

## 1 Power from the wind in Northern Ireland

Capture of the energy in wind to generate electricity has been one of the major success stories in helping to reduce harmful greenhouse gas emissions in Northern Ireland. Wind power has accounted for most of the increase in renewable energy capacity in Northern Ireland over the last 10 years (from 0.3GW in 2010 to about 1.65GW in 2019). Largely as a result of the Northern Ireland Renewables Obligation support scheme introduced in 2005, the electricity generated from renewable sources rose from 3% in 2005 to almost 45% in 2019. It is still increasing, though more slowly, at the time of writing in autumn 2021.

Wind turbines vary in size from small to large and have been installed on land (onshore wind) or at sea (offshore wind). The size of the turbine, particularly the length of the blades affects the amount of electricity which can be generated. The angle that the blade is set at also influences wind capture and efficiency. Single installations on farmland are commonly seen across NI and collections of turbines in wind farms are also common.

Drumlin Wind Energy Co-op was established in 2012 when a share offer document was launched to invite citizens to invest in an innovative project to build community owned wind turbines. In total 6 turbines, each capable of producing 250kW of electricity, were installed and almost 1000 people invested. An elected Board of Directors manages the operation and maintenance of the turbines and oversees the distribution of profits among the stakeholders – including the six landowners, co-operative members and the local community. As the first community energy Co-op in NI, Drumlin celebrates the numerous benefits – economic, environmental, social and educational – that it exemplifies in this region.

Drumlin's contribution to renewable generation in Northern Ireland is very small in terms of quantity of electricity. The majority of wind generation is provided by large scale wind farms owned by developers. About 700 small scale (100kW to 250kW) turbines exist and are owned by local farmers, individuals or businesses. Drumlin Co-op is unique in that its 6 turbines are community owned and the project produces widespread local benefits including the community benefit fund which supports BREESI as well as other initiatives.

### **Some Benefits of Wind Power**

- A renewable form of energy, readily available at no cost
- Northern Ireland has an excellent wind resource because of its location
- Multiple suitable sites
- Produces no greenhouse gases
- Some people find turbines aesthetically pleasing

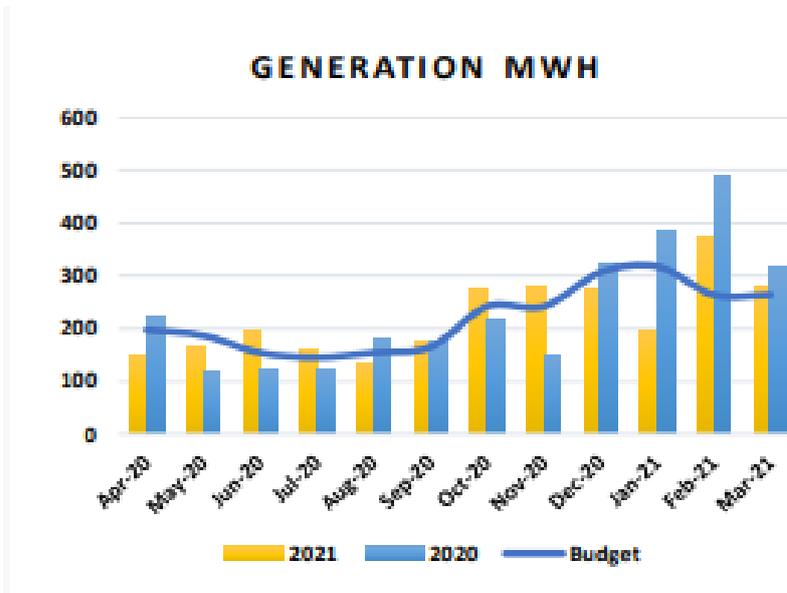
### Some disadvantages of Wind Power

- Energy is consumed in the manufacture of the turbines and in the foundation materials.
- Resource mining and processing can cause environmental damage.
- Wind amounts are variable and not precisely predictable.
- Turbine positioning is critical to harvest the wind.
- Some people object to the perceived visual, noise and shadow flicker impact of turbines (especially large arrays in wind farms).
- Turbines might harm bats and birds.

### Sample Output from Drumlin

Since operation began, the Drumlin turbines have been performing very well and generation has largely been as anticipated.

#### Total generation Apr 2020 to March 2021



#### Comparison of generation between 2020 and 2021 over 5 months

Month	Generation kWh 2020	Generation kWh 2021
May	195890	155106
June	161680	115489
July	132735	39766
August	176811	87806
September	272523	97252

Notice that there has been a lot less wind for the period in 2021

### Wind power opportunities

- Modern turbines are more efficient than older models..
- Very large offshore installations, including floating structures will likely become common.
- Airborne Wind Energy.

