

**MARKET REPORT ON THE
RENEWABLES**

March 2010

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This report is part of InterTradelreland's First Stop Shop service aiming to assist and advise businesses on the island, on issues of cross-border trade. First Stop Shop comprises these services:

- **A Simple Guide to Cross Border Business:** A practical guide that provides answers to the most common financial and legal questions of operating cross-border.
- **Trade Accelerator Voucher:** A financial support for companies operating in the other jurisdiction to get professional advice in areas such as taxation, employment law, currency, or regulation.
- **Market and Industry Information:** InterTradelreland has extensive market and industry information available through the Business Monitor and the Trade Statistics Webpage. This data will help companies to take informed decisions and develop sound strategies.

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EXECUTIVE SUMMARY

This report considers renewable energy generated from natural sources such as wind, sun or bio-mass and looks particularly at the microgeneration and sale of renewable energy and heat for single site usage. The objective of the report is to provide an overview of the renewable energy microgeneration segment from an all-island perspective and focus on indigenous businesses.

Some of the findings of this report are:

- Estimating the market size and value of the microgeneration segment of the renewable energy sector, is a complex task due to the fact that many of the companies involved in the industry are also involved in other areas, such as heating or electric and mechanical engineering.
- The microgeneration industry on the island of Ireland is composed of a variety of business types, each of varying size and dealing with different technologies and applications of renewable energy.
- There are approximately 900 energy companies on the island of Ireland. Around 250 of those companies are involved in microgeneration of renewable energy either as distributors, installers or manufacturers.
- The large majority of microgeneration systems are being imported from established manufacturing bases in Europe, USA and Japan where renewable energy has been a mainstream industry for longer.
- The main challenge of microgeneration is found at the adoption stage. Therefore, the role of government funding schemes has become very important for the microgeneration market uptake.
- There are approximately 1,000 installers in various renewable technologies trained through the schemes currently in existence.
- Cross-border trade is an important aspect of the microgeneration sector in Ireland. A large number of businesses would operate across the jurisdictions, as the training, skills, equipment, systems and regulations are very similar.
- Both jurisdictions have grant support schemes for the promotion of microgeneration technologies.
- Greater investment and further commercialisation will enable the microgeneration sector to achieve its potential of becoming part of a commercial mass market decentralised energy system.
- The sector has real potential to become a large growth industry in the future, particularly as measures are taken to deal with higher energy costs, energy security and carbon emissions.

1. INDUSTRY OVERVIEW

The renewable energy microgeneration industry in Ireland has been one of the fastest growing sectors over the past ten years, and is set to grow even more with the move towards low carbon economies and increased awareness of energy security, climate change and energy prices. According to the Irish Department of Communications, Marine and National Resources (DCMNR), renewable energy will be a critical and growing component of Irish energy supply to 2020 and beyond¹.

This report considers renewable energy generated from natural sources such as wind, sun or bio-mass and looks particularly at the microgeneration and sale of renewable energy and heat for single site usage.

Microgeneration is “the small-scale production of heat and/or electricity from a low carbon source”². As Ireland currently imports over 90% of its energy from fossil fuels, the current market for microgeneration systems- such as solar panels for water heating, wind turbines for electricity generation, biomass and heat pumps, as sources of energy- is set to increase. Microgeneration could contribute to the CO2 reduction targets as well as to create a more diverse and secure energy supply.

The objective of the report is to provide an overview of the renewable energy microgeneration segment from an all-island perspective and focus on indigenous businesses. The report includes information on trends, economic forecasts, key players and cross-border activity within the sector.

1.1 Market size

According to estimates from Mintel, the combined value of the renewable electricity market and the market for renewable fuels for transport was €700 million in 2008 and it will reach almost €2 billion by 2013. In 2007, a single electricity market was introduced on the island, which has created a wholesale market for electricity across Northern Ireland and Ireland and has benefited the renewable electricity market³.

BOX 1: Microgeneration Technologies

Solar ventilation: Such technologies convert sunlight into usable heat (water, air, thermal mass), cause air movement for ventilating, or future use, with little use of other energy sources.

Air source heat pumps: They absorb heat from the outside air. This heat can then be used to warm water for radiators or underfloor heating systems, or to warm the air.

Solar photovoltaic (PV) systems: They use energy from the sun to convert solar radiation into electricity, which can be used directly to run appliances and lighting. Systems come in various forms including solar tiles, roof-integrated panels and on-roof panels.

Solar thermal (hot water): They use the sun’s energy to heat water, or a heat transfer fluid, which passes through the panel or collector.

Ground source heat pumps: can be used effectively for space and water heating. Heat pumps take heat energy from a source such as the ground, a body of water or simply the outside air and transfer it to the building.

Micro-hydro turbines: use a turbine to convert the energy stored in water flowing downhill into electricity. Useful power may be produced from even a small stream.

Wind turbines: A wind turbine harnesses energy from the wind to produce electricity. The blades drive a generator to produce electricity.

Wood pellet stoves: Wood burning systems, emit carbon dioxide. However, as the wood fuel is cultivated, it absorbs the same amount of carbon dioxide as is released when burnt.

¹ Department of Communications, Marine and Natural Resources. Government White Paper: *Delivering a Sustainable Energy Future for Ireland. The energy policy framework 2007-2020* (2007).

² Department for Business, Innovation & Skills. *Our energy challenge. Power from the people: Microgeneration strategy*, March 2006.

³ Mintel Oxygen. *Renewable Energy, OCO Industrial Series* (2008). For more information on the SEM and microgeneration see www.actionrenewables.org/uploads_documents/SEM0David-Stevens.pdf.

According to Sustainable Energy Ireland, the share of electricity from renewable energy in Ireland has nearly doubled between 1990 and 2007, from 4.9% to 9.4%. Most of this increase took place in the seven years since 2000⁴.

In 2007, there were 30 renewable projects in operation in Northern Ireland homes with 132 MW of capacity⁵. In addition, the Department of Enterprise, Trade and Investment (DETI) estimates that the Energy and Environment sector of Northern Ireland's economy alone employs 4500 people in 200 companies and currently has a turnover of £300 million.

Estimating the market size and value of the microgeneration segment of the renewable energy sector, is a complex task due to the fact that many of the companies involved in the industry are also involved in other areas, such as heating, electrics, mechanical and engineering. According to the Department for Business, Enterprise and Regulatory Reform (BERR), there is very little large-scale manufacturing of microgenerators in the UK and the installer market is highly fragmented with sales and marketing functions underdeveloped⁶.

Domestic market

In 2005, Action Renewables found that domestic households were potentially the largest group that could adopt small scale renewable energy technologies. In 2006, the number of dwellings in Northern Ireland reached 705,000⁷ and in 2008 the NI Planning service authority approved 17,783 new residential developments which represent a significant increase in the domestic market⁸. In Northern Ireland in 2008, the domestic sector recorded 1,263.2 ktoe in energy consumption⁹. The number of private housing units built in 2002 in Ireland, reached a total of 1,279,617 and in 2008 the number of new house completions was 51,324¹⁰.

In Ireland, the total amount of energy used by the residential sector was 2,990 ktoe in 2007 which represents around 23% of the total of energy consumption. These figures could serve as an indication of the potential size of the domestic market for microgeneration technologies.

According to Northern Ireland Housing Executive (NIHE), 2,815 renewable energy systems were installed in Northern Ireland during 2007 and 2008 through the DETI's Reconnect programme. Sustainable Energy Ireland (SEI) has received 26,352 applications for its Greener Homes Scheme - for microgeneration technology - 54% of which are for solar technology.

