

GD No. 2016/0031



Isle of Man
Government

Reiltys Ellan Vannin

Greater efficiency
Cleaner energy
Resilient economy

A climate challenge mitigation strategy
for the Isle of Man

2016 – 2020

June 2016

Foreword

To the Hon. Clare Christian MLC, President of Tynwald, and the Hon. Council and Keys in Tynwald assembled

As a proud and responsible nation, the move to a low emissions economy is both the right thing to do and it is in the best interest of the people and the economy of the Isle of Man.

This strategy describes the sectors in which we believe greenhouse gas emissions can be most significantly reduced between now and 2050. The first of a series of 5 year action plans is included, which will start us on the path to delivering Tynwald's 2050 target of reducing greenhouse gas emissions per person by 80%, compared to 1990 levels.

Recognising the long timescales involved in transitioning to a low emissions energy infrastructure, the first action plan focusses largely on the urgent need to improve the efficiency of our buildings and surface transport, which together create around half of our emissions. This includes many 'win-win' initiatives which help to reduce energy bills and benefit the economy through new jobs and investment in improving the energy performance of people's homes and businesses.

The transition to a low emissions energy infrastructure will require the substitution of fossil fuels with clean electricity. The first action plan effectively seeks to increase electricity consumption at the expense of imported vehicle and heating fuel. If successful, subsequent action plans will require increased electricity generation capacity, which it is expected would be met from low emission sources, to complement existing facilities. When the current combined cycle gas turbines and diesel fired plant are decommissioned it is envisaged that they will be replaced with low emission generation methods so that the overall emissions reduction target would be achieved by 2050.

The action plan also lays the foundations that will enable us to make further progress in reducing emissions through subsequent action plans.

Hon. Richard Ronan MHK

**Minister of the Department of
Environment, Food and Agriculture**

Mr. Ralph Peake MHK

**Member of the Department of
Environment, Food and Agriculture**

Summary

It is clear that significantly reducing our Island's greenhouse gas emissions, with current and foreseeable technology, will necessitate deep electrification of the energy system which will, over time, displace the use of fossil fuels. It will also involve the use of sustainably sourced biomass and improvements to some land use practices.

This strategy and the first of a series of 5 year plans (attached as Appendix 1) set out how the Isle of Man will achieve greenhouse gas emissions reductions within the framework of existing Government priorities and agreed climate change and energy policies.

Contents

Foreword.....	2
Summary	2
Part 1: Background	4
Relevant Policy	4
Greenhouse emissions and the 2050 targets	5
Part 2: Our approach to reducing emissions	7
Principles for reducing emissions.....	7
Strategy.....	7
Governance.....	8
Options for reducing emissions – Surface transport	10
Eliminating emissions - eliminating the need to travel	10
Eliminating emissions - changes in modes of transport (modal shift).....	10
Improved energy efficiency – changes in modes of transport (modal shift).....	10
Reducing emissions from vehicles and vessels.....	11
Options for reducing emissions – On Island generation of electricity	12
Current infrastructure	12
Carbon capture and storage	12
Renewable Energy.....	13
Import electricity from neighbouring jurisdictions	13
Options for reducing emissions - Land use practices	15
Appendix 1	16
Action plan 2016 – 2020.....	16

Part 1: Background

Relevant Policy

1.1. **September 2006** -Tynwald approved a Council of Ministers report on Energy Policy which contained the following core energy policy and supporting aims.

Core Energy Policy:

To maintain and build on the high quality of life enjoyed by the Island's community by providing the energy needed to allow economic growth at a financial price that is affordable for all consumers and at an environmental cost that does not compromise the ability of future generations to meet their own needs.

Supporting aims:

- 1: to maintain the security of energy supply
- 2: to secure the efficient use of affordable energy
- 3: to minimise the impact of our energy use on the environment

1.2. **January 2013** - Tynwald approved Agenda for Change. The following is stated amongst the nine priorities identified for Government under the heading of Environment and Infrastructure:

We will:

- Address the issues posed by the effects of climate change
- Encourage sustainable economic activity in harmony with our natural resources

1.3. **May 2013** - Tynwald received the Council of Ministers' Report on Environment and Infrastructure Policy and agreed that the key objectives detailed in the report be the general framework for the development of Environment and Infrastructure policy. The key objectives include the following which relate specifically to climate challenge mitigation and sustainable development:

- Government will adopt a greenhouse gas emissions target for the Isle of Man of 80% reduction of 1990 levels by 2050.
- Government will develop policies and strategies that will lead to reductions in greenhouse gas emissions to meet that target.
- Government will formulate a long term strategy for sustainable development which meets the needs of the present generation without compromising the ability of future generations to meet their needs.

