

Factsheet – Key emissions source – heating, cooling and cooking in our homes and businesses

In this topic, we focus on the energy used and the greenhouse gas emissions arising from space heating and cooling, hot water provision and cooking in our homes and businesses.

Heating, cooling and cooking in homes and businesses is the second largest emissions source in Jersey (second to the transport sector). It is a priority area for action on our carbon reduction journey. It represented 35% of our total greenhouse gas emissions in 2018¹.

When fossil fuels, such as gas or oil, are burnt in boilers and ovens to heat water for our radiators or showers, or to cook our dinner, greenhouse gas emissions are produced.

How do we currently heat our homes in Jersey?

Most of Jersey's electricity supply is imported from France and is from low-carbon sources, therefore electric heating, cooling, or cooking appliances and systems do not make a significant contribution to our greenhouse gas emissions.

Many Islanders and businesses use oil or gas to heat their homes and workplaces. It is the burning of these fossil fuels which is contributing to Jersey's Scope 1 greenhouse gas emissions.

There are currently 2,350 commercial properties relying on oil and 1,126 on gas for heating². The estimated total figure for boilers in residential properties running on fossil fuels is approximately 20,000 (~45% of all residential properties).

How can we reduce the greenhouse gas emissions associated with our homes and businesses?

There are two key ways in which the greenhouse gas emissions associated with our buildings can be reduced – we can reduce our demand for the energy by improving the energy efficiency of our buildings or switch to a low carbon energy source for the energy that we use. Ideally, we can do both.

1. Reduce demand for energy – improve energy efficiency

Heating and cooling

Energy efficient buildings require less energy to heat and cool them. New buildings need to be designed and built to the very highest standards of energy efficiency to ensure that heating and cooling demand is minimised.

¹ [Jersey's GHG emissions – www.aether-uk.com/Resources/Jersey-Infographic](http://www.aether-uk.com/Resources/Jersey-Infographic) (Note - 58% from residential properties and 42% from businesses).

² [Carbon neutral strategy - www.gov.je/government/pages/statesreports.aspx?reportid=5138](http://www.gov.je/government/pages/statesreports.aspx?reportid=5138)

However, the existing building stock will continue to be the biggest source of emissions and is where the real challenge lies. Existing properties can have energy efficiency improvements made to them, such as improved loft and wall insulation and high-efficiency glazing.

The more energy-efficient a building is the cheaper it is to heat. For Islanders that cannot currently afford to heat their homes properly, making their properties more energy efficient will also make them more comfortable.

Appliances

The more energy efficient appliances are within the property the less energy they will use and the lower the running costs will be. For example, the more efficient your oil boiler or your gas oven the less fossil fuel will be burnt to do the task you want it to do.

The same principle applies to electrical appliances, from washing machines and TVs to light bulbs.

Behaviour change

Sometimes it is not the building itself or the appliances we own that are wasteful but how we use them.

For example, having the heating thermostat on high rather than putting on additional clothing or not adjusting the timing of the hot water so that you only have it when you need it.

As well as improving the energy efficiency of our buildings and appliances we need to learn to be smarter in our use of energy. New technology can help us do this.

2. Decarbonise the energy that we use - switch to low carbon energy sources

Even in the most energy efficient buildings, with the most energy-efficient appliances, we will continue to use some energy. If this energy is generated through the burning of fossil fuels it will continue to generate greenhouse gas emissions.

In Jersey, the electricity imported is low carbon as it is generated from renewable and nuclear sources. Therefore, electric heating, cooling, and cooking options can be considered low carbon. Note that there are still some emissions associated with the electricity so reducing usage will still help.

In other places where the electricity is generated from fossil fuels (eg from the burning of coal) it is not low carbon.

Generating your own heat at your property through renewable technologies such as solar thermal panels or heat pumps is also a low carbon option.

There are other emerging technologies and products such as 'green hydrogen' which is hydrogen produced using renewable energy. These may become viable alternative low carbon energy sources in the future.

What is currently being done to improve the energy efficiency of buildings in Jersey?

New buildings

All new or altered buildings in Jersey must comply with part 11 of the Building Bye Laws - the Conservation of Fuel and Power.

Wholesale changes were made to these regulations in 2011. They included a new method to calculate the energy performance of new and converted dwellings and new non-domestic buildings. It introduced the requirement for building permission for work such as: recovering a roof, re-rendering external wall (or re-plastering the internal faces of external walls); replacing ground floors etc. This requires those elements to be upgraded to minimum energy efficiency standards.

In 2016 the concept of "consequential improvements" was introduced and a further refinement was made in 2019. This required that 5% of the construction cost of an extension must be used to improve the energy efficiency of the existing building. It could be achieved with the introduction of additional insulation, replacement windows, installing a new boiler, draught sealing doors and windows, using energy efficient lighting etc.

Jersey's Building Bye Laws use a reference building that uses imported low carbon electricity for space heating to set the energy targets that new buildings must reach. Therefore, it is challenging for non-electrically heated properties to achieve the energy performance targets. The intended effect is that new buildings will likely use electricity for space heating. 95% of the 700 new dwellings and 2,505 flats for the period 2016 – 2020 have used electricity as their primary energy source.

