

# Non-cost barriers to renewables – *AEON* study

National report Ireland

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## Interviewed experts

**We would like to thank all interviewed experts for their very valuable input and their support for this study. We highly appreciate their expert knowledge and their availability in the framework of the AEON Barrier Project on behalf of the European Commission.**

**For this country study, the following experts were interviewed:**

Anonymous (Importer of renewable heating equipment)

Garrett Connell  
National Offshore Wind Association of Ireland – NOW Ireland

Xavier Dubuisson,  
DW EcoCo, Integrated Sustainable Design Consultants

Geraldine Kearney, Claire Madden, Garrett Monaghan  
Arthur Cox Solicitors (Dublin)

Owen Lewis, Kevin O'Rourke, Pearse Buckley  
Sustainable Energy Authority of Ireland – SEIA

Brendan Marren  
CES Energy Combined Energy Solutions

Thomas Nowak  
European Heat Pump Association – EHPA

Michael Walsh, Mary Doorly  
Irish Wind Energy Association – IWEA

# Introduction

In Ireland, the **administrative process** is not perceived as a major barrier for a further development of RES. The report mainly focuses on wind power, which has the highest potential of development in Ireland in the short and medium term. Minor barriers in the procedures are identified in form of a high number of authorities involved in the administrative process, lengthening the procedure, especially in absence of statutory deadlines for the administration. A further perceived limiting factor is the lack of information and motivation among the civil servants of local authorities.

**Technical specifications for eligibility in support measures** are currently in line with European standards. However, market players expect that a “Agrément Certification” may become compulsory very soon. This would most likely lead to the necessity of re-testing in Ireland equipment such as solar collectors, though it is already certified according to widely accepted European standards. This would lead to barriers to trade, higher prices and less choice for the Irish consumers.

Substantial policies to promote renewables and energy efficiency in the **building sector** have been introduced. However, due to the collapse of the construction sector for economic reasons short after the adoption of these measures, it is difficult to evaluate their impact. Unfortunately, during the massive construction boom from the 1990’s until 2007, a large number of buildings was constructed without considering renewable solutions or energy efficient equipment. Having lost this occasion, it will take a long time to introduce a significant renewable share in the Irish building sector, as a low number of new buildings is expected during the next decade

The provisions on the **efficient use of renewable energy sources** foreseen by article 13 (6) of the Renewables Directive 2009/28/EC are partially fulfilled in Ireland:

In general, the availability of **information** on support measures for renewable energies and the **awareness raising** process in Ireland can be evaluated as good. Stakeholder still outlined that further improvements would be desirable, by better interlinking the existing websites of different institution. Market players active in the renewable energy market perceive the current campaigns (Power of One) as excessively focused on energy efficiency.

The **qualification and certification scheme for installers** is an area where improvements are necessary. The scarcity of trained installers is seen as a critical barrier in Ireland. At present, there is a certification scheme in place from SEAI for solar thermal, biomass and geothermal installations.



The **development of the power grid infrastructure**, especially of the transportation grid is of utmost importance for the further development of RES in Ireland. It is considered as the most important barrier at present. However, it must be noted that Ireland is a rare example of a country already having conceived a comprehensive grid development plan until 2025 (grid25-report). Ireland is not directly connected to the European continent.

The procedures for access and usage of the **power grid** are operating on a “Gate” regime, which stakeholders identified as a major barrier for the RES development. The current process creates a high level of uncertainty concerning the number of filed projects that will effectively be realised. Stakeholders complain that a significant share of the applications refer to projects that do not actually meet the requirements, and thus fail to obtain a connection, after having drawn on limited administrative capacities

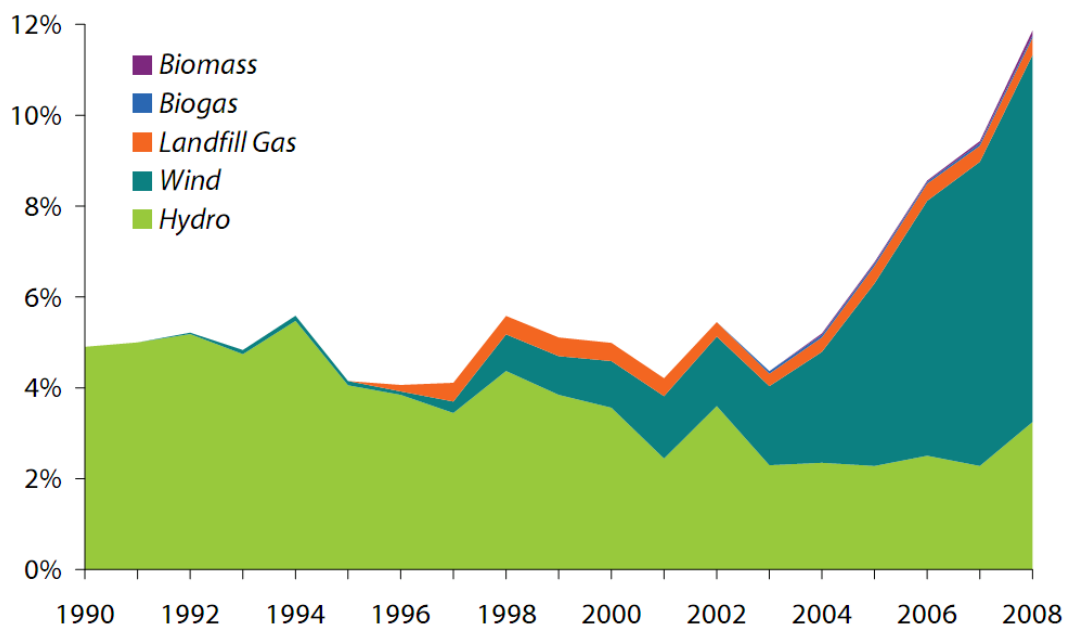
At present, the **injection of biogas into the natural gas grid** is virtually nonexistent. The main reason is identified in form of administrative and policy related barriers.

Currently, **district heating and cooling** and cogeneration play a negligible role in the Irish market. Most of the few existing DH systems are based on gas, which could be replaced by biomass if a reliable and affordable supply would be guaranteed. In the short term, the potential for DHC systems is relatively limited, but should not be wasted.

# 1 Issue 1 Administrative Procedures

## 1.1 Introduction

The administrative procedures are not considered by stakeholders as a main barrier for the development of Renewable Energies Sources in Ireland. As also indicated by the graph below, the share of renewable energy on the gross electricity consumption in Ireland in 2008 (11,9%) was dominated by wind power (68,1%), followed by hydro power (27,4%). A very small share is also contributed from biomass (4,5%), being a collective term comprising electricity generation from solid biomass (0,9%), landfill gas (3,1%) and biogas (0,5%), where landfill gas provides the most significant input (SEI 2009).



**Fig. 1: % Renewable Energy Contribution to Gross Electricity Consumption, Source: SEI, Energy in Ireland – Key Statistics 2009**

Under these circumstances, the report will mainly focus in this part on wind power, as the largest and fastest growing form of RES technology in Ireland. Hydro power is the traditional RES in Ireland for the generation of electricity. Still, the share of hydro power has declined during the last years and further development potentials are fairly limited. The Irish conditions for the exploitation of PV are less favourable as in central or southern Europe. Additionally, the wide perception persists that PV cannot be applied profitably and these circumstances, being a potential reasoning for the inexistence of PV as contributing technology to the RES electricity generation in Ireland.

## 1.2 Description of barriers & solutions

### 1.2.1 Detailed description of the barriers and solutions

#### *Barrier 1.1 – Inefficient general administrative procedures for RES (including no/insufficient specific rules for building integrated/small scale installations)*

Generally, stakeholders did not perceive the administrative procedure as major barrier for the development of RES. Still, it was outlined that parts of the procedure could be optimized to further promote the existing RES potential.

A limiting factor in the procedure is according to stakeholders however, the high amount of authorities involved in the planning and authorisation procedure. Under these circumstances, project developers have to request a magnitude of permission from different authorities, being involved in the administrative procedure. This is mainly due to the fact the current primary legislation does not provide for a one stop system (Arthur Cox 2010), as competencies are clearly separated between different administrative bodies on national and regional level.

Under these conditions, developers have to request different permissions and authorisations from every single authority involved separately (CES 2010, IWEA 2010, NOW Ireland 2010, Oriel 2010). This practice results in unclear conditions regarding the different required permissions and the role of the various authorities during the permission and authorisation process. Furthermore, it is lengthening the application procedure and is consequently putting obstacles to the individual RES project development. In addition, for off-shore wind projects, there is no statutory timeline for the involved authorities regarding their reply to a request. Such established dates of expiration were created for onshore project; yet not transposed to the offshore development (NOW Ireland 2010, Oriel 2010).

For offshore wind a new planning procedure is to be established until the end of 2010. Currently government is undertaking a comprehensive strategic environmental assessment of the Irish coastline to identify potential future construction sites for offshore wind project. Projects already entering the current procedure will not be affected by those changes, as they will receive permission under the current system (NOW Ireland 2010, Oriel 2010).

Stakeholders assumed that the new licensing process in Ireland could be similar to the British tender process. Government would thus identify suitable wind offshore field for future development opening tenders for wind developers, to receive projects proposals for these field (NOW Ireland 2010, Oriel 2010).

As an additional problem under the current system, some stakeholders also highlighted the information level of local authorities regarding the various RES technologies as a problem of minor scale for the development of Renewable Energy Sources (IWEA 2010). In this regard, authorities would base some of their decisions on wrong or incomplete assumptions regarding Renewable Energy Sources; thus, limiting the full potential of RES in Ireland (see Issue 5 of this report).