1.4. **November 2014** - The Mid-Term Report from the Council of Ministers on the Agenda for Change acknowledges that climate change is a key challenge that we must tackle over the next decade to secure a sustainable future.

1.5. **May 2015** - The following policies on sustainability and climate challenges were approved by Tynwald:

- Sustainability will be central to Government’s policy and decision making to ensure we balance the long term needs of society with the needs of the economy and the environment.
- To deliver the agreed scale of emissions reduction it will be necessary to ensure that total greenhouse gas emissions from electricity generated on Island will be close to zero by 2050.
- To deliver the agreed scale of emissions reduction it will be necessary to ensure that net emissions of greenhouse gasses from buildings will be close to zero by 2050.
- To deliver the agreed scale of emissions reduction it will be necessary to ensure that all surface transport will be powered by ultra-low greenhouse gas emission technology by 2050, with the exception of machines of cultural importance such as those used on the heritage railways and for motor racing events.
- To deliver the agreed scale of emissions reduction it will be necessary to ensure that all land use practices will adhere to the principles of sustainable development by 2050 to minimise greenhouse gas emissions.
- Government will assess how greenhouse gas emissions from the Island can be reduced and review this assessment, and progress against it, every 5 years.
- To reduce risks and maximise benefits Government will both promote and undertake appropriate proactive adaptation to the current and projected climate.

1.6. **July 2015** - An update to the Government’s Agenda for Change outlined a new National Performance Framework which identified strategic objectives, national outcomes and performance indicators which include the following:

Strategic objective	National outcome	Performance indicator
We will have a built and natural environment which is enjoyed and nurtured by all for the future	We have adapted our natural and built environment to cope with the threats of climate change	Reduce our Carbon footprint

Greenhouse emissions and the 2050 targets

1.7. To calculate the Island’s greenhouse gas emissions inventory, data relating to fossil fuel consumption and land use and land use change is collated by the Department of Environment, Food and Agriculture and submitted to the UK based company Aether Ltd for analysis. Over a two year cycle an annual emissions inventory is produced for the Island.

1.8. The six internationally recognised greenhouse gasses which are taken into account when calculating the Island’s inventory are:

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

(A seventh gas, nitrogen trifluoride (NF₃), is likely to be included in future).

As the potency and longevity in the atmosphere of each greenhouse gas differs a conversion factor is applied so that each is measured in units of tonnes of Carbon Dioxide equivalent (tonnes of CO₂e).

1.9. Based on figures received March 2015¹ estimated emissions from the Island in 1990 were 615,717 tonnes CO₂e. This equates to approximately 9.55 tonnes per person. Tynwald’s stated target for the year 2050 is an 80% reduction on 1990 levels which equates to 1.91 tonnes per person. Based on an estimated population of 101,922 in 2050 the net emissions target is therefore 194,599 tonnes CO₂e. This is illustrated in Figure 1 below which also shows the amount of emissions which are associated with various sectors.