Commercial market

The commercial sector is also an important market for microgeneration of renewable energy and is increasingly relevant for the sector as many companies are looking to reduce their energy costs by adopting renewable options. In 2008, there were 4,410 granted planning applications for non-residential buildings including commercial and industrial buildings in Ireland. In Northern Ireland, 1,114 commercial building applications 388 industrial applications were approved in the period April 2007- March 2008¹¹.

Public sector market

The public sector, although smaller than the residential and commercial sectors, has potential for business development opportunities for microgeneration, particularly if green procurement guidelines are introduced and implemented (the Irish government is expected to introduce such guidelines soon). In Ireland it is estimated that public sector's final consumption of energy is 595.12 ktoe. In 2008, there were 6,801 dwellings completed for public sector use and around 7,000 for social housing provision¹². In Northern Ireland, 1,889 planning applications were approved for government and civil use.

1.2 Market segmentation

According to Sustainable Energy Ireland, a microgenerator might use any one of the following technologies to generate electricity and heat:

- Wind turbine
- Photovoltaic panels (also known as solar electric panels)
- Micro-hydro (scaled down version of hydro-electricity station)
- Micro-CHP (fuelled by bio or fossil fuels)

Technologies such as solar thermal hot water ground source heat pumps and air source heat pumps are considered microgenerators as well. According to a report commissioned by BERR, there were approximately 17,000 microgeneration installations in Northern Ireland in 2008.

The following table (Table 1) shows a breakdown by technology for installations in Northern Ireland.

In Table 2, a similar breakdown can be found for Ireland. SEI estimates that there approximately 25,000 micro installations in Ireland.



Table 1: Number of micro installations in Northern Ireland (2008)¹³

	Solar PV	Wind	Micro-CHP	Micro-hydro	Solar thermal	Biomass	GSHP	ASHP
Northern Ireland	232	473	1-3	2	14,400-15,000-	938	538	73

Table 2: Number of grant-assisted micro installations in Ireland (2009)¹⁴

	Domestic (grant)	Commercial (grant)	Estimate (total)
Appliances	Installed	Installed	Installed
Biomass Boiler	3965	162	4400
Biomass Stove & Stoves w/ Backboilers (wood pellets)	1408	N/A	1600
Solar Thermal – no. of installations	12611	125	13,000
Heat Pumps	5150	48	5500
Solar PV			15
Wind			169
Total			24,684

¹³ Element Energy, *Numbers of microgeneration units installed in England, Wales, Scotland, and Northern Ireland*, 2008.

¹⁴ SEI Estimate includes sites with installations but without grant (therefore unknown to SEI). There are currently none CHP micro installations registered by SEI.

⁴ Sustainable Energy Ireland and Energy Policy Statistical Support Unity, *Renewable Energy in Ireland. 2008 Report – Focus on wind energy and biofuels*, October 2008.

⁵ Department for Business, Enterprise and Regulatory Reform. *Energy Markets Outlook*. October 2007 (2007).

⁶ Department for Business and Regulation Reform, *Microgeneration Strategy: The status of microgeneration-related industries in the UK*, 2006.

⁷ Home Energy Conservation Authority. *Home Energy Conservation Report 2008*. Northern Ireland, 2008.

⁸ The Planning Service. *Development Management Statistical Bulletin*. August, 2009.

⁹ Figures for Northern Ireland: BERR, Regional Energy Consumption Statistics, 2006/Figures for Ireland: SEI database.

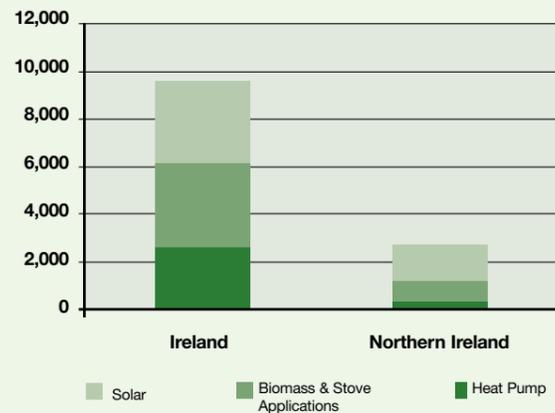
¹⁰ CSO.

¹¹ The Planning Service. *Development Management Statistical Bulletin*. August, 2009.

¹² Environment, Heritage and Local Government. *Review of the Construction Industry 2008 and Outlook 2009-2011*, September 2009.

Both jurisdictions have grant support schemes for the promotion of microgeneration technologies. The following graph shows the number of grant applications by technology in 2007. Solar technologies appear to be the technology which is most demanded on grant schemes both in Ireland and Northern Ireland.

Fig. 1: Microgeneration grants¹⁵



There are 1,382 installers registered in the Renewable Energy Installers Academy (REIA's) database. The following table presents a breakdown by segments.

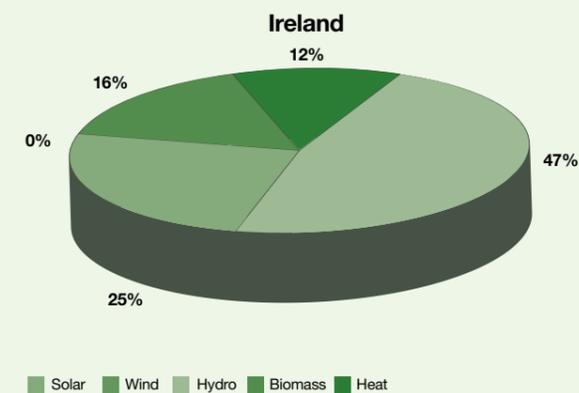
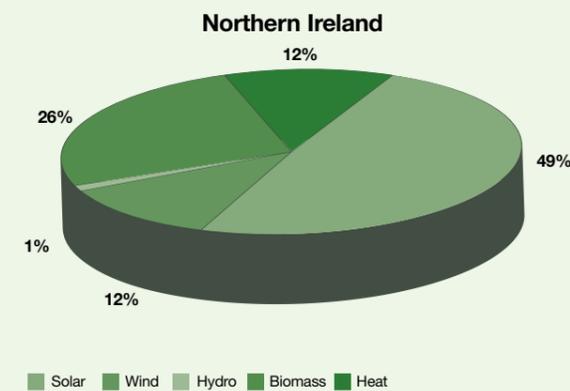
Table 3: Number of registered installers by technology

Technology	Registered installers (NI & Ireland)
Solar	619
Wind	254
Hydro	5
Biomass	290
Solar PV	45
Heat	169
Total	1382

This data provides an indication of the size of each segment. As illustrated by figure 2, solar technology appears to have a larger percentage of qualified installers both in Ireland and Northern Ireland.

This trend is consistent with the number of installations on the island, where solar and solar thermal installations represent the largest percentage.

Fig. 2: Percentage of registered installers in Ireland & Northern Ireland



The market for microgeneration of renewable energy can also be segmented by heat and electricity production. In 2007, the use of renewable energy for heating in home accounted for 24 ktoe and represented 13% of total renewable thermal energy usage in Ireland¹⁶. In Northern Ireland, 80% of the energy (excluding transport) is used for heat. According to DETI's energy draft framework, 'an increasing proportion of heat will need to be sourced from indigenous renewable sources'¹⁷.

Among the Sustainable Energy Association membership base, 65% of the members belong to the heat generation sector and 35% focus on electricity generation. It is important to mention that most companies and/or installers would deal with more than one technology within either heat or electricity production and a small number of companies (about 10%) would cross both sectors.

