure to ensure that any carbon offsetting arrangements that Guernsey enters into will meet internationally recognised standards as outlined in paragraph 7.5 of the policy letter.

8. To note that Guernsey's Strategy for Nature Action Plan, attached at Appendix C to the policy letter, and the Climate Change Action Plan are aligned so as to ensure a coordinated approach to nature, climate change mitigation and adaptation.

9. To direct the Committee *for* Economic Development to investigate and appraise economic opportunities that will or could arise from transitioning to a low carbon economy and will or could support sustainable economic recovery in line with the Recovery Strategy.

10. To direct the Overseas Aid & Development Commission, in consultation with the Committee *for the* Environment & Infrastructure, to prepare and publish climate change guidelines which set out how international development projects can contribute towards Guernsey's carbon offsetting goals, in accordance with paragraph 7.5.11 of this policy letter, and which integrate the principles of the Climate Change Policy with the work of the Commission.

11. To direct the Committee *for the* Environment & Infrastructure:

   (a) to investigate the necessary steps to establish an independent advisory body to provide advice to government and others on climate change matters, and:

   (b) to report back to the States on those necessary steps and the timeline to achieve the same by the end of 2021,

   as set out in section 8 of the policy letter.

12. To direct the Committee *for the* Environment & Infrastructure to investigate by the end of 2021 the feasibility of establishing a form of Citizens' Assembly,

as set out in section 9 of the policy letter, to support the Climate Change Action Plan.

13. To direct the Committee *for the* Environment & Infrastructure to bring a policy letter to the States of Deliberation before the end of 2021, which sets out proposals to adapt the Island to the effects of climate change as set out in section 6 of the policy letter.

14. To direct the Committee *for the* Environment & Infrastructure to bring proposals for the more effective delivery of the Integrated Transport Strategy to the States by the end of 2021, and in so doing to have particular regard to the reduction of Scope 1 emissions, as outlined in paragraph 4.13.6 of the policy letter.

15. To agree that Guernsey's policy on the importation and sale of internal combustion engine vehicles (ICEVs) is aligned with that of the United Kingdom so that a legally binding phase out of the sale of ICEVs is required by 2035 (or earlier if the date is brought forward in the United Kingdom) as set out in paragraph 10.13.1 of the policy letter.

16. To direct the Committee *for the* Environment & Infrastructure to investigate and necessary steps that would allow for the importation of only the latest Euro standard vehicles to the Island, with certain permitted exceptions, and to bring proposals to the States by the end of 2021.

17. To direct the Committee *for the* Environment & Infrastructure and the Policy & Resources Committee to investigate any necessary steps required to comply with the obligations on parties under the Paris Agreement, as outlined in paragraph 3.8.4 of the policy letter, including any technical, administrative or legislative steps necessary in order to be able to work towards requesting extension of the UK's ratification of the Paris Agreement to Guernsey (and to consult with Alderney and Sark regarding extension to the Bailiwick, as undertaken previously for international agreements), and to give delegated authority to the Committee *for the* Environment & Infrastructure and the Policy & Resources Committee to take the necessary steps to extend accordingly.

18. To direct the Committee *for the* Environment & Infrastructure to ensure that Climate Change Policy and the Climate Change Action Plan, and any revision or replacement of that Policy or Action Plan, remains aligned with the commitments of the Global Island Partnership (GLISPA) on sustainability and biodiversity, and to work towards becoming an active member of GLIPSA as outlined in paragraphs 8.10 and 8.11 of the policy letter.

19. To direct the preparation of such legislation as may be necessary to give effect to the above decisions.

The above Propositions have been submitted to Her Majesty's Procureur for advice on any legal or constitutional implications in accordance with Rule 4(1) of the Rules of Procedure of the States of Deliberation and their Committees.

THE STATES OF DELIBERATION

of the

ISLAND OF GUERNSEY

COMMITTEE FOR THE ENVIRONMENT & INFRASTRUCTURE

MITIGATE CLIMATE CHANGE – STATES OF GUERNSEY CLIMATE CHANGE POLICY & ACTION PLAN

The Presiding Officer

States of Guernsey

Royal Court

St Peter Port

Guernsey

29 June, 2020

Dear Sir

1 EXECUTIVE SUMMARY

1.1 The strategic aim of the States of Guernsey's COVID-19 pandemic Recovery Strategy is to achieve revival, renewal and resilience in health and care, the economy and the community in order to thrive. The States of Guernsey recovery action plans will be integrated to improve sustainability for Islanders now and into the future. A recovery planning principle is to mitigate and/or compensate for climate change impact, to safeguard our environment and to support community and economic well-being.

1.2 The Sustainable Development Goals (SDGs), adopted by all United Nations Member States in 2015, are already an accessible blueprint and a global guide for local government strategic and action planning to enable people and the environment to thrive now and in the future. The SDGs (one of which is Climate Action) draw together the interconnectedness of economic, health care and community improvement and the protection of the environment. The SDGs are the 'golden thread' for the States of Guernsey to thrive. The 2010 Marmot Review, 'Fair Society, Healthy Lives', labelled climate change as a fundamental threat to health and stated that mitigating climate change can also help to mitigate health inequalities. Access for all to clean air with reduced emissions is an important indicator of a fair and equal community, along with equity of access to shelter and safety from heat and extreme

weather. Heat waves and extreme cold weather caused by climate change will affect all Islanders. This can affect homes, finances and social circumstances. Some people in our community will be more vulnerable to the impact of climate change than others, and we must therefore safeguard our whole community to ensure resilience.

1.3 Viewed through the lens of the Recovery Strategy this Climate Change Policy actively contributes to a sustainable economy, community and health and care recovery plan. The recently agreed Energy Policy was developed with the Climate Change Policy and acts as an enabling policy for a 'sustainable economy supporting environmental and social sustainability'. This lays the foundations from which to 'improve population health outcomes through addressing the social [climate change and emissions related] determinants of health. Further, the policy proposes a form of Citizens' Assembly 'ensuring [climate change related] recovery is inclusive, just and proportionate to need'.

1.4 The world is now a little more than 1°C warmer than the pre-industrial baseline. Global warming is likely to reach a 1.5°C increase on the pre-industrial baseline between 2030 and 2052 if the increase continues at the current rate, leading to further sea level rise, which will pose a proportionally greater threat to coastal communities and land lying below sea level. The world is already seeing the consequences of that warming through more extreme weather, rising sea levels and diminishing Arctic sea ice: 19 of the hottest 20 years on record have occurred since 2001, the exception being 1998.

1.5 Guernsey is already experiencing the impacts of climate change through localised sea level rise around the Channel Islands and more extreme weather – including more intense rainfall, stronger storms, greater frequency of storm damage, flooding, hotter summers, and milder winters – among other effects, such as increasing numbers of invasive non-native species. Each of the last six years have been warmer than average.

1.6 The scientific consensus on climate change is clear and robust, as is the need to mitigate it.

> "*Biodiversity loss and climate change are considered the biggest threats to the planet and society. So, what can governments and businesses do in response? The first step is to align their strategies with the UN Sustainable Development Goals, the world's greatest business plan. Second, they should adopt science-based targets to reduce their carbon emissions in line with the Paris Agreement. And third, they must embrace nature-based solutions to help preserve and mainstream our natural capital and biodiversity. Taken together, these actions can deliver truly meaningful change*." (United Nations Framework Convention on Climate Change, 2019)

"*Globally, natural capital accounting has valued the economic cost of biodiversity loss and ecosystem degradation due to climate change to be 7.5% of global GDP. This figure supports the important role that nature plays to the economy and society, from agriculture to wellbeing, and explains why the threat of a collapse of our natural environment due to the direct and indirect impacts of climate change has been cited by the World Economic Forum in the top three global risks to the economy in the coming decades*." (World Economic Forum, 2019).

1.7 Following on from the 2019 World Economic Forum report which had valued the economic cost of biodiversity loss and ecosystem degradation to be 7.5% of global GDP, the 2020 World Economic Forum report, produced in collaboration with PwC, has gone on to present new calculations which show that approximately 50% of global GDP is moderately or highly dependent upon nature and that many industries have significant "hidden dependencies" on nature in their supply chain and may be more at risk of disruption than expected. Of the industry groups identified, four are directly relevant to Guernsey: aviation, travel and tourism; real estate; supply chain and transport; and retail, consumer goods and lifestyle. The report concludes that there is potential for a win-win-win-win for nature, climate, people and the economy if the private sector and governments respond with urgency to protect and restore nature and to mainstream biodiversity into decision-making and national approaches to COVID-19 recovery.

1.8 The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Global Assessment Report on Biodiversity and Ecosystem Services highlights that climate change is the third largest driver of biodiversity change, behind land use change and direct exploitation, but it is an accelerating direct impact.

1.9 The Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC) was adopted in December 1997, committing countries to limit and reduce greenhouse gas emissions. The Doha Amendment to that Protocol, which added to those commitments, was then adopted in 2012 with a commitment period from 2013-2020, but has not yet entered into force. The Paris Agreement under the UNFCCC was signed in 2015, with countries that have ratified it agreeing that global average temperature increase should be limited to well below 2°C above pre-industrial levels by the middle of the century, preferably limiting warming to 1.5°C. The Agreement aims to enhance the implementation of the UNFCCC to strengthen the global response to climate change.

1.10 The UK's ratification of the United Nations Framework Convention on Climate Change and the Kyoto Protocol made under it were extended to Guernsey in 2006 and Guernsey has requested an extension of the UK's ratification of the Doha Amendment to the Kyoto Protocol. However, Guernsey has not yet

given detailed consideration to the extension of the Paris Agreement as the extension of the UK's ratification of the Doha Amendment is outstanding. Guernsey's Climate Change Policy is clearly aligned to the aims of the Paris Agreement, but it is important that the detail of the Agreement is explored prior to requesting an extension.

1.11 Guernsey has made relatively good progress in reducing greenhouse gas emissions, to date, by just under 29% compared with 1990 levels (a reduction that would have been around 35% had the electricity cable fault not occurred in 2018, highlighting the dependency on a single cable for the majority of Guernsey's greenhouse gas emissions reduction to date). However, these reductions still fall well short of the reductions scientists say are necessary to avert dangerous levels of warming. The Committee *for the* Environment & Infrastructure proposes that the States agree a target of carbon neutrality (also known as 'net zero') by 2050 at the latest. Achieving carbon neutrality will require some significant and co-ordinated changes from individuals, businesses and government. This target aligns to the Inter-Governmental Panel Climate Change report recommendations.

1.12 The transition to carbon neutrality should be informed and supported by relevant knowledge, evidence and expertise in climate change mitigation and adaptation. The States does not currently have sufficient resource to draw on for its own transitions to carbon neutrality or to support the business and community transition. Therefore the Committee *for the* Environment & Infrastructure will investigate the establishment of an advisory body.

1.13 Co-design, partnership and community engagement involvement will be an important aspect for the development and delivery of the policy objectives. Part of delivering this will be through the continued engagement with Islanders who wish to play their part, building on #GuernseyTogether, by participating in a form of independently facilitated Citizens' Assembly. The assembly will consider and make recommendations to the Committee *for the* Environment & Infrastructure and the States of Deliberation as well as the wider community on how the Island should work together to become carbon neutral and what actions the Island should take to avoid, reduce, replace and offset carbon emissions.

1.14 Using internationally recognised metrics, emissions can be accounted for as follows: Scope 1 – emissions from all activities that occur within Guernsey; Scope 2 – indirect emissions from the generation of purchased or acquired electricity in Guernsey; and Scope 3 – all other indirect emissions. By quantifying emissions in this way, Guernsey can responsibly work towards a target for carbon neutrality in a meaningful way that has a local and global impact.

1.15 Actions and initiatives to target the reduction of specific greenhouse gas emissions will follow an emissions hierarchy as set out by this policy letter: to avoid, reduce, replace and offset.

1.16 It is critical that the States of Deliberation legislates to establish the target of net zero emissions by 2050, and for the interim target of reducing emissions by 57% on 1990 levels by 2030 bringing the island into line with the UK, including a requirement for annual statements, prepared by the Committee *for the* Environment & Infrastructure, for all emissions for Scope 1, Scope 2 and Scope 3 (initially limited to waste management and off-island travel). This will demonstrate Guernsey's long-term and active commitment to meeting these targets.

1.17 It is important that the States of Guernsey's operational functions, service areas and strategic goals are aligned with this hierarchy, as well as the energy, waste and transport hierarchies (also outlined within this policy letter), and follow the emissions accounting principles in order for the Island to meet net zero targets. The Climate Change Action Plan should be adopted and implemented by the States of Guernsey as a whole. The Climate Change Action Plan is a document that will be continually reviewed and updated, with actions that can change, be added to or removed based on changing circumstances and progress.

1.18 The policy priorities to mitigate climate change are in the areas of energy (including the decarbonisation of supply), a transition to sustainable transport, waste management and minimisation, and the protection and enhancement of our natural ecosystems. There are also policy considerations linked to climate adaptation including the maintenance and improvement of our sea defences and flood mitigation.

1.19 Policies for energy, waste, and transport are aligned with the Climate Change Policy, through the hierarchies which support the minimisation of emissions. Other States strategies and plans, such as those relating to land use, are also aligned with the Climate Change Policy principles. This will allow for the Island to be well prepared and resourced to adapt to the effects of climate change in good time: a proactive approach will be more cost-effective and efficient than a reactive approach.

1.20 The Committee *for the* Environment & Infrastructure proposes aligning Guernsey's policy on phasing out internal combustion engine vehicles (ICEVs) with the United Kingdom. Similar policies are being introduced internationally and are accelerating the transition to lower carbon vehicles. Critically, in addition to supporting emissions reduction, aligning to the UK timetable removes the possibility of Guernsey becoming a 'graveyard' for petrol and diesel vehicles, as happened with asbestos.

1.21 Guernsey's natural environment has a vital role to play in climate change adaptation and mitigation. The Biodiversity Strategy for Guernsey has recently been redesigned as part of its five-year review. Guernsey's 2020 Strategy for Nature (included as Appendix C) includes high-level objectives and an action plan which acknowledges the intrinsic link between climate change and nature, and the role that our natural environment plays in climate change mitigation (e.g. healthy ecosystems sequester carbon dioxide from the atmosphere and store carbon) and adaptation (e.g. coastal defence and flood protection), and the need to embrace nature-based solutions (i.e. the conservation and restoration of habitats) to help preserve and mainstream our natural capital and biodiversity. The Committee *for the* Environment & Infrastructure has aligned the Climate Change Action Plan with the Strategy for Nature's five-year action plan to ensure the successful integration and delivery of these intrinsically linked priority policy areas.

1.22 Guernsey should work as partner with other jurisdictions and bodies to share and achieve best practice in relation to sustainability and biodiversity. This should include an active role working with the Global Island Partnership (GLISPA). This international network of island jurisdictions and communities has agreed a series of rolling commitments on sustainability and biodiversity. Guernsey should work towards ensuring that Guernsey's Climate Change Policy and Action Plan is aligned to the Global Island Partnership commitments.

2 INTRODUCTION

2.1 In June 2019 it was recognised by the States of Deliberation[1] that climate change had reached a critical point and that Guernsey must urgently address the climate and ecological crisis at both local and international levels. From this, the priority policy area 'Mitigate Climate Change' was introduced. This directed the Committee *for the* Environment & Infrastructure ("the Committee") to develop a Climate Change Policy and a 'Climate Change Action Plan' no later than May 2020.

2.2 It also recognised that, as well as addressing environmental issues, social and economic factors will be integral to this priority policy area, which may include:

- Local action to mitigate climate change and environmental degradation;
- Local policies to stimulate the 'green' and 'blue' economy and promote environmentally sustainable economic development;
- International action through overseas aid focused on climate resilience; and
- International action through our role as a green and sustainable finance centre.

[1] Billet d'État No IX, 28th June, 2019 https://gov.gg/CHttpHandler.ashx?id=119955&p=0

2.3 This policy letter discharges that resolution by setting out the primary actions required to mitigate and adapt to climate change. A recommended policy direction will be outlined within this policy letter, with a supporting 'Climate Change Action Plan' which, subject to the agreement of the States of Deliberation, will be the basis of consultation with the community, including through Guernsey's first Citizens' Assembly.

2.4 This policy letter also makes reference to two further resolutions relating to climate change from the June 2019 States meeting, namely:

> *"…that all Committees of the States of Deliberation ensure that, when delivering or overseeing the delivery of their operational functions, they reasonably assess, and where practicable address, the consequential impact on climate change of their actions*;" and
>
> *"…that all Committees of the States of Deliberation when laying policy letters before the Assembly should assess therein any consequential impact on climate change of their proposals together with, where appropriate, their adaptation and mitigation actions*."

2.5 In line with the 2020 Energy Policy, and with the steps being taken by other jurisdictions, the Committee is recommending that the States legislate for the agreed target of net zero carbon emissions by 2050 at the latest, or earlier if that proves possible through the implementation of the Action Plan. Further to this, and in line with the Energy policy, a commitment to reducing emissions by 57% on 1990 levels by 2030, which would bring the Island in to line with the UK policy as set out in the UKs fifth carbon budget[2], is also recommended.

2.6 The term 'net zero emissions' (or 'carbon neutrality') refers to reducing the total carbon dioxide equivalent (CO_2e) emissions for the Island's activities down to zero, allowing for offsetting of emissions to be included. It is the inclusion of offsetting emissions that differentiates 'net zero' from 'zero emissions': zero emissions requires the absence of any emissions being produced. Being carbon neutral is defined as balancing the emissions that are produced as a community with activities that absorb, capture or reduce global emissions so they are equal.

2.7 Not only does Guernsey contribute to global climate change but, as an island, it is already feeling the impacts of climate change. Sea levels in the Channel Islands are rising, and more unpredictable and intense weather patterns are occurring. Locally, each of the last six years have been warmer than average, and only four years since 2000 have been below the average temperature[3].

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[2] Advice on the fifth carbon budget - https://www.theccc.org.uk/publication/the-fifth-carbon-budget-the-next-step-towards-a-low-carbon-economy/

[3] Guernsey Met Office Annual Weather Reports - http://www.metoffice.gov.gg/annualwxreports.html

3 CONTEXT TO CLIMATE CHANGE

3.1 The need for urgent and meaningful action on climate change is widely recognised. As a mature and responsible jurisdiction, the pressing need to minimise our carbon emissions and reduce our environmental impact is clear. Guernsey has made relatively good progress to date, with the electricity cable link to France via Jersey reducing carbon emissions by around 29% compared to levels in 1990 according to the latest Greenhouse Gas Bulletin[4]. The reduction would have been around 35% were it not for the cable fault in 2018, meaning an unusually high proportion of electricity was generated on-island using hydrocarbon fuel for the duration of the cable fault. However, these reductions still fall well short of the reductions scientists say are necessary to avert dangerous levels of warming and of the internationally agreed aim to limit global warming to well under 2°C above pre-industrial levels by 2100.

3.2 The Island has also changed the way waste is processed from historical landfill to the exporting of waste for recycling and energy generation, with inert waste continuing to be dealt with on island. Whilst processing waste in this way still has associated emissions, incineration and energy generation produce lower carbon emissions than landfilling and the reduction in emissions from landfill will make a positive difference over time.

3.3 The world is now a little more than 1°C warmer[5] than the pre-industrial baseline (measured against 1880), as illustrated in Figure 1 below, and two thirds of this warming has taken place since 1975[6]. Global warming is likely to reach a 1.5°C increase on the pre-industrial baseline between 2030 and 2052 if the increase continues at the current rate, leading to further sea level rise, which will pose a proportionally greater threat to coastal communities and land lying below sea level. The world is already seeing the consequences of that warming through more extreme weather, rising sea levels and diminishing Arctic sea ice: 19 of the hottest 20 years on record have occurred since 2001, the exception being 1998[7].

[4] Guernsey Annual Greenhouse Gas Bulletin 2018 - https://gov.gg/CHttpHandler.ashx?id=123997&p=0
[5] https://www.giss.nasa.gov/research/news/20190523/
[6] https://earthobservatory.nasa.gov/world-of-change/global-temperatures
[7] https://climate.nasa.gov/vital-signs/global-temperature/

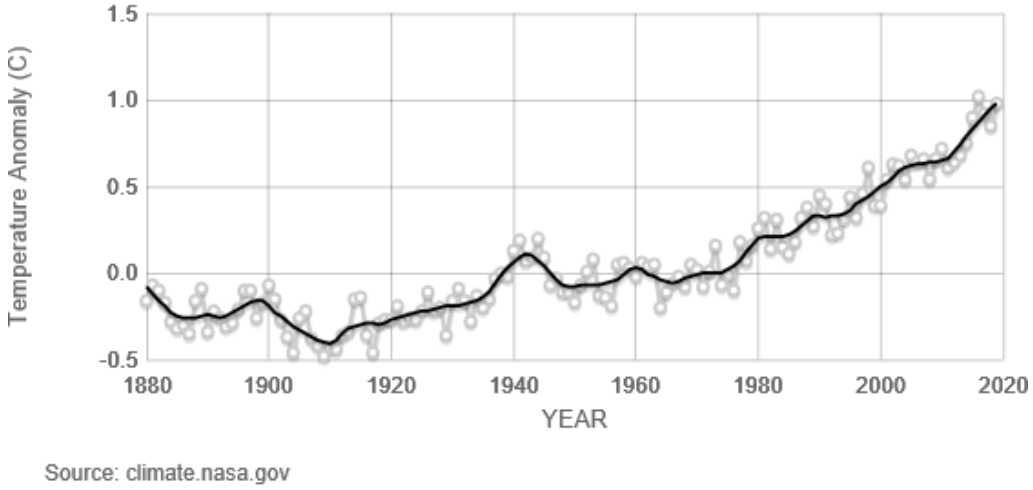

Fig. 1 – Global temperature compared to average since 1880 – NASA

3.4 Recent activism has included Greta Thunberg, Extinction Rebellion and Youth Action Climate Strikers who have all provided powerful voices to motivate governments, businesses and individuals to make meaningful, radical and immediate changes to avoid any further degrees of climate temperature increases.

3.5 International agreements began with the United Nations Framework Convention on Climate Change which came into force on 21st March 1994, and 197 countries, known as 'parties', have since ratified the Convention. The Convention followed the Montreal Protocol (1987) and bound member states to act in the interests of human safety even in the face of scientific uncertainty[8]. Treaties, called 'protocols' and 'agreements', were negotiated at an international level.

3.6 The delivery of worldwide decarbonisation will require global cooperation and coordination to deliver the ambitions and objectives of international agreements such as the Paris Agreement. The changes required in the provision of low carbon products is one that goes beyond the borders of individual countries and jurisdictions.

3.7 Scientific Context

3.7.1 The scientific consensus on climate change has been established through studies of scientists' opinions, position statements issued by scientific organisations, and synthesis reports. The 2016 paper titled 'Consensus on consensus: a synthesis of consensus estimates on human-caused global warming'[9] reviewed six independent studies and found that 90-100% of

[8] https://unfccc.int/topics/science/the-big-picture/science-in-the-negotiations

[9] Consensus on consensus: a synthesis of consensus estimates on human-caused global warming - https://iopscience.iop.org/article/10.1088/1748-9326/11/4/048002/pdf

publishing climate scientists agree that humans are causing recent global warming. This aligned to a 2013 report by Cook et al[10] which outlined that 97% of climate scientists, who formed a conclusion on the anthropogenic (human-caused) nature of global warming, agree that the earth's climate has warmed due to human activities (mainly greenhouse gas emissions). Furthermore, there is agreement that continuing emissions will increase the likelihood and severity of global effects, and that people and nations can act individually and collectively to slow the pace of global warming.

3.7.2 Research has also identified that studies which suggested lower levels of agreement on the anthropogenic nature of global warming conflated expert and non-expert opinions. Further, the research outlines that an accurate understanding of the scientific consensus is important for public climate literacy. Public perception of the scientific consensus has been found to be a gateway belief (a belief that allows or prevents acceptance of further evidence), affecting other climate beliefs and attitudes including policy support[111213]. Misinformation around climate change and manufactured doubt around the scientific consensus on climate change reduce climate literacy and acceptance of climate change and support for mitigation policies. It is therefore important that the States accept and communicate the overwhelming expert consensus on anthropogenic global warming.

3.7.3 There are four main types of greenhouse gas emissions; carbon dioxide (CO_2), methane, nitrous oxides and fluorinated gases (hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride). The majority of Guernsey's emissions are in the form of CO_2, the main source of these emissions being combustion of fossil fuels for power generation, transport and heating.

[10] Quantifying the consensus on anthropogenic global warming in the scientific literature - https://iopscience.iop.org/article/10.1088/1748-9326/8/2/024024/pdf

[11] Ding D, Maibach EW, Zhao X, Roser-Renouf Cand Leiserowitz A 2011 Support for climate policy and societal action are linked to perceptions about scientific agreement Nat. Clim. Chang. 1 462–6

[12] McCright AM, Dunlap R E and XiaoC2013 Perceived scientific agreement and support for government action on climate change in the USA Clim. Change 119 511–8

[13] van der Linden S L, Leiserowitz A A, Rosenthal SA, FeinbergGDand Maibach EW2016 Inoculating the public against misinformation about climate change, in preparation

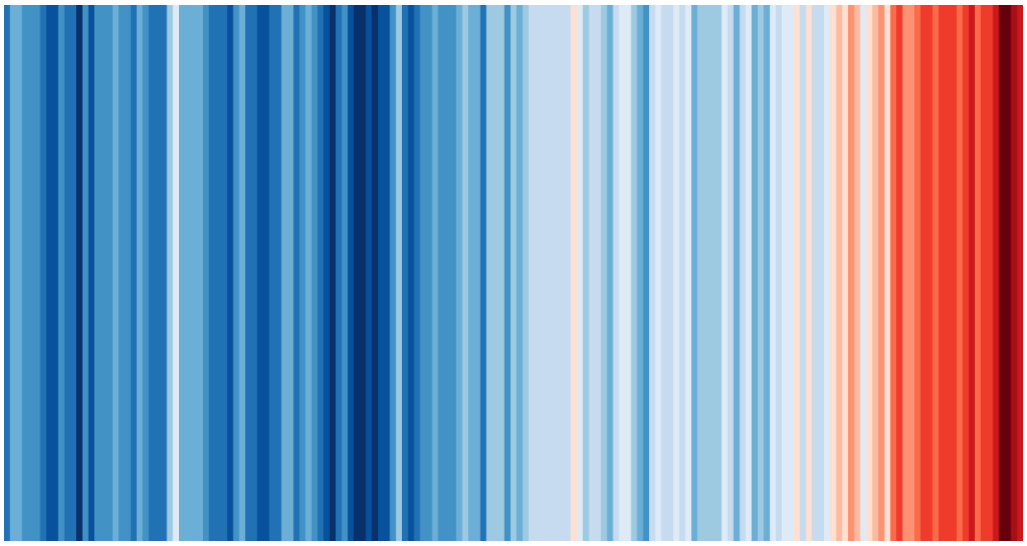

Fig. 2 – Global Change in Temperature 1850 – 2019[14]

3.7.4 The ‘warming stripe’ graphics in Figure 2 show the global change in temperature since industrialisation in the world based on robust data. Each stripe represents the temperature in the world averaged over a year. The stripes turn from mainly blue to mainly red in more recent years, illustrating the increasing rise in temperatures. The image simplifies the message that the world is heating up. The well-evidenced position that climate change is happening now calls for government, businesses and individuals to come together in order to transition to a sustainable future and a better future for all.

3.7.5 Further to this, Figure 3 (below) illustrates how the trend to increased temperatures is being distributed globally, with all countries and continents showing the warming trend between 1901 and 2018. Whilst Figure 3 provides a more granular depiction of the data, it also again clearly illustrates that the recorded levels of change of temperature (relative to the average) have been progressively increasing, from lower temperatures to higher temperatures, and that this is a consistent trend across the world.

[14] Data: Berkeley Earth, National Oceanic and Atmospheric Administration (NOAA), United Kingdom Meteorological Office (UK Met Office), Federal Office of Meteorology and Climatology (MeteoSwiss), The Deutscheur Wetterdienst (DWD, German Meteorological Service)

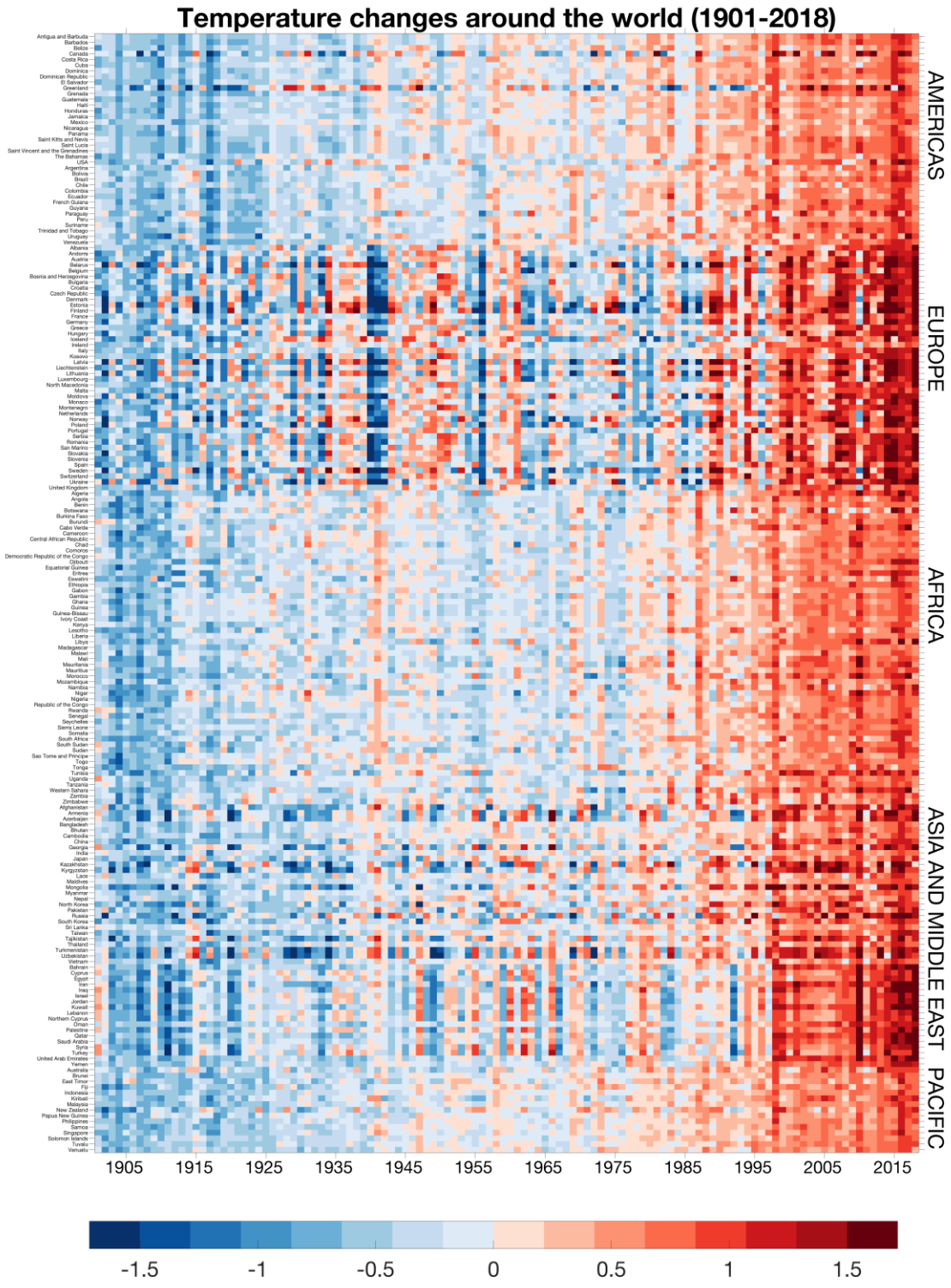

Fig. 3 – Temperature changes around the world (1901 – 2018)[15]

3.7.6 The world is now a little more than 1°C warmer than the pre-industrial baseline and the five years from 2015 to 2019 have been the warmest on

[15] http://www.climate-lab-book.ac.uk/2019/showyourstripes/

record. The world is already seeing the consequences of that warming through more extreme weather, rising sea levels and diminishing Arctic and Antarctic polar ice cover and retreating glaciers, among other effects. Many of the effects of climate change, such as species extinctions[16], are irreversible. In the summer of 1976 there was a local heat wave in Europe, while in the summer of 2018 there was a global heat wave. Extreme weather events such as the 2018 'Beast from the East' are predicted to recur with increased and devastating frequency.

3.7.7 Global warming is likely to reach a 1.5°C increase on the pre-industrial baseline between 2030 and 2052 if the increase continues at the current rate, leading to further sea level rise, which will pose an even greater threat to coastal communities and land lying below sea level. For Guernsey this would mean an increased risk of coastal flooding to the low lying areas in the north of the Island[17] as well as increasing incidences of tide-related inundation along the eastern and western frontages, including the Town seafront. This would provide additional threats of damage to homes, businesses and critical national infrastructure which would have significant economic and social impact.

3.7.8 At the global level, warmer climates could lead to certain areas experiencing drought and famine, with ensuing socio-political outcomes potentially including war and the displacement of local peoples leading to the movement of refugees. The increased frequency and violence of storms will likely lead to infrastructure damage, flooding and soil erosion, which will have a knock-on effect on agriculture. The Overseas Aid and Development Commission is already seeing, and responding to, climate-linked disasters, disease and displacement through its annual funding rounds and its emergency relief awards.

3.7.9 At the local level, sea levels in the Channel Islands are rising: satellite measurements show a rise of 1-2mm/year between 1993 and 2019. The 2012 Guernsey Coastal Defences Flood Defence Study outlined that, based on UKCP09 (United Kingdom Climate Predictions) rates (updated to a 2011 base date), a 0.13m sea level rise was expected by 2031, 0.38m by 2061 and 0.9m by 2111. Further work has been undertaken as part of the Future Harbour EIA, which has provided updated predictions based on the UKCP18. This work predicts a 0.553m level of rise over the next 50 years.

[16] Climate change is a key factor in the large scale species, ecosystem and genetic diversity loss evidenced in the Global Assessment Report on Biodiversity and Ecosystem Services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, E. S. Brondizio, J. Settele, S. Díaz, and H. T. Ngo (editors). IPBES, 2019.

[17] Guernsey coastal Defences Flood risk assessment studies - https://gov.gg/CHttpHandler.ashx?id=76962&p=0

3.7.10 Island weather patterns, like global weather patterns, are changing, with an increase in intense weather patterns: more intense rainfall, stronger storms, greater frequency of storm damage, flooding, hotter summers and milder winters, with each of the last six years being warmer than average[18].

3.7.11 Storm events in 2013 and 2014 contributed to the failure of the sea walls at Perelle and Vazon which needed significant and costly repair. This resulted in the States deploying funds to improve the remaining sea walls in order to reduce the likelihood of failure and in turn reduce long term expenditure.

3.7.12 The winter of 2020 is a further example of how rainfall can affect the Island's natural and built infrastructure. Significant rainfall from the beginning of the year led to landslips at Fermain (beyond the wall) and at La Vallette, which resulted in the loss of the steps leading to the Cow's Horn and Clarence Battery.

3.7.13 The 2010 United Nations Climate Change Conference produced an agreement stating that future global warming should be limited to below 2°C relative to the pre-industrial level.

3.7.14 In 2018, a special report by the Intergovernmental Panel on Climate Change (IPCC) was published which indicated that global warming was, in fact, accelerating. Although the UK has often been thought of as setting some of the most ambitious Greenhouse Gas (GHG) emission targets worldwide, its emissions targets were not enough. The UK government has since committed to follow recommendations on revised targets from the independent Committee on Climate Change (CCC), made in early 2019[19].

3.7.15 The CCC, on the 25th June 2020, released a progress report to the UK government[20], which builds on the 2019 report and the letter sent to the Prime Minister on the 6th May 2020[21], focusing on measures given the recent and ongoing COVID-19 crisis. Two important points from the report are:

- The costs of reaching net zero by a certain date (e.g. 2050) will be lower the sooner the requisite policies are put in place to achieve it, to give investors certainty about the direction of travel and to fit in with investment cycles to minimise the stranding of long-lived high-carbon infrastructure; and

[18] Guernsey Met Office Annual Weather Reports - http://www.metoffice.gov.gg/annualwxreports.html
[19] Net Zero The UK's contribution to stopping global warming - https://www.theccc.org.uk/wp-content/uploads/2019/05/Net-Zero-The-UKs-contribution-to-stopping-global-warming.pdf
[20] Reducing UK emissions: 2020 Progress Report to Parliament - https://www.theccc.org.uk/publication/reducing-uk-emissions-2020-progress-report-to-parliament/
[21] Building a resilient recovery from the COVID-19 crisis - https://www.theccc.org.uk/wp-content/uploads/2020/05/CCC-to-Prime-Minister-Boris-Johnson-Covid-19-recovery-002.pdf

- The health co-benefits of reducing fossil fuel use and greenhouse gas emissions could be very substantial in terms of improved air quality, active travel and healthier lower-meat diets.

3.8 International context

3.8.1 The United Nations Framework Convention on Climate Change (UNFCCC) entered into force in 1994. The Kyoto Protocol to the United Nations Framework Convention on Climate Change was adopted in December 1997. The United Kingdom is a signatory of the Kyoto Protocol – the UNFCCC's framework for GHG emissions mitigation, adaptation and finance. The Kyoto Protocol has been extended to the Island. Guernsey therefore had a commitment to produce a 12.5% reduction of emissions on 1990 levels between 2008 and 2012. In 2012, due to a fault with the cable to Jersey, the Island was below the target, however over the reporting period, 2008-2012, the Island average exceeded the target.

3.8.2 The Doha Amendment to the Kyoto Protocol was then adopted in 2012 with a commitment period from 2013-2020, but has not yet entered into force. This is because the amendment only enters into force when a certain number of ratifications, by different member states, have occurred. To date the required number of ratifications have not been received. It should be noted that whilst this means that the amendment has not entered into force, and therefore does not have legal effect, it does not stop countries setting their own legislative and non-legislative requirements under the principles of the amendment. Following formal requests in 2015 and 2017, Guernsey has agreed to the UK's commitment, and the UK is expected to issue a formal notification of the extension of the amendment to Guernsey. The UK has committed to a 20% reduction on 1990 levels, which Guernsey has achieved or bettered in each year between 2015 & 2018 (the latest figures).

3.8.3 The Paris Agreement was reached at the UN's 21st Conference of Parties (COP21), in Paris in 2015 and came into force on 4th November 2016. The Agreement allows for each country to determine its own plan with regular reporting to mitigate climate change, and is the instrument through which targets beyond 2020 will be set. By signing up to the Paris Agreement, all parties agree that global average temperature increase should be limited to well below 2°C above pre-industrial levels by the middle of the century, preferably limiting warming to 1.5°C. There are no specific requirements for the emission reduction targets other than they should go further than previous targets and reflect a party's highest possible ambition. Unlike the preceding Kyoto Protocol and Doha Amendment, there are no legally binding requirements for countries to meet their targets, but parties are required to maintain successive Nationally Determined Contributions[22] and to report on

[22] https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement/nationally-determined-contributions-ndcs

progress in implementing them. The UK has ratified the agreement and so is a party to the agreement.

3.8.4 The position Guernsey has taken to date is to await the extension of the Doha Amendment to the Bailiwick ahead of consideration around the extension to the Paris Agreement. However, the proposed target of achieving carbon neutrality by 2050 at the latest is aligned to the aims of the Paris Agreement. The Committee therefore recommends that the States explores in detail the implications and requirements for complying with the Paris Agreement, including the question of whether our Nationally Determined Contributions would be set by Guernsey or would be an extension of the UK's as well as further technical, administrative or legislative steps that may be required. Further, the Committee recommends that delegated authority be granted to the Committee *for the* Environment & Infrastructure and the Policy & Resources Committee to work towards the extension of the Paris Agreement to Guernsey, liaising with other islands in the Bailiwick where appropriate.

3.8.5 Individual countries are taking their own approach to the reduction of greenhouse gas emissions, with many setting out their own climate targets following the Paris Agreement, even though many do not meet the stated aims of the Agreement[23]. Within the European Union the following targets have been set[24]:

- In 2019, following the UK's CCC recommendation, the UK adopted the goal of net zero greenhouse gas emissions by 2050, instead of the 80% emissions reduction goal adopted in 2008, including international aviation and shipping and excluding international offsets (paying for emissions reductions overseas);
- Portugal released a roadmap in June 2019 to net zero aiming to reduce emissions 85-90% by 2050;
- In November 2019 Germany produced a draft climate law adopted by the Bundestag (the German federal parliament), which include the "commitment to pursue greenhouse gas neutrality by 2050 as a long-term goal";
- Sweden's 2018 Climate Act set the goal of net zero emissions by 2045;
- In 2018 the Danish government adopted the "Together for a greener future" plan, which outlines the aim of carbon neutrality by 2050 and listed 38 initiatives to achieve the goal;
- In 2018 the Dutch Parliament adopted legislation to introduce the target of 95% reduction of greenhouse gasses by 2050;
- In 2019 France adopted a climate law with a 2050 net zero target, and increased the emissions reduction target of the Energy Code to zero emissions by the same date;

[23] https://climateactiontracker.org/#
[24] https://climateactiontracker.org/countries/eu/pledges-and-targets/

- In June 2019 Finland adopted a plan for carbon neutrality by 2035 relying on domestic measures. It has a sub aim by 2030 to reduce emissions from transport to half that of 2005 levels;
- In 2019 the Irish Government published its Climate Action Plan aiming for carbon emission neutrality by 2050, including 183 actions for emissions reduction by 2030; and
- In December 2019 the European Commission published the 'European Green Deal', which sets out the aim of the EU becoming climate neutral by 2050.

3.8.6 In addition to the target of climate neutrality, the European Union is looking at the potential, through the European Green Deal, to introduce a 'carbon border tax' to be levied on imports from countries which do not have sufficiently stringent climate policies. The European Green Deal also includes a proposal from the European Commission to make the respect of the Paris Agreement an essential element for all future comprehensive trade agreements that the EU enters into.