### 1.2.2 Best practice elements and indicators

No.	Technology	Benchmark	Result
1.1		Is one stop-shopping possible?	
	Wind onshore, 2MW, 80m height		No
	Biogas plant < 2MW		No
	Biomass < 2MW		No
	Biomass > 10MW		No

## 1.3 Literature

CES (2010): CES Energy Combined Energy Solutions; Brendan Marren. Interview in Dublin on 16.03.2010

IWEA (2010): Irish Wind Energy Association; Michael Walsh/ Mary Doorly. Interview in Dublin on 15.03.2010

NOW Ireland (2010): National Offshore Wind Association of Ireland; Garrett Connell. Interview in Dublin on 16.03.2010

Oriel (2010): Oriel Windfarm Limited; Garrett Connell. Interview in Dublin on 16.03.2010

SEI (2009): Sustainable Energy Ireland, Energy in Ireland – Key Statistics 2009, Dublin December 2009

## 2 Issue 2 Technical Specifications

Purpose of this chapter is to verify if the current situation in Ireland complies with the provisions of the Renewables Directive 28/2009/EC concerning barriers to trade arising from technical product specifications included in support schemes or other regulations, and notably with following preamble:

"National technical specifications and other requirements falling within the scope of Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998 laying down a procedure for the provision of information in the field of technical standards and regulations and rules on Information Society services, relating for example to levels of quality, testing methods or conditions of use, should not create barriers for trade in renewable energy equipment and systems. Therefore, support schemes for energy from renewable sources should not prescribe national technical specifications which deviate from existing Community standards or require the supported equipment or systems to be certified or tested in a specified location or by a specified entity."

and mainly with Article 13 (2):

"Member States shall clearly define any technical specifications which must be met by renewable energy equipment and systems in order to benefit from support schemes. Where European standards exist, including eco-labels, energy labels and other technical reference systems established by the European standardisation bodies, such technical specifications shall be expressed in terms of those standards. Such technical specifications shall not prescribe where the equipment and systems are to be certified and should not impede the operation of the internal market."

### 2.1 Introduction

In general, technical requirements in support schemes and in building regulations are expressed in terms of European standards.

However, for the key components such as solar collectors or heat pumps to be eligible or acceptable, these components must be mentioned in a list managed by the Sustainable Energy Authority of Ireland (SEIA). This requires an application of the importer or manufacturer. This procedure seems transparent and rather smooth and is not considered as a problem as such.

However, heat pump manufacturers strongly complain that product family certification is not accepted, leading to the need of testing each size of models that are otherwise identical, and the COP of which does not differ significantly, according to the European

Heat Pump Association (Antonelli 2010, Nowak 2010). This requirement is not common in other European countries.

Among importers of solar thermal equipment circulates a rumour, according to which during 2010 it will become necessary to obtain a “Agrément Certification”, which requires a lengthy and costly additional certification. This it is already triggering a change in strategies of the companies affected (Importer 2010).

If these rumours were confirmed, the procedure would create a serious barrier to trade, in breach with the requirements of Art 13(2). It was so far not possible to verify the rumour with publicly available documents. In agreement with the officer of the European Commission supervising the project within which the present report has been produced, the author of this chapter communicated per email to representatives of the SEIA and of the Irish Department of Communications, Energy and Natural Resources the points summarised in the two paragraphs above, as well as other detailed issues concerning possible barriers to trade emerging from the Irish certification requirements (Piria 2010). At the moment of closing the report, no further comments had been provided by the Irish authorities.

## 2.2 Description of barriers & solutions

### 2.2.1 Detailed description of the barriers and solutions

#### *Barrier 2.1 – Weak definitions*

The support schemes analysed present clear definitions. Stakeholders do not report difficulties with unclear or weak definitions of the products considered eligible for support.

The Irish renewable energy support system is characterised by the fact that the Sustainable Energy Authority of Ireland (SEAI) “maintains databases of acceptable products ” and installers that meet the relevant standards and accreditation requirements. Support schemes like the “Greener Homes Scheme Phase III” and the “ESB support scheme for micro-generators” require that eligible products are on those lists (SEAI 2010c) According to section 1.2.6. of the Technical Guidance Document (TGD) “L Dwellings” 2008 of the Building Regulations. This applies to solar thermal systems, wood pellet stoves, wood pellet/chip boilers and heat pumps..

This process requires an application by the suppliers or manufacturers. However, the registration process is smooth, as it only takes 10 to 15 days, there is a clear formulary and it doesn’t require any specified locations for testing and relies mainly on copies of certifications of European Standards.

#### *Barrier 2.2 –Non-EU standards. or specified locations for testing and/or certification requirements*

##### **Renewable electricity**

For both support schemes for renewable electricity in Ireland, the “ESB support initiative for micro-generators” and the “Accelerated capital allowance”, the SEAI provides clearly

specified lists with qualifying products. To be eligible for the list of products, the equipment must meet certain requirements such as relevant European standards and CE markings. To qualify for inclusion on those lists, details of the certification and documentation have to be provided with an application for each technology. All required standards are European or International standards. The location for testing and/or certification is not specified (SEAI 2010b).

The same is valid also for the Accelerated Capital Allowance (SEAI 2010d).

All this is in line with the requirements of Art 13 (2).

### **Irish Agrément Certificate**

Summary of this section: market players (Importer 2010, Dubuisson 2010) expect in the immediate future that an “Agrément Certificate” will be required for solar thermal collectors. If confirmed, this would constitute a serious barrier to trade, in breach with Art 13(2).

Part D of the building relations define requirements for “proper materials” to be inserted in building (Part D 2008). Proper materials are defined as those “which are fit for the use for which they are intended and for the conditions in which they are to be used, and includes materials which:

- a. bear a CE Marking in accordance with the provisions of the Construction Products Directive; or
- b. comply with an appropriate harmonized standard, European technical approval or national technical specification as defined in article 4(2) of the Construction Products Directive; or
- c. comply with an appropriate Irish Standard or Irish Agrément Board Certificate or with an alternative national technical specification of any State which is a contracting part to the Agreement on the European Economic Area, which provides in use an equivalent level of safety and suitability.” (

As long as compliance with “an appropriate Irish Standard or Irish Agrément Board Certificate” is one of several possibilities for a product to be acceptable, the procedure is perfectly in line with Art 13(f) of the Directive. In case it would be confirmed that an Irish Agrément Board Certificate will be required for renewable heating equipment like solar thermal collectors and/or heat pumps, this procedure would clearly be in breach of this article.

In a company internal paper, an importer of solar thermal collectors, reported that the requirement of an Agrément Certificate was expected in the immediate future. He gave a first estimation of additional costs of circa 20.000 Euros and several months of waiting time to obtain the Agrément Certificate. These collectors already hold the European Solar Keymark certificate. With this certificate, they can be sold and are eligible for subsidies nearly everywhere in Europe (Importer 2010).

Interestingly, the importer assumed that, after bearing the additional costs, the Agrément Certificate procedure would constitute a competitive advantage, because some competitors would not be prepared to go through such a lengthy and costly procedure,

also taking into account the limit volume of the ST market in Ireland. In other words, the final users would pay with less choice and presumably higher prices.

The website of the National Standards Authority of Ireland (NSAI 2010) states the following about the Agrément Certificate scheme:

*“Agrément certification is designed specifically for new building products and processes that do not yet have a long history of use and for which published national standards do not yet exist. As the Irish national delegate at UEATc (The European Union of Agrément Institutes for construction), the IAB contributes to the development of Agrément product assessment.*

*NSAI Agrément is responsible for Agrément assessment and certification. Formerly the Irish Agrément Board (IAB), it now operates as part of NSAI (National Standards Authority of Ireland). NSAI Agrément issue technical certification for new and innovative products and processes in building and materials technology:*

*Agrément certification confirms that new building products, materials, techniques and equipment are safe and fit for purpose.*

*The process of Agrément certification applies to those products and processes that are not already regulated by existing building standards, either because they are innovative or because they deviate from established norms.*

*What is the procedure for certifying a new product?*

*Agrément certification involves the following steps:*

- *We process your application.*
- *We develop a Technical Assessment Specification (TAS), which sets out the technical criteria for assessment and testing.*
- *We assess the product to ensure that it conforms to the TAS. This might include laboratory testing, on-site evaluation and inspection of the production process.*
- *Subject to the results of the assessment, we then draft an NSAI Agrément Certificate.*
- *We publish the Certificate on the NSAI website.”*

This shows that additional tests might be included.

In the market practice, a bias in favour of products holding an Irish Agrément certification can already be observed, as shown by this excerpt of an internet blog:

- *“i usually use the **rule of thumb that if it isn’t agreement certed, don’t use it...**”*
- *“Agreement certs are a way for newer innovative products to show that they are fit for purpose AND TO INDICATE WHEN AND HOW THEY ARE TO BE USED . So if **an unfamiliar (to you)** material claims to have certain thermal insulation , structural or fire performance , or whatever , **check it has an Agreement cert .**”*
- *“Forget SEI approving anything - they won't do that . But lists they issue are not a bad starting point at all. **Overseas wood pellet boiler manufacturers may not go to the trouble and expense of having test done for AG Cert .** However looking for*



*comprehensive list of units installed and where and following up end user references may be the way to go”.*

(Source: Blog Irish Architecture Planning Forums: “Do anyone here know much about Agrément Certs?” ([www.archiseek.com/content/showthread.php?t=6351](http://www.archiseek.com/content/showthread.php?t=6351)). The **bold** is ours).

Of course, such a blog cannot be considered as an authoritative source. However, it is a blog well followed in Ireland, and it shows at least how certain certification requirements are perceived by market players.

