SUSTAINABLE ENERGY AUTHORITY OF IRELAND

Community Energy Resource Toolkit

Onshore Wind

Onshore Wind

Community Energy Resource Toolkit

August 2024

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Sustainable Energy Authority of Ireland

SEAI is Ireland's national energy authority investing in, and delivering, appropriate, effective and sustainable solutions to help Ireland's transition to a clean energy future. We work with the public, businesses, communities and the Government to achieve this, through expertise, funding, educational programmes, policy advice, research and the development of new technologies.

SEAI is funded by the Government of Ireland through the Department of Environment, Climate and Communications.

Introduction

Welcome to the Community Energy Resource Toolkit. This toolkit has been developed by SEAI to provide guidance and support to communities interested in developing renewable electricity generation projects in Ireland.

The toolkit is one of many resources which will be developed over time to support communities as part of the Community Enabling Framework, implemented by SEAI. This framework provides end-to-end support to create a community energy sector in Ireland that will deliver meaningful impact to communities nationwide.

The Community Energy Resource Toolkit provides a series of practical guidance modules to support project development and delivery, including technology options, business planning, project development stages and good governance.

Modules have been designed to provide step-by-step guidance through the process of developing a renewable energy project, from determining your goals, to helping you achieve them.

How to Use This Toolkit

This toolkit is designed to be used online. Links are **highlighted in blue** and denoted with this symbol: Click on the highlighted text to activate the link.

Navigation buttons are displayed at the bottom of every page.
The navigation symbols are:

- Page back
- Page forward
- Jump to next chapter
- Jump to contents page
- Enter full screen mode

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SEAI Overview

Sustainable Energy Authority of Ireland (SEAI) is Ireland's national sustainable energy authority. We work with householders, businesses, communities and government to create a cleaner energy future. Our vision is for Ireland's energy to be sustainable, secure, affordable, and clean. To achieve this, Ireland must use less energy, move to clean energy, and innovate to create new solutions to meet our energy needs. Leading the transition to smarter and more sustainable energy activities is central to what we do.

SEAI is tasked by the Department of Environment, Climate and Communications (DECC) to deliver the **Community Enabling Framework**.

The Community Enabling Framework consists of the following elements:

- SEAI provides key capacity building supports such as **trusted advisors** to support communities who may wish to develop renewable energy projects and may lack technical expertise.
- **Financial supports:** in the form of grants will be made available to eligible community projects to support early phases of project development. It is recognised that financial risk mitigation will be crucial in assisting communities to realise local energy projects. More information **here**.
- A series of guides and **information resources** to support communities (including this Wind resource toolkit).

Previously, community-owned projects had a dedicated category within the Renewable Electricity Support Scheme (RESS). RESS aims to promote the generation of electricity from renewable sources by providing financial support to renewable electricity projects in Ireland. RESS is the main government support to help deliver on Ireland's 80% renewable electricity target by 2030. It is essentially a competitive auction-based system whereby the most cost-effective renewable energy sources are supported. A new support called SRESS **(Small-Scale Renewable Electricity Support Scheme)** has been developed for projects between .5kW and 6MW. SRESS provides support to community projects through a guaranteed tariff. Other routes to market such as Corporate Power Purchase Agreements may be suitable for some renewable energy projects.

This booklet is structured to act as a guide and reference document for communities in the development of a wind energy project in Ireland. Other modules in this series that may also be of particular interest to those reading this module are as follows:

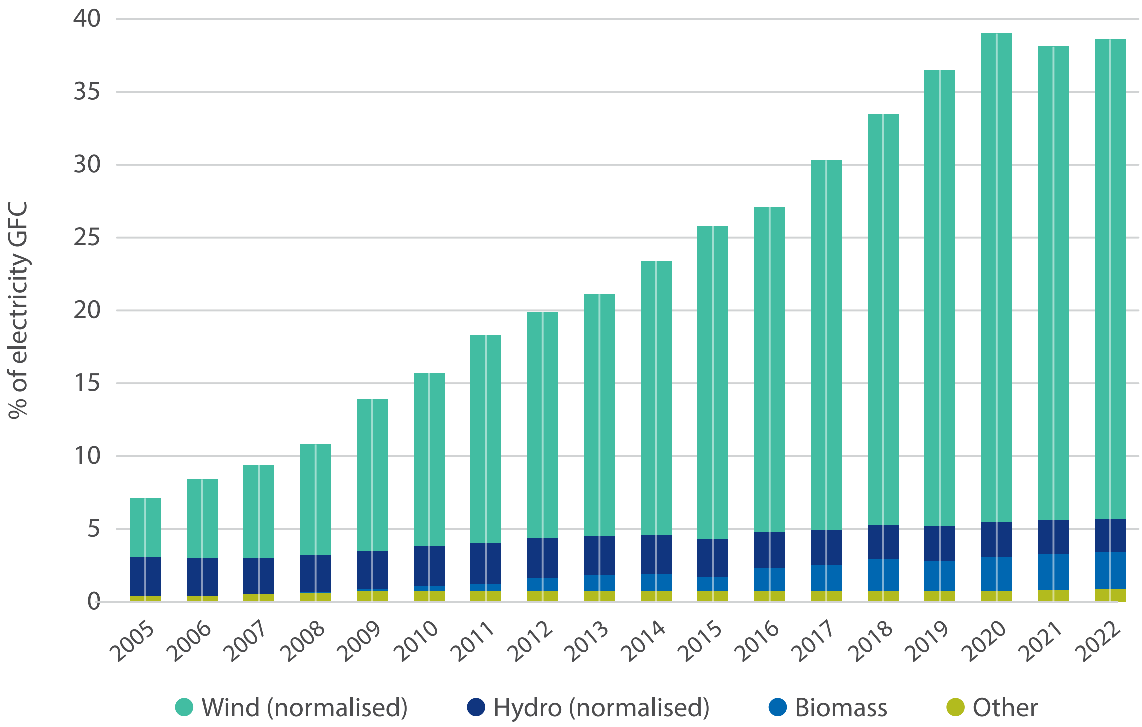
- **Solar PV**
- **The planning process**
- **Grid connection**

Introduction to Wind Energy in Ireland

The contribution of Renewable Energy to meeting Ireland's electricity needs is growing, largely due to increases in wind energy deployment. EU and national targets for renewable energy are usually set as a percentage of Gross Final Consumption. The Gross Final Consumption is the energy used by end-consumers (final energy consumption) plus grid losses and self-consumption of power plants.

Ireland set a target of 40% of electricity to come from renewable sources by 2020. Renewable electricity makes the largest contribution to the overall EU 2020 targets. The graph in Figure 1 shows the contribution of all renewable electricity technologies to electricity consumption in Ireland from 2005 to 2022. It demonstrates that energy from wind is the dominant contributor to the electricity from renewables and shows rapid growth in that sector.

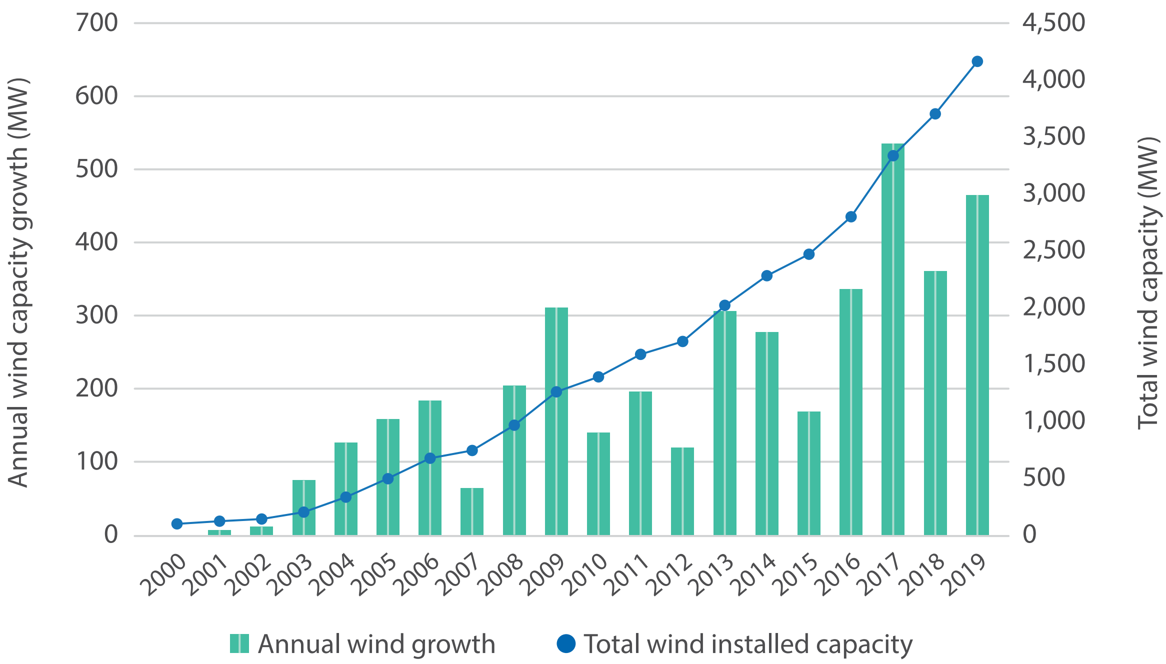
Figure 1: Renewable Energy Share in Electricity (RES-E)



Large scale wind generation is widely deployed in Ireland and is the largest contributor to renewable energy targets. Wind Energy Ireland compiles details of all grid connected wind farms in Ireland.[1] The SEAI Wind Atlas[2] also provides information for wind farms and wind resources in Ireland. In 2018 Wind energy provided 85% of Ireland's renewable electricity and 28% of our total electricity demand.[3] It is currently the second greatest source of electricity generation in Ireland after natural gas.

