

PROJECT MODEL: REFURBISHED WIND GENERATION (GRID CONNECTED)

LOCAL
ENERGY
SCOTLAND

This project model is aimed at those interested in creating a locally owned installation of one or more second-hand refurbished wind turbines directly connected to the electricity grid.

Project finance is expected to be provided by the installation owner and should ideally be funded directly from income, savings or through borrowing related to their land or other assets, or through a community share offer, as attracting commercial investment is unlikely.

REQUIREMENTS

There are a few things you'll need to take your project forward.

- ✓ A commitment to invest time and significant effort in the project.
- ✓ A person with responsibility for, and capacity to, administer this project.
- ✓ A mechanism to raise capital funds.
- ✓ One or more potential sites, preferably in your ownership, that:
 - has a good wind resource, perhaps verified by existing turbine(s)
 - has suitable road and on-site infrastructure for turbine construction
 - is not impacted by civil or military radar issues, and preferably designated as suitable for turbine development by planning
 - is close to grid infrastructure with potential additional capacity
 - does not have neighbours in close proximity
 - is suitably distanced from existing turbines, if applicable.

Time		1-3 years
Cost		High
Effort		High
Benefit		Good
Carbon		Very high

KEY CHALLENGES

Subsidy-free wind development is high risk if costs are not minimised. You are very likely to need to meet the stated requirements due to several key challenges which we have identified below.

- Income generation without subsidy depends on high energy yields and low installation costs, preferably using existing access roads.
- Complex site access can significantly increase delivery and civil costs.
- Identifying the potential to mitigate radar issues can be very costly.
- Sensitive planning issues increase the cost of development.
- Limited local grid capacity will likely mean high connection charges.
- Neighbours must take a financial stake if noise is above set levels.
- Access to finance is critical as project funding refurbished turbines is rare.
- Quickly excluding sites with challenges helps to focus on those with potential.



ACTIVITIES

Preparing for installation

There is a lot you will need to do before you can install a turbine. Apply to CARES for financial support during preparation and development, where eligible.

- ✓ Contract with an appropriate consultant to review the potential site(s).
- ✓ Potential viability must be determined early and should include:
 - a desktop assessment of wind resource and turbulence
 - impact between turbines, where multiple turbines are considered
 - discussing planning requirements with your Local Planning Officer
 - a desktop assessment of road and site access
 - consideration of all neighbouring properties (noise and flicker)
 - discussing grid connections with the Distribution Network Operator
 - a desktop assessment of geology and mining, if required.
- ✓ For each site, the consultant should provide a written report that includes:
 - the extent of any Environmental Impact Assessment (EIA) required
 - the potential for planning objections related to radar issues
 - suitability of ground, access and relationship to neighbours
 - the turbine type proposed, including the rationale for that choice
 - any other key risks and challenges for each site
 - an estimation of project scale, costs, programme and overall viability.

Review the CARES [resources](#) designed to support project development.

Developing your project

You will need to carry out the following activities to get your project underway.

- ✓ Contract with an appropriate consultant to further develop the project.
- ✓ Develop in stages to address and mitigate risk and to reduce abortive costs.
- ✓ Seek quotes from contractors for all site development activities.
- ✓ A lead consultant and/or Project Manager's role description should include:
 - maintaining all records, budget, programme, reports and risk register
 - identifying and selecting the preferred wind turbine(s)
 - full project design and specification including civil and electrical works
 - programming and delivery of all site and habitat surveys and assessments
 - preparing and submitting a comprehensive planning application
 - preparing and submitting a grid connection application
 - engaging with the landowner and neighbours, where applicable
 - defining operations and maintenance requirements and costs (higher than for new turbines)
 - obtaining quotes and supporting the procurement of all contractors.
- ✓ Consider options for raising capital costs. This can be from a mix of sources. Some options:
 - talk to lenders about providing secured loans on existing assets
 - community organisation may seek grants and donations
 - consider crowd funding, share offers or community bonds.
- ✓ Agree a target programme with your consultant and contractor (as appropriate).

Capital funding and income

Capital funding based only on project viability is difficult to secure for several reasons:

- refurbished turbines have limited track record to gauge risk
- good long-term Power Purchase Agreements (PPA) are not available
- short term PPAs are considered higher risk
- keeping the borrowing amount low, reduces lender interest.

Securing income will likely be through a PPA. This is because:

- short term PPA contracts often offer the best tariffs (6 months to 2 years)
- the [Smart Export Guarantee](#) is likely to be for a lower tariff
- Contracts for Difference tariffs are likely to be lower than a PPA
- direct or sleeved supply to a third party usually increases costs.



[Community Shares Scotland](#) provides advice and support in raising community funding

[UK Government information on Contracts for Difference](#)

Implementation

There are several steps to implementing your project; we have listed these below.

- ✓ Confirm funding, the mechanism for claiming and any funding conditions.
- ✓ Agree the scope of works for your consultant during construction.
- ✓ Confirm all consents are in place, and conditions discharged.
- ✓ You may need to order your turbine in advance to secure your preference.
- ✓ Confirm grid connection dates and payment schedule.
- ✓ Formally instruct your preferred installer to begin work.
- ✓ Promptly attend to queries, variations, unforeseen challenges and changes.
- ✓ At the appropriate time, close to or at completion, you should:
 - confirm your insurance cover to begin at installation completion
 - contract your operation and maintenance requirements
 - be aware that this is likely to be at higher cost than for new turbines
 - contractors may need to be pre-selected to maintain any warranty.
- ✓ Secure payment for any generation exported to the grid (your PPA).

HOW LOCAL ENERGY SCOTLAND CAN HELP

- ✓ **ADVICE** – We have a network of Local Development Officers across Scotland to provide regional advice and support, wherever you are.
- ✓ **RESOURCES** – Our free online resources, tools and good practice guides will help you along every step of your journey.
- ✓ **FUNDING** – we help you access the Scottish Government's Community and Renewable Energy Scheme (CARES) support and funding.

For more information, call Local Energy Scotland on **0808 808 2288**, email info@localenergy.scot or visit localenergy.scot

LOCALENERGY.SCOT
0808 808 2288
FUNDED BY THE SCOTTISH GOVERNMENT

CARES



**Net Zero
Scotland**
Scottish
Government