3.8.7 Beyond the EU, other countries are also setting climate targets. These vary from New Zealand setting the world's second Zero Carbon Act (following the UK) to China aiming for peak emissions by 2030. By contrast, the US is planning to withdraw from the Paris Agreement, relax emissions standards and limit an individual State's ability to implement its own, stricter, climate policies.

3.8.8 Initiatives to reduce emissions are targeted across the industries of energy, waste, agriculture and infrastructure development. An example of these initiatives is the UK's ban on ICEVs (petrol and diesel non-hybrid cars and vans) from 2035 (brought forward from 2040). Similar initiatives have been announced in many other countries, with many individual cities acting independently of their parent jurisdiction to introduce measures banning or limiting diesel cars even sooner because of wider air quality issues. Carbon neutrality initiatives that have been considered or implemented in other areas and jurisdictions including Cornwall, Iceland, Ireland, Isles of Scilly, Jersey, Scotland and the UK have been reviewed by the Committee and are outlined in Appendix B.

3.8.9 As part of these international requirements, greenhouse gasses are calculated and reported on as carbon dioxide equivalents (CO_2e), using an agreed formula. For Guernsey, the data is collated by Aether[25] and presented in the Guernsey Annual Greenhouse Gas Bulletin which is published in March each year. In 2019 the Committee directed officers to work with Aether and also with the States of Jersey to review the data collated, and the way it is analysed.

[25] https://www.aether-uk.com/

3.9 Economic Context

Introduction – threat and opportunity

3.9.1 Considering the economic context of climate change will be essential when developing future policy to tackle climate change. Threats to the global economy must be seen as a major driver and impetus for climate change action: without intervention the long term impacts on the economy will be significant and costly to correct. However, the need for immediate action does not come without an economic cost in itself. This cost needs to be weighed against the long-term social and economic impacts of doing nothing.

3.9.2 However, action on climate change also presents an opportunity for investment that will have economic dividends if handled correctly. The global movement towards mitigating climate change, requiring investment in infrastructure, also presents opportunity for Guernsey's finance sector through green and sustainable financial initiatives. Guernsey is well placed to become a global leader in green finance initiatives.

3.9.3 In addition, Guernsey's 'revive and thrive' recovery response to the COVID-19 pandemic will present an opportunity to revive Guernsey's economy in a way that will make the future economy sustainable and resilient to possible future climate change impacts. As such, investment in recovery projects must also help advance climate change objectives.

The global context – threats to economic sustainability

3.9.4 Globally, estimates have valued the economic cost of biodiversity loss and ecosystem degradation due to climate change to be 7.5% of global GDP. This figure supports the important role that nature plays in achieving optimal conditions for the economy and society, from agriculture to economic and community wellbeing. It explains why the threat of a collapse of the natural environment due to the direct and indirect impacts of climate change has been cited by the World Economic Forum in the top three global risks to the economy in the coming decades (World Economic Forum, 2019).

3.9.5 The 2019 World Economic Forum report valued the economic cost of biodiversity loss and ecosystem degradation to be 7.5% of global GDP. The 2020 World Economic Form report has gone on to present new calculations which show that approximately 50% of global GDP is moderately or highly dependent upon nature. It adds that many industries have significant "hidden dependencies" on nature in their supply chain and may be more at risk of disruption than expected. Of the industry groups identified, four are directly relevant to Guernsey: aviation, travel and tourism; real estate; supply chain and transport; and retail, consumer goods and lifestyle. The report concludes that there is potential for a win-win-win-win for nature, climate, people and the economy if the private sector and governments respond with urgency to

protect and restore nature and to mainstream biodiversity into decision-making and national approaches to COVID-19 recovery.

3.9.6 Taking no action to mitigate climate change globally will have a significant economic impact with the additional costs of subsidising fossil fuels (both directly and indirectly) along with the costs of required adaptation proving significant. In addition to this there are costs already having to be met due to the present day effects of climate change globally, such as more severe storms, more frequent and more devastating forest fires and the costs associated with invasive non-native species. These costs will only increase as severe weather patterns occur more often. Rising sea levels impact on coastal regions and, disproportionately, island communities and a more general shift in weather patterns changes crop availability and farming economics. These all impact on the costs of commodity production, food supply and transport. The States of Deliberation has already agreed to make decisions that take the impact on future generations into account and has, through the Energy Policy, committed to reducing fossil fuel use.

3.9.7 A joint report from The Hamilton Project and the Stanford Institute for Economic Policy Research[26] outlines that due to climate change, globally, low-income countries will lose larger shares of their economic output; however higher-income countries would lose more absolute aggregate wealth and output because of their higher levels of economic activity. The report also looks at the human cost of climate change and outlines that increased mortality from climate change will be highest in Africa and the Middle East. In places that already experience high temperatures, climate change will exacerbate heat-related health issues and cause mortality rates to rise, whilst wealthier places are better able to protect themselves from the adverse consequences of climate change.

The local context – threats to economic sustainability

3.9.8 As stated above in paragraph 3.9.3, one estimate of the impact of climate change just related to biodiversity loss and ecosystem degradation suggests a loss of around 7.5% in GDP. In the Guernsey context this equates to a loss of productivity of between £200m and £300m a year. This is a similar magnitude to the projected impact of COVID-19 on the Guernsey economy, except the loss would be a sustained rather than singular impact. As the impact of climate change will be broader than natural loss and ecosystem degradation this is a low estimate of the total impact of climate change on the economy. Therefore the impact of climate change needs to be viewed as a significant threat to long-term economic sustainability.

[26] https://www.brookings.edu/research/ten-facts-about-the-economics-of-climate-change-and-climate-policy/

3.9.9 In addition to this general economic impact, continued impacts of climate change will have a secondary financial consequence. For instance, roads and coastal defences may need frequent repairs and upgrades, and where this is not possible due to rising sea levels, the loss of land and critical infrastructure will have a consequential economic loss – both in terms of housing and productive employment land. Food production will become more expensive. Severe weather effects on transport (sea and air) are already being felt and these have an economic cost in terms of cancellations or diversions. This will make travel to the Island more expensive, including costs of importation of goods.

Economic costs of mitigating climate change – transition to a low carbon economy

3.9.10 Mitigating the impact of climate change will require investment in the necessary infrastructure to enable adaptations to be made, whether this is through changes to buildings, sea defences, the introduction of electric vehicles and charging infrastructure or investment in renewable energy.

3.9.11 Economic growth will need to shift towards a low carbon economy that is environmentally sustainable and results in positive impacts overall. This may involve offsetting one type of economic use against another to ensure that the Island is able to foster a sustainable economy. A key objective as set out in this policy letter will be to introduce policies that enable a transition to a low carbon economy.

Green finance – enabling transition to low carbon

3.9.12 Green finance is going to be a vital factor in delivering the transition to a low carbon economy. The International Panel on Climate Change estimates that around US$2.4 trillion or roughly 2.5% of global GDP annually needs to be invested in the energy system between 2016 and 2035 to meet the 1.5°C goal. It is therefore important for financial centres such as Guernsey to adapt to the increasing demand for green investments.

3.9.13 Guernsey Finance has stated that, as a responsible global citizen, it is Guernsey's intention to contribute its expertise and experience as a global finance centre to the fulfilment of these goals through the work of Guernsey Green Finance. These initiatives are already underway and Guernsey's reputation as a centre for green finance is growing. However, without a credible climate change policy aligned with global expectations, Guernsey's green finance initiatives may be opened up to reputational risk of accusations of 'greenwashing' (when a government, business or organization presents itself as more environmentally friendly than it actually is).

Opportunities for the economy

3.9.14 The transition to a low carbon economy offers opportunities for economies to expand into new markets and, through the circular economy, an opportunity to develop new sustainable approaches to the economy.

3.9.15 According to a report by the New Climate Economy entitled 'Unlocking the Inclusive Growth Story of the 21st Century'[27], transitioning to the low carbon sustainable growth path could deliver a direct US$26 trillion economic gain through to 2030 compared to business as usual. Further, the report finds that by taking ambitious climate action, over 65 million new low carbon jobs could be created by 2030 and over 700,000 premature deaths could be avoided. The benefits are presented pictorially in the report and reproduced below (Figure 4).

Fig. 4 – The global benefits of a decisive shift to a low carbon economy when compared to business as usual

3.9.16 In addition to reducing the costs to the economy of wider climate change impacts, a report by The New Climate Economy highlighted that there are further opportunities for economic growth through[28]:

- **Clean energy systems**: The decarbonisation of power systems combined with decentralised and digitally-enabled electrification technologies can provide access to modern energy services for the billion people who currently lack it; strengthen energy security and reduce exposure to energy price volatility globally; build overall system resilience to

[27] https://www.inc.com/maureen-kline/climate-change-a-26-trillion-growth-opportunity.html
[28] Unlocking the inclusive growth story of the 21st century - https://newclimateeconomy.report/2018/

increasing natural hazards (especially in vulnerable small island states); and cut the costs of outdoor air pollution worldwide.

- **Smarter urban development**: Better urban planning and strategic infrastructure investment, particularly the expansion of public and non-motorised transport networks, can overcome bottlenecks to economic growth—such as congestion and air pollution—for more liveable cities. More compact, connected, and coordinated cities are worth up to US$17 trillion in economic savings by 2050 and will stimulate economic growth by improving access to jobs and housing. They can strengthen resilience to physical climate risks and could deliver up to 3.7 gigatons per year of CO_2e savings over the next 15 years, just shy of the total emissions of the European Union (EU) today.
- **Sustainable land use**: The shift to more sustainable forms of agriculture combined with strong forest protection could deliver over US$2 trillion per year of economic benefits; generate millions of jobs, mainly in the developing world; improve food security including by reducing food loss and waste; and deliver over a third of the climate change solution. At the same time, restoration of natural capital, especially our forests, degraded lands, and coastal zones, will strengthen our defences and boost adaptation to climate impacts, from more extreme weather patterns to sea level rise.
- **Wise water management**: Water scarce regions could see gross domestic product (GDP) declines by as much as 6% by 2050 as a result of climate change, spurring migration and sparking conflict. Addressing the water-energy-food nexus will be critical, particularly in increasingly water-stressed regions.
- **A circular industrial economy**: From 1970 to 2010, annual global extraction of materials grew from almost 22 to 70 billion tonnes. Each year, at least eight million tonnes of plastics leak into the ocean, contributing to a major new challenge for the 21st Century. Microplastics have been discovered in 114 aquatic species, many of which end up in our dinners. This challenge, however, is not just a social or environmental issue, it is also economic. Today, 95% of plastic packaging material value—as much as US$120 billion annually—is lost after first use. Policies which encourage more circular, efficient use of materials (especially metals, petrochemicals and construction materials) could enhance global economic activity, as well as reduce waste and pollution. Shifting to a circular industrial economy, combined with increasing efficiency and electrification, including for hard-to-abate sectors and heavy transport, could decouple economic growth from material use and drive decarbonisation of industrial activities.

The new model economy – circular by design, not linear

3.9.17 The prevailing philosophy among businesses for most of the past century describes a process in which companies take resources, make something to sell, and then the product is wasted at the end of its life — at which point there is an opportunity to sell a fresh one. This is known as a **linear economy** and is prevalent in the modern world, from single use plastics and household appliances with encased plugs to modern electronic products, such as mobile phones, that are designed to prevent access, and so repair. Around 45% of the world's carbon emissions come from how we make and use products and food. The problem of waste is particularly stark.

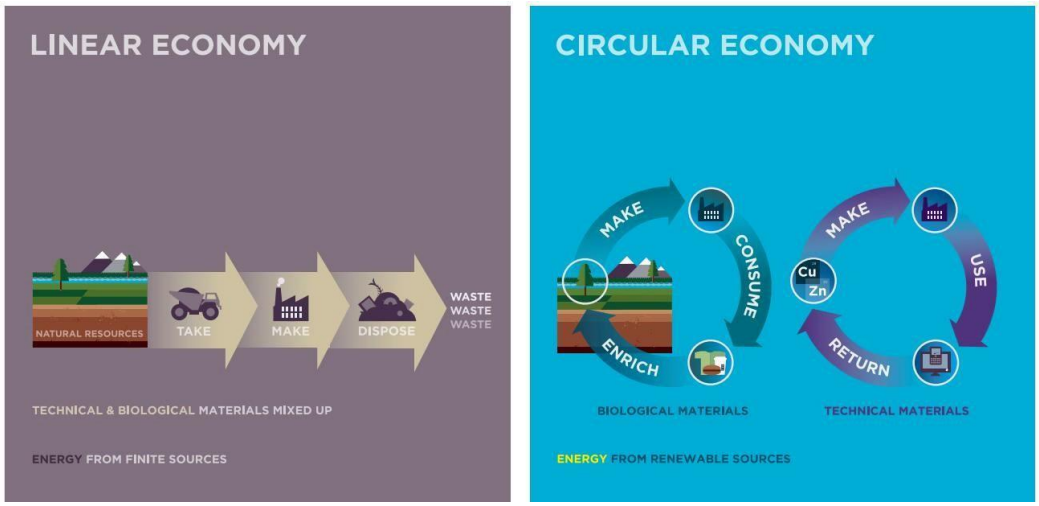

Fig. 5 – Traditional linear economy versus the circular economy

3.9.18 The **circular economy** aims to address this through the principles of designing out waste and pollution, keeping products and minerals in use and regenerating natural systems[29]. Waste and pollution are largely due to the way we design, with around 80% of environmental impacts determined at the design stage. By changing the design mind-set and adopting new materials we can ensure that waste is not created. The move towards a circular economy also cuts greenhouse gas emissions as well as addressing waste. A report by the Ellen MacArthur Foundation says that for the EU to reach net zero emissions by 2050, emissions from industrial production of cement, plastics, steel and aluminium would have to be cut to almost nothing. By contrast, emissions from these materials could be cut by 40% just by reusing and recycling more of them.

[29] https://www.ellenmacarthurfoundation.org/circular-economy/what-is-the-circular-economy

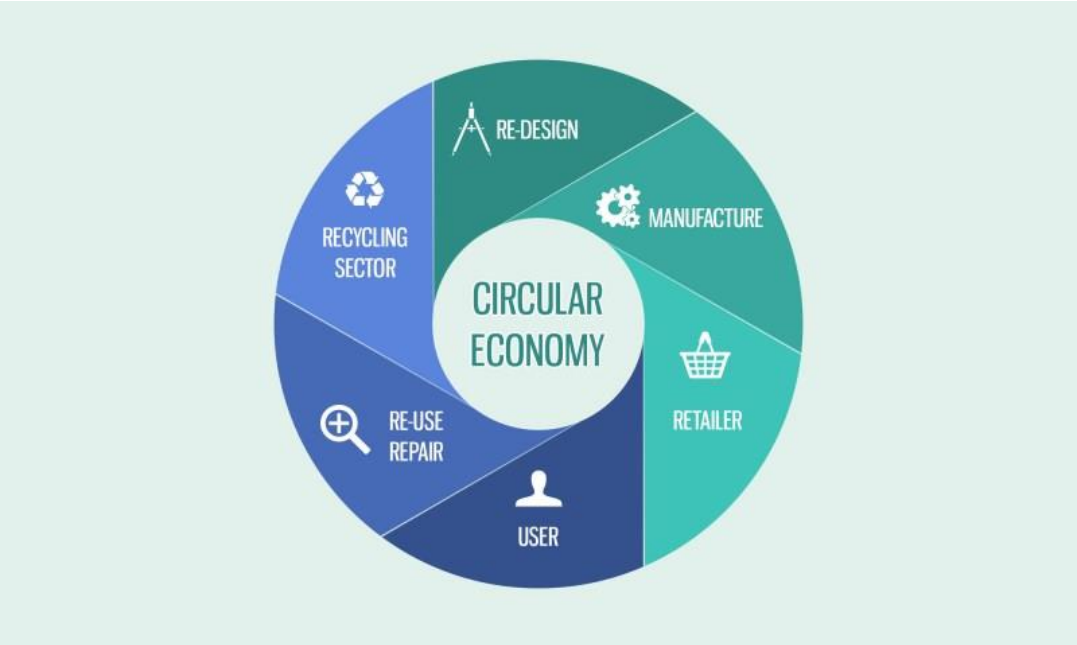

Fig. 6 – Model of a circular economy

3.9.19 It is recommended that the opportunities for economic growth identified above as well as other potential opportunities should be fully explored as part of the climate change agenda and as part of any transition to a low carbon economy. This will be carried out in conjunction with the opportunities identified through the implementation of the Recovery Strategy following the COVID-19 crisis. Opportunities are discussed below.

Post COVID-19 Economic Recovery – opportunities

3.9.20 Guernsey's response to the Covid-19 crisis has been decisive. This has been followed by an ambitious Recovery Strategy, centred on a 'revive and thrive' philosophy which aims to revive the majority of economic activity in 2021 and exceed the previous economic growth path within three years. The vision for the Recovery Strategy is as follows:

> *"We will work in partnership to recover our economic prosperity, build on our inclusive community values and capitalise on our many strengths to make Guernsey a safe haven based on sustaining health, wealth and community."*

3.9.21 The Recovery Strategy will aim to take the opportunity to revive, renew and revitalise the Island post-COVID-19 by working collaboratively with Islanders to develop and deliver the action plans for recovery. It will provide the checks and balances for strategic planning and decision-making. It will set out a shared vision and the overall approach to recovery, and establish the path for the planning and delivery of programmes of work.

3.9.22 There have been some positive effects from the COVID-19 crisis which the community has identified itself. For example, during lockdown, the traffic levels in Guernsey reduced by approximately 65%; air quality improved[30], and more people appear to be exercising. A review carried out during lockdown on nitrogen oxides levels shows the differences between predicted (business as usual) and measured quantities and is illustrated in Figure 7 below.

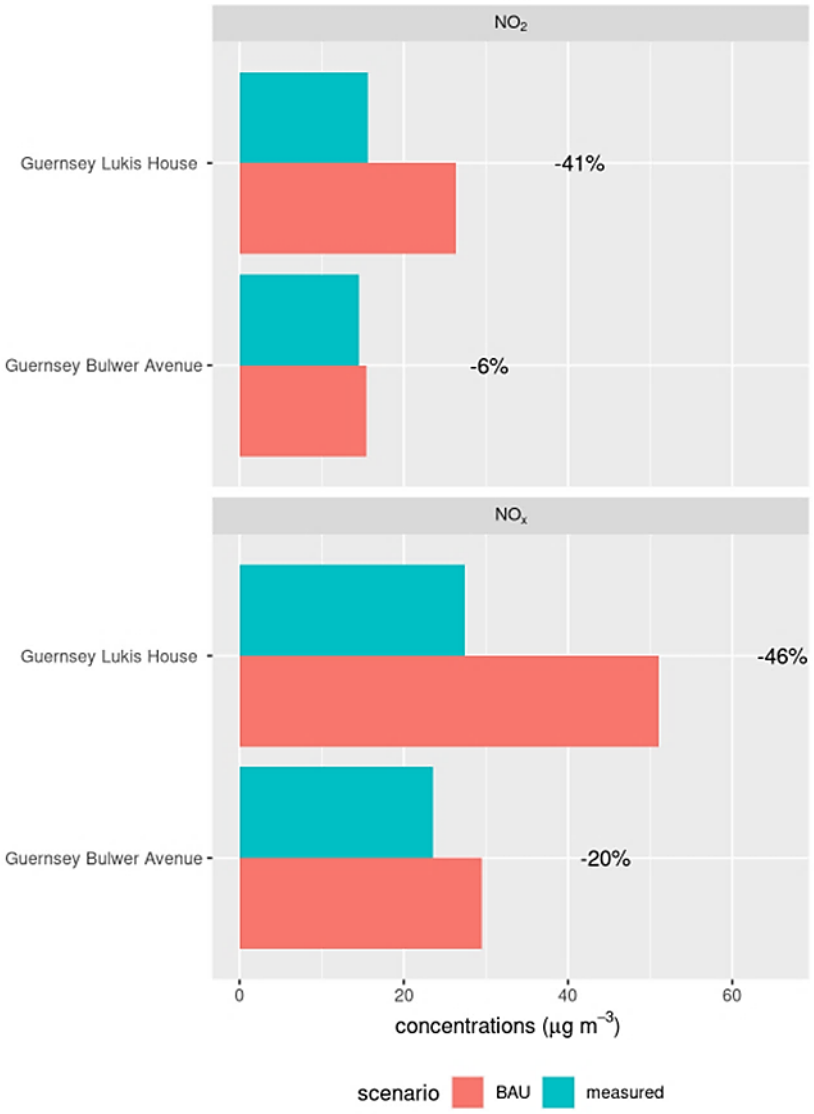

Fig. 7 – Average reductions of nitrogen oxides during COVID-19 lockdown

3.9.23 Recovery efforts will seek to build on the opportunities generated by positive impacts to support new ways of working and sustainable practice. Some jurisdictions, for example, are considering attaching so-called 'green strings' to fiscal support, ensuring that businesses are rewarded by continuing to consider environmental and social, as well as financial, outcomes. These

[30] https://guernseypress.com/news/2020/06/11/lockdown-improves-air-quality-in-traffic-hotspots/

opportunities are directly relevant to achieving the objectives of mitigating climate change as set out in this policy letter.

3.9.24 The June 2020 report from the CCC (as referenced in paragraph 3.7.15) recommends the UK Government prioritises actions according to six principles for a resilient recovery:

- Use climate investments to support the economic recovery and jobs;
- Lead a shift towards positive long-term behaviours;
- Tackle the wider 'resilience deficit' on climate change;
- Embed fairness as a core principle;
- Ensure the recovery does not 'lock-in' greenhouse gas emissions or increased climate risk; and
- Strengthen incentives to reduce emissions when considering fiscal changes.

3.9.25 The letter from the CCC to the Prime Minister highlights that there are clear economic, social and environmental benefits from immediate expansion of the following measures:

- Investments in low-carbon and climate-resilient infrastructure;
- Supporting reskilling, retraining and research for a net-zero, well-adapted economy;
- Upgrades to our homes ensuring they are fit for the future;
- Making it easy for people to walk, cycle, and work remotely; and
- Tree planting, peatland restoration, green spaces and other green infrastructure.

3.9.26 The report further highlights how the economy of the UK has grown whilst emissions have fallen over the past since 1990 and most notably following the 2008 financial crisis, as outlined in Figure 8. This has been primarily driven by policy decisions, with those areas where there are policy directions having delivered the greatest reductions. This has also led to reduction in costs, with offshore wind falling to around £40/MWh in this time.

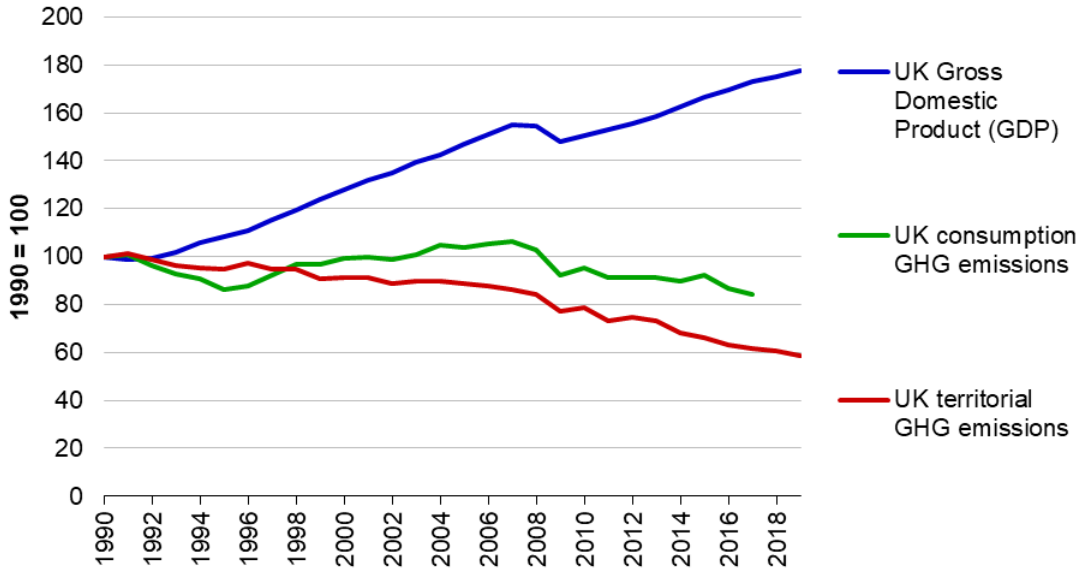

Fig. 8 – UK emissions have fallen while the economy has grown

3.9.27 The Recovery Strategy sets out a number of policy principles which are relevant to climate change. The principles of the strategy are:

- We are striving for a resilient and successful economy and so will encourage and reward economic diversity and innovation that promotes opportunities for sustainable growth and innovation which benefits the whole community;
- We will consider the potential consequences in our decision-making and actions on the wellbeing of Islanders, today, tomorrow and in future generations;
- We will actively consider climate change impact, taking care to mitigate or compensate for any negative consequences of our decisions;
- We want to be an inclusive society known for international excellence in creating and sustaining wealth, health and community and will not leave anyone behind; and
- The access to public services should follow the principle of proportionate targeting for those with the most need.

3.9.28 The Recovery Strategy also has a set of ten guiding principles, with all ten principles having a direct link to climate change mitigation and adaptation:

- Guernsey Together: Recovery is a collaborative effort between government, public services, business, Islanders and the third sector. It is essential to have constructive relationships built on trust and openness to co-design the recovery;
- Take an integrated approach: Each recovery component's success will be dependent on the others and the links will be identified and managed to achieve the greatest overall benefits;

- Look forward, not backwards: Recovery initiatives will not simply focus on reinstating the pre-pandemic status quo. An open mindset will be used to deliver and sustain enhancements to pre-pandemic baselines;
- Promote resilience and efficiency: Resources will be used wisely so that recovery is timely, affordable and delivers value for money;
- Innovate: Creative and resourceful solutions will be adopted including alternative operating, funding and delivery models;
- Use the best available information: The availability of a wide range of data and its proactive analysis will be key to providing insight and in decision-making. This will help improve transparency, promote bet practices and enable to community to engage effectively;
- Care about each other: Recovery initiatives will recognise Islanders' mental health, physical and social needs. They will promote equitable outcomes and recognise diversity;
- We care about our Islands: We are blessed with a rich and diverse natural environment and a unique Anglo-Norman cultural heritage. We should nurture these to support environmental and community renewal, our economic diversification, and to promote the Bailiwick as a unique part of the world;
- Balanced decision-making: Decisions will balance action and desired outcomes with risk. They will focus on the outcome set out in the Strategy and consider the need for positive action, speedy responses and certainty; and
- Clear and transparent communication: Communication must be clear, transparent and based on fact. It must give stakeholders the information they need, when they need it, in an easily understood format and via accessible channels.

3.9.29 The sustainable economy plan includes the following objectives:

- Identifying growth opportunities and resilience in new sectors and adjacent growth in existing sectors;
- Establishing the framework within which we can retain long-term competitiveness for supporting and attracting new businesses, the growth of existing business, and to support the exploration and development of new economic opportunities;
- supporting environmental and social sustainability through economic outcomes; and
- Putting in place an infrastructure framework, including energy resilience, that prioritises and accelerates investment in areas that support the overall Recovery Strategy as well as the local economy.

3.9.30 The development of the sustainable economy plan will therefore include the development of economic projects and initiatives that will have a positive

impact on the climate change agenda (including mitigation measures) and the transition to a low carbon economy. These may include projects such as:

- Sustainable infrastructure investment with climate change in mind;
- Incentivising infrastructure/development projects that act as exemplars of energy efficient, low carbon buildings, and community facilities;
- Investment in high speed telecommunications infrastructure to facilitate more home working;
- Investment in low carbon energy provision, including incentivising low carbon energy markets;
- Investment in low carbon transport networks and incentivising low carbon vehicles;
- Investment in skills training in low carbon/energy efficient construction techniques;
- Changing building regulations to incentivise energy efficient building projects;
- Investment in the blue economy and blue carbon;
- Natural Capital Accounting[31]; and
- Triple Bottom Line Accounting[32].

3.9.31 Guernsey's strategic goal of being a centre of sustainable finance will only be achieved if we become a centre of expertise and capital, one whose commitment is genuine. This position is not tenable without the alignment of public investment funds with climate change mitigation goals and adherence to Principles of Responsible Investment (PRI)[33] at the policy level.

3.9.32 This is being addressed through the creation of policy that managers and advisers appointed to manage States funds must be PRI signatories, utilise the ESG (Environmental, Social and Governance)[34] approach and commit to investment strategies that incorporate net zero target of the portfolio. This means there will be a developing commitment to carbon neutrality of the investment portfolio, with annual measurement and monitoring of the carbon content. This welcome direction of travel provides a clear public signal of

[31] Natural capital accounts are a series of interconnected accounts that provide a structured set of information relating to the stocks of natural capital and flows of services supplied by them. Accounts are of 2 kinds:
•physical accounts – classify and record measures of extent, condition and annual service flow
•monetary accounts – assign a monetary valuation to selected services on an annual basis and record an overall valuation of the natural asset's ability to generate future flows of services.
https://www.ons.gov.uk/economy/environmentalaccounts/methodologies/principlesofnaturalcapitalaccounting#the-scope-of-natural-capital-accounts-for-the-uk

[32] Triple bottom line accounting aims to measure the financial, social and environmental performance, therefore it consists of 3 elements: Profit, People and The Planet.
https://www.investopedia.com/terms/t/triple-bottom-line.asp

[33] https://www.unpri.org/signatories

[34] https://www.investopedia.com/terms/e/environmental-social-and-governance-esg-criteria.asp

genuine commitment to climate change mitigation goals; it helps to create a position of public sector leadership in this field; and it will, over time, attract interest in green finance and ESG professionals in Guernsey.

3.9.33 Further to this, the States could consider funding cornerstone premiums for developing countries' climate change risk insurance, as part of the Impact Investment approach agreed by the States this term, which is being developed by the Overseas Aid & Development Commission together with the Policy & Resources Committee. This would be closely aligned with UN and World Bank goals – supporting 'global good' positioning. Not only would this be relatively low cost, simple to create, and an approach that already has the States' 'in principle' support, but it would also leverage Guernsey's leadership position in insurance.

3.9.34 This direction of travel will further augment Guernsey's expertise reputation as a centre for the development of green finance and sustainable investment. In order to build on this, the Committee supports the establishment of an independent green and sustainable finance body that brings together expertise, capacity and capability from the private and non-government sector, and which can work with international bodies, organisations such as the Global Island Partnership and their member jurisdictions, and with the non-government sector. This will support the development of sustainable finance and Guernsey's leadership in that sector, investment in climate change initiatives, and the economic dividend of Guernsey's commitment to sustainability. The Committee notes that this is an approach that is being actively considered by Guernsey Finance.

3.10 Natural Environment Context

3.10.1 The natural environment is intrinsically linked to climate change, and if managed in an integrated way, can help meet our net GHG emissions targets and increase local resilience to climate change. Over the past 10 years, carbon uptake by terrestrial ecosystems alone has been approximately 3.2 metric gigatons of carbon per year (GtC y^{-1})—equivalent to one third of global emissions from fossil fuel burning (9.4 GtC y^{-1})[35]. Land use change, however, simultaneously caused emissions of 1.5 GtC y^{-1} over the same period[36]. These figures emphasise the need for climate change mitigation based on restoring ecosystems and sustainable land management to be a key focus of national level climate change action plans.

[35] Le Quéré et al., Global carbon budget 2018. Earth Syst. Sci. Data 10, 2141–2194 (2018). 10.5194/essd-10-2141-2018

[36] Morecroft et al., 2019. Measuring the success of climate change adaptation and mitigation in terrestrial ecosystems. Science. DOI: 10.1126/science.aaw9256

3.10.2 The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)[37] report 'Global Assessment Report on Biodiversity and Ecosystem Services' highlights that climate change is the third largest driver of biodiversity loss with a relative impact of 14%, behind land use change (relative impact of 30%) and direct exploitation (relative impact of 23%)[38], but it is an accelerating direct impact[39]. As well as setting out the reasons for and problems associated with biodiversity loss, the report also emphasises the importance and effectiveness of taking action at a local level.

3.10.3 Evidence also shows that adaptation responses that use ecosystems can reduce the risks of climate change associated events such as flooding and temperature extremes[40]. Ecosystems are, however, themselves vulnerable to climate change. An increasing number of studies are showing that this vulnerability can be reduced when our natural and semi-natural habitats are protected, restored, or sustainably managed for adaptation.[41]

3.10.4 Sustainable land use and the conservation and restoration of habitats has been given the term 'nature-based solutions' to climate change. Nature-based solutions are distinctive in that they provide mitigation and adaptation benefits at the same time as benefitting our natural environment, economy and human health and well-being[42]. Furthermore, they have the potential to deliver integrated adaptation and mitigation solutions.

3.10.5 As in any complex dynamic system there is, however, the potential for conflicts between different objectives. It is therefore vital that national climate change action plans provide a clear understanding of what success

[37] https://ipbes.net/about

[38] IPBES Global Assessment on Biodiversity and Ecosystem Services Chapter 2.2. Status and Trends – Nature - https://ipbes.net/sites/default/files/ipbes_global_assessment_chapter_2_2_nature_unedited_31may.pdf

[39] IPBES Global Assessment on Biodiversity and Ecosystem Services Chapter 2.1 Status and trends – Drivers of Change - https://ipbes.net/sites/default/files/ipbes_global_assessment_chapter_2_1_drivers_unedited_31may.pdf

[40] Munang et al., Climate change and Ecosystem-based Adaptation: A new pragmatic approach to buffering climate change impacts. Curr. Opin. Environ. Sustain. 5, 67–71 (2013). 10.1016/j.cosust.2012.12.001

[41] Morecroft et al., Measuring the success of climate change adaptation and mitigation in terrestrial ecosystems. Science. DOI: 10.1126/science.aaw9256

[42] Naumann et al., "Assessment of the potential of ecosystem-based approaches to climate change adaptation and mitigation in Europe. Final report to the European Commission, DG Environment," (Contract no. 070307/2010/580412/SER/B2, Ecologic Institute and Environmental Change Institute, Oxford University Centre for the Environment, 2011).

looks like for both adaptation and mitigation alongside broader biodiversity and human factors[43].

3.10.6 In simple terms, successful climate change mitigation means preventing emissions and increasing carbon sequestration (the removal and storage of carbon from the atmosphere). Natural and semi-natural ecosystems are important elements of mitigation strategies because of their capacity to remove CO_2 from the atmosphere and to store carbon, which could partially offset emissions in sectors that are hard to decarbonise, such as aviation[44]. Measures that have the greatest potential to deliver climate change mitigation include the protection of intact carbon stores on land (e.g. woodland, grassland) and in the marine environment (e.g. seagrass beds, maerl).

3.10.7 What constitutes success in climate change adaptation has been widely discussed over the past two decades. In terms of nature based solutions to adaptation, three broad approaches are advised: ecological restoration, direct intervention to reduce vulnerability of species and habitats, and adjusting nature management and objectives[45].

3.10.8 The value of nature-based solutions in addressing climate change is their capacity to simultaneously provide mitigation and adaptation along with a wide range of other benefits for biodiversity and people. The figure below from Morecroft et al. (2019) summarises the critical interdependencies and the need for an integrated approach to nature management and climate change adaptation and mitigation to ensure that interlinked effects are maximized and harms are avoided. Negative impacts of climate change are shown in dark grey, and positive responses are shown in green.

[43] Moser & Boykoff, in Successful Adaptation to Climate Change: Linking Science and Policy in a Rapidly Changing World, S. C. Moser, M. T. Boykoff, Eds. (Routledge, 2013), pp. 25–58.
[44] Masson-Delmotte et al., "Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty" (Intergovernmental Panel on Climate Change, 2018).
[45] Moser, M.T & Boykoff, M.T, in Successful Adaptation to Climate Change: Linking Science and Policy in a Rapidly Changing World, S. C. Moser, M. T. Boykoff, Eds. (Routledge, 2013), pp. 25–58.

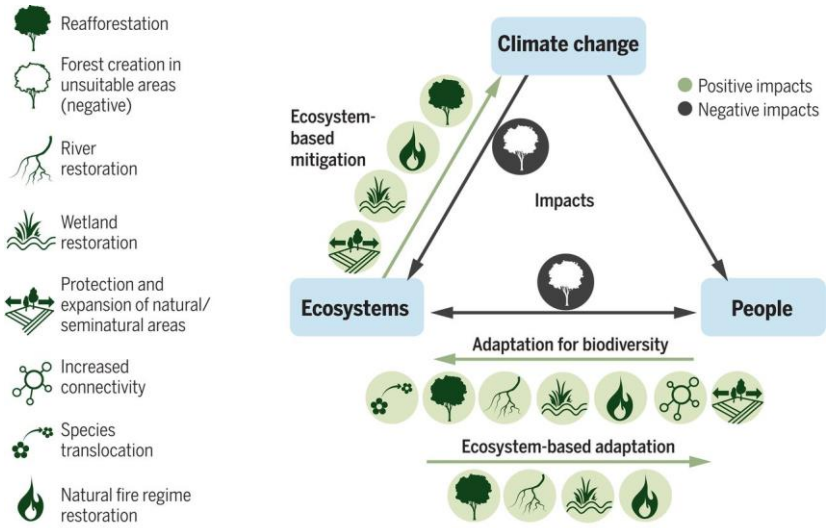

Fig. 9 – Interdependencies between nature, climate and the human environment

3.10.9 Guernsey's 2020 Strategy for Nature (Appendix C) acknowledges the intrinsic link between climate change and nature, and provides a framework and the mechanisms required to mainstream biodiversity (e.g. Biodiversity Net Gain, Natural Capital Accounting[46]) and delivery of nature-based solutions to climate change. The integration of Guernsey's Strategy for Nature Action Plan and Climate Change Action Plan shall be essential to ensure that the interdependencies and positive and negative effects on the economy, society and environment can be understood and integrated into decision-making. Examples of key areas that shall require an integrated approach to decision-making include:

- Sustainable land management and habitat conservation measures that balance development needs with habitat protection;
- Well-resourced conservation and habitat restoration initiatives that support natural carbon sequestration and storage;
- A sustainable agricultural policy which seeks to reduce the environmental impact of farming practices whilst ensuring local farms are viable and sustainable;
- Protection of Guernsey's marine environment which ensures fisheries are sustainable whilst protecting marine habitats;

[46] Guernsey's Strategy for Nature defines Natural Capital as: "*Term used to describe the stock of renewable and non-renewable natural resources (e.g. plants, animals, air, water, soils, minerals) that combine to yield a flow of benefits to people, both directly (e.g. by delivering clean air) and indirectly (e.g. by underpinning the economy). The term 'natural capital' is used to emphasise it is a capital asset, like produced capital (roads and buildings) and human capital (knowledge and skills*)."
The Strategy describes Natural Capital Accounting as "*[Providing] estimates of the financial, societal and environmental value of natural assets and natural resources to people, businesses and jurisdictions to inform decision making.*"

- An appreciation of the actual and intrinsic value of Guernsey's marine environment to ensure a viable and sustainable blue economy; and
- Pro-active monitoring and appraisal of pressures on the natural environment (e.g. invasive non-native species) to increase and ensure the long-term resilience of our local habitats.

3.11 The States of Guernsey, both as the government and as the Island's largest employer, must play a leadership role in reducing Guernsey's contribution to global climate change through the policies it develops and the services it delivers. It has made a good start with many factors relating to climate change included in existing policy development and work streams such as the Energy Policy, the Hydrocarbons Supply Programme, the Integrated Transport Strategy, the Waste Strategy, the Strategy for Nature, the Economic Development Strategy, the Strategic Land Use Plan and Island Development Plan and the work on developing a Long-Term Infrastructure Investment Plan.

4 ASSESSING GUERNSEY'S CURRENT SITUATION

4.1 The Guernsey Energy Resource Plan, as approved by the States of Guernsey on 9th February 2012, outlined a commitment to 'reduce Guernsey's carbon dioxide emissions by 30% on 1990 levels by 2020; and to reduce Guernsey's carbon dioxide emissions by 80% on 1990 levels by 2050'.

4.2 Guernsey has an obligation to report greenhouse gas emissions and to meet its part of the UK's target of a 12.5% reduction target of 6 greenhouse gases overall between 1990 levels and the 2008 to 2012 average as required under the UNFCC and the Kyoto Protocol to that convention which ran until 2012. This means Guernsey is out of step with both the UK and the EU, behind them in terms of its emissions targets, and therefore at risk of reputational harm. As the UK's commitment to the Doha Amendment to the Kyoto Protocol and the Paris Agreement have not yet been extended to Guernsey, the Island is not currently bound to those obligations, although the States have agreed for the Doha Amendment to be extended.

4.3 Guernsey's greenhouse gas emissions are monitored and published in the Guernsey Annual Greenhouse Gas Bulletin in March each year. The data is provided by Aether Limited who compile the figures as part of the UK National Atmospheric Emissions Inventory. This is a requirement of the Kyoto Protocol, which was extended to Guernsey in 2006. The inventory is returned for publication 12 months after submission as an extensive quality assurance and verification process is completed before it is returned.

4.4 According to the Guernsey Annual Greenhouse Gas Bulletin 2018, Guernsey attained a 28.7% reduction in emissions from the 1990 level with emissions totalling 397.1 $ktCO_2e$ in 2018 compared with 557.2 $ktCO_2e$ in 1990 (NB due to the cable fault in 2018 emissions in 2018 and 2019 are higher than with a fully functional cable). Figure 10 shows the proportion of emissions

contributed by different sources in both 1990 and 2018, illustrating how the introduction of the electricity cable has had a significant effect on the power generation contribution to the Island's greenhouse gas emissions.