Ireland is one of the leading countries in its use of wind energy worldwide. Figure 2 illustrates the growth of wind energy in Ireland up to 2019.

Figure 2: Installed Wind-Generation Capacity, 2000 to 2019



Key Message

On-shore wind energy is currently the largest contributing source of renewable energy in Ireland. Wind is both Ireland's largest and most economical renewable electricity resource. While a mix of technologies is beneficial, wind energy will play the largest part in renewable energy for Ireland in the next decade.

1 www.iwea.com/about-wind/interactve-map

2 https://gis.seai.ie/wind

3 SEAI, Renewable Energy in Ireland 2020 Update

What is Wind Energy and How Does it Work?

Winds are large-scale movements of air masses in the atmosphere. These movements of air are created on a global scale primarily by differential solar heating of the Earth's atmosphere. Therefore, wind power can be considered to be an indirect form of solar energy. The sun heats the earth unevenly and this creates thermal air currents. The energy that travels in the wind can be captured and converted to provide electricity. In this sense, wind energy is derived from solar energy.

Wind energy provides a clean, sustainable solution to address our energy problems. It can be used as an alternative to fossil fuels in generating electricity, without the direct emission of greenhouse gases. And there will always be wind; it is inexhaustible and renewable. The power in the wind is related to the wind speed. As the wind speed increases, the available power increases exponentially.

Wind speed is clearly important for wind power and energy. However, a 'clean' (non-turbulent) airflow is also important to enable modern wind turbines to capture more energy. Rolling hills and open sites clear of obstructions (forestry, buildings) will tend to have less turbulence. Siting of turbines must also take into consideration the receiving environment and landscape.

Key Message

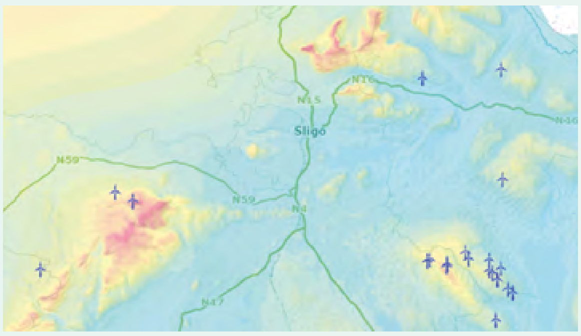
A site with higher average wind speed will have a better wind energy resource. Open and clear sites with average wind speeds of 8m/s or more at 80m above ground are ideal.

For wind energy technology, the wind speed is usually expressed in metres per second (m/s), which may be less familiar than terms such as knots or mph used in weather forecasting. See the Technical Appendix for a comparison of m/s with other units and the Beaufort Scale descriptions of wind strength.

Toolbox: SEAI Wind Atlas

SEAI maintain a Wind Atlas of Ireland which is publicly accessible. The SEAI Wind Atlas includes wind speeds at up to 150m above ground level. A sample extract is shown in Figure 3.

Figure 3: SEAI Wind Atlas Sample View

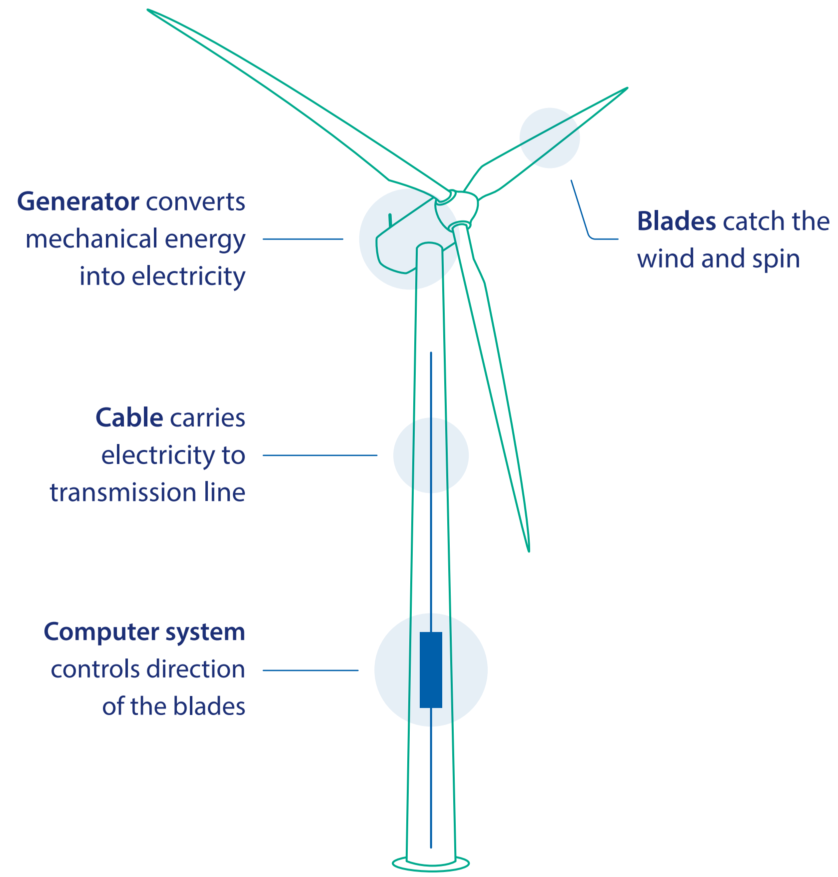


Wind Energy Technology

Wind Turbines

Extracting energy from the wind is not a recent innovation. Some of the earliest examples of a practical windmill design were found in Persia around 700-900 AD. These first windmills were used to pump water for irrigation and had a vertical axis. The most common type of wind turbines in use today are the Horizontal Axis Wind Turbine. The main components of the Wind Turbine are shown in Figure 4.

Figure 4: Horizontal Axis Wind Turbine[4]



Source: Adapted from National Energy Education Development Project (public domain)

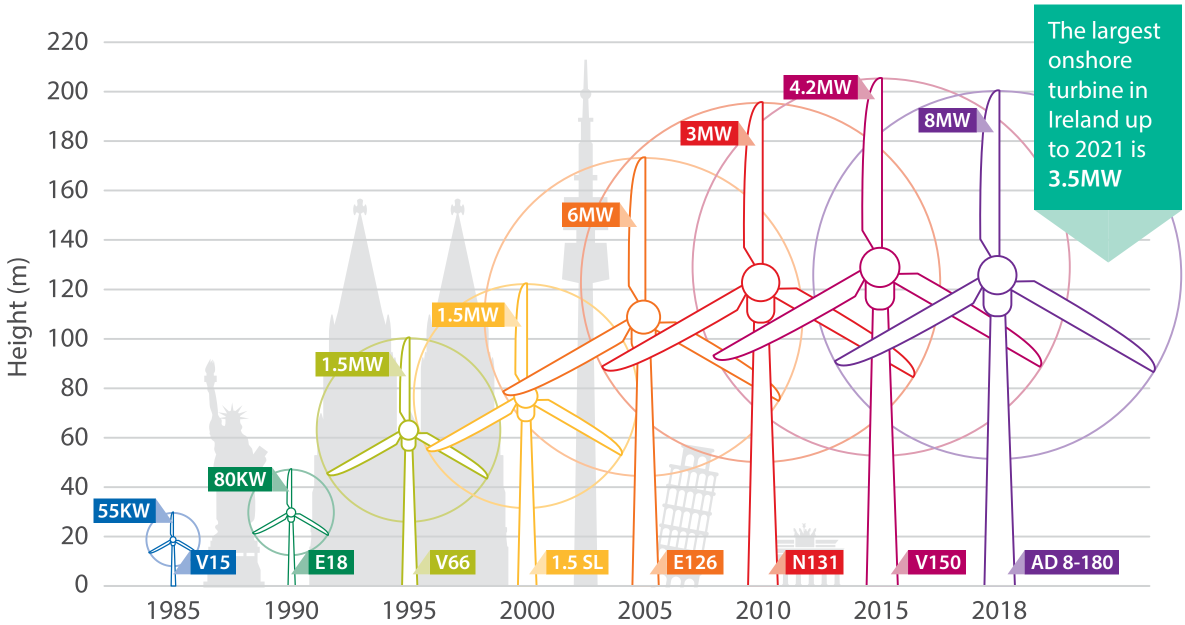
Onshore Wind Turbines are mounted on reinforced concrete foundations which provide stability. In the development of wind turbine technology, manufacturers strived to generate more energy with bigger rotor diameters and higher towers in order to capture more and higher winds. The subsequent growth in wind turbine size has been dramatic. In a 2005 article, Steen Broust Nielsen (LM Glasfibers Marketing Manager) recalled scepticism in the 1980s that wind turbine blades would ever reach the 'mind-boggling' length of 15m.[5]

