Electricity – useful information

The Bere Island Sustainable Energy Community (SEC) will soon be discussing energy conservation and generation in relation to the Energy Master Plan currently being created for Bere Island.

This document explains how electricity is measured in Ireland and the EU.

On your electricity bill, electricity is measured in kilowatt hours (kWh)

- The standard measure of electricity is the watt. A household uses thousands of watts, so it is more convenient to refer to kilowatts, where 1 kilowatt (kW) = 1000 watts.
- The ESB (Electricity Supply Board) provides units of electricity. Each unit is 1 kW of electricity per hour, or 1 kWh. If you use – or save – a kW of electricity over 1 hour, you have used/saved 1 kWh of electricity.
- An electricity bill will show the units of electricity used and the charge per unit. 100 units of electricity used = 100 kWh used.

How much electricity does the average Irish home use in a year?

- The average Irish home uses 4250 units or 4250 kWh per year.
- Larger amounts of electricity noted differently. 1000 kWh or units = 1 megawatt (1 MW), and 1000 megawatts = 1 gigawatt (GW). Please note use of lower and upper case letters in the abbreviations. It is important in the standard form for electrical notification.
- So the average home uses 4250 kWh per year = 4.250 MWh per year = 0.004250 GWh per year.

How much electricity do the houses on Bere Island use in a year?

- If we assume there are 100 average homes on Bere Island, then they would use:
  100 x 4250 kWh per year = 425 000 kWh per year = 425 MWh per year = 0.425 GWh per year.

What options exist for us to produce our own electricity?

A. Large scale electricity production: wind turbines

- In Ireland, a mid-sized commercial wind turbine of 3 MW peak capacity would produce on average 6 GWh per year, enough to power Bere Island's domestic energy needs 14 times over (6 / 0.425 = 14).
- Wind turbines are common in counties Cork and Kerry, but a mid-size wind turbine on Bere Island would result in too much electricity, so we would need to send the excess electricity elsewhere for use, which makes the solution more complicated.

B. Small scale electricity production: Solar photovoltaic (solar PV)

- If a 3kW solar PV is installed on a house on Bere Island, it would produce 3 000 kWh of electricity per year.
- This equates to about 70% of average domestic electricity needs (3000 kWh/4250 x 100%).
- However, as more electricity would be produced in summer due to the longer daylight hours, the real benefit would be around 55-65% over the year.
- For the cost of a solar PV system without a grant (which are available on BER ratings of C or above), the system would pay for itself within 11 years.
- Solar PV will guarantee much lower electricity costs going forwards and is also mostly maintenance-free.

Please contact the Bere Island SEC for more info on bereislandenergy@gmail.com.