At the moment concluding this report, the authors have not been able to confirm, nor to refute the rumour according to which the requirement of an Agrément would be introduced soon. As a matter of fact, as of 23 April 2010, the website of NSAI did not include any reference to solar collectors. In agreement with the officer of the European Commission supervising the project within which the present report has been produced, the author of this chapter communicated per email to representatives of the SEIA and of the Irish Department of Communications, Energy and Natural Resources the points summarised above, as well as other detailed issues concerning possible barriers to trade emerging from the Irish certification requirements (Piria 2010). At the moment of closing the report, no further comments had been provided by the Irish authorities.

### **Harp List**

Heat pump manufacturers strongly complain that product family certification is not accepted within the Harp list, leading to the need of testing each size of models that are otherwise identical, and the COP of which does not differ significantly, according to the European Heat Pump Association (Antonelli 2010, EHPA 2010). This requirement is not common in other European countries.

The SEAI describes Harp as follows:

*“The Home-heating Appliance Register of Performance (HARP) database is a product efficiency database for home-heating appliances that are used in Ireland. The HARP database was developed by the UK Building Research Establishment in partnership with GASTEC at CRE Ltd, Kovara and Heating & Plumbing Markets International and is based on the equivalent UK SEDBUK database.*

*The database will be used for the following purposes:*

- *to provide registered BER Assessors with specific product efficiency information which they can use when calculating BERs for dwellings;*
- *to track compliance with the Boiler Efficiency Directive; and*
- *as a resource in the boiler efficiency promotion campaign which will be developed to comply with Article 8 of the Energy Performance of Buildings Directive (EPBD).”*

[www.seai.ie/Your\\_Building/BER/BER\\_Assessors/Technical/HARP\\_Database](http://www.seai.ie/Your_Building/BER/BER_Assessors/Technical/HARP_Database)

### **Other support schemes for renewable heat**

Following support schemes were analysed, but no provisions were identified that could constitute a barrier to trade:

- “Greener Homes Scheme Phase III”
- Reheat programme

In the case of bulk fuel storage, there are two requirements that cannot be replaced by alternative European or national standards. Relating to the Austrian standard Önorm M7137. However, this would ne considered as acceptable according to Art 13(2) of the Renewables Directive, because there is no European standard for wood pellet storage.

### 2.2.2 Best Practice elements and indicators

No.	Benchmark	Result
1	Are specifications expressed in terms of European standards (including eco-labels, energy labels and other technical reference systems), though such European references exist?	Partly

## 2.3 Literature

Antonelli (2010): Lenny Antonelli. Harp attack, is renewable heating industry being let down by SEI's register?, Construct Ireland, 14.03.2010 (<http://constructireland.ie/Articles/Energy-Performance-of-Buildings-Directive/Is-renewable-heating-industry-being-let-down-by-SEIs-register/Page-4.html>)

Building Regulations (2007): Technical Guidance Document L. Conservation of Fuel and Energy – Dwellings ([www.environ.ie/en/Publications/DevelopmentandHousing/BuildingStandards/FileDownload,16557,en.pdf](http://www.environ.ie/en/Publications/DevelopmentandHousing/BuildingStandards/FileDownload,16557,en.pdf))

Dubuisson (2010): Xavier Dubuisson MEng. MSc., Delap & Waller EcoCo Integrated Sustainable Design Consultants, Interview March-April 2010.

EHPA (2010): EHPA – European Heat Pump Association; Thomas Nowak, Secretary General EPHA, Interview on 11.03.2010

Importer (2010): Private communication of an importer of solar heating material, March 2010

NSAI (2010): Website of the National Standard Authority of Ireland on the Agrément certificate scheme ([www.nsai.ie/About-NSAI/Departments/Agrement.aspx](http://www.nsai.ie/About-NSAI/Departments/Agrement.aspx))

Piria (2010): Possible barriers to trade, email sent to Ms Una Dixon of the Department of Communications, Energy and Natural Resources, and Mr Owen Lewis and Mr Kevin O'Rourke of the SEIA

SEAI (2010a): Greener Homes Scheme Phase III ([www.sei.ie/Grants/GreenerHomes/](http://www.sei.ie/Grants/GreenerHomes/))

SEAI (2010b): Micro and Small Scale Renewable and CHP Products ([www.seai.ie/Renewables/Microgeneration/Register\\_of\\_Products/](http://www.seai.ie/Renewables/Microgeneration/Register_of_Products/))

SEAI (2010c): Renewable Heat Deployment Programme  
([www.seai.ie/Grants/Renewable\\_Heat\\_Deployment\\_Programme/ReHeat%20Application%20Guide%20Ver1\\_5.pdf](http://www.seai.ie/Grants/Renewable_Heat_Deployment_Programme/ReHeat%20Application%20Guide%20Ver1_5.pdf))

SEAI (2010d): Accelerated Capital Allowance  
([www.seai.ie/Your\\_Business/Accelerated\\_Capital\\_Allowance/ACA\\_Categories\\_and\\_Criteria/S\\_I\\_549\\_of\\_2009.pdf](http://www.seai.ie/Your_Business/Accelerated_Capital_Allowance/ACA_Categories_and_Criteria/S_I_549_of_2009.pdf))

Taxes consolidation act (1997): Accelerated capital allowances for energy efficient equipment, Amendment, No. 3, Order 2009  
([www.seai.ie/Your\\_Business/Accelerated\\_Capital\\_Allowance/ACA\\_Categories\\_and\\_Criteria/S\\_I\\_549\\_of\\_2009.pdf](http://www.seai.ie/Your_Business/Accelerated_Capital_Allowance/ACA_Categories_and_Criteria/S_I_549_of_2009.pdf))



## 3 Issue 3 Building Integrated Technologies

### 3.1 Introduction

From the mid 1990s until 2007, Ireland experienced an impressive construction boom: the number of new houses completed grew more than quadrupled, from 21.391 in 1993 up to a maximum of 93.419 in 2007. The average prices of new houses in the Dublin area grew by 428% from 1996 to 2007 (Housing Statistics 2010).

Unfortunately, from the point of view of renewables and energy efficiency, the construction boom 1994-2007 in Ireland has to a large extent been a lost occasion, during which a very large number of buildings have been constructed with a lower energy performance than desirable and possible, and with extremely low rates regarding the use of renewable energy sources. Moreover, the scattered urban structure of Ireland has been exacerbated, with negative consequences for the potential of district heating (CES 2010).

However, the overheated Ireland's construction sector was hit by the global financial crisis as early as in 2007 and with extreme severity until today: March 2010 has been the 34<sup>th</sup> consecutive month with a further contraction of construction activities (Finfacts 2010). Employments level in the construction sector decreased by more than 50% since beginning of the crisis (Examiner 2010). The extremely reduced construction activities were mainly on public projects, whereas construction of new buildings has virtually come to a standstill. The Irish economy in general collapsed. The Gross National Product decreased by 4,4% in 2008 and further crumbled in 2009, with minus 11,3% (CSO 2010).

Under these conditions, currently the main barrier to investments in building integrated renewable energy technologies is not of financial character. New buildings are not needed, and the general recession, including the decrease in energy prices, creates a very negative environment for investment decisions for renewables and energy efficiency in existing buildings. Administrative or other policy-related barriers are therefore currently not an important issue.

Moreover, it is in many cases difficult to assess the impact of a set of policies concerning renewables and energy efficiency in buildings, which have been adopted during or shortly before the outset of the economic crisis. The building regulation of 2008 includes a renewable hat obligation, the introduction of the energy performance certificate and other measures related to the European Directive on the Energy Performance of Buildings (EPBD). These regulations could not yet unfold their potential.

## 3.2 Description of barriers & solutions

### 3.2.1 Detailed description of the barriers and solutions

#### *Barrier 3.1 – Renewables obligations insufficient*

In general, Ireland has created a sound regulatory framework for building integrated technologies in the field of renewable heat and renewable electricity generation. Consequently, **insufficient renewable obligations do not constitute a barrier for the further development of renewables in the residential sector**. However, this obligation should be extended also to the tertiary sector.

With the building regulation 2008 a comprehensive regulatory framework was introduced, including separate provisions for the application of renewable heat and renewable electricity in new buildings as well as in the existing under certain circumstances.

Part L of the regulation requests minimum shares for RES-H and RES-E. In this regard, new dwellings have either to provide for a minimum of 10 kWh/m<sup>2</sup>/annum contributing to energy use for domestic hot water heating, space heating or cooling energy be provided from renewable energy technologies. Alternatively, 4 kWh/m<sup>2</sup>/annum of electrical energy or a combination of RES-H and RES-E, having an equivalent effect, are also eligible. With these standards, Ireland is setting even more ambitious targets than other EU member states.

Technology wise, the regulation is providing for an application of all equipment that supplies energy derived from renewable sources, e.g. solar thermal systems, solar PV systems, biomass systems, systems using biofuels as well as heat pumps.

Furthermore, with the Building Energy Rating (BER), the Irish government has put a system in place, obliging the person commissioning the construction of a large building to give substantial considerations to the installing of alternative energy systems, being decentralised energy supply systems based on RES, combined heat and power systems, district or block heating or cooling or heat pumps.

Article 7 of the regulation is *inter alia* further requesting for a drafting of Building Energy ratings (BER) and related Advisory Reports on how to upgrade the energy performance of buildings. Since 1 January 2007, an energy rating requirement for new dwellings, in form of a Building Energy Rating (BER) certificate, has been introduced and is required by law. This certificate was further introduced for new non domestic dwellings from 1 July 2008 and for existing building when being let or sold after 1 January 2009.