4 www.eia.gov/energyexplained/wind/types-of-wind-turbines.php

5 George Marsh, Wind turbines: How big can they get?, Refocus, Volume 6, Issue 2, 2005, pages 22-28

The first commercial wind farm in Ireland, commissioned in 1992 in Bellacorrick, Co. Mayo, consisted of 300kW wind turbines with a 31m rotor diameter and 31m hub height. In recent years, rotor diameters of 100m or more at hub heights in excess of 100m are common. Figure 5 shows the growth in wind turbines since the 1980s. The first and only community owned wind farm so far is Templederry in Tipperary which has two 2.3MW turbines installed.

Figure 5: Growth in Wind Turbine Size and Power[6]



Wind turbine power rating	Rotor diameter	Hub height range	Estimated annual generation* (MWh)
850kW	52m	40m-50m	2,234
2.3MW	71m	54m-98m	6,044
3.45MW	112m	69m-94m	9,066
5MW	145m	90m-128m	13,140
6.2MW	162m	119m-169m	16,294

* Assumes 30% Capacity Factor

6 K. Rohrig et al, Powering the 21st century by wind energy –Options, facts, figures, Applied Physics Reviews (2019). https://aip.scitation.org/doi/10.1063/1.5089877

Capacity Factor

If an electricity generator with a power rating of 1MW is run continuously, 24 hours a day, 7 days a week, for 1 year (8,760 hours), it will generate 8,760MWh, it's maximum theoretical output. In reality, no generators operate continuously at maximum power output. Wind is a variable and intermittent energy resource. As wind speed increases or decreases, the power output of a wind turbine will vary accordingly.

The Capacity Factor is a measure of the actual output of the wind farm expressed as a percentage of the maximum theoretical output. An example is shown below.

Table 2: Capacity Factor

Parameter	Value	Notes
Power rating (MW)	2.3	
Maximum theoretical annual generation, Emax (MWh)	20,148	8,760 hours x 2.3MW
Actual annual generation, Eact (MWh)	6,044	
Capacity factor	30%	Eact/Emax

The Capacity Factor is a function of the wind resource and the site. Due to the growth of wind energy development in Ireland since 2007, there is significant data available for typical Capacity Factor values. The wind energy capacity factor in Ireland is generally higher than the EU average[7] and as such makes the country an attractive location for wind energy. The 5-year average wind-generation capacity factor for Ireland in 2018 was 28.3%.[8] An estimated Capacity Factor can be used in preliminary feasibility to calculate approximate energy generation.

Capacity factors are gradually increasing with increases in turbine size and rotor diameter. Some larger wind turbines being designed for new well-located sites could have a capacity factor of 35%. You will generally have to monitor wind for a period of time to refine capacity factor and yield predictions ahead of construction.

7 Wind Europe, Wind energy in Europe in 2019

8 SEAI, Renewable Energy in Ireland, 2020 Report

Renewable Energy Communities

→ Community owned projects previously applied for support through the Renewable Electricity Support Scheme (RESS). Communities are now instead supported by the **Small Scale Renewable Electricity Support Scheme (SRESS)**, a guaranteed tariff characterised by a feed-in premium tariff without auction.

Community-owned projects can apply for specific project support if they meet the following criteria:

- Application must be made in conjunction with a Sustainable Energy Community
- Project size must be between 0.5 and 6MW, subject to SRESS terms and conditions
- 100% community owned
- Community group must be based on open and voluntary participation
- Participation based on local domicile (within close proximity to the RESS project)

A Renewable Energy Community is a legal entity, the definition is as follows;

(a) The Renewable Energy Community is based on open and voluntary participation, is autonomous, and is effectively controlled by shareholders or members that are located or resident (in the proximity of the RESS Project that is owned and developed (or proposed to be owned and developed) by that legal entity;
(b) The shareholders or members of which are natural persons, SMEs, local authorities (including municipalities), not-for-profit organisations or local community organisations;
(c) For any shareholder or member (with the exception of "Sustainable Energy Communities" as registered with SEAI), that shareholder or member's participation does not constitute their primary commercial or professional activity;
(d) The primary purpose of which is to provide environmental, economic, societal or social community benefits for its shareholders or members or for the local areas where it operates, rather than financial profits;
(e) In respect of which, each shareholder or member is entitled to one vote, regardless of shareholding or membership interest; and
(f) Which is, or which has at least one shareholder or member that is, registered as a "Sustainable Energy Community" with SEAI.

Please note that the exact Terms and Conditions can change so it is important to refer to the most recent available information.

The Commission for Regulation of Utilities (CRU) has recently decided on an amendment to the definition of a Renewable Energy Community which adds two classes of member or shareholder as follows:

- Those in proximity to the renewable energy project who can be involved in the control of the group
- Those outside the proximity of the project who can hold shares and participate in the activities but cannot be involved in the control of the group.

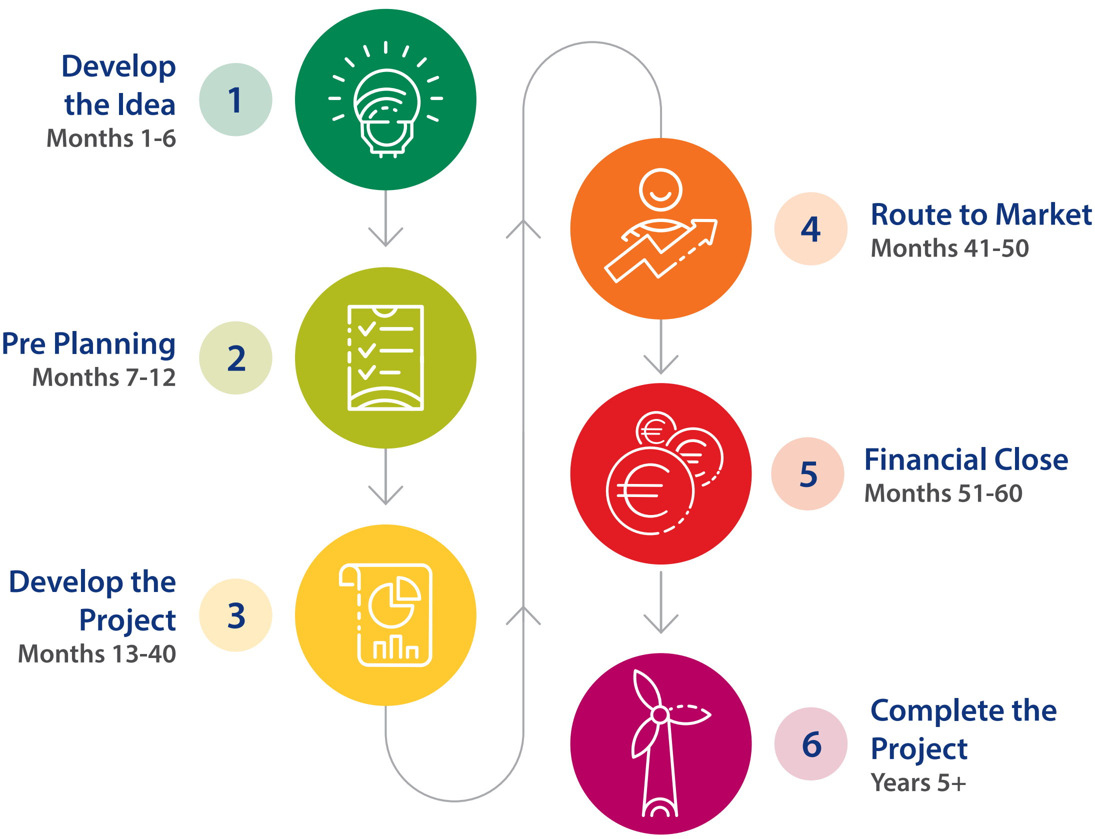
Individuals and other entities, such as a local authority or SME located in the same town, city, or county could be considered in proximity.

Overview of Project Activities

The Project Phases shown in Figure 6 below summarises a logical progression for developing a wind energy project. The timeframes shown are for guidance as some steps and phases may take longer, while others may be completed ahead of time.

