

A Report on Micro-Generation in Ireland

Since 2007 it has been possible for home owners to export electricity from their premises to the national grid. Electricity customers who install a small generator on site are referred to as 'micro-generators'. ESB Networks classify 'micro' as grid connected electricity generation up to a maximum rating of 11kW when connected to the three-phase distribution grid (400V) or 6kW if connected to the single-phase distribution grid (230V). The vast majority of domestic and agricultural customers are connected at single phase.

A micro-generator might use any one of the following technologies to generate electricity:

- Micro-wind-turbine;
- Photovoltaic panels (also known as solar electric panels);
- Micro-hydro (scaled down version of hydro-electricity station);
- Micro-CHP (fuelled by biofuels, natural gas combustion or fuel cells).

Domestic and small commercial wind micro-generation involves using a small wind turbine system to harness energy from the wind. Where wind energy is not practical PV panels might be considered. PV panels convert light to electricity. There are micro-CHP units on trial at present in a small number of premises. Combined Heat and Power (CHP) units are usually engines which generate electricity. Waste process heat is captured in water which is used for heating or bathing. Therefore more of the energy is usefully extracted and less is wasted to the atmosphere. New CHP technology uses fuel cells in the combined process. For further reading on the technologies please consult the [microgeneration section of our website](#).

The safe connection of these technologies to the grid is managed through co-operation between a registered electrician and ESB Networks within a streamlined, one-page process - using [form NC6](#). In order to access any available payment for the electricity that the generator might export, it is necessary to install a meter with an export reading. Such a meter (an 'interval meter') is provided by ESB Networks at present - at no cost to the microgenerator. Through the aforementioned NC6 process of notification and meter installation, ESB Networks can track the deployment of the technologies. SEAI is grateful to ESB Networks for sharing this information. It is worth mentioning that the figures only cover those customers who are grid connected.

Table 1 below shows the total metered micro-generation in Ireland at the end of 2010. There is nearly two megawatts (MW) of micro-generation grid connected (1.963 MW). This represents a total investment of approximately €10m. The average size for a micro-wind installation is 5.1 kW. The average size for a Solar PV installation is 2.2 kW. There are three 1 kW micro-CHP installations in Dublin. These were installed in the second half of 2010. There are four micro-hydro installations which are metered under the ESB Networks micro-generation classification. It is worth mentioning that there are many more small-hydro sites in Ireland which would be larger than the 'micro' category. There are 40 small-hydro sites, ranging from 18 kW to 500 kW, with a combined installed capacity of 7.2 MW.

Table 1: Total Installed Capacity of Micro-generators

December 2010	kW Installed Capacity	Market Share by Capacity	No. of installations	Market Share by Installation
Micro CHP	3.00	0.2%	3	0.7%
Micro Hydro	20.80	1.1%	4	1.0%
Solar PV	120.78	6.2%	55	13.1%
Micro Wind	1,818.15	92.6%	357	85.2%
Total	1,962.73	100.0%	419	100.0%

Figure 1 below shows the micro-generation capacity installed in each county. Factors which shape this graph may include population, nature of settlement, access to the resource, economics, activity and density of suppliers and public and local authority acceptance of the technologies. Interestingly Cork and Galway are also the top two counties with respect to heat pump and solar thermal installations.

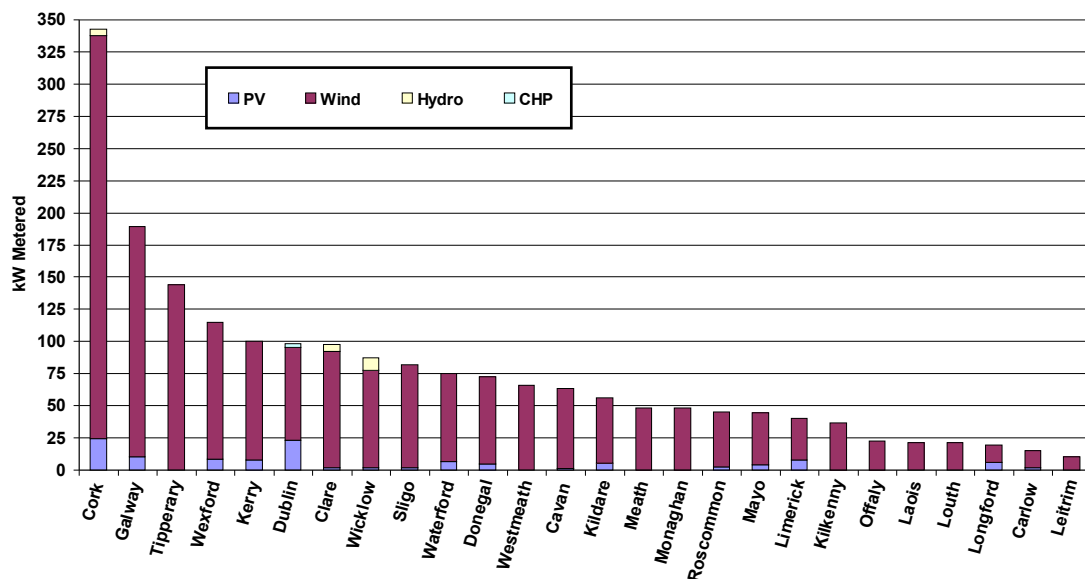


Figure 1: Installed Capacity by County

Figure 2 below shows the market activity over the past two years. In 2008 there were 25 metered installations. Following on from conditional planning exemptions enacted in 2007 and 2008, early 2009 saw the introduction by ESB Customer Supply and ESB Networks of their incentive programmes for domestic customers (free import/export meter, 9c/kWh for all exported electricity, 10c/kWh extra for the first 3,000 kWh exported, streamlined NC6 connection process). A reaction to these developments is evident in the graph with a spike in connections in the third quarter of 2009. Activity has declined since then and appears to be hovering around the 50 installations per year mark under current market conditions. Key market drivers include the condition of the wider economy, energy costs, pay-back period, building regulations, and the price and quality of the technology.