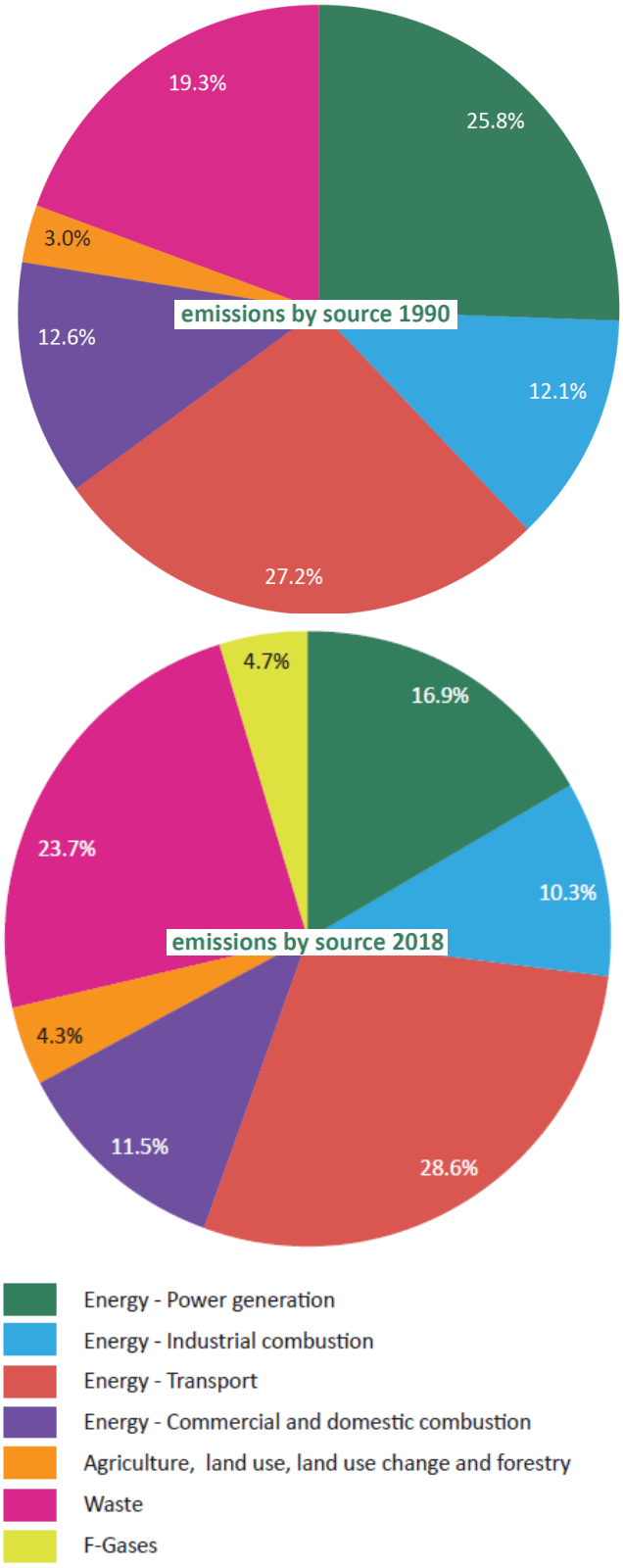

Fig. 10 – Emissions by source 1990 (total 557.2kt CO_2e) and 2018 (total 397.1 kt CO_2e)

4.5 PricewaterhouseCoopers LLP (PwC) was commissioned by the Committee and Guernsey Electricity Limited (GEL) to provide an energy demand forecast to 2050 and analysis of potential policy considerations. This work predicts that the demand for electricity will increase from 29% of energy consumption to 58%, assuming that no policy changes were made. Figure 11 below shows the total energy demand forecast by component. Note that at the time PwC undertook the work, 2018 figures were not available and so the figures were estimated.

GUERNSEY ENERGY DEMAND FORECAST BY COMPONENT IN 2050 WITH COMPARISON TO 2018 ESTIMATED DEMAND				
Fuel segment	2018 (est.)		2050	
	Demand volume (GWh)	Demand share (%)	Demand volume (GWh)	Demand share (%)
Road transport fuel demand	322	24.82%	34	4.05%
Aviation demand forecast	55	4.20%	52	6.13%
Marine demand	61	4.67%	52	6.16%
Non-electricity heating demand	482	37.11%	218	25.70%
Electricity	379	29.21%	491	57.96%
Total	1,299		847	
Source: PwC report 'Energy policy options for the States of Guernsey'.				

Fig. 11 – Energy demand forecast

4.6 The baseline forecast from the PwC report out to 2050 predicts that, in a scenario where there is no government intervention and an assumed consistent 85% importation of electricity, there will be a decrease in emissions to 215 $ktCO_2e$ — a reduction of around 60% on 1990 levels. Figure 12 below shows the Island's forecasted emissions up to 2050 if no further action was taken i.e. the 'do nothing' option. This will act as the baseline onto which the different scenarios will be mapped. This is based on assumptions around greater efficiency, uptake of new technologies (in particular electric vehicles) and the transition away from hydrocarbons as an energy source.

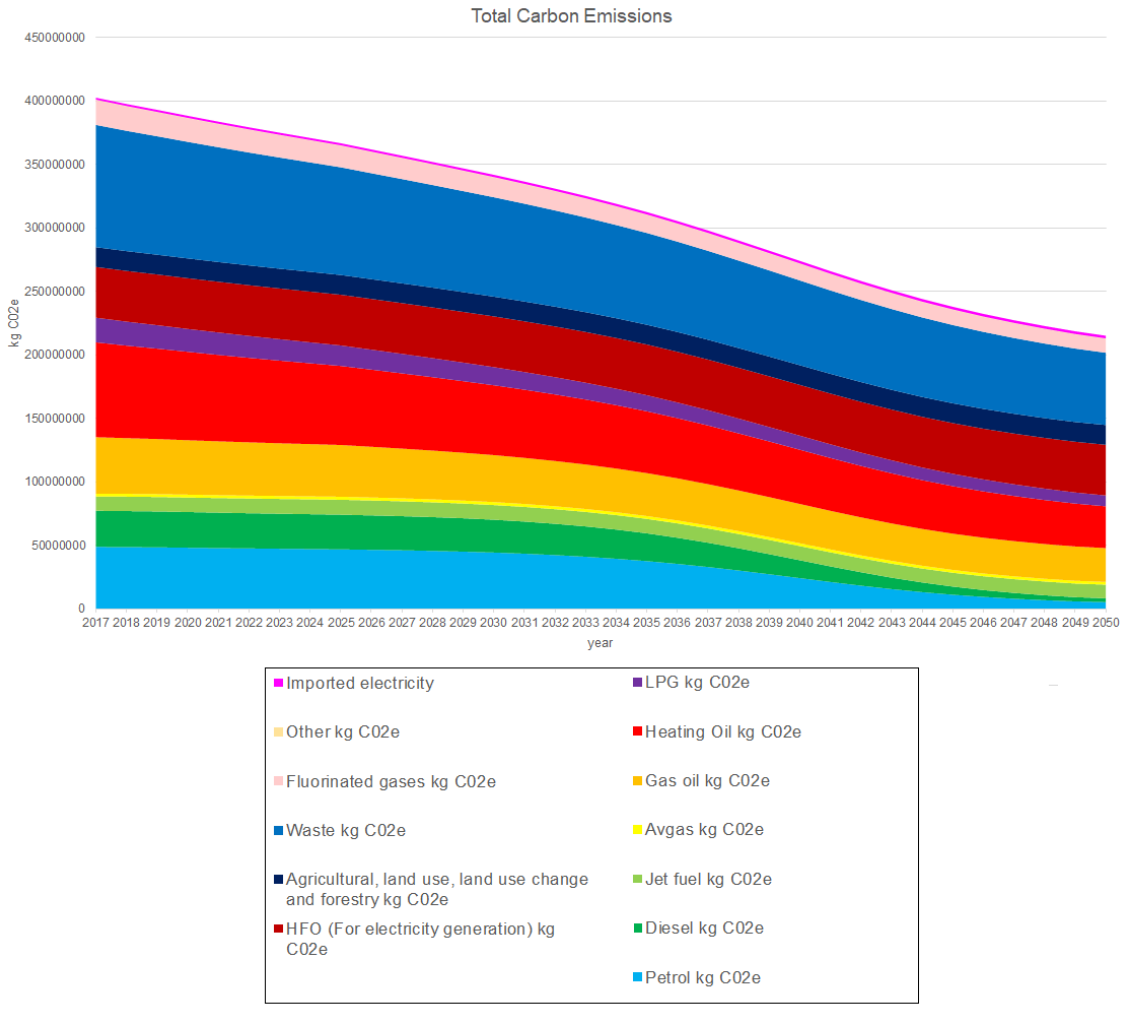

Fig. 12 – Total forecast carbon emissions to 2050 – 'Do Nothing' option (baseline data)

4.7 In Guernsey, combustion of fuels for energy (including electricity generation, heating, industrial processes and transport) has contributed the largest proportion of emissions since 1990, at 67.3% of the total emissions in 2018. Guernsey's primary source of cutting its emissions has been through the installation of the electricity cable that links Guernsey to France via Jersey. This imported electricity has, over the past few years, been a mixture of certified hydro power (30%) and nuclear power (70%) and, following recent changes, is now from certified as 100% renewable electricity. Since the cable installation, Guernsey's carbon emissions have decreased by around 35% on 1990 levels (although due to the cable fault at the end of 2018 this was less in 2018 at 28.7% reduction on 1990 levels). Even so, this falls short of the reductions that scientists say are necessary to avert dangerous levels of warming. The introduction of the cable is the single largest action taken regarding impact on reducing emissions. The result is a significantly positive reduction; however it is a binary action, meaning when the cable is inoperable then emissions levels rise (a total cable outage results in emissions reverting

to previous levels for the duration of the outage) with the use of on-island hydrocarbon powered generators. There have been several protracted periods of on-island generation due to cable issues. Figure 13 below shows the percentage contribution of emissions by source from 2013-2017.

	Energy – Power gener-ation (%)	Energy – Industrial combustion (%)	Energy – Transport (%)	Energy – Commer-cial and domestic combu-stion (%)	Agriculture, land use, land use change and forestry	Waste (%)	F-gases (%)
2013	28.8	8.3	24.3	9.9	3.3	20.9	4.5
2014	25.7	8.3	25.9	9.6	3.7	22.1	4.7
2015	14.9	9.3	29.9	10.8	4.2	25.5	5.4
2016	16.6	10.0	28.8	11.0	4.3	24.4	5.0
2017	8.9	10.7	32.1	11.7	4.8	26.7	5.1
2018	16.9	10.3	28.6	11.5	4.3	23.7	4.7

Fig. 13 – Percentage contribution of emissions by source 2013-2018

4.8 Following the Island-wide power cut on the 1st October 2018 (the most recent cable outage), the power station in the Vale was required to generate between two-thirds and all of the Island's electricity. This power was generated by the burning of heavy fuel oil, which means that Guernsey's gross carbon dioxide emissions for 2018/2019 were 119,675 Tonnes of CO_2e, compared to 2017/2018 where they were 41,552 Tonnes of CO_2e[47]. It is also worth noting the additional environmental impacts of this, including increased release of particulates and sulphurous compounds. Guernsey Electricity completed repairs to the cable between Guernsey and Jersey in December 2019, and on-island generation has now greatly reduced.

4.9 Concerns have been expressed over Guernsey's ability to meet either present or future emissions targets when the only means of carbon emission reduction has been the use of a single cable, which over the past seven years has required at least three significant repairs. Energy market resilience, the facilitation of renewables and further off-island cable links are addressed in the Energy Policy, which feeds into the Climate Change Policy and Action Plan.

4.10 It has been recognised in the Energy Policy that, while emissions from energy related sources make the largest contribution to the emissions inventory, there are other contributing factors, such as emissions from waste and agriculture, which fall outside its scope. Therefore any work to develop the future Climate Change Policy should include consideration of reducing emissions from non-energy sources. Part of the work undertaken in the preparation of the Energy Policy has been modelling the impact of policy

[47] Guernsey Electricity, 'Carbon Reporting' https://www.electricity.gg/electricity/carbon-reporting/

actions on emissions. This work highlighted that, with 100% imported electricity, a tax on hydrocarbons and high uptake of initiatives, the energy sector will in all probability not reach zero emissions by 2050 (see Figure 14 below). However, it would drive a significant improvement when compared to the 'do nothing' scenario (Figure 12 above). It also highlights the importance of other sectors, such as waste. It is important to note that the scenarios modelled were only a selection of the possible actions that could be taken, and so there is scope to further reduce these emissions with a greater number of, or differently targeted, interventions.

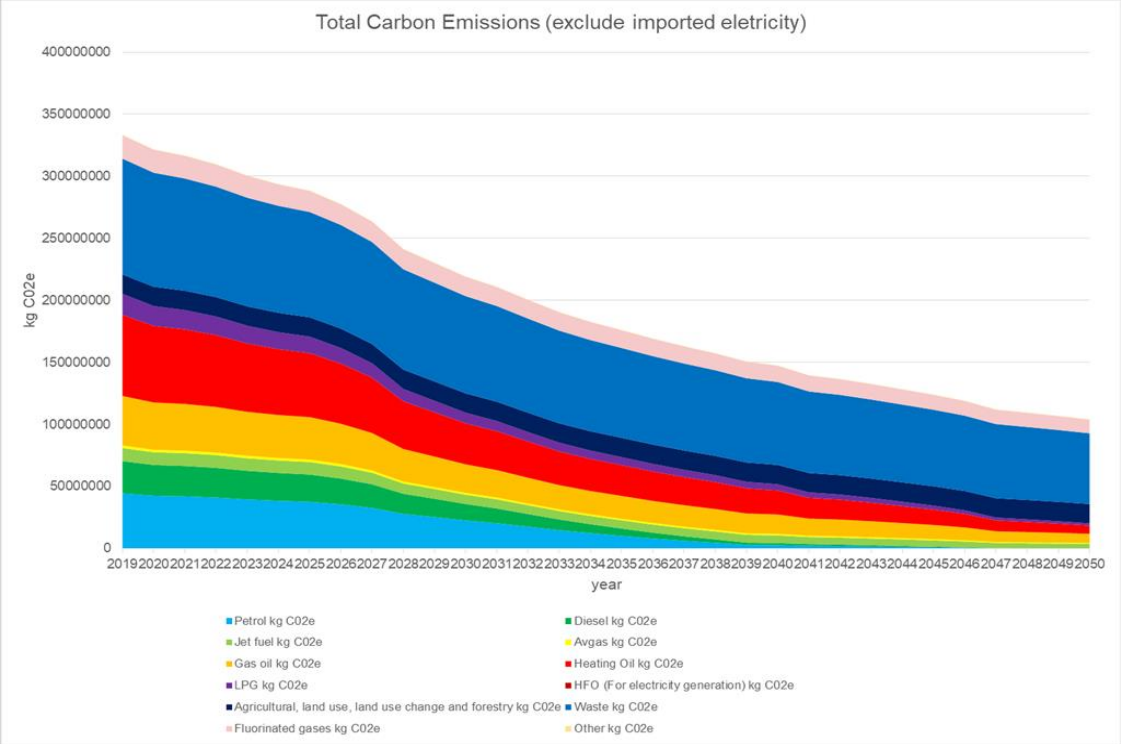

Fig. 14 – Projected carbon emissions for Guernsey over the period 2019 – 2050, after interventions in energy sector have been introduced (Scope 1 emissions)

4.11 The energy hierarchy (Figure 15) prioritises the reduction and efficient use of energy. This aligns to the carbon reduction hierarchy, but is also based on the best value approach to energy management. For environmental reasons, renewable and low carbon energy are prioritised above conventional fossil fuel energy.

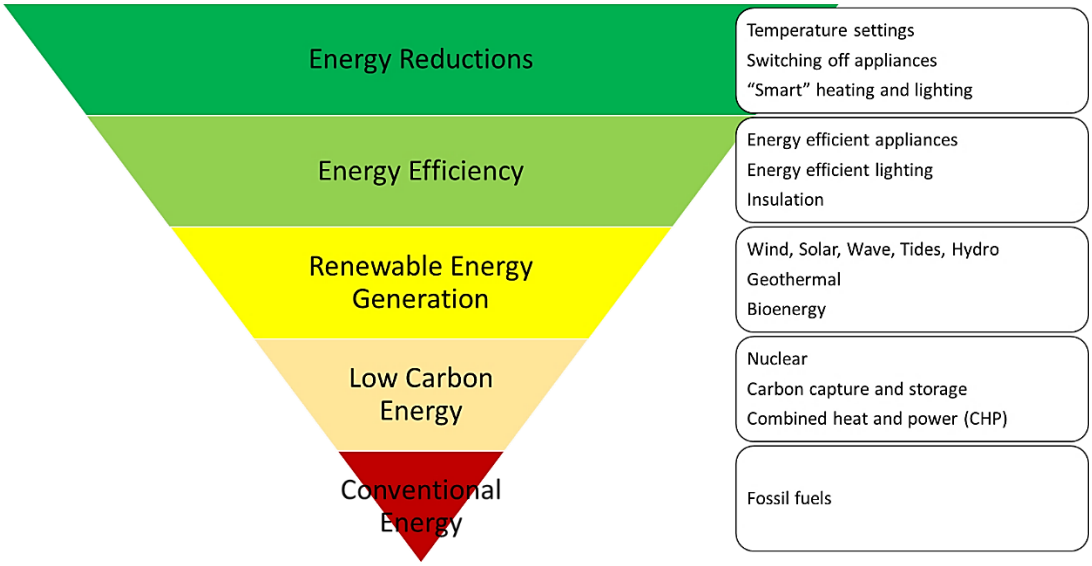

Fig. 15 – Energy hierarchy

4.12 Further to the energy hierarchy, the International Energy Agency (IEA) outlines that there are multiple benefits to energy efficiency measures[48]. A growing body of evidence indicates that energy efficiency can deliver significant value through both social and economic impacts, beyond the traditional focus on energy demand reduction. The report states that "*Broadly, energy efficiency can stimulate economic and social development, enhance energy system sustainability, contribute to environmental sustainability and increase prosperity*". The IEA refers to the suite of outcomes as the 'multiple benefits' of energy efficiency and developed a pictorial representation (Figure 16). Capturing these benefits will require a range of interventions, ranging from incentives to tighter regulation.

[48] International Energy Agency: Capturing the Multiple Benefits of Energy Efficiency - https://webstore.iea.org/download/direct/375?fileName=Multiple_Benefits_of_Energy_Efficiency.pdf

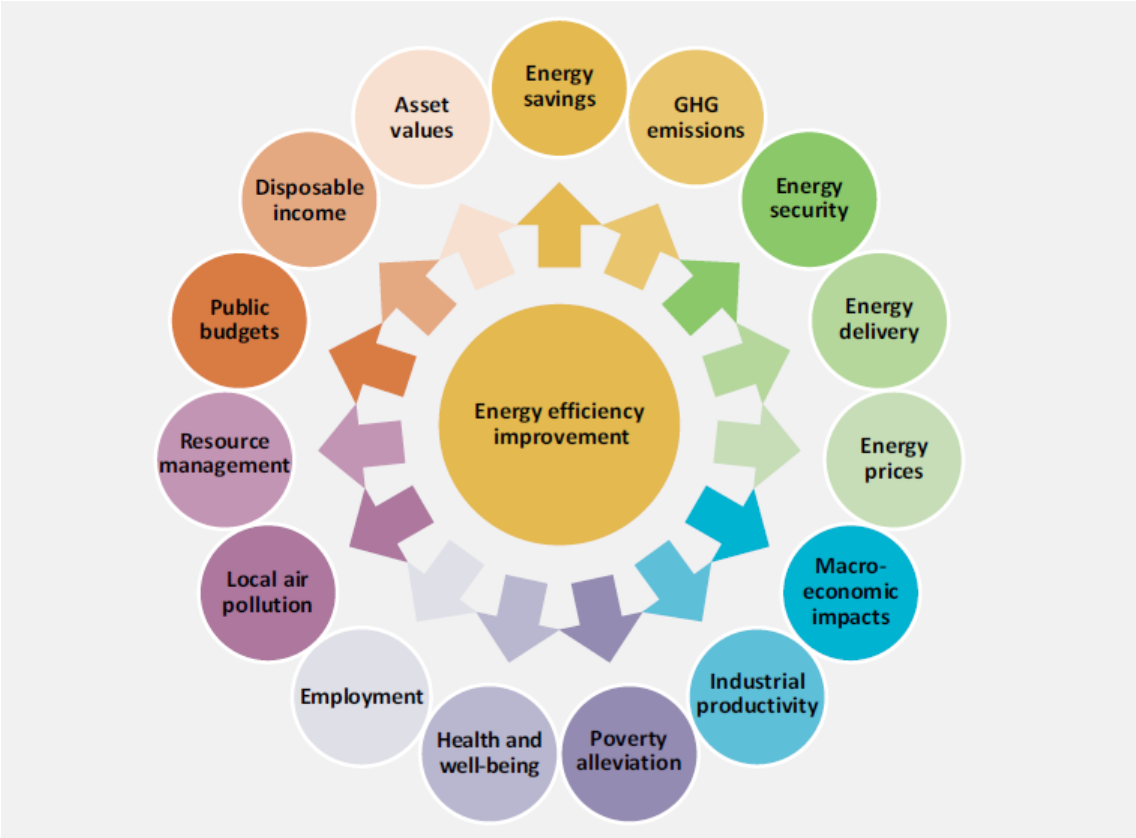

Fig. 16 – The multiple benefits of energy efficiency

4.13 Transport emissions

4.13.1 Locally, emissions from transport decreased by 25.2% between 1990 and 2018. However, emissions from this source continue to constitute the largest proportion of Guernsey's total greenhouse gas emissions in 2018. Transport contributed 42.5% of energy emissions and 28.6% of total emissions.

4.13.2 65% of transport emissions resulted from on-island road transport in 2017, with a further 22% from aviation and 11% from marine travel. Road transport is an area of business where the States has a relatively high degree of control. Both marine and air transport require international co-operation.

4.13.3 A number of related strategies and policies have already been agreed by the States, which help to mitigate climate change. In May 2014, the On-Island Integrated Transport Strategy (ITS) was approved. The ITS recognises in its Vision the need to be energy efficient, enhance the environment and minimise pollution.

4.13.4 Three of the strategy objectives – "*To reduce the number of car journeys, particularly solo-occupancy trips*", "*To increase the number of journeys made by alternative forms of transport, particularly active travel modes*" and "*To achieve a greater proportion of cleaner, low emissions motor vehicles*"– are closely related to mitigating climate change. In addition, the improvements

and investments made "*To improve safety for all road users, particularly vulnerable road users*" will help to create a modal shift away from the most polluting forms of transport.

4.13.5 The States also agreed to the adoption of the Transport Hierarchy, which sets out a specific order of preference in terms of modes of transport. As set out in Figure 17, this hierarchy aligns to the aims of the climate change policy with a preference for active travel, which would in turn reduce emissions from transport. This in turn aligns to the energy hierarchy, with the reduction and efficiency of vehicular travel being prioritised.

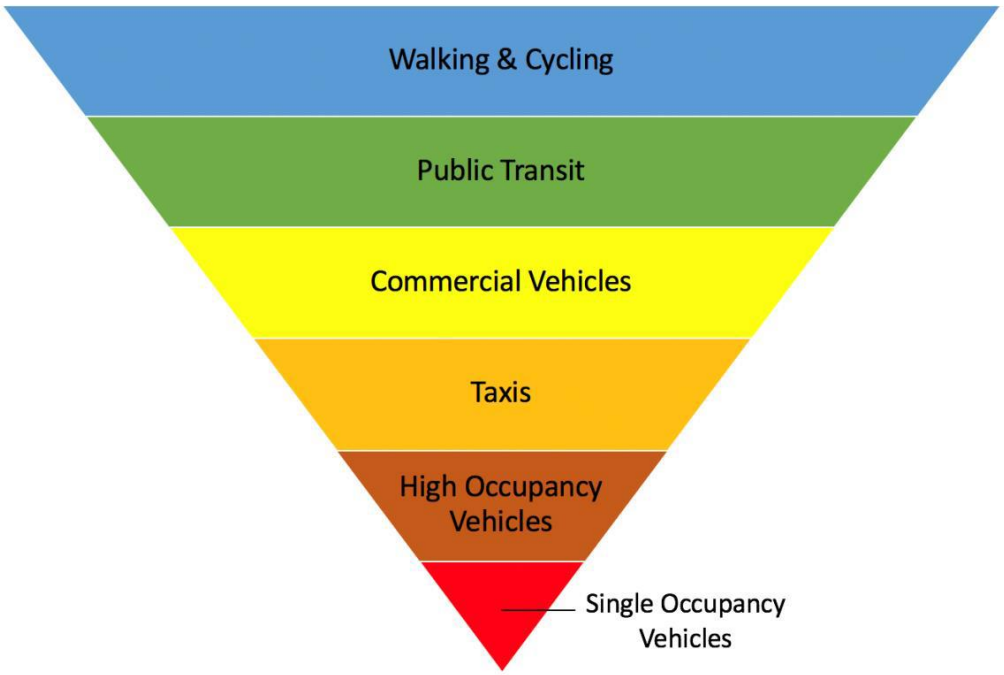

Fig. 17 – Guernsey transport hierarchy

4.13.6 The Climate Change Policy is also well aligned with the principles of the Integrated Transport Strategy, which aims to facilitate a shift towards more sustainable forms of transport. However, as the First Periodic Review[49] shows, the current policy levers are not sufficiently effective to fully deliver the relevant objectives. The Committee therefore recommends that proposals for the more effective delivery of the Integrated Transport Strategy, with specific regard to the reduction of Scope 1 (direct) emissions, are brought back to the States by the end 2021, in addition to the Second Periodic Review due in 2023.

4.13.7 Although more closely related to wider environment policy, it should be noted that recent research suggests that non-exhaust related particulate emissions,

[49] Billet d'État No IV, sth February, 2020 - https://gov.gg/CHttpHandler.ashx?id=123055&p=0

such as those from tyre wear, break wear and road surface wear, could be as much as 1,000 times worse in terms of amount of matter released into the air than the exhaust emissions[50]. Currently only exhaust emissions are regulated globally; however, this is something that may change in the future. This adds further weight to the transport strategy hierarchy, which aims to make alternatives to car use more accessible, viable and convenient.

4.13.8 When living on any island, there is often a need to travel to the mainland or further afield. The impact this has on the environment is recognised widely amongst government and businesses, with mitigating action increasingly common.

4.13.9 Whilst offsetting offers a short-term option for the reduction of carbon from the system, longer-term the Island needs to be considering alternative options for the provision of off-island travel. Some islands are already moving to electric ferries, which could provide a viable solution for Guernsey. Within the aviation industry transition to second or third generation biofuels and/or synthetic fuels, potentially alongside electrification where achievable, will need to be considered.

4.13.10 Alongside these options, further consideration as to the need for travel should be given, with options for remote meetings being explored. The recent restrictions on travel due to COVID-19, both locally and globally, have resulted in a significant reduction of transport-related emissions. Businesses have had to adapt and the use of video conferencing has become commonplace to replace both on- and off-island travel. It is important that these gains are built upon.

4.14 Heating

4.14.1 In 2018, non-electrical heating (both commercial and domestic) sources contributed the fourth highest emissions at 11.5%. In 1990 there were 70.2kt of CO_2e emissions compared with 45.6kt of CO_2e emissions in 2018. This amounts to a 35% reduction on 1990 levels on-island. Currently a proportion heat generated is lost through our buildings through insufficient or inefficient insulation and, as a result, in January 2020 the Development & Planning Authority agreed to amend Building Regulations to promote an improvement of thermal performance and energy efficiency of buildings by making changes to 'Part L' (Conservation of Fuel and Power). These changes have now come into force. The Energy Policy, approved in May 2020, has outlined further work will take place in regards to the improvement of building energy efficiency.

[50] https://www.emissionsanalytics.com/news/pollution-tyre-wear-worse-exhaust-emissions

4.14.2 The recently published Regen[51] report 'The decarbonisation of heat'[52], which focusses on the challenges facing the UK, outlines the significant challenges in decarbonising the heating sector, but also outlines how it could be achieved. The report highlights that electrification of heat is the most obvious pathway to the decarbonisation of heat supply, but is not the only option, nor indeed the only element that needs addressing.

4.14.3 Increased electrification of heating supply would offer an efficient form of energy use and would be aligned to wider efforts to decarbonise electricity, predominantly through renewable energy. However, electrification faces two key challenges of the adoption of new heating technologies, which may entail building fabric changes, and managing the peak energy demand in winter. An additional consideration is that not all houses in Guernsey are currently connected to a suitable network connection to allow changing to electric heating, so grid infrastructure will require upgrading as well.

4.14.4 Hydrogen has the opportunity to be a multi-use fuel and it is attractive as it has the potential to closely replicate existing heating technologies for end consumers. Hydrogen can be manufactured in numerous ways and is a well-known practice in industry. Currently most hydrogen production is through fossil fuel derived processes, and this is termed 'Grey Hydrogen'. There are, however, two processes that are being explored to produce a lower carbon hydrogen source. 'Blue Hydrogen' is produced through a form of methane reformation which must be combined with efficient carbon capture and storage. 'Green Hydrogen' is the production of hydrogen via electrolysis of water using low carbon electricity. The production of hydrogen results in energy losses, as it takes approximately 1.4kWh of electrical or natural gas energy to create 1kWh of hydrogen. As such the production cost of hydrogen is one of the main hurdles to overcome.

4.14.5 Biomethane is already starting to help decarbonise the UK gas supply, although is still a very small proportion of total gas supply (the south west of England had just over 2% biomethane injected into the gas network in 2019). Biomethane has a number of potential feedstocks, as well as alternative uses to a heating fuel (it can be used in electricity production, heat generation, gas supplement and for transport). The largest sources of production in the UK are landfill gas, sewage sludge gas and anaerobic digestion. The use of biomethane, potentially from local sources, has the potential therefore to feed into the existing gas network in Guernsey to aid the decarbonisation of heat. However, it should be noted that previous studies in Guernsey have suggested that the amount of waste available as feedstock biomethane was insufficient to make it economically viable with existing technology.

[51] https://www.regen.co.uk/

[52] Regen: The decarbonisation of heat - https://www.regen.co.uk/wp-content/uploads/Regen-Heat-Paper-WEB2-Single-Page.pdf

4.14.6 There are other more innovative technical approaches that could be taken with regards to energy provision. Ground source heat pumps offer higher conversion efficiency than air source heat pumps but the cost and space required can be a barrier.

4.14.7 Heat networks themselves offer the opportunity to provide heat, through hot water pipes, directly into buildings rather than fuel or electricity. However, in order to deliver a centralised heat network in Guernsey, additional infrastructure would be required.

4.14.8 There are likely to be new solutions to deliver efficient low carbon heating and retrofit. The sector in the UK is already exploring new approaches through Retrofit Works[53] (a cooperative model using a central platform to allow building owners to procure and manage energy efficiency improvements) and service models treating heat as a service[54] (models which provide customers with an agreed heating plan rather than units of fuel).

4.14.9 Energy efficiency is a critical enabler of the decarbonisation of the heat sector, whatever supply approach is taken. Whilst there is clearly uncertainty around how low carbon heating will be provided in the future it is clear that, no matter the solution for the provision of heat, reducing heating demand and making buildings more energy efficient, such as installing improved insulation, is critical. This has not only the benefit of reduced fuel costs for end users, but also reduced peak load requirements enabling supply systems to become more affordable.

4.14.10 Regen assess that, in the UK, building standards are too low and there is an ageing building stock with high heat demand. Parallels can be drawn between England and Guernsey, as Guernsey's thermal performance standards, as set out in the approved guidance documents 'Guernsey Technical standards parts L1 and L2 for the conservation of fuel and power', are based on England's 'Approved Documents L1a, L1b, L2a and L2b', although it must be acknowledged that the two jurisdictions use differing calculation methodologies. The Island also has an ageing building stock. Whilst the States of Guernsey does not have a database of housing stock on the Island, the PwC report looked at improved thermal efficiency of residences assuming the same distribution as in Jersey. This concluded that there is a direct benefit-cost ratio of £2.15 (meaning for every £1 spent there is a direct benefit of £2.15) for improving housing stock thermal efficiency, which rises when wider benefits are taken into account. The report considered the following types of improvements:

- Hot water insulation;

[53] https://retrofitworks.co.uk/our-story/

[54] http://www.ukerc.ac.uk/news/heat-as-a-service-understanding-evidence-needs-and-research-gaps.html

- Cavity wall insulation;
- Loft insulation;
- Improved heating controls;
- Draught proofing;
- Solid wall insulation;
- Boiler replacement; and
- Double glazing.

4.14.11 In line with the energy hierarchy (Figure 15) and appreciating the benefits derived through energy efficiency as outlined by the IEA (Figure 16) it is important that Guernsey prioritises the implementation of measures to improve thermal efficiency of buildings.

4.14.12 Introducing improved building standards is one element that is required to deliver decarbonisation of heat. The move by the Development and Planning Authority bringing changes to the 'Part L' requirements is a good start, but more will need to be done. Guernsey, although not on the scale of the UK, continues to require new houses, with indicator values reviewed through the Housing Strategy. Studies and experience in the UK show that building to zero carbon standards adds less than 10% to building costs, and in Guernsey the Guernsey Housing Association builds above the current standards already, delivering highly efficient houses. As such, Guernsey should be looking towards introducing its own net zero carbon building standards. The Energy Policy outlines work to look into this further.

4.15 Power generation

4.15.1 In 2018 the electrical power generation sector contributed 16.9% of Guernsey's total greenhouse gas emissions, the third highest amount after transport and waste. In 1990 the sector produced 143.8kt of CO_2e compared with 67.2kt CO_2e in 2018. This amounts to a 53.2% reduction. However this reduction would have been greater but for the 2018 fault on the electricity cable providing low carbon electricity from France. By comparison, 2017, a year unaffected by cable faults, delivered a 77.8% reduction compared to 1990 levels.

4.15.2 Guernsey currently only has one interconnector which has recently experienced failures between Guernsey and Jersey, although this has now been repaired. In order to increase the security of supply and provide reliable and affordable access to imported low carbon electricity to all at all times, a second interconnector is required. Through the Energy Policy the States has agreed in principle to investment in a second interconnector direct to France, with a final business case to be brought to the States in due course.

4.15.3 Now the States have agreed to a second interconnector (in principle), the replacement of oil and LPG heating systems in both domestic and commercial properties with electric heating systems could be a possible option for

Guernsey. This would require expenditure to be prioritised and allocated for this purpose. Off-setting costs are anticipated to increase in the future and therefore, facilitating this transition earlier rather than later could result in greater savings.

4.15.4 Whist additional interconnection with continental Europe will help to reduce the impact of our energy usage further, it is also important that future actions align to the energy hierarchy (Figure 15) with a focus needed on energy reduction as well as transition to lower carbon sources of energy.

4.15.5 The Climate Change Policy is aligned with the Energy Policy, which aims for the decarbonisation of the Island's energy supply and the introduction of clean, low carbon energy sources by 2050 at the latest. The Climate Change policy will inform and support the development of a target for on-island renewable energy generation.

4.15.6 However, the Climate Change Action Plan looks to deliver a number of initiatives based on education (energy reduction) and support the delivery of energy efficiency projects though the Energy Partnership.

4.16 Waste

4.16.1 Emissions from waste currently contribute 23.7% of our Island's Greenhouse gas emissions with the Island having traditionally sent waste to landfill on the Island. In 1990 the handling of the Island's waste produced 107.3kt of CO_2e compared with 94.1kt of CO_2e in 2018. This amounts to a 12.3% reduction on 1990 levels.

4.16.2 Guernsey's Waste Management Plan, agreed in July 2018, is based on the Waste Hierarchy as defined in the European Waste Framework Directive[55] (replicated below as described in the Waste Management Plan, page 24[56]), which focuses on the reduction of waste as the main aim, with disposal being the least desirable option.

4.16.3 The waste hierarchy (Figure 18) that underpins the Waste Strategy prioritises the prevention and minimisation of waste, followed by repair and reuse, followed by recycling, then recovery for energy, with disposal being the least desirable option.

4.16.4 In accordance with the hierarchy the Island has implemented a plan that encourages waste minimisation (through 'Pay As You Throw' charging), repair and reuse (through the Household Waste & Recycling Centre), high rates of recycling (through the expansion of kerbside recycling collections to include glass and food waste), and the processing of residual waste into Refuse

[55] Directive 2008/98/EC of the European Parliament and of the Council, Article 4 - https://www.legislation.gov.uk/eudr/2008/98/article/4

[56] States of Guernsey Waste Management Plan, approved 19 July 2018 - https://gov.gg/CHttpHandler.ashx?id=123515&p=0

Derived Fuel (RDF) for energy recovery where possible. 73% of all household waste was reused, recycled or composted in 2019.

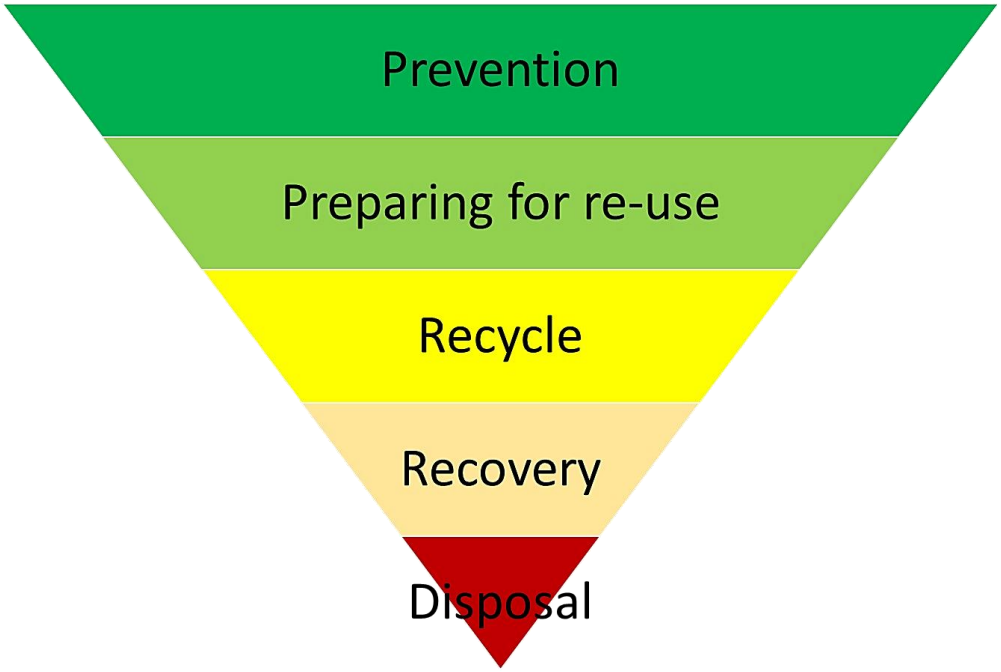

Fig. 18 – Waste hierarchy

4.16.5 Guernsey's Waste Strategy supports the reduction and minimisation of emissions. The Action Plan will focus on initiatives supporting the top tiers of the waste hierarchy to deliver further emissions reductions, but Guernsey's legacy emissions from old landfill sites will also need to be addressed.

4.16.6 Guernsey's Inert Waste Strategy[57] was approved by the States in 2020 which deals with the disposal specifically of residual inert waste. Inert waste is produced from excavation, construction and demolition activities, and mainly comprises rubble, hard-core, concrete, bricks, tiles and other ceramics, clean soil, and mixtures of these items. The Inert Waste Strategy prioritises reusing, recovering and recycling inert material where possible and is taking a data based approach to achieving this. The Inert Waste Strategy has its own hierarchy, outlined in Figure 19 below, and there are emissions associated with the disposal of inert waste that must be considered.

[57] Inert Waste Strategy - https://gov.gg/CHttpHandler.ashx?id=110769&p=0

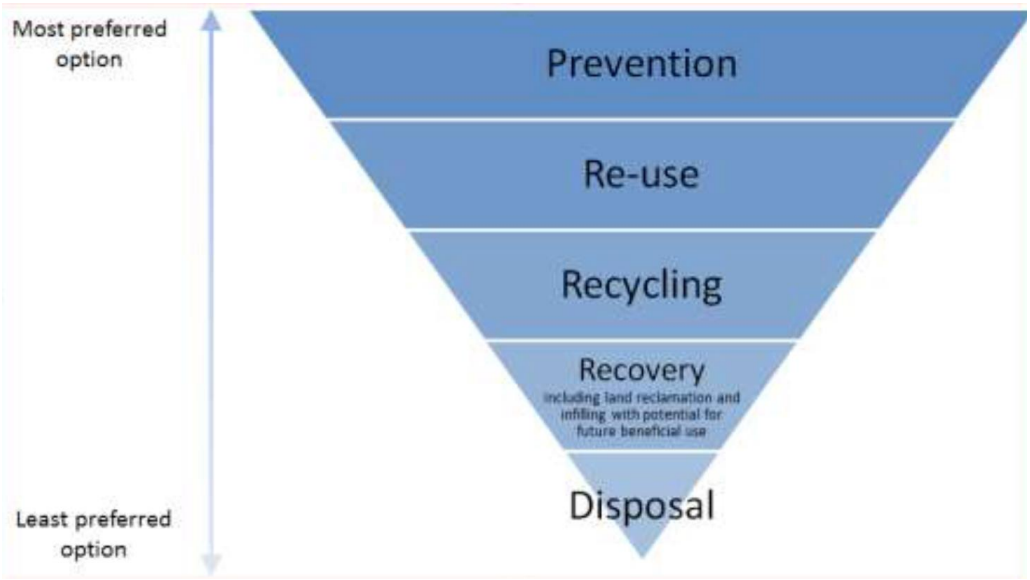

Fig. 19 — Guernsey's inert waste hierarchy

4.17 Fluorinated Gas

4.17.1 Fluorinated gas (F-gas) emissions account for 4.7% of carbon emissions on the Island. F-gases have a number of manmade sources as they are used in refrigeration and air-conditioning units, foams and aerosols (HFCs), as a by-product of producing aluminium and semiconductors (PFCs) and used in the electricity power sector as an insulator (SF_6). Guernsey does not have industrial processes such as aluminium production so emissions are mainly fugitive (escaped) emissions. The use of SF_6 as an insulator gas and HFCs as a coolant and foam forming agent are beyond the control of Guernsey; however the Island can look to take advantage of advancements in wider industry to limit these emissions.

4.18 Agriculture, land use, land use change and forestry

4.18.1 Agricultural and land use change emissions account for 4.3% of carbon emissions on-island. Improvements in this area could be realised through improved farming practices as well as enrichment of the natural environment to bolster on-island sequestration. This change can be achieved through the practices outlined in section 3.11.