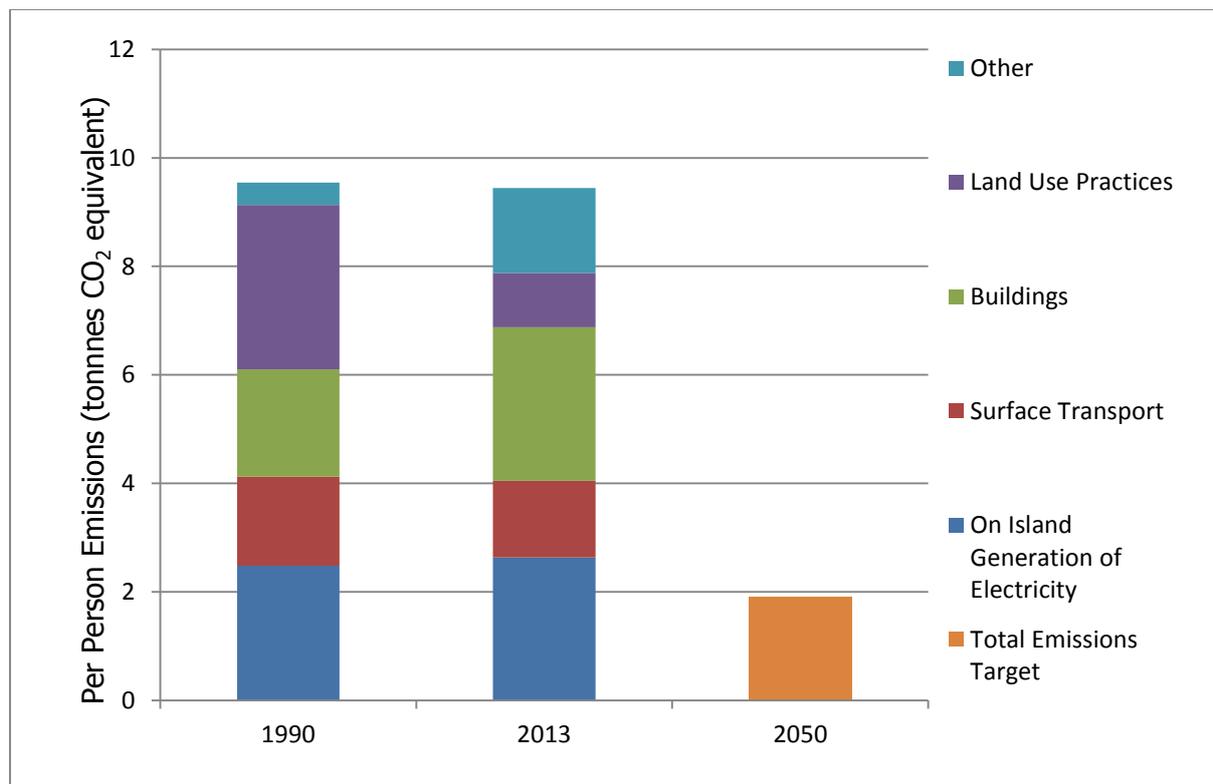


Figure 1 Estimated emissions in 1990 and 2013 and target emissions for 2050 based on figures received 17th March 2015.

¹ Figures from Aether Ltd received 17th March 2015 cover the period 1990 to 2013.

Part 2: Our approach to reducing emissions

Principles for reducing emissions

2.1 In line with international convention, it is in our own interest to aim for the most cost effective means to reduce emissions. This necessitates firstly seeking to eliminate emissions from energy consumption by eliminating demand for energy itself where possible. Remaining demand should then be met with low emission sources of energy. This emissions reduction hierarchy can be seen in Figure 2 below.

Additionally, we should aim to ensure that:

- Costs are fairly distributed.
- The energy we consume is sustainably sourced.
- That clear, consistent long-term policy is provided, to ensure stakeholder confidence enables the long term investment that is fundamental to economic growth and the move to a low carbon economy.