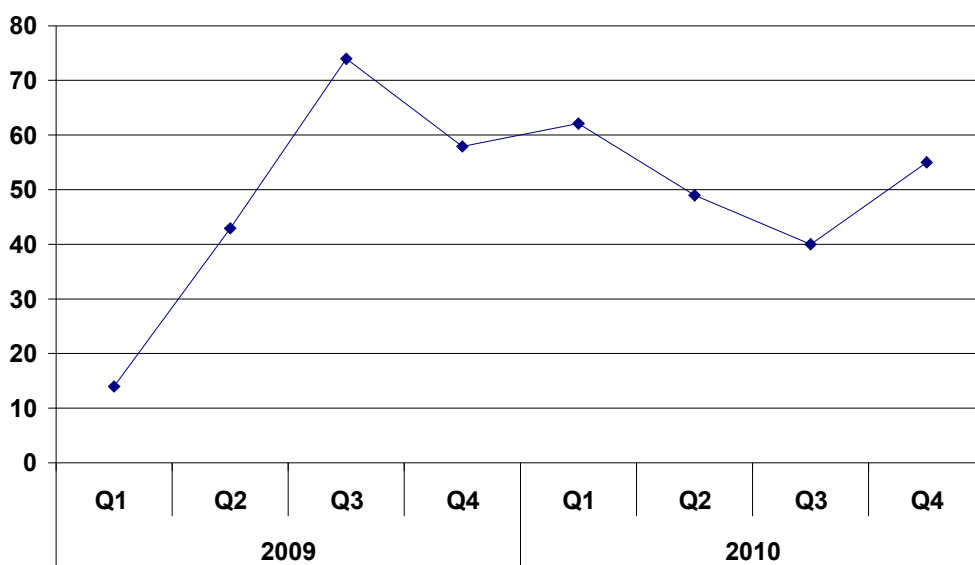


Figure 2: Metered Installations per Quarter 2009-2010

Figure 3 below shows the quantity of electricity exported from all micro-generation sites over the period of 2009 to 2010. Clearly, as more capacity is added the amount of electricity produced will increase. It is perhaps too early to identify trends but the seasonal variation in solar energy is evident in 2010. The numbers which create this graph are the metered export quantities. As such they can not be used to assess the performance of the technology as it is not known how much electricity from the generator is consumed on site.

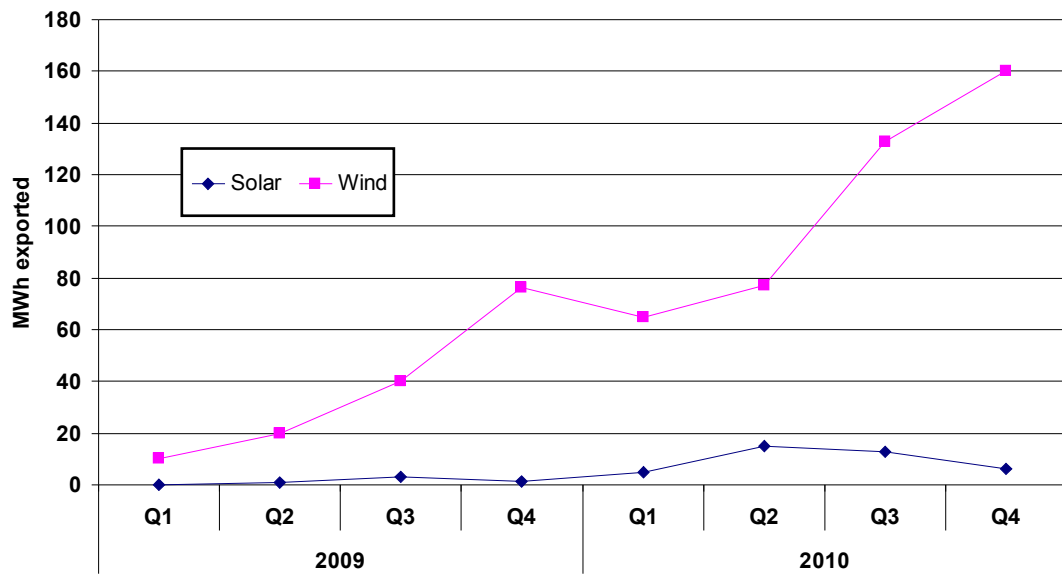


Figure 3: Exported Electricity 2009-2010

Further information:

[Microgeneration Frequently Asked Questions](#)

[ESB Networks Connection Policy for Microgenerators](#)

[ESB Customer Supply Payment for Exporting Domestic Customers](#)