5 POLICY CONTEXT

5.1 The Policy & Resource Plan and the Recovery Strategy

5.1.1 The Policy & Resource Plan approved by the States is centred on a 20-year vision for Guernsey:

> "*We will be among the happiest and healthiest places in the world, where everyone has equal opportunity to achieve their potential. We will be a safe and inclusive community, which nurtures its unique*

heritage and environment and is underpinned by a diverse and successful economy."

5.1.2 The Policy & Resource Plan is the States' long-term strategic plan, with the Recovery Strategy retaining the overall vision but reprioritising, refocusing and renewing the work streams of the Policy & Resource Plan. The importance of climate change in terms of a sustainable economy is set out in section 3.9. This Climate Change Policy is one of a number of enabling, supporting and guiding plans and policies which will supplement and inform the three critical action plans (health and care, sustainable economy and community) being developed to deliver the Recovery Strategy.

5.1.3 Although the Committee is leading on the work to examine policy options and actions to mitigate and adapt to climate change, it is a guiding principle for the Recovery Strategy and to succeed, the Climate Change Policy and Action Plan must be embraced by the States. Its success also depends on its community ownership, as achieving the target for carbon neutrality by 2050 or earlier will require changes to be enacted by organisations and individuals alike.

5.2 Developing a Climate Change Policy and Action Plan for Guernsey links closely with the UN Sustainable Development Goals (SDGs) [58], which were established in 2014. The SDGs also provide the thread between the vision, policy principles and recovery in the Recovery Strategy. The SDGs represent global guidelines for building a better world for people and the planet. 2030 is the target date by which to achieve the 17 goals, which span from climate to consumption, education to energy. As jurisdictions recognise their shared responsibility to make a difference, the SDGs increasingly guide government policy around the globe. 'Climate Action' is the 13th goal in the guidelines, but there are many other secondary links to climate change issues, such as 'Affordable & Clean Energy', 'Responsible Consumption & Production', 'Life on Land' etc. The guidelines are listed below in Figure 20.

[58] https://sustainabledevelopment.un.org/?menu=1300

Fig. 20 – The Global Goals For Sustainable Development, 17 'Global Goals' United Nations, September 2015

5.3 Economic Development Strategy

5.3.1 The success of our Island is dependent on having a strong and vibrant economy with sustainable public finances that provide the services to support a healthy and inclusive community. The size and composition of the population, in particular the working population, is a significant factor in Guernsey's economic prosperity. Our economy needs to be able to respond and adapt to the climate crisis.

5.3.2 In June 2018, the States of Deliberation approved the Economic Development Strategy. The four main elements of the strategy are:

- Maintain;
- Diversify and Grow;
- Open for Business; and
- Monitoring the Economy.

5.3.3 Following the COVID-19 crisis, the Island's Economic Development Strategy will be refocused as part of the Recovery Strategy through a Sustainable Economy Plan. This will refocus elements of the existing strategy, with an emphasis on economic opportunity, competitiveness and infrastructure development (including energy).

5.3.4 The Sustainable Economy Plan will focus on the following objectives:

- Identifying growth opportunities and resilience in new sectors and adjacent growth in existing sectors;
- Establishing the framework within which we can retain long-term competitiveness for supporting and attracting new businesses; the

growth of existing business; and to support the exploration and development of new economic opportunities;

- supporting environmental and social sustainability through economic outcomes; and
- Putting in place an infrastructure framework, including energy resilience, which prioritises and accelerates investment in areas that support the overall Recovery Strategy as well as the local economy.

5.3.5 There are specific economic development opportunities that directly relate to this Climate Change Policy, including: blue economy, natural capital, green finance and energy and infrastructure investment. The Committee is committed to developing these initiatives with the Committee *for* Economic Development as part of the sustainable economy action plan for post COVID-19 recovery.

5.3.6 Through the Sustainable Economy Plan, the Committee *for* Economic Development is leading work on the 'blue economy' which seeks to promote economic growth and the preservation or improvement of livelihoods whilst ensuring environmental sustainability of the marine environment. Both the Committee and the Committee *for* Economic Development has also highlighted the need to progress a marine spatial plan to guide the sustainable development of the marine environment and of which the blue economy plays a large part.

5.3.7 The blue economy is defined by the World Bank as "the sustainable use of ocean resources for economic growth, improved livelihoods and jobs, and ocean ecosystem health." This is the philosophy guiding the 'Develop plans for the blue economy' work stream.

5.3.8 Guernsey has access to many renewable energy sources, including solar, wind, tidal and wave resources that have the potential to be used to produce energy. As a result, there are a number of different ways in which on-island and off-shore renewable energy could be implemented locally and the contribution they can make to carbon neutrality is enabled through the delivery of the Energy Policy. It should be noted that renewable energy technology has greatly improved and costs associated with the introduction and use of renewable energy sources have come down significantly over recent years. The Energy Policy both enables and seeks to plan how best the Island can take advantage of these resources.

5.3.9 When looking at options for the production of on-island renewable energy there will be a need to work with the Development & Planning Authority to ensure that land use policies continue to sufficiently provide for such development.

5.3.10 There are currently a small number of industries in Guernsey which are carbon intensive. This includes the generation of power and quarrying. As a

community, it is important to recognise the history of our economy and understand how the Island got to the position seen today, as well as ensuring its vibrancy and future viability.

5.3.11 Locate Guernsey is an initiative which promotes and supports relocation to the Island by individuals and businesses. A significant number of businesses have relocated to Guernsey in recent years.

5.3.12 In 2006, the Keep Guernsey Green Award (KGGA) was established by the States of Guernsey to enable organisations to demonstrate their commitment to the environment through waste management and energy conservation. The Environmental and Social Impact Monitor (ESIM) recently incorporated this into the ESIM Environmental Operations Award in order to encompass a wider focus on environmental issues, with particular regard to businesses' corporate social responsibility and the green finance sector.

5.3.13 The global focus on environmental sustainability in recent years has led to an established and growing sector of green finance[59]. There is an increasing pool of investors who are mandated to invest a certain proportion of their assets, into investments which, alongside traditional financial return, provide positive environmental benefits. During 2018-19 Guernsey's finance sector developed a strong and credible green finance offering. Through work led by Guernsey Finance, Guernsey is now part of the UN-sponsored International Network of Finance Centres for Sustainability. As a Green and Sustainable Finance Centre, Guernsey must demonstrate a systemic approach to sustainable finance, including government frameworks and investment policies as well as industry products.

5.3.14 The International Stock Exchange (TISE) was established in Guernsey and remains headquartered in the Island. TISE GREEN has been established to enable those seeking investment into environmentally beneficial initiatives to highlight their green credentials while, at the same time, providing easier access for investors who are looking to allocate towards those investments which have been verified as meeting globally recognised standards in green finance.

5.3.15 The European Union's green taxonomy is being incorporated into the rules for the Guernsey Green Fund. The Guernsey Green Fund is the world's first regulated green fund regime, providing a robust, transparent framework for investing in green and sustainable projects. It provides the market confidence from a regulatory wrapper and aligns with current global green standards. The fund rules require assets to be invested in accordance with agreed international standards. The Guernsey Financial Services Commission (GFSC),

[59] Green finance may be defined as finance that delivers environmental benefits in the context of sustainable development. Sustainable finance, in contrast, looks more broadly at ESG factors in both market practice and policy frameworks for banking, capital markets, investment and insurance.

as the regulator of financial services in Guernsey, will incorporate the EU taxonomy as an accepted permitted standard. Investors' need for trusted, transparent products was the rationale behind the creation of the Guernsey Green Fund regulatory regime. Over the past year, five funds with combined assets under management of US$4 billion have been registered.

5.3.16 Industry is transitioning towards cleaner technologies, as illustrated through the move away from traditional ICEVs. There are opportunities for Guernsey to look to work with emerging technologies and the likelihood is that changing technologies will influence the Island's economic policies going forward.

5.3.17 There are opportunities for the Committee and the Committee *for* Economic Development to work together in order to explore the opportunities for mitigating climate change with particular relation to green and sustainable finance and the blue economy, as well as local economic initiatives. This can also include working with Guernsey Finance to consider the benefits of establishing a green and sustainable finance institute with non-government partners.

5.4 The Strategic Land Use Plan and the Island Development Plan

5.4.1 The Strategic Land Use Plan (SLUP) sets out the 20 year high level agenda for land use within Guernsey and was adopted in November 2011. It sets out high level objectives for the wise management of Guernsey's resources and gives support to corporate objectives and associated policies relating to the conservation of energy, reduction of our carbon footprint, development of renewable energy and adaptation to climate change. It sets out a spatial strategy for development which concentrates development to reinforce sustainable centres and it also includes policies relating to sustainable development, climate change mitigation, climate change adaptation and sustainable design and construction.

5.4.2 The Island Development Plan (IDP) was adopted in November 2016 and sets out, in a single document, the detailed land planning policies for the whole of Guernsey. It seeks to balance social, environmental and economic considerations in accordance with the guidance and direction given in the SLUP. It reinforces the spatial strategy and includes policy requirements relating to sustainable development and protection and enhancement of the natural environment.

5.4.3 It is essential that as priorities change and progress, the SLUP and the IDP can continue to provide an effective high level spatial planning framework and long term agenda for land use planning in Guernsey that enables agreed actions for a move towards carbon neutrality to progress.

5.5 Energy Policy

5.5.1 The Committee was also responsible for producing an Energy Policy, which was considered and adopted by the States in May 2020. The Energy Policy sets the target for a transition to decarbonisation from 2020 to 2050, where energy comes from clean low carbon sources.

5.5.2 The five other objectives of the Energy Policy are:

- Security and resilience of supply;
- Consumer value and choice;
- Equity and fairness;
- Supporting a vibrant economy; and
- Greater energy independence.

5.5.3 The energy market and the way in which the Island obtains energy will have a significant impact on the move to decarbonisation. It has been recognised globally that there is a transition towards electricity, rather than using gas, solid fuels and liquid and therefore the Energy Policy must reflect this, ensuring that there is security of supply to meet demand.

5.5.4 Sources that currently make up Guernsey's energy mix are as follows:

- Electricity generated off-island from 100% renewable (energy sources, and imported from France via Jersey by interconnector);
- Electricity generated on-island using hydrocarbon fuels (heavy fuel oil or liquefied petroleum gas) imported by sea;
- Electricity generated on-island, on a domestic and small-scale commercial basis, from renewable sources;
- Hydrocarbon fuels including transport fuels, kerosene, and mains and cylinder gas, all of which are imported by sea; and
- Solid fuels such as wood and coal, with some wood sourced locally while the rest is imported by sea.

5.5.5 In order to meet demand, the gas, solid fuels and liquid fuels markets all rely on importation by sea. However, through the Energy Policy, the States has agreed to establish a target for the generation of on-island renewable energy. Careful consideration will need to be given to the transition period to decarbonisation when developing this target.

5.6 On-Island Integrated Transport Strategy (ITS)

5.6.1 The ITS was approved by the States of Deliberation in May 2014 and its first periodic review was published in December 2019. The strategy's vision recognises the need for transport to be energy efficient, enhance the environment and minimise pollution.

5.6.2 Three of the strategy objectives – "*To reduce the number of car journeys, particularly solo-occupancy trips*", "*To increase the number of journeys made by alternative forms of transport, particularly active travel modes*" and "*To achieve a greater proportion of cleaner, low emissions motor vehicles*" – are

closely related to mitigating climate change. In addition, the improvements and investments made "*To improve safety for all road users, particularly vulnerable road users*" will help to create a modal shift away from the most polluting forms of transport. Investment into public electric vehicle charging points will also continue.

5.7 Marine Spatial Plan (MSP)

5.7.1 The Committee has within its mandate responsibility for developing policy in many areas that will be encompassed by a Marine Spatial Plan, including infrastructure, climate change, protection and conservation of the natural environment, energy, and maritime affairs. An MSP sets out the long-term agenda for the sustainable development, management, and protection of the marine environment as a strategic resource.

5.7.2 There are increasing economic, social and environmental pressures on the use of Guernsey's marine environment, and therefore, it is recommended that steps are taken towards the development of a MSP to underpin the Island's recovery and aim to exceed its previous growth path within three years.

5.8 The Strategy for Nature

5.8.1 The States approved the Biodiversity Strategy in 2015 and in doing so, as an ongoing principle, placed a policy obligation on all committees to take it into account. Since the Biodiversity Strategy was approved, there has been a seismic shift in public interest and government action to address climate change and the direct and indirect impacts on nature. In November 2019, the States directed the Committee *for the* Environment & Infrastructure to take the necessary steps to "*determine the appropriate model and ongoing funding requirements for matters relating to the Biodiversity Strategy*".

5.8.2 The Strategy for Nature incorporates the findings of a scheduled 5-year review of the 2015 Biodiversity Strategy. It is an update of the 2015 Biodiversity Strategy and provides the appropriate model and high-level objectives and priorities to support nature related decision-making across the States to deliver the long-term management of nature in Guernsey. A supporting 5-year action plan is being developed.

5.8.3 Biodiversity and Climate Change are intrinsically linked. At the foundations of climate change adaptation is the ability for biodiversity to be healthy and diverse enough to adapt to & be resilient to climate change. Climate change adaptation and mitigation and the resilience of nature go hand in hand. The Strategy for Nature framework provides the structure to horizon scan for pressures on nature, to monitor progress and prioritise projects within its action plan, and to proactively manage our natural assets through biodiversity mainstreaming to support and inform decision-making across the States.

5.8.4 The intrinsic link between climate change and biodiversity requires an integrated policy approach to enable the successful delivery of objectives in both policy areas.

5.9 International Development

5.9.1 The Overseas Aid and Development Commission's 10-year plan was approved by the States in July 2019. This included the development of a 'large grants' programme, greater focus on partnership working, and the creation of a Guernsey International Development Network, alongside continued focus on 'small grants' and emergency relief.

5.9.2 The need for greater focus on tackling the drivers of climate change and building more resilient communities was emphasised in that 10-year plan. This provides a key opportunity to ensure that Guernsey's work to address the needs of the world's poorest communities, is also able to contribute to the goals of the Climate Change Policy.

6 CLIMATE CHANGE ADAPTATION

6.1 The Island will need to adapt to the forecast effects that climate change will have on it, no matter what steps are taken to become carbon neutral. This includes changes to weather patterns, increases in temperature, the arrival of new non-native species, increased flood risk and the impacts of rising sea levels. These effects will need to be addressed through a number of different strategy and policy approaches.

6.2 Adaptation means adapting to life in a changing climate and involves adjusting to actual or expected future climate. The goal is to reduce our vulnerability to the harmful effects of climate change like sea-level rise, more intense extreme weather events or food insecurity. It also encompasses making the most of any potential beneficial opportunities associated with climate change (for example, longer growing seasons or increased yields).

6.3 Examples of adaptation measures internationally include: using scarce water resources more efficiently; adapting building codes to future climate conditions and extreme weather events; building flood defences and raising the levels of dykes; developing drought-tolerant crops; choosing tree species and forestry practices less vulnerable to storms and fires; installing water-permeable pavements to better deal with floods and storm water; and setting aside land corridors to help species migrate.

6.4 In the Guernsey context, adaptation measures are likely to include the modification of our coastal defence infrastructure to account for rising sea levels, adapting farming practices to meet changing climactic conditions and improving drainage systems to cope with additional periods of wet weather and more intense rainfall. Although the Island continues to enjoy a plentiful supply of water, thanks in part to the historical position of having multiple

water storage sites, there is still a risk that climate change could also lead to longer periods of dry weather, which may impact upon the Island's reserves.

6.5 In 2007, the engineering consultancy Royal Haskoning submitted the report 'Guernsey Coastal Defence Strategy'[60] which highlights the key issues for the management of the coastal defences and beaches around the islands of Guernsey and Herm. This report recognises that sea levels will continue to rise and high water levels are predicted to become more frequent.

6.6 Assessment of the 25 coastal units (a coastal unit represents a bay or continuous stretch of coastline such at the southern cliffs) around Guernsey and two in Herm were carried out reviewing their attributes and changes since the previous strategy in 1999[61], including the impacts of climate change. From this a review of strategy and options were laid out.

6.7 Several areas were identified from the 2007 strategy that may be vulnerable to flood risk due to predicted sea level rise associated with climate change. The 'Guernsey Coastal Defence – Flood Risk Assessment Studies 2012'[62] was commissioned to further understand these areas. The report covers three main areas: the north of the Island (Belle Greve Bay, St Sampson and the associated area of La Grande Havre, Bordeaux Harbour, Baie De Port Grat & Pecqueries, and Cobo & Saline Bay) Rocquaine Bay and L'Eree Bay, and Pembroke Bay.

6.8 However there are still a number of other areas that the Island will need to address in the coming years, such as how to deal with increased rainfall, potentially with corresponding high tides, and changes to farming practices that may be required given the changing climate.

6.9 In addition, warmer climates could lead to certain areas experiencing drought or a strain on existing water supplies. Whilst Guernsey is currently well placed with water supplies through an extensive former quarry water storage system, this could change if wet weather becomes less frequent. The increased frequency and violence of storms will likely lead to infrastructure damage, flooding and soil erosion (which will have a knock-on effect on agriculture).

6.10 There are some potential opportunities that can be realised through adaptation, although they are hard to predict further work is required to explore these possibilities.

[60] Coastal Defence Strategy Volume 1 – review strategy report, March 2007 - https://gov.gg/CHttpHandler.ashx?id=58634&p=0

[61] Guernsey Strategy for coastal defence and beach management volume 1 – strategy report, March 1999 - https://gov.gg/CHttpHandler.ashx?id=58637&p=0

[62] Guernsey Coastal Defences Flood Risk Assessment Studies Volume 1 – Report, March 2012 - https://gov.gg/CHttpHandler.ashx?id=76962&p=0

7 POLICY CONSIDERATIONS

7.1 When considering the challenge of long-term emissions reduction, it is important to consider the time scale for becoming carbon neutral and to understand what a sustainable low carbon future looks like. The significant questions that need to be asked in order to shape the transition to decarbonisation are:

- What amount of carbon emissions should be abated by 2050 and what amount of residual emissions will need off-setting after this date, both in total and in the transport and heating sectors?
- How quickly should the remaining carbon emissions be reduced and removed after 2050?
- What policies are most likely to reduce emissions? What are the costs and benefits associated with them?

7.2 Definition of Net Zero or Carbon Neutrality

7.2.1 When exploring the Paris agreement the European Parliament[63] outlines how it defines carbon neutrality:

> "*Carbon neutrality means having a balance between emitting carbon and absorbing carbon from the atmosphere in carbon sinks. Removing carbon dioxide from the atmosphere and then storing it is known as carbon sequestration. In order to achieve net zero emissions, all worldwide greenhouse gas emissions will have to be counterbalanced by carbon sequestration.*
>
> *A carbon sink is any system that absorbs more carbon than it emits. The main natural carbon sinks are soil, forests and oceans. According to estimates, natural sinks remove between 9.5 and 11 Gt of CO_2 per year. Annual global CO_2 emissions reached 37.1 Gt in 2017.*
>
> *To date, no artificial carbon sinks are able to remove carbon from the atmosphere on the necessary scale to fight global warming.*
>
> *The carbon stored in natural sinks such as forests is released into the atmosphere through forest fires, changes in land use or logging. This is why it is essential to reduce carbon emissions in order to reach climate neutrality.*
>
> *Another way to reduce emissions and to pursue carbon neutrality is to offset emissions made in one sector by reducing them somewhere else. This can be done through investment in renewable energy, energy efficiency or other clean, low-carbon technologies.*"

[63] https://www.europarl.europa.eu/news/en/headlines/society/20190926STO62270/what-is-carbon-neutrality-and-how-can-it-be-achieved-by-2050

7.2.2 It should be noted that the annual global loss of blue carbon (carbon stored in the marine environment) ecosystems is resulting in emissions similar to the annual fossil fuel CO_2 emissions of the UK[64]. This again highlights the importance of nature in climate change, and the need to understand and monitor how emissions are both stored and released.

7.2.3 The UK CCC explain net-zero emissions (or carbon neutrality) in the following way[65]:

> *"Long-lived greenhouse gases like carbon dioxide accumulate in the atmosphere. Therefore, their emissions must be reduced to zero in order to stop their cumulative warming effect from increasing and to stabilise global temperatures.*
>
> *Some activities, such as afforestation, actively remove CO_2 from the atmosphere.*
>
> *Net-zero' emissions means that the total of active removals from the atmosphere offsets any remaining emissions from the rest of the economy. The removals are expected to be important given the difficulty in entirely eliminating emissions from some sectors.*
>
> *Sometimes 'net-zero' is used to refer to CO_2 only, and sometimes it refers to all GHGs. There are some merits in each, which we consider in this report. Our recommendation in this report (Chapter 8) is that the UK should set a net-zero target to cover all GHGs and all sectors, including international aviation and shipping."*

7.2.4 The Committee recommends the following definition of net zero, or carbon neutrality, for the Island: "*Balancing the emissions that are produced as a community with activities that absorb, capture or reduce those emissions so they are equal. This applies to all greenhouse gas emissions (not just CO_2) and is expressed in units of CO_2e (carbon dioxide equivalent)."*

7.2.4.1 This applies to the emissions that are generated directly through on-island activities, including emissions from driving petrol/diesel vehicles and burning oil/gas to heat a building. These emissions are termed Scope 1 emissions and are captured in Guernsey's Annual Greenhouse Gas Bulletin.

7.2.4.2 Emissions are also released from energy imported into Guernsey. Global emissions accounting considers the emissions from energy production to be accrued in the country in which it was generated. However, in practical terms, these emissions are as a result of energy use locally. Emissions from imported

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[64] Nature Connection Index (NCI) Dataset - https://www.gov.uk/government/statistics/nature-connection-index-nci-dataset

[65] Committee on Climate Change, Net Zero: the UK's contribution to stopping global warming, may 2019, Page 45, box 1.2 - https://www.theccc.org.uk/wp-content/uploads/2019/05/Net-Zero-The-UKs-contribution-to-stopping-global-warming.pdf

electricity are termed Scope 2 emissions and are included in the Island's carbon neutrality but are not captured in Guernsey's Annual Greenhouse Gas Bulletin.

7.2.4.3 In addition to imported energy emissions, emissions are released during the manufacturing and transportation of the goods and services consumed in Guernsey, including those produced throughout the product's full life cycle and those arising from activities of local businesses. These emissions are termed Scope 3 emissions and are driven by the behaviours and choices made by the Island's residents and businesses but are not captured in Guernsey's Annual Greenhouse Gas Bulletin.

7.2.4.4 The Committee recognises that these Scope 3 emissions are part of the Island's footprint, but further work is required before all Scope 3 emissions can form part of the baseline for carbon neutrality. Emissions relating to the export and treatment of the Island's waste and emissions associated with off-island travel are included in the Island's carbon neutrality. Further work will be required to fully understand further Scope 3 emissions before they can be included in the Island's carbon neutrality.

7.2.4.5 Carbon offsetting will form part of the Island's carbon neutral plan, but as a secondary rather than primary measure.

7.2.4.6 This ensures that the Island takes responsibility for on-island actions first but does not lose sight of the wider impact of Island activities and products.

7.3 Scope of Emission Reporting

7.3.1 In order to consider reducing Guernsey's carbon emissions as part of mitigating the effects of climate change, it is essential to first understand, and apply appropriately, a method for carbon accounting which clearly defines the scope of emissions reporting chosen (i.e. what should be included in the reporting and what should not). The formation of the Island's reporting standard should take into account emission reporting that is not required under international reporting convention[66], but would also prove valuable for policy or reputational purposes.

7.3.2 It is important to emphasise that what the Island choses to adopt in terms of the scope of emissions for consideration in meeting the Island's net zero target does not impact upon what the Island is required to report in fulfilment of the Island's annual greenhouse gas reporting currently undertaken. The Island will continue to report annually through the Greenhouse Gas Bulletin in line with the accepted methodology. By choosing additional scopes to include in the Island's net zero commitment the Island would be undertaking

[66] International standards mandate only Scope 1 emissions be reported – this is to allow a global picture of emissions without double counting emissions. This is undertaken annually through the Greenhouse Gas Bulletin.

additional reporting for the purposes of meeting the objectives of this policy—and this would therefore not lead to double counting of emissions internationally.

7.3.3. This Policy defines the three scopes of carbon emissions, in line with the Greenhouse Gas Protocol definitions[67] and illustrated in Figure 21, as:

- Scope 1: direct emissions – emissions from all activities that occur within the reporting jurisdiction, including operations that are owned or controlled by the jurisdiction (on-island emissions);
- Scope 2: indirect emissions – emissions from the generation of purchased or acquired electricity, steam, heating, or cooling consumed by the reporting jurisdiction (imported energy emissions);
- Scope 3: indirect emissions – all other emissions that occur outside of the jurisdiction as a result of the Island's activities—including upstream activities (e.g. purchased goods and services) and downstream activities.

The scopes are analysed in greater detail below.

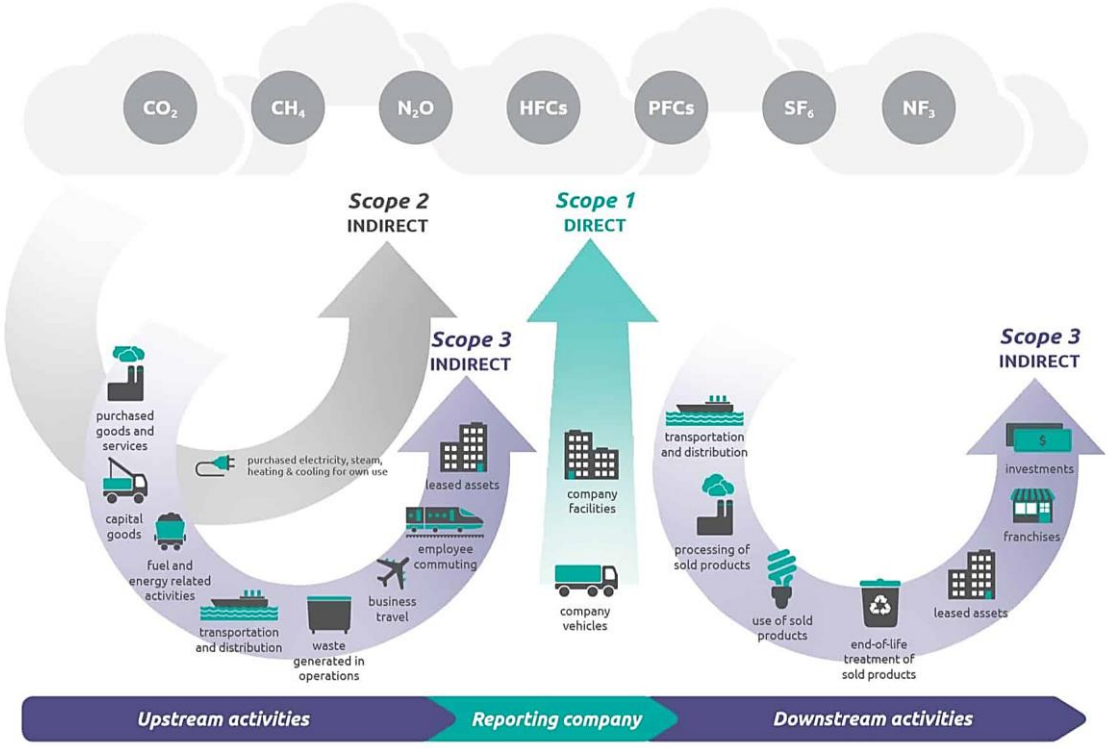


Fig. 21 – Emissions scope examples[68]

[67] https://ghgprotocol.org/calculationg-tools-faq
[68] Greenhouse Gas Protocol - https://www.ghgprotocol.org/sites/default/files/ghgp/standards/Scope3_Calculation_Guidance_0.pdf

7.3.4 This policy letter recommends, in accordance with the Principles of Accounting and the definition of carbon neutrality for the Island outlined above, incorporating the following scopes within the target for carbon neutrality:

- Scope 1: direct emissions – all direct on-island emissions;
- Scope 2: indirect emissions – all imported electricity emissions;
- Scope 3: indirect emissions – emissions relating to exported waste and off-island travel and cruise ships visiting the island.

This policy letter also recommends undertaking further work with the aim of incorporating further Scope 3 emissions once there is a suitable method for measuring these emissions for the Island.

7.3.5 **Scope 1** emissions are the direct emissions generated on-island from all our activities that take place within our jurisdiction. These are the emissions that the Island is required to report on internationally and hence are clearly in scope of the Island's technical definition of carbon neutrality.

7.3.6 **Scope 2** emissions are those arising from the importation of energy from other jurisdictions, which in Guernsey relates specifically to the importation of electricity from the French grid. Guernsey currently imports up to 85% of its electricity through a 60MW capacity cable link via Jersey to France.

7.3.6.1 Historically the Channel Islands Electricity Grid (CIEG) agreement with EDF stipulated that the Islands import certified hydroelectric and nuclear power, in a 30/70 ratio, for a small premium. Since January 2020 this has changed to 100% certified renewable energy for Guernsey[69] (Jersey maintains a nuclear/renewable split). Through the importation of electricity the Island has, for the purposes of international accounting, been able to significantly reduce the Island's greenhouse gas emissions as emissions from imported electricity count as zero. This has been the single largest contribution to the reduction in the Island's greenhouse gas emissions over the past 30 years.

7.3.6.2 While this has reduced our emissions for accounting purposes, it has also effectively pushed the Island's electricity production into another jurisdiction (France in respect of electricity generation) to account for the emissions. Whilst the CIEG have negotiated an agreement that has reduced carbon emissions as a clear driving factor (through renewable and nuclear power) there are still carbon emissions associated with the generation, through construction and maintenance requirements[70]. In addition, although the Island does not utilise the non-renewable element of the French power

[69] http://www.electricity.gg/about/blog/guarantees/

[70] The 2014 IPCC report "Climate Change 2014: Mitigation of Climate Change" outlines the CO2e emissions for nuclear as between 4 – 110 gCO2e/kWh and for hydro power as between 3 – 2200 gCO2e/kWh. By way of comparison, the report outlines a range of 2-81 gCO2e/kWh for wind, with smaller turbines associated with the upper part of the range, and 18-180 gCO2e/kWh for Solar PV. Guernsey Electricity Limited account for the carbon emissions of Nuclear energy at 4 gCO2e/kwh and for hydroelectric at 6 gCO2e/kWh.

network, it does increase French reliance on non-renewable energy in the short term, until market forces can respond to the increased demand for renewables. This is because the French generation mixture includes hydrocarbon and non-hydrocarbon sources, with only a proportion of French energy needs able to be met by low carbon elements, and by Guernsey drawing only the low carbon elements the remaining demand is met by an increased proportion of hydrocarbon supply.

7.3.6.3 There remains a political commitment in France to move away from nuclear energy, and the likely replacement would be gas turbines in the short term. Even if this were not the case there would remain the argument that Guernsey, as a responsible jurisdiction, should be taking some ownership of the emissions produced to power the Island (an approach that Jersey has recently taken). By doing so Guernsey would show a commitment to reducing emissions, and a will to contribute to the global effort, not simply those generated on the Island.

7.3.7 **Scope 3** emissions are those generated around the world in the lifecycle of the products and services used in the Island, from production and use through to disposal. Every item that is imported into the Island has embodied emissions (also known as embedded emissions) within them from the manufacturing process. These are calculated based on the place of creation of goods, taking into account the resources and energy that go into the manufacture of goods or the production of food. This means that embodied emissions from the same product made in different locations will be different. Product lifecycle emissions tend to be calculated based on the above factors, and are not included in standard national emissions reporting as this would lead to double counting. As highlighted in Figure 21 there are upstream and downstream Scope 3 emissions, emissions associated with a product both before and after 'use'.

7.3.7.1 It is very difficult to accurately measure these emissions on an Island-wide basis, however, and the Committee recommends further work to develop a methodology that would allow the quantification of these emissions as part of the Island's push towards carbon neutrality. It is important that Guernsey aims to not increase Scope 3 emissions (e.g. not push existing Scope 1 emissions off-island) as an initial approach to delivering carbon neutrality. Once a methodology for assessing the Scope 3 emissions for the Island has been developed, the Island can look to include Scope 3 emissions within carbon neutrality. Given the extensive research required to quantify the emissions from all products and foodstuff imported to Guernsey, this policy letter recommends further work is undertaken before including product lifecycle emissions in the definition of carbon neutrality. Other jurisdictions also face the same issues so Guernsey should look to align any future methodology with international best practices.

7.3.7.2 Given the way the Island has decided to treat waste management, through the exportation for energy recovery, this policy letter recommends that the Scope 3 emissions associated with the export and processing off-island of our waste in all forms – recyclable, biodegradable and general waste – are included within the target for net zero. These emissions include the shipping and treatment of the various waste streams and the emissions are measurable due to the way we process waste. It is recommended that the Island takes responsibility for reducing these as well within the agreed technical definition of net zero.

7.3.7.3 Guernsey has been exporting recyclable materials (plastic, metal, paper) for a number of years, which has had the effect of extending the life of the landfill. In 2018, the Island began segregating waste further with the introduction of food waste recycling, and then began to export non-recyclable waste for combustion. This reduces the on-island emissions, but still has emissions associated with the treatment.

7.3.7.4 Work has been undertaken to identify the CO_2e emissions from the new waste disposal process, and the parts of this taking place on-island will be incorporated into the existing annual greenhouse report. However, exporting waste also means exporting the emissions that are produced through the processing and disposal of the waste. The waste that is incinerated is used to produce electricity, which is of benefit to the country the waste is exported to, but that doesn't mask the fact that the emissions come from the processing of our Island's waste. This policy letter therefore recommends that the emissions from the incineration of the Island's waste should be included in the accounting for the Climate Change Policy and strategy.

7.3.7.5 Given the reliance, as an island community, on air and sea links, this policy letter also recommends that emissions from off-island travel (aviation and marine) and cruise ships while they are present in our waters are calculated and included within the target for carbon neutrality. As an island there is a clear reliance upon air and sea links in order to provide us with essential commodities such as food and fuel as well as maintaining links to the UK for business and leisure purposes. This is therefore an area that will need to be maintained in some capacity to ensure both supplies are able to make it to the Island and Guernsey can continue to prosper through business links as well as facilitating Islanders' leisure plans. Emissions from off-island travel (the off/on island leg of a journey, i.e. the direct flight or sailing to or from the island) are only partially accounted for through sale of fuel. This is because annual reporting does not account for the practice of filling up in cheaper airports which reduces the impact on the Island from the links provided.

7.3.7.6 As with imported electricity, off-island travel is a sector where the emissions are passed to other jurisdictions through refuelling off-island. As a responsible jurisdiction with a reliance on air and sea links, there is an argument for

ensuring that reporting against net zero accounts for these emissions within the Climate Change Policy and strategy in a way that reflects both our reliance on these links and our desire to address the issue.

7.3.7.7 Given that emissions from all fuel sourced on-island are already accounted for, a piece of work is required to understand the scale of emissions not currently reported and the feasibility of undertaking an additional component looking at the trip based emissions for the Island, whilst ensuring that emissions are not double-counted (e.g. through not discounting the on-island fuel component already accounted for). For context, under our annual reporting obligations aviation accounts for 22% and marine for 11% of our transport emissions.

7.3.8 An annual statement should be produced by the Committee *for the* Environment & Infrastructure which reports the emissions from Scope 1, Scope 2 and Scope 3 as outlined above.

7.3.8.1 The Committee recommends that the emissions reporting should be broken down into sectors, as is done for Guernsey's annual GHG Bulletin, with initiatives to target these sectors, as shown below:

- Energy – power generation (the combustion of fuel for the production of electricity);
- Energy – industrial combustion (relating to building processes and the use of generators);
- Energy – transport (including domestic and off-island);
- Energy – commercial and domestic combustion (heating and hot water);
- Agriculture, land use, land use change and forestry;
- Waste;
- Fluorinated Gases; and
- Offsetting.

7.4 The Emissions Hierarchy

7.4.1 When considering the options for an organisation or jurisdiction in looking to reduce greenhouse gas emissions it is important to consider the impact and effectiveness of a solution. In waste management there is a very well-known basic hierarchy: reduce, reuse, and recycle. In carbon or greenhouse gas management there is also a hierarchy of actions, which is often summarised as 'reduce what you can, offset what you can't' but can be distilled into four action areas: **avoid**, **reduce**, **replace**, and **offset**. We call this the emissions hierarchy. Actions at the top of the hierarchy produce more lasting effects in terms of reducing emissions and these are detailed below.

7.4.2 **Avoid**: avoid carbon intensive activities – within all major decisions investigate options to eliminate greenhouse gas emissions. This potential exists in any change, expansion, rationalisation or relocation. Taking action to avoid

emissions may lead to a new business model, an alternative operating model or new products and services.

7.4.3 **Reduce**: do whatever you do more efficiently, for example efficient supply and use of energy, vehicles, staff and products. Reduction should be investigated across the emissions range, with energy efficiency measures being a cost effective measure to reduce emissions. Managing the creation of waste can also have a positive impact on emissions.

7.4.4 **Replace**: replace high carbon sources with low carbon sources – reduce the carbon intensity of energy use and supply chains through transitioning to renewable and low carbon technologies and using suppliers of products with lower embodied emissions.

7.4.5 **Offset**: for those emissions that cannot be eliminated by the above, undertake offsetting either locally or through an accredited scheme – develop a strategy to compensate for residual or 'unavoidable' emissions.

7.4.6 The emissions hierarchy can be presented in an inverted pyramidal format to give a visual outline of the options, their preference and level of long-term impact and change and is illustrated below in Figure 22. The emissions hierarchy aligns to the energy hierarchy, the waste hierarchy and the transport hierarchy, as set out in section 4. Examples of actions that can be taken under the hierarchy relate to travel and could include:

- Avoid – work from home;
- Reduce – make trips that achieve multiple outcomes;
- Replace – substitute car use for public transport, walking or cycling, or switch to a more fuel efficient vehicle; and
- Offset – purchase accredited offsets for remaining/unavoidable transport.

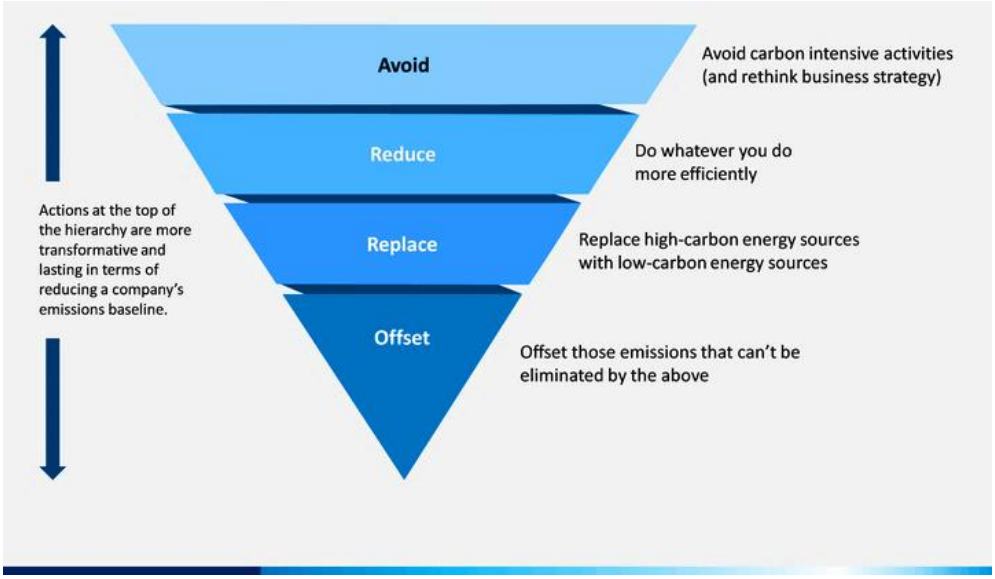


Fig. 22 – The emissions hierarchy – best practice approach

7.4.7 Individuals, organisations, and governments will often have opportunities to take actions across the carbon management hierarchy and it is therefore important to focus upon, and provide support for, the top of the hierarchy where outcomes are more transformative and longer lasting.

7.4.8 It is important that the public sector leads by example. An engaged and empowered government can achieve more than just reduce its own emissions, it can stimulate and inspire action across wider society. While important changes to our policy framework will be a key factor in our transition to a low carbon economy, the States must also act as exemplars of best practice in taking climate action across all sectors.

7.5 Carbon Offsetting

7.5.1 The Committee has considered the definition of carbon offsetting in order to meet with the target of net zero emissions, given that some emissions will be very challenging or impossible to eradicate, such as fugitive emissions from historical landfill sites, and others will take time to reduce. A carbon offset is a reduction in emissions of carbon dioxide, or other GHG, to compensate for emissions made elsewhere. Offsets are measured in tonnes of carbon dioxide equivalent (CO_2e). One tonne of carbon offset represents the reduction of one tonne of CO_2e.

7.5.2 Carbon offsets can be generated from different types of projects that either prevent greenhouse gases from being emitted or capture GHG emissions that have already been created. The most commonly considered form is through sequestration of carbon (capture), however other methods of offsetting include supporting certain projects aimed at reducing future carbon emissions (prevention). Importantly, for a future reduction offset to be valid it must not

only be effective, but also additional to any savings that may have occurred without the offset.

7.5.3 Carbon sequestration is a process that removes and stores carbon, long term, from the atmosphere, primarily in plants, soils, oceans and geological formations. It can be either a natural or man-made process.

7.5.4 Biological carbon sequestration refers to storage of atmospheric carbon in vegetation (such as grasslands and forests), soils, woody products, and aquatic environments[71]. This occurs naturally through the removal and storage of carbon from the atmosphere in carbon sinks (such as oceans, forests or soils) through physical or biological processes, such as photosynthesis[72] and interaction between the air and the ocean surface.