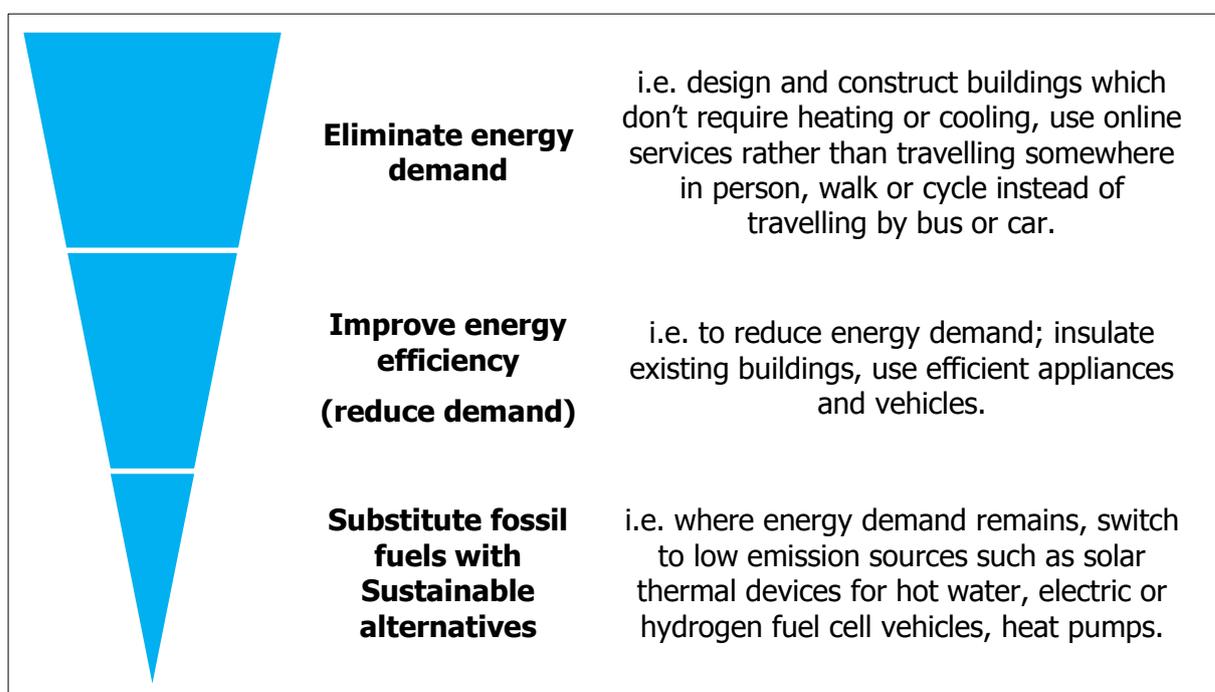


Figure 2 Emissions reduction hierarchy

Strategy

2.2 This Strategy will take the form of an ongoing series of 5 year Action Plans leading up to the 2050 target date.

- a) Each of the Action Plans will concentrate on the delivery options (actions) which are – at the time they are agreed – likely to result in the best outcomes in terms of reducing emissions (subject to criteria included at 'd' below).
- b) The actions for inclusion in each plan will be agreed by the Council of Ministers' Environment and Infrastructure Sub-Committee.

- c) The Committee will ensure that the hierarchical principles, which are a requirement of the Strategy, are applied when agreeing the actions for inclusion in each version of the Action Plan. They include:
- 1) eliminating energy demand,
 - 2) improving energy efficiency, and
 - 3) substituting fossil fuels with sustainable alternatives.
- d) The Committee will also consider the following criteria when agreeing the actions to be included in Action Plans:
- Effectiveness
 - Achievability
 - Impact on consumer costs
 - Scope for local influence
 - Legislative requirements
 - International trends and influences
 - Likely level of public support
 - Ability to measure effectiveness
 - Government stakeholder appetite and preferences
 - Value for money
 - Capacity for a 'quick win'
 - Capacity for a highly effective long term outcome

Actions will not normally be included in Action Plans unless effective monitoring and performance measurement processes can be put in place.

- e) Developing technologies and international trends and initiatives will be regularly reviewed during the term of each Action Plan.
- f) Reviews of Action Plan performance will be undertaken on an annual basis by the Committee.
- g) Actions for inclusion in the next Action Plan to be agreed by the Committee in the 6 month period prior to commencement date of the Plan.
- h) The Committee will be required to agree the inclusion of any additional initiatives into the Action Plan.
- i) The Committee will agree the lead Department/Authority for each of the actions. The responsible Department will be required to produce an annual progress report for each action or report upon the request of the Committee.

Actions for inclusion in the initial 5 year plan (2016-20) are attached as Appendix 1.

Governance

2.3 Achieving Tynwald's targets will require a programme of actions and participation from every part of government in conjunction with private sector organisations and the Island's community. It is envisaged that the Council of Ministers' Environment and Infrastructure Sub-Committee will play a pivotal role in coordinating effort.

Options for reducing emissions - Buildings

"To deliver the agreed scale of emissions reduction it will be necessary to ensure that net emissions of greenhouse gasses from buildings will be close to zero by 2050".

Policy agreed by Tynwald May 2015

2.4 In 2013 heating appliances alone accounted for approximately 30% of the Island's greenhouse gas emissions (see Figure 1, page 6).

2.5 It is envisaged that the transition to close to zero emissions from buildings on the Island will be progressive and a combination of the following could be used to achieve this policy:

Eliminating emissions

2.5.1 In line with the principles described in section 2.1 emissions from heating appliances which utilise fossil fuels could be eliminated by removing the need to significantly heat buildings in the first instance.

As the majority of new buildings constructed from today are likely to still be in use beyond the year 2050, building regulations could be changed to ensure that new buildings are constructed to a standard where virtually no heating is required. Many buildings around the UK and Europe have already been designed and constructed to such a standard demonstrating that this can be achieved.

Improved energy efficiency

2.5.2 For new buildings where the requirement for heating or cooling cannot be avoided emissions can be minimised by using high efficiency electrical heating or cooling systems (such as heat pumps) or high efficiency biomass heating systems instead of fossil fuel fired appliances, as long as the electricity is, or can be, from low emission sources and the biomass is from sustainable local sources.

2.5.3 Heat networks could be used to supply heat, particularly waste heat, to properties as an alternative to individual heating appliances being used at each property. This could be rolled out firstly in more densely populated urban areas and then suburban areas utilising waste heat from sources such as the Energy from Waste Plant and power stations. Heat could also be generated using sustainable, local sources of biomass.

In rural locations the use of efficient biomass boilers for primary heating in individual buildings would be an effective solution where connection to heat networks is likely to be prohibitively expensive.

2.5.4 For existing buildings, especially those that will be in use in 2050 and beyond, which require heating or cooling, emissions can be drastically reduced in many cases, by retrofitting with draft proofing and insulation which reduces the demand for energy.

Substitute fossil fuels with sustainable alternatives

2.5.5 Fossil fuels can be substituted with low carbon sources of energy, such as solar thermal devices or heat pumps, to meet the remaining heating / cooling demand.