For large public service buildings the obligation to secure and display a BER certificate in a prominent place clearly visible to the public has been in place since 1 January 2009.

To further promote RES-H, the Irish government introduced additionally the Renewable Heat Deployment Programme in March 2007, focusing on biomass boilers (wood chips and wood pellets), solar thermal collectors and heat pumps and being administered by Sustainable Energy Ireland (SEI).

The programme is addressing the introduction of the before mentioned RES-H-technologies in industrial, commercial, public and community premises in Ireland and is

an expansion of the previous Bioheat Boiler Deployment Programme, which only focused on wood chips and pellet boilers.

With the new programme government is aiming at increasing the application of the before outlined RES technologies in those building being eligible for promotion. In addition, the programme aims also at ensuring an efficient design and operation of RES heating installations.

Still, as outlined above, the regulatory framework was yet only hardly able to unfold its full potential. The national requirement of 10kWh per m<sup>2</sup> was introduced and applied from 2007. A clear positive impact, particularly on the solar thermal market, could be observed during 2007 and 2008. Afterwards the financial crisis has led to a virtually complete stop of building activities in Ireland, except for the self-built houses, a small segment where renewable heating is gaining ground also thanks to the regulatory framework.

### *Barrier 3.2 – Exemplary role of public buildings neglected*

With the before mentioned regulation, requesting for Building Energy Rating (BER) certificates and the public display of these certificates in all large public service building government is taking an exemplary role.

Still, it is also to highlight that the regulation was demanding the BER obligation for large public service building only from 1 January 2009, while new building and new non-domestic buildings had already to comply from 1 January 2007 respectively 1 July 2008. Here it would have been desirable to have introduced obligations for public buildings already before obliging any other sort of building, being it domestic or non domestic; not at least to also fulfil here an exemplary role of public buildings.

It is to assume that the late deadline for public buildings was also chosen to bring a relief to national budget, after the already high expenses for Ireland to stabilise the country in the aftermath of financial crisis in 2007.

### *Barrier 3.3 – Tenancy law and ownership law impede development of building integrated RES technologies*

Stakeholders did not perceive tenancy law as a barrier.

In Ireland there is a very high share of self-owned buildings. The segments where tenancy contracts are more diffused are multi-storey residential buildings and office buildings. In both these sectors there is not yet a consistent market for renewable heating which could be hindered by tenancy law problems. Moreover, due to the low level of incentives and of insulation, there is not a market for large PV systems integrated into roofs owned by third parties.

## 3.2.2 Best practice elements and indicators

No.	Technology	Benchmark	Result
3.1		Is this installation type in normal cases exempted from an authorization procedure (building permit)?	
	PV rooftop 1-3kW		Yes

No.	Technology	Benchmark	Result
	Solar thermal ~9m <sup>2</sup> collectors		Yes
	Geothermal heat pump < 10kW		n-a
3.2		Are legal-administrative requirements adequate for this installation type?	
	PV rooftop 1-3kW		Yes
	Solar thermal ~9m <sup>2</sup> collectors		Yes
	Geothermal heat pump < 10kW		Yes

### 3.3 Literature

CES (2010): CES Energy Combined Energy Solutions; Brendan Marren. Interview in Dublin on 16.03.2010

CSO (2010): Central Statistic Office, Quarterly National Accounts ([www.cso.ie/releasespublications/documents/economy/current/qna.pdf](http://www.cso.ie/releasespublications/documents/economy/current/qna.pdf))

Dubuisson (2010): Xavier Dubuisson MEng. MSc., Delap & Waller EcoCo Integrated Sustainable Design Consultants, Interviews March-April 2010

Examiner (2010): Irish Examiner, Jobless rate spirals as 167,000 join dole in 2009, 25 March 2010 ([www.irishexaminer.com/ireland/jobless-rate-spirals-as-167000-join-dole-in-2009-115443.html](http://www.irishexaminer.com/ireland/jobless-rate-spirals-as-167000-join-dole-in-2009-115443.html))

Finfacts (2010): Rate of contraction in Irish construction activity eased again in March but remained sharp. 12/4/10 ([www.finfacts.ie/irishfinancenews/article\\_1019427.shtml](http://www.finfacts.ie/irishfinancenews/article_1019427.shtml))

Housing Statistics (2010): Department of the Environment, Heritage and Local Government ([www.environ.ie/en/Publications/StatisticsandRegularPublications/HousingStatistics](http://www.environ.ie/en/Publications/StatisticsandRegularPublications/HousingStatistics))



## 4 Issue 4 – Promotion of Energy Efficient Renewable Energy Equipment

### 4.1 Introduction

Purpose of this chapter is to verify if following provisions of article 13 (6) of the Directive are fulfilled in Ireland:

“With respect to their building regulations and codes, Member States shall promote the use of renewable energy heating and cooling systems and equipment that achieve a significant reduction of energy consumption. Member States shall use energy or eco-labels or other appropriate certificates or standards developed at national or Community level, where these exist, as the basis for encouraging such systems and equipment.

**In the case of biomass**, Member States shall promote conversion technologies that achieve a conversion efficiency of at least 85 % for residential and commercial applications and at least 70 % for industrial applications.

**In the case of heat pumps**, Member States shall promote those that fulfil the minimum requirements of eco-labelling established in Commission Decision 2007/742/EC of 9 November 2007 establishing the ecological criteria for the award of the Community eco-label to electrically driven, gas driven or gas absorption heat pumps.

**In the case of solar thermal energy**, Member States shall promote certified equipment and systems based on European standards where these exist, including eco-labels, energy labels and other technical reference systems established by the European standardisation bodies.

In assessing the conversion efficiency and input/output ratio of systems and equipment for the purposes of this paragraph, Member States shall use Community or, in their absence, international procedures if such procedures exist.”

Currently, these requirements are partially fulfilled.

The Building Regulation does not directly prescribe efficiency criteria. However, these are needed to be included in the “Harp list” for heat pumps.

Currently, the Irish support schemes and building regulations promote the use of efficient equipment for renewable heating and cooling, though with different parameters as mentioned.

The main sources of promotion of renewable heating systems are the “Greener Homes Scheme Phase III” and the “ReHeat” Programmes.

### **Biomass**

The requirements of the Directive are more than fulfilled, since the Irish requirements are stricter.

While the “Greener Homes Scheme Phase III” doesn’t make mention explicitly any minimum efficiency criteria for biomass burners, the “ReHeat” support scheme requires biomass boilers’ efficiency to be at a minimum:

- $\eta = 73.9 + 7\log(\text{kW})$  for boilers up to 200 kW;
- $\geq 90\%$  for boilers greater than 200 kW.

### **Heat pumps**

Relating to efficiency requirements for heat pumps, both support scheme agree on a minimum COP of:

- Brine/Water= 4;
- Air/Water= 3;
- Water/Water= 4.5;
- Direct evaporation= 4.

### **Solar Thermal**

The requirements of the Directive were fulfilled until recently, but this might be changing with the introduction of certification requirement through NSAI. See the Chapter on Issue 2.

## **4.2 Literature**

SEAI (2010a): Greener Homes Scheme Phase III ([www.sei.ie/Grants/GreenerHomes/](http://www.sei.ie/Grants/GreenerHomes/))

SEAI (2010b): Renewable Heat Deployment Programme  
([www.seai.ie/Grants/Renewable\\_Heat\\_Deployment\\_Programme/ReHeat%20Application%20Guide%20Ver1\\_5.pdf](http://www.seai.ie/Grants/Renewable_Heat_Deployment_Programme/ReHeat%20Application%20Guide%20Ver1_5.pdf))

## 5 Issue 5 Information/Awareness Raising

### 5.1 Introduction

Generally, information availability and the level of awareness raising have to be qualified as good and do not constitute a barrier in Ireland. Stakeholders still outlined, that a better interlink between the various information sources available would further improve the already good offer of information. Funding is not perceived as barrier for further RES development in Ireland by the stakeholders.

Several information and awareness raising campaigns were introduced during the last decade. Currently, stakeholders from the renewable energy sector perceive a domination of the energy efficiency topic throughout the existing campaigns, in specific the “Power of One” campaign; even though the campaign also covers the topic of RES technologies in private households. It was presumed that government may not see an urgent need for action to raise awareness for RES, as the general public is predominantly accepting RES technology already. Sharing this view, stakeholders were still highlighting a need for specific RES campaigns, addressing e.g. the problem of public opposition against the construction of new high tension transportation lines, needed for the further development of RES in Ireland.

The European Solar Thermal Industry Federation was highlighting previous campaigns for RES, in specific regarding solar thermal installation and heat pumps, accounting for a substantial growth of these technologies, even against a background of moderate promotion.

The Irish government has put a strong effort on the dissemination of information and education regarding the energy consumption of buildings already at school level. In this regard, the Display Energy Certificate (DEC) for large public buildings is to highlight. Finally, stakeholders addressed a minor barrier in form of a lack of awareness raising and information diffusion regarding RES technologies at local authority level.

### 5.2 Description of barriers & solutions

#### 5.2.1 Detailed description of the barriers and solutions

##### *Barrier 5.1 – Insufficient availability of information on support measures*

In general, information on support measures is widely available and easily accessible. Some stakeholders outlined though that a more coherent availability would further promote the development of renewable energy sources. In this regard they mentioned that

an interlinkage between the various internet pages of associations, national bodies and private institutions would already fairly improve the current situation (Ireland 2010, NOW 2010, Oriel 2010,). Such measure would result in facilitation for the individual user to access the required data.