7.5.5 Carbon capture and storage is a man-made process capturing, from power plants and other facilities, and storing greenhouse gases that would otherwise be emitted to the atmosphere. The gases can be captured at the point of emission and can be stored in underground reservoirs (geological sequestration), injected in deep oceans (ocean sequestration), or converted to rock-like solid materials (advanced concepts). [73]

7.5.6 Geological carbon sequestration is the process of storing carbon dioxide in underground geologic formations, or rocks[74]. Natural geological stores have been recovered for fuel (fossil fuels) and so this is a method of returning some of the carbon to pre-existing stores[75]. This method of carbon sequestration is a technological solution utilising, in some cases, the same geological conditions that stored fossil fuels. CO_2 is usually pressurized until it becomes a liquid, and then it is injected into porous rock formations in geologic basins[76].

7.5.7 Technological carbon sequestration (or advanced concepts) is the exploration of converting CO_2 into beneficial by-products and materials that will mitigate greenhouse gas emissions while helping to create value for CO_2, such as graphene, as well as exploring new ways to remove and store carbon from the atmosphere using innovative technologies[77].

7.5.8 Locally it is possible to sequester emissions through land use management and land use changes that absorb carbon, e.g. planting trees and expanding grasslands, as well as through the marine environment. Nature-based

[71] https://climatechange.ucdavis.edu/science/carbon-sequestration/biological/
[72] https://www.greenfacts.org/glossary/abc/carbon-sequestration.htm
[73] https://www.cslforum.org/cslf/What-is-CCS
[74] https://climatechange.ucdavis.edu/science/carbon-sequestration/geological/
[75] Julianna Fessenden, Carbon Sequestration and natural analogs, Geology (2012), 40 (6):575-576 - https://pubs.geoscienceworld.org/gsa/geology/article/40/6/575/130973/carbon-sequestration-and-natural-analogs
[76] https://www.usgs.gov/faqs/what-s-difference-between-geologic-and-biologic-carbon-sequestration?qt-news_science_products=0#qt-news_science_products
[77] https://climatechange.ucdavis.edu/science/carbon-sequestration/technological/

solutions—such as increasing the size of Guernsey's natural environment and carbon rich habitats through nature conservation and sustainable land management practices—provide a relatively low cost, immediate and local solution for on-island sequestration. Guernsey's large tidal range in particular provides a considerable opportunity to maximise the potential value and is a benefit in terms of our blue carbon stock. In addition to reducing emissions, this will also have a beneficial impact on Guernsey's biodiversity.

7.5.9 When accounting for and reporting this carbon reduction it is important that a robust methodology is produced to ensure there is no double counting. The Island reports, through the annual Greenhouse Gas Bulletin, on 'land use and land use change' and so, where sequestered emissions are already accounted for in this category, they must not be double counted. Further work is needed to fully quantify the terrestrial and marine carbon sinks on and around the Island so that this can be more accurately reported.

7.5.10 Investment in local renewable energy and sequestration projects will have a key role to play in the Climate Change Policy, offering individuals and businesses the choice of whether to offset their residual emissions locally or not. Investment in local projects plays an important role in decarbonisation and in some circumstances may present better value for money. As a result, on-island sequestration should be considered by individuals, businesses and organisations before investing in other carbon offsetting programmes. However, in line with international reporting requirements, these activities are considered separate to offsetting at an Island level. Any sequestration or prevention offsets to reduce the Island's carbon footprint as part of the drive for net zero must take place off-island so as not to double count (e.g. through measured sequestration or reduced emissions from energy provision).

7.5.11 Supporting other jurisdictions through overseas aid to deliver similar programs as outlined above can be included as offsets. It should also be noted that Guernsey's small size limits the potential for on-island sequestration, which is why there is a need to consider the purchase of offsets from elsewhere. As projects that generate carbon offsets can have a range of additional benefits to the local community and economy in which they occur, they have the potential to deliver a positive impact for both the climate and development. This means they could align to the Island's Overseas Aid programme. Guernsey's Overseas Aid & Development Commission already seeks to support projects which deliver maximum benefit from both a sustainable development and an environmental perspective. In order to provide clarity to organisations seeking funding, the Committee recommends that the Commission, in consultation with the Committee, prepares and publishes Climate Change guidelines which set out how international development projects can contribute to the Island's carbon offsetting goals (and which integrate the principles of this Climate Change Policy more generally). Carbon offsetting investments should be targeted at additional

projects (projects that would otherwise not happen) that either reduce current or future emissions. Examples of (Gold Standard[78]) offset projects include:

- Replacing fossil fuel energy with low carbon alternatives – funding renewable energy (hydro, solar, wind, biomass, tidal, geothermal);
- Reducing the amount of fossil fuel energy consumed – energy consumption and efficiency (transport modal shifting, fuel switching);
- Carbon dioxide capture – forestry sequestration, afforestation, reforestation, avoid deforestation; and
- Methane capture – landfill gas, agriculture/livestock, coal bed/mine methane.

These offset projects are illustrative of the kind of work that can take place, around the world, to protect communities—especially some of the poorest, that are the focus of the Overseas Aid & Development Commission—and mitigate climate change in one combined approach.

7.5.12 As the global market for carbon offsets has developed over the last two decades, several controversial projects where the authenticity of the carbon offset project and the carbon offsets it is claiming have come to light. Due to the potential for reputational risk for an organisation or jurisdiction using the credits to achieve carbon neutrality, as well as the mitigation of the intended benefits, there is a need for independent verification that the emissions reductions claimed are authentic and auditable.

7.5.13 There are several different standards for carbon offsets. These consider the following characteristics of the offset project:

- Verifiability – is there a robust audit trail? E.g. can it be proven that the money spent has gone on the project and that the project has resulted in the emissions reductions it claimed?
- Additionality – are the carbon savings additional to what would have happened anyway?
- 'Leakage' avoided – are emissions reductions genuine or have they just moved elsewhere? E.g. can we be confident that a neighbouring area of forest hasn't been cut down instead of the one we're protecting?
- Impermanence avoided – will carbon savings be sustained over the time period guaranteed? E.g. can it be guaranteed that the forest won't just be cut down next year rather than this year?
- Double-counting avoided – are reductions only claimed once?

7.5.14 The British Standards Institution (BSI) Publicly Available Standard (PAS) 2060:2014 Specification for the demonstration of carbon neutrality[79] details

[78] https://www.goldstandard.org/

[79] PAS 2060:2014 Specification for the demonstration of carbon neutrality, BSI https://www.bsigroup.com/en-GB/PAS-2060-Carbon-Neutrality/

the following examples of schemes which verify carbon credits to the required standards:

- Kyoto-compliant schemes:
  - Clean Development Mechanism (Certified Emissions Reductions)[80];
  - Joint Implementation (Emission Reduction Units)[81]; and
  - EU Emissions Trading System (EU ETS)[82].
- Non-Kyoto compliant (Voluntary Emission Reductions):
  - Gold Standard;
  - Verified Carbon Standard[83];
  - Climate, Community and Biodiversity Standard[84]; and
  - Domestic schemes e.g. the Woodland Carbon Code[85].

7.5.15 There is variety in the cost of carbon offsets available. Prices can vary significantly depending on a number of factors including location, type of transaction, project type and geopolitical events. Proving compliance with the highest verification standards is complex and adds considerable overheads to the project costs. Different types of projects also have varying costs per tonne of emissions reductions as well as varying levels of additional community benefit. For example, one tonne of carbon reduction achieved by low energy light bulb project may be cheaper than one tonne of carbon reduction achieved by an energy efficient stove project, but the latter project may result in additional community health benefits. Work is required to more fully understand the financial options, implications and market trends related to carbon offsets.

7.5.16 Research shows that, although established offsetting regimes will need to operate to a high standard, prices vary significantly over time. The spot rate (cost on the marketplace) for EU ETS increased from around 5 Euros/tonne of carbon equivalents in 2017 to close to around 25 Euros/tonne of carbon equivalents by the end of 2018. Costs for carbon trading are predicted to increase in the future, which reflects the increasing national and international commitments to become carbon neutral. The high forecast predicts a nearly 8 times increase. Figure 23 demonstrates how the prices for two certified emissions trading schemes (CERs and EU ETS) have varied over recent years and Figure 24 demonstrates the UK National Grid forecasting scenarios for EU ETS spot prices.

[80] https://cdm.unfccc.int/about/index.html
[81] https://unfccc.int/process/the-kyoto-protocol/mechanisms/joint-implementation
[82] https://ec.europa.eu/clima/policies/ets_en
[83] https://verra.org/project/vcs-program/
[84] https://www.climate-standards.org/
[85] https://www.woodlandcarboncode.org.uk/

Fig. 23 – Price trends for allowances and certified emission reductions, 2005-2018[86]

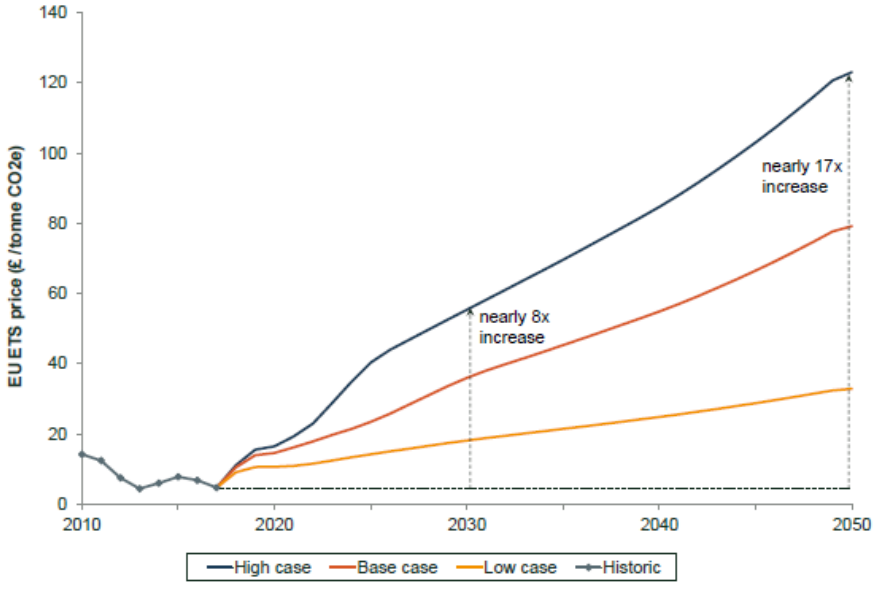


Fig. 24 – Forecasted EU ETS spot prices – UK National Grid

7.5.17 The amount of carbon offsetting required by Guernsey should decrease over time as this should be combined with implementing robust emissions

[86] Trends and projections in the EU ETS in 2019 - The EU Emissions Trading System in numbers; accessed through https://www.eea.europa.eu/themes/climate/trends-and-projections-in-europe/trends-and-projections-in-europe-2019/the-eu-emissions-trading-system

reduction policies. However, it is likely that offsetting will require recurrent annual costs which must be considered as part of future investment plans.

8 ADVISORY BODY

8.1 As outlined in section 3, it is important that there is a reputable source of information for individuals, public bodies and industry to access when looking to understand how actions can be taken to reduce carbon footprints. As it stands there are no resources with a specific focus on climate change within the States of Guernsey to progress this work. This is a disadvantage to government but also to the wider community who are unable to gain advice when required.

8.2 As the Island works towards net zero, the States and the community will together need to take climate change into meaningful account and adjust our culture and expectations accordingly. To address this, the States have previously resolved that all policy matters brought to the Assembly should address their consequential impact on climate change together with, where appropriate, their adaptation and mitigation actions. They have also resolved that all Committees should ensure that, when delivering or overseeing the delivery of their operational functions, they reasonably assess, and where practicable address, the consequential impact on climate change of their actions.

8.3 Currently there are no robust mechanisms or pro formas in place and limited specialist knowledge within government to ensure compliance with the resolutions and therefore the Action Plan will investigate ways of enabling compliance through an advisory body.

8.4 The Committee will work with the Policy & Resources Committee, industry and the third sector to investigate options for the establishment of this body, which will be able to support government and private parties. This may include offering expert advice to inform policy decisions and working with government to provide guidance and advice to ensure that that all policy matters brought to the Assembly address their consequential impact on the environment and to help Committees ensure their operational functions address climate change. It is anticipated that the body will ultimately report to the Committee. This approach is aligned with the principles of co-design, partnership and community engagement which is an important aspect for the development of policy objectives for the Recovery Strategy.

8.5 The Committee therefore recommends an approach based on the provision of information and advice, relating to climate change by a body that has the remit specifically for delivering this advice. This body would therefore be able to provide informed advice for any individual or entity that is looking for it.

8.6 There are a number of ways this kind of body can be constituted and can operate.

8.6.1 In the UK the CCC is an independent statutory body established under the Climate Change Act 2008[87] whose purpose is to advise the governments on emissions targets, and to report to parliament on progress. The CCC is currently chaired by the Rt Hon Lord Deben and is constituted of experts in climate change, science, economics, behavioural science and business. There is also a subcommittee focussed on climate change adaptation, which is currently chaired by Baroness Brown of Cambridge and is constituted of experts in the field of climate change impacts, science, environmental economics, conservation, public health and business.

8.6.2 Ireland has taken a similar approach with an independent advisory body, the Climate Change Advisory Council, tasked with assessing and advising on how Ireland transitions to a low carbon, climate resilient and environmentally sustainable economy by 2050[88]. The Advisory Council was established under the Climate Action and Low Carbon Development Act 2015. The Advisory Council consists of a chairperson and between 8 and 10 (inclusive) other members, including:

> "*(a) the Director General of the Agency;*
> *(b) the Chief Executive of Sustainable Energy Ireland - The Sustainable Energy Authority of Ireland;*
> *(c) the Director of Teagasc - The Agriculture and Food Development Authority; and*
> *(d) the Director of the Economic and Social Research Institute.*"

Other ordinary members are appointed on the nomination of the minister. The Advisory Council also has an Adaptation Committee to consider matters relating to climate change adaptation.

8.6.3 The Isle of Man, in June 2019, agreed to the establishment of a dedicated Climate Change Emergency Transformation Team lead by an independent chair to develop a climate change action plan. Professor James Curran, a climate scientist and former chief executive of the Scottish Environment Protection Agency, was appointed and formed a team of government officers from across the government's departments. This team worked with Professor Curran to produce an independent report[89] that was used to form the Isle of Man Action Plan for Achieving Net Zero Emissions by 2050 – Phase 1[90].

8.6.4 Islands within the Bailiwick have established their own bodies for both advisory and regulatory purposes, albeit not for climate purposes. The Health

[87] https://www.theccc.org.uk/about/
[88] http://www.climatecouncil.ie/
[89] IMPACT: Isle of Man Programme for Achievement of Climate Targets – An Independent report of options for targets and actions to achieve net-zero emissions by 2050, 31 October 2019 - https://www.gov.im/media/1368097/gd20190102_james-curran-report.pdf
[90] Isle of Man Government Action Plan for Achieving Net Zero Emissions by 2050: Phase 1, January 2020 - https://www.gov.im/media/1368096/gd20190101-iomg-action-plan.pdf

Improvement Commission, with independent leadership, is a combination of public, private and third sectors, which illustrates how this type of model can deliver cross-governmental and cross sector working. However it is more of a service delivery model than an independent, expert advisory body. In Alderney, the Alderney Commission for Renewable Energy was established as an independent licensing body. Although what is proposed will not be a licensing body, the setup, of a chair and panel made up of people with relevant expertise, is one that could be mimicked for delivering an advisory body.

8.6.5 A model that combines both the implementation/service delivery of climate change mitigation measures and independent advice may work well in Guernsey. The options for the most appropriate structure for this body for Guernsey therefore need further investigation.

8.7 It is also important to carefully consider the mandate and terms of reference of an advisory group.

8.8 The Committee therefore proposes that the next stage of work, on which the Committee will report back to the States by the end of 2021, will investigate the necessary steps and timeline to establish the advisory body and will consider the following:

- Constitution;
- Cost and funding mechanism;
- Governance; and
- Mandate and terms of reference.

8.9 This work can also be informed by work that has been undertaken in other jurisdictions. Working with international bodies and organisations will be critical to setting and meeting standards in relation to sustainability and biodiversity, to sharing best practice on reporting and monitoring, and to developing Guernsey's role as a lead jurisdiction on sustainable finance.

8.10 Discussions have taken place with the Global Island Partnership (GLISPA). GLIPSA is a global membership organisation of island jurisdictions and authorities promoting action to build resilient and sustainable island communities. The commitments promoted by GLISPA are pledges based on global, national, regional and organisational priorities to accelerate and improve actions on international policies and agreements as well as local implementation. This includes commitments in relation to public and private finance and nature and conservation, in line with those set out in this policy letter.

8.11 Guernsey should work as partner with other jurisdictions and bodies and this should include an active role working with the GLISPA. Guernsey should work towards ensuring that Guernsey's climate change policy and action plan is aligned to the Global Island Partnership commitments.

9 COMMUNITY INVOLVEMENT

9.1 Climate change has been well established in scientific terms for many decades now, but it has taken until the last decade or so for the facts to be broadly accepted by the wider public. Progress on reducing emissions has, therefore, been slow. There are many reasons for this. The nature of the problem seemed, until recently, quite abstract and distant—both in terms of time and geography—for many people in the western world. Facts were muddied by campaigns designed to obfuscate the issues. Hydrocarbon technologies are embedded into our everyday life, making change more challenging, and there is uncertainty around what technologies might be available in the future or the cost of developing them. Ultimately, there has been much disagreement around where to invest our finances and at what pace change should occur.

9.2 All of these factors have created challenges around how to progress solutions, but this is not a unique situation: it has occurred across the world. Although Guernsey has made some progress, working towards carbon neutrality will require innovative thinking and a different approach. In order to meet the target, the government cannot work alone: the community will need to play its part.

9.3 To achieve that the community, businesses, organisations and the third sector need to work together to develop the actions that are taken and the timing and level of our goals. This is the primary reason behind the recommendation that a Citizens' Assembly is established.

9.4 Almost every choice and action taken has an impact on climate change, whether this is the products purchased, their origin, how waste is processed or how people choose to travel. If everyone within the community changes an action that they take, it can reduce greenhouse gas emissions and also have wider environmental and health benefits. For example, if individuals change how they travel around the Island on a day-to-day basis, opting for cycling, walking or public transport where possible, it has a positive cumulative effect.

9.5 The Island community as a whole will need to change behaviours to enable delivery of the goals outlined in the Action Plan, and other States' policies, to mitigate and adapt to climate change. This may involve cultural and behavioural shifts therefore it is important that the community is part of the identification and delivery of actions to address climate change for Guernsey.

9.6 Establishment of independently facilitated Citizens' Assembly

9.6.1 Over recent years, the States has worked to improve engagement and communication with the community. During the COVID-19 pandemic, effective communications contributed to high levels of reciprocity and togetherness, meaning lockdown measures could be eased more rapidly than expected. A Citizens' Assembly is likely to be another effective way to engage the community, giving Islanders shared ownership of actions to mitigate

climate change and build on previous research and engagement. This approach will enable a wide range of people, individuals and organisation representatives, with different knowledge and experience, to help shape the way forward. It will increase the number of ideas put forward and allow policy makers to have an increased understanding of the potential impact and implications of the options available, and will also help Islanders to be more aware of the intention behind the policies and how they fit into the global shared journey towards decarbonisation.

9.6.2 Citizens' Assemblies have been implemented in a number of jurisdictions, including Jersey, Ireland and the UK. However, their approaches to establishing the assembly have differed, showing that there are different ways of facilitating this kind of forum. Developing a Citizens' Assembly, as in other jurisdictions, was favourable pre-virus as funding would have been available. However, resources and funding have been diverted to emergency social and economic recovery. Communications and engagement have significantly shifted, with increased success and improved levels of satisfaction with government leadership. Although the principles of co-design, partnership and community engagement form an important aspect of the Recovery Strategy, the Citizens' Assembly approach as followed by other jurisdictions can be noted and modified.

9.6.3 The Irish Citizens' Assembly[91], established in 2016, was made up of 99 citizens entitled to vote and an independent chair appointed by the government. The objectives for the assembly, who met within a fixed timeframe, were to make recommendations to government and parliament on: abortion; the challenges and opportunities of an ageing population; fixed-term parliaments; the manner in which referendums are held; and how the state can make Ireland a leader in tackling climate change. The Assembly concluded deliberations in all six areas by 2018. This resulted in one successful referendum, on abortion, in 2018. A special committee was also convened to consider the Assembly's recommendations on climate change. In June 2019, the Irish government established a new Citizens' Assembly to consider gender equality.

9.6.4 The 'Climate Assembly UK,' established in 2019, was made up from 30,000 households randomly selected across England, Northern Ireland, Scotland and Wales. One hundred members were selected from a process to make sure that all range of views on climate change were represented, as well as representative of society in terms of demographics (e.g. age, gender, ethnicity). The Assembly was tasked to make recommendations to Parliament on how the UK can reduce greenhouse gas emissions to net zero by 2050. The Climate Assembly UK met over a period of four months at the start of 2020 and concluded deliberations in March 2020.

[91] https://www.citizensassembly.ie/en/

9.6.5 The States of Jersey decided in February 2020 to follow the UK approach and will establish a Citizens' Assembly of 49 randomly selected citizens to make recommendations to government on how to make the Island carbon neutral by 2030. The States of Jersey refer to this as a 'people-powered' approach and have issued and agreed a mandate for the carbon neutral Citizens' Assembly to report back recommendations by July 2020.

9.6.6 Whilst there is no fixed format for a Citizens' Assembly, best practices from successful models from other jurisdictions can be selected. Each example of a Citizens' Assembly shares common democratic themes and processes of deliberation. Elements of the models used by other jurisdictions include:

- An independent Chair;
- The Assembly's access to objective evidence and experts to listen to and question;
- Periods of deliberation as a large group or smaller groups with independent facilitation;
- A fixed timeframe;
- Random selection of members to reflect society;
- Members to have a broad range of views;
- Transparency (e.g. live streaming/recording Assembly meetings, publication of papers etc.);
- The Assembly develops recommendations on set issues to government or parliament that can be rejected or changed once it has been considered; and
- The Assembly agrees its own rules and procedures for how it will conduct itself.

9.6.7 There is published guidance[92] on how a Citizens' Assembly should be established and run which ensures that the body does not, in and of itself, become a policy making body, with a number of best practices and principles to follow to put together an innovative and cost-effective Citizens' Assembly. The focus groups will be tasked with investigating further actions and initiatives to encourage and support people to make carbon positive choices and minimise or offset their contribution to global carbon as well as further investigating how we can look to quantify the impact on our jurisdictional carbon footprint.

9.6.8 When discussing the actions, the Citizens' Assembly may also consider whether Guernsey should look to become carbon neutral at an earlier date than 2050 through considering the potential options for accelerating this timeframe and what impacts and implications this would have to the economic, health and care, and community recovery from COVID-19 and

[92] Enabling National Initiatives to Take Democracy Beyond Elections - https://www.newdemocracy.com.au/wp-content/uploads/2018/10/New-Democracy-Handbook-FINAL-LAYOUT-reduced.pdf

move towards decarbonisation. The Citizens' Assembly may be asked to consider the potential options looking at:

- Actions that can mitigate climate change and environmental degradation, including:
  - Actions that can accelerate the Island's net zero target; and
  - Actions that, when considering the hierarchy, could be brought forward to help deliver the Island's net zero target; and
- Actions that can adapt to climate change.

9.6.9 Once the Citizens' Assembly has concluded, an independent report will be submitted to the Committee for the Environment & Infrastructure in its role of leading this States priority, setting out the Assembly's recommended actions. The report will be considered by the Committee, which will then submit a Policy Letter to the States of Deliberation before the end of 2021 or sooner. If the Committee does not support any recommendations from the Citizens' Assembly, or if they are not able to be implemented, its reasoning will be set out in the Policy Letter.

9.7 Current research

9.7.1 In November 2019, Island Global Research (IGR) carried out a survey on Climate Change across Guernsey, Jersey and the Isle of Man to find out more about the thoughts and behaviours of individual Islanders in relation to climate change impacts and mitigation. Further to this, in January and February 2020 IGR carried out a survey in Guernsey looking into perceptions, barriers and making changes to reduce energy use and emissions. Both of the States of Guernsey Reports can be found online at www.gov.gg/climateaction.

9.7.2 Key findings suggested that younger and female Islanders were more willing to take immediate and radical action to avoid climate change, whereas older and male Islanders would be more reluctant. The work also found there was a strong appetite to change behaviours, as part of an Island community working together, to have an impact to reduce the Island's carbon footprint in the next five years, or earlier, with the right information, engagement, 'nudges' or interventions from government.

9.7.3 In February 2020 the States of Guernsey carried out an engagement exercise called 'Just One Thing'. This exercise was designed to identify pockets of best practice where individuals and service areas are mitigating climate change from their own efforts rather than as a result of an overarching policy. Many of the examples used could be adopted by other service areas, which could have a significant cumulative impact. A list of individual and service area initiatives that are taking place across the organisation can be found online at www.gov.gg/climateaction.

10 CLIMATE CHANGE ACTION PLAN

10.1 The Climate Change Action Plan appended to this policy letter (Appendix A) sets out the way in which Guernsey can start to work towards becoming carbon neutral. This Policy sets a target objective for the Island's emissions, the scope of emissions to be included in emissions accounting and the hierarchical approach to be applied to reduce emissions. The Climate Change Action Plan seeks to set out a number of actions and areas of focus to achieve the aims of the policy. The Climate Change Action plan is a 'living' document which will evolve and be updated over time, with actions being added, removed or amended based on changing circumstances and progress. This policy letter therefore recommends that the Committee *for the* Environment & Infrastructure bring a review and update of the Climate Change Action Plan at least once every two years.

10.2 Given the similar size and geographical make-up, the Committee has recognised the need for Guernsey to work with Jersey. Through the Action Plan, and the work that is being undertaken in Jersey, it is important to identify areas where both jurisdictions can work collaboratively, combining resources (financial and people) where possible to mitigate climate change locally, but also to play our role globally. The 'Climate Change Action Plan' recognises Guernsey's current situation and agreed policy priorities and recommends that the next phase is to undertake community consultation, including Guernsey's first Citizens' Assembly by the end of 2021.

10.3 The Climate Change Action Plan has four main principles around the definition of net zero in a local context, to ensure that future actions are developed with the community and set a high standard in regard to reducing carbon emissions.

10.4 When adopting the Action Plan, the States of Deliberation are asked to endorse the principles, which set the parameters necessary to start determining how the Island moves to a low carbon future.

10.5 The vision of the Energy Policy states that by 2050, the vast majority of Guernsey's energy supplies will come from clean, low carbon sources and residual emissions will be offset. This is underpinned by implementing the generation of on-island renewable and affordable energy, which will provide value and choice for everybody.

10.6 Principle 1: Work within a definition of carbon neutrality

10.6.1 Being 'carbon neutral' is defined as balancing the emissions that are produced as a community with activities that absorb, capture or reduce global emissions so they are equal. This applies to the emissions that are generated directly through on-island activities, including emissions from driving petrol/diesel vehicles and burning oil/gas to heat a building. These emissions are captured in Guernsey's Annual Greenhouse Gas Bulletin.

10.6.2 Emissions are also released from energy imported into Guernsey. Global emissions accounting considers the emissions from energy production to be accrued in the country in which it was generated. However, it is often deemed that the emissions are as a result of energy use locally. This principle can be taken further to include off-island emissions from energy production when becoming carbon neutral.

10.6.3 In addition to this, emissions are released during the manufacturing and transportation of the goods and services consumed in Guernsey, including those produced throughout the product's full life-cycle and those arising from activities of local businesses. This is driven by the behaviours and choices made by the Island's residents and businesses but are not captured in Guernsey's Annual Greenhouse Gas Bulletin. The Committee recognises that these emissions are part of the Island's footprint, but further work is required before they could form part of the baseline for carbon neutrality. Future policies that will support government, businesses and individuals to make more sustainable choices will reduce the amount of emissions created.

10.7 Principle 2: Recognise the impact choices have on the world

10.7.1 Not all emissions released in Guernsey are accounted for as being produced here, so it is important to recognise that our decisions and behaviours impact the rest of the world. Just because they are not accounted for locally, does not mean that they should be ignored.

10.7.2 Other jurisdictions are also working to mitigate climate change and the Island should work with the global community, supporting each other to reduce emissions. As a community, changes to the ways we act and the business models implemented are required to help reduce all emissions produced. There is an opportunity to work with other islands through the Local2030 Island Network[93].

10.7.3 The Guernsey International Development Network established by the Overseas Aid & Development Commission also provides an opportunity for people with an interest in international development (whether from an environmental, humanitarian, health or other perspective) to share expertise and explore actions that can be taken in Guernsey, which could have a positive impact around the world. The Network has integrated a focus on climate change and sustainability from the outset, and should continue to do so.

10.8 Principle 3: Work as a community to mitigate climate change

10.8.1 Although led by the Committee *for the* Environment & Infrastructure, Mitigate Climate Change is a States priority and as such is the collective responsibility of all Committees. This work will continue to be led by government, but to be

[93] https://www.islands2030.org/

truly successful it needs the support of the wider community. This is why the Committee recommends that a Citizens' Assembly is established. Individuals and businesses must help to inform the way forward, forming part of a wider, collaborative, community-based approach to co-design the future and for Guernsey Together to thrive.

10.9 Principle 4: Require high standards in the use of carbon offsetting

10.9.1 Carbon offsetting is not an accepted route to carbon neutrality alone and must be accompanied by ambitious and robust measures to reduce emissions. Where carbon offsetting is required, any agreed arrangements must be of the required recognised standards. This is particularly important to our green finance sector, because any suggestion that Guernsey's carbon offsetting is not properly robust and verifiable could result in harmful reputational damage that would undermine our position as a green and sustainable finance centre.

10.10 Both the Citizens' Assembly and the Advisory Body will inform the Committee as it further develops the Action Plan. These bodies will be able to provide guidance and recommend policy actions and initiatives to the Committee and offer expert advice to support policy development. However there are also policy actions that the Committee believe should be agreed by the States of Deliberation now in order to bring Guernsey in line with other jurisdictions whose decisions indirectly affect the Island.

10.11 The Action Plan will not be successful without ownership from the States of Guernsey as a whole. When considering the 'Policy & Resource Plan – 2018 Review and 2019 Update' the States agreed to the ongoing principles:

> "*To direct: e) that all Committees of the States of Deliberation ensure that, when delivering or overseeing the delivery of their operational functions, they reasonably assess, and where practicable address, the consequential impact on climate change of their actions*"; and
>
> "*To direct: f) that all Committees of the States of Deliberation when laying policy letters before the Assembly should assess therein any consequential impact on climate change of their proposals together with, where appropriate, their adaptation and mitigation actions.*"

10.12 Although the priorities of the Policy & Resource Plan is superseded by the Recovery Strategy the States resolutions remain extant. This commits all committees to consider climate change when delivering their mandate and when submitting policy letters for debate. The Action Plan includes investigating ways, including through an Advisory Body, of encouraging and helping Committees to understand the impacts of their proposals on climate change so that they may more specifically demonstrate how they impact upon reaching the agreed target for carbon neutrality. This Advisory Body will help

to inform evidence-based decision-making and will also support the implementation of climate change policy in both the States and in the community.

10.13 The committee recognises that there are some policy decisions that can be taken, in advance of further consideration of the action plan by the Citizens' Assembly, which will set in motion the Island's commitment to emissions reductions. Given the approaches being taken in other, nearby, jurisdictions in relation to internal combustion engine vehicles, and given the importance of the UK marketplace on the provision of vehicles into the Island, the Committee has considered and recommends the following.

10.13.1 The Committee is recommending bringing the Island into line with the UK's approach to petrol and diesel vehicle sales in the medium term. As such, the Committee recommends banning the importation of new petrol and diesel cars and vans in line with the UK's proposals. Currently this means that the ban would be implemented in 2035, but the Committee will undertake to monitor any movement from the date, and vehicle types, in the UK and amend following any changes. For the avoidance of doubt, 'new' in this case means new to the Island – at the point of first registration. There is a risk that, without this policy decision, vehicles with internal combustion engines (petrol and diesel) will increasingly be brought over to the Island for use and sale as they are banned from other jurisdictions as was the case with the phasing out of asbestos. The decisions made by larger, influential countries are forcing the market to change regardless of Guernsey's position, which is evident with the number of electric vehicles now available.

10.13.2 This policy letter also recommends bringing the Island into line with existing standards within Europe. The Committee therefore recommends undertaking work that will allow for the importation of only the latest Euro standard vehicles to the Island, with certain permitted exceptions.

10.13.3 The Committee is exploring moving all States owned public buses, currently used by CT Plus, to second generation biofuels. Second generation biofuels move away from the use of specifically grown non-food crops, which whilst they absorb carbon as they grow are often linked with deforestation. Instead second generation biofuels offer a waste stream use for foods and oils through the production of hydrogenated vegetable oil (HVO). This can be made from food waste and non-food grade vegetable oils through the process of Isomerisation and uses hydrogen as the catalyst instead of ethanol. This fuel can be used as 100% replacement for diesel (or mixed in any quantity).

10.13.4 The HVO has 'out the back' emissions in the region of 44gCO_2e/MJ, which compares favourably to diesel and petrol (both in the region of 73gCO_2e/MJ). However, it is important to consider that in lifecycle terms the amount of carbon dioxide produced when burning the biofuel is equal to the amount absorbed through the plants and as a result, the life-cycle of the biofuel is

deemed as producing close to net zero emissions. They also carry the additional advantage of reducing other emissions, such as sulphur and particulates, when compared to traditional fuels. The Committee acknowledges that this offers a potential 'transition' fuel that Guernsey can utilise to reduce the Island's carbon and other emissions whilst other technologies are not ready for wide scale implementation.

10.13.5 Second generation biofuels are currently a product where demand outstrips supply, which is reflected in their cost. The additional cost per litre of switching to HVO biofuels is approximately 50p. This cost could be offset by providing a tax exemption for biofuels, which would help to encourage transitioning. As the production of HVO increases the cost is expected to fall.

10.14 The actions in the Climate Change Action Plan support the States' agreed Recovery Strategy. In order to meet Guernsey's climate change objectives, the Climate Change Action Plan needs to be incorporated into the recovery action plans being developed to deliver the States' Recovery Strategy.

10.15 Some actions within the Climate Change Action Plan will be able to be delivered without additional funding. However it is probable that a number of initiatives will require funding once they have been fully developed. Part of the work of developing the Climate Change Action Plan is to understand and report back on these potential costs and to enable existing resources to be reprioritised accordingly.

11 MEASURING SUCCESS

11.1 The States of Guernsey is the largest employer on the Island and therefore should lead by example in how it operates. A number of initiatives are already being implemented by service areas, but the Committee believes that a comprehensive review should be undertaken to determine what opportunities there are within the States' estate to move to low carbon alternatives. The Policy & Resources Committee has oversight of States' Property Services and should commission this review so that it can report back with recommendations by the end of 2020.

11.2 The Guernsey Annual Greenhouse Gas Bulletin is published in March each year, providing updates of Guernsey's greenhouse gas emissions inventory. The analysis in the report uses 1990 data as a baseline. The Committee will continue to monitor and report on Guernsey's emissions inventory through the Bulletin in order to monitor the success of policy actions.

11.3 Where additional scopes are included in our definition of net zero above those required under the annual Greenhouse Gas Bulletin, the States will benchmark against the first year of data that is analysed, setting a baseline that can be used for reducing against towards net zero.

11.4 Progress against the climate change-related milestones and targets set will be reported through annual updates to the States.

12 FINANCIAL IMPLICATIONS

12.1 The policy letter that follows on from the community consultation will be presented to the Assembly for consideration before the end of 2021. Any proposed actions will be costed. The Committee's existing resources will be used to progress the Climate Change Action Plan, including establishing and facilitating the Citizens' Assembly and investigating and developing the framework for the advisory body.

13 LEGISLATIVE IMPLICATIONS

13.1 In order to mitigate climate change and achieve the target set in this policy letter, it is possible to develop policy which guides and encourages Islanders to reduce carbon emissions in their own lives, and sets out what is required in order to meet the target. However, policy developed without any supporting legislation leads to a situation where the government is placing a significant reliance on Islanders to act in accordance with policy, but without any consequences for failure to comply (i.e. 'the carrot without the stick'). Developing appropriate legislation to support these policy changes gives the States of Guernsey the option to resort to punitive legal measures if the policy changes are not adopted by businesses and individuals. However, there needs to be a balanced approach to drafting legislation, as it is a resource-intensive and lengthy task, especially if a Projet de Loi is required.

13.2 The approach therefore needs to incorporate non-legislative incentives, 'nudges' and encouragement in order to try to get as close to the target as possible, but with the understanding that legislation may be required for success.

13.3 There will need to be legislation to phase out ICEVs and to enshrine the target of net zero by 2050 and a reduction of 57% on 1990 levels by 2030 in law. The Action Plan identifies a number of further initiatives that will require legislative enforcement.

14 COMPLIANCE WITH RULE 4

14.1 Rule 4 of the Rules of Procedure of the States of Deliberation and their Committees sets out the information which must be included in, or appended to, motions laid before the States.

14.2 This policy letter outlines ways for the States to reduce both the organisational and island-wide carbon impact, in a way which will bring additional environmental benefits.

14.3 In accordance with Rule 4(1), the Propositions have been submitted to Her Majesty's Procureur for advice on any legal or constitutional implications.

14.4 In accordance with Rule 4(4) of the Rules of Procedure of the States of Deliberation and their Committees, it is confirmed that the Propositions have the unanimous support of the Committee.

14.5 In accordance with Rule 4(5), the preparation and agreement of the propositions and content of the policy letter relate to the duties of the Committee *for the* Environment & Infrastructure. The content of the policy letter relates to the priorities of the Policy & Resource Plan and the Recovery Strategy, both specifically to the direction to bring back a policy in regards to climate change, and more broadly in respect that climate change touches every area of the States. The Committee have engaged with the Committee *for* Economic Development and the Overseas Aid & Development Commissions in preparing the policy letter.

Yours faithfully

B L Brehaut

President

M H Dorey

Vice-President

S L Langlois

H L de Sausmarez

S T Hansmann Rouxel

Appendix A

Climate Change Action Plan

Climate Change Action Plan 2020 – 2050

1 Introduction

The Climate Change Policy 2020-2050 is the starting block for the Island's participation in the race to meet net zero by 2050 or sooner. It sets a target objective for the Island's emissions, the scope of emissions to be included in emissions accounting and the hierarchical approach to be applied to reduce emissions.

The Action Plan sets out a number of actions and areas of focus to achieve the aims of the policy, and will evolve and be updated over time. It captures the ongoing, existing and planned actions to reduce emissions for the Island to decarbonise and adapt to climate change.

The COVID-19 recovery plans will be fully integrated and aligned to mitigate or compensate climate change impact. This will evolve continually for the duration of the race to meet net zero.

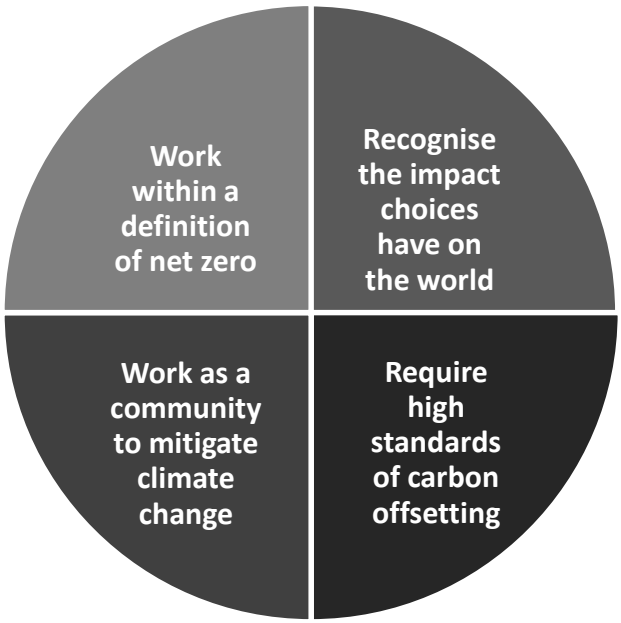
Regular progress reporting and updates on the Action Plan will improve transparency and accountability for the States and the community, and will help to identify (1) how we will meet our net zero target, and (2) how it might be possible to bring the finishing line forward for the Island.

This will also ensure that the climate change mitigation principles and emissions hierarchy, as set out in the Climate Change Policy Letter and below for ease of reference, are followed and fully embedded within the States of Guernsey strategic and operational functions.

The States of Guernsey acting independently cannot meet the target alone: it is the combined actions of the States and the community (including employers) that will enable the aim to be achieved.

The impacts of climate change will be felt by every resident, family and business in Guernsey and there must be a collective responsibility for reducing those impacts.