Furthermore, the microgeneration industry on the island of Ireland is composed of a variety of business types, each of varying size and dealing with different technologies and applications of renewable energy. However, the main categories in which businesses could be classified are:

- **Independent installers:** These are trained and registered installers of renewable energy systems and are usually sole traders who are diversifying from their main trade - i.e. plumbing, electrical, into renewables to supplement their usual work. They would be the large bulk of the industry in terms of numbers.



- **Small and medium size enterprises (SMEs):** With an approximate workforce of 6-20 staff, these companies would be involved in the supply and installation of systems and would be highly specialised and therefore vulnerable to sudden changes in the industry.
- **Large companies with renewable energy divisions:** These companies would usually and would have entered the renewables market from a related area - i.e. plumbing supplies, electrical goods, oil or gas contracting, and have established a small division within their business competency to focus on renewable energy.
- **Large renewable energy companies:** these would be the least numerous businesses in the sector. They are large companies with a turnover of more than £1million which have been established as a renewable energy company and operate as such, or have been acquired by another company in a similar market but continue to operate as a separate business.

It is important to mention that there are only few manufacturers of microgeneration systems in the island of Ireland, and these are mostly the large companies aimed at the export market. For example, Kingspan solar (formerly Thermomax solar but bought over by the Kingspan group) is the one of the largest solar vacuum tube manufacturers in Europe and over 95% of their produce is exported to the European market as demand is not fully developed yet on the island.

Other companies manufacturing microgeneration systems are for example, Glen Dimplex Group (who produce heat pumps), Moffet (who produce wind turbines aimed at the industrial scale side of the market), Efgem (who produce small wind turbines both for electricity production and heat generation) or Grant Boilers (who produce biomass boilers).

¹⁵ SEI and HECA.

¹⁶ SEI.

¹⁷ Department of Enterprise, Trade and Investment, *A Draft Strategic Energy Framework for Northern Ireland 2009*. July, 2009.

There are also a number of firms which import parts and assemble systems in Ireland and then sell them as a finished product under their own brand name, such as Rozell. The biomass fuel for heat systems is largely produced in Ireland, with Balcas in Enniskillen as the largest indigenous producer, followed by D-Pellet. There is also a sector of part manufacturers for related items such as tanks, piping, frames, etc.

However, the large majority of microgeneration systems are being imported from established manufacturing bases in Europe, USA and Japan where renewable energy has been a mainstream industry for longer. There are also an increasing number of imports from China, and although most of these are high quality, there are concerns about products meeting the necessary standards.

Overall, while there is a small but significant manufacturing base in existence on the island, most of the industry is geared towards supply and distribution.

1.3 Key players

1.3.1 Market leaders

There are approximately 900 energy companies on the island of Ireland. Around 250 of those companies are involved in microgeneration of renewable energy either as distributors, installers or manufacturers¹⁸. The market leaders in the heat/electricity microgeneration include manufacturers, suppliers and installers of renewable energy products and fuels. In Annex 1 you will find a non-exhaustive list of these market leaders and their contact details.

1.3.2 Development agencies

Ireland

Enterprise Ireland: Government agency responsible for the development and promotion of the indigenous business sector. It provides funding for business development in areas of marketing, R&D, exports etc. Through its GreenTech support, Enterprise Ireland helps

companies to look at the sustainability of their products and services. The scheme includes categories such as Implementing Environmental Standards, Environmentally Superior Products (ESP), Carbon Management/Reduction including Carbon Footprint Measurement and Applying for Eco labels.

www.enterprise-ireland.com

Northern Ireland

Invest NI: Government agency with the objective to grow the economy by helping new and existing businesses to compete internationally, and by attracting new investment to Northern Ireland. It has specific schemes designed at encouraging and supporting the renewable energy sector, such as the Invest NI Energy Managers Group and the Invest NI Energy Research, Knowledge Transfer Group, and Invest NI Biomass Group.

www.investni.com/index.htm

The Carbon Trust: The Carbon Trust was set up by the Government in 2001 to achieve a low carbon economy by working with organisation to reduce carbon emission now and to develop technologies that will emit low carbon emissions.

www.carbontrust.co.uk

Energy Savings Trust: Independent, UK-based organisation focused on promoting action that leads to the reduction of carbon dioxide emissions such as energy efficiency. Through their advice centre, the organisation offers free, comprehensive advice and support on energy efficiency and renewable technologies.

www.energysavingtrust.org.uk/Northern-Ireland-advice-centre

1.3.3 Industry networks and associations

Europe

MicroPower Europe: Campaign organisation open to all companies, EU representative bodies and others with an interest in promoting the sustainable energy technologies for the built environment collectively known

as microgeneration. MicroPower Europe was officially launched on January 1 2009.

www.microgenerationeurope.eu

Ireland

Éasca (the Environmental and Sustainable Construction Association): Was founded to promote the viability of sustainable construction in Ireland.

www.easca.ie

The Micro Electricity Generation Association

(MEGA): It promotes the development and expansion of a world class state-of-the-art micro electricity generation industry in Ireland, representing different and sometimes competing interests operating in the micro-electricity generation industry.

www.mega-micro.org

Northern Ireland

Action Renewables: The leading organisation in Northern Ireland in the promotion and development of renewable energy, has recently received accreditation as a Certification Body for the Microgeneration Certification Scheme (MCS) which has been set out by the UK government Department of Energy and Climate Change (DECC)

www.actionrenewables.org

Action Renewables Association: The Action Renewables Association is a new initiative within Action Renewables. Its objective is bring together like minded companies from across the full range of industry sectors in Northern Ireland around energy issues such as, energy efficiency, alternative sources and innovations.

www.actionrenewables.org

1.3.4 Regulatory bodies and agencies

Ireland

Sustainable Energy Ireland (SEI): Set up by the government in 2002 as Ireland's national energy agency. Their mission is to promote and assist the development of sustainable energy. Sustainable Energy Ireland manages programmes aimed at:

- Assisting deployment of superior energy technologies in each sector as required;
- Raising awareness and providing information, advice and publicity on best practice;
- Stimulating research, development and demonstration (RD&D);
- Stimulating preparation of necessary standards and codes; and
- Publishing statistics and projections on sustainable energy and achievement of targets.

www.sei.ie

Department of Communications, Energy and Natural Resources: The Irish Government Department with responsibility for energy policy.

www.dcenr.gov.ie

Department of Environment, Heritage and Local Government: The Irish Government Department with responsibility for building regulations and enforcement.

www.environ.ie/en

Commission for Energy Regulation: The Commission for Energy Regulation (CER) is the independent body responsible for overseeing the liberalisation of Ireland's energy sector.

www.cer.ie

¹⁸ Estimates based on Dun & Bradstreet database of energy companies in Ireland, North and South.