Options for reducing emissions – Surface transport

"To deliver the agreed scale of emissions reduction it will be necessary to ensure that all surface transport will be powered by ultra-low greenhouse gas emission technology by 2050, with the exception of machines of cultural importance such as those used on the heritage railways and for motor racing events." **Policy agreed by Tynwald May 2015**

2.6 In 2013 surface transport accounted for over 17% of the Island's Greenhouse gas emissions (see Figure 1, page 6).

2.7 It is envisaged that the transition to ultra-low emissions transport on the Island will be progressive, led largely by innovation in design and technology on an international scale being subsequently adopted on Island and include the following elements:

Eliminating emissions - eliminating the need to travel

2.7.1 Emissions from vehicles and vessels can be eliminated where the **need** to travel can be avoided. The Island has a good telecommunications infrastructure which can enable people to work and shop from home thereby eliminating the **need** to travel. Local retailers and suppliers can enhance their businesses by capitalising on the latter as a mode of purchase. In addition to reducing emissions from transport there are also additional health and economic benefits for the individual and society.

Eliminating emissions - changes in modes of transport (modal shift)

2.7.2 The provision of good quality walking and cycling infrastructure can persuade people to favour using these modes of transport thereby eliminating motor vehicle emissions. Countries such as Switzerland, Germany and the Netherlands provide good examples of how successful this approach can be when given serious consideration. Good quality infrastructure means infrastructure which is well maintained, safe and convenient to use, ideally more convenient than travelling by motor vehicle.

The upfront cost of bicycle ownership can be a barrier but this can be lessened through incentives such as the cycle to work schemes or avoided through the provision of public cycle schemes which are appearing in cities around the world.

Schools could promote fitness initiatives such as walking to school and continue with a comprehensive cycling proficiency programme. This was recognised in the Department of Infrastructure's February 2008 cycling strategy.

Improved energy efficiency – changes in modes of transport (modal shift)

2.7.3 Where journeys cannot be made by foot or bicycle the provision of safe, comfortable and convenient public transport services, including the supporting infrastructure, can persuade people to favour travelling, for example, by bus rather than private motor vehicle.

Reducing emissions from vehicles and vessels

2.8

- Short term** - through the uptake of more efficient conventional internal combustion engines (the development, cost and availability on the market of which is largely out of our control) and the blending of sustainably sourced biofuels with conventional fuels. Figure 3 below from the UK Department of Energy and Climate Change's Carbon Plan shows how average emissions from vans and cars is expected to decrease to 2050.
- Medium term** - through the uptake of transitional, hybrid type technology and lower emission fuels such as liquefied natural gas (LNG), particularly for use in vessels, and higher proportions of biofuels. Supplying hybrid and electric vehicles with electricity may be a useful application for spare grid capacity.
- Long term** - through the substitution of fossil fuels such as fuel oil, petrol, diesel and LNG with zero emission engines such as those which are powered by hydrogen fuel cells or electricity, with hydrogen and electricity coming from low emission sources. Also new, as yet unknown technology may emerge.