The remaining sections of this booklet cover all the main phases in realising a community-owned wind farm – from conception of the idea, preparing for a route to market, construction of the facility and subsequent decommissioning, typically after 30 years. The six phases, and the steps within each phase, will provide you with an overview of the process to bring your community wind project to fruition. There are break points at various parts of the phases, these are an opportunity to check and verify that the project is viable at each point.

Figure 6: Project Phases and Timeframe



Project – Phases, Steps and Break Points

Phase 1: Develop the Idea
Months 1-6

Step 1: Develop the Vision

Step 2: Seek Advice – From State Agencies and Communities Experienced in the Sector

Step 3: Commence Community Engagement and Identify Suitable Sites

Step 4: Identify and Secure Initial Funding

Break Point #1

Step 5: Initial Viability Study – on Your Preferred Site(s)

Step 6: Further Feasibility Study and Risk Appraisal

Break Point #2

Phase 2: Pre Planning
Months 7-12

Step 7: The Legal Entity

Step 8: Secure the Site

Step 9: Secure Development Funding

Step 10: The Grid Application Process

Step 11: Procure Planning and Design Team

Step 12: Continuing Community Engagement

Break Point #3

Phase 3: Develop the Project
Months 13-40

Step 13: The Planning Application

Step 14: The Financial Viability Check

Step 15: The Full Financial Model

Step 16: Continuing Community Engagement

Break Point #4

Phase 4: Route to Market
Months 41-50

Step 17: The Ress Auction

Step 18: Securing a Route to Market

Step 19: Power Purchase Agreements – PPAs

Break Point #5

Phase 5: Getting Financial Close
Months 51-60

Step 20: Project Manager in Place, and Identify and Contact Suppliers and Procurement

Step 21: Financing Options

Step 22: Achieve Financial Close

Break Point #6

Phase 6: Completing the Project
Years 5+

Step 23: Construction

Step 24: Operation and Maintenance

Step 25: Governance, Management and Community Benefit Fund

Step 26: Decommissioning of Turbines at End of Life

Phase 1: Developing the Idea
Months 1-6

Step 1: Develop the Vision
Step 2: Seek Advice – From State Agencies and Communities Experienced in the Sector
Step 3: Commence Community Engagement and Identify Suitable Sites
Step 4: Identify and Secure Initial Funding
Break Point #1
Step 5: Initial Viability Study – on Your Preferred Site(S)
Step 6: Further Feasibility Study and Risk Appraisal
Break Point #2

Step 1: Develop the Vision

There may be numerous reasons why a community seeks to develop a wind energy project including:

- Becoming energy independent
- Reduction of greenhouse gases
- Develop sustainable community revenue streams which can be used to benefit the community in a variety of ways
- Develop community cohesion and general advancement
- Develop the local circular economy

Write down the various reasons and try to find a consensus on their priority for your community. Once the vision is clear and agreed among the participants you are ready to proceed to the next step. Now is an appropriate time to consider forming a **Sustainable Energy Community**. The SEAI, as the organising body for Sustainable Energy Communities, will be happy to provide advice and assistance in the setup. Joining the nationwide network will provide access to a wealth of useful community focused energy related materials, knowledge and support. If you have already established a Sustainable Energy Community, this step could include an update to the Community Charter to reflect the agreed vision.

Step 2: Seek Advice – From State Agencies and Communities Experienced in the Sector

The SEAI should be your first port of call for advice. With your Sustainable Energy Community in place you will automatically be a member of a nationwide community network.

Further details on the resources available under the Community Enabling Framework can be found **here**.

Build on the success of others, reach out to other communities that have already successfully completed a similar project. There is great confidence and strength to be gained from liaising with those who have already successfully travelled this journey. Time spent researching and reaching out to like-minded communities may well help to reduce consultancy costs and provide you with valuable insights in terms of project size, scale, location and community benefit etc. The regional LEADER companies, Local Enterprise Office and local authorities may also provide assistance. These actors in addition to the SEAI Community Enabling Framework mentioned above should be sufficient to enable your community to move forward with your project.

Step 3: Commence Community Engagement and Identify Suitable Sites

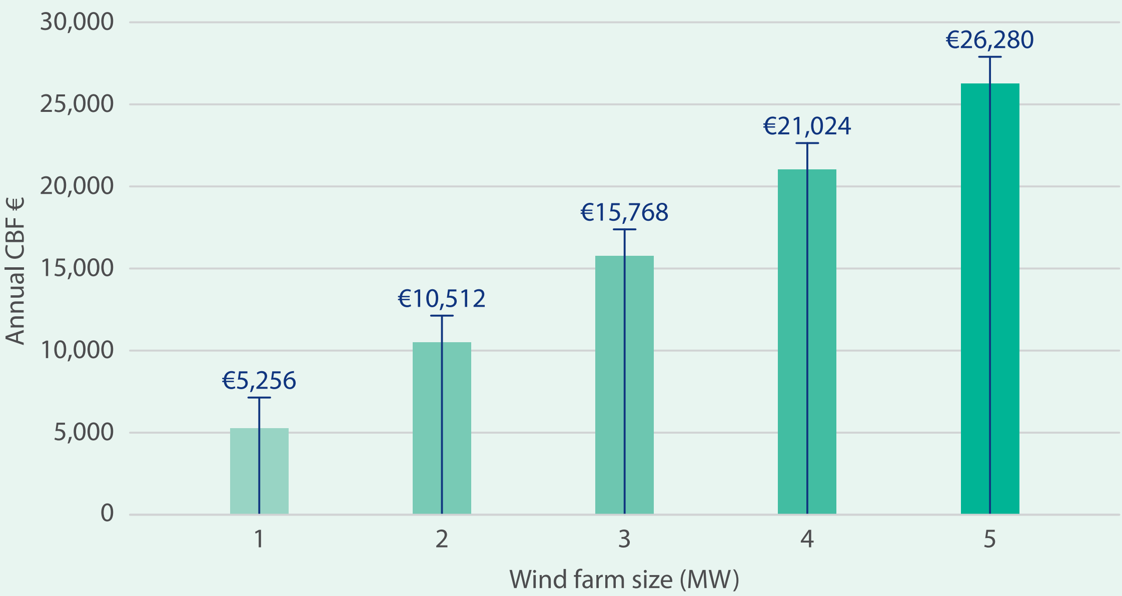
Early engagement with the local community is key. Keep them informed at each stage of the project, allowing the people to be heard and to participate in the task of identifying potentially suitable local sites for the wind farm. This generates community spirit and buy in. It is local democracy at work. Having previously agreed and written down the project vision **(Step 1 above),** this will now be available to show to the broader community, to bring them on board and make for a collaborative and cohesive community project.

The Community Benefit Fund (CBF) and wind farm near neighbour payments should be explained to the community from the outset. Also, when considering wind versus solar projects, although wind usually presents greater challenges in terms of planning and engineering, wind projects will provide a higher Community Benefit Fund. The financial returns, for your community, on a 5MW wind farm are approximately 3:1 compared to solar – all other things being equal. This calculation is based on the Community Benefit Fund projections.

Toolbox: Community Benefit Fund

A mandatory Community Benefit Fund must be provided by all projects successful in a RESS auction. The contribution is to be set at €2/MWh. It can be expected that other support schemes will have a similar requirement and it is best practice to establish a Community Benefit Fund regardless of the market support mechanism. The Fund will be aligned to incentivise investment in local renewable energy, energy efficiency measures and climate action initiatives. The Good Practice Principles Handbook for Community Benefit Funds can be found here

Figure 7: Typical Annual Community Benefit Fund for Wind Energy Projects



Bearing in mind that community-owned projects are likely to have an upper limit of 6MW, this effectively reduces the wind farm design options to one or two wind turbines. Some considerations of these design options are set out in Table 3.

Table 3 considers some different sizing and design options that may be suitable for community-scale projects.

Table 3: Typical Community Category Wind Farm Design Options

Wind turbine(s) options	2 No. turbines, 2.3MW each	Single turbine	Single turbine
Total wind farm power	4.6MW	3.45MW	Up to 6MW
Site requirements	Minimum 500m setback from residences. Turbines should be separated by at least 5 rotor diameters.	Minimum 500m to 600m setback from residences – depends on tip height.*	Minimum 650m to 800m setback from residences – depends on tip height.*
Construction considerations	This is the most common turbine in Ireland. Transport and construction is feasible in most locations, although available manufacturer options for turbines <3MW are decreasing.	55m blade will be challenging for transport in many locations.	Larger than any onshore wind turbine currently installed in Ireland. 71m blade will be challenging for transport in many locations.
Planning – visual impact	2 turbines may be more visually acceptable.**	A single large turbine can have a high visual impact. **	Larger than any onshore wind turbine currently installed in Ireland.
Grid connection	Smaller single turbine options could be considered where the grid is not available.		Grid connection application fees include significant 'Shallow Works' costs for projects above 4MW.
Operation	One turbine can remain in operation while the other is being serviced or constrained. The cost of smaller turbines is higher per MW and may be less productive.	Any service shutdown or constraint will interrupt generation.	Any service shutdown or constraint will interrupt generation. Larger rotor diameter turbines typically have higher capacity factor and lower cost per unit of electricity produced.

