

Renewable energy

Information on the types and benefits of renewable electricity and heat and how they work.

Northern Ireland is currently working towards net zero targets by 2050 which means the way you heat your home, travel and work may change, for example, getting a new heating source or buying an electric car.

What is renewable energy?

Renewable energy comes from sunlight, wind, and geothermal heat.
(Geothermal energy comes from the heat retained within the earth).

Renewable energy is used in four main areas:

- Electricity generation;
- Air and water;
- Heating and cooling; and
- Transportation.

Renewables provide off-grid energy solutions in rural and remote areas. Off-grid refers to houses being disconnected from the national energy grid, and rely on the energy generated from solar and battery storage system.

Renewable energy usually produces minimal greenhouse gases like carbon dioxide, methane, nitrous oxide and fluorinate. It can significantly reduce air pollution compared to hydrocarbon alternatives like fossil fuels, natural gas, oil and coal.

Types and benefits of renewable electricity and how they work

Solar electricity panels take the sun's energy and convert it into electricity that you can use in your home.

Wind turbines use the power of the wind to generate electricity. When the wind blows, the blades are forced round, which then drives a turbine that generates electricity. The stronger the wind, the more electricity produced. You can store excess electricity and use it when there is no wind.

Hydropower systems use energy from streams and rivers to make a wind turbine produce electricity. The more water there is flowing through the wind turbine, the more electricity will be generated. This might be a cheaper option if your home is off the electricity grid.

The Smart Export Guarantee (SEG) is a support mechanism designed to make sure small-scale generators are paid for the renewable electricity they export to the grid.

You may qualify if you have a renewable energy generating technology system. More information is available on the [Energy Saving Trust website](#).

Types and benefits of renewable heat and how they work

Air source heat pump absorb heat from the outside air to heat your home and provide hot water.

Ground source heat pumps use pipes that are buried in the garden to extract heat from the ground. This heat is pumped indoors and can then be used to heat radiators, underfloor or warm air heating systems and hot water in your home.

Solar water heating systems use free heat from the sun to provide hot water. A regular boiler or immersion heater can be used to make the water hotter, or to provide hot water when solar energy is unavailable.

Biomass heating systems burn wood pellets, chips or logs to provide heat in a single room or to power central heating and hot water boilers.

For more information on the different types of renewable energy visit the [Energy Saving Trust website](#).

By using renewable energy you can:

- Cut your electricity bills.
- Reduce your carbon footprint.

Visit our [energy efficiency web page](#) for more tips, tools and information.

More advice

[NI Energy Advice](#) offers free advice and support on how to save energy in your home including advice about energy grants.

Video about energy transition in Northern Ireland

The video below explains what will happen in Northern Ireland as we change to renewable energy.

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