

# Guide to the Energy Policy 2020 – 2050

## Key terms

<p><b>Alternative fuels</b></p>	<p>Demand for clean and low carbon fuel alternatives are increasing and science and technology must innovate to meet demand. Existing infrastructure, expertise and engineering in hydrocarbon organisations holds great potential to transition to alternative fuel and renewable energy sources. Existing organisations are best placed to innovate and invest in their transition to low carbon energy production. A biofuel is a fuel that is produced through contemporary processes from biomass, rather than a fuel produced by the very slow geological processes involved in the formation of fossil fuels, such as oil. And to meet net zero targets alternative fuels for industry will be in demand and are being developed for trials and testing.</p>
<p><b>Baseline</b></p>	<p>A baseline is a minimum or starting point for future comparisons. It's a fixed reference point and important to use to measure the success or failure of any future target set from that baseline amount or figure.</p>
<p><b>Behavioural change</b></p>	<p>Behavioural change is any transformation or change of human behaviour. In the context of government and policy it refers to efforts or “nudges” put in place to change people’s personal habits and attitudes so that they can make better choices.</p>
<p><b>Biodiversity</b></p>	<p>Biodiversity is the variety of plant and animal life in the world or in a habitat.</p> <p>A Habitat Survey of Guernsey, Herm and Jethou was conducted in Spring and Summer 2018 and can be found here:  <a href="https://www.gov.gg/habitatsurvey">https://www.gov.gg/habitatsurvey</a></p>



<b>‘Blue economy’</b>	The ‘blue economy’ concept seeks to promote economic growth and the preservation or improvement of livelihoods and at the same time ensuring environmental sustainability of the oceans and coastal areas. The blue economy has diverse components, including established traditional ocean industries such as fisheries, tourism, and maritime transport, but also new and emerging activities, such as offshore renewable energy, aquaculture, and marine biotechnology.
<b>Containerised freight</b>	Containerised freight is often referred to as containerisation.’ This is a system of intermodal freight transport using intermodal containers (also called shipping containers and ISO containers). The containers all have standardized dimensions and can be loaded, unloaded, stacked, and transported efficiently over long distances.
<b>‘Circular economy’</b>	A circular economy (often referred to simply as "circularity") is an economic system aimed at eliminating waste and the continual use of resources.
<b>Decarbonisation</b>	Decarbonisation is the process of reducing the amount of CO <sub>2</sub> released into the atmosphere, either through cleaner fuels (natural gas is often termed the "transition" fuel given its lower CO <sub>2</sub> emissions than other fossil fuels), efficiency measures or by a transition towards non-CO <sub>2</sub> emitting sources of generation such as renewable technologies or nuclear energy. The creation and use of energy have historically been (and remains) heavily reliant on the burning of fossil fuels, which release CO <sub>2</sub> (and other particles linked with respiratory illness) into the atmosphere.
<b>Deep Water Berth</b>	A deep-water berth enables fuel tankers and cargo containers to dock.
<b>Electricity demand</b>	Electricity demand refers to the maximum amount of electrical energy that is being consumed at any given time.
<b>Energy efficiency</b>	A building’s energy efficiency is its ability to retain heat and produce light through the efficiency of walls, roofs, floors, windows, heating systems and controls, hot water and lighting. Retrofitting refers to the addition of new technology or features to older systems. Interventions to improve the energy efficiency of buildings include insulation in lofts and walls (cavity and solid); double or triple glazing; draught proofing floors, windows and doors; smarter appliances; and superior