Northern Ireland

Department of Enterprise, Trade and Investment (DETI): Formulates and delivers economic development policy in terms of Enterprise, Social Economy, Innovation, Energy, Telecoms, and Tourism in Northern Ireland.
www.detini.gov.uk/cgi-bin/gethome

Department of Energy and Climate Change : Department responsible for UK energy and climate change policies.
www.decc.gov.uk

Northern Ireland Planning Service: Provides operational planning policy, development plans and planning decisions.
www.planningni.gov.uk/index.htm

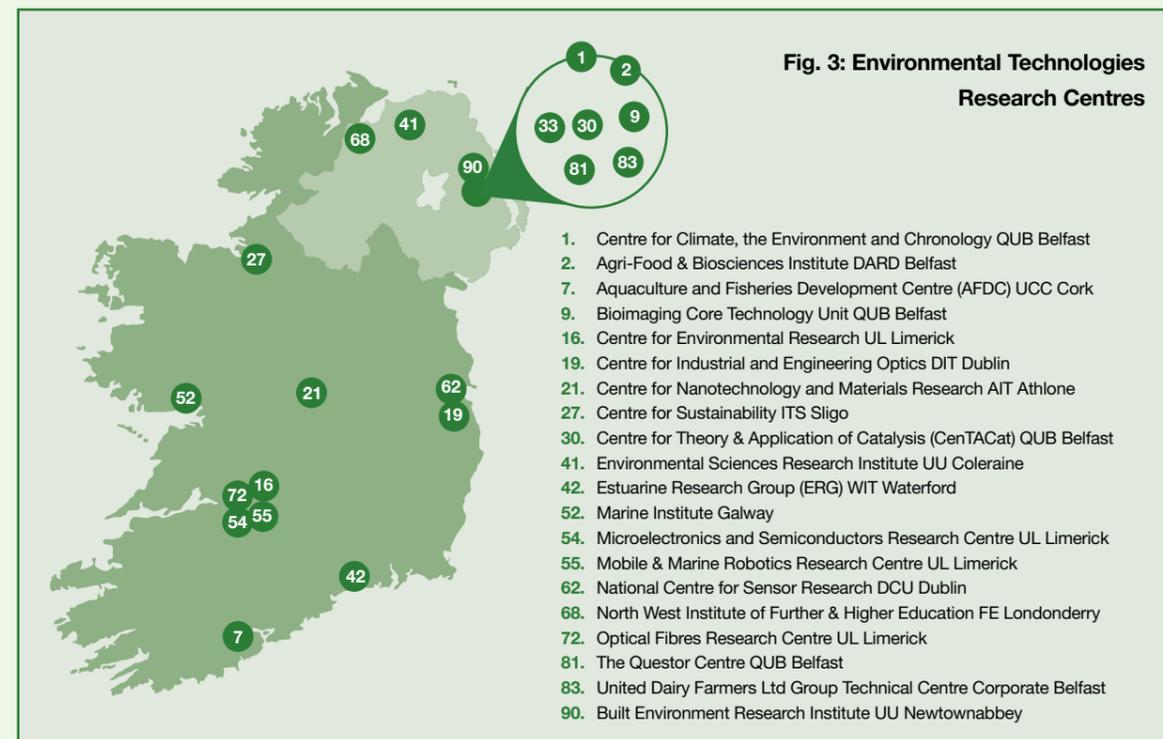
Northern Ireland Housing Executive: As the Home Energy Conservation Authority for Northern Ireland, NIHE has the responsibility to improve the energy efficiency of residential accommodation by 34%. The NIHE undertake projects to test the viability of renewable and emerging technologies which are or will be installed in their properties.

NIHE's website provides relevant information on renewable energy technologies for domestic use.
www.nihe.gov.uk/index/ee_home/renewables.htm

1.3.5 Renewable energy research and technological centres

According to InterTradelreland's study, 'Mapping Study of Research and Technological Development Centres on the Island of Ireland'¹⁹, the leading centres working in this area in Northern Ireland are: The Agri-Food and Biosciences Institute, the Questor Centre and the Built Environment Research Institute. In Ireland, the main centres are: The Centre for Environmental Research and the Centre for Sustainability.

Figure 3 shows the location of the technological centres involved in environmental research.



¹⁹ InterTradelreland. Mapping Study of Research and Technological Development Centres on the Island of Ireland. 2008.

1.4 Useful information

Microgeneration Certification Scheme (MCS): Independent scheme that certifies microgeneration products and installers in accordance with consistent standards. It is designed to evaluate microgeneration products and installers against robust criteria providing greater protection for consumers.
www.microgenerationcertification.org

Renewable Energy Assurance (REA): The scheme has been set up by the Renewable Energy Association in the UK. It ensures consumers who wish to buy or lease small generation units for their home, a building or for a small business that they been supplied by suppliers who abide by the high standards set out by its Consumer Code and that consumers receive a high quality service and experience.
www.realassurance.org.uk

The Renewable Energy Centre: Website providing a wide variety of information regarding renewable energy with focus on microgeneration in the UK.
www.therenewableenergycentre.co.uk

Construct Ireland: Magazine dedicated to sustainable construction in Ireland. It covers issues of low energy and low carbon design and construction in Ireland.
www.constructireland.ie

Change: Campaign designed to raise public awareness of climate change, its causes, impacts and implications for Ireland. Its website contains a wide variety of information on renewable energy and carbon emissions reduction.
www.change.ie/en/About/FAQs

The Environmental Information Service (Eolas ar an Comhshaoil): A free public environmental information service established by the Department of the Environment, Heritage and Local Government to promote environmental awareness and sustainable living by providing access to wide-ranging and authoritative information.
www.askaboutireland.ie/reading-room/environment-geography/environmental-information

Envirocentre.ie: Portal with environmental information from Enterprise Ireland. It includes information on climate change, renewable energy, energy efficiency and other environmental issues targeted for small-medium enterprises.
www.envirocentre.ie/

EU Funding: The European Commission has gathered a comprehensive database of funding sources for Irish business particularly in the area of research and innovation. The database contains European and national funding schemes.
www.europe.eu

Mintel Oxygen: Company that provides exclusive market analysis and information on consumer behaviour trends covering UK, European, US and International consumer markets.
www.oxygen.mintel.com/index.html

Key Note: Long-established market research publisher providing business information to corporate and academic customers throughout the UK.
www.keynote.co.uk

Kompass: Provider of business information that can be used for multiple purposes such as sales, marketing, procurement and research.
www.kompass.co.uk



2. INDUSTRY TRENDS

2.1 Competitive landscape

According to Energy Trust, the main challenge of microgeneration is found at the adoption stage. Currently, the price of microgeneration technologies continues to be high, and some are not yet fully commercialised. For this reason, the role of government funding schemes has become very important for the microgeneration market uptake. Furthermore, regulation (notably in construction) and incentives play also a role in the promotion of the sector. In this sense, according to Energy Trust, 'a combination of different policies, providing incentives to both consumers and providers, could drive massive carbon savings from microgeneration'²⁰.

BOX 2: Price and export microgeneration tariffs

ESB microgeneration tariff: ESB has recently introduced a new tariff of 9 cents per kWh for Residential Customers. ESB is also offering a payment of 10 cents per kWh for the first 3,000 kWh exported annually to the first 4,000 microgenerators connected in the next 3 years.

NIE single rate export tariff: NIE offers a payment of 5.22p/kWh for electricity generated. In addition, from 1st April 2010 to 31st March 2011 microgenerators will be eligible for double NIROCs (renewable obligation certificates) amounting to 8.32 p/kWh. NIE Energy pays £41.60 per NIROC therefore double ROCs will equate to £83.20 per MWh.

2.1.1 Labour market

The microgeneration sector covers a wide variety of occupations, including:

- Skilled installers - may already be qualified as plumbers, electricians, etc
- Labourers
- Engineers
- Skilled environmental consultants
- Procurement/Logistics
- Sales/Marketing
- Operatives/Non-skilled

In terms of skilled installers in this sector, approximately 1,000 installers in various renewable technologies have been trained through the training schemes currently in existence. Action Renewables in Northern Ireland, and SEI in Ireland, have developed training courses for the installation of wind and hydro micro-turbines as well as for PV panel installation, biomass and solar water heating technologies through the Renewable Energy Installers Academy (REIA).

The REIA courses are delivered by training providers in both Northern Ireland and Ireland. Three further Education Colleges in Northern Ireland cover five microgeneration renewable technology courses, while five training providers in Ireland cover the three heating technology courses.