The new Bridging Island Plan will be out for consultation in April 2021. It is expected to:

- require greater reductions in energy use for large-scale development
- introduce new environmental standards for affordable homes to tackle fuel poverty
- require larger non-residential developments to meet standards relating to their building materials, construction practices and whole-life building performance.

These draft policies will be available for the Citizens' Assembly to see in the resource area as soon as they are made public.

Existing buildings

Building Bye Law standards only apply when a new building is developed, or an old building is redeveloped.

Existing buildings are not required to improve their energy efficiency standard. Several initiatives have provided incentives for householders to improve the energy efficiency of their properties.

The Government of Jersey's Home Energy Scheme ran for 6 years between 2009 and 2015. 1700 low income homes had their energy efficiency improved. The top 5 energy saving measures in terms of payback, energy and carbon savings were: virgin loft insulation, cavity wall insulation, pipework insulation, hot water cylinder jacket and heating controls.

The Community Buildings Programme ran from 2010 and 2015 and provided grant funding for energy efficiency improvements for charities and not-for-profit organisations and community groups.

An energy efficiency telephone advice service was available to Islanders on how to improve the energy efficiency of their homes.

In 2018 a Jersey-specific Energy Performance Certificate was developed to provide energy efficiency ratings for domestic properties. A team of local domestic energy auditors were trained to complete these energy audits. These certificates provide householders with an energy efficiency rating for their home and also the 'potential' level that could be reached if improvements were made. Auditors also give personalised recommendations on which efficiency measures would provide the most significant savings for each property.

The Government of Jersey currently offers a Home Energy Audit subsidy scheme (see www.gov.je/energyaudit). Homeowners receive subsidies of up to £250 towards an audit which results in an Energy Performance Certificate for the property. In addition to providing suggestions for energy efficiency improvements for the property, the scheme provides Government of Jersey with information on Jersey's housing stock.

Barriers to the uptake of energy efficiency improvements

We do not currently have an accurate picture of Jersey's housing stock or know how efficient or inefficient the properties are. Therefore, it is difficult to fully quantify what impact energy efficiency improvements will have on our greenhouse gas emissions or what initiatives are likely to result in changes.

Jersey has many old buildings which are more difficult to insulate and heat. Protecting the historic value of a property and improving its energy efficiency are not always compatible.

Energy efficiency improvements can be expensive and disruptive. Although efficiency improvements can pay back for themselves in the long run, they do require up-front investment that not everyone can afford.

There is evidence that improvements in energy efficiency do not always result in less energy being used – occupants in homes that were previously under-heated will

sometimes reap the benefits of energy efficiency improvements by enjoying greater levels of comfort. This is an understandable result where homes were previously under-heated, but it doesn't bring about emissions reductions.

Options for change

Some of the measures that other jurisdictions have undertaken to improve the energy efficiency of the building stock and increase the uptake of low-carbon energy sources are listed below.

Legislation

- Ban carbon-heavy heating systems by a certain date
- Require new buildings to have higher energy efficiency standards to avoid new emissions in the future
- Require new buildings to have a certain percentage of renewable energy
- Require new buildings to have an energy assessment
- Require existing buildings to have an energy assessment / rating at the point of sale or rental
- Introduce a minimum standard of energy efficiency that must be met for a property to be sold / rented out. For example, this would mean that you would have to insulate a home if you wanted to sell it or let it out.
- Require new appliances, such as boilers and ovens, to meet a minimum energy efficiency rating

Financial incentives

- Provide a scrappage scheme or incentives to households to replace their high-carbon heating system
- Provide grants or loans for householders and / or businesses to improve the energy efficiency of their property or switch to low carbon energy sources
- Provide a grant or subsidy for energy assessments for homes and businesses
- Provide tax breaks for energy efficient appliances / products or low-carbon technologies

Financial disincentives

- Introduce / increase duty / taxation on the sales of fossil fuels to heat buildings
- Introduce / increase taxation on inefficient products / appliances

Provision of information

- Energy efficiency advice
- Home energy audits and energy performance certificates

The Carbon Neutral Strategy provides a further analysis of some of the policy scenarios related to heating in Chapter 5.5 on page 56.

Just transition

If we switch to low carbon energy sources what happens to the businesses that rely on fossil fuels and the Islanders that they employ? What about the infrastructure that they have developed and invested in over decades?

In terms of just transition, consideration needs to be given to changes to the cost of heating homes and whether proposed measures to assist the transition to low carbon alternatives will result in increased energy bills.

Fuel poverty exists in the Island and all proposed initiatives need to include a careful consideration of how they will impact on the most vulnerable and their ability to sufficiently heat their homes.

Read more about decarbonising our homes and businesses:

- Aether: Jersey emissions infographic
www.aether-uk.com/Resources/Jersey-Infographic
- Carbon Neutral Strategy
www.gov.je/SiteCollectionDocuments/Environment%20and%20greener%20living/CNS%20amended%20version%20FINAL.pdf
- Jersey's Building Bye Laws – conservation of heat and power. Technical Guidance Document 11.
www.gov.je/PlanningBuilding/LawsRegs/Technical/Pages/11ConservationFuelPower.aspx
- Government of Jersey's Community Buildings programme – final report
www.gov.je/government/pages/statesreports.aspx?reportid=2429
- Energy Saving Trust: Saving energy at home -
<https://energysavingtrust.org.uk/energy-at-home/>