

Pathway 2050: An Energy Plan for Jersey



SUMMARY
March 2014

States 
of Jersey



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Foreword by the Minister

Pathway 2050 explores what an energy future for Jersey could look like, identifies three framework policies, and outlines an initial set of actions and interventions to contribute to achieving it. This is just one possible pathway for Jersey, there are other possible routes that Jersey could take depending on the evolution of a variety of external and local factors such as technological developments. This Plan is not just about the environmental impact of our energy use; it is also about the availability and affordability of energy. The aim is to achieve 'secure, affordable and sustainable energy'. Alongside this, the document highlights that a low carbon future can bring such as new employment opportunities and potentially a more diverse economy.

The vast weight of credible evidence is that climate change is happening and that man-made emissions are accelerating this process. As a signatory to the Kyoto Protocol, Jersey has affirmed its intention to take action in respect of climate change and the emission of greenhouse gases. When asked in the Jersey Annual Social Survey 2010, 47% of respondents did not think the States of Jersey was doing enough in respect of addressing climate change. Pathway 2050 seeks to address this gap.

Virtually all of Jersey's primary energy is imported, which has some benefits as Jersey has had access to cheaper, more reliable energy than it might otherwise have had. But the global energy market remains unpredictable and Jersey is vulnerable to price shocks and, as we have seen this summer, physical failures in supply.

Unless energy usage can be reduced and energy costs contained, the most vulnerable in society are likely to be exposed to disproportionate costs in relation to their disposable income. Those living in fuel poverty experience a reduced standard of living and this often brings about adverse health consequences.

This energy future document has an urgency and requires a multi stakeholder and cross-departmental approach in order to understand and manage the energy challenge ahead. The Energy Green Paper, 'Fuel for Thought?' established the context and rationale for action and this Energy Plan now proposes the policies and actions to work towards the target of an 80% reduction in CO₂ emissions by 2050. The immediate actions outlined in the Energy Plan to begin down this pathway can be implemented with existing funding and delivery mechanisms such as the already successful energy efficiency programme.

The Energy Plan sets out a framework set of policies and supporting actions relating to energy use until 2050. It is the first step on a long journey to a future of sustainable energy use. The policies and actions set out here will start the process but will need to be reviewed and added to as circumstances change, global influences evolve, technology advances and behaviours adapt if the Plan is to remain relevant and appropriate. I call upon the assistance of fellow Ministers in their current and future areas of policy development to support Pathway 2050, for instance in the review of the Sustainable Travel Plan in 2015 and the review of the Solid Waste Strategy.

I present here a rounded energy future that sets the direction of travel we must take if we are to be a sustainable jurisdiction underpinned with affordable and secure energy. Government cannot make this journey alone, industry and individuals must join us wholeheartedly if we are to succeed in our goals.

Deputy Robert
Duhamel,

Minister for
Planning and
Environment
March 2014





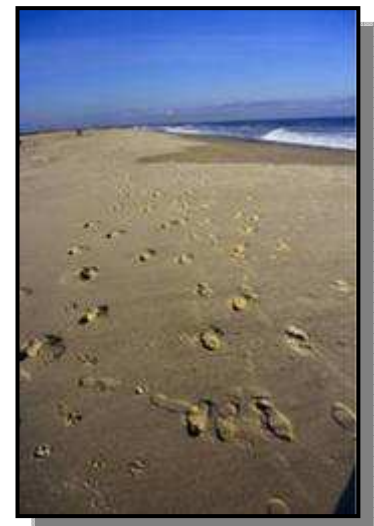
Introduction

Pathway 2050; An Energy Plan for Jersey (the Energy Plan) is put forward to stimulate discussion around the challenges Jersey faces in terms of energy use through to 2050, and to begin to map out the policy response needed to meet those challenges.

The Energy Plan outlines three framework policy commitments and identifies a number of supporting actions and workstreams where more work is needed in order to fully understand and identify suitable and appropriate interventions. This is just one possible pathway, there are other possible routes depending on a variety of external and local factors such as technological changes. The Energy Plan will be kept under review and take a flexible approach to implementation according to the performance of the actions identified.

The Energy Plan raises a number of challenges that arise from tackling the interrelated issues of ensuring secure energy supply into the future whilst ensuring that all members of the community have access to affordable warmth and energy. Events in 2012, both with local gas and electricity supplies, have sharply brought into focus the need for a resilient and secure energy supply. Understanding energy security in the Island context is a key policy area within the Plan and demands immediate attention.