As it currently stands, over 1,300 certificates have been awarded since the beginning of REIA in 2004. A large number of participants have completed more than one renewable technology training course. Approximately 1,000 individuals have passed through at least one of the REIA technology courses. The breakdown of certificates awarded per technology can be seen in Table 4.

Table 4: Number of certificates awarded per technology by the REIA (2009)

RE Technologies	Northern Ireland	Ireland	Total
Biomass	191	104	295
Heat Pump	68	101	169
Solar Photovoltaic	21	24	45
Solar Thermal	322	311	633
Wind	88	166	254

Under REIA's regulations, individuals wishing to take part in the heating technology courses such as biomass, heat pumps and solar thermal are required to have a NVQ level 3 qualification (NI) or level 6 qualification (Ireland) in plumbing and heating. Those wishing to participate in the PV and wind courses are required to have NVQ level 3 or level 6 electrical qualifications.

As it currently stands, the only REIA-approved training centre for the wind course is South West College, Omagh. This means anyone wishing to take part in the course and gain a City & Guilds certificate for installing small scale wind turbines must travel to Omagh, Co. Tyrone. The wind lab at South West College, Omagh, was supported by the EU Interreg funding for REIA. A second training centre delivering the REIA Wind course in Ireland would be of benefit to the renewable energy industry across the island of Ireland.

It is important to mention that, currently there is no legal requirement for training for installers operating in Ireland or Northern Ireland. However, to be eligible for the available support schemes of the island, installers must be certified.

In terms of employment, according to the Irish Wind Energy Association, microgeneration is estimated to provide around 5% or 578 of the potential jobs available within the wind energy sector²¹.

Furthermore, the Irish Employment Authority (FÁS) report 'Job Opportunities in the Down-turn' asserts that although the employment opportunities in the construction sector are currently scarce, there are some areas where activity is growing due to the sustainability agenda. According to this report, schemes such as Home Energy Saving or Greener Homes have created demand for energy assessors and micro-renewable energy installers²².

2.1.2 Regulations

European Union

Renewable Energy Directive: European leaders signed up in March 2007 to a binding EU-wide target to source 20% of their energy needs from renewables such as biomass, hydro, wind and solar power by 2020. On 23 January 2008, the Commission put forward differentiated targets for each EU member state, based on the per capita GDP of each country, with significant support for microgeneration.

www.euractiv.com/en/energy/eu-renewable-energy-policy

EU Directive on Energy Performance of Buildings (2002/91/EC): Establishes minimum requirements as regards the energy performance of new and existing buildings ensure the certification of their energy performance and require the regular inspection of boilers and air conditioning systems in buildings.

www.europa.eu/legislation_summaries/energy/energy_efficiency/index_en.htm

²⁰Energy Ireland 2009. *Renewable and indigenous energy & CHP*, available at: www.energyireland.ie/articles/generating_the_future.asp.

²¹Irish Wind Association, *Jobs and Investment in Irish Wind Energy, Powering Ireland's Economy*. July 2009.

²²Training & Employment Authority, *Job opportunities in the Down-turn*. June 2009.

Ireland

Part L 'Conservation of Fuel and Energy' of the Building Regulations 2007 (SI 854 of 2007): Under these new building regulations all new houses and apartments are required to use either 4kWh of renewable electricity per m2 per year or 10kWh of heating/hot water from other renewable energy sources per m2 per year.

[www.viron.ie](http://www.environ.ie)

Northern Ireland

The Energy Policy Framework 2007 – 2020: Describes the actions and target for the energy policy framework out to 2020, to support economic growth and meet the needs of all consumers. The Paper sets a clear path for meeting the Government's goals of ensuring safe and secure energy supplies, promoting a sustainable energy future, and supporting competitiveness.

www.dcenr.gov.ie/Energy/Energy+Planning+Division/Energy+White+Paper.html

The Building Regulations (NI) 2000: The '2000 Regulations' set out technical requirements and reference particular provisions that are deemed to satisfy these requirements, subdivided into Parts, with each Part defining the requirements for a particular aspect of the building design and construction.

www.dfpni.gov.uk/br-legislation-2000-regulations

2.2 Trends

2.2.1 Current issues in the market

- The generalisation and promotion of smart metering systems - which calculate the amount of consumed and exported electricity - would have a positive impact on the adoption of microgeneration technologies, as this would facilitate the monitor and control of energy consumption by providing visual indicators of energy usage over particular real time intervals. The wider availability of smart metering has been proposed by both the Northern Ireland and Ireland authorities.

- According to the Sustainable Energy Association, the proper regulation and accreditation of both products and installers remains an important issue which will have a serious impact on public confidence, perception and standards within the industry.
- The requirement of planning permission for microgeneration systems can represent a barrier for the industry in Northern Ireland, according to Mintel. However, the Planning Service, intends to introduce permitted development rights for microgeneration technologies that meet certain criteria, which will benefit the industry and will bring the system in line with Ireland and other European countries.
- However, the Planning Service, intends to introduce permitted development rights for microgeneration technologies that meet certain criteria, which will benefit the industry and will bring the system in line with Ireland and other European countries.
- Consumers on the island of Ireland are becoming more aware of climate change and the need for energy efficiency and 'green' energy sources. Saving energy is among the top three green activities that avoid wasting food. Consumers' rationale is very linked to household cost cuts, which puts renewable energy microgeneration in a favourable position²³.

2.2.2 Challenges

- The perceived high cost of the technology is perhaps the most significant barrier, with most suggestions for overcoming this relating to the provision of grant schemes. Although grant schemes can help in the uptake of these technologies, there is a considerable cost attached to such support programmes. For example, DETI estimates that it could cost up to £800 million to provide grant assistance of 50% to install microgeneration technologies in 50% of homes in Northern Ireland²⁴.

- In the current economic climate, one of the challenges for the industry is the difficulty in securing credit, both for short term cash flow and longer term capital investment. In this regard, InterTradelreland's Business Monitor has found that cash flow and low demand were the main issues affecting companies' growth during the fourth financial quarter in 2009²⁵.
- The microgeneration of renewable energy market is a complex one; according to Mintel, there is a very fine line between construction supplies and the supply and installation of renewable energy services. For example, systems like geo-thermal heating falling into the natural domain of the plumbing industry. For this reason it is important to generate clear and sufficient information addressed to consumers as well as to develop stronger marketing for renewable energy options.
- Renewable technologies differ greatly in terms of their technical characteristics, costs and technological maturity.
- With a lack of compulsory accreditation, registration and regulation system, there is a threat from sub-standard products and installations which could damage the image of renewable energy and adversely affect public perception and confidence. Therefore, to ensure the sector's development is essential to establish a standardised accreditation system.
- The UK Microgeneration Strategy Progress Report has identified four market enabling factors for the sector: 1) accessible planning permission, 2) resolving certification, accreditation and quality issues, 3) improved marketing, and 4) a standardisation of energy estimation methodologies²⁶.

2.2.3 Opportunities

- Greater investment and further commercialisation will enable the microgeneration sector, to achieve its potential of becoming part of a commercial mass market decentralised energy system²⁷.
- Building regulations play an important role in encouraging the incorporation of microgeneration technologies in new build. The UK government plans to introduce tighter building regulations requiring new homes to be zero carbon by 2016. In Ireland, government is looking at developing carbon-zero homes part of the public housing programme. The introduction of building regulations in Ireland in July 2008 (Part L) of mandatory microgeneration on all new homes, and expected introduction in Northern Ireland of the same, will see a large increase in demand for microgeneration when the current construction dip ends and the housing market improves.
- A revision and new agreement on the 2002 Energy Performance of Buildings Directive, will require all new buildings constructed after 2020 to be 'nearly zero' energy buildings which means that new buildings would need to have very high energy performance and use energy from renewable sources generated either on-site or nearby²⁸. This could represent significant growth opportunities for the industry.
- Ground Source Heat Pump technologies are becoming more popular on new self-build domestic property development particularly when used in conjunction with under floor heating²⁹.
- According to InterTradelreland's all-island Business Monitor Survey, in the last financial quarter (Jul-Sept 09), 37% business cited energy cost as the most significant challenge. Increasing energy costs could force business to seek for alternatives such as microgeneration of renewable energy.