Notes:

* The Draft Revised Wind Energy Development Guidelines (2019) stipulate that 'a setback distance for visual amenity purposes of **4 times the tip height of the relevant wind turbine** shall apply between each wind turbine and the nearest point of the curtilage of any residential property in the vicinity of the proposed development, subject to a mandatory minimum setback of 500 metres from that residential property.'

** Refer to Chapter 6 of the Draft Revised Wind Energy Development Guidelines (2019)

It has become increasingly challenging to source and contract for smaller turbines as many manufacturers have discontinued models in favour of larger machines for larger projects. It is important to consider the future availability of wind turbine models and even engage with additional manufacturers when a design is proposed. Manufacturers do not announce their future manufacturing plans on websites, so the availability of a datasheet on a website is not sufficient given the length of time it can take to consent a project.

It is possible that wind turbine manufacturers may be willing to provide communities with advice and share their expertise, at the initial scoping stage. They may be prepared to visit your site(s) and offer an opinion – such as the pros and cons, minimum and maximum financial requirements, power yields etc.

As you identify the potential sites, consideration will have to be given to their suitability and commercial viability. In the first instance web tools can be used to provide an initial assessment of viability. Different tools use different data sources for wind speed data and estimated energy yield. The better the wind resource the more successful the project. Appropriate wind turbine location is essential. With improved turbine technology maximum output can be reached at lower wind speeds and higher turbines. Elevated sites with higher wind speeds, open to the prevailing winds remain the best option. Initial indicative wind speed assessment can be done with a number of tools available on line. To determine the wind speed at different locations, the following tools and links may be useful.

- **The Wind Energy Development Guidelines**
- **Vortex** has virtual mast assessments of wind speeds available that can defer or possibly avoid requirement masts to be erected. These are much cheaper than completing an onsite assessment and completed in less time; however, it will be less accurate and there is a risk they may not be accepted for finance, lending or warranty purposes
- **Wind speeds**
- **Renewables First** looks at the return on investment from a wind farm turbine

Planning

Check for any planning constraints that might apply to the preferred locations. Check out your local authorities published planning policy guidance on wind projects. **Geohive Mapviewer** enables communities to view protected areas such as Special Areas of Conservation and Preservation. If a bird study is required, it will be over a 12-month period of observation at a minimum. More often than not, two or more years are required. An Environmental Impact Assessment is mandatory for wind energy developments that exceed five turbines or 5MW. An Environmental Impact Assessment will be required for wind energy developments below the above mandatory limits if the planning authority considers that the development would be likely to have significant effects on the environment. The **Wind Energy Development Guidelines chapter 4.7** are your reference point. For more detailed information on the planning process please refer to the **planning process toolkit module**.

Grid Connection

It should be noted at the outset that the single biggest and most immediate challenge for an energy generation project in Ireland is connectivity to the national power grid. Securing a grid connection can be a lengthy process but community-owned projects can apply for a connection while still in pre-planning stage, which significantly speeds up the process. The grid connection assessment will provide you with a cost for connection to the grid and a timeline for same. The cost of the grid connection will have a very large bearing on the viability of your proposed project. Therefore, the sooner this cost can be ascertained the better. The **SEAI grid connection module** is the go to reference point for grid connectivity. The **ESBN Heat Map** from ESB Networks will give an indication of the status of the grid in your area.

Site Access

Larger scale turbines have blades and tower sections that can be many meters long, requiring long vehicles to deliver them. This can be a problem if roads have acute bends or have narrow sections. The turbine nacelle can also be many tonnes in weight, so roads and bridges on route to the site must be capable of bearing this weight. If the turbine site is away from a suitable road or track, then consideration must be given as to how delivery to the construction site is to be achieved. If this is an issue it must be identified, especially if the cost of making a temporary track must be included in the project development cost. Local authority transport officers and local transport contractors can be good sources of information about access. Full access surveys will be completed as part of the detailed project development later in the process.

As you begin to shortlist your preferred sites bear in mind, if the community does not own the preferred site, the project must be able to secure a long-term lease option on the preferred site.

Step 4: Identify and Secure Initial Funding

Your initial funding requirement will probably be in the region of €20,000 - €30,000. For such items as:

- Initial Viability Study, outlined in **Step 5** below.
- Grid connection assessment application deposit – €2,000 + VAT, payable to ESB Networks, to be followed at a later stage by the remaining balance of the grid application fee. The full grid assessment cost, depending on project size, is shown in **Step 12.** Also, the Planning and Grid module, contains a comprehensive overview of the grid connection process and associated costs.
- Land lease option – to secure the site(s) if it is not already owned by the community group.
  – The communities legal fees
  – The landowner's legal fees etc.

Possible funding sources include:

- Your Local Enterprise Office
- Bursaries, private donations and corporate support should all be considered.

The Department of Environment, Climate and Communications in conjunction with SEAI provides specific financial supports for communities under the **Community Enabling Framework**.

Break Point #1

- **Is there a clear and agreed vision, written down?**
- **Has the group reached out for advice and support and received it?**
- **Is the community on board, or are the initial community acceptance signs suitably positive?**
- **Have potentially suitable sites been identified – pre planning and heat maps positive?**
- **Has initial funding been secured, or is it likely to be in the reasonably near future?**

Step 5: Initial Viability Study – on Your Preferred Site(s)

This is a scoping study that is intended to identify if the preferred sites are suitable for development. It is commonly outsourced to a professional. SEAI can also appoint a Trusted Advisor who will be able to provide support within the Community Energy Framework. This gives a rough overview of the potential of the sites and a high-level view of site viability. The study would investigate the potential scale and cost of the development. It will also look at each of the key constraints and identify which would be critical to enable the project to be developed on that site.

- Annual energy yield and estimated income.
- Environmental constraints.
- Initial estimates of capital, operation and maintenance costs.
- Grid connectivity costs and timelines, together with curtailment and constraint challenges.
- Screening and scoping opinion from your local planning authority – will detail key constraints that need to be addressed.

The results of the study will enable you to decide whether the proposed site(s) is technically and commercially viable.. Bear in mind this is a preliminary study and it paves the way for a more rigorous feasibility study to be undertaken at a later stage in the journey. The results of this initial study, if sufficiently positive, will provide the necessary levels of confidence to proceed further. This study will answer such questions as – is it worthwhile securing a lease option on the property, if the community doesn't own it, and thereafter applying for a grid connection? The data procured in this initial study will feed into the feasibility study later on. Procuring this study in a competitive process ensures value for money and allows for a review of the consultant's experience and skills prior to engagement. Refer to SEAI webpage for more information – **www.seai.ie/community-energy/enabling-framework**

Step 6: Further Feasibility Study and Risk Appraisal

While the Initial Viability Study is primarily an internal document for the community's benefit, the more detailed Feasibility Study and Risk Assessment is an externally focused document. It is also relevant for funders and all potential lenders. Professional assistance from the various specialist areas will be required to generate the document. Advice on procurement procedures, together with additional tools and templates, will be made available via the SEAI online information warehouse. These resources will form part of the SEAI's Community Enabling Framework.

Some of the financial data which will feed into the Feasibility Study may take a year or more to obtain. The Feasibility Study should be considered as an ongoing document which is built up over a period of time. Typically, the Initial Viability Study **(Step 5 above)** should identify obvious development red flags and will also determine if a grid connection application should be made. The grid cost and timeline feed into the Feasibility Study and Risk Assessment.

In addition to the financials, the feasibility study should also cover such items as:

- The wind resource, direction, speed and turbulence
- Electricity grid connection options, constraints and curtailment
- Designated sites, protected species and archaeological concerns
- Communication links, mobile phone and radio masts and civil aviation
- Turbine selection and potential construction issues
- Potential planning issues – visual impact, including cumulative impact, landscape impact, noise assessment of wind turbine operations.

Met Masts, Anemometers and Wind Turbine Noise Assessment

When evaluating the feasibility of a windfarm in a particular location, one of the main factors that may hinder or propel the project is wind speed and direction. When researching average windspeeds in different areas, one will first look towards a wind map of the region along with data from local meteorological stations. Ultimately to retrieve accurate windspeed information on a site, a precise instrument called an anemometer may be used. This weather instrument is installed specifically to determine wind power potential and is usually placed at a height of ten meter intervals onsite. Specialised companies analyse the data from the instrument. This information is the basis for due diligence of a project. Wind speeds at a site determines the type of turbine, layout of the windfarm and ultimately the financial feasibility.