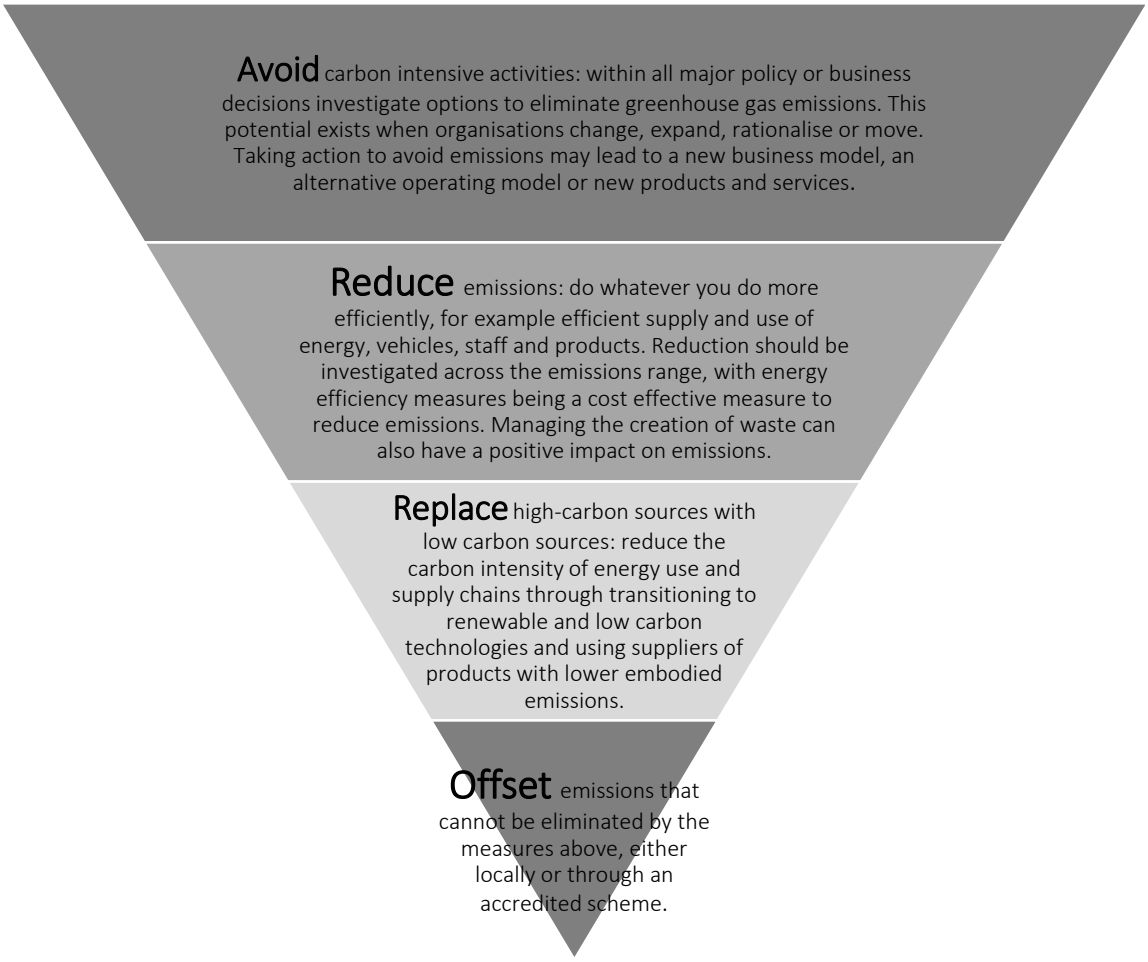
2 Principles



Actions to reach net zero will adhere to the above principles and must be measurable to reduce carbon emissions in a local context.

3 Emissions Hierarchy

Actions to reach net zero must also follow and adhere to the emissions hierarchy set out below:



4 Citizens' Assembly

The Committee *for* the Environment & Infrastructure will explore the potential for a form of Citizens' Assembly to take place in 2021 to further shape the Climate Change Action Plan. It is envisaged that the Citizen's Assembly would contribute to discussions on a wide range of areas including the following challenges:

- ✓ **How** certain actions agreed by the Committee could be implemented;
- ✓ **What further actions** can be taken to mitigate climate change and environmental degradation;
- ✓ **What actions** could be taken by local organisations, businesses, the third sector and all Islanders to stimulate and promote an environmentally sustainable and vibrant economy for the Island.

5 The Action Plan

The Action Plan, as set out below, is a 'live document' and will be regularly published on www.gov.gg/climateaction for transparency and accountability.

The Greenhouse Gas Bulletin, published at www.gov.gg/ghg will continue to measure emissions on an annual basis. This will record the overall success and failure of actions along with the baseline accounting work undertaken by Aether for future reporting.

Emissions Target Area: All Areas				
Action	**Timeframe**	**Description**	**Outcomes**	**Other Jurisdictions**
Scope path to net zero emissions by 2050 at the latest	2020 – 2050	Energy efficiency, fuel efficiency, technology and behaviour will change and transition across the board, supported by legislation and policy to achieve net zero emissions. Emissions (Scope 1, Scope 2 and Scope 3) will be reported annually.	Climate change mitigation.	Norway (2030), Finland (2035), Austria and Iceland (2040), Sweden (2045), Costa Rica, Denmark, European Union, France, Marshall Islands, Portugal, Switzerland, United Kingdom and New Zealand (2050)
Investigate and appraise economic opportunities that could/will arise from transitioning to a low carbon economy and will support sustainable economic recovery in line with the Recovery Strategy	2020	In alignment with the COVID-19 Recovery Strategy investigate economic stimulation to support transition to low carbon energy and fuel.	Increased economic resilience, energy independence, improved local skillset/expertise/ knowledge required to transition to low carbon and increased growth in renewable energy sectors.	'Green recovery' plans are being progressed in many jurisdictions in recognition of dramatically reduced CO2 emissions during pandemic lockdown periods that resulted in improved air quality, e.g. to 'build back better.'
Investigate feasibility of Citizens' Assembly to determine how the Island will achieve net zero emissions by 2050 at the latest	2021	In the UK, Ireland and Jersey, Citizens' Assemblies have been established as an exercise in deliberative democracy to support climate change mitigation. Government, employers, community organisations and individuals must all make changes to reduce emissions and mitigate climate change.	Increased levels of engagement and satisfaction within the community with legislation, policy, initiatives and action to reduce emissions, improve energy efficiency and mitigate climate change.	Ireland (2016), UK (2020 – suspended due to COVID-19 lockdown), Jersey (2020/21)
Develop Climate Change Adaptation Plan	2021	To prepare and publish a Climate Change Adaptation Plan.	Increased resilience to climate change, managing future climate risk, prioritising and co-ordinating action. Reduce future economic, environmental and social costs.	London (2011), Rotterdam, Netherlands (2008), New York, USA (2013), Wales (2019), UK (2018) Research: https://oecd.org/enc/cc/adaptation.htm

Emissions Target Area: Waste				
Action	**Timeframe**	**Description**	**Outcomes**	**Other Jurisdictions**
Phase out non-recyclable packaging	Ongoing	Phase out the importation of non-recyclable packaging and promote reusable packaging measures on Island.	Reduction in plastic waste from packaging, increased use of reusable packaging. Improved sustainability and use of resources.	European Union (by 2030), United Kingdom (by 2043), Zimbabwe (2017)
Phase out non-recyclable plastics	Ongoing	Implement measures to eventually eliminate all avoidable plastic.	Reduction in non-recyclable waste. https://oecd.org/enc/cc/adaptation.htm	Other global jurisdictions have already banned one or more of the following single use plastic items: plastic bags; plastic straws; plastic utensils; plastic plates; microbeads; plastic bottles; plastic stirrers; plastic cotton buds; non-recyclable plastic coffee pods; wet wipes and expanded polystyrene. Some jurisdictions impose heavy fines for breaking the regulations.

Emissions Target Area: Transport (sheet 1 of 3)				
Action	**Timeframe**	**Description**	**Outcomes**	**Other Jurisdictions**
Review fiscal levers – fuel duty, mileage tax, pay as you pollute, carbon tax	Part of the Fiscal Plan	To replace fuel duty, like for like, and increase proportion of clean/zero emissions vehicles.	Fuel duty revenue will decrease year on year: a like for like replacement without increased burden to the taxpayer could be achieved with a different mechanism and could deliver an increased uptake of clean/zero emission vehicles, active travel, use of public transport, clean fuels and reduce overall emissions from transport.	Carbon Tax – British Columbia, Canada. Illinois, United States trialled mileage tax (2019).
Plan and implement zero emissions/clean fuel infrastructure	In progress	Increased accessibility to community areas for zero emissions/clean fuel vehicles recharging and refuel stations.	Reduced transport emissions and increased uptake of zero emissions/clean fuel vehicles.	There are plans to reach zero emissions targets and clean fuels infrastructure planning in most developed jurisdictions, with 2030 to 2050 projections.
Phase out ICEVs	2035 (or earlier)	Import of ICEVs will not be permitted by 2035 or earlier, in alignment with the UK.	Transition to zero emissions/clean fuel vehicles in line with other jurisdictions.	Canada (2040), China (TBC), France (2040), UK (2035 or 2032), Iceland (2030), Ireland (2030), Israel (2030), Japan (2040), Netherlands (2030), Sweden (2030), Norway (2025), Singapore (2030), Slovenia (2030), Sri Lanka (2040), Costa Rica (2050).

Emissions Target Area: Transport (sheet 2 of 3)				
Action	**Timeframe**	**Description**	**Outcomes**	**Other Jurisdictions**
Review the Integrated Transport Strategy to propose the more effective delivery of the Integrated Transport Strategy with respect to reducing transport-related Scope 1 emissions.	2020-2021	Improved on-island travel options with reduced use of high emissions vehicles.	Reduced emissions on island from transport.	Jersey's Framework for a Sustainable Transport System: https://statesassembly.gov.je/assemblypropositions/2019/p.128-2019.pdf?_ga=2.207372563.1064995472.1593376365-1574040860.1593376365 European Strategy for Low Emission Mobility: https://ec.europa.eu/clima/policies/transport_en UNECE Climate Change and Sustainable Transport https://www.unece.org/trans/theme_global_warm.html
Trial biodiesel replacement/Low Carbon Fuels	2020-2025	Public transport trial of biodiesel fuels to test viability and suitability of alternatives fuels for the Island.	Increased uptake of alternative fuels and support by trials and piloting with public transport.	Jersey biodiesel trial buses fleet. Norwich, UK (2011). Mediterranean Shipping Company (2019)
Introduce legally binding safety check, with emissions test	In progress	To ensure that all vehicles on the road are safe and comply with emissions limits.	Reduction in emissions from transport and fewer 'oil dumps' on the road could be an added benefit.	Australia, Brazil, Canada, China, European Union, UK, Isle of Man, Iran, Israel, Japan, New Zealand, Nigeria, Russia, Singapore, South Africa, Taiwan, Turkey, United States.
Review video conferencing and remote working facilities within the States of Guernsey to reduce need for on- and off-island travel	Ongoing	Service areas within the States of Guernsey are to trial this initiative, much of which has been trailed through lockdown, and report on this in order to embed within the wider organisation.	Increased flexible working and home working to increase productivity, reduced travel emissions.	Increased video conferencing, home working and reduced travel during global pandemic.

Emissions Target Area: Transport (sheet 3 of 3)				
Action	**Timeframe**	**Description**	**Outcomes**	**Other Jurisdictions**
Develop, plan and implement improved walking and cycling infrastructure	In progress	Continue to develop and progress plans to improve the safety, experience and accessibility of active travel on-island.	Reduced travel emissions.	Amsterdam and Utrecht (Netherlands), Antwerp (Belgium) Bordeaux (France), Bristol, Cambridge and Oxford (UK), Copenhagen (Denmark), Helsinki (Finland), Strasbourg (France), Munster (Germany), Oslo (Norway). EU Report on active travel with case studies listed below can accessed here: https://ec.europa.eu/environment/pubs/pdf/streets_people.pdf Kajaani, Finland; Wolverhampton, England; Vauxhall Cross, London, England; Nuremberg, Germany; Strasbourg, France; Gent, Belgium; Cambridge, England; and Oxford, England.
Decarbonise the States Fleet	In progress	Set policy for all new transportation to be zero emission/low carbon.	Reduced travel emissions and potential cost savings.	Guernsey Post electric fleet (2019, started to transition in 2016).
Investigate alternative fuelled off-island transport	2025 - 2050	Investigate feasibility of and potential support for alternative fuelled off-island transport.	To assist early transition to low carbon sea and air travel for future, sustainable connectivity.	Orkney (UK) https://www.bbc.com/future/article/20190327-the-tiny-islands-leading-the-way-in-hydrogen-power

Emissions Target Area: Power Generation				
Action	**Timeframe**	**Description**	**Outcomes**	**Other Jurisdictions**
Establish a Renewable Energy Target	2020-2030	The Committee for the Environment & Infrastructure will set a target for on-island generation of renewable energy.	Increased energy resilience and transition to low carbon energy.	Word data on renewable energy generation https://ourworldindata.org/renewable-energy
Support renewable energy micro generation	2020- 2030	Development and implementation of renewable energy micro generation on-island.	Increased micro generation of on-island renewable energy.	EU study of 'prosumers', "Residential Prosumers in the European Energy Union" https://ec.europa.eu/commission/sites/beta-political/files/study-residential-prosumers-energy-union_en.pdf. Orkney, https://www.bbc.co.uk/news/uk-scotland-north-east-orkney-shetland-47785050
Investigate feasibility & develop Commercial Energy Audits with subsidy to encourage take-up	2020-2025	Working in partnership with businesses and organisations to encourage energy audits to reduce emissions and improve energy efficiency.	Support local businesses and organisations to decarbonise with expertise and financial support from the States of Guernsey working in partnership with local energy providers.	UK 'Green Deal' for homeowners, landlords and tenants (2012 – 2015). Australia, 'Clean Energy Finance Corp' helps businesses to secure finance to transform their energy use with funding programmes.

Emissions Target Area: Heating (sheet 1 of 2)				
Action	**Timeframe**	**Description**	**Outcomes**	**Other Jurisdictions**
Review range of fiscal incentives for enabling householders and landlords to decarbonise heating	2020-2030	Working in partnership with energy providers to support Islanders to transition to decarbonised heating systems.	Increased electrification of domestic heating systems.	EU Report on Financial Incentives for Renewable Heating and Cooling UK, https://ec.europa.eu/energy/intelligent/projects/sites/iee-projects/files/projects/documents/k4res-h_financial_incentives_for_renewable_hc.pdf. Energy Company Obligation is a government energy efficiency scheme to help reduce carbon emissions and tackle fuel poverty.
Investigate measures to significantly increase the energy efficiency of new and existing buildings, including through Guernsey's thermal performance standards, as set out in the Guernsey Technical Standards	2020-2030	Working in partnership with industry and households to reduce inefficient heating systems in buildings.	Increased thermal efficiency standards in buildings.	EU legislation in place to ensure that all new buildings are highly energy efficient and decarbonised by 2050. 'Passive House' is the world's leading standard in energy efficient construction, a building that requires very little energy to achieve comfortable temperatures all year round.
Reduce fossil fuel heating in new houses and renovations	2020-2025	Reduce oil, gas, wood burning and coal heating systems in all new builds.	Overall reduction in heating emissions and increased uptake of clean/renewable/low carbon energy domestic heating systems and to reduce household energy costs.	UK (by 2025)

Emissions Target Area: Heating (sheet 2 of 2)				
Action	**Timeframe**	**Description**	**Outcomes**	**Other Jurisdictions**
Review support required to transition to renewable heating options	2025-2030	Working with energy providers to review support required to transition to renewable heating options.	Overall reduction in heating emissions and well managed transition to renewable, low carbon heating options.	Article Transition to a Low-Carbon Economy Home energy and fuel poverty: Energy efficiency in social housing https://www.goldmansachs.com/insights/archive/archive-pdfs/trans-low-carbon-econ.pdf
Emissions Target Area: Agriculture and Land Use				
Action	**Timeframe**	**Description**	**Outcomes**	**Other Jurisdictions**
Deliver verifiable greenhouse gas abatement through adoption of improvements in farming practice	2020-2030	Working in partnership with farmers to trial interventions in local agricultural farming methods to reduce emissions.	Reduced agricultural emissions.	Ireland: Agriculture, the Bioeconomy and Climate Action United Nations: National planning for GHG mitigation in agriculture: A guidance document - Mitigation of Climate Change in Agriculture Series 8
Deliver expansion of soil management and habitat management to ensure that carbon abatement from land-use is delivered	2020-2030	Ensuring that strategy and policy is aligned to expand soil and habitat management to deliver carbon abatement on-island.	Improved and expanded soil and habitat management, and increased carbon abatement on-Island.	Ireland 2019 Action Plan Land use: Reducing emissions and preparing for climate change https://www.theccc.org.uk/wp-content/uploads/2018/11/Land-use-Reducing-emissions-and-preparing-for-climate-change-CCC-2018-1.pdf

Emissions Target Area: Fluorinated Gases				
Action	**Timeframe**	**Description**	**Outcomes**	**Other Jurisdictions**
Introduce limitations on HFCs in cooling	2025-2030	Phase out or limit HFCs used to refrigerate and cool on-island.	Reduced emissions from fluorinated-gases.	EU: EU legislation to control F-gases | Climate Action
Establish government procurement policy to avoid purchasing fluorinated gas products	2020-2022	Checks and measures in place to avoid procurement of products containing fluorinated gases.	Reduced emissions from fluorinated gases.	UK: plans to ban fluorinated gas in new equipment in the future from 2020, 2023 and 2025.

Emissions Target Area: Nature Based Solutions				
Action	**Timeframe**	**Description**	**Outcomes**	**Other Jurisdictions**
Introduce requirement for 'net gain' in biodiversity in new development	2020-2025	To ensure that new developments increase on-island biodiversity.	Increased biodiversity and carbon sequestration.	In October 2010 in Nagoya, Japan, over 190 countries around the world reached a historic global agreement to take urgent action to halt the loss of biodiversity. UK Biodiversity Plan (2020)
Develop On-island Sequestration Plan - including marine and terrestrial sinks	2020 -2025	Explore on-island (including within territorial waters) options for carbon sequestration.	Increased on-island carbon sequestration.	Scotland: Peatlands and Climate Change EU innovation: Carbfix |
Investigate feasibility of using local fertiliser (e.g. seaweed) rather than imports	2020-2025	Reduce carbon emissions for horticulture and agriculture by exploring ways to use local and sustainable resources for land fertiliser.	Circular economic benefits, improved sustainability.	EU study: https://cordis.europa.eu/project/id/606032/reporting
Review the Island's Blue Carbon capacity of the marine environment	2020	The sequestration and storage capacity of Guernsey's marine environment can be estimated using methodologies being developed in other jurisdictions. An initial assessment based on known habitat requirements, environmental data and physical data is planned for 2020.	Increase Blue Carbon capacity of Guernsey's marine environment by identified restoration projects.	Global initiatives: https://www.thebluecarboninitiative.org/ EU initiatives: https://www.stemm-ccs.eu/

Emissions Target Area: General Solutions (sheet 1 of 3)				
Action	**Timeframe**	**Description**	**Outcomes**	**Other Jurisdictions**
Reduce construction waste	Ongoing	Reduce the need to import materials and reduce over ordering and residual waste associated with the construction industry	Waste management plans for construction sites to demonstrate appropriate ordering to avoid waste and how waste associated with the development process is minimised, how existing materials are to be re-used on or off the site and how residual waste will be dealt with. Could also be extended to monitor the level of use of sustainable building materials.	Jersey, Australia
Increase the environmental weighting (including climate elements) of government procurement contracts	2020-2025	Set internal procurement policy for the States of Guernsey to include climate change mitigation elements.	Reduction of States of Guernsey carbon footprint.	EU 'Handbook on Green Public Procurement' (2016)
Establish offsetting gold standard for residual carbon emissions	2020-2050	A gold standard for offsetting residual carbon emissions from the Island's continued, and reduced, use of fossil fuels up to 2050 and beyond.	Residual emissions are offset to an internationally recognised high standard.	Global off setting initiatives (aligned with 17 SDGs); e.g. https://www.goldstandard.org/take-action/offset-your-emissions
Establish guidelines for international development projects that can contribute to offsetting goals	2020-2050	Guidelines setting out how Guernsey can offset residual carbon emissions through international projects supported by the Overseas Aid & Development Commission.	Enable offsetting while supporting communities in some of the poorest countries in the world through the Overseas Aid & Development Commission.	UK, New Zealand; e.g. https://www.gov.uk/government/news/uk-aid-to-double-efforts-to-tackle-climate-change

Emissions Target Area: General Solutions (sheet 2 of 3)				
Action	**Timeframe**	**Description**	**Outcomes**	**Other Jurisdictions**
Paris Agreement Review – explore implications and requirements of compliance and implications of extension	2020-2021	Review the Island's obligations under the Paris Agreement including the question of whether our National Defined Contributions would be set by Guernsey or would be an extension of the UK's as well as further technical, administrative and legislative steps that may be required.	Alignment with Paris Agreement, increased integrity and recognition to mitigate climate change.	188 states and the EU, representing more than 87% of global greenhouse gas emissions, have ratified or acceded to the Agreement, including China, the United States and India, the countries with three of the four largest greenhouse gas emissions of the UNFCCC members total (about 42% together).
Report on the advisory body (or similar) required to support the States of Guernsey and the Island to meet net zero targets	2020	Establish a body of advisory representatives to supply evidence, research and information to inform the Committee *for the* Environment & Infrastructure.	Improved engagement and knowledge on climate change mitigation and adaptation with the community and increased uptake of changes to meet net zero targets by 2050, or sooner.	The Intergovernmental Panel on Climate Change (IPCC) is an intergovernmental body of the United Nations established in 1988. The Committee on Climate Change (CCC) is an independent non-departmental public body, formed under the Climate Change Act (2008) to advise the United Kingdom and devolved Governments and Parliaments on tackling and preparing for climate change.

Emissions Target Area: General Solutions (sheet 3 of 3)				
Action	**Timeframe**	**Description**	**Outcomes**	**Other Jurisdictions**
Establish an independent advisory body to provide advice to government, and others, on climate change matters, as per the Climate Change Policy Letter	2020-2022	Pilot embedding of principles and emissions hierarchy in a service area of the States of Guernsey in order to roll out to the wider organisation.	Reduced carbon footprint of the States of Guernsey - leading by example to make changes to mitigate climate change through reduced emissions.	Forbes list 101 global companies reduce carbon footprint https://www.forbes.com/sites/blakemorgan/2019/08/26/101-companies-committed-to-reducing-their-carbon-footprint/#5e7c5cee260b Report on UK government greening commitments Greening Government Commitments - GOV.UK
Explore the benefits of establishing a green and sustainable finance body	2020-22	Further augment Guernsey's expertise and reputation as a centre for the development of green finance and sustainable investment. Development of a sustainable finance body that brings together expertise, capacity and capability from the private and non-government sector, and which can work with international bodies such as the UNC4S, organisations such as the Global Island Partnership and their member jurisdictions, and with the non-government sector.	This will support the development of sustainable finance and Guernsey's leadership in that sector; investment in climate change initiatives; and the economic dividend of Guernsey's commitment to sustainability	UK Green Finance Strategy, 2019.

Appendix B

Climate Change Policies - Other jurisdictions

Cornwall – Climate Change Action Plan 2019-2030

Policy/Action	Category	Anticipated Information
Investment of significant proportion of Cornwall Council's £16m Renewable Energy Investment programme into further deployment of renewables across estate	Power Generation	Anticipated to cost around £40m to implement by 2030
Invest & own an increasing part of public transport fleet & network to acquire greater control of our transport policy & ops	Transport/ Travel	
Introduce requirement for 'net gain' in biodiversity in new development	Built Environment	
Establish how to increase use of public rights of Way Network for active travel & increase connection & understanding residents have with nature through ability to access natural spaces in urban, rural & coastal areas	Built Environment Agriculture	
Allocate capital match funds to increase the leverage of national funds available to manage flood risk in communities	Built Environment Agriculture Coastal Erosion	
Adopt Net Zero Buildings Commitment within all capital build project assessments	Built Environment	
Implement new subsidy system to enable more affordable bus trips (aligned with current Europeans and London fare standards) and increase dramatically modal shifts	Transport/ Travel	
Council supported collective buying scheme for solar	Power Generation	
Community energy financing loans for renewables building on our 'community energy revolving financial vehicle/ and/or a 'carbon neutral community grant competition' targeted at supporting community carbon neutral projects/building	Power Generation	
Exploring opportunities for delivering a whole house retrofit programme	Built Environment	c.4,500 private sector rented homes that do not meet

Iceland – Climate Action Plan for 2018-2030

Policy/Action	Category	Cost to implement	Timeframe	Anticipated Impact
Tax incentives for clean cars/fuels (strengthening of existing position)	Transport/Travel	N/A	Annual	Increase in no. clean cars/fuels bought/use
Increase in Carbon Tax rate (50% in 2018, 10% in 2019, 10% in 2020)	Transport/Travel	N/A	Annual	Disincentivise FF vehicles and revenue generated for other CC initiatives
Improve infrastructure for EVs and other clean vehicles (e.g. hydrogen/methane)	Transport/Travel	c. £1.3m	2016-2018	Increase in no. clean cars/fuels bought/used
Changes to building/spatial planning rules to support EV charging infrastructure	Built Environment Transport/Travel	N/A	Unknown	Reduced obstacles to installing EV charging infrastructure and making EV use more convenient
Ban new registration of FFVs from 2030	Transport/Travel	N/A	2030-	Will give legal weight to the need for EV/clean vehicles/fuels for car manufacturers/importers
Consideration of a rebate system for the decommissioning of older, higher-polluting vehicles	Transport/Travel	Unknown	Unknown	Speed-up the phasing-out of older, higher-polluting vehicles and reduce carbon emissions
Electrical connection for stationary airplanes to become mandatory	Transport/Travel	Unknown	Unknown	Reducing in 'idling' emissions
Phase out of heavy fuel oil	Transport/Travel	Unknown	Unknown	Reduction in marine carbon emissions
Phase out of HFCs	Cooling	Unknown	Substantial decrease by 2030	Reduction in HFCs and reduction in emissions
Green accounting – strengthened regulations on carbon footprint of companies	Built Environment	N/A	Unknown	Increased CC responsibility by companies and reduced emissions

Ireland – 2019 Climate Action Plan

Policy/Action	Category	Additional Information
Introduction of new Climate Action Act – adoption of carbon budgets a legal requirement	All	
Increased reliance on renewables from 30%-70% adding 12GW of renewable energy capacity (with peat and coal plants closing)	Power Generation	
Implement support scheme for micro-generation with a price for selling power to the grid	Power Generation	
Introduce stricter requirements for new buildings and substantial refurbishments	Built Environment	
Build supply chain & model for aggregation where home retrofits are grouped together to allow this to be funded and delivered	Built Environment	
Accelerate the take up of EV cars and vans so that we reach 100% of all new cars and vans being EVs by 2030	Transport/Travel	This will enable achieving our target of 950,000 EVs on the road by 2030. This means approximately one third of all vehicles sold during the decade will be Battery Electric Vehicle (BEV) or Plug-in Hybrid Electric Vehicle (PHEV)
Deliver substantial verifiable greenhouse gas abatement through adoption of a specified range of improvements in farming practice	Agriculture	
Deliver expansion of forestry planting and soil management to ensure that carbon abatement from land-use is delivered	Agriculture	2021-2030 and ongoing
Embed energy efficiency, replacement of fossil fuels, carful management of materials & waste, and carbon abatement across all public service bodies	All	
Eliminate non-recyclable plastic	Waste	
Implement carbon tax rate of €80	All	By 2030
Generous regime of tax incentives to promote uptake of EVs	Transport/Travel	

Isles of Scilly – Climate Change Action Plan

Policy/Action	Category
Planning policy & decisions to encourage design of new buildings to be both robust to minimise wind damage & maximise resistance to flooding & should require sustainable drainage & sewerage options	Built Environment
Implementation of Shoreline Management Plan (SMP2)	Waste
Implementation of Sustainable Transport Strategy	Transport/Travel
Explore opportunities for renewable energy systems to offset rising costs under new governmental financial packages	Power Generation

Jersey – Carbon Neutral Strategy 2020

Policy/Action	Category	Additional Information
Implementation of Sustainable Transport Policy (investment in cycling, walking, bus travel, school travel) transition to electric vehicles & other forms of eMobility, & workplace travel planning	Transport/Travel	
Reducing emissions from diesel vehicles through consideration of biodiesel replacement	Transport/Travel	
Investigate feasibility & develop Commercial Energy Audits w/subsidy to encourage take-up	Built Environment	By 2020
Review range of fiscal incentives for enabling households & landlords to switch to electric heating (incl. consideration of future building byelaws)	Built Environment	
Extend minimum standards legislation – expand the criteria to incorporate energy efficiency, and by extension energy affordability of rental properties.	Built Environment	

Scotland – Climate Change Plan 2018-2032

Policy/Action	Category	Additional Information
The Government will support delivery of Low Carbon Infrastructure Transition Programme & encourage investment in decarbonisation of businesses and the public sector	Other	£76m funding to 2018, with additional £60m allocation from 2018-2020
Negotiate stretching emission standards for new cars/vans beyond 2021 & vehicle excise duty differentials between ULEVs and diesel and petrol vehicles to support and encourage uptake of ULEVs	Transport/Travel	Proportion of ultra-low emission new cars and vans registered in Scotland annually to reach 100% by 2032.
Encourage uptake of ULEVs by providing interest-free loans to consumers, businesses, taxis & private hire sector	Transport/Travel	Proportion of ultra-low emission new cars and vans registered in Scotland annually to reach 100% by 2032.
Support increase in active travel by doubling funding from £40m to £80m and supporting programmes to encourage travel behaviour change	Transport/Travel	Proportion of total domestic passenger journeys travelled by active travel modes has increased by 2032, in line with our Active Travel Vision, including the Cycling Action Plan for Scotland Vision that 10% of everyday journeys will be by bike by 2020.
Incentivise the industry sector to shift from gas to alternative fuels & encourage uptake of renewable heat technologies through non-domestic Renewable Heat Incentive	Power Generation	By 2032, industrial and commercial energy productivity to improve by at least 30%, from 2015 levels, through a combination of fuel diversification, energy efficiency improvements and heat recovery.

The **United Kingdom** – The Road to Zero

Policy/Action	Category	Additional Information
Increase supply & sustainability of low carbon vehicle fuels through a legally-binding 15-year strategy	Transport/Travel	The UK expect to deliver this by 2032 doubling their use – reaching 7% of road transport fuel
Take legal action against garages offering the removal of emissions reduction technology	Transport/Travel	
Consult on reforming Vehicle Excise Duty to incentivise van drivers to use cleaner fuel choices	Transport/Travel	
Consult on reforming Vehicle Excise Duty to incentivise can drivers to use cleaner fuel choices	Transport/Travel	
Legislate to enable government to compel vehicle manufacturers to recall vehicles for an environmental nonconformity/failure	Transport/Travel	
Making big increase in public investment in R&D for zero emission vehicles	Transport/Travel	Total investment of 2.4% GDP by 2027
Launch a £400 million Charging Infrastructure Investment Fund to help accelerate charging infrastructure deployment	Transport/Travel	
Take powers through the Automated & Electric Vehicles Bill to ensure charge points are accessible, widely available & smart ready	Transport/Travel	
Ensuring houses built in the coming years are EV-ready	Transport/Travel	
Review provision of residential charge point infrastructure for those who have communal parking facilities as part of Law Commission's work to review & reinvigorate the commonhold tenure	Transport/Travel	
Obligation for minimum shares of renewable electricity to suppliers	Power Generation	
Closure of all coal-fired plants	Power Generation	By October 2025
Regulation requiring new homes to be carbon neutral	Built Environment	
Ban fossil-fuelled heating in new houses		By 2025

Appendix C

Guernsey's Strategy for Nature – Framework Document

States of Guernsey
Agriculture, Countryside and
Land Management Services

GUERNSEY'S STRATEGY FOR NATURE

Framework Document

May 2020

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Glossary

Term/ abbreviation	Definition
ACLMS	Agriculture, Countryside & Land Management Services, States of Guernsey
Adaptation	Adaptation is the term given to actions or measures taken to reduce the impact of something (e.g. to reduce the vulnerability to the effects of climate change).
Biodiversity	The variety of all life forms — the different plants, animals and micro-organisms - and the ecosystems of which they are a part.
BEO	Biodiversity Education Officer, now retitled Biodiversity Officer
Biodiversity Net Gain	The process that applies a standardised biodiversity unit metric to habitat types based on automatic 'generic' calculations. This process is used to inform the planning and marine licencing of developments.
BPG	Biodiversity Partnership Group, made up of representatives of organisations with a mandate for nature conservation, the BEO, and individuals with specialist areas of interest associated with nature conservation and management.
Blue carbon	Calculations carried out to assign a carbon intensity figure to carbon stored in coastal and marine ecosystems.
Ecosystem Services	Term given to how people use and benefit from the natural environment (e.g. fisheries, agriculture, tourism, clean water, fertile soil)
E&I Committee	Committee *for the* Environment & Infrastructure
GHG	Greenhouse gas
GBRC	Guernsey Biological Records Centre
Mainstreaming Biodiversity	Term given to the integration of biodviersity and its value into all sectors and across sector decision making. Mainstreaming techniques include natural capital accounting, Net Gain & Natural carbon accounting.
INNS	Invasive non-native species that have reached Guernsey by accidental human transport, deliberate human introduction, or which arrived by natural dispersal from neighbouring non-native population to the detriment of native wildlife or ecosystems.
Mitigation	An intervention to reduce negative or unsustainable uses of biodiversity and ecosystems.
Nature	The variety of all life forms — the different plants, animals and micro-organisms - and the ecosystems of which they are a part.
Natural Asset	Naturally occurring living and non-living parts of the Earth, together comprising the bio-physical environment, that jointly deliver ecosystem services to the benefit of current and future generations - include trees, rivers, land, beaches, fish stocks, carbon stores, rivers and oceans.
Natural Capital	Term used to describe the stock of renewable and non-renewable natural resources (e.g. plants, animals, air, water, soils, minerals) that combine to yield a flow of benefits to people, both directly (e.g. by delivering clean air) and indirectly (e.g. by underpinning the economy). The term 'natural capital' is used to emphasise it is a capital asset, like produced capital (roads and buildings) and human capital (knowledge and skills).
Natural Capital accounting	Provides estimates of the financial, societal and environmental value of natural assets and natural resources to people, businesses and jurisdictions to inform decision making.
Offsetting	Biodiversity offsetting is a form of compensation that typically aims to achieve an outcome in which there is 'no net loss' of biodiversity as a result of a particular development.
States/ SOG	States of Guernsey
Strategy	Strategy for Nature, in the context of this document.
UN SDGs	The UN Sustainable Development Goals (UN SDGs) were adopted by all United Nations Member States in 2015 as a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030.

Executive Summary

This document presents Guernsey's Strategy for Nature ('Strategy') and overarching action plan framework ('Framework') to deliver the long-term management of nature in Guernsey[94]. The Strategy supersedes the 2015 Biodiversity Strategy.

Vision for the Strategy for Nature: Guernsey's nature; great today, better tomorrow

Purpose: To ensure that Guernsey's nature is healthy and resilient to threats, and understood and valued in its own right and for its essential contribution to our economy, quality of life, community, and place in the world.

Goal 1: Connect our island community with nature:

- **Objective 1**: Encourage everyone to get out into nature
- **Objective 2**: Increase awareness, understanding & support for nature
- **Objective 3**. Ensure the economic, social and environmental value of nature is understood and integrated into local decision making

Goal 2: Care for nature to ensure the diversity and resilience of our natural capital and assets:

- **Objective 4**: Ensure an integrated, large-scale approach to the conservation and management of our nature
- **Objective 5**: Maximise the diversity of species and ecosystems
- **Objective 6.** Reduce pressures on nature and ensure the resilience of our natural capital and assets

Goal 3: Foster and share knowledge about nature:

- **Objective 7**: Bring nature to life through learning
- **Objective 8:** Share and use information effectively
- **Objective 9:** Improve knowledge about our natural capital and assets to inform decision making

The Framework has been designed to link directly to the Policy & Resources Future Guernsey Plan, whose vision is "*Great today, better tomorrow*" and priority themes (as shown by colour coding). The Strategy for Nature vision also fulfils the needs of the Biodiversity Strategy – to protect and enhance nature for future generations.

The Strategy is a LIVE document – the rolling action plan shall be reviewed annually and the full Strategy every 5 years - so that it can meet changing local and international priorities, drawing on emerging evidence and science.

To succeed, the goals and objectives within this Strategy for Nature must be embraced by all as **an investment in Guernsey's future**.

[94] The change of title from Biodiversity Strategy to Strategy for Nature is an output of the consultation carried out as part of the 2020 review of the Biodiversity Strategy and responds to the recommendation to simplify terminology where possible to make the Strategy accessible to a wider audience.

Section 1: Introduction

A changing world

When the Biodiversity Strategy for Guernsey was developed in 2015, it was broadly accepted that there was a need to provide the means to consider, and where necessary, implement conservation legislation and to formalise and structure the Island's commitment to protecting its diverse and treasured natural environment.

In the five years since, the world has seen a seismic shift in public interest and international government action on climate change; in part, in response to new evidence which predicts a 3°C increase in temperature by the end of this century. In parallel, there has been global acknowledgement of the need to increase efforts at all levels of society to improve environmental sustainability performance and to reprioritise the way that the natural environment is valued and managed in decision making. Or put simply, nature conservation can no longer be an afterthought to decision making, or operate in a bubble, it needs to be integrated into all sectors and across sectors: **biodiversity needs to be mainstreamed.** [95]

The Strategy for Nature ('Strategy') has been prepared following a (scheduled) 5-year review of the 2015 Biodiversity Strategy and supersedes the 2015 Biodiversity Strategy as the long-term overarching framework for the management of nature in Guernsey[96]. The Strategy is a LIVE document, the 5-year (rolling) action plan shall be reviewed annually to proactively respond to advances in thinking and knowledge and pressures on nature in Guernsey. The full Strategy document shall be reviewed every 5 years.

Value of Nature

So why is biodiversity loss considered such as threat? In short, nature provides the foundations that underpin our economy, society and environment.

When cared for proactively, our natural assets – e.g. seagrass beds, kelp forests, woodland, grassland, water courses – provide essential services and benefits called natural capital – e.g. flood prevention, coastal defence, air and water filtration, soil fertilisation, pollination, and carbon sequestration. A healthy natural environment also helps to maintain our stunning scenery which benefits our wellbeing, boosts tourism and attracts high net worth individuals to the Island. It is important to ensure that the value of Guernsey's natural capital is visible in decision making to halt its gradual degradation due to climate change and other human made pressures, which if not proactively managed shall lead to irreversible (and costly) impacts on the economy, society and environment.

"Species are to ecosystems what rivets are to a plane's wing. Losing one might not be a problem, but each loss adds to the likelihood of a disaster." (Paul and Anne Ehrlich, 1980)[97]

Need to walk the walk

As highlighted by Deputy Gavin St Pier during his key note speech at the Institute of Directors Annual Conference in October 2019, in order for Guernsey to be a green island it shall be essential that *"the whole system, our whole culture needs to be consistent and needs to be aligned if we are to be credible."*

[95] Mainstreaming of biodiversity is the term used for the integration of nature management into all sectors and across sectors of decision making and operations using recent developments in natural capital accounting, Net Gain and natural carbon auditing.

[96] The Strategy for Nature action plan shall be reviewed annually and the framework shall be subject to a full review every 5 years. The change of title from Biodiversity Strategy to Strategy for Nature is an output of the consultation carried out as part of the 2020 review of the Biodiversity Strategy and responds to the recommendation to simplify terminology where possible to make the Strategy accessible to a wider audience.

[97] World Economic Forum. (2020). 'The Global Risks Report 2020', 1–114.

The framework presented in this document provides the mechanism to deliver the 'walking part' for the protection and resilience of our natural environment.

> *"When it comes to our principal industry, financial services, we already have a strong story to tell. The world's first regulated green fund... the growing profile of Guernsey Green Finance... membership of the United Nations' Financial Centres for Sustainability... green bonds on The International Stock Exchange, TISE GREEN … and the launch of the Guernsey Environmental & Social Impact Monitor. But. There is always a 'but.' It's not enough.*
>
> *To our many external critics and sceptics, this alone will be presented as, at best, 'green wash' and, at worst, the cynical commercial exploitation of the climate change agenda for our own benefit. We'll have little credibility with our external offer, green finance, if our internal policies are inconsistent. Our internal and external worlds are inextricably linked. The whole system, our whole culture needs to be consistent and needs to be aligned if we are to be credible. In short,* ***we have to walk-the-walk as well as talk-the-talk.*****"** (Gavin St Pier, IOD, October 2019)

We must work together

Overcoming the challenges and threats to Guernsey's nature is not achievable by one team or Committee within the States or conservation organisations alone. All of Guernsey must recognise that our natural world is continually changing and there are many ways we can, and must, work together to care for it, now and into the future. The wider States through to parishes and individual land owners - we all have a role to play.

A sustainable new world

As the Island starts to plan for how to rebuild the economy post-COVID-19, the threat to our economy, society and environment from climate change and nature loss remains unchanged. Placing the Strategy for Nature, sustainable development, and climate change adaptation and mitigation at the heart of Guernsey's recovery plan shall help build a resilient economy for the future.

The launch of the Strategy for Nature Action Plan 2021 - 2026 to coincide with Guernsey coming out of lockdown would provide a much needed 'feel-good-message' to reconnect our Island community, pivot off the increased awareness in nature, and provide a positive long-range resilience statement to focus the community on the 'new **sustainable** world' ahead.

The remainder of this document is set out as follows:

- **Section 2: International commitment** – provides a summary of the nature related conventions Guernsey has signed up to (through the UK) to in recognition of the necessity of working alongside our international community to conserve and protect our living world.
- **Section 3: State of Nature for Guernsey** – presents some headline figures on the status of our natural environment to give some context to the selection of goals and objectives within this framework.
- **Section 4: The Components of the Framework** – breaks down the framework to show the thinking, justification and benefits behind the component parts.
- **Section 5: Next steps** – shows how this framework document fits into the wider Strategy for Nature project.

Within the context of the Strategy for Nature, the terms **biodiversity** and **nature** have been defined as the same, namely, *the variety of all life forms — the different plants, animals and micro-organisms - and the ecosystems of which they are a part*.

Section 2: International commitment

What we do at a local scale to preserve and enhance our nature contributes to global efforts to conserve and protect our **living world**. By becoming a signatory to nature related conventions (through the UK) – as shown in Figure 1 - Guernsey has already recognised the necessity of working alongside our international community.