The Energy Plan also outlines a range of opportunities which could have the effect of providing a stimulus to the local economy. These include considering the impact of new ways of working and living, providing skills and training and new business opportunities which could harness opportunities for Jersey in the emerging global Cleantech¹ agenda.



¹ 'Clean Technology' e.g. Renewable energy, green transportation, energy efficient technologies





The International context

Jersey recognises its international environmental obligations. By becoming a signatory (through the UK) to the Kyoto Protocol in 2005, Jersey has committed to take a challenging and pro-active approach to reducing its carbon emissions. The UK and the EU have adopted a Kyoto target of an 80% reduction in emissions from 1990 to 2050. To reduce emissions in line with the target, the Island needs to reduce emissions by nearly 500,000 t/CO₂ eq² by 2050. Although Jersey has already reduced its emissions by 28% between 1990 and 2012 (largely from importing electricity), modelling has shown that if Jersey does not make changes to its existing patterns of energy use, demand will continue to grow and it will miss the emissions reduction target.

The Energy Plan sets out a pathway to 2050, it identifies a number of actions and interventions which if successfully implemented will contribute to Jersey achieving a reduction in its carbon emissions in line with other jurisdictions. It will also provide the basis on which to monitor and consult on further interventions that may be needed. As a number of policies are developed, new employment opportunities may be created; ranging from provision of energy audits, to installation of microgeneration, and offshore or marine energy services.

In this way, the Energy Plan supports the 4 key objectives identified in the Economic Growth and Stimulus Strategy 2012.

Jersey's environmental and economic ambitions are not mutually exclusive and support the commitment made by Jersey to becoming a signatory to the Kyoto Protocol.

The overarching target of Pathway 2050 is:

'By 2050, reduce emissions by 80% compared to 1990 levels, by using secure, affordable and sustainable energy.'

² t/CO₂eq – Tonnes of carbon dioxide equivalents, a measure of Greenhouse gases (GHGs)





Delivery framework

Jersey has four decades to achieve the 2050 target, and must therefore deal with significant uncertainty in global macroeconomic and technological developments. This energy future document sets out a long-term future to achieve the 2050 emissions target. It has been named 'Pathway 2050' to reflect the journey that it outlines.

Jersey has a number of existing delivery mechanisms, in the form of services, awareness programmes and membership schemes and standards, which will be used to develop and deliver the immediate interventions outlined in the plan. Their existing budgets and business plans can be re-profiled as outlined.

A key initiative will be to establish a multi-stakeholder Energy Partnership to oversee and review ongoing development and implementation. The structure and remit of the Energy Partnership is described in more detail in the Energy Plan.

The Pathway 2050 document has been written by the Department of the Environment in consultation with other key States of Jersey departments. The interventions proposed to initiate progress along the pathway have been designed on the basis that they do not require more than the existing allocated funding from the public purse. The direct cost, where known, of delivering the actions during the first five years of the plan are presented throughout the plan.

As part of the ongoing monitoring and review of progress, it may be identified that additional funding is required to accelerate implementation and enable a wider and deeper reach e.g. in terms of direct grant assistance and advice to householders and advisory support to business. This may include the consideration of funding models or revolving funds that incentivise the uptake of energy efficiency measures or micro-renewable generation such as the 'Green Deal' programme that is currently being implemented in the UK. Detailed resource and impact assessments of new workstreams will be required and undertaken as they come forward.

In order to fully understand the wider economic impacts of the interventions identified as compared to the impacts that may occur as a result of a 'do nothing' scenario, a 'Jersey Stern' Review will be carried out. This will establish the wider fiscal savings and benefits to the local economy as a result of a move to a low carbon Jersey and could include direct employment opportunities and wider benefits.





Emissions trajectory

The Energy Plan sets out a stepwise pathway to 2050 consistent with emissions savings of 73% through a combination of adopting new technology and methods of working, coupled with changes in behaviour. If by 2050 there are residual emissions that cannot be reduced through these mechanisms; this issue could be addressed through responsible offsetting methodologies.

The emissions savings outlined in the Energy Plan are based on the best available technology at the current time. It is fully acknowledged that due to technological advances in the future (some of which are unproven or yet to be invented), there may be a step change in the emissions pathway and the route that Jersey chooses to follow.

Pathway 2050 outlines the start of the journey and sets a framework for working towards our targets. Monitoring and ongoing review will be the overseen by the multi-stakeholder Energy Partnership.

The summary tables and graph below demonstrate how the policies and actions identified could assist Jersey to achieve the emissions reduction target; the full Energy Plan details a set of policies, actions and interventions, and next steps to begin to realise these targets.

