

Rural Renewables

Implementing Renewable Energy projects under the NIRDP 2007-2013



Renewable Energy Applications for stand -alone renewable energy projects are now eligible under the Axis 3 'Rural Life' measures of the Rural Development Programme for Northern Ireland (NIRDP) 2007-2013. Farmers, rural business and social economy enterprises can now apply to implement renewable energy projects which generate both electricity and heat and hot water. These may include wind, biomass, hydro, ground and heat source as well as solar renewables.

Farmers and rural businesses are eligible to apply for up to £50,000 at a grant rate of 50%; Social Economy Enterprises are eligible up to £170,000 at a 75% grant rate.

To tease out and address some of the issues arising from the NIRDP the Rural Network for Northern Ireland facilitated a seminar focusing on 'Rural Renewables'. The event featured a range of expert speakers from South West College Innovation Centre (SWC), Power NI and NIE. Representatives from the Department of Agriculture and Rural Development (DARD) also participated in a Questions and Answers panel.

Some of the main questions and answers are transcribed here.

Q: WHAT IS THE MAXIMUM KW OF TURBINES FUNDED BY DARD?

DARD: There is no maximum KW rate. Grant levels and percentage rates are stated within the guidance.

Q: IF PLANNING PERMISSION IS GRANTED THE LOCATION OF THE WIND TURBINE IS OFTEN NOT OPTIMAL TO GAIN MAXIMUM OUTPUT/BENEFIT? WHAT CAN BE DONE ABOUT THIS?

DARD: Applications are assessed using the usual economic appraisal approach which is used across governments departments to take into account a wide range of costs and benefits. The system ensures that any given project will deliver the best Value for Money (VfM) for the public expenditure.

Q: GIVE A SIMPLE EXPLANATION OF ROCS?

POWER NI: The Renewables Obligation is the main support scheme for renewable electricity projects in the UK. It places an obligation on UK electricity suppliers to source a proportion of their electricity from renewable sources. A Renewables Obligation Certificate (ROC) is a green certificate issued to an accredited generator for eligible renewable electricity generated within the UK and supplied to customers within the UK by a licensed electricity supplier. One ROC is issued for each megawatt hour (MWh) of eligible renewable output generated.

The energy regulator Ofgem is responsible for the process of accrediting renewable energy installations and issuing Renewable Obligation Certificates (NIROCs) to generators in Northern Ireland. Power NI is an Ofgem Agent for generators up to 50kW so can help smaller generators to get accredited with Ofgem and to manage the ongoing NIROC administration on their behalf.

A full explanation on ROCs and what Power NI offers in terms of payment for different sizes of generators is available on the Power NI website (www.powerni.co.uk).

Q: IS THERE AN ACCEPTABLE PAYBACK PERIOD FOR TECHNOLOGIES?

POWER NI: Payback periods will vary for each technology and for each customer because, particularly in relation to electricity generating renewables, it will depend on several variables including: how much the installation cost, was a grant available, how much electricity the system generates annually, how much of the electricity the customer will use and how many ROCs they are accredited for. Power NI has a wind turbine guide on its website (www.powerni.co.uk) which walks users through a business case for a turbine and helps them to work out their payback.

A very rough example of a 2.6kWp solar PV which has received a grant and is accredited with Ofgem for 4 ROCs could have a payback of around 11 years if the customer uses about 50% of the electricity and exports 50%.

Q: IS THERE A MINIMUM SIZE TURBINE WHICH CAN BE CONNECTED TO GRID?

DARD: No, there is no minimum size.

NIE: There is no minimum size. Any generation up to 6.5kW single phase or up to 20kW three phase need to follow the G83 process and any generation greater than 6.5kW single phase or greater than 20kW three phase need to follow the G59 process.

(Details of G83 processes on Page 8 / Details of G59 process on Page 9)

Q: HOW LONG DO RENEWABLE ENERGY TECHNOLOGIES HAVE TO CONNECT TO THE GRID? WHAT'S THE PROCESS?

NIE: There is a stage process.

1. NIE stipulate that the generator installation should be connected and Schedule 1A protection tests and certification being completed within 12 months of the date of acceptance of terms. This is extended where it takes a longer period for NIE to seek statutory permissions for the connection.
2. To accept terms the customer completes and returns a signed Terms of Acceptance form that is included in their connection offer and makes a deposit payment that represents 20% of the total connection cost.
3. On acceptance of terms from the customer NIE will seek any statutory permission for the connection (overhead line or underground cable) and landowner permissions for the equipment, procurement of equipment, etc.
4. When all legalities have been obtained NIE will request the customer to forward the balance payment representing 80% of the total connection cost.
5. On receipt of the balance payment the job is forwarded to the construction team to commence the programming of the construction work.