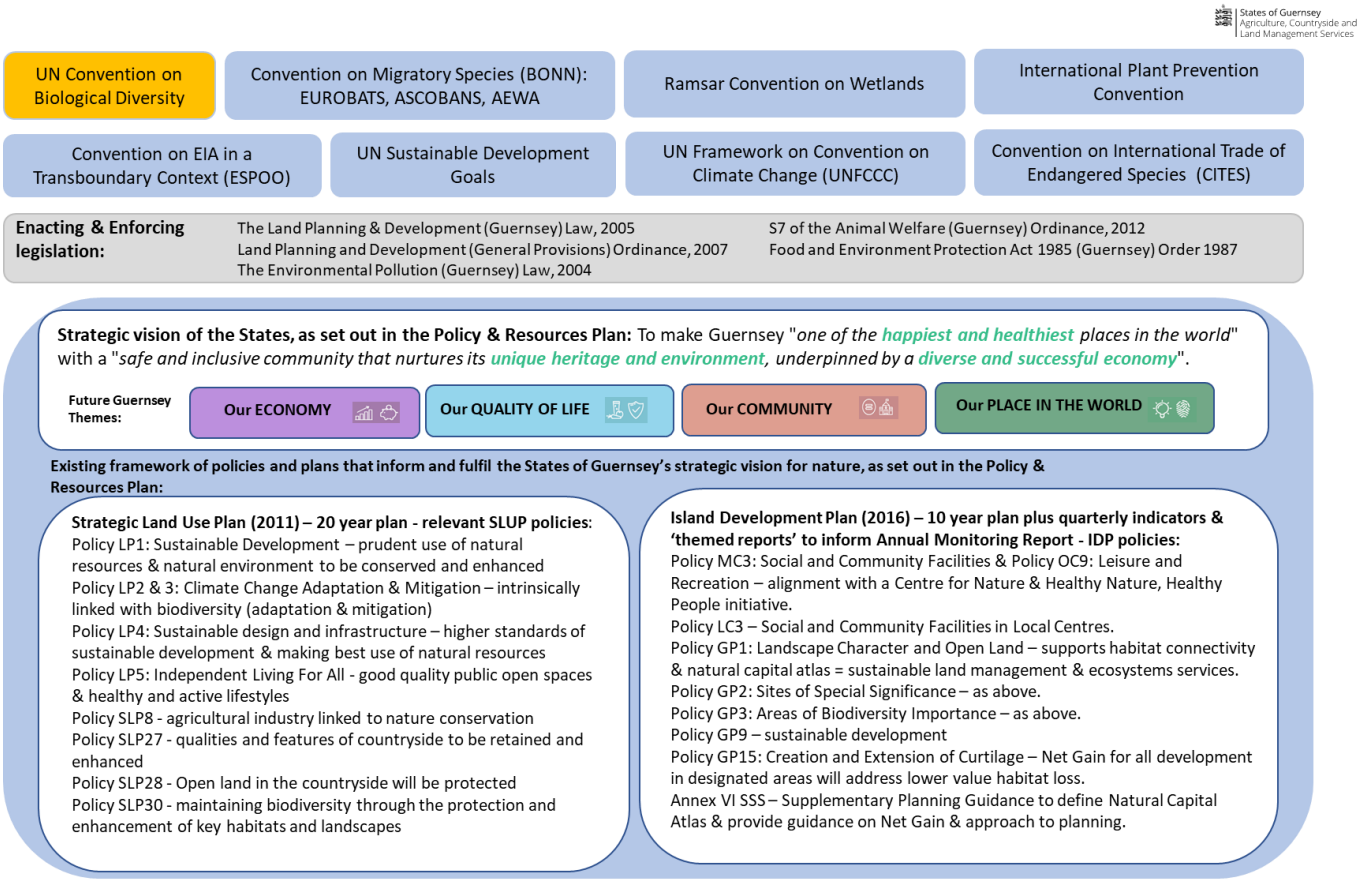


Figure 1: How the strategy contains and coordinates our local and international actions to manage and care for nature[98]

Each convention has contributions which signatory parties (i.e. UK and Guernsey) are required to implement, be it reporting, enactment of regulation or performance standards. The Convention on Biological Diversity (CBD) Aichi Targets have been selected by the convention secretariats to provide the overarching framework for cooperation for the biodiversity-related conventions and requirements under the United Nations Framework Convention on Climate Change and the UN Sustainable Development Goals. [99][100] The Aichi Targets - see Figure 2 below – shall inform the Strategy for Nature and provide the mechanism for Guernsey to achieve our contributions to the global efforts to fight biodiversity loss.

[98] In 2015 the States endorsed need to extend to Guernsey the UK's ratification of the Convention of Biological Diversity (CBD) under Resolution 6 of the Biodiversity Policy Letter – this ratification is incorporated into the Strategy for Nature Action Plan, hence shading in yellow as a matter pending.

[99] Since October 2019, the various conventions are working to construct and implement a harmonised reporting system. In the interim, Parties are advised that the Convention of Biological Diversity (CBD) Strategic Plan for Biodiversity and Aichi Biodiversity Targets would act as the overarching framework for action on biodiversity and foundation for sustainable development, and therefore also serves as a framework for cooperation among the biodiversity-related conventions, including the United Nations Framework Convention on Climate Change and the UN Sustainable Development Goals (UNFCCC).

[100] **https://sustainabledevelopment.un.org** for further information on the Sustainable Development Goals.

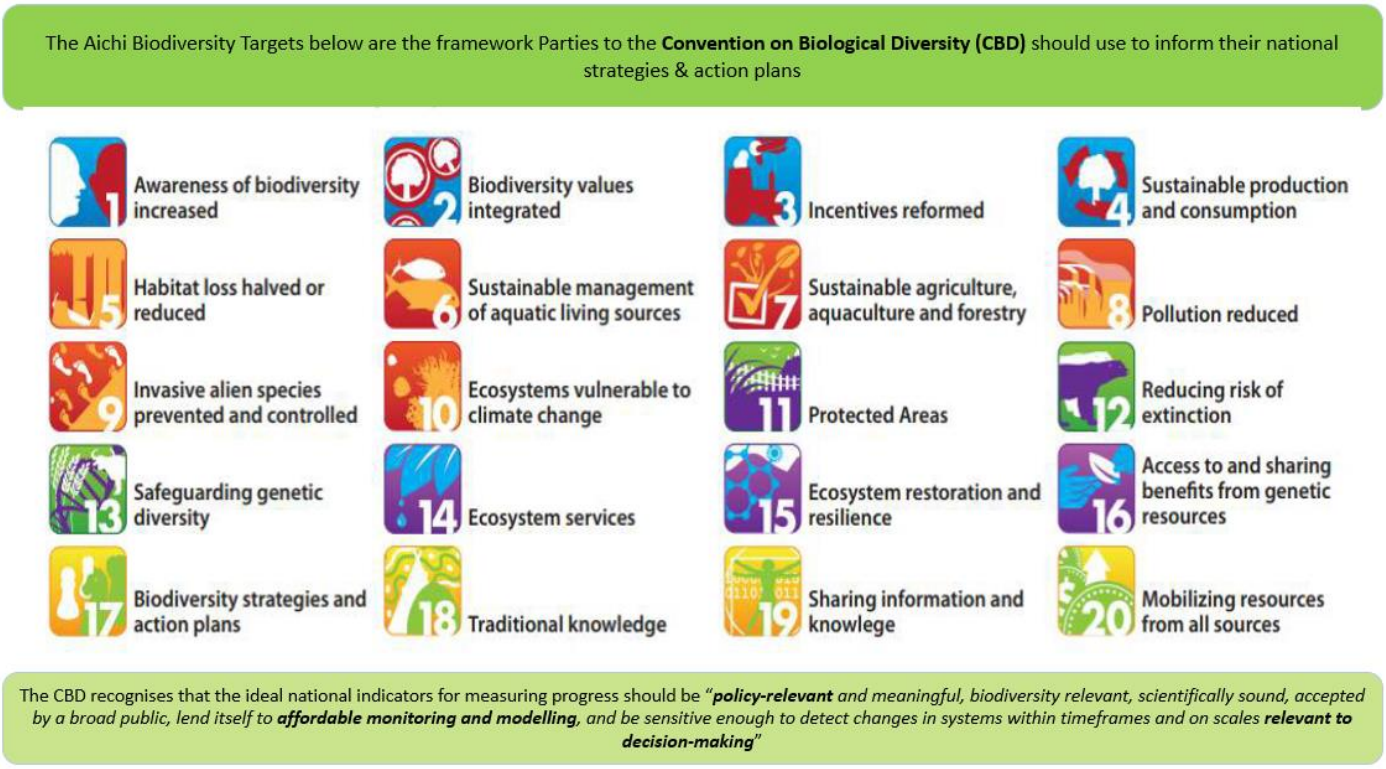


Figure 2: Aichi Targets that provide the overarching framework for delivery of the international conventions on biodiversity[101]

Future proofing

Guernsey's Environment Policy and Climate Change Policy provide the umbrella policies related to nature. Each of which are matters in progress[102]. Ahead of finalising these policies and supporting implementation plans, and ahead of the formulation of detailed recovery plans following COVID-19, the Strategy for Nature has incorporated the latest advances in mainstreaming biodiversity, sustainable development and nature related climate change adaptation and mitigation to 'future proof' the Strategy action plan so that it can meet the needs of these pending umbrella policies. See Appendix A for more information on the advances in 'mainstreaming biodiversity' that has been included in the Strategy for Nature.

[101] **www.cbd.int/sp/targets** for further information on the Aichi Targets

[102] Policy & Resources Plan – 2018 Review & 2019 Update – Billet D'Etat IX 25th June 2019

Section 3: 'State of Nature': the story so far…

Guernsey's position within the Bay of St Malo, with its large (12 m) tidal range and influence of the Gulf Stream, has resulted in a marine environment that is very diverse, both in species and number of individuals. Many species from the Bay of Biscay reach their northern limit in the Channel Islands and, conversely, there are species in the southern UK that do not make it across the English Channel to Guernsey. Many species stay local to Channel Island waters. Whereas there are also species that are transboundary and protected internationally, which places obligations on Guernsey to ensure their protection whilst resident within or transiting through the Bailiwick's waters (e.g. Atlantic bluefin tuna, bottlenose dolphin).

The international importance of Guernsey's marine ecology has been recognised by the designation of two Ramsar sites – Lihou Ramsar Site & Herm Ramsar Site – both of which were selected because their inter-tidal and nearshore habitats are characterised as wetlands of international importance under the Ramsar Convention.

"Guernsey's culture and heritage is founded on its close links with the sea and its marine environment."

Guernsey's terrestrial environment is just as diverse and varied as its marine environment, with over 13,000 species recorded to date. Due to location, Guernsey has a different set of species from most of the UK and mainland Europe - e.g. the Atlantic scaly cricket, which is found in Sark and Guernsey but in only four UK sites - and some species which are endemic to the island, such as the Guernsey vole and Guernsey centaury.

Our nature is however being gradually eroded and requires careful management to maintain its value and the services it currently provides:

- The international importance of Guernsey's marine ecology has been recognised by the designation of two Ramsar sites – Lihou Ramsar Site & Herm, Jethou & the Humps Ramsar Site – both of which were selected because their inter-tidal and nearshore habitats are characterised as wetlands of international importance under the Ramsar Convention.
- A biodiversity Strategy framework published in 1995 described that Guernsey had lost over 90 species in the proceeding 100 years.
- The latest land habitat surveys carried out in 2019 showed significant changes in habitat coverage and connectivity since 1999 e.g.
    - **Amenity grassland (highly managed, closely mowed grassland) has increased by 33%, and parkland - amenity grassland with scattered trees - has increased by 155%.** This represents an increase in intensive management of natural land and so a loss of habitats for biodiversity.
    - **Sour fig, one of the largest threats to coastal and cliff habitats, has increased by 123% since 2010**. This increase is despite local voluntary groups efforts to remove it suggesting the urgent need for a species-specific action plan involving a coordinated effort and increased resources are required to manage this threat to coastal biodiversity.

Section 4: Strategy for Nature: Action Plan Framework

This section – and Figure 3 below - presents the overarching Strategy for Nature Action Plan framework and the justification and benefits of the component parts.

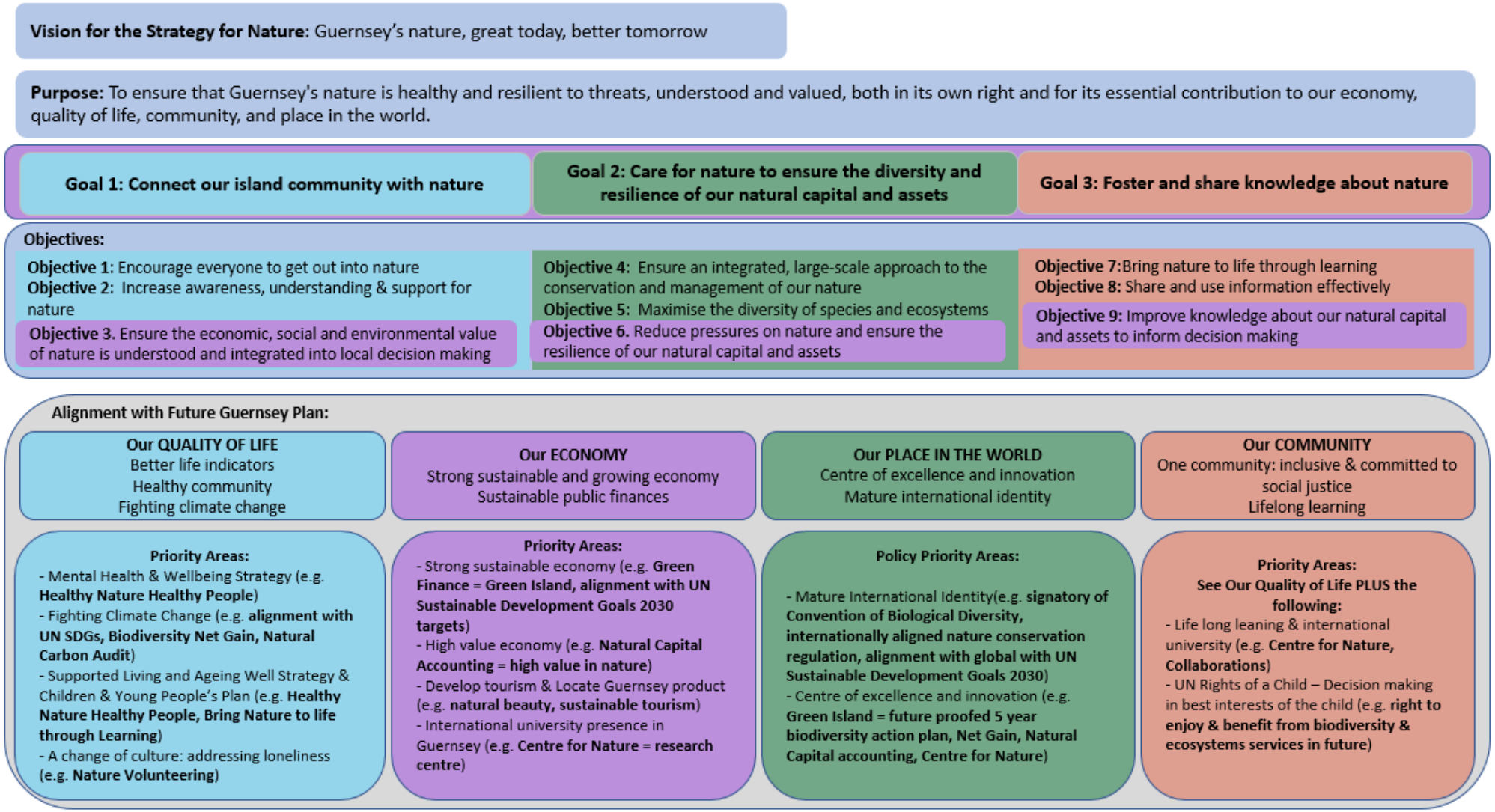


Figure 3: Structure of the Strategy for Nature Framework (The colour coding links to the priority areas within the Future Guernsey Plan)

Components of the Framework

The framework provides a structure to support and inform the selection, justification and prioritisation of projects within the initial 5-year Strategy for Nature Action Plan.

The overarching focus being to ensure a locally relevant and fit-for-purpose action plan with the mechanisms needed to horizon scan, monitor and proactively address the pressures facing nature locally, so that our natural heritage can be preserved and enhanced for future generations.

The three focus areas of the Strategy for Nature Action Plan for 2021 – 2026 are therefore as follows:

1. To **connect people with nature** to strengthen awareness, understanding and support for nature and the benefits it brings to our economy, society and environment.
2. To develop the systems required to **mainstream biodiversity** so that the value of nature, and the pressures it is under, are visible and integrated in decision making.
3. To develop a coordinated approach to **data to inform the Strategy**, so that data collection is centralised, targeted and prioritised to achieve the priority needs of the Strategy, and in doing so provide a cost-effective and efficient means to obtain data essential to decision making.

Vision and Purpose

Vision for the Strategy for Nature: Guernsey's nature; great today, better tomorrow

The vision was selected to link the Strategy for Nature to the Future Guernsey Plan, whose vision is "*Great today, better tomorrow*". The Strategy for Nature vision also fulfils the needs of the Biodiversity Strategy – i.e. Guernsey's nature is great today, but we need to protect and enhance it for future generations.

Purpose: To ensure that Guernsey's nature is healthy and resilient to threats, and understood and valued in its own right and for its essential contribution to our economy, quality of life, community, and place in the world.

The purpose also links the strategy to the priority themes of the 20-year Future Guernsey Plan (in blue) and emphasises the global change of approach from purely protection-based biodiversity strategies, to ones which strive to incorporate adaptation, resilience and the mainstreaming of biodiversity and in doing so link nature to the economy and society.

Goals

The strategy has three goals underpinned by nine objectives. The goals reflect the focus areas for the long-term delivery of the Strategy for Nature. The Goals essentially form the links of the chain (framework) for delivery of the action plan. Each link has equal value and provides an essential function, which if its function is weakened, shall risk the successful delivery of the Strategy – see Figure 4.

The links are colour coded to reflect the priority themes that each goal shall help delivery. Overarching all three goals is the Economy theme - as shown by the purple colour coding in Figure 3. There is an Economy focussed objective under each goal, to drive proactive nature management **and in doing so provide the mechanism to ensure a sustainable and resilient economy**.

Objectives

A summary of the nine objectives under the Strategy for Nature, including the benefits and justification for each objective, is shown in the following pages.

Each of the objectives fulfils a number of policy priority areas and these are shown.

Biodiversity indicators have been assigned to each objective to ensure that decision makers can respond efficiently to changing circumstances and take early action to overcome barriers to delivery of the Strategy and sustainable development or review policy approaches to meet changing biodiversity values.

A programme of projects has been developed to achieve each of the objectives. The projects shall form a prioritised programme within the 12-month action plan (for endorsement by the E&I Committee in May 2020) and a 5-year action plan which is currently under development and due for completion in August 2020.

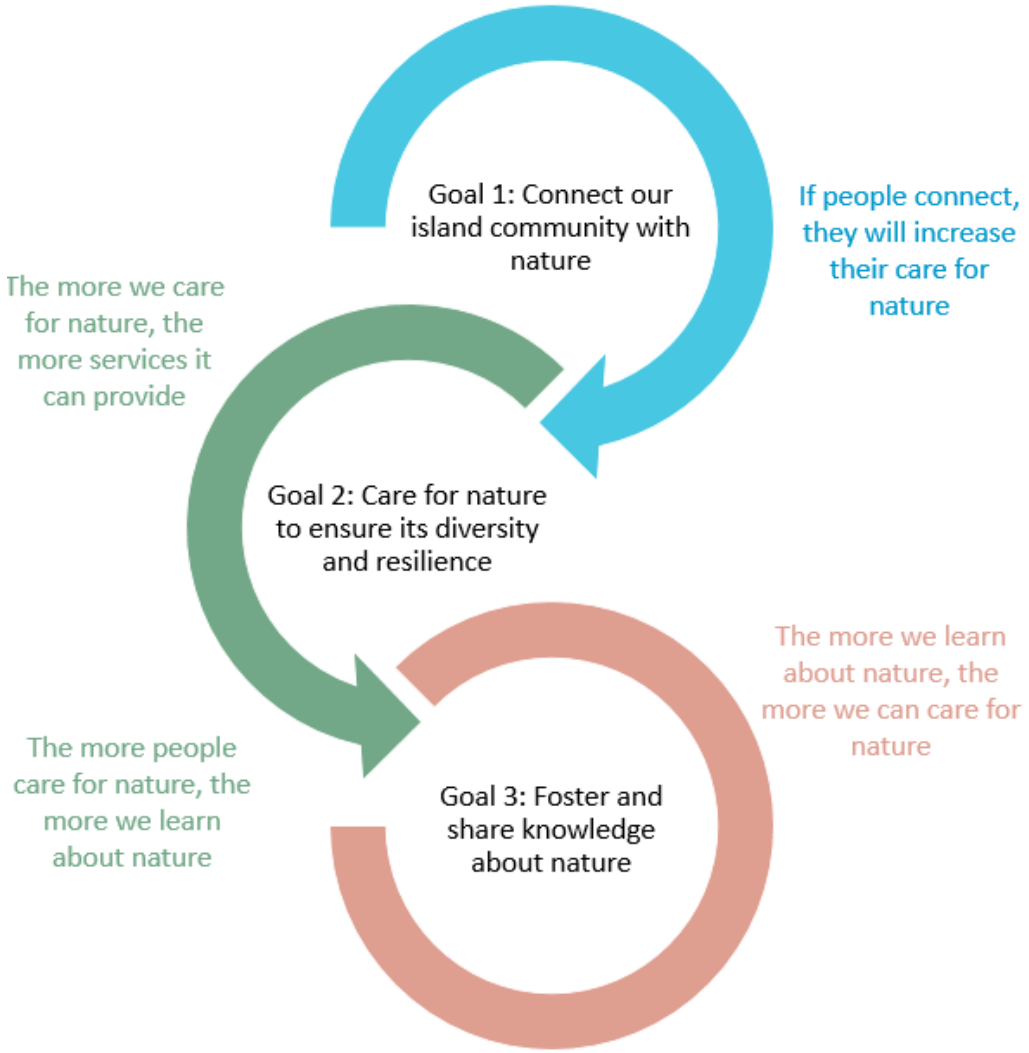


Figure 4: Interlinked goals that form the framework 'cycle' (adapted from Australia's Strategy for Nature (2019)

Goal 1: Connect our island community with nature:

- **Objective 1**: Encourage everyone to get out into nature
- **Objective 2**: Increase awareness, understanding & support for nature
- **Objective 3**. Ensure the economic, social and environmental value of nature is understood and integrated into local decision making

Goal 1 provides the first link in the chain, the more we can connect people with nature, the more we enhance their desire to care for it.

Studies suggest that people (particularly children and young people) are becoming increasingly disconnected - physically, spiritually or emotionally - from wildlife, the countryside and nature. Seven out of ten people in a recent UK survey admitted they felt they were losing touch with the natural world, while a third said they did not know enough about the subject to teach their own children. One in three people could not identify an oak tree. Reasons for this disconnect may range from increasing urbanisation and a 'loss of respect, humility, and empathy with nature' through to the relative attractions of indoor sedentary entertainment and a lack of childhood experience of nature[103]. Connecting our community with nature is essential to the long-term mental and physical health of our society and island culture.

This first goal provides the mechanisms to connect our island community with nature by promoting initiatives to encourage people into nature. Experiences of nature can have multiple benefits, including:

- enriched health and wellbeing;
- increased awareness and understanding of nature's role, which in turn can lead to a deeper appreciation of its value and contribution to our livelihoods;
- behavioural change to become more mindful of the impacts of our broader actions and decisions that affect nature, directly and indirectly;
- increased community stewardship of nature; and
- strengthen the health and resilience of our society, businesses and economy.

Objective 3 builds on the need to connect our island with nature by supporting the integration of nature into the economic decision making for the island, which in turn aligns with the Green Finance focus for Guernsey and Deputy (Gavin) St Pier's recognition of the need to "walk the walk" as a Green Island. A Natural Capital Account for the island gives a very clear external message that we are putting Environment on the island's 'balance sheet'.

The UK's Natural Capital Committee and Defra work closely with the Office for National Statistics (ONS) to develop estimates of the UK's natural capital. An example of some UK government natural capital statistics are as follows[1]:

- The partial asset value of UK natural capital was estimated to be £761 billion in 2015.
- In 2016, with the addition of a new approach to valuing ecosystem services, the partial asset value of the UK natural capital was estimated to be nearing £1 trillion (£958 billion).
- 58% of this value was attributable to cultural and regulating services (recreation, pollution removal and carbon sequestration).
- 15% more carbon was sequestered by UK vegetation in 2015 than in 1997.
- Vegetation removing pollution in the UK has been valued highly at just over £1billion - the service of removing pollution is valued highly due to the damage pollution causes to human health.
- The cooling shade of trees and water saved the UK £248 million by maintaining productivity and lowering air conditioning costs on hot days in 2017.
- Around 27,500 Quality Adjusted Life Years (QALY) were saved through vegetation removing air pollution in 2017.
- In 2016, living within 500 metres of green and blue space was estimated to be worth £78 billion to UK homes.
- The annual global loss of blue carbon ecosystems is resulting in emissions (0.45 Pg CO_2 yr^{-1}) similar to the annual fossil fuel CO_2 emissions of the UK.

The three supporting objectives (Objectives 1 – 3) are summarised overleaf.

[103] https://www.gov.uk/government/statistics/nature-connection-index-nci-dataset

Goal 1: Connect our island community with nature

Objective 1: Encourage everyone to get out into nature

Justification

The more we can encourage people to get out into nature, the more we enhance their desire to care for nature. Research has also shown that a connection with nature has direct associations with happiness indicators, positively affect autonomy and personal growth (aspects of wellbeing), reduced levels of cognitive anxiety, and higher levels of academic achievement in children. The degree to which one feels a connection to nature may be associated with the frequency and type of visits made to the natural environment and may be one of a variety of factors which influence certain pro-environmental behaviours and beliefs.

Benefits:

This objective promotes initaitives to encourage people to get out into nature, which can be achieved in various ways, by diversifying nature based experiences, increasing access and growing nature-based tourism, or increasing the promotion of human health & well being benefits from nature- based activities (e.g. social prescribing); all of which have wider benefits to society and the economy. Linking this objective with the Nature Connection Index shall provide the means to monitor the populations awareness, engagement and support for nature, which in turn helps to drive and review progress of the initaitves to promote health, wellbeing & education within our island community.

Indicators:

1A. Extent of initiatives to promote engagement with nature and nature-based activities, which in turn promote people's health and wellbeing.

1B. Nature Connection Index scoring for Guernsey

Alignment with international conventions & the UN SDGs:

* UN Convention on the Rights of the Child: Article 21.1 (e) also states Parties agree that the education of the child shall be directed to 'the development of respect for the natural environment'.

Project topics

- Healthy Nature Healthy People Initiative.
- People & Nature' Survey

Alignment with Future Guernsey plan priority policy areas and plans:

- **Better Life Indicators**: Nature based activities and awareness boosts stewardship for nature, health & well-being and the value of recreation and environmentally sustainable ecosystem services.
- **Healthy Community**: COVID-19 has brought the link between health & well-being and nature into such sharp focus. As Guernsey comes out of lockdown, the launch of the Strategy for Nature would provide a perfect 'feel good message' to reconnect our island community and pivot off the increased awareness in nature.
- **Life-long learning**: Nature based activities and awareness within curriculum boost stewardship for nature, wellbeing & value of recreation and environmentally sustainable ecosystem services.
- **Bailiwick of Guernsey Curriculum**: 'The Big Picture curriculum is dedicated to supporting the four outcomes of the Children and Young People's Plan to ensure that children are healthy and active, safe and nurtured, included and respected and reach their individual potential' & high-quality Learning outside of the classroom is now an entitlement for all young people in the Bailiwick to have opportunities for learning experiences beyond the traditional classroom.
- **SLUP Policy LP5**: Independent Living for All - good quality public open spaces & healthy and active lifestyles.

Goal 1: Connect our island community with nature

Objective 2: Increase awareness, understanding & support for nature

Justification

Public understanding and opinion on the value of nature has strong implications for the acceptance and adoption of nature protection and enhancement measures. People value the natural world in different ways and for different reasons. They may simply value it for its own sake, because it makes our local environment more attractive, or because they enjoy experiencing nature-rich places for recreation. Regular opportunities to experience the natural world are known to have positive impacts on human health. This objective aims to monitor the level of awareness of nature and understanding of its value, concern about nature loss, as well as support for performing actions that can help to conserve it – individual home owners, private land owners and local businesses. This information shall then be used to target initiatives and communication to promote awareness, understanding and support for nature, and to drive and review progress of the initaitves over the 5-year period of the action plan.

Benefits:

- The stronger the awareness of the value of nature and the pressures it is facing, the greater the likelihood that individuals, organisations and businesses perform actions to support and protect nature.
- The more actions to support and protect nature, the more we can promote Guernsey externally as a green island that is striving to meet the UN SDG – we can say that we are 'walking-the-walk'.

Indicators:

2A. Extent of private land managed under effective conservation measures (wildlife gardens, privately managed protected areas, conservation covenants).

2B. Update of biodiversity considerations into business activities within Guernsey.

Alignment with international conventions & the UN SDGs:

Project topics

- Nature Matters Communication Plan
- Biodiversity in Business Initiative

Alignment with Future Guernsey Plan priority policy areas & plans:

- **Better Life Indicators**: Nature based activities and awareness boosts stewardship for nature, health & well-being and the value of recreation and environmentally sustainable ecosystem services.
- **Life-long learning**: Nature based activities and awareness within curriculum boost stewardship for nature, wellbeing & value of recreation and environmentally sustainable ecosystem services.
- **Strong Sustainable & Growing Economy**: A Strategy for Nature that aligns with the UN Sustainable Development Goals and promotes biodiversity and environmental management within businesses gives the right message externally i.e. walking the walk as a Green Island.

Goal 1: Connect our island community with nature

Objective 3: Ensure the economic, social and environmental value of nature is understood and integrated into local decision making

Justification

The management of nature has interdependencies and implications across a broad range of areas including economic development, health & well-being, climate change, planning, land management, natural resource management and environmental health. The integration of biodiversity into mainstream social, economic and environmental processes is pivotal to allow us to continue to enjoy the benefits of nature that we currently achieve (see Appendix B for details on recent advance in mainstreaming biodiversity that have been built into the Strategy project plan). Aichi Target 2 of the CBD is focussed on mainstreaming biodiversity into decision making processes. This objective focuses on a number of areas, including the development of a National Capital Atlas for Guernsey, the extent of schemes involving payments for ecosystem services, and progress in developing ecosystems accounts within the States accounting framework.

Benefits:

- Monitoring spending on biodiversity is a very effective way of assessing the priority that is given to biodiversity within the public and private sector.
- The stronger the awareness of the value of nature and the pressures it is facing, the greater the likelihood that individuals, organisations and businesses perform actions to support and protect nature.
- The more actions to support and protect nature, the more we can promote Guernsey externally as a green island that is striving to meet the UN SDG – we can say that we are 'walking-the-walk'.
- Healthy ecosystems provide a wide range of services to our island and economy e.g. they make attractive places to visit so increasing the non-market value of our outdoor recreation & landscape amenity and serves to benefit the island economy.

Indicators:

3A. Progress towards integrating nature into decision making across the States.

3B. Expenditure on nature (broken down into public sector and NGO expenditure on conservation).

Alignment with international conventions & the UN SDGs:

Project topics

- Nature Matters Communication Plan
- Biodiversity in Business Initiative

Alignment with Future Guernsey Plan priority policy areas & plans:

- **The cross-Committee and sector implications of this Objective means that all policy areas that involve economic development, health & well-being, climate change, planning, land management and environmental health need to align to mainstream biodiversity.**
- Two overarching Future Guernsey themes are:
  - **Strong Sustainable & Growing Economy:** Mainstreaming biodiversity and giving visibility to the value gained from the nature (how we use and benefit from nature) within centralised States decision making gives the right message externally i.e. walking the walk as a Green Island.
  - **Safe & secure place to live:** A healthy ecosystem and vegetation provides vital noise & water pollution barriers and absorbs air emissions, thus helping to lessen impacts on human health and wellbeing.

Goal 2: Care for nature to ensure the diversity and resilience of our natural capital and assets:

- **Objective 4**: Ensure an integrated, large-scale approach to the conservation and management of our nature
- **Objective 5**: Maximise the diversity of species and ecosystems
- **Objective 6.** Reduce pressures on nature and ensure the resilience of our natural capital and assets

Goal 2 links with Goal 1 - **The more people care for nature, the more we learn about nature and the more services it can provide**. Our air, land, water, wildlife, plants and soil – our natural assets - provide us with our primary basic needs, including food, energy, health and enjoyment – our natural capital – so it is important that we value and care for nature.

But our natural environment is coming under increasing pressure – from climate change, development challenges and land use change, biosecurity and pollution. Species have evolved to adapt to 'normal' fluctuations in our environmental conditions, but to be able to survive accelerating climate change and other indirect effects, species need to be able to maintain large, genetically diverse populations to adapt in place or move to more suitable habitats. This basic need is further challenged by other pressures such as a reducing population size due to invasive species or habitat loss, or the loss of connectivity of suitable habitat which make it harder for those species to recover.

Sustainable development requires an understanding of the basic needs of species and their interactions to be able to ensure their resilience. On top of the basic needs, each species within an ecosystem is interconnected and often dependent on each other. Microbes help maintain soil quality, healthy soils help plants to grow, insects carry pollen from one plant to another, animals eat the plants, and habitats provide a home for animals.

Losing one species in this chain may not seem like much but each loss weakens the connections that benefit us all. Building resilience of our species and the health of our marine and land environments therefore takes careful management. It is important that our community cares for our natural environment so that it in turn can look after our natural heritage, people and support our economy for future generations.

This goal promotes a multi-pronged approach to reducing pressures and enhancing resilience, through the implementation of a broad-scale approach to land and marine resource management to ensure an ecologically viable habitat network, threats and horizon scanning for future pressures (e.g. invasive species monitoring plan), managing trade-offs in the use of natural resources (e.g. proportionate and sustainable development through the use of Biodiversity Net Gain), and the integration of natural capital accounting into decision making.

The three supporting objectives (Objectives 4 - 6) are summarised overleaf.

Goal 2: Care for nature to ensure its diversity and resilience

Objective 4: Ensure an integrated, broad-scale approach to the conservation and management of our nature

Justification

A broad-scale and integrated approach to land and marine management ensures that decision making on any development or land use change is based on applied knowledge of the representativeness, extent, connectivity and condition of our designated areas, conservation reserves and marine habitats. Habitat loss and fragmentation can reduce the size of populations and increasingly isolated populations, threatening their long-term viability. Prior to the development of Biodiveristy Net Gain, planning systems did not have the processes in place to manage the gradual erosion of lower value habitats. Cumulatively, even 'insignificant' losses of habitat at a development scale add up to significant rates of biodiversity loss overall. It was further recognised that the hidden environmental costs of development were not being considered systematically and there were no mechanisms to compensate for resulting harm to the local area. In addition, the benefits of creating greener development were not adequately measured. Biodiversity net gain is seen as the solution, to the extent that last year it became mandated in the UK.

Benefits:

- Habitat connectivity maximises genetic diversity and complexity of ecosystems, which in turn reduces pressures and enhances the resilience of our species.
- Biodiversity Net Gain reduces inconsistency, provide greater certainty for developers and provide a more efficient means to implement planning policy whilst addressing local environmental priorities. Net Gain also resolves gradual erosion of lower value habitats - cumulatively even 'insignificant' losses of habitat at a development scale add up to significant rates of biodiversity loss overall.
- A habitat and ecosystem based approach to marine spatial planning is pivotal to ensure the sustainable and wise use of the marine environment and preserve our blue carbon.

Indicators:

4A. Number of planning & FEPA licence applications that include Biodiversity Net Gain.

4B. Extent and condition of designated areas and functional habitat connectivity – e.g. SSS, ABI, vegetation corridors & stepping stones.

Alignment with international conventions & the UN SDGs:

Project themes:

- Finalise review of ABI network for Guernsey
- Biodiversity Net Gain for Guernsey
- Marine Spatial Planning & Blue Carbon habitat mapping

Alignment with priority policy areas & plans:

SLUP policies:

- Policy LP1: Sustainable Development – natural environment to be preserved and enhanced
- Policy LP2 & 3: Climate Change Adaptation & Mitigation
- Policy LP4: Sustainable design and infrastructure
- Policy SLP27 - countryside to be retained and enhanced
- Policy SLP28 - Open land in the countryside will be protected

IDP policies:

- Policy GP1: Landscape Character and Open Land
- Policy GP2: Sites of Special Significance
- Policy GP3: Areas of Biodiversity Importance
- Policy GP9: Sustainable Construction
- Policy GP15: Creation and Extension of Curtilage
- Annex VI SSS – Supplementary Planning Guidance

P&R Plan priority areas:

- Mitigating Climate Change: intrinsic link to nature
- Mature international identity: alignment with the latest developments in mainstreaming nature.

Objective 5: Maximise the diversity of species and ecosystems

Justification

This objective fulfils the horizon scanning function of the Strategy, which in turn informs the other parts of the Strategy – from education and awareness raising, through to decision making so that the Strategy can respond proactively, rather than reactively, to threats to the resilience of our natural environment. Horizon scanning needs to be based on robust data (link to Objective 9), carried out frequently enough to detect and control a pressure within a realistic timeframe; which in turn may result in cheaper more cost-effective solutions. An integrated approach to horizon scanning action plans are essential given the complexity and species interdependencies within ecosystems. Habitat loss and fragmentation can reduce the size of populations and hinder the movement of individuals between increasingly isolated populations, threatening their long-term viability. The process can be cumulative over time, but may **however** be reversed through **species management and** habitat management, restoration and recreation.

Benefits:

- An overarching species and habitat intervention action plan ensures a targeted approach for monitoring, threat assessment, prioritisation & data analysis of individual species and habitat action plans with SMART targets. A LIVE action plan ensures a proactive rather than reactive approach to species and habitat management.
- An up-to-date Red Data Book and LIVE habitat & species intervention action plan identifies those species at greatest risk from extinction/ pressure and identifies the critical factors responsible so that action may be taken - through the Habitat & Species Intervention Plan included for in this Objective and 5-year action plan - to improve the chances of these species surviving in the long term.
- A current Red Data Book is vital to inform a robust and transparent EIA process and to inform Biodiversity Net Gain.

Indicators:

5A. Changes in the Living Planet Index for Guernsey.

5B. Status of key species and habitats – Relative changes in abundance and distribution of priority groups & indicator species to Guernsey including: i. Pollinators, ii. Butterflies, iii. Protected species, iv. Key habitats.

Alignment with international conventions & the UN SDGs:

Project themes:

- Habitat & Species Intervention Action Plan
- Priority Groups & Indicator Species Monitoring Plan
- Red Data Book Project
- Ramsar Management Plan Implementation

Alignment with priority policy areas & plans:

SLUP policies:

- Policy LP1: Sustainable Development – natural environment to be preserved and enhanced
- Policy LP2 & 3: Climate Change Adaptation & Mitigation
- Policy LP4: Sustainable design and infrastructure
- Policy SLP27 - Countryside to be retained and enhanced
- Policy SLP28 - Open land in the countryside will be protected
- Policy SLP30 - Maintaining biodiversity

IDP policies:

- Policy GP1: Landscape Character and Open Land
- Policy GP2: Sites of Special Significance
- Policy GP3: Areas of Biodiversity Importance
- Policy GP9: Sustainable Development
- Policy GP15: Creation and Extension of Curtilage
- Annex VI SSS: Supplementary Planning Guidance

Objective 6: Reduce pressures on nature and ensure the resilience of our natural capital and assets

Justification

This objective also fulfils a horizon scanning function within the Strategy, and driving action plans to develop mitigation required to adequately respond to pressures (e.g. biosecurity & invasive non-native species (INNS). Many marine INNS cannot be removed once they have arrived in the Bailiwick and once here they can have devastating human health and economic consequences as well as environmental (**Herpes virus which would close oyster seed market, Asian hornet which can destroy our bee population**), requiring ongoing horizon scanning and working with our neighbouring jurisdictions to proactively manage. Approximately 40% of Guernsey's footprint is classified as agricultural, so any policies relating to agriculture shall have a proportionately high impact on nature. Healthy biodiversity is also vital for agriculture. Food harvests & livestock require pollinators & nutrient rich soil for crops/ grazing. Agriculture is however a major contributor to biodiversity loss.

Benefits:

- Proactive horizon scanning for pressures such as INNS can enable cost effective mitigation solutions to prevent potential catastrophic consequences on human health and the economy, as well as biodiversity.
- Integrating biosecurity into maritime policy is pivotal to control existing & prevent/ slow import of INNS species which can impact local businesses.
- Targeted agri-environmental schemes promote environmental management aimed to: help to safeguard species and habitats on arable land, reduce fertiliser and chemical use which helps protect pollinators, help maintain clean water supplies & improve soil quality.
- "You cant manage what you don't monitor" also applies to fisheries.
- Sustainable fisheries will help to ensure our marine ecosystems remain diverse and resilient, and provide a long-term and viable fishing industry.
- Fish landing & fishing effort data is also an indicator of the health of marine ecosystem and biodiversity. A Natural Capital approach to fisheries can also help inform valuation of fisheries and wider related ecosystem services.

Indicators:

6A. Extent of explicit consideration & inclusion of biodiversity mitigation in climate change, biosecurity & INNS, pollution control & land management related regulation, policy & plans.

6B. Progress towards implementing sustainable fisheries, shore gathering and agriculture practices that includes a biodiversity and ecosystem approach.

Alignment with international conventions & the UN SDGs:

Project themes:

- Nature related legal and convention provisions project
- INNS Monitoring & Management Action Plan
- Threats Monitoring & Mitigation Action Plan
- Agri-Environment Scheme
- Sustainable Fisheries Scheme

Alignment with priority policy areas & plans:

SLUP policies:

- Policy LP2 & 3: Climate Change Adaptation & Mitigation
- Policy SLP27 - Countryside to be retained and enhanced
- Policy SLP28 - Open land in the countryside will be protected
- Policy SLP30 - Maintaining biodiversity

IDP policies:

- Policy LP1: Sustainable Development – natural environment to be preserved and enhanced

Cont.

- Policy GP1: Landscape Character and Open Land
- Policy GP2: Sites of Special Significance
- Policy GP3: Areas of Biodiversity Importance
- Policy GP9 – Sustainable Development
- Policy GP15: Creation and Extension of Curtilage

Goal 3: Foster and share knowledge about nature:

- **Objective 7**: Bring nature to life through learning
- **Objective 8:** Share and use information effectively
- **Objective 9:** Improve knowledge about our natural capital and assets to inform decision making

Goal 3 provides the final link in the chain - **the more we learn about nature, the more we can care for nature.** The goal supports the old maxim 'you can't manage what you don't measure' and the importance of fostering and using knowledge to improve our care for nature and the benefits we receive from connecting with nature.