The eight steps below detail an example of a met mast and noise assessment procedure that was followed for a 5MW (two turbine) wind farm in a remote location.

1. Anemometers were mounted on an **existing met mast of an adjacent wind farm project** at heights of 10, 30 and 40 meters above ground level at the site. (If no adjacent anemometer mast is in the vicinity of the proposed wind farm then it is likely that one will need to be erected to undertake this measurement campaign).
2. The equipment was left in position to gather wind data for 24 months.
3. The cost for installing and renting the apparatus was in the region of €15,000 ex VAT. A higher metmast with additional instrumentation is generally required for higher hub heights and will cost around €60,000 for a similar procedure where no adjacent metmast is available.
4. The data collected was fed into
   a. The feasibility study – (seeking 8 meters per second wind speed threshold to confirm viability) to aide bankability of the project
   b. The financial close process – to ensure bankability of the project.
5. The Environmental Protection Agency wind turbine noise assessment monitoring regulations required
   a. Validation monitoring undertaken before turbine(s) installation
   b. Verification noise measurements taken during the following 12 months from installation to display compliance with the fixed limits or derived site limits (if permitted).
   c. In general no further measurements will be required by the Environmental Protection Agency unless noise complaints are received in relation to the site operations, or the Agency specifically requires monitoring.
6. The noise assessment monitors, four in total, were left in position for
   a. Three weeks during validation stage (before)
   b. Three weeks during verification stage (after)
   c. The monitor locations were all over 500 meters from the wind turbines and adjacent to the residences.
7. The cost of installing and renting the noise monitors was in the region of €3,000 ex VAT.
   a. The data from the monitors enabled the project to demonstrate compliance with the planning regulations and conditions.

Break Point #2

- **Does the Initial Viability Study provide enough confidence to proceed with the project?**

Phase 2: Developing the Project – Pre-planning

Months 7-12

Step 7: The Legal Entity
Step 8: Secure the Site
Step 9: Secure Development Funding
Step 10: The Grid Application Process
Step 11: Procure Planning and Design Team
Step 12: Continuing Community Engagement
Break Point #3

Step 7: The Legal Entity

You will need to form a legal entity to make funding applications, establish banking facilities, secure a site, enter into contracts, to pay bills and to receive income. There is a range of legal entities for communities to consider, some of which are listed below:

- Limited company
- Co-operative
- Company limited by Guarantee – CLG
- Public Limited Company – PLC

It is important to seek legal advice before you decide on the most appropriate legal entity for your community project. Your community constitution will also have to conform to the minimum requirements as laid down by the Department in order to qualify as community-owned to avail of specific community supports. As with the legal entity formation, legal advice should also be sought on the community constitution to ensure the necessary compliance.

The term Renewable Energy Community is the generic name for a community-owned legal entity. It derives from the EU **Clean Energy Package (2019)** and the EU revised **Renewable Energy Directive (2021)**. Your Renewable Energy Community must comply with the rules as laid down by the Department in order to partake in the auction. Points which should be clearly addressed in the constitution include:

- How will it be structured?
- Who owns what, and how will it be run?
- Have open, voluntary and inclusive membership
- Be transparent in operation
- Operate on the basis of one member, one vote
- Have a constitution that protects against mission drift
- Have appropriate asset locks to protect the community assets etc.

Please note, the relevant Renewable Energy Community definition can change. Please refer to the relevant Terms and Conditions when establishing your legal entity. The most recent Terms and conditions are available **here**.

When you seek broader community engagement, having an open transparent community focused constitution on display, which accurately reflects your vision, in addition to the above points – will facilitate community involvement and buy-in. It is important to seek legal advice from a skilled practitioner in this area.

Step 8: Secure the Site

Assuming the community group does not own the site, it is essential to enter into a legal option or a lease agreement with the site owner, that guarantees the community tenure over the site for the full life cycle of the project, with appropriate exit clauses that synchronise with the various Break Points highlighted in this toolkit e.g. suitable grid offer being obtained and securing a route to market etc. It is important to seek legal advice from a skilled practitioner in this area.

As SRESS Community category projects have an upper size limit of 6MW (megawatts), it is assumed the preferred site will be in the 10-15 acre (4-6 hectares) range for wind projects. Access to the site will also have to be considered e.g. possible road widening for turbine transport and access and wayleaves. A wayleave is a right of use for apparatus over or under private land for which payment is made. For example, the Distribution System Operator on behalf of the community generator, may put poles on private land or cabling underground and in return a fee will be payable to the landowner(s).

Step 9: Secure Development Funding

As outlined in **Step 4** (Identify and Secure Initial Funding), your initial funding requirement will probably be in the region of €20,000 - €40,000. However, this figure will be insufficient to cover such items as:

- Grid connection cost (not to be confused with the initial grid application cost).
- Planning permission and engineering design costs
- Various contingencies – e.g. a met mast if required

The Department of Environment, Climate and Communications in conjunction with the SEAI have developed supports for communities under the Community Energy Framework. Further details on these supports are available from the **SEAI Community Enabling Framework webpage**.

Step 10: The Grid Application Process

Having identified the preferred site, it is crucial to ascertain its suitability in terms of connectivity to the national power grid. The cost of connecting the site to the grid is a big determinant in the project's overall viability. Items to be considered in determining the grid connection cost include:

- The distance from the site to the nearest suitable Distribution System Operator sub-station
- The capacity of the ESBN sub-station to take additional generation
- The potential timeline for connectivity were the project to proceed

These questions and more are addressed by the Distribution System Operator (ESB Networks) via the grid connection application process.[9] The grid application is a fundamental step in your community project journey and should be undertaken at the earliest possible opportunity, i.e. once you have identified and legally secured your preferred site via a lease option or agreement and carried out feasibility studies. **Note: For Community projects Planning Permission is not a requirement at grid application stage but will be required before a grid connection offer is issued.**

- Applicants who apply with planning permission will be prioritised during batch processing, according to planning permission grant date and then by application form Received Complete Date.
- Applicants without planning permission will be prioritised by application Received Complete Date.

The grid application is made to the Distribution System Operator and the initial deposit costs for community projects is €2,000, as of Q4 2023. The full cost of the application will depend on your project size as follows:

Table 4: Grid Connection Application Fees

MEC capacity ranges	B Generation capacity (MEC)	C Shallow works
> 500kW ≤ 1MW	€8,956	€0
> 1MW ≤ 4MW	€18,347	€0
> 4MW ≤ 10MW	€18,566	€18,566

Note: Projects above 4MW attract an additional "Shallow Works" charge.

You will be notified when the balance of the application fee is required. For a community project this is typically when planning permission is granted or up to two years after the connection assessment is issued. The Distribution System Operator will assess your site for connectivity to the grid and provide you with financials – covering the cost of connection and a timeline (please note these may be indicative and hence subject to change). The connection cost will have a very significant bearing on the project's viability. The Distribution System Operator will use the 'Least Cost Technically Acceptable' method (LCTA) to assess the site's suitability. The **SEAI grid connection module** is the go-to reference document for your project in this regard. Additional guidance on connecting a community-led renewable energy project can also be found via ESB Networks-**Community-led Renewable Energy Projects (esbnetworks.ie)**.

9 www.esbnetworks.ie/new-connections/generator-connections/community-led-renewable-energy-projects

The result of the grid application, i.e. the formal grid connection assessment, is a fundamental stop/go break point for your project. If the grid is too costly, the project will be unviable and there is no point proceeding further with this site. Conversely, if the grid connection assessment is favourable, a community-owned project can proceed with development steps, including planning consent, and it will be valid for up two years. Upon planning consent, the grid connection assessment will be formalised in a connection offer. To accept an offer, a 10% deposit payable to ESB Networks will be required to secure the grid offer. Note, the grid connection payments are in addition to the grid application deposit (€2,000 for communities) and balance of application fee (from Table 4 above). By way of example, if a grid connection offer costs €500,000, then 10% of this figure becomes payable to secure the offer within 50 working days. The balance of 90% becomes payable, on a phased basis, to the dates set out in the connection agreement.

It is recommended to seek independent advice on grid connection costs – grid advisors will have a benchmark against typical project costs and will advise accordingly. This will enable you to determine what is a viable grid offer for your project. It is important to seek professional financial advice from a skilled practitioner in this area.

→ Step 11: Procure Planning and Design Teams

When the grid application (grid) is submitted, it would be appropriate to commence assembling the planning and design teams such that the planning application can be submitted without delay on receipt of a viable (affordable) grid connection assessment from the Distribution System Operator. You should consider starting items that have long lead times, such as ornithology surveys ahead of a grid connection assessment.

Communities will need to procure planning consultants to prepare their planning application. The **SEAI planning process module** is the go-to reference document for your community project in this regard. Your planning consultant will provide advice on the extent and nature of the environmental studies required to be submitted as part of the planning application.