Q: CAN YOU CONFIRM GRID CONNECTION AT FEASIBILITY STAGE, IN OTHER WORDS, BEFORE THE PROJECT IS IMPLEMENTED? AT WHAT POINT IS GRID DISCUSSED?

NIE: The difference between a 'feasibility' study from NIE and a 'connection offer' from NIE is illustrated below.

Feasibility Study

To facilitate customers wishing to connect and export energy generated to the electricity network, NIE offers to carry out a feasibility study for projects that are at an initial investment appraisal stage. This study is optional. It provides information to help a customer develop their own business plan and is typically carried out before the customer makes a formal application to planning.

To complete a feasibility study for a particular project NIE will require the completion of NIE's Generator Enquiry Form and forward it to NIE with the appropriate non-refundable fee.

A copy of the generator's electrical data sheet may also be attached if this is available.

Generation Maximum installed Capacity	Cost
150kW or less	£600.00
More than 150kW	£1,200.00

All payments are inclusive of VAT at the current tax point rate of 20%. Cheques should be made payable to Northern Ireland Electricity Ltd.

Only on receipt of both the fee and adequate technical information will NIE progress a feasibility study.

The feasibility study will indicate the current capacity available at a specific site, and details of the work required to provide connection for the requested capacity and technology including:

- Connection Voltage Level
- Connection Point to NIE Network
- Details of the connection arrangement
- Indicative costs of the proposed connection

It will take two to three months to provide a feasibility study following receipt of the above information and payment.

The purpose of the feasibility study is to provide potential developers with indicative costs for providing a suitable network connection and the work involved in constructing the connection so that they can decide if they wish to proceed with their project as planned.

A feasibility study does not reserve network capacity for a particular project, and NIE cannot guarantee that a connection will be available when making a formal application for connection.

Network Connection & Capacity Study

A Network Connection & Capacity Study is offered to customers who have obtained all permissions, including planning permission, or equivalent permissions for tidal or hydro generation, at the date of connection application.

There is no requirement to have a feasibility study carried out before a request for Network Connection & Capacity Study is made.

This study is a full technical appraisal and requires the submission to NIE of a formal application (NIE Generator Questionnaire) and the full electrical technical specification of the generator being connected together with the appropriate non-refundable fee.

Generation Maximum Installed Capacity	Cost
20kW or less	£600.00
21 kW - 150kW	£1,800.00
151 kW - 2000kW	£6,000.00

All payments are inclusive of VAT at the current tax point rate of 20%. Cheques should be made payable to Northern Ireland Electricity Ltd.

Following the receipt of all information and payment, the connection study takes approximately three months to complete.

Should the proposal proceed; the appropriate Network Connection & Capacity Study fee will be deducted from the final connection charge, provided the project is completed within 3 years from the initial date of application.

This study is a full technical appraisal and requires provision of all the technical data associated with the generator being installed. Once this technical data is received and the appropriate payment made, NIE will progress the Network Connection & Capacity Study.

The Network Connection & Capacity Study provides a quotation outlining the connection costs, the capacity available at the proposed connection point and details of the work required to provide the connection for the requested capacity and technology.

The quotation will include:-

- Connection Voltage
- Connection Point to NIE Network
- Details of the connection arrangement
- Connection Agreement

This quotation is valid for 3 months from the date of issue and the developer should forward their acceptance of terms and deposit to NIE within this 90 day period.

On acceptance of the offer NIE will proceed with the activities required to connect the generator to the Distribution System. This includes seeking statutory permission for the connection (overhead line or underground cable) and landowner permissions for the equipment, procurement of equipment, etc.

Although dependent on circumstances, the connection should be complete within 9-12 months from the acceptance of the offer.

Q: HOW REALISTIC IS DISTANCE FROM VOLTAGE STATION IN RURAL AREAS?

NIE: Please see graph (below) which shows that distance from the primary substation is a significant factor that determines the amount of generation that can be exported from the site. NIE are obliged to make a connection offer to any generator seeking connection so this graph is as a guide only. Generators wanting to seek connection to a site greater than these distances should be made aware that significant overhead line rebuild may be required to facilitate their generation scheme which will increase the costs of their connection.

Q: EXPLAIN THE LEGISLATION ON WATER TURBINES E.G. IMPACT ON THE ENVIRONMENT?

NEIL FREEBURN (SWC): A hydro system in Northern Ireland will require Planning Permission and a Water Abstraction License. These two application processes are quite similar in what is required.

For planning permission: the local planning office is dealt with if any of the electric generated from the turbine is going to be used on site (e.g. in your own house), otherwise the planning headquarters are used (if 100% of the electricity is to be exported on to the grid). The planning office should advise which consultees will need to be approached and the scope of the environmental study you have to undertake.