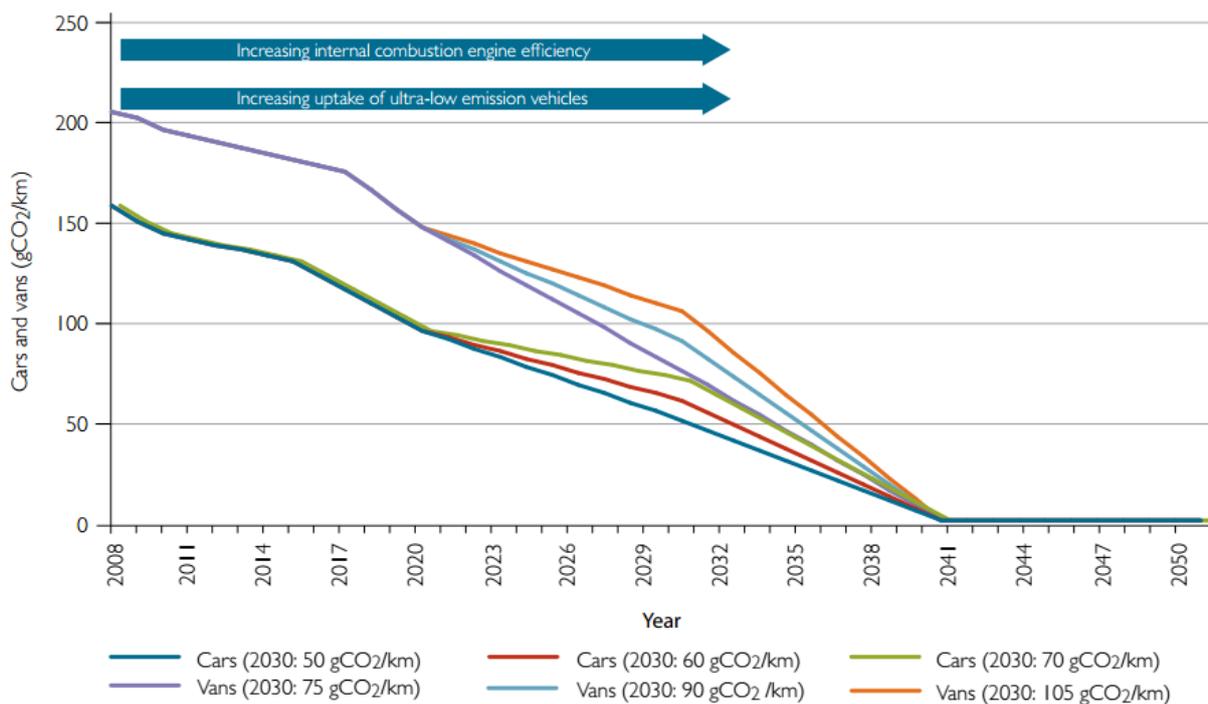


Figure 3. Projected UK average new car and van emissions over the first three carbon budgets and illustrative ranges of average new car and van emissions in the fourth carbon budget period and to 2050.²

² HM Government 2011, The Carbon Plan: Delivering our low carbon future [online] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/47613/3702-the-carbon-plan-delivering-our-low-carbon-future.pdf

Options for reducing emissions – On Island generation of electricity

"To deliver the agreed scale of emissions reduction it will be necessary to ensure that total greenhouse gas emissions from electricity generated on Island will be close to zero by 2050." Policy Agreed by Tynwald - May 2015

2.9 In 2013 the on island generation of electricity accounted for nearly 28% of the Island's greenhouse gas emissions (see Figure 1, page 6).

Current infrastructure

2.10 In recent years the Isle of Man Government has invested heavily in a natural gas network and combined cycle gas turbine (CCGT) power plant at Pulrose power station. A benefit of this investment is that greenhouse gas emissions per unit of electricity generated are comparatively low despite only modest contributions from renewable energy sources (Approximately 5.3% of the Island's electricity was generated from renewable sources in 2014 whereas in the UK this figure was 19.2%³).

2.11 However, although the CCGT plant may be regarded as efficient by today's standards, a significant volume of the Island's emissions come from this single source and a significant proportion of the Island's electricity is also generated by diesel fired plant. Figure 1 above illustrates that in 2013 nearly 28% (226,000t) of the Island's greenhouse gas emissions came from these power stations.

2.12 To meet emissions reductions commitments in other sectors the use of electric vehicles and electric space heating appliances is expected to grow. This means that overall demand for electricity is expected to increase at a time when emissions from the generation of electricity must be reduced to near zero.

There are three main options for reducing emissions from the generation of electricity:

- Carbon Capture and Storage
- Renewable Energy
- Imported energy

Carbon capture and storage

2.13 Carbon Capture and Storage (CCS) refers to the process of capturing approximately 90% of the greenhouse gasses produced when fuel is burnt, typically in power stations, and locking them away permanently, for example in underground geological stores such as a depleted natural gas or oil wells. This is intended to prevent those gasses from contributing to further climate change.

³ Department of Energy and Climate Change 2015, *UK energy statistics, 2014 & Q4 2014*, available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/416310/PN_March_15.pdf [Accessed 08/10/15]

2.14 If CCS were to be utilised at power stations on the Island, and those power stations were fuelled by sustainably sourced biomass, these two factors together would remove Carbon Dioxide from the atmosphere, resulting in negative emissions from electricity generation. This idea is known as Bioenergy Carbon Capture and Storage (BECCS), however, such technology is at an experimental or conceptual stage and it is not clear whether it will ever become viable or commercially available.

Renewable Energy

2.15 The Island possesses a wealth of indigenous renewable energy resources; such as biomass, wind, solar radiation, rainfall, tidal currents and waves which could be harnessed through a range of technologies to produce low greenhouse gas emission electricity.

A report commissioned by Government in 2010 entitled 'Renewable energy sustainability study'⁴ illustrated the scale of the Island's various renewable energy resources, as well as the cost, state of commercial readiness and level of public acceptability of the technologies available to harness them. Most of the technologies in the report, which were considered suitable for the Isle of Man, are proven and in widespread use with the exception of tidal stream, tidal lagoon and wave which are not yet as resilient or viable.

