

## Small scale wind

In 2013 Ireland had almost no small-scale wind turbines.

There are two types of micro-wind turbine: mast mounted, free standing and erected in a suitably exposed position; or roof mounted, smaller than mast mounted systems and can be installed on the roof of a home. Today's roof-mounted micro-turbines don't contribute significantly as they are simply too small. Therefore Trajectories 2, 3 and 4 are presented in terms of 5-kW mini-turbines suitable for domestic purposes or larger 100-kW turbines for agricultural or commercial sites. Both cases are discussed in the trajectories.

### Trajectory 1

Trajectory 1 assumes no significant increase, with small-scale wind turbines having negligible impact on Ireland's energy system or the landscape.

### Trajectory 2

Trajectory 2 assumes that capacity increases to 100 MW in 2050, delivering 0.2 TWh/y. Reaching trajectory 3 requires about 20,000 5-kW turbines covering around 50 km<sup>2</sup>, or 1,000 100-kW turbines.



### Trajectory 3

Trajectory 3 assumes that capacity increases to 300 MW in 2050, delivering 0.6 TWh. This corresponds to 60,000 mini-turbines, equivalent to a turbine in 3% of domestic households. If we assume that each of those mini-turbines 'occupies' an area of 30 m × 30 m, the area occupied at trajectory 3 is 150 km<sup>2</sup>. Alternatively, trajectory 4 would represent 3,000 100-kW turbines on farms or commercial properties.

### Trajectory 4

Trajectory 4 assumes that capacity increases to 300 MW in 2030 and 600 MW in 2050, delivering 1.3 TWh/yr. Roughly 120,000 domestic mini-turbines or 6,000 commercial mini-turbines are needed. This would equate to 5% of farms in Ireland having their own micro turbine.<sup>53</sup>

Figure 31. A 5.5m diameter Iskra 5-kW free standing turbine at a height of 12m in the lowlands of the UK has an average output of 11 kW per day. For comparison, the average Irish person's share of electricity consumption is 14 kWh per day.

Figure 32. Electricity generated by small scale wind, (TWh/yr)