Parties that may be involved in the planning application include: Road Service (Permissions for Site Access), Rivers Agency (Drainage and Flood Management), NIEA Natural Heritage, Water Management Unit, Historic Monuments, Loughs Agency, Department of Enterprise Trade & Industry (DETI), Department of Culture Arts and Leisure (DCaL), Fisheries and Building Control Approval.

For the water abstraction license the organisation to contact is NIEA Water Management Unit. Such things as residual flow, effects on other users of the river and people in the surrounding area of the river will be assessed.

The environmental impact from a hydro scheme on a river and surrounding land needs to be assessed carefully. Different elements of the environmental impact assessment will be needed for the planning and water abstraction application. The environmental assessment will look into many issues including: fish passage, flood defence, water quality, residual flow left in the river, effects on users up stream, flora, fauna (including otters, bats, and badgers), noise, archaeological assessments. Other elements may be assessed as each application is site specific.

As can be seen, there is much to be looked at with an environmental assessment, the scale of the environmental study depends on the size of the hydro scheme. Both processes of applying for planning permission and water abstraction licenses are lengthy and in Northern Ireland can take anything from approximately 8 to 32 months. A dedicated hydro company can deal with all elements of the processes mentioned above.

Q: WHAT SIZE OF TURBINE NEEDS ANOMETER TESTING RATHER THAN RELYING ON WIND SPEED MAP 1 DESK BASED FEASIBILITY STUDY?

STUART MORROW (SWC): It depends on price – both need costed out.

Q: DOES THE TURBINE COMPANY MEASURE THE WIND? IS THAT A GOOD IDEA?

STUART MORROW (SWC): Turbine installers can measure the wind speeds and If it is a reputable company there should be no problems although there are plenty of good companies who will independently do wind prediction.

Q: DO SOLAR PANELS NEED TO BE IN PLANNING PERMISSION APPROVED DRAWINGS?

Mark McGuigan (SWC): Planning Permission is not required for Solar Panels provided project adheres to the following rules:

Roof mounted solar panels on a pitched roof

Planning permission is not required provided that: 1. No part of the panel exceeds the highest part of the roof; 2. No part of the panel protrudes more than 20 centimetres beyond the plane of a roof slope facing onto and visible from a road; 3. Panels do not exceed the boundary of the existing roof; 4. If you live in a house within a conservation area or World Heritage Site the roof slope on which the panels are fitted must not face onto and be visible from a road.

Roof mounted solar panels on a flat roof

Planning permission is not required provided that: 1. Panels do not extend more than 1.5 metres above the plane of the roof; 2. Panels do not exceed the boundary of the existing roof; 3. If you live in a house within a conservation area or World Heritage Site the panels must not be visible from a road.

Wall mounted solar panels

Planning permission is not required provided that: 1. Any part of the panel which is higher than 4 metres and closer than 3 metres to the property boundary does not protrude more than 20 centimetres from the plane of the wall; 2. Panels do not exceed the boundary of the wall; 3. No part of the solar panel installed on a wall of a chimney is higher than the highest part of the roof; 4. If you live in a house within a conservation area or World Heritage Site the wall must not face onto and be visible from a road.

