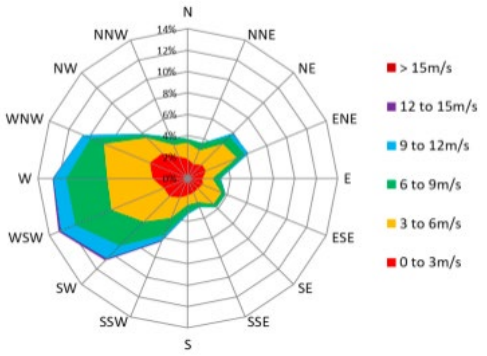
Bendrigg: Low Carbon

RCEF Stage: 1

Raw Wind Rose:



Great wind speeds would make a wind turbine a great option for the site and could support the electrification of heat, making it affordable and low carbon

The Story

The Bendrigg Trust is a charity that provides courses for disabled and disadvantaged people. The site has good potential to adopt a range of renewable energy technologies which will help to reduce operating costs and CO2 emissions from the Centre. Of the technologies considered in the report, ground-mounted solar PV would appear to offer the greatest all-round benefits and would be the easiest to install. The site also appears to be appropriately located for the application of a small wind turbine that could provide electricity to the Centre. A hybrid wind and solar PV system would offer extra benefits in terms of a more stable continuous year-round electricity supply to the site. Replacement of the oil-based heating systems offers the greatest challenge to the Centre and whilst heat pumps could be considered for one or two of the site buildings, they could not be universally applicable across the whole site as it stands. Biomass heating has the potential to replace the existing kerosene-based system, but it would come with a significant capital outlay which is a big challenge.

Challenges & Risks

Grid capacity meant that only a 60 kW wind turbine would be suitable. After the moratorium on onshore wind in 2015, many small wind turbine manufacturers went bust, meaning it is hard to source and service smaller turbines.

Lessons Learned

Capital outlay and time/resources required to bring forward complicated technical projects mean that for smaller charities, the barriers and hurdles are too high to effectively plan and transition to low-carbon technologies, even as the cost and carbon savings are becoming more crucial. Significantly more support is needed including access to low-carbon funding (low-interest loans or revolving funds) and the technical assistance and resource to enable these changes to be realised.

Key Facts

Land	The site for the wind turbine would need to be leased from a local land owner.
Grid	Grid constraint is a major barrier, although matching generation and consumption at this local level is a solution.
Community Benefit Society	Taking on multi-technology projects is hard for new community groups, they need more support to enable this.

Key Figures

Project size: Tech type	60 kW wind + 52 kWPV
Energy Generation	100MWhs + 42MWh
Private finance leveraged	£300,000
CO2 savings	23 tonnes + 9 Tonnes
RCEF grant	£11,625

Further notes

LEP area: Cumbria

Link for further info: [Residential Activity Centre (bendrigg.org.uk)]