	<p>heating systems. Generally, these interventions are cost effective and provide a long-term return on investments. Improving the energy efficiency of the Island's housing stock will contribute to decarbonisation and to meet net zero targets. There have been energy efficiency initiatives on-island and in other jurisdictions, referenced below for information only:</p> <ul style="list-style-type: none"><li>•The Guernsey Housing Association (GHA) offers a variety of housing included social rented housing and homes sold as partial ownership for local people on lower incomes who cannot afford to buy in the private housing market. GHA properties built since 2009 have been constructed to be highly energy-efficient, to reduce resident's fuel costs.</li><li>•The 'Green Deal' was a government scheme in the United Kingdom that provided loans to households to finance energy efficient home improvements. The loan was designed to be paid back through the savings made on energy bills and the scheme ran from 2013 to 2015.</li><li>•'Passivhaus' principles refer to new buildings created to rigorous energy efficient design standards to retain heat and to require little additional heating or cooling. Passivhaus buildings may vary and include some common features – triple glazing, airtightness, and mechanical ventilation.</li></ul>
<b>Electricity supply</b>	<p>Electric power is supplied to homes and businesses (as domestic mains electricity) by the electric power industry through an electric power grid. An electrical grid can be broadly divided into the generators that supply the power, the transmission system that carries the power from the generating centres to the load centres, and the distribution system that feeds the power to nearby homes and industries. Electricity 'conveyance' refers to the system for the conveyance and distribution of electricity which terminates at the consumer's point of supply.</p>
<b>Energy Partnership</b>	<p>The Energy Partnership will be made up of representatives of local energy organisations who will work collaboratively with the States on several matters. The Committee will then put together recommendations for the States Assembly when required, to develop the market in line with the energy policy's pillars.</p>



<b>Energy transition</b>	The energy transition refers to the move from using fossil fuels to power heating, light and transport to low carbon sources. The transition is driven by global agreements and commitments to reduce greenhouse gases that contribute to global warming.
<b>Energy trilemma</b>	The 'energy trilemma' is a global phenomenon to meet and balance the need to deliver secure, affordable, and environmentally sustainable energy.
<b>Environmental Impact Assessment</b>	An Environmental Impact Assessment (EIA) is a process of evaluating the likely environmental impacts of a proposed project or development, considering all aspects that inform decision makers about the environmental consequences of implementing a proposed project.
<b>Fuel Poverty</b>	Fuel poverty is when a household cannot afford to keep warm at a reasonable cost, given their income. That usually refers to a household that spends more than 10% of its income to maintain adequate warmth.
<b>'GF1'</b>	GF1 would be an interconnection between Guernsey and France to import electricity that could be installed in the future, outside of The Channel Islands Electricity Grid (CIEG). The CIEG, is the joint company set up in 1998 between Guernsey Electricity and Jersey Electricity to operate and manage the submarine cables between Europe and the Channel Islands.
<b>'GJ1'</b>	GJ1 is the interconnection between Guernsey and France via Jersey to import most of our electricity from sustainable sources in France.
<b>Greenhouse Gases</b>	'Greenhouse gases' are carbon dioxide, methane, nitrous oxide and fluorinated gases (hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride). Human activities since the beginning of the Industrial Revolution have produced a 45% increase in the atmospheric concentration of carbon dioxide. Most anthropogenic carbon dioxide emissions come from combustion of fossil fuels (coal, oil and natural gas). Other emissions come from waste and agriculture. These emissions cause the 'greenhouse effect' which warms the planet.



<b>Hybrid vehicles</b>	A hybrid vehicle uses two or more distinct types of power, such as an internal combustion engine to drive an electric generator that powers an electric motor.
<b>Hydrogen Fuel</b>	Hydrogen fuel is a zero-emission fuel and in early development, not yet available or safe for wider commercial use. Hydrogen gas could be incorporated into existing gas frameworks and infrastructure once the technology had been trialled and tested.
<b>Internal Combustion Engine (ICE)</b>	An Internal Combustion Engine (ICE) is a heat engine which generates motive power by the burning of petrol, oil or other fuels. Typically, an 'ICE' is fed with fossil fuels, petrol or diesel fuel.
<b>Low Carbon</b>	Low Carbon power comes from processes or technologies that produce power with substantially lower amounts of carbon dioxide emissions than is emitted from conventional fossil fuel power generation, such as: Wind power, solar power, hydropower and nuclear power.
<b>Macro grid</b>	An electrical grid is an interconnected network for delivering electricity from producers to consumers. It consists of:- <ul style="list-style-type: none"><li>• Generating stations that produce electric power;</li><li>• Electrical substations for stepping electrical voltage up for transmission, or down for distribution;</li><li>• High voltage transmission lines that carry power from distant sources to demand-centres; and</li><li>• Distribution lines that connect individual customers.</li></ul>
<b>Merit order</b>	The merit order is a way of ranking available sources of energy, especially electrical generation, based on ascending order of price (which may reflect the order of their short-run marginal costs of production) together with amount of energy that will be generated.