²³ Mintel Oxygen. *Ethics and the Irish Consumer*, September 2009.

²⁴ Department of Enterprise, Trade and Investment, A Draft Strategic Energy Framework for Northern Ireland 2009. July, 2009.

²⁵ InterTradelreland Business Monitor Survey, July-September 2009.

²⁶ BERR, Microgeneration Strategy Progress Report. June, 2008.

²⁷ Carbon Trust, NI renewable energy supply chain. June, 2008.

²⁸ All new buildings to be 'near-zero-energy' by 2020, ENDS Europe, November 19, 2009.

²⁹ Action Renewables. Northern Ireland for Small Scale Renewable Energy Technologies, Market Research Report. July 2005.

- There is abundance of small businesses supplying this market and according to Mintel, some consolidation would help this sub-sector advance through economies of scale³⁰.
- Mutually beneficial alliances with banks and house-builders could generate important opportunities in the microgeneration of renewable energy industry.
- According to Sustainable Energy Association, the opportunities for development in the industry are the application of microgeneration systems to meet the requirements of diversification in energy needs. For example, the intended and expected growth of electric vehicles will provide a massive opportunity for the microgeneration of electricity to supply individual vehicles. The hydrogen energy sector is also expected to be an area of great potential in future as it will allow for greater energy storage from renewables in a low carbon format.
- Members of Sustainable Energy Association include a number of manufacturers of microgeneration systems and as such are continuously developing new technologies and scoping new markets. Most new technologies are in the area of electricity production, and in particular photovoltaic systems, as this is the fastest changing area of renewables.
- The introduction of support mechanisms, such as feed-in tariffs, renewable heat incentives, carbon taxes or renewable energy loans, would increase the demand for renewable energy products.
- The Energy Saving Trust states that many microgeneration technologies will produce cost competitive energy by 2020.
- There is a variety of capital supports for microgeneration technologies. The following table provides an overview of the schemes available in Ireland and Northern Ireland.

Table 5: Support schemes for micro-generation of renewable energy³¹

	Ireland	Northern Ireland
Domestic Grants	Greener Homes Scheme (residential renewable energy grants)-up to €3,500	DTI Low Carbon Buildings Programme – support for householders and community organisations for up to £2,500. Top-Up from NIE for Solar Thermal, Solar Photovoltaics and Wind. (up to £4,500).
Commercial Grants	Renewable Heat Deployment Programme (support of up to 30% for Capital Investment projects and up to 40% for Feasibility Study projects) Combined Heat & Power Deployment Programme.	Support for Biomass Heating- support for the installation of biomass heating systems including wood pellet and wood chip.
R&D Grants	Small- and Micro- Scale Generation Pilot Field Trial (to assess technical, financial and regulatory issues)	
Public & Community Grants	Support for Exemplar Energy Efficiency Projects – SEEEP (Generally, grant support will not be less than €15,000 and will not exceed €200,000)	Wind turbines for schools LCBP Phase 2 Top-up has been developed to assist schools in Northern Ireland with installing turbines.

³⁰ Mintel International Group Limited, *Renewable Energy: CCO Industrial Series*. 2008.

³¹ SEI (for information on Ireland) & NIE (for information on Northern Ireland).

2.2.4 Outlook

Overall, the distributed energy industry is, like most industries at this time, facing a difficult economic climate. However, the sector has real potential to become a large growth industry in the future, particularly as measures are taken to deal with higher energy costs, energy security and carbon emissions.

Consumers are becoming more aware of the economic advantages of microgeneration over conventional oil and gas fuel, particularly for space and water heating; while farms and businesses are increasingly aware of the benefits to be gained from producing electricity ‘on-site’ through wind turbines, PhotoVoltaics or Anaerobic Digestion.

Governments of the island are taking greater lead in renewable energy policy and implementation. The Northern Ireland Assembly and the Irish Government are formulating strategies to encourage a larger share of renewables in the energy mix, which will have a positive effect on the microgeneration sector.

According to Action Renewables, a conservative forecast for the industry is the generation of 2,360 kW and 10,450 kWh of capacity by 2015. Furthermore, it is expected a total additional reduction in CO₂ emissions on the region of 6,500 tonnes per year by 2015³².

The Irish Wind Energy Association estimates that in the next five years, there will be around 4,500 wind installations on the island. It is important to mention that these estimations assume that Northern Ireland will only have 500 wind installations because of the current planning permission restrictions and lack of tariff schemes. This number could be doubled if the regulatory environment changes³³.

According to a Carbon Trust report, with the assistance of a range of government grant initiatives, the small UK household microgeneration sector has seen growth and some projections suggest that certain microgeneration technologies will produce competitive energy by 2020, with the potential to deliver up to 30-40% of the UK’s total electricity demands by 2050³⁴. As targets tighten

further in 2010 and 2013, it is expected that micro-generation technologies will become more frequent in new buildings. The Energy Savings Trust has produced a number of recommendations that would foster the development of the renewable energy microgeneration industry (See Box 3).

BOX 3: Energy Savings Trust - recommendations to support renewable energy microgeneration industry.

- **Regulation: Make compulsory the replacement of less efficient heating for low-carbon products.**
- **Carbon pricing: Price carbon at least £20 or €15/tonne of CO₂.**
- **Raise awareness and change attitudes: Run an awareness programme that motivates consumers to include environmental factors when making investment decisions.**
- **Provide information and advice: Set up an independent advice service on microgeneration. Create awareness of EPCs (or Building Emissions Ratings/BER in Ireland).**
- **Financial support: At considerably higher levels than presently planned (post current grant support) to encourage mass market take up of microgeneration. Provide a guaranteed ‘feed in’ tariff; or create a ‘Microgeneration Obligation’.**
- **Support early commercialisation: Use the Environmental Transformation Fund to support household generation and field trials. Increased investment in peripheral technology.**
- **Provide a clear framework: Set out plans that encourage companies to invest. Link into grid de carbonisation to create a unified policy for domestic microgeneration certificates) amounting to 8.32p/kWh.**

³² Action Renewables. Northern Ireland for Small Scale Renewable Energy Technologies, Market Research Report. July 2005.

³³ Irish Wind Association, Jobs and Investment in Irish Wind Energy, Powering Ireland’s Economy. July 2009.

³⁴ Carbon Trust, NI renewable energy supply chain. June, 2008.

3. CROSS-BORDER INSIGHT

3.1 Cross-border trade

Cross-border trade is an important aspect of the microgeneration sector in Ireland. A large number of businesses would operate across the jurisdictions, as the training, skills, equipment, systems and regulations are very similar. Sustainable Energy Ireland's database of registered products and installers shows a large number of companies from Northern Ireland operating in Ireland. There are 45 installers based in Northern Ireland registered in SEI database, which suggests some cross-border activity.

Two aspects of cross-border trade which have a significant impact on the industry are differences in the VAT rate and exchange rates. In Northern Ireland, renewable energy systems and installations are taxable at a lower UK rate of 5% VAT, whilst similar products and services in Ireland are still taxable at the normal rate of 21%.