Table 1 - Pathway 2050: How A low carbon energy policy will effect emissions

	1990 actual emissions	2010 actual emissions	2020	2030	2040	2050	% Total reduction in emissions by 2050
Emissions (tonnes of CO _{2eq}) & % reduction on 1990 levels	622,645	448,078 (28%)	321,613 (48%)	266,840 (57%)	201,704 (68%)	168,718 (73%)	<u>73%</u>



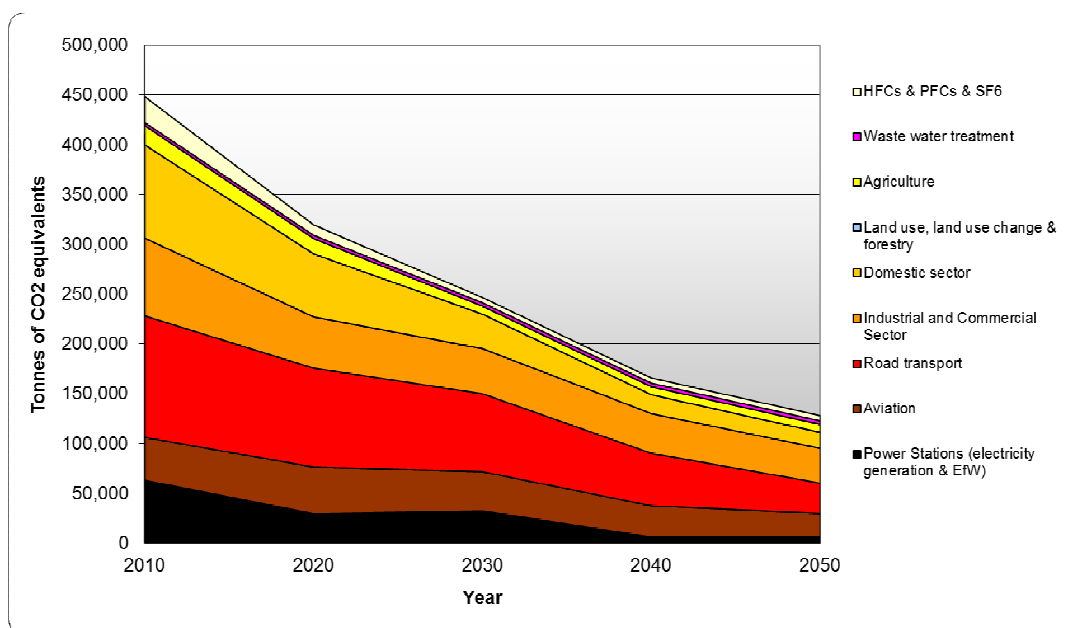


Table 2 provides further detail on how the pathway 2050 emissions reductions are derived from the energy demand sectors. Policy 1 provides the detailed actions that will achieve these CO₂ reductions across each sector.

Table 2 - Pathway 2050: The contribution of each sector to overall emissions reductions

Energy demand sectors	1990 (tonnes of CO _{2eq})	2050 (tonnes of CO _{2eq})	% Total reduction in emissions by 2050
Domestic	113,144	195,371	76%
Industrial & Commercial	98,780	103,501	80%
Agriculture	26,037	34,583	69%
Road transport	122,445	247,636	71%
Aviation	44,710	25,502	+68%
Waste water treatment	2,728	890	+33%
F-gases	2,755	20,878	80%

The graph below illustrates the future pathway carbon emissions will take if all sectors achieve their carbon reduction targets as set out in this plan.





Policy Focus

This document sets out one scenario, based on a set of assumptions, which could take Jersey towards the target; it is based on three framework policy areas for action:

1. **Demand Management** – reducing demand through series of interventions across all emissions sectors according to identified targets each decade;
2. **Energy Security & resilience** – ensuring a diverse, safe and resilient supply of energy to meet Islands needs;
3. **Fuel poverty and energy affordability** – ensuring that energy is affordable to all members of the community.

It is recognised that over the period of the Energy Plan, the proposed actions and their effect on emissions may change and evolve. However, the three key policy areas are expected to remain the same and are outlined below.

1. Demand Management

Reducing the amount of energy used through implementing energy efficiency measures, changing working practise, and choosing less energy hungry products will all assist in lowering emissions from fuel use; these actions will help to reduce the amount of energy used by reducing demand. As well as reducing the environmental impacts of energy production and consumption, reducing energy demand can contribute to addressing issues of affordability in the domestic sector as well as in the public and private sector through increasing efficiencies and decreasing operating costs.