<b>Micro grid</b>	<p>A microgrid is a localized group of electricity sources and loads that normally operates connected to and synchronous with the microgrid but can also disconnect and function autonomously as physical or economic conditions dictate.</p> <p>A microgrid can effectively integrate various sources of distributed generation, especially renewable energy sources, electricity and can supply emergency power.</p>
<b>N-2</b>	<p>“N-2” is the security criterion that the supplier should maintain enough plant and importation facilities such that the island’s maximum demand can still be met with the two largest sources of electricity simultaneously unavailable.</p>
<b>Natural monopoly</b>	<p>A 'natural monopoly' is a situation in which there cannot be more than one efficient provider of a good. In this situation, competition might increase costs and prices. For example, railways are an example of a natural monopoly as the cost of railway tracks prohibit new entrants. In Guernsey there is a case that the grid element of the electricity market is a natural monopoly.</p>
<b>Kilotonne (kt)</b>	<p>1 kilotonne (kt) is equal to 1000 metric tons. A metric ton is exactly 1000 kilograms.</p>
<b>NAABSA vessels</b>	<p>‘NAABSA’ is an abbreviation for; “Not always afloat but safely aground”. A ‘NAABSA’ may rest on the seabed during loading/discharging.</p>
<b>Net zero emissions</b>	<p>The term “net zero” (or “net 0”) emissions refers to reducing the total carbon dioxide equivalent (CO<sub>2</sub>e) emissions down to zero, allowing for offsetting of emissions to be included. It is the inclusion of offsetting emissions that differentiate “net zero” from “zero” emissions.</p>
<b>Offshore generation</b>	<p>‘Off-shore’ refers to energy generation on bodies of water, usually in the ocean, to harvest wind energy or tidal energy generate electricity.</p>



<b>Onshore generation</b>	'On-shore' refers to the mainland. It can relate to the exploration and development of oil fields, gas deposits and geothermal energy on land.
<b>Renewable energy</b>	Renewable energy comes from a source that is not depleted when used, such as wind or solar power. These sources are naturally replenished and are intermittent, with varying degrees of predictability.
<b>Smart meter</b>	A smart meter calculates how much energy you're using, what the costs over time and the cost every hour you're using it. You can also see data about your carbon emissions. Estimated bills can be avoided as this information can be sent to your energy supplier.
<b>Tidal energy</b>	Tidal power or tidal energy is the form of hydropower that converts the energy obtained from tides into useful forms of power, mainly electricity. Although not yet widely used, tidal energy has potential for future electricity generation. Tides are more predictable than the wind and the sun.
<b>Watts</b>	<p>Watts (W) are a basic unit of power (electrical, mechanical or thermal) defined as a derived unit of 1 joule per second and is used to quantify the rate of energy transfer. Watts matter because you can improve energy efficiency if you understand them. Lower your watts and you will improve energy efficiency and save money, e.g. the lower the amount of watts needed to power an appliance, the cheaper it will be to run.</p> <p>The Kilowatt (kW) is equal to one thousand watts and typically used to express the output of engines and the power of electric motors, tools, machines, heaters, radios and televisions.</p> <p>The Megawatt (MW) is equal to one million watts. This unit is often used to express the output power of large vessels, trains and server farms.</p>



	<p>The Gigawatt is equal to one billion watts or 1000 megawatts. This unit is often used for large power plants or power grids.</p> <p>In 2018 – 2019 GEL generated<sup>i</sup> 165,043 MWh and imported 203,968 MWh to power the Island.</p>
<b>Wave energy</b>	<p>Wave energy is produced when electricity generators are placed on the surface of the ocean. The energy provided is most often used in desalination plants, power plants and water pumps. Energy output is determined by wave height, wave speed, wavelength, and water density.</p>
<b>Wind energy</b>	<p>Wind power or wind energy is the use of wind to provide the mechanical power through wind turbines to turn electric generators and traditionally to do other work, like milling or pumping.</p>

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<sup>i</sup> Source: <https://www.electricity.gg/about/annual-reports/>