Generally, stakeholders considered the information awareness as well as the awareness raising in Ireland in regards to renewable energy sources as good (CES 2010, IWEA 2010, NOW Ireland 2010, Oriel 2010). Still, it is to highlight that there is a different perception from stakeholders from the RES branch regarding campaigning for energy efficiency and renewable energies. In this regard, stakeholders referred to the “Power of One” campaign, introduced in their view mainly to promote energy efficient products in private households (CES 2010, IWEA 2010). Even though the primary focus of the before mentioned campaign is energy efficiency and the introduction of efficient products, it is to underline that the “Power of One” campaign is also addressing the topic of renewable energies in a subsection; it is thus correct to argue that the campaign is primarily addressing the efficiency topic, though critics miss out the additional dimension of the programme regarding RES appliances.

Nevertheless, it is accurate that no campaign exclusively for RES was introduced, comparable in size to the “Power of One” campaign. Stakeholders outlined as root cause for this situation that the Irish population has a very positive attitude towards renewable energy sources in general; thus, government may not see need for immediate action for the exclusive promotion of Renewable Energy Sources (CES 2010, IWEA 2010, NOW Ireland 2010). Stakeholders agreed that a general awareness campaign for RES is probably not required; still, they outlined the need of specific RES campaigns, highlighting single technologies or current problems of RES development to create awareness. In this regard, the topic of public opposition to further grid expansion, especially high tension transmission lines as well as interconnections with the British mainland and the European continent was mentioned (IWEA 2010, NOW Ireland 2010, Oriel 2010).

ESTIF, the European Solar Thermal Industry Federation, however also highlighted that substantial campaigning from Irish government in the years 2003 until 2007 was the main reason for a substantial growth of solar thermal installations as well as heat pump applications in Ireland. Incentives were in place; yet not at a level accounting for these growth rates.

Furthermore, government is also putting a strong emphasis on the education and information of the general public regarding energy consumption of buildings. In this regard, the energy display obligation for large public buildings was introduced through the Display Energy Certificate (DEC) for buildings having a gross internal floor area of more than 1,000 m<sup>2</sup>. With this regulation Ireland is meeting its obligation under European Directive 93/76/EEC. In addition, with the website [www.energyeducation.ie](http://www.energyeducation.ie), government has also provided for an education platform addressing the problem of lacking awareness for energy consumption already at an early stage of education at school.

Regarding the general level of information, stakeholders mentioned the minor problem of awareness raising and information diffusion at authority level. In this regard, they

outlined that local authorities are often lacking general knowledge regarding the various RES technologies. Some decisions are consequently not based on a clear picture but rather on wrong assumptions; thus limiting the full potential of renewable energy sources in Ireland. A specific information campaign for the administration could limit this impact on the process.

#### *Barrier 5.2 – Insufficient public funding for campaigns/programmes*

The general availability of funding for campaigns is not perceived as a problem by stakeholders. It was outlined that government would be able to provide sufficient funding for awareness raising or information campaigning (IWEA 2010). Examples such as the campaign “Power of One”, promoting the use of energy efficient materials and products, received substantial funding and proved the effectiveness of such measures (CES 2010, IWEA 2010).

Still, stakeholders explained in regard to a missing campaign specifically for RES that neither the relevant stakeholders (associations, companies) nor the government came forward with ideas for campaigns in the field of renewable energy sources (IWEA 2010). It was assumed that a good campaign idea would receive sufficient funding from government; yet, there was also the perspective that government was not seeing a need for action in this field, as the Irish population is widely in favour of RES development (CES 2010, IWEA 2010).

#### *Barrier 5.3 – Insufficient campaign-/programme-design*

In Ireland, in opposition to other EU member states, there might be no need for general awareness campaigns, raising the general acceptance of these technologies; however, concerted and specific smaller campaigns, highlighting special issues within the RES development could raise the acknowledgement of specific questions and would further promote the implementation of RES in the Irish electricity and power sector.

### 5.2.2 Best practice elements and indicators

No.	Benchmark	Result
5.1	Is sufficient information on support measures available?	Yes

## 5.3 Literature

CES (2010): CES Energy Combined Energy Solutions; Brendan Marren. Interview in Dublin on 16.03.2010

IWEA (2010): Irish Wind Energy Association; Michael Walsh / Mary Doorly. Interview in Dublin on 15.03.2010

NOW Ireland (2010): National Offshore Wind Association of Ireland; Garrett Connell. Interview in Dublin on 16.03.2010

Oriel (2010): Oriel Windfarm Limited; Garrett Connell. Interview in Dublin on 16.03.2010

## 6 Issue 6 Certification of installers

### 6.1 Introduction

Renewable energies are a quite new and still developing market in Ireland (CES 2010). The lack of trained installers has been identified as one of the critical barriers to the development of a sustainable renewable energy market (REIA 2010).

A certification process for RES installations exists at present under the supervision of Sustainable Energy Ireland (SEI), the National Energy Agency, following the ISO 17024 standard. The process was implemented in 2008 and covers solar thermal, biomass as well as geothermal installations (Qualicert 2010). Certification is not obligatory for the installation work as such; still, it is a pre-requisite in order to be eligible for certain funding (Dubuisson 2010).

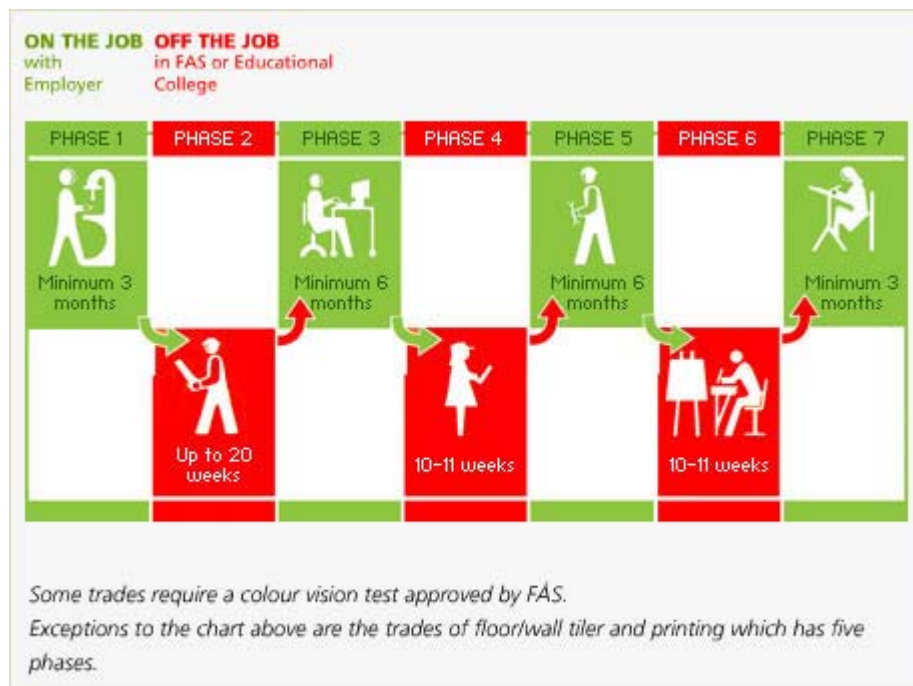
The Further Education and Training Awards Council (FETAC) is the national awarding body for further education and training in Ireland. All training courses are FETAC accredited and installers must receive the relevant FETAC award (Qualicert 2010).

Quality of installers is generally judged as good by stakeholders for solar thermal, however reservations were made regarding heat pumps and biomass (Dubuisson 2010).

The system of qualifying a craftsperson in Ireland is described below:

Apprenticeship is the recognised means by which people are trained to become craftspeople in Ireland. On successful completion of an apprenticeship, a FETAC (Further Education and Training Awards Council) Advanced Certificate is awarded; this is recognised internationally as the requirement for craftsperson status.

Generally, the duration of an apprenticeship is a minimum of 4 years. It consists of 7 alternating phases of on-the-job and off-the-job training and development. (FÁS)



**Fig. 1: FAS, Apprenticeship Circle, FAS 2010**

The SEAI runs a Registered Installers List. An installer achieves certification from an accredited training course in respect of each of the technology areas for which he wish to register.

SEAI in conjunction with the Renewable Energy Installer Academy (REIA) has developed training courses for each technology. These courses are accredited by FETAC (Further Education and Training Awards Council). (SEAI)

Candidates must fulfil minimum entry qualifications to gain entry to these courses. The courses are intended for practicing plumbers or electricians who are able to satisfy specific criteria. (REIA)

Each course lasts approximately three or four days which includes half day practical training and half day examination. The training covers all of the basic knowledge on the relevant technology. This includes specifying, application of the technology and a detailed training on completing an installation. (REIA)

At present there is no legal requirement for installers to have undergone this training in order to operate in the Republic of Ireland. There is however a compulsory training requirement in place for installer registration with SEAI. (SEAI)

The practical training is often provided to the installer by the equipment manufacturer. (SEAI)



## 6.2 Description of barriers & solutions

### 6.2.1 Detailed description of the barriers and solutions

#### *Barrier 6.1 - Lack of a certification body/scheme*

The installers are certified through attending an accredited training course for particular technologies. But at the same time there is no legal requirement for installers to have undergone this training in order to operate in the Republic of Ireland (Dubuisson 2010). The courses are accredited by FETAC (Further Education and Training Awards Council). Only after attending such a training course one can be listed on the Registered Installers List run by the SEAI (Sustainable Energy Authority in Ireland). (SEAI)

Action Renewables in Northern Ireland and Sustainable Energy Ireland in Republic of Ireland have funded a pilot project - The Renewable Energy Installer Academy (REIA), for developing structures for training, registration and quality control of installers in the INTERREG region, which is Northern Ireland and the six border counties, namely Cavan, Donegal, Leitrim, Louth, Monaghan and Sligo. (REIA)

It is now planned to build upon the success of the pilot project and to develop REIA into a sustainable association for renewable energy installers to promote and ensure quality renewable energy installations. A key function of REIA will be the accreditation of training facilities to deliver the required competence in renewable energy installers and the registration of installers. (REIA)

#### *Barrier 6.2 - Lack of communication/information on certification*

The certification is not known to the broad public. But it plays a big role when it comes to receiving a grant for heating from RES (Greener Homes scheme). The installation of RES technology has to be conducted through an accredited installer from the Registered Installers List. Otherwise the installation will not receive funding. When it comes to the RES-E SEAI recommends employing an accredited installer from the Registered Installers List, but it is not necessary. (SEAI)

#### *Barrier 6.3 - Lack of sufficient training possibilities*

Barrier not recognised.

