Solar panels for electricity

Ireland has no support mechanism for the generation of electricity from solar photovoltaic (solar PV) panels at present. However, the renewable energy requirement in Ireland's 2011 Building Regulations (Part L) and the European Union's 'Near Zero Energy Buildings' ambition contained in the Energy Performance of Buildings Directive (2010/31/EU) are important drivers for both solar PV and thermal systems in Ireland going forward.[49]

Trajectory 1

Trajectory 1 assumes no use of solar PV up to 2050.

Trajectory 2

Trajectory 2 assumes that the installed capacity of solar PV reaches 500 MW in 2030 (producing 400 GWh per annum) and 2,000 MW (2 GW) by 2050 (producing 1.7 TWh/y). At this trajectory there is 4 m^2 of solar PV panels per household in Ireland by 2050.

Trajectory 3

Trajectory 3 assumes that Irish solar PV capacity reaches 1 GW in 2030 (producing 850 GWh annualy) and 3.5 GW by 2050 (producing 3 TWh/y). This is the equivalent of 3 m^2 of panel covered roof area for every person by 2050 or 7 m^2 per household.

Trajectory 4

Trajectory 4 assumes that solar PV capacity reaches 2 GW in 2030 (producing 1.7 TWh/y) and 5 GW by 2050 (producing 4 TWh/y). The area of panels required is about 10 m^2 per household, roughly the same as the area of all South-facing roofs of domestic homes.

Alternatively, there could be competition for roof space between solar photovoltaic and solar thermal panels, in which case some solar panels may appear as ground-based solar farms instead. Trajectory 4 can be visualized as solar farms, where the land area required to deliver 4 TWh/y if 20% efficient by 2050 is approximately 24 km^2.

Figure 26. Roof mounted solar PV at Nenagh Civic Offices, County Tipperary, Ireland.

The peak power delivered by this 297 m2 array is about 45 kW. At an average of 5 kW, it would be equivalent to 17 W/m2.

Figure 27. Electricity generated by solar PV, (TWh/yr).