POLICY 1: DEMAND MANAGEMENT

The Minister for Planning and Environment, working with other relevant Ministers and the Energy Partnership, will develop and implement the actions and work streams that will reduce energy demand through a series of interventions across all emissions sectors according to identified targets.

The potential impact of sector-specific changes in demand on total emissions is shown in the table below. The forecasted savings of emissions from each action are shown as a % of the total emissions savings to 2050.





The potential impact of sector-specific changes in demand on total emissions

	Demand Management	CO _{2eq} savings from each action as % of total CO _{2eq} savings
Domestic	Energy efficiency measures applied to pre-1997 stock of properties	22%
	Introducing a 'low-carbon' standard for new homes through Building Bye-Laws	3%
	Implement micro-renewables in the domestic sector	4%
	Assisting the uptake of micro generation	To be developed
	Improved energy efficiency through behaviour change programme	2%
Industrial & Commercial	Energy efficiency improvements in the Public Sector (States of Jersey)	6%
	Energy efficiency improvements in the Private Sector	10%
Agriculture	Reducing emissions from ruminants	1%
	Implementation of Anaerobic Digestion systems for waste management of livestock slurry by 2020	4%
Road transport	Improved EU emissions standards for cars	12%
	Improved EU emissions standards for vans	2%
	Increase in number of Ultra Low Emission Vehicles (ULEVs)	22%
	Achieving Sustainable Travel Plan congestion management targets	3%
	Achieve a 5% shift to sustainable modes of transport by 2020	1%
Aviation	Improved international operating standards for aircraft	4%
Waste water treatment	Liquid waste treatment options	<1%
F-gases	EU F-gas regulation phase out	3%





2. Energy Security

It is essential that a safe and secure supply of energy is maintained. The need to address security of supply is reflected in the actions listed below.

A critical first step will be to understand the nature of the security of supply risks that Jersey faces. This will be followed by an appraisal of possible policy response to those risks, and include contingency planning and gaining an understanding of the potential of meeting a proportion of the Islands energy demand from microgeneration, as well as offshore renewable energy generation.

However, this will require a clarification and recognition that renewable generated electricity from Jersey will qualify for Feed in Tariffs (FITs) or other incentives offered by the relevant EU Member States in response to their obligation to meet a certain proportion of their energy consumption from renewable sources. If the level of support on offer changes then a further economic analysis of the feasibility for Jersey would be required.

The development of utility scale renewable energy generation under the right economic conditions could develop a new Cleantech market in Jersey providing employment opportunities and economic diversification.

POLICY 2: ENERGY SECURITY AND RESILIENCE

The Minister for Planning and Environment, working with other relevant Ministers will develop and implement the actions and work streams, including examination of the options for utility scale renewable energy generation, to ensure a diverse, safe and resilient supply of energy to meet Islands needs.

The table below shows the actions identified to support Policy 2.

	Energy security & resilience
Power generation & Security of Supply	Develop an energy resilience strategy
	Contingency planning and stockholding for liquid hydrocarbons
	Working with Jersey Electricity plc to set supply standards
	Preparing the way for utility scale renewable energy
	Minimising residual waste
	Investigate district heating from the energy from waste plant
	Investigate use of biofuels





3. Affordability

Energy must be affordable to all the people of Jersey to ensure affordable warmth and address issues of fuel poverty and the associated social, economic and health impacts. In order to make sure that Pathway 2050 ensures a sustainable, secure and affordable supply of energy in Jersey, it is essential to further understand the energy market place and local interactions through the following actions.

POLICY 3: FUEL POVERTY AND AFFORDABILITY OF ENERGY

The Minister for Planning and Environment, working with other relevant Ministers will develop and implement the actions and work streams to investigate the scale and nature of fuel poverty and the affordability of energy in a Jersey context. This will assist the development of specific policies that will ensure that energy is affordable to all members of the community.

The following table shows the actions identified to support Policy 3.

SECTORS	Fuel poverty and affordability of energy
Fuel poverty and affordability	Understanding affordable energy in the Jersey context
	Understand how competition in the local energy market affects prices paid by consumers

Conclusion

This Energy Plan provides one outline pathway to a low carbon future. It sets out a pragmatic approach, matched to available resources and can meet environmental obligations. It recognises that a secure and diverse economy based on social equality and sustainability must be maintained in order to provide a legacy for future generations who will inherit a more secure energy future. More details can be found in the full version of Pathway 2050, which can be downloaded from www.gov.je

Related areas of work

A related next step will be to prepare for the effects of climate change through the development and implementation of a Climate Change Adaptation Strategy, which will be developed as a linked policy to the Energy Plan.