Most local authorities will have well defined procedures and processes pertaining to planning applications for wind farm projects as outlined in their development plans. Your planning consultants will drive this process for you.

→ Step 12: Continuing Community Engagement

Although community engagement is an ongoing process throughout the lifecycle of the project, it is advisable to ramp up the engagement prior to the submission of the planning application. You should seek to minimise possible objections before the formal planning process commences. Such items as wind farm near neighbour payments and the community benefit fund should be well understood by the wider community at this stage of the journey.

It is advisable to set up a project website and have other project dissemination, for example, leaflets, newsletter etc. – available and a nominated point of contact for members of the public to engage with the proposed community project.

The growing awareness and acceptance of the importance of renewable energy in the climate change challenge is helping to develop a receptive environment for local energy generation projects. This in conjunction with the opportunity for community ownership of these projects augers well for the future and the realisation that community projects can provide a valuable part of the overall energy solution. With government backing, there is now a growing opportunity for community led energy generation projects.

Break Point #3

- **Has the site been secured?**
- **Is the grid offer acceptable/viable?**
- **Is development funding secured?**
- **Are the planning and design teams in place?**
- **Is the community engagement ongoing and positive?**

Phase 3: Developing the Project
Months 13-40

Step 13: The Planning Application
Step 14: The Financial Viability Check
Step 15: The Full Financial Model
Step 16: Continuing Community Engagement
Break Point #4

Step 13: The Planning Application

Once the grid connection assessment has been received and deemed viable, and with development funding in place, the planning and design team (engage in **Step 11** above) may complete and submit the planning application. Planning approval is a prerequisite to any price support contract.

Step 14: The Financial Viability Check

As the Feasibility Study and Risk Analysis is continually developed, at this stage in the journey you will have an understanding of the costs associated with developing and operating your project, i.e. a windfarm in the 0.5 to 6MW range. The potential revenue stream from the windfarm will be estimated based on available routes to market and any other relevant price benchmark available at the time.

Your financial adviser can support you with this process. However, it is very important to develop an understanding of breakeven levels for your project – minimum returns that need to be achieved in order for the project to be financially viable. This is an important stop/go break point. If the financials demonstrate the project is unviable there is no point proceeding any further.

Step 15: The Full Financial Model

Assuming the financial viability check is positive, your financial advisers will expand the Feasibility Study and Risk Analysis into a Full Financial Model for your project. The model will detail the capital cost of building the project (CAPEX costs), the annual expenditures to run the facility (OPEX costs) and the expected annual income from the facility. These will be expanded to furnish cash flow analysis, Income and Expenditure and a Balance Sheet for the life of the project. The cost of finance and the project management (scheduling) of the project can have a significant bearing on the overall viability of the project. It will be important to seek specialist advice, expertise and input to complete this body of work. That said, it is important that a number of individuals on your finance committee will have a good understanding of the financials underpinning the project. Prospective lenders will stress test your financial models to satisfy themselves that the project is worth funding, and it behoves your community finance committee to be as familiar with the project financials as possible in order to have credibility with your lenders.

The annual income stream will be largely dependent on three items as follows:

1. the project size, in the range 0.5 - 6MW
2. the energy yield assessment, and it's associated probability factor e.g. P50 or P90
3. the route to market (e.g. SRESS or other power price support)

At this stage in the journey items one and two above should be finalised, leaving item three, route to market price, as the primary variable on the income side. Various 'what if' scenarios (sensitivity analysis) can be performed on the financial model.

Step 16: Continuing Community Engagement

In situations where long delays are experienced in the process e.g. in the planning application, it is important to maintain the community engagement. The advantages of the near neighbour payments and the Community Benefit Fund should be reiterated, together with the benefits to the local circular economy, and achieving the 2030 and 2050 climate targets.

Break Point #4

- **Was the planning application successful?**
- **Is the Financial Viability Check satisfactory?**
- **Is the Full Financial Model credible?**
- **Is the community engagement proceeding satisfactorily?**

Phase 4: Route to Market

Months 41-50

Step 17: Route to Market
Step 18: Securing a Route to Market
Step 19: Power Purchase Agreements – PPAs
Break Point #5

Step 17: Route to Market

Renewable energy projects in Ireland can receive revenue through three main mechanisms: the 'merchant' open market price, corporate Power Purchase Agreements or government-led schemes such as RESS and SRESS.

SRESS tariffs are likely the best route to market for community projects and should be their primary focus. Tariffs allow projects to sell their output at a fixed rate for periods of potentially 15 years or more. This provides a long-term and stable source of income for projects, greatly facilitating securing competitive funding for their development.

Corporate PPAs can also provide a stable source of income, but they are usually shorter in term compared to RESS contracts, and they also pose off-taker risk (will the power buyer remain in operation and demand the agreed amount of power for the duration of the contract? Are they credit worthy?) and, in some cases, operation and maintenance risk associated with power infrastructure.

The merchant market, due to its uncertainty, volatility, risk, and its relatively low prices, is not a desirable initial source of income for renewable projects. Depending on this as a source of income in the initial years can be a major obstacle to securing project financing, though eventually all projects are likely to end up operating in the merchant market once out of support.

Step 18: Securing a Route to Market

As soon as it is possible, communities or project administrators should prepare the necessary documentation, permissions and other requirements to be able to bid for the chosen route to market. For both tendered or auctioned corporate PPAs and RESS auctions, requirements are published well in advance, giving potential bidders enough time to prepare their applications and fill any gaps that the project might have in order to be eligible for bidding.

Securing the route to market is crucial for the project's financial success. Starting this process early and dedicating sufficient resources is therefore paramount.

Step 19: Power Purchase Agreements – PPAs

The generator needs a contract with a licenced supplier to purchase the electricity at the price for the contracted route to market. In the context of community projects, a PPA is a formal contract between the community who generates the power and an electricity utility i.e. a licensed electricity seller in the retail market – commonly referred to as the offtaker. The offtaker will undertake to pay the generator, monthly in arrears, for the power the community generates as stipulated in their route to market contract (**Step 17** above). The offtaker will recoup the cost paid to the generator from the electricity consumer via the **Single Electricity Market Operator**. The electricity consumer, via the Single Electricity Market Operator under the oversight of the CRU, generally guarantees both the price and the duration of any formalised market support.

Your lenders will require sight of your Power Purchase Agreement (PPA) prior to financial close, to satisfy themselves regarding capacity to repay any loan. The PPA should extend for the full 15-year duration of the RESS contract and is an absolute requirement to successfully bank the project.

In the normal course of events, your PPA will be fixed for the duration of your market offtake contract, typically 15 years. However, your windfarm will have a useful life of around 30 years as detailed in your planning consent.

Break Point #5

- **Is there a contracted route to market?**
- **Is there a PPA in place?**

Phase 5: Getting Financial Close

Months 51-60

Step 20: Project Manager in Place, and Identify and Contact Suppliers and Procurement
Step 21: Financing Options
Step 22: Achieve Financial Close
Break Point #6

Step 20: Project Manager in Place, and Identify and Contact Suppliers and Procurement

Having secured a route to market you are now ready to proceed to the project construction stage subject to securing financial close. Best practise requires that competitive tenders are sought for all products and services associated with your community project, including the hiring of a professional project manager for the construction phase of the project. Procuring the services of a professional project manager via a competitive process ensures value for money and allows for a review of the individuals experience and skills prior to engagement. The project manager may also be referred to as the 'owners engineer'.

Some of the main contracts that will need to be negotiated and signed with suppliers include:

- Construction phase project management
- Wind turbine Installation (Engineering Procurement and Commissioning)
- Operation and maintenance
- Power Purchase Agreements
- Financial and legal advice (financial, lease and contract advice – likely already in place from earlier in project development)

Step 21: Financing Options

Funding the capital cost of your community project, i.e. building the facility, should be considered in the context of having achieved a route to market. You will likely be contracted to supply a fixed quantity of power, at a fixed price for a fixed number of years (usually 15). The contract with a creditworthy counterparty should facilitate or enable access to project finance in the region of 80% of the capital cost of the project.

This presupposes your project is underpinned by sound financials from the outset. In essence, the lower your capital cost and the higher the margin on your offtake strike price, the less risk is attached to your project from the lender's perspective. Consequently, the lower the interest rate that will be charged by the potential lenders, the higher the percentage of overall funding (i.e. in excess of 80%) that will be offered by the lenders.

Independent professional financial advice is essential to properly assess the pros and cons of the various funding options that will be available to community projects. Although various types of funding models exist, 100% community-owned projects could possibly be largely debt funded.

For more information, please see the **Financing Projects module of this toolkit**.

