Nuclear power stations

In 2013, Ireland had no nuclear power stations. Current legislation in Ireland prohibits nuclear on grounds of environmental and public safety.[34] A new generation of small modular reactors (SMRs) suited to a small island like Ireland are currently being developed in trials around the world. SMRs claim to be safer, more economical, and produce less waste. [35] [36] The technical assumptions in the trajectories are based on the successful trail and development of smaller multi-unit modules (50-300 MW per unit).

Trajectory 1
Trajectory 1 assumes that no new nuclear power stations are built.

Trajectory 2
One multi-unit station of 600 MW is built between 2030 to 2040. This produces around 4 TWh of electricity per year.

Trajectory 3
Trajectory 3 assumes 2.4 GW of nuclear capacity made up of a 1.2 GW multi-unit module replacing Ireland's coal-firing plant at Moneypoint and

another two multi-unit stations of 600 MW. This capacity is added at a rate of 600 MW every 5 years, starting in 2030.

Trajectory 4
Trajectory 4 assumes an increase in capacity to 3.6 GW of nuclear by 2050 providing around 25 TWh/y of electrical output.

Figure 14. Nuclear power, potential electricity supply and primary energy requirement (TWh/yr)

Note: There are two possible ways of measuring the energy produced by a nuclear power station, modelled in the chart below. Most of the figures in this document show the electrical energy delivered (the green bars), but sometimes it is conventional to display the primary energy (the blue bars), which is the heat generated by the nuclear processes. The electrical energy is smaller than the primary energy due to the inherent conversion losses and the energy requirements of the power station itself. If the nuclear power station was located near to buildings with heat demand they could generate combined heat and power: in return for a modest loss in electrical output much of the 'waste' heat can be delivered to the heat-users.