It is important to mention that, despite the fact that there is currently a Single Electricity Market in operation on the island, there are different incentive and support schemes on either side of the border. In Northern Ireland, the Renewables Obligation (NIRO) currently provides a generation tariff to consumers, while in Ireland the Renewable Energy Feed in Tariff (REFIT) provides support to some forms of electricity generation. As they are administered separately and offer different amounts of incentive, it is impossible for microgenerators to benefit from competition in the SEM as the support mechanisms are jurisdiction exclusive.

For this reason, there has been some debate whether the NIRO should be replaced with a FIT mechanism as it is done in Ireland. According to a DETI consultation paper on the topic³⁵, some suggest that the use of different support mechanisms in Northern Ireland and Ireland creates a distortion in the Single Electricity Market because both schemes require the electricity to be consumed in the jurisdiction in which it is generated which has led to claims that there is not a single market for renewables.

At present, while there are no concrete plans to implement a feed-in tariffs system applicable both North and South or on an island basis, it is expected that the new NIRO mechanism in Northern Ireland will be consistent with the SEM.

BOX 4: Policy supports for renewable energy generation

NORTHERN IRELAND

Northern Ireland Renewables Obligation (NIRO): Instrument that places a legal requirement on electricity suppliers to account for a specified proportion of their electricity supplied from renewable sources or to pay a buy-out fee that is proportionate to any shortfall.

Renewables Obligation Certificates (ROCs): issued to generators of renewable electricity for each unit of eligible output. The number of ROCs issued for each MWh unit varies depending on the technology involved.

IRELAND

Renewable Energy Feed-In Tariff (REFIT): Provides support to renewable energy projects over a fifteen year period. Applicants in REFIT must have planning permission and a grid connection offer for their projects and they will then be able to contract with any licensed electricity supplier up to the notified fixed prices.

The fixed price tariffs are:

Small wind energy (under 5 Megawatts) ->
5.9 cent per Kilowatt hour

Biomass (landfill gas) >
7.0 cent per Kilowatt hour.

Hydro and other biomass technologies >
7.2 cent per Kilowatt hour.

3.2 Key North/South players

InterTradelreland:

InterTradelreland is a body established to exchange information and co-ordinate work on trade, business development and related matters. Through the several programmes and research activities InterTradelreland helps expedite trade and business growth across the island and to create a favourable business environment that increases competitiveness of the two economies. InterTradelreland has supported companies of the sector, such as Kedco and Ecowood Energy Systems, in areas of market expansion and product/service development.

Renewable Energy Installers Academy:

The Renewable Energy Installer Academy (REIA) was developed in 2004 as a joint INTERREG project between Action Renewables in Northern Ireland and Sustainable Energy Ireland in the Republic of Ireland. The primary focus of this €1.5 million EU project was to develop a training infrastructure and provide accredited training courses for installers of renewable energy technologies, as well as a registration scheme for installers. The EU INTERREG funding for the REIA project was completed in March 2008. The training providers continue to deliver the courses with assistance from Action Renewables. REIA currently offers five microgeneration renewable technology courses which are accredited through City & Guilds or BPEC in Northern Ireland.

The courses currently offered are:

Solar Hot Water – BPEC accredited.

Biomass – BPEC accredited.

Heat Pump – BPEC accredited.

Wind – City & Guilds accredited.

PV – City & Guilds accredited.

www.reinstalleracademy.org

Sustainable Energy Association:

An all island industry body established in 2008 to represent manufacturers, suppliers and installers of renewable energy systems for the microgeneration of heat and electricity across the island of Ireland. Its aims and activities involve lobbying, promotion, standards and best practice.

www.seia.ie

North/South Energy Joint Steering Group:

The Group was established in 2003 and comprises of senior officials from the Department of Communications, Energy & Natural Resources and NI Department of Enterprise, Trade and Investment and the offices of the two Regulatory Authorities (Commission for Energy Regulation (CER) in the South and Northern Ireland Authority for Utility Regulation (NIAUR) in the North). In both jurisdictions there exists top level political commitment to the development of competition in the energy sectors in the interests of delivering improved services and economic benefits to customers.

Single Electricity Market (SEM):

The Single Electricity Market (SEM) commenced on 1st November 2007. SEM is a single wholesale market for electricity on the island of Ireland. The SEM Act amends the Electricity Regulation Act 1999 to provide for the establishment and operation of a single competitive wholesale electricity market on the island of Ireland.

³⁵ Department of Enterprise, Trade and Investment. *Statutory Consultation for the Renewables Obligation Order (Northern Ireland) 2010*, October 2009.

Annex 1

Annex 1

Market Leaders³⁶

WIND TECHNOLOGIES				
Company Name	Address	Telephone Number	Email/Web Address	
Eirbyte Renewable Energy Systems*	Curraghnabania, Aughnasheelin, Co. Leitrim	+353 (0) 9144 2021	Miriam@eirbyte.com http://www.eirbyte.com	
EFGEN Ltd*	Meeltrane, Aughamore, Ballyhaunis, Co. Mayo	+353 (0) 9493 75996	http://www.efgen.com	
Horizon Renewables Ltd*	Kennedy Way Industrial Estate, Belfast BT11 9DS	+44 (0) 28 9060 0034	http://www.horizonrenewables.co.uk/index.php	
Greenenergy4u Ltd*	Dunturk Road, Castlewellaan, Co. Down, BT31 9PF	+44 (0) 28 4484 41324	http://www.greenenergy4u.com	
Green Energy Technology Ltd	30 Ballynabragget Road, Warrington, Craigavon, Co. Armagh	+44 (0) 28 3888 1228	http://www.greenenergytechnologyltd.com	
West Wind Turbines (J.A. Graham Group)	3 Carmavy Road, Crumlin, Co. Antrim	+44 (0) 28 9445 2437	info@westwindturbines.co.uk http://www.westwindturbines.co.uk/index.asp	
Wind, Water, Solar Energy Systems*	Crossmount, Kilgarvan, Co. Kerry	+44 (0) 648 5460	info@windwatersolar.net http://www.windwatersolar.net	
Sun Stream Energy	45 Newtown Hill, Tramore, Co. Waterford	+353 (0) 5133 0386	http://www.sunstreamenergy.ie info@sunstreamenergy.ie	
RES Renewable Energy Systems*	Unit 1, Euro Park, Baltinglass, Co. Wicklow	+353 (0) 5964 51865	http://www.res.ie	
Innovative Energy Solutions*	Lissue Road, Lisburn, Co. Antrim, BT28 2SU	+44 (0) 28 9262 0428	http://www.ies-wind-turbines.com info@ies-wind.com	
ReGen(NI)*	Unit 22 Somerton Industrial Park, Dargan Crescent, Belfast BT3 9JB	+44 (0) 28 9077 3092	http://www.regenwindturbines.com	

³⁶ This is a non-exhaustive list of microgeneration manufacturers, suppliers and installers. Companies were selected from listings compiled by Dun & Bradstreet, the Energy Ireland Yearbook 2009 and Business and Finance Magazine 2009. Please note that many companies on the list are involved in the supply and distribution of several technologies. Therefore the classifications by technology should be considered only as indicative.

* Companies involved in more than one technology.