Step 22: Achieve Financial Close

The financial close procedure involves the funders submitting the project to a due diligence process and, assuming the project passes the test, the lenders release the construction funds. Funders will bring a high degree of process rigor to the due diligence exercise, particularly where investments of €2 million and more are involved. It is best to be fully prepared to reduce the costs and time spent in the close process. Mistakes and delays at the financial close can be very costly and frustrating all round. Due Diligence usually comprises three sections as follows – Financial, Technical and Legal.

Financial Due Diligence – a professionally indemnified assessment of proposed capital and operating costs and associated project lifecycle cash flows, debt service cover ratio analysis and sensitivity analysis on the main financial variables (e.g. capital cost, operating costs, revenue rates and any variable interest rates). A comprehensive understanding is required of the assumptions underlying the project that define the agreed financial base case.

Technical Due Diligence – an awareness of the energy yield probabilities for your project, planning consent being fit for purpose and compliant with any planning conditions, grid connection costs and conditions, construction contracts for the wind turbine(s) and any associated works etc.

Legal Due Diligence – evidence of unfettered title to land and/or to conduct all necessary activities on the land as well as land rights along the transport and access routes. And for the grid connection, evidence of full insurance covering all delays and project failure risks etc.

The financial modelling tools are an essential prerequisite in getting the project to this stage. However, they are not a substitute for a typical lenders 'Investment Ready Tool', and having the tool fully completed prior to the commencement of the financial close. A professional investment ready tool will enable you to ensure the financial, technical and legal due diligence check boxes and their multiple sub sections are all addressed. Financial close is the point at which all contracts are signed simultaneously, and funds are transferred between your lender and all your suppliers. It is important to ensure that the relevant people (from your community project) with delegated responsibility are available to sign off the necessary legal agreements.

Break Point #6

- **All consents in place?**
- **All contracts in place?**

Phase 6: Completing the Project

Years 5+

Step 23: Construction
Step 24: Operational and Maintenance
Step 25: Governance, Management and Community Benefit Fund
Step 26: Decommissioning of Turbines at End of Life

Step 23: Construction

Constructing a windfarm is a large and complex undertaking – notwithstanding the fact that a professional team of managers and suppliers will be engaged to carry out the works. The community group will have legal obligations as a developer, which include a duty of care to site workers, the environment and the general public. When all the appropriate permissions, permits and planning conditions are met the civil works and turbine installation and commissioning can commence. Your project manager (or owners engineer) (Step 20) will oversee the construction and subsequent connection to the grid.

Step 24: Operation and Maintenance

Once the appropriate operation and maintenance contracts are in place with a reputable wind turbine supplier the day-to-day operation of the windfarm should be relatively straight forward. The key provisions of a typical project finance operation and maintenance contract, include defining the scope of the services to be provided, performance warranties, payments and incentives, caps and limits on liability and the interface with other project contracts.

However, this should not detract from the ongoing attention that should be given to the turbine performance i.e. energy yield in relation to given wind speeds. Fluctuations from expected norms may indicate a turbine fault could depress revenue and returns. Experience to date on community wind farms, on or below 5MW, suggest this function can be performed on a voluntary part time basis assuming appropriate operation and maintenance contracts are in place with the turbine supplier.

The working life of modern turbines can be in the region of 30 years assuming appropriate operation and maintenance contracts are in place continuously. Therefore, additional PPAs should be negotiated to cover the remainder of the turbines working life. In practice, many generators operate with direct market exposure once the project finance debt is cleared.

Step 25: Governance, Management and Community Benefit Fund

Proper management of the income and expenditures streams from the project over its lifetime is a fundamental and essential requirement for the community group. Needless to say, net income should only be distributed in line with the provisions and rules of the community legal entity, and then only after the operating expenses have been paid. Different funders will have varying requirements regarding the reserves they may require the community group to maintain, e.g. in case of unforeseen outages or if the power yield falls below certain levels. The community group should be seen to be meticulous in complying with good governance, auditing requirements and the maintenance of appropriate reserves.

The Community Benefit Fund

A community wind farm at the larger end of the scale, i.e. 5MW, should generate a Community Benefit Fund in the region of €30,000 annually, assuming €2/MWh contribution. Provision will have to be made in the annual accounts for the maintenance of the Community Benefit Fund reserve. The rules governing the Community Benefit Fund and its disbursement are set out by the Department of Environment, Climate and Communications. It is imperative that the community group comply in full, on an ongoing basis, with the rules governing the fund and its disbursement. Communities should be familiar with the 'Community Benefit Funds – Good Practice Principles Handbook' and Appendices.

The SEAI has an Oversight and Compliance Function in relation to the Community Benefit Fund. All successful RESS projects are required to register their Community Benefit Fund with SEAI once commercial operation commences and submit an annual report to SEAI. More information can be found **here**.

Future supports are likely to have a Community Benefit Fund requirement and it is considered good practice regardless of route to market. The existing handbook is available **here**.

Step 26: Decommissioning of Turbines at End of Life

The planning permission conditions will usually require a bond to be set aside to cover the cost of decommissioning the wind turbines at the end of their life cycle and restoring the site, e.g. removal of foundations etc. Provision will have to be made in the accounts for this liability. After 30 years it is best to assume the scrap value of the equipment is minimal in relation to the decommissioning and site restoration costs. If planning permission and lease agreement allow, it may be worthwhile considering repowering the system completely after the end of its operational life.

Further Information

Wind energy context

The following websites provide general information for communities with an interest in wind energy:

- SEAI wind energy
- Irish Wind Farmers Association
- Wind Energy Ireland

Community Ownership

There is lots of interesting information on how a community can own their own energy at the following links:

- www.rescoop.eu
- www.localenergy.scot
- www.communityenergyscotland.org.uk

Project Overview

Step 1: Develop the Vision

You can find community owned energy information booklets at:

- www.rescoop.eu/uploads/rescoop/downloads/Community-Energy-Guide.pdf
- www.rescoop.eu/toolbox
- www.localenergycommunities.net

Step 2: Seek Advice

The following organisations publish case studies to help others identify suitable groups to approach to gain their insight:

- Community Enabling Framework
- ESB Networks
- Community Power
- Local Energy Scotland

Step 3: Initial Viability

There are several web tools available for determining the viability of a project which would be appropriate to use at this stage of the project development. Different tools use different data sources for wind speed data and estimated energy yield.

- Renewables First looks at the return on investment from a farm wind turbine
- Grid capacity map from ESB Networks to see if there is capacity at a nearby substation

Step 4: Find a Site and Communicate

To determine the wind speed at different locations, the following tools may be useful.

- Vortex has virtual mast assessments of wind speeds are available that do not require masts to be erected. These can be cheaper than completing an onsite assessment and completed in less time, although will be less accurate
- Wind speeds

Land direct allows a community to search folio areas and boundaries.
Geohive Mapviewer enables communities to view protected areas.

Communicate

There are a range of resources available for engaging with the community including:

- **www.windenergyireland.com/committees/community-engagement**
- **www.nesc.ie/publications/wind-energy-in-ireland-building-community-engagement-and-social-support**

Step 5: Secure Initial Funding

- **LEADER funding**
- **Community finance and loans**
- **Western Development Commission**

Step 6: Feasibility Study

A feasibility study will help identify sites that have the potential to be viable, funding is available at the following links:

- **LEADER funding**
- **Local Enterprise Office**

Step 7: Establish a Legal Entity

- **Become an energy co-op**
- **Become a Charity**
- **Research possible models**

Step 8: Secure the Site

The CARES module has **draft land agreements and advice** on how to secure a land lease

Step 11: Grid Application

- **SEAI grid toolkit**
- **www.esbnetworks.ie/new-connections/generator-connections/community-led-renewable-energy-projects**
- **www.esbnetworks.ie/help-centre/connecting-a-community-led-renewable-energy-project**

Step 13: Planning Application

The key applications to complete when developing your project are:

- **Planning module**
- **Grid connection module**

Step 14: Financial Viability Check

The CARES project **finance model** is an indicative early stage financial model to help community groups understand the potential profitability of community renewable investments. An example of how to fill in the model can be accessed **here**.

Step 15: Develop Full Financial Model

When finalising the costs and income of the project, it is important to ensure they are completely accurate with enough detail for a bank to make a lending decision. Indicative costs will no longer be accurate enough.

Step 16: Near Neighbour Notification

- **www.gov.ie/en/publication/5f12f-community-projects-and-benefit-funds-ress**

Step 20: Identify and Contact Suppliers

Wind Energy Ireland has a full list of suppliers **here**

Step 24: Construction

Wind Energy Ireland has a full list of suppliers **here**

Glossary

CLG	Company Limited by Guarantee
CRU	Commission for Regulation of Utilities
DECC	Department of Environment, Climate and Communications
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESBN	Electricity Supply Board Networks
EU	European Union
MW	Megawatt
PLC	Public Limited Company
PV	Photovoltaic
RESS	Renewable Electricity Support Scheme
SEAI	Sustainable Energy Authority of Ireland

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