The intermittent nature of some renewable energy resources, such as solar radiation, wind and wave, has led some to call into question the viability of harnessing them as means of generating electricity. Fortunately a range of options, from domestic to industrial scale, for storing electricity are already commercially available and the technology continues to evolve rapidly. The use of the Bloc Eary dam (near Sulby reservoir) for hydroelectric power, and numerous mill ponds around the Island illustrates that storing and utilising renewable energy is by no means a new concept for the Island.

Import electricity from neighbouring jurisdictions

2.16 Greenhouse gas emissions associated with the generation of electricity, which is traded over the current sub-sea cable (interconnector) between the Douglas and Bispham in Lancashire, are the responsibility of the jurisdiction in which they are generated. The Island's local emissions from generating electricity can therefore be reduced by increasing the proportion purchased over the interconnector.

In the long term emissions from the generation of electricity on the Island could be reduced to near zero by replacing power plant as it comes to the end of its useful life with additional interconnector capacity. To meet Tynwald policy of maintaining security of supply this may involve the installation of sub-sea cables to jurisdictions other than England. There may be an opportunity to connect to renewable energy developments in waters surrounding the Island.

2.17 The UK's strategy is to reduce their greenhouse gas emissions from the generation of electricity to near zero by 2050 and if they are successful, the Island would not simply be exporting its emissions elsewhere. Both Jersey and Guernsey have dramatically reduced their greenhouse gas emissions by purchasing electricity over a sub-sea cable from France. 80% of electricity generated in France comes from nuclear power which is regarded as a low emission source

⁴ Department of Local Government and the Environment, 2010, **Renewable energy sustainability study – impacts and opportunities for the Isle of Man**, available at: <https://www.gov.im/media/624419/aeamainreport.pdf> [Accessed 20/10/15]

Addressing changes in market forces

2.18 By agreeing that greenhouse gas emissions from the generation of electricity on the Island need to be near zero by 2050, Tynwald has effectively indicated an expectation of shifting demand from electricity produced on Island using fossil fuels to the alternatives mentioned.

Options for reducing emissions - Land use practices

To deliver the agreed scale of emissions reduction it will be necessary to ensure that all land use practices will adhere to the principles of sustainable development by 2050 to minimise greenhouse gas emissions. Agreed by Tynwald May 2015

2.19 Emissions from land use practices accounted for nearly 11% of the Island's greenhouse gas emissions in 2013 (see Figure 1, page 6).

2.20 This policy is likely to be achieved incrementally through:

- increased efficiency of farming practices
- better use of nutrients
- increased protection of land, such as peat land, and
- woodland creation, which could both act as a net sink for emissions

2.21 While it is expected that emissions will be reduced between now and 2050, unlike some areas it will not be possible to eliminate those emissions entirely which, to a substantial degree, result from natural processes in soils and the digestive systems of farm animals.

2.22 This will involve an assessment similar to the Carbon Plan and first 4 Carbon budgets produced by the UK Government.

2.23 The objective of this strategy is to develop a portfolio of different technological options which makes it likely that our agreed emissions reduction can be achieved at a manageable economic cost.

An assessment along these lines has been carried out by the UK Committee on Climate Change and can be found via <http://archive.theccc.org.uk/aws3/7980-TSO%20Book%20Chap%202.pdf>

2.24 It is envisaged that emissions reductions in this sector will be considered further by the imminent Landscape and Amenity Strategy and future agricultural policy.

Appendix 1

Action plan 2016 – 2020

This action plan is divided into what we will do during the current administration and what we propose should be done during the following administration to reduce emissions from the Island.

Current Administration

To reduce emissions from buildings, we will:

1. Work with Treasury to introduce means tested property energy efficiency support for domestic properties to encourage emissions reductions measures such as cavity/loft insulation and double or triple glazed windows, plus energy efficiency assessment.
2. Work with the Department of Infrastructure to support the use of the 2016 Design Guide - Affordable Housing standards, in relation to building services, energy and fuel policy.
3. Seek expressions of interest from the public for participation in a trial to provide 'air tightness' surveys for a comprehensive range of house types, including an initial 'Seal the Gap' solution, which would be expected to deliver rapid savings for those involved and an increase in awareness. The exact level of support to be confirmed once the level of interest has been determined.
4. Establish a working group to identify enhancements to planning, building control and other relevant legislation which will be required to deliver the 2050 targets. The group will report to the Environment and Infrastructure Committee and will consider the following:
 - Retro-fit requirements for existing buildings
 - Building control standards for new build homes and substantive extensions
 - Actions necessary to facilitate a tiered planning and building control fees system based on energy efficiency and greenhouse gas reduction performance
 - Actions necessary to facilitate the implementation of an energy performance certification scheme for buildings at time of sale of rent
5. Begin work on the development of incentives for the installation of biomass boilers where appropriate and wood only burning stoves where the installation of solid fuel appliances is being considered.
6. Develop and launch a competition to design Near Zero Emissions Houses
7. Develop and launch a competition to create the most effective solutions for retrofitting properties to achieve Near Zero Emissions.
8. Promote retro fit insulation and efficiency technology.
9. Continue assessing the potential for energy saving and emissions reductions across the government estate.
10. Explore with local authorities ways to increase the amount of energy efficient public lighting systems.
11. Develop further relationships with key non-governmental organisations who can contribute to the delivery of the Action Plan.

