Buan Ionadaíocht
na hÉireann
chuig an Aontas Eorpach

Permanent Representation
of Ireland
to the European Union

Mr. Karl Falkenberg,
Director General, DG Environment,
European Commission,
Avenue Beaulieu,
B-1049 Brussels,
Belgium.

5 September 2012

Re: Directive 2010/31/EU of the European Parliament and of the Council on the energy performance of buildings (recast)

Dear Director General,

I have been asked by my authorities to refer to the provisions of Article 14 of Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings (recast) concerning the inspection of heating systems.

Under Articles 14(1) to 14(3) of Directive 2010/31/EU, Member States are required to set out the necessary measures to establish a regular inspection of the accessible parts of systems used for heating buildings, such as the heat generator, control system and circulation pumps, with boilers of an effective rated output for space heating purposes of more than 20 kW. Inspections shall include an assessment of boiler efficiency and boiler sizing relative to the heating requirements of the buildings.

Member States may allow for frequencies of inspections to differ depending on the type and output of the heating system and having regard to the costs of inspection and the estimated energy cost savings that may accrue from inspection. Heating systems with an effective rated output of more than 100 kW shall be inspected at least every two years although for gas boilers the period may be extended to four years.

Article 14(4) of Directive 2010/31/EU provides an alternative approach to the above requirements and enables Member States to opt to take measures to ensure the provision of advice to users on the replacement of boilers, other modifications to the heating system and alternative solutions to assess the efficiency and appropriate size of the boiler. The overall impact of the alternative approach must be equivalent to that arising from the provisions set out in Articles 14(1) to 14(3) respectively. Ireland availed of this alternative approach under Article 8(b) of the original Directive 2002/91/EC of the

European Parliament and of the Council of 16 December 2002 on the energy performance of buildings.

Where Member States opt to avail of the alternative approach set out in Article 14(4) of Directive 2010/31/EU, they shall submit to the Commission a report on the equivalence of those measures to the measures referred to in Articles 14(1) to 14(3) respectively. Member States shall submit these reports to the Commission every three years.

My authorities wish to formally notify the Commission that Ireland intends to continue to avail of the alternative approach provided for under Article 14(4) of Directive 2010/31/EU and, in this context, encloses a report on the equivalence measures proposed for the three-year period 30 June 2011 to 30 June 2014.

Yours sincerely,

Terry Sheridan
Environment Áttache

Directive 2010/31/EU on the energy performance of buildings (recast)

Ireland's Equivalence Report 30 June 2011 to 30 June 2014

Article 14(4) – Inspection of Heating Systems

Background

In August 2006, Ireland notified the EU Commission of its decision to adopt Option (b) of Article 8 of Directive 2002/91/EC of the European Parliament and of the Council on the energy performance of buildings (known as the EPBD). This decision was indicated in the *Action Plan for the Implementation of the EU Energy Performance of Buildings Directive (EPBD) in Ireland*, with commencement on this action