SEAI in conjunction with the Renewable Energy Installer Academy (REIA) has developed training courses for each technology. These courses are FETAC accredited. (SEAI)

Currently throughout Ireland there are a number of course providers offering renewable energy training courses. These courses are aimed for already educated installers and last approximately 3 days. (Interview Mullan REIA)

#### *Barrier 6.4 - Renewable energies not sufficiently covered by vocational training*

The installation of RES technologies is in Ireland a new and still developing market.

The RES technologies are only partly but still not sufficiently covered by vocational training. (REIA 2010) In the European comparison Ireland is on a rather weak position when it comes to the training of installers.

In order to be an accredited installer one must, after finishing the apprenticeship, attend an additional training course. Furthermore the SEAI recommends that an installer apart from this training additionally takes part of a practical training at the equipment manufacturer. (SEAI)

#### *Barrier 6.5 - Problems with the guarantee/warranty/maintenance regime*

If and for how long a warranty is given, depends in Ireland on manufacturers and suppliers. In other words the warrantee regime differs on the individual level. Some manufacturers and suppliers offer warranties with major equipment and parts. (SEAI)

### 6.3 Literature

CES (2010): CES Energy Combined Energy Solutions; Brendan Marren. Interview in Dublin on 16.03.2010

Dubuisson (2010): Xavier Dubuisson, MEng. MSc., Delap & Waller EcoCo Integrated Sustainable Design Consultants, Interview in March-April 2010

Qualitcert (2010): Common quality certification & accreditation for installers of small-scale renewable energy systems, 2010

REIA (2010): Renewable Energy Installer Academy; Neil Mullan, REIA co-ordinator, programme manager with Action Renewables. Telephone interview on 20.04.2010

#### *Websites:*

[www.actionrenewables.org](http://www.actionrenewables.org)

FAS: [www.fas.ie](http://www.fas.ie)

FETAC: [www.fetac.ie](http://www.fetac.ie)

SEAI: [www.sei.ie](http://www.sei.ie)

## 7 Issue 7 Infrastructure Development

### 7.1 Introduction

The development of the grid infrastructure, especially in regard to the transmission grid, is of utmost importance for the diffusion of RES in Ireland. All stakeholders highlighted the weak grid infrastructure as the main barrier in the Irish system at present. Still it is also to highlight that Ireland has already developed a comprehensive grid development plan until the year 2025, known as “Grid25”, which has been qualified by stakeholders as good basis for the further development of the grid.

Regarding the development of a Trans-European grid, Ireland is facing the barrier of non-existent direct interconnectors with the European continent. In addition, there is also only one operating interconnection with the British mainland.

### 7.2 Description of barriers & solutions

#### 7.2.1 Detailed description of the barriers and solutions

##### *Barrier 7.1 - Problems concerning the development of network infrastructure according to a long-term strategy*

Interviewed stakeholders in Ireland highlighted the differing situation between the distribution grid and the transmission grid; while the first one is considered to be in good condition and capable to accommodate further extension of RES capacities, it is the transmission grid, which has been identified as the main barrier for the development and diffusion of RES in Ireland (Arthur Cox 2010, IWEA 2010, Now Ireland 2010, Oriel 2010).

The grid operator EirGrid has presented a comprehensive long term strategy for the development of the grid infrastructure in form of the Grid25 plan. All interviewed stakeholders qualified this plan as a very good instrument to meet future developments of RES, especially those of onshore and offshore wind installations. The Grid25 strategy is outlining the required and planned reinforcement works for the whole of Ireland in detail, as well as required works for the seven defined regions of the country; thus, considering regional differences within the Republic of Ireland and the specific conditions for future reinforcement works. The Grid25 plan identifies the need to double the capacity of the bulk transmission system by 2025, which requires for major reinforcement of the existing networks. Until 2025 an investment of approximately €4 billion is envisaged.

In addition, the strategy strongly emphasises the need to increase Ireland's connectivity to the European grid, allowing for both bulk exports of electricity and imports of electricity when appropriate. In this regard, the strategy is identifying the required expansion and development of the Irish electricity grid, especially the transmission grid, as major problem. Approximately 1,150 km of new circuits will be required; of this, 800 km will need to be at 220 kV or higher; the other 350 km will be at 110 kV. Additionally, there is a need to upgrade 2,300 km of the existing transmission network to provide greater capacities (Grid25). Underground cables are only implantable on very small scale, due to extremely high costs and the reduced operating performances of these cables. In addition, there is a large disproportion regarding the costs and the complexity for maintenance of overhead and underground electricity lines (Grid25, NOW Ireland 2010, Oriel 2010).

#### *Barrier 7.3 - Problems concerning grid expansion processes of existing electricity networks*

The expansion of the existing transmission grid is the largest barrier for the development and diffusion of RES in Ireland. Stakeholders repeatedly mentioned the opposition of the local population in regard to overland high voltage lines as largest obstacle for the extension of the transmission grid. Several appeals at court are blocking a further extension of the transmission grid. In this regard, it is however problematic to highlight the democratic participation of the local population and the use of their constitutional right to oppose to projects as obstacle for the development.

A lack of awareness raising is identified as root cause for this situation. People generally in favour of RES often are lacking necessary information regarding the linkage between the expansion of the grid and a further development of RES technologies; in this context, it is referred to Issue 5 of this report, dealing with this barrier in detail.

A different case though is the definition of legitimate complaints against planning or building permits. Here stakeholders mentioned the undefined group of persons eligible for appeal. Under the current legislation any third party, not even having the Irish citizenship or being a permanent resident, could appeal at court against a planned project, thus lengthening the process (Arthur Cox 2010). A limitation of this broad right to appeal regarding the group of eligible persons in conformity with European regulations could minimize this barrier and would still guarantee a democratic participation of the local population.

#### *Barrier 7.4 - Problems concerning the development of a Trans-European Electricity Network*

The main barrier for the development of a Trans-European Electricity Network from the Irish perspective is the insufficient number of interconnectors, especially the absence of any direct interconnection to the European continent. For the time being, there is only one interconnector operating between Northern Ireland and the British mainland with a capacity of 500 MW. This interconnector is only used up to 8%, mainly in direction from Scotland to Ireland to balance power; yet, it is not used for the export of Irish RES energy to the British mainland (NOW Ireland 2010, Oriel 2010). A second line, the "East-West-Interconnector", has been built between Ireland and Wales with a capacity of 500 MW, starting its operation during the next weeks (Grid25).

Still, a Trans-European Network is requiring for direct interconnection also with the European continent. Larger interconnection capacities would allow for the export of Irish RES energy to the European continent when output from Irish RES generation is high, as well as for import of power when RES generation on the Irish island is low, thus internationalising the Irish energy market (Grid25). Potential direct interconnection has been envisaged between Ireland and France; indirect interconnections via the British mainland are envisaged for Belgium as well as France (Grid25, NOW Ireland 2010, Oriel 2010). All presented potential interconnections might face the existing problem of a very high base load of the French and Belgian electricity grid, thus not being able to accommodate larger amount of Irish RES energy, especially derived from wind. A transmission of Irish RES energy through these grids might thus only be possible if these networks are reinforced. Alternatively, it might also be a solution to connect Ireland or the British mainland with the Dutch network or even the Danish one (NOW Ireland 2010, Oriel 2010).

### 7.2.2 Best practice elements and indicators

No.	Technology	Benchmark	Result
7.1		Presence of a satisfactory and efficient (in terms of capability of achieving its stated objectives) plan for the reinforcement of the interconnection capacity with neighbouring countries.	Yes
7.2		Presence of a satisfactory and efficient plan for the reinforcement of the connection capacity within the country.	Yes

## 7.3 Literature

Arthur Cox (2010): Geraldine Kearney / Claire Madden / Garrett Monaghan, Law Firm Arthur Cox. Interview in Dublin on 16.03.2010

EirGrid (2010): EirGrid plc, Irish Electricity Transmission System Operator/ Market Operator of the wholesale electricity trading system. Grid25 - A strategy for the development of Ireland's electricity grid for a sustainable and competitive future ([www.eirgrid.com/media/Grid%2025.pdf](http://www.eirgrid.com/media/Grid%2025.pdf))

IWEA (2010): Irish Wind Energy Association; Michael Walsh/ Mary Doorly. Interview in Dublin on 15.03.2010

NOW Ireland (2010): National Offshore Wind Association of Ireland; Garrett Connell. Interview in Dublin on 16.03.2010

Oriel (2010): Oriel Windfarm Limited; Garrett Connell. Interview in Dublin on 16.03.2010



## 8 Issue 8 Power Grid Issues

### 8.1 Introduction

The current grid connection procedure is identified as a major barrier for the further development of RES in Ireland by the stakeholders. Under the present model, batches of RES energy are licensed in certain rounds or “gates”. Projects are lined in a pipeline, indicating the amount of capacities to be installed. Still, stakeholders highlighted that the current procedure does not allow for a clear picture regarding the value of the applied projects, as not even the receipt of the spatial planning permission is selected as criterion for the application for grid connection. It is consequently hardly possible to estimate the share of projects of insufficient quality; thus, likely to fail throughout the connection process.