To reduce emissions from surface transport, we will:

12. Explore and commence a programme to increase the number and distribution of 'fast' (charge in 2 hours) electric vehicle charging points.
13. Commence work to introduce a vehicle licence regime based on an initial point of sale levy (from 1st April 2019) commensurate with vehicle emissions and the existing graduated Manx scheme thereafter.
14. Commit to lowest practicable vehicle licence fee for Electric Vehicles until 2020.
15. Prepare a new cycling strategy – to include greater use of cycles for journeys that would otherwise be made by private car.
16. Encourage modal shift through better integrated transport – to investigate opportunities to encourage more journeys to be made using alternatives to the private car, in particular looking at how best to link public and physically active transport options within and between places.

Following Administration

To reduce emissions from buildings, we propose:

1. To explore the opportunities to install low emission heating systems. This could involve heat pumps through the MUA or biomass through DEFA, as appropriate.
2. Appropriate changes to building control standards to achieve near zero emission homes.
3. To explore the introduction of:
 - incentives to encourage/ enable the private rented sector to improve the energy performance of their properties, and
 - minimum energy efficiency standards for rented properties, acknowledging that tenants are often unable to make significant energy efficiency improvements to the properties they occupy.
4. Explore options to identify vulnerable people suffering ill health as a result of living in homes which are difficult to adequately heat and refer them to support services, with the objective of making the homes of vulnerable people more affordable to heat and healthier to live in.
5. To explore options for incentivising people to purchase the most energy efficient white goods and dis-incentivise the purchase of those which are less energy efficient.
6. The introduction of Energy Performance Certificates (EPCs) - Introduce a statutory obligation to provide property emissions certificates at point of property occupancy transfer – whether rental or sale. This is intended to capitalise the efficiency gains achieved by current occupants or owners, to improve confidence and incentivise others to invest.
7. The use of community benefit funds from potential large renewable energy projects to fund energy efficiency improvements in domestic homes.

8. The introduction of a consumer promotion and advice service regarding efficiency and emission technology
9. The identification and promotion of a site for the symbolic construction of a range of different Near Zero Emissions Houses to raise the profile and improve consumer interest and appetite for these houses.
10. To explore the installation of smart electricity and heating control technology both in new installations and retrofitted to existing ones.
11. The introduction of a policy to encourage shared heating systems for new housing schemes.

To reduce emissions from Surface Transport, we propose:

18. To develop and extend the existing network of electric vehicle chargers targeting key strategic locations around the Island. This could include private and public sector car parks, shopping centres, company and governmental owned car parks, hospitals, churches, sport centres where electric vehicles can partially recharge their batteries in relatively short time periods.
19. To introduce a range of initiatives to encourage the adoption of electric and hybrid vehicles. This could include attractive electricity tariff structures and the promotion of car sharing but in eco-friendly vehicles.
20. To investigate the provision of incentives to encourage the installation of charging points in domestic properties.
21. To investigate the provision of hydrogen-powered public transport for the next fleet replacement. This could involve local production of hydrogen using off-peak and green electrical power to drive zero-emissions public transport vehicles.
22. To monitor developments in vehicle technology and ensure the uptake of ultra-low emissions vehicles is enabled through the provision of well maintained, safe and convenient supporting infrastructure.

To reduce emissions from the generation of electricity, we propose:

24. To robustly test the potential market for green tariff electricity.
25. The exploration and proposal of a plan for the provision of renewable energy options, acknowledging that the expected switch away from fossil fuels for heating and transport would correspondingly increase electricity demand over the medium term, despite the intended gains in overall energy efficiency and reduction in energy consumption per person. This plan should acknowledge that the replacement for the current fossil fuel based electricity generation facilities will need to be near zero emissions.

Establish an appropriate carbon budgeting based approach to reducing emissions

26. This initial plan is a collection of initiatives which will make a real difference, however, there is more work required to better inform subsequent action plans and ensure we deliver the 80% reduction.