Given the complexity of ecosystems, the management of nature is best supported by an evidence-based approach built on sound knowledge. However, as highlighted in the Threats & Mitigation report that was prepared in 2020 to inform the Biodiversity Strategy, a **lack of data** to inform nature related decision making is a specific and very real threat to nature in Guernsey.

We need to better understand what species we have and how they interact. Knowing more about nature helps us make better choices about its management for long-term preservation and resilience. Sharing and using information can improve effectiveness of planning and management and reduce duplication of effort. Making information publicly available and developing stronger relationships among information users can lead to collaboration, coordination and a shared sense of stewardship and ultimately, better outcomes (Australia's Strategy for Nature, 2019).

This goal focuses on ensuring that the Strategy has in centralised and focused approach to data collection, collation and sharing, so that the data obtained to inform the Strategy is tailored to inform key decision making and help foster knowledge in the wider community.

Another weak link in the nature asset management chain is the availability in Guernsey of skilled resources – ecologists, applied scientists, environmental impact assessment practitioners and environmental sustainability advisors. Maintaining and developing the technical specialist skills within our community to ensure succession planning and the future success of the Strategy is key to the action plan and included for under this goal.

The three supporting objectives (Objectives 7 - 9) are summarised overleaf.

Goal 3: Foster and share knowledge about nature

Objective 7: Bring nature to life through learning

Justification

The final objective under Goal 3 - Foster and share knowledge about nature – is in a way the 'full circle' objective for the Strategy and that is to recognise the multi layers benefits of citizen science and integrating biodiversity into the education system – whether that be schools, further education or in the wider community. By connecting people with nature, we enhance their desire to care for nature, which in turn builds knowledge that can be shared to improve our care for nature and the benefits we receive from connecting with nature. Citizen science programmes are proven - either through collaboaration or participation through the use of 'toolkits' - to provide robust data to inform applied research, which in turn informs nature related decision making. Successful citizen science programmes have included the monitoring of seabird populations, pollinators, invasive species, plastics pollution, and seaweed indictor distribution and abundance which provides information on climate change adaptation.

Benefits:

- The introduction of citizen science and nature conservation in schools has both educational and health and wellbeing benefits. Students develop an understanding of their local natural environment, to develop a sense of stewardship, and the confidence and experience in making scientific observations, collecting data, and exploring the natural world, which helps recruit the ecologists of the future; of which there is a massive shortage of locally.
- Citizen science programmes involving commercial fishermen are increasingly being used to gather data that in turn helps fishermen manage stocks. Case study - fishermen in Devon, UK, collect data on plankton, which is very important to the fishing industry to as the abundance of phytoplankton in the water determines the productivity right the way up through the whole food chain. They determine the amount of fish in the sea, the amount of crabs or lobsters on the seabed.

Indicators:

9A. Extent and success of initiatives to integrate biodiversity into schools and further education curriculum.

9B. Extent and success of Citizen science programmes providing data to achieve the objectives of the Biodiversity Strategy.

Alignment with international conventions & the UN SDGs:

Project themes:

- Education Programme for Nature.
- Citizen Science Programme.
- Centre for Nature.

Alignment with priority policy areas & plans:

- **Life-long learning**: By connecting children from an early age with nature, we enhance their desire to care for nature, which in turn builds knowledge that can be shared to improve our care f or nature and the benefits we receive from connecting with nature.
- **Centre of Excellence & innovation:** As well as launching an international standard Strategy for Nature, Guernsey could also promote our commitment to our natural heritage with the opening of a 'Centre for Nature', which would serve as a multi-purpose show piece for the local community and external visitors to the island, including a conference or meeting venue.

Goal 3: Foster and share knowledge about nature

Objective 8: Share and use information effectively.

Justification

A large volume of nature information has been gathered in Guernsey over the years by various organisations and individuals. Most of these people are volunteers who organise themselves through La Societe or are members of the public that submit sightings (e.g. marine mammal sighting form) or via social media. The Guernsey Biological Records Centre (GBRC) is in the process of uploading a backlog of such historical records. Data to inform a baseline for nature on the Island is however sparse as the data collected to date is either not validated, not robust enough or not appropriate to inform applied decision making. This lack of data poses a very valid threat to nature management in Guernsey. The UK has previously experienced a similar challenge, and as a result set up the National Biodiversity Network (NBN), the official location for nature related data within the UK.

The purpose of this objective is to ensure that any future data collected as part of this Strategy is collated and presented in a format that is accessible to the public and to inform decision making. As well as making data accessible locally, this objective also promotes opportunities to enhance connections among scientists, policy developers & decision makers to promote well-informed decision-making and potential opportunities

Benefits:

- This objective ensures that any resources spent on data collection also include the requirement for the data to be written up, validated and collated as part of the study or project. This requirement shall reduce the potential for lost or abortive data collection.
- A coordinated approach to sharing data also gives confidence that decisions are make with the best available evidence and transparency.

Alignment with priority policy areas & plans:

- All policy areas that fall under this Strategy.

Indicators:

8A. Accessibility of data - cumulative number of: i) electronic records in the GBRC, and ii) publicly accessible records.

8B. Extent of collaboration and coordination between jurisdictions and research agencies in the collection, collation and publication of data targeted to achieve the Strategy & international conventions.

Alignment with international conventions & the UN SDGs:

Project themes:

- Guernsey Biological Record Centre & National Biodiversity Network Atlas Partnership.
- Collaboration Programme for Biodiversity
- State of Nature Annual Review & Reporting

Objective 9: Improve knowledge about nature to inform decision making

Justification

In short, good policy making and decision making is based on evidence. As highlighted in the Threats and Mitigation Report prepared to support the implementation of the 2015 Biodiversity Strategy, a lack of data is a very real threat to the management of nature in Guernsey. Objective 8 of the Strategy focusses on ensuring that existing data is accessible to inform decision making and the promotion of collaborations collaboration and coordination to promote data sharing targeted to achieve the Strategy & international conventions. The focus of this objective is to achieve a centralised approach to the coordination of data collection to inform and deliver on the wider objectives of the Strategy. This objective emphasises the importance of a coordinated and 'whole Strategy view' of data requirements to ensure that the scope of any data collection is tailored and scheduled appropriately to avoid the duplication of effort and abortive costs and resources. For example: A pre-requisite of a Blue Carbon audit is habitat mapping, which is also key to the Strategy to inform an understanding on the connectivity and health of our marine ecosystem. The same habitat mapping can also be used in the development of an integrated marine spatial plan.

Benefits:

- This objective ensures that any budget or resource requirements for data collection are applied to the Strategy, and cost effective.
- A centralised approach also overcomes challenges to data management, such as students and third parties undertaking research but data is not accessible for use in future State's decision making – e.g. due to Intellectual Property rights or lack of a coordinated approach to data storage.
- When using data for applied purposes such as natural capital accounting, Net Gain and blue carbon accounting, it is essential that the robustness and ownership of data is fully transparent, this centralised approach data and technical support gives this assurance.

Indicators:

9A. Completeness of data set to inform decision making.

9B. Extent and success of integrating robust biodiversity data and knowledge into States decision making.

Alignment with international conventions & the UN SDGs:

Project themes:

- Centralised Biodiversity Data & Technical Support Programme

Alignment with priority policy areas & plans:

- This objective aligns with all Strategy related policy areas, as all are dependent upon data to inform decision making.

Project prioritisation

A selection criteria and scoring process - to be finalised in August 2020 - shall inform the prioritisation of projects within the annual review of the 5-year action plan and also support a transparent response to any specific funding requests received from external parties to help support the delivery of the Strategy.

The criteria topics selected include, but are not limited to the following:

I. Alignment with the objectives of the Strategy for Nature;
II. Relevance to the delivery of priority policy areas within the P&R Plan (e.g. Climate Change Policy and implementation plan);
III. Targeted data collection required to monitor condition of biodiversity;
IV. Provides essential horizon scanning function for the Strategy;
V. Urgent project intervention or controls required in response to a direct and current risk to biodiversity
VI. Value in relation to cost and risk; and
VII. Extent of support of key stakeholders (e.g. Committees, policy leads, Biodiversity Partnership Group).

A weighted scoring method shall be used to **prioritise and rank the proposed projects** against benefit and costs.

Centralised Performance Indicators

Two overarching indicators have been selected for inclusion in the States central performance dashboard to inform decision making.

Following a review of over 30 potential biodiversity related indicators[104] the following indexes have been selected as they best represent the questions that are being addressed in the Strategy, namely:

i) How do we monitor and manage the impact of our actions on the health of nature; and
ii) How do we maximise the benefits and opportunities that nature can bring to our health, wellbeing and economy, now and in the future?

Indicator 1: Living Planet Index – has been approved by the Convention of Biological Diversity as an indicator of the state of the world's biological diversity based on population trends of species from terrestrial, freshwater and marine habitats.[105]

Indicator 2: Nature Connection Index – has been developed in the UK as an indicator to monitor the populations awareness, engagement and support for nature, which in turn helps to drive and review progress towards government wide initiatives to promote health, wellbeing & education.[106]

12-month programme

The (draft) programme overleaf shows the output of the first round of project selection and prioritisation. The projects that have been forward loaded into 2021 have been selected to:

- Collate data that is robust enough to inform the Strategy, and to carry out (essential only) data collection to deliver on the priority needs of the Strategy and wider States policy areas (e.g. Blue carbon audit)
- Carry out specific desk based pilot studies to provide a cost-effective way demonstrate the value of mainstreaming biodiversity to inform decision making (e.g. Natural capital atlas pilot).

[104] https://www.bipindicators.net/resources/global-publications/mapping-of-biodiversity-indicators-across-intergovernmental-processes
[105] https://www.livingplanetindex.org/home/index
[106] https://www.gov.uk/government/statistics/nature-connection-index-nci-dataset

- Put the overarching action plans in place early in the 5-year action plan so as to proactively manage INNS, pressures on nature and our Ramsar sites and to inform the project prioritisation for years 2 – 5.
- Obtain a baseline on our community's awareness, understanding and support for nature to build upon and inform the Healthy Nature Healthy People initiative and communications planning; and
- Progress the Centre for Nature as an overarching solution to repurposing existing States property to delivery on the wider needs of the States and provide a show case venue to truly connect our island to nature.

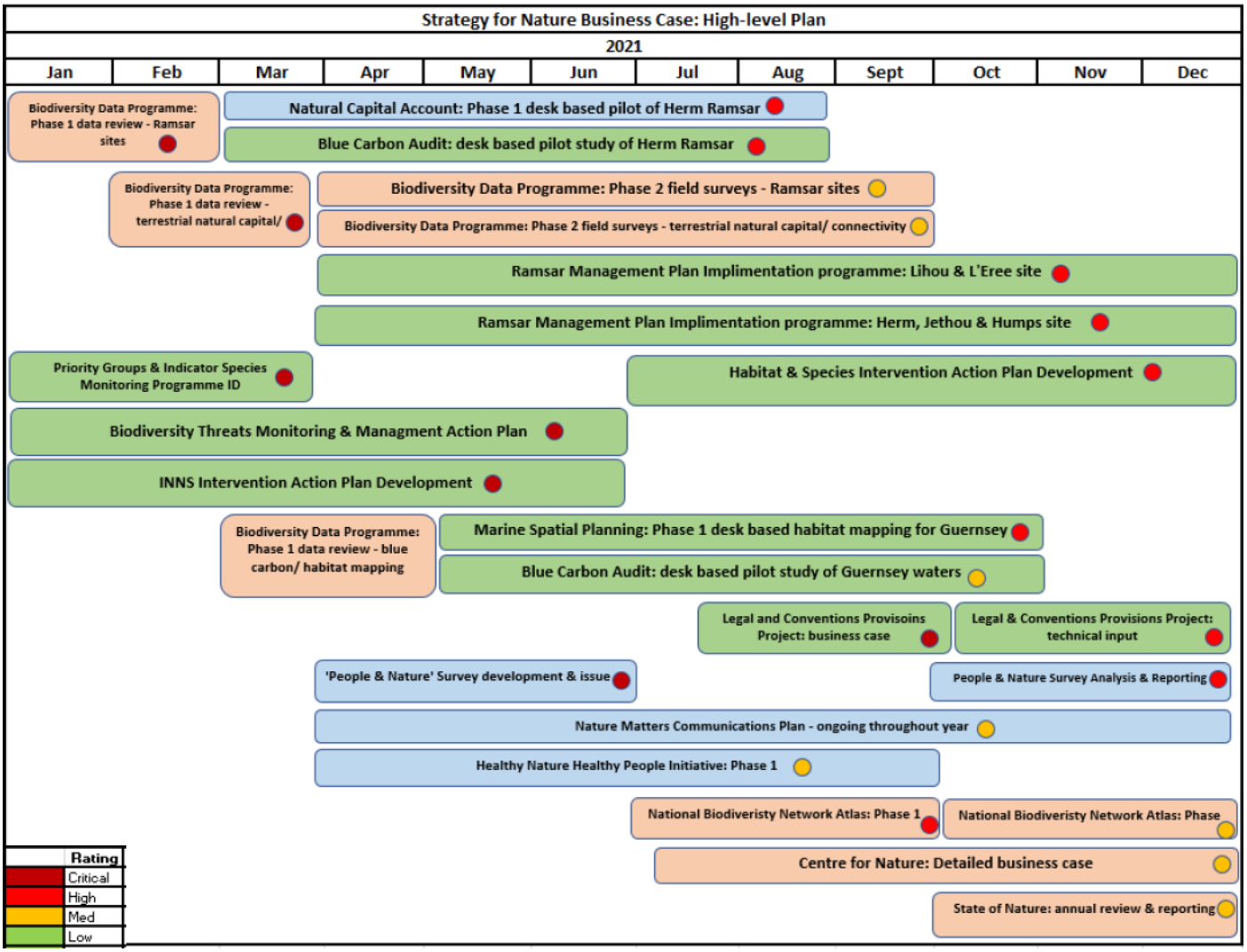


Figure 5: Provisional 12-month action plan (colour coding link to the themes within the Future Guernsey Plan)

Implementation

Achieving the goals and objectives in the Strategy for Nature will take a combined effort. The strategy provides a framework for everyone. Contributions big and small, from all sectors and parts of our Island community, will make a difference.

The 5-year action plan shall be reviewed annually to ensure that advances in thinking and knowledge in the field of nature management and incorporated into the rolling action plan and to ensure that the projects prioritised within the plan proactively respond to pressures on nature in Guernsey. The full Strategy document shall be reviewed every 5 years.

Guiding Principles

It is recognised that Brexit and COVID-19 shall extend the lead time required to put in place the necessary legislative and policy provisions to implement the Strategy's goals and objectives. To support progress and avoid delays, it is recommended that the following Guiding Principles of the Strategy are given due consideration in relevant policy planning and operational areas across the States of Guernsey, including the COVID-19 Recovery Strategy and recovery plans:

1. Don't take nature for granted; once gone, natural heritage and genetic diversity cannot be replaced.
2. Nature management and sustainable development makes good business and economic sense.
3. The economic 'value' of nature can tip the balance during decision making.
4. 'Insignificant' losses of habitat at a development scale can add up to a significant loss to our natural heritage.
5. Climate change adaptation and mitigation and the resilience of nature go hand in hand.
6. Healthy ecosystems equal sustainable agriculture and fisheries for future generations.

Next steps

The blue line in Figure 5 below shows the status of the overall Strategy for Nature redesign process[107].

Consultation has played a central role in the review of the 2015 Biodiversity Strategy and throughout the development of the 2020 Strategy for Nature. Input has been sought from experts from other jurisdictions, other States service areas and key representatives of NGOs and/ or qualified experts in conservation, ecology and land management that form the Biodiversity Partnership Group.

The review of the 2015 Biodiversity Strategy and development of the revised 2020 Strategy for Nature started before the COVID-19 situation impacted Guernsey. It is now recognised that the Policy & Resources Plan shall be superseded by the COVID-19 Recovery Plan. This shall require that the Strategy for Nature has a brief rework to reflect the new States priority themes and areas.

Note also that a summary of the Strategy for Nature shall also be prepared with less technical content than the current version - included to inform a robust review process. The final document(s) shall be taken through a full communications and graphic design process prior to external release.

[107] Note that the rationale for dividing the project into two phases was to align the (then) priority deliverables of the project with the financial planning schedule of the States.

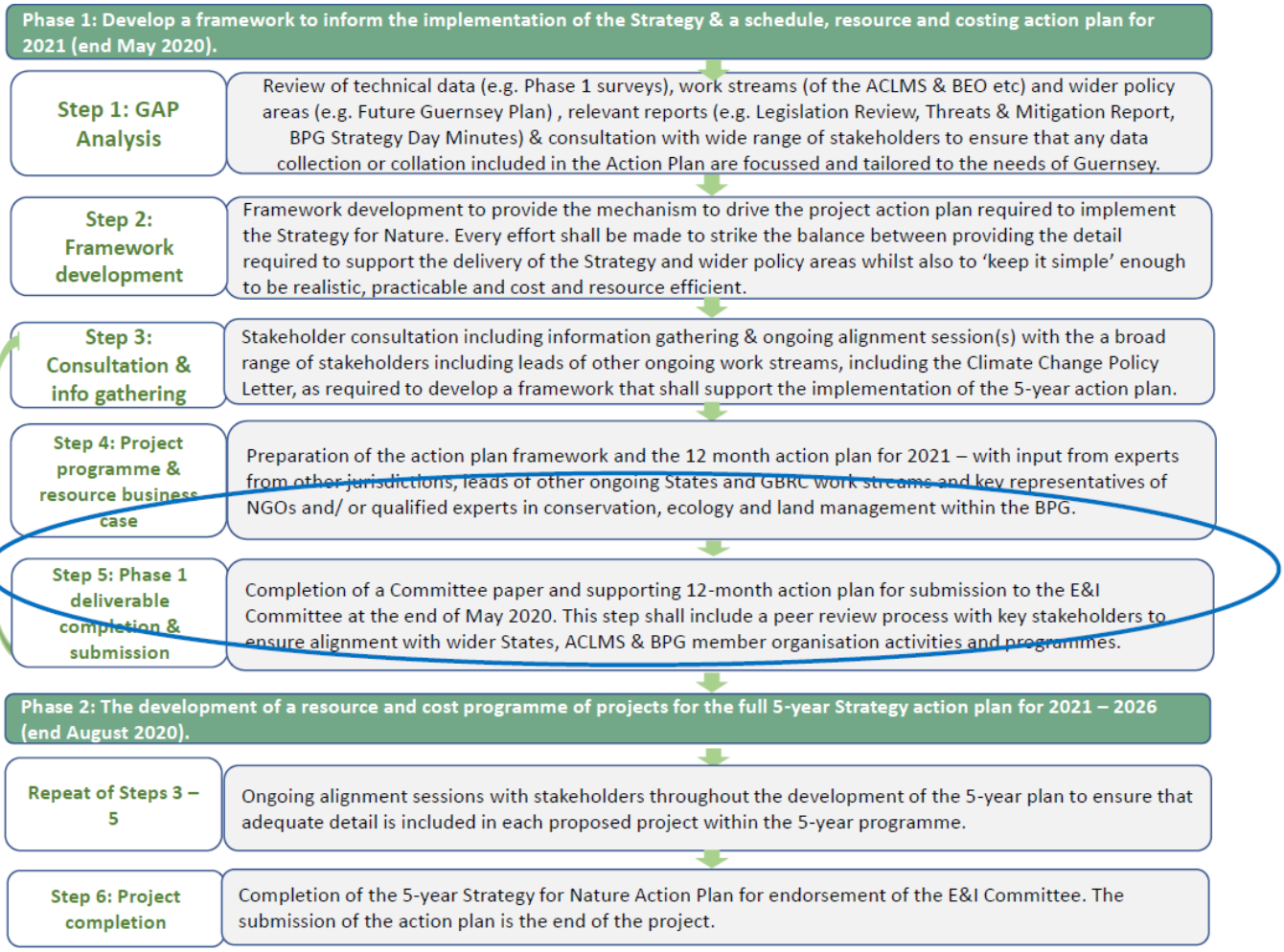


Figure 5: Project approach through to completion of the final Strategy for Nature 5-year Action Plan

Appendix A – Developments in mainstreaming biodiversity

Overview

Mainstreaming biodiversity is the new 'buzz word' for the integration of nature management into all sectors and across sectors of decision making and operations.

Over the last 5 years there has been a significant shift in thinking and research, in response to the recognition that biodiversity loss, if not mainstreamed, shall have irreversible impacts on the global economy, society and environment – due to climate change and other human made pressures.

The key methods of mainstreaming that have been built into the Guernsey Strategy for Nature are as follows:

1) Natural Capital
2) Biodiversity Net Gain
3) Blue Carbon auditing
4) Integrated Marine Spatial Planning
5) UN Sustainable Development Goals

Making nature's value visible

A major obstacle in the past has been how to ensure that the value of biodiversity and ecosystems is visible in decision making. Natural capital accounting now provides governments with the ability to extend traditional accounting to include non-market benefits provided by the environment. Such an approach also provides businesses with a means to justify investment in protecting biodiversity and adopting sustainable development practices.

Natural assets include trees, rivers, land, beaches, fish stocks, carbon stores, rivers and oceans. **Natural capital accounting** provides estimates of the financial, societal and environmental value of natural assets and natural resources to people, businesses and jurisdictions to inform decision making.

The following natural capital statistics form part of the UK Office for National Statistics (ONS) Natural Capital accounts and demonstrate how putting a 'value' to the benefits society gets from biodiversity can help focus decision making:

- In 2016, with the addition of new ecosystem services, the partial asset value of the UK natural capital was estimated to be nearing £1 trillion (£958 billion).
- The cooling shade of trees and water saved the UK £248 million by maintaining productivity and lowering air conditioning costs on hot days in 2017.
- Around 27,500 years were saved through vegetation removing air pollution in 2017.
- In 2016, living within 500 metres of green and blue space was estimated to be worth £78 billion to UK homes.

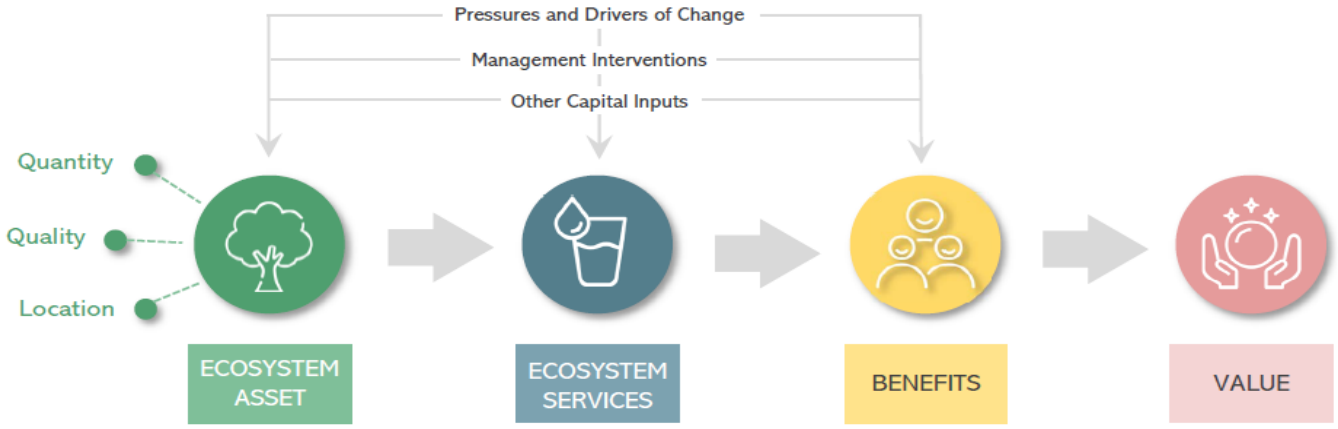
Globally, natural capital accounting has valued the economic cost of biodiversity loss and ecosystem degradation as estimated to be 7.5% of global GDP.

Wise use

Early versions of natural capital accounting assigned economic values to natural assets but did not factor in the condition of the natural asset or assign a value to the wise use of the asset(s). Over the last couple of years there has been significant steps made to address these gaps.

The UK government's adviser for the natural environment in England, Nature England, [108] has recently released a nature accounting approach which displays the state of natural assets, services, benefits and their economic value next to each other to support **transparent decision-making**. At the start of 2020, Natural England also launched a Natural Capital Atlas approach which uses natural capital indicators to map the natural capital assets and their ecosystem service 'value'.

The figure below shows how the use of natural capital indicators can be used to identify the interdependencies between natural assets, services, benefits and value to people, using logic chains. The logic chains show how the state of natural capital, its quantity, quality and location, affect the services and benefits it provides; thus, providing the evidence needed to inform **strategic and cross-sector decision making AND operational level habitat management**.



Case study 1: A **Walking the Way to Health Initiative (WHI**) in the UK was aimed at getting more people walking, especially those who take little exercise or live in areas of poor health. The initiative helped to create over 500 local health walk schemes. Green spaces are areas of natural or semi-natural land that are accessible to people. The performance measures for this initiative gave illustrative estimates of value of the expanded WHI programme over the 3-year period, as follows:

- 2817 Quality Adjusted Life Years (QALY) delivered at a cost of £4008.98 per QALY.
- Savings to the health service of £81,167,864 (based on life-cost averted).
- A cost-benefit ratio of 1:7.18.

http://publications.naturalengland.org.uk/publication/35009?category=39013

Net Gain – a level playing field for natural heritage

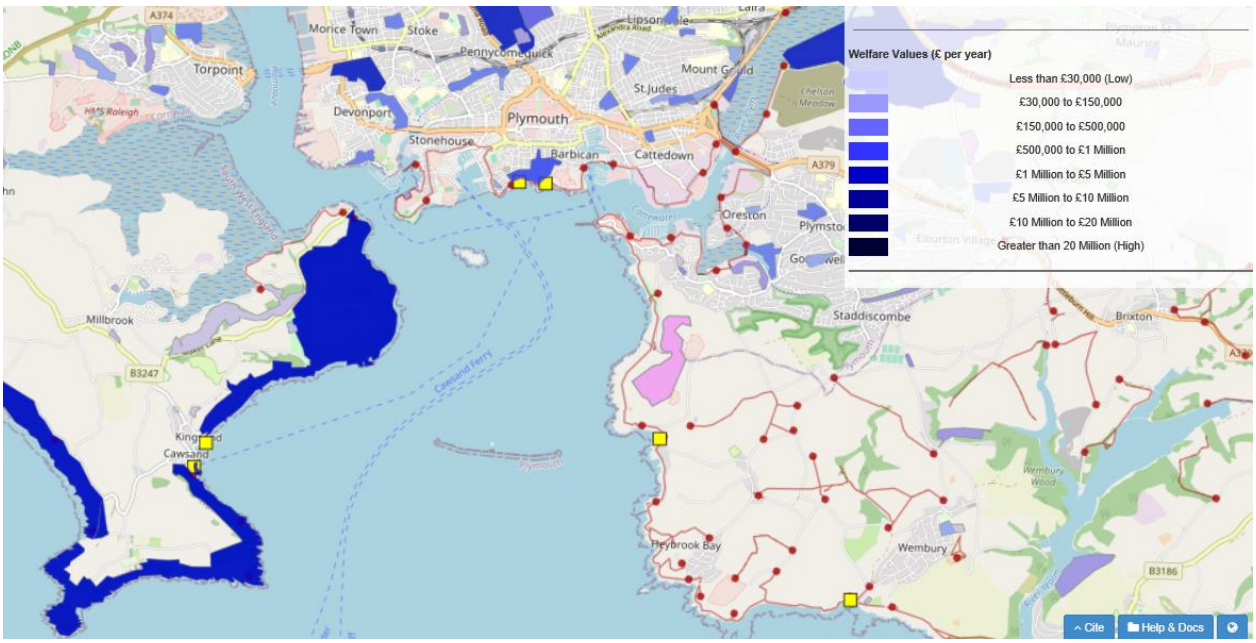
Another recent mainstreaming milestone is the integration of Biodiversity Net Gain into development planning and licencing. Historically, it has been challenging to afford natural heritage the same level of planning consideration and preservation as built heritage. Over the last decade advancements have been made to resolve this shortfall; to the point that last year the decision was made to legally mandate Biodiversity Net Gain in the UK.

[108] http://publications.naturalengland.org.uk/publication/4535403835293696?category=5175774414372864

Case study 2:

Putting a value on green space

The University of Exeter, funded by Defra, developed the Outdoor Recreation Valuation (ORVal) tool in order to quantify the recreational benefits that are provided by accessible greenspace in England. This tool is now being used by Defra's agencies in strategic and project analyses and was mentioned in the recent Housing White Paper.



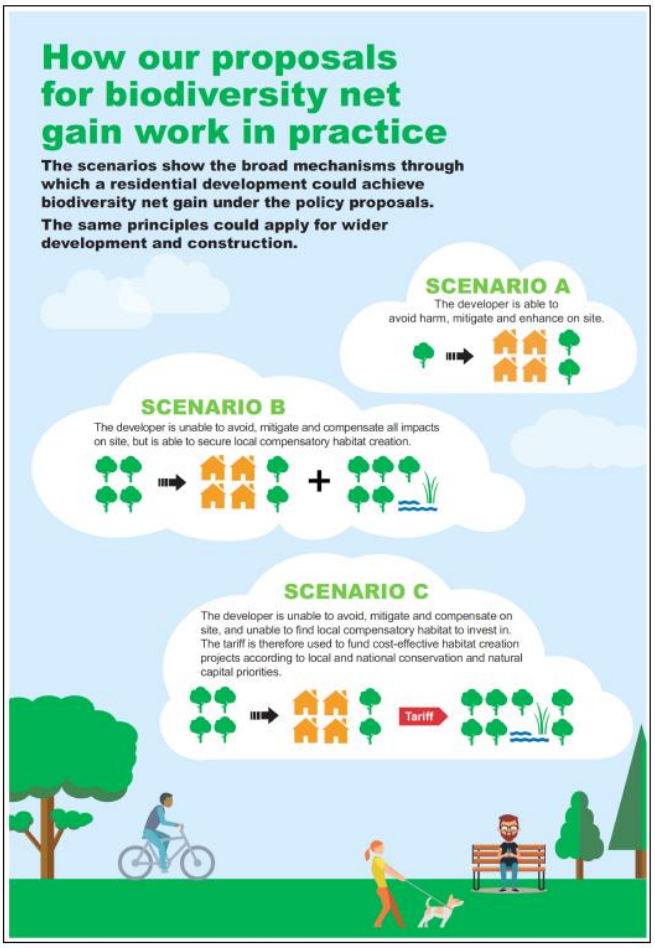
Natural Capital maps for UK

https://eip.ceh.ac.uk/naturalengland-ncmaps

Biodiversity Net Gain is a process that applies a standardised biodiversity unit metric to habitat types based on automatic 'generic' calculations. During the site selection phase for a new development the potential impact on biodiversity is calculated in biodiversity units. The units provide a 'value' of net gain obligations and costs that would need to be fulfilled by the developer if the decision was made to proceed with developing the site. If following the mitigation hierarchy, there is a residual number of biodiversity units measured against the net gain obligation, the developer would need to compensate either using a monetary payment or with biodiversity improvements off-site.

The UK Government took the decision to mandate Biodiversity Net Gain because it recognised that the planning system only really worked well to avoid the most severe impacts on biodiversity and the best sites for wildlife, but less well to manage the **gradual erosion of lower value habitats**. Cumulatively, even 'insignificant' losses of habitat at a development scale add up to significant rates of biodiversity loss overall.

It was further recognised that the hidden environmental costs of development were not being considered systematically and there were no mechanisms to compensate for resulting harm to the local area. In addition, the **benefits of creating greener development were not adequately measured**.



The now mandated biodiversity net gain approach was proposed to reduce inconsistency, provide greater certainty for developers and provide a **more efficient means to implement planning policy whilst addressing local environmental priorities**.

Key lessons learned for review as part of the development of a Guernsey appropriate Net Gain process are as follows:

1) Biodiversity Metrics – e.g. the Defra / Natural England Biodiversity Metric - are highly valuable as indicators and tools for decision making. Such metrics should however be deployed alongside expert knowledge in the field, particularly of qualitative evidence that is otherwise unaccounted for, to appropriately prioritise designs and approaches to development to optimise gains achieved.

2) Effective delivery agreements for the long-term will be a vital component of net gain. Conservation covenants, between unrestricted parties, would be a useful additional tool to achieve delivery but the most workable timescales for landowners and managers need to be identified.

Blue Carbon auditing

The role the marine environment plays in providing essential benefits and services - from fisheries to tourism and recreation - is nothing new. The role coastal habitats, such as seagrass meadows and maerl beds, have in the storage of carbon, is however now shining a spot light on the intrinsic link between marine ecosystems and **climate change mitigation**. Marine and coastal ecosystems also provide essential benefits for **climate change adaptation**, including coastal protection and fisheries security.

The intrinsic link between biodiversity and climate change is reflected in the obligations placed on signatory parties by international conventions such as the UNFCCC and Convention of Biological Diversity. Both respective Conventions require signatory states to evaluate their marine natural assets and to integrate marine spatial planning and coastal ecosystem management into national biodiversity strategies and climate change mitigation and adaptation activities.

Blue carbon is the carbon stored in coastal and marine ecosystems e.g.:

- Per hectare, seagrasses can store up to **twice as much carbon as terrestrial forests**.
- Recent analysis suggests that the annual global loss of blue carbon ecosystems is resulting in emissions (0.45 Pg CO_2 yr^{-1}) similar to the annual fossil fuel CO_2 emissions of the UK.
- 83% of the global carbon cycle is circulated through the ocean. Coastal habitats cover less than 2% of the total ocean area, but account for approximately half of the total carbon sequestered in ocean sediments.
- Marine ecosystems store carbon in both living (e.g. animals and plants) and non-living (e.g. shells and skeletons) material. Some of these stores can lock carbon away for thousands of years (e.g. calcium carbonate shells and maerl beds), while other stores are a more short-term, annual basis (e.g. kelp forests and seagrass beds).

The benefits for protecting 'blue carbon' habitats however expand far beyond carbon storage and sequestration. For example, many of the 'blue carbon' habitats are also high in biodiversity value, they provide vital nursery grounds for juvenile commercial fish and shellfish, improve water quality, increase seafloor integrity, and create the foundations for stable ecosystems.

Marine Spatial Planning

The implementation of Integrated Marine Spatial Planning within other jurisdictions has been shown to:

1. Reduce conflicts between sectors and create synergies between different activities;
2. Encourage investment – by creating predictability, transparency and clearer rules;
3. Increase cross-border cooperation and support the development of a coherent networks of protected habitats, which is essential for nature resilience; and
4. Protect the environment – through early identification of impact and opportunities for multiple use of space.

A habitat and ecosystem based approach to marine spatial planning is widely recognised as being pivotal to ensure the **sustainable and wise use of the marine environment**, and to ensure that coastal ecosystems continue to play their role as long-term carbon sinks.

*Marine spatial planning can help support clean, healthy, safe, productive and diverse seas; managed to meet the **long-term needs of nature** and the environment (Scottish Government, 2018).*

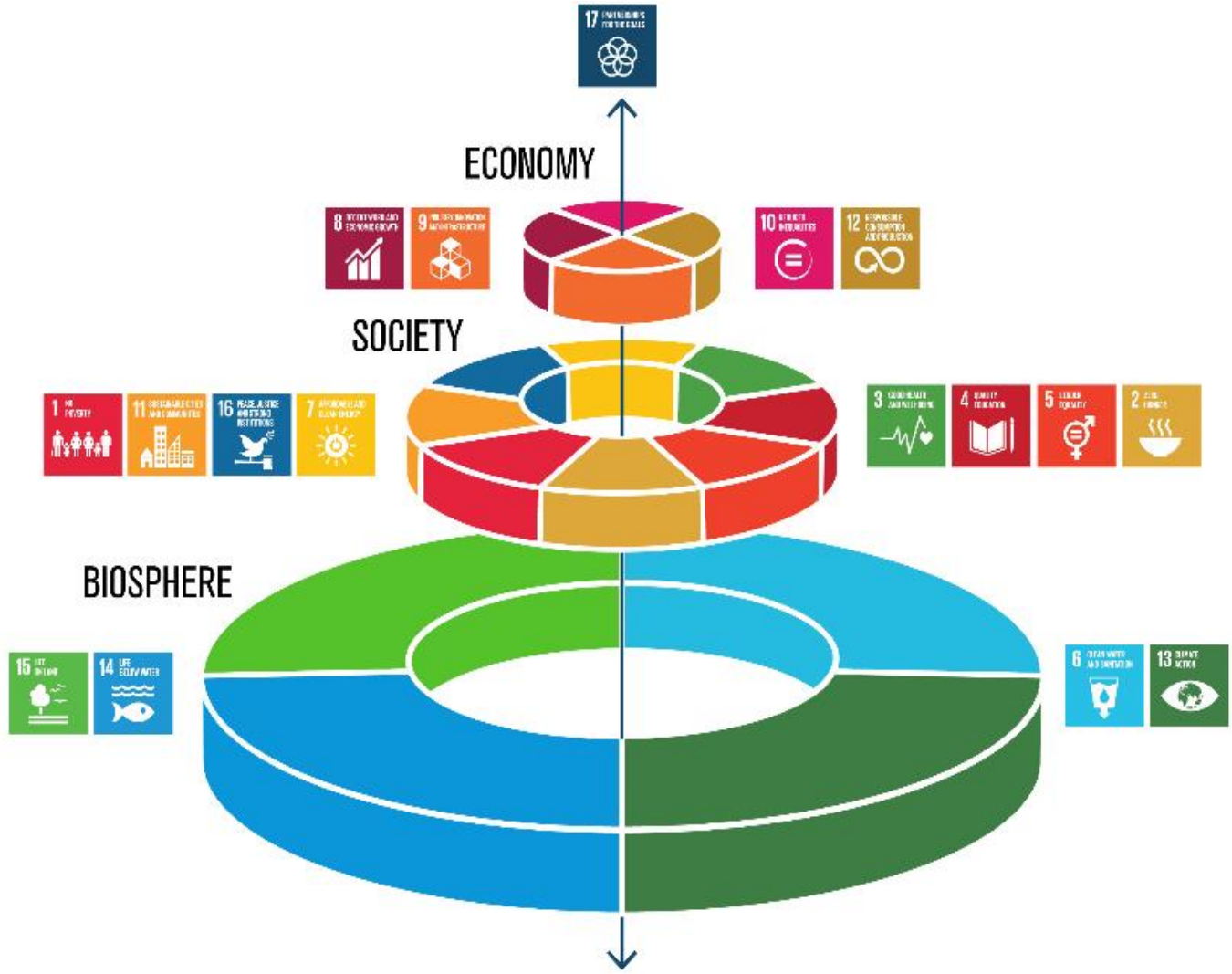
Sustainable Development Goals

A global leap towards the mainstreaming of biodiversity was the launch of the UN Sustainable Development Goals (SDGs) and supporting *2030 Agenda for Sustainable Development*. The SDGs were adopted by the Member States of the United Nations in September 2015. The 2030 Agenda clearly places the need for an integrated, coherent and indivisible approach to the economic, social and environmental dimensions of sustainable development and at its heart are 17 Sustainable Development Goals (SDGs). The Goals are intended to drive action across all sectors from governments and businesses, to children and youth, farmers, local authorities, non-governmental organisations, education and academia, scientific and technological communities and volunteers.

Of the 17 Sustainable Development Goals, **four goals contain biodiversity-explicit targets and many others include indirect interdependencies to biodiversity and climate change**. The UK SDGs place a strong emphasis on the recognition that the economy and society are dependent on a healthy biosphere – as depicted by the figure below.

The Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets adopted under the **Convention on Biological Diversity** have been recognised as setting the global framework for priority actions on biodiversity and climate change adaptation and mitigation. The SDGs and the Strategic Plan are mutually supportive and reinforcing, as implementation of one contributes to the achievement of the other.

Aligning the Guernsey Strategy for Nature and other policy implementation plans (e.g. the Climate Change Action Plan) with the UN Sustainable Development Goals shall ensure an integrated, forward looking and globally aligned action plan for sustainable development.



Source: J. Lokrantz/Azote, in Rockström & Sukhdev (2016)s and Folke et al. (2016)

Committee *for the* Environment & Infrastructure

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Sir Charles Frossard House
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GY1 1FH

29 June 2020

Dear Deputy St Pier

Preferred date for consideration by the States of Deliberation

In accordance with Rule 4(2) of the Rules of Procedure of the States of Deliberation and their Committees, the Committee *for the* Environment & Infrastructure requests that the propositions relating to the States of Guernsey's Mitigate Climate Change Climate Change and Action Plan policy letter be considered at the States' meeting to be held on 19 August 2020.

This date is requested as it will enable the States to progress, within this political term, the policy priority area contained in the Policy & Resource Plan 'Mitigate Climate Change.' and will support the Recovery Strategy. The policy builds on the existing Energy Policy 2020 – 2050 and will enable the States to progress energy decarbonisation, security, value, equity, economic enabling and energy independence.

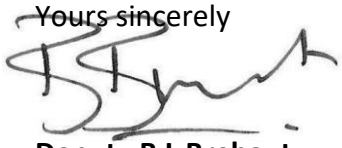
The propositions are asking the States to approve the adoption of a Climate Change Mitigation Policy Letter and Action Plan to; ensure that we build back better resilience for the Island; enable our unique environment and biodiversity to thrive; and send a clear message that the Island is responsible and committed to achieve international emissions reductions targets at local level and as best we can.

The Action Plan will help the States to support the momentum of 'Guernsey Together' and help to support businesses, organisations, businesses, and Islanders to understand what changes need to happen and how that will be achieved, within clearly defined timescales.

The Committee appreciates the States is likely to have a heavy agenda in August and, in order to assist your Committee, can clarify that it considers this policy letter to be of a higher priority than its policy letter on Third Party Planning Appeals which has been submitted and was expected to be debated in August.

Consideration of the propositions in August 2020 will allow the actions required to deliver on the Climate Change Mitigation Policy and Action Plan to begin this political term.

Yours sincerely



Deputy B L Brehaut
President
Committee *for the* Environment & Infrastructure