BIOMASS TECHNOLOGIES				
Balcas Ltd	Kill, Naas, Co. Kildare	+353 (0) 4587 7671	Colin.thomas@balcas.com http://www.brites.eu	
Balcas Timber Ltd	Laragh, Enniskillen, Co. Fermanagh BT94 2FQ	+44 (0) 28 6632 3003	http://www.balcas.com/site/default.asp?CATID=3	
Biomass Heating Solutions	Kantoher Business Park Killeedy, Ballagh, Co. Limerick	+44 (0) 698 5926	info@biomass.ie http://biomass.ie	
Bioverda Ltd	Burton Hall Drive, Sandyford, Dublin 18	+353 (0) 1206 3722	www.bioverda.com info@bioverda.com	
B9 Organic Energy Ltd	21 Point St., Larne, Co. Antrim, BT40 1HY	+44 (0) 28 2826 8273	http://www.b9organicenergy.co.uk	
Darionti Ltd/Woodheat	Bandon Business Centre, Lauragh, Bandon, Co. Cork	+353 (0) 234 2728	info@woodheat.ie	
EcoWarmHomes Ltd	Woodville, Main Street, Dunboyne, Co. Meath	+353 (0) 1825 2581	http://www.ewh.ie	
Ecowood Energy Systems		+353 (0) 7493 64777	http://www.ecowood.ie	
Future Fuels	Belgooly Co. Cork	+353 (0) 2148 33919	http://www.futurefuels.ie	
Glennon Bros Ltd	Farran South, Fermoy, Co. Cork	+353 (0) 253 7400	www.gbt.ie info@gbt.ie	
Kedco	Unit 6, Portgate Business Park, Monkstown, Co. Cork	+353 (0) 2146 70427	http://www.kedco.com	
Natural Power Supply	Ballymountain, Ferrybank, Waterford	+353 (0) 5183 2777	www.nps.ie info@nps.ie	
Rozell Renewables	Upper Dromore Road, Warrenpoint, Co. Down, BT34 3PN	+44 (0) 28 4175 2299	http://www.rozellrenewables.com	
Rural Generation Ltd	Brook Hall Estate, 65-67 Culmore Road, Londonderry BT48 8JE	+44 (0) 28 7135 8215	http://www.ruralgeneration.com/index.htm	
SOLAR TECHNOLOGIES				
4Front Energy & Environmental*	10 Cianwilliam Square, Grand Canal Quay, Dublin 2	+353 (0) 1439 6637	http://www.4frng.com/renewables.htm	
Allied Solar	3d Greencastle parade, Coolock, Dublin 17	+353 (0) 1847 7471	http://www.alliedsolar.ie	

Alternative Energy Ireland Ltd	Unit 2B, Nangor Road Business Park, Nangor Road, Dublin 12	+353 (0) 1443 3996	http://www.aei.ie
Cell Energy Ireland Ltd*	Unit 5 Business Centre Ballintogher, Co. Sligo	+353 (0) 7191 34898	http://www.cellenergy.ie
Eco Energy*	O'Brien Road, Carlow	+353 (0) 5991 39626	http://www.ecoenergy.ie/index.php
Ecologies	Unit 2B, Kylemore Ind. Est., Killeen Road, Dublin 10	+353 (0) 1626 2333	http://ecologies.ie
Carey Glass Solar Ltd	Lurgan, Co. Armagh BT66 6LN.	+44 (0) 28 3834 3828	http://www.careyglassolar.com
Kingspan Group Plc *	Dublin Road, Kingscourt, Co. Cavan	+353 (0) 42969 8000	http://www.kingspan.ie/kingspangroup
Kingspan Renewables UK	180 Gilford Road, Portadown, Co. Armagh	+44 (0) 28 3836 4500	www.kingspansolar.com
Ireland Eco*	Ballinagh Road, Co. Cavan	+353 (0) 4943 72854	info@irelandeco.com http://www.irelandeco.com/index.htm
Limerick Solar Ltd	Castletroy Co. Limerick	+353 (0) 6133 5273	
Nutech Renewables Ltd	Warrenpoint Business Centre, Newry Road, Warrenpoint BT34 3LA	+44 (0) 28 4175 3031	http://nutechrenewables.com/index.html
Pure Energy Technology Ltd*	Unit 1, grange Business Park, Fedamore, Co. Limerick	+353 (0) 6139 0000	http://www.pet.ie
Shamrock Solar Energies Ltd	Doora Business Park, Doora, Ennis, Co. Clare	+353 (0) 6568 68468	www.shamrocksolar.com info@shamrocksolar.com
Solaris Ltd	E-Business Park, Macroon, Bowl Road, Co. Cork	+353 (0) 262 1014	www.solaris-energy.com info@solaris-energy.ie
Solmatix Ltd	7, Cochranstown Rd, Dundrod, Crumlin, Co. Antrim BT29 4JF	+44 (0) 28 9082 4819	info@solmatix.com www.solmatix.com
GEOTHERMAL TECHNOLOGIES			
Aqua Tech Ltd*	Unit H4, Marina Commercial Park, Centre Park Road, Cork		info@aquatech.ie http://www.aquatech.ie
Alternative Heat Ltd*	11 Burrenreagh Road, Castlewellan, Co. Down BT31 9HH	+44 (0) 28 4377 0700	http://www.alternativeheat.co.uk

Ashgrove Renewables*	Coolnahane, Kanturk, Co. Cork	+353 (0) 224 7900	info@ashgrove.ie www.ashgrove.ie
Dimpco/Glen Dimplex*	Old Airport Road, Cloghran, Co. Dublin	+353 (0) 1842 4833	sales@dimpco.ie http://www.dimpco.ie
Glen Dimplex Group*	Barn Road, Dunleer, Co. Louth 8NY	+353 (0) 4198 00300	http://www.glendimplex.ie/renewables.php
GT Energy	Greenogue Business Park, Rathcoole, Co. Dublin	+353 (0) 1401 1020	nicolad@gtenergy.net http://www.gtenergy.net
ECO NRG*	Longraigue, Foulksmills, Co. Wexford	+353 (0) 5156 5835	info@econrg.ie http://www.econrg.ie/index.htm
Environmental Installations	Unit 5 Business Centre, Ballintogher, Co. Sligo	+353 (0) 7191 34898	www.eil.ie info@eil.ie
Energy Master - Renewable Energy Solutions*	Keltic Business Park, Unit 1, Clieveragh Industrial Estate, Listowel, Co. Kerry	+353 (0) 682 3864	info@energymaster.ie www.energymaster.ie
Nutherm Ltd*	Sallybrook, Manorunningham, Co. Donegal	+353 (0) 7491 57893	http://www.nutherm.ie
Polytherm Heating* Systems Ltd	Muirfield Drive, Naas Road, Dublin 12	+353 (0) 1419 1990	www.polytherm.ie seamus@hevac.ie
Potterton Myson Ireland Ltd	Unit 7, Whitestown Business Park, Tallaght, Dublin 24	+353 (0) 459 0870	http://www.potterton-myson.ie/products_renewables_domestic.php
PowerTech*	40 Devesky Road, Carrickmore Omagh, Co. Tyrone, BT79 9BU	+44 (0) 28 8076 0088	www.powertechireland.com info@powertechireland.co.uk
SystemLink Ltd	South City Business Centre Tallaght, Dublin 24	+353 (0) 1452 8301	info@systemlink.ie http://www.systemlink.ie/index.asp
Unipipe Ireland Ltd	40 Southern Cross Business Park Bray, Co. Wicklow	+353 (0) 1286 4888	info@unipipe.ie http://www.unipipe.ie
Warmfloor Heating Ireland Ltd*	1 Teechvalley Way, Dunganon BT70 1BS	+44 (0) 28 8772 9009	www.whi.ie mail@warmfloor.ie
CONTRACTORS & INSTALLERS			
CTS Group Ltd, CTS	House, Highfield Business Park, Portlawn, Co. Waterford	+353 (0) 5138 7931	http://www.ctsgroup.ie/index.php?id=631
Renewable Energy Skills	2 Mungret St., Limerick	+353 (0) 6151 4598	http://www.renewableenergy.ie



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