Required grid reinforcement works have been identified and are taken into consideration, especially in form of the comprehensive grid development plan “Grid25” (see also Issue 7).

### 8.2 Description of barriers & solutions

#### 8.2.1 Detailed description of the barriers and solutions

##### *Barrier 8.1 - Problems concerning grid connection*

The Irish grid connection procedure is operating on a “gate” regime for the connection of RES generation capacities. The Electricity Regulation Act 1999, especially section 34, forms the legislative basis for this system. Under this regime, batches of renewable energy are licensed in certain rounds or “gates”. Projects are lined in a pipeline, indicating the amount of RES capacities to be installed. In December 2008 the Commission for Energy Regulation (CER) has outlined the current regime of Gate 3, foreseen to cover 3,900 MW, being the required RES development until 2020 to meet the national RES target of 40% renewable penetration in consumption. Gate 3 encompasses renewable applications received and stamped by the relevant system operator, up to and including 16. November 2007.

Stakeholders highlighted the current connection application procedure as a major barrier for the development of RES in Ireland. Specifically, they outlined that developers could apply for grid connection, even though they might not even be in possession of the land on which they are envisaging to construct the respective installation. Furthermore, receipt of spatial planning permission has also not been selected as criterion for the application for grid connection (CER Gate 3 2008).

These circumstances are resulting in conditions, where a clear picture regarding the quality of applied projects cannot be derived. It is hardly possible to predict what share of projects will finally be realised, respectively how many projects will fail during the process leading to their construction. This ambiguity in the grid application process has been identified by almost all stakeholders as one of the two most pressuring barriers to be solved for the further development of RES in Ireland (Arthur Cox 2010, IWEA 2010, NOW Ireland 2010, Oriel 2010).

As possible option to minimise the impact of this barrier, stakeholders offered the raise of the application processing fee, being currently 7,000 €. A higher application fee could encourage developers to carefully analysing the potential of their project before applying for grid connection (Arthur Cox 2010, IWEA 2010, NOW Ireland 2010, Oriel 2010). Still, comparable cases of other member states with high fees for the grid connection or as pre-requisite for the FIT also showed the double-edged effect of such conditions for grid access, limiting at best even the development of RES. A carefully balanced fee is thus advised to allow for a pre-selection of unqualified projects, though not limiting the development potential within the country.

#### *Barrier 8.2 - Problems concerning grid access*

Electricity produced from RES has no priority access to the Irish grid; the law only provides for a non-discriminatory treatment of all electricity, being renewable or conventional, regarding the access to the grid (Sec. 34(8) Electricity Regulation Act, 1999 (ERA)).

However, a group processing procedure has been put in place to allow for an accelerated connection of renewable installations to the grid; thus also ensuring an increased connection security. Under this system, completed applications within a “Gate” are defined by the TSO and DSO as “Groups” and are connected at the same time, once the “Group” has reached connection status. In addition, projects of public interest may benefit from an exemption, consequently being connected with additional priority (4.4; CER/05/049).

#### *Barrier 8.3 - Problems concerning TSOs and DSOs*

All interviewed stakeholders mentioned the good relation with the distribution grid operator, ESB Networks, as well as with the transmission grid operator, EirGrid (CES 2010, IWEA 2010, NOW Ireland 2010, Oriel 2010).

Furthermore, a long-term grid expansion strategy until 2025 has already been developed in form of the before mentioned Grid25 plan (see Issue 7).

### 8.2.2 Best practice elements and indicators

No.	Technology	Benchmark	Result
8.1		Are the rules on cost sharing and bearing of grid connection objective, transparent and non-discriminatory ?	
	wind onshore >		Yes



No.	Technology	Benchmark	Result
	10 MW		
	biomass > 10 MW		Yes
8.2		Is the denial of grid connection by TSOs and DSOs a common problem, constituting an important barrier for RES development?	
	wind onshore > 10 MW		No
	biomass > 10 MW		No

### 8.3 Literature

Arthur Cox (2010): Geraldine Kearney / Claire Madden / Garrett Monaghan, Law Firm Arthur Cox. Interview in Dublin on 16.03.2010

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## 9 Issue 9 Gas Network Issues

### 9.1 Introduction

At present, no Irish biogas installation injects into the gas network. Consequently, only an analysis of potential barriers concerning the root causes for this situation is possible. In this regard, the lack of a biogas market, especially caused by technical, administrative and policy related barriers, is to be identified as main reason for the before mentioned circumstances.

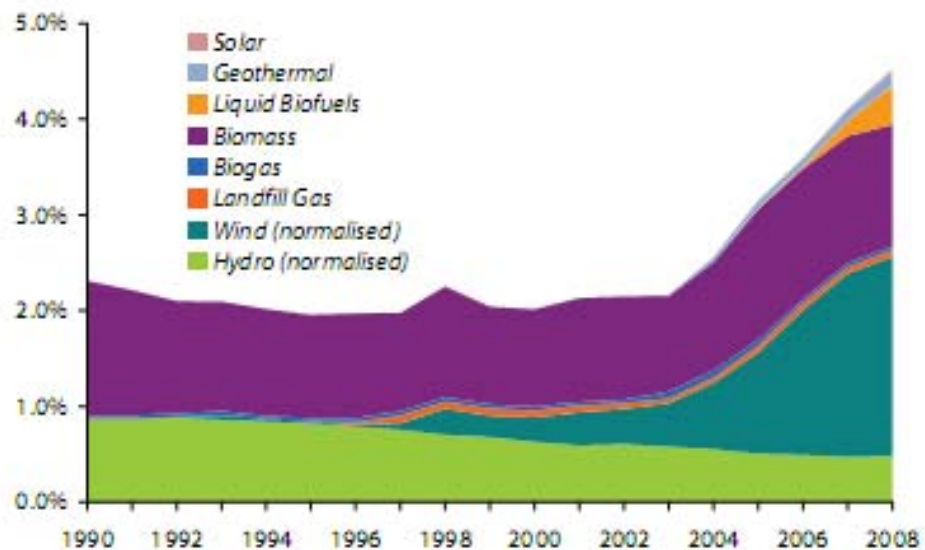
### 9.2 Description of barriers & solutions

#### 9.2.1 Detailed description of the barriers and solutions

The main reason for the complete lack of injection of biogas into the gas networks is the almost not existing biogas market. According to a study published by Sustainable Energy Ireland, biogas has such an insignificant impact on the Irish energy flow, that it is not even mentioned (SEI 2009).

Another statistic in the same report indicates that that biogas is playing a very insignificant role also in comparison with other renewable energy sources. While biomass is having a constant share of about 1% of the gross final consumption and wind power is rapidly growing, the biogas market has not developed in the period from 1990 to 2008 (SEI 2009). Altogether, there are 4 on-farm anaerobic digestions plants and 4 industrial anaerobic digestions plants (BEO 2010). Because of their scale it does not seem economically or technically viable to connect them to the existing gas pipelines (Ó Conaill 2010).

## Renewable Energy Contribution to GFC 1990 to 2008



*Fig. 3: Renewable Energy Contribution to GFC 1990 to 2008, Source: SEI 2009*

The reasons for this underperformance of biogas are multifaceted:

- Policy and administrative barriers:** Policy and administrative barriers have been identified as the main problem by stakeholders. As for policy barriers, lack of co-operation between the various government departments is the single biggest obstacle to the development of the biogas sector in Ireland. When a proposal covers several different departments (i.e. Energy, Environment, Agriculture, Health) it makes the administration involved with such projects more dispersed and difficult to keep moving (Ó Conaill 2010). Administrative barriers, such as grid connection and planning problems and constraints due to legal requirements for animal health reasons also hamper the process (Rice 2009).
- Cost barriers:** An additional issue are barriers which hinder investments. High capital costs are one inhibiting factor (Bioenergy Action Plan 2007).
- Insufficient feedstock:** It has not become entirely clear whether or not the lack of feedstock constitutes a barrier to the expansion of biogas. According to RES stakeholders, the lack of feedstock would be no concern in Ireland (Ó Conaill 2010). However, according to a comparative study, the Irish Republic has one of the lowest feedstock potentials of the European member states (Wit 2010). In addition, the use of the feedstock competes with other utilisations. According to the Bioenergy Action Plan of Ireland, on the vast majority of cattle farms in Ireland, manure nutrients are recycled on-farm by land spreading in a sustainable and cost effective manner. In general it would not be economic for farmers to transport manures any great distance to an anaerobic digestion plant for treatment and subsequent land spreading (Bioenergy Action Plan 2007).