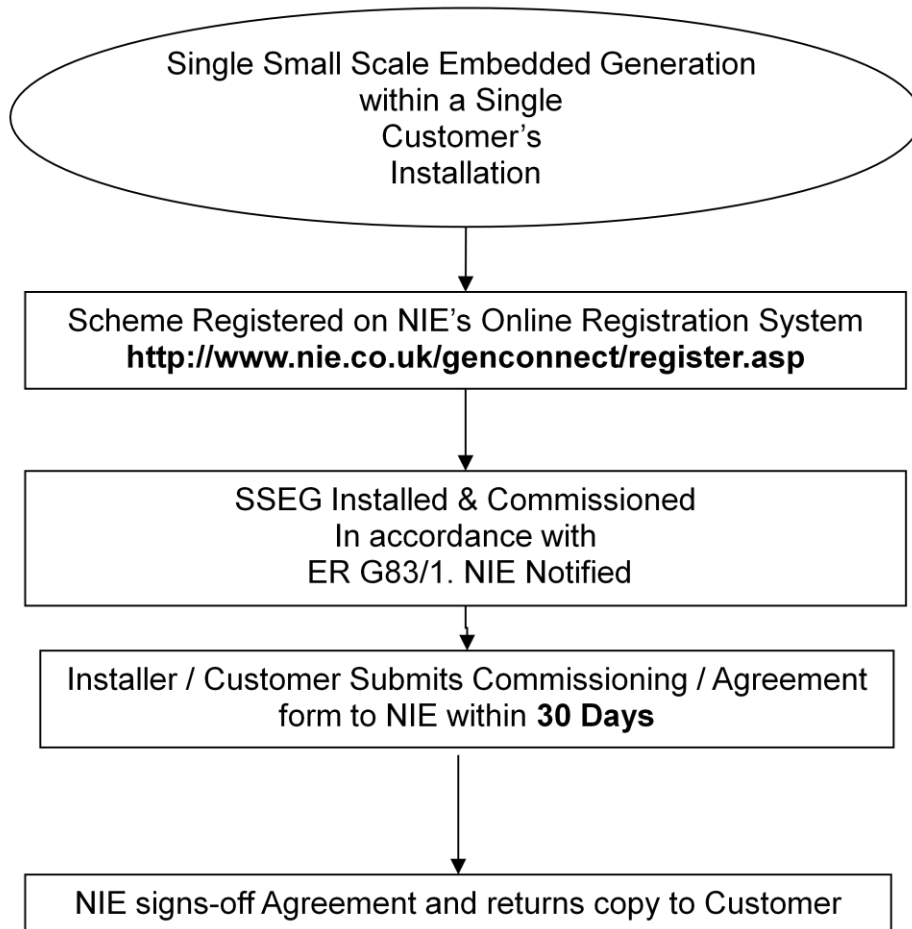
Free-standing solar equipment

Planning permission is not required provided that: 1. There is only one freestanding solar panel installation within the boundary of the house; 2. The area of the free-standing solar panel does not exceed 14 square metres; 3. No part of the panel exceeds 2 metres in height; 4. No part of the panel is closer to a road than the part of the house nearest the road; **Note:** The primary purpose of solar equipment must be to provide heat or energy for a domestic property. Equipment must be removed as soon as reasonably practicable when no longer in use.

Listed buildings usually need Listed Building Consent for any building operations. Your local area planning office will be able to advise you.

Small Scale Embedded Generation Connection Procedure

This flow chart shows the process to connect Small Scale Embedded Generation (SSEG) to the NIE Network. This process applies to installations of embedded generation up to 6.5kW single phase and up to 20kW three phase. You should also contact your Energy Supply Company to have a suitable import / export meter installed.



G59 Connection Process- 9 Steps

Applies to generation greater than 6.5kW single phase & greater than 20kW three phase

Step 1	Customer Registers their interest on NIE website and downloads Generator Questionnaire and letter http://www.nie.co.uk/genconnect/register.asp
Step 2	<p>Applicant to complete and return Generator Questionnaire and forward to: Generation Connections, Northern Ireland Electricity 57 Dargan Road, Belfast, BT3 9JU</p> <p><u>Checklist for your application to NIE:</u></p> <ol style="list-style-type: none"> 1. Completed generation questionnaire 2. Cheque for Connection Application Fee to NIE Ltd 3. Copy of approved planning permission 4. Copy of generator technical specification which should include: -Flicker co-efficient -Starting currents and type of starter for each generator installed. <p>Note that if you have an inverter connected generator then you will also need to include a copy of the harmonics report up to the 50th harmonic)</p> <p>5. 1:2500 and 1:500 scale site location plan. Note that for any generation greater than 150KVA a substation will be required. If this is the case you will be required to provide a level substation site [4.5m x 4.5m] or [5.5m x 4.5m] with vehicular access in the position provisionally agreed with us which should be free of all restrictions and have unobstructed access from a public thoroughfare at all times. If your generator is greater than 150KVA please mark your preferred substation location on your site location map.</p>
Step 3	NIE consider Applicant's proposal and connection implications.
Step 4	NIE issue Applicant with formal Terms and Conditions for connecting the Generator, where applicable this will include a quotation for Costs.
Step 5	Applicant formally accepts Terms and Conditions for Connection and pays NIE connection charge if applicable. On receipt of acceptance and payment NIE initiates any legalities required: Wayleave Approval; Cable Easements; Substation Lease; Planning Permission
Step 6	NIE provides Applicant with Generator Connection Agreement and blank copy of the embedded generation test record (Schedule 1A).
Step 7	<p>Applicant to advise NIE of the Generator's Trading arrangements.</p> <ul style="list-style-type: none"> » NIE to finalise/agree trading arrangements with the applicant. » Installation of metering etc
Step 8	Applicant to return signed and witnessed connection agreement. Applicant carries out tests and provide NIE with signed certification. Note that NIE requires 10 working days notice if test require the generator to be paralleled with the NIE Network.
Step 9	<p>NIE countersigns Generator Agreement and returns it to Applicant</p> <p>Once Generator Agreement is in place and has been signed by NIE the Generator can be Paralleled with NIE's Network</p>

The Questions and Answers listed here are a sample of the main issues which arose during the recent '*Rural Renewables*' seminar.

Please contact the speakers and representatives listed below if you have additional queries.

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Useful Contacts:

Power NI: www.powerni.co.uk

NIE: www.nie.co.uk

Action Renewables: www.actionrenewables.org

Energy Saving Trust: www.energysavingtrust.org.uk

Rural Network for Northern Ireland: www.ruralnetworkni.org.uk