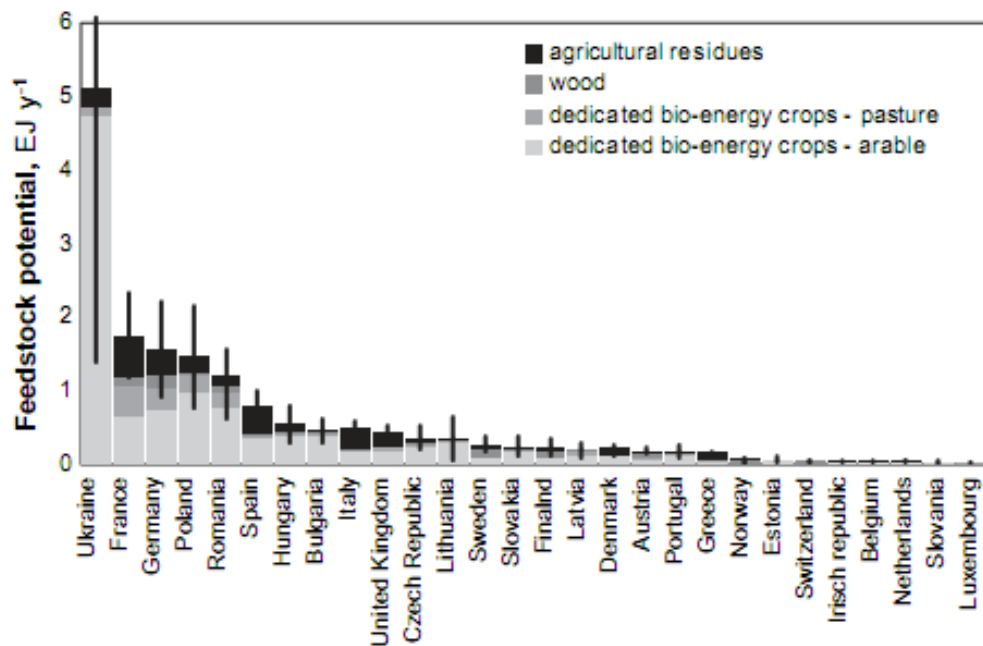


Fig. 4: Feedstock potential, Source: Wit 2010

### 9.2.2 Best practice elements and indicators

No.	Benchmark	Result
9.1	If green certificates and/or subsidies for biogas are in place, do they de facto make unattractive to feed green gas into the grid due to the high level of subsidy for biogas used for electricity generation?	No
9.2	Are the costs of grid connection for producers of gas from renewable energy sources objective, transparent and non-discriminatory?	No
9.3	Do transmission and distribution tariffs discriminate against gas from renewable energy sources?	No
9.4	Average time needed for grid connection approval (from application for grid connection to formal approval) in months (#).	N/A

## 9.3 Literature

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## 10 Issue 10 District Heating

### 10.1 Introduction

There is hardly any district heating and cooling (DHC) operating in Ireland. Irish DHC was not even mentioned in the statistics provided by the standard Ecoheatcool study (Ecoheatcool 2006). Several of these systems are based on gas, which could be substituted by biomass if the financial conditions and the reliability of supply would be assured. Also CHP is not very widespread in Ireland. Most of the reported CHP plants are gas based and deliver heat to a single building.

In the immediate future, the potential for new DHC systems is limited, due to physical characteristics of the building stock and the dramatic crisis of the real estate market, which has affected Ireland probably more than any other EU country. In the medium and long term, much more could be done.

### 10.2 Description of barriers & solutions

There is very little district heating in Ireland. Most of the 13 DHC systems mentioned in the very recent study of the Ecoheat4eu project (Ecoheat 2010) are so small that they would probably not even be considered as DH in most other countries and/or are still in the planning or development stage. In some cases, heating systems that deliver heat to a single large building are called “district heating” in Ireland (CES 2010, Danfoss 2009), though they would probably be called “central heating” in countries that have a significant DHC basis in operation.

In recent years, a significant increase of awareness for the need of reducing energy consumption for heating and for the potential of district heating systems can be observed. In 2008, the Dublin City Council published a feasibility study for a new, large district heating system to be installed in the capital (Dublin City Council 2008). The main source of heat would be a planned waste-to energy CHP plant. Some piping for the heat distribution network is being installed. However, it is not clear if and when it will start operating, since the construction of the waste-to-energy CHP plant is blocked in the authorisation process (CES 2010, SEIA 2010a). A feasibility study was produced also for the Cork Docklands, a new urban development in the second largest city in Ireland (Cork City Council 2009). However, given the economic crisis, it is not clear if this development will be realised at all.

In general, in the immediate future, it is not very likely that planning of a new district heating system will play an important role in Ireland. A historic occasion was missed

during the last two decades, which saw an enormous building activity in Ireland. However, unfortunately, this led to a further diminution of the already low urban density, with many new small buildings being scattered in the outskirts of urban areas or in the countryside. Even when new buildings were constructed, they often have been equipped with individual heating systems (CES 2010, SEIA 2010a).

On the one hand, this means that little construction activity can be expected in the foreseeable future. As the economic crisis has ferociously hit the Irish real estate market, many properties are currently empty and the price of buildings collapsed. However, the best occasion to introduce new DHC networks is when new areas are built. On the other hand, the introduction of DHC in existing areas will not be favoured by the low density of heat loads and by the frequent use of individual heating systems in each flat.

### 10.2.1 Detailed description of the barriers and solutions

#### *Barrier 10.1 – Lack of positive conditions for the increase of the share of renewables in existing DHC systems*

Given the very low number and capacity of DHC systems in operation in Ireland, this barrier is not very important.

Some (Arup 2010), probably most (CES 2010) of the few small “district heating” systems recently planned or constructed in Ireland are predominantly or completely based on gas, with only little contribution from biomass. One main reason for this are concerns about the biomass supply chain. Though Ireland has significant biomass resources, given the absence of a tradition in the large scale use of biomass, concerns about the certainty, the quality and the reliability of biomass supply are seen as a serious barrier to investments in the burning equipment. Recently, SEAI launched a tender to allocate wood supply coming from public owned forests, with the purpose of solving these concerns, at least for a certain amount of supply, thus enabling investors to realise biomass plants that could then also be used within DHC networks (CES 2010).

#### *Barrier 10.2 – Lack of positive conditions for the initiation and expansion of DH systems largely based on renewables*

The following barriers to the development of new DHC systems in Ireland have been identified (CES 2010, Euroheat 2010, SEIAa 2010):

- **Awareness, image and tradition:** In general, Ireland’s population has a low awareness for energy issues in general, and heating in particular (Eurobarometer 2006 and 2002). There is a historical lack of awareness for the potential especially for district heating, which is very little developed. Moreover, the most visible DHC project ever in Ireland was realised in a social housing project in the 1960s in Ballymun. Due to lack of experience and to the error of not importing existing know-how from other countries, the project was a technical failure. As the mentioned housing project was renovated in the 1990s, the DH system was shut down. This experience, associated with low-comfort housing, is still contributing to a negative image of DHC in Ireland (CES 2010, Ecoheat 2010).



The largest local authorities (Dublin and Cork) with their feasibility studies, as well as the central government and its main agency (SEAI) with awareness raising and legislative changes have been actively working to change this image. However, the best and probably the only working remedy would be to realise some big and visible demonstration projects, creating new positive examples.

- **Physical constraints in the building infrastructure:** Ireland is not a densely populated country. Moreover, it has a tradition of sparse urban development, with many small buildings, and quite some space among them. This has been unfortunately exacerbated during the construction boom of the last two decades, leading to increased energy consumption for transport and to negative pre-conditions for district heating developments.

There is no option to improve this in the short and medium term, except for new large real estate developments that might be planned again after the economic crisis. Moreover, central heating solutions for new buildings and those undergoing major renovation could be promoted, instead of the standard individual gas heaters. This will make the buildings more suitable for a later connection to a DHC system, and also to the use of solar or geothermal energy.

- **Impossible to trade surplus electricity from CHP:** The Ecoheat4EU study (Ecoheat 2010) mentions as greatest barrier the fact that the Electricity Regulation Act prevents the sale of electricity from CHP to multiple end users, thus decreasing the incentive.
- **Lack of dedicated regulation:** Probably due to the little development of DHC so far, there is no regulation for the heating market. Market players request that the Commission for Energy Regulation is given the mandate to set and monitor the implementation of rules on market entry conditions, pricing and consumer protection (Ecoheat 2010).
- **Details in the building regulation:** In general, the building energy regulation (BER) approved in 2008 is considered as a positive driver for the development of CHP and DHC. Part L “Conservation of Fuel and Energy” of the Building Regulations 2008 (applicable to new dwellings) encourages the use of centralised renewable energy sources contributing to a heat distribution system (section 1.2.4), and specifies that “the use of a small scale combined heat and power (CHP) system which contributes to the space and water heating energy use would be acceptable” for the purpose of showing compliance with the renewable heat obligation included in this regulation. This is of course positive, though it is not very clear to the authors why this is limited to “small scale” CHP.

The criticism of the Irish experts and stakeholders consulted in the Euroheat project refers to certain details of the BER, namely:

- “Currently no allowance exists for a centralised boiler vs. individual boilers in apartment developments;

- Currently no allowance exists for instant hot water in DH (only for combi-boilers). The minimum option available in the software is 110 L of hot water, which is very inefficient;
  - The software penalises DH vs. individual boilers. A biomass boiler @ 90% efficiency supplying a DH system becomes 75% on this software package. Hence the BER for an individual boiler is regarded as better than the DH solution.” (Ecoheat 2010).
- **Administrative barriers** are not mentioned specifically for the DHC infrastructure, but are an issue for the authorization of CHP plants (see issue 1). Taking this into account, it can be concluded that several of the barriers to the use of DHC in Ireland are related to the past and cannot easily be tackled by policy decisions.

Improving certain aspects of the legal-administrative framework would be helpful. However, also financial investments are necessary, since the most important measure would be the realisation of some larger, visible demonstration projects with state of the art technology.

### 10.2.2 Best practice elements and indicators

No.	Benchmark	Result
10.1	Are there policies to promote the increase of the RES share in existing DH networks?	No
10.2	Are there policies to promote the initiation / expansion of DH networks?	No
10.3	Percentage present renewable share	N/A (low)
10.4	Percentage CHP share	N/A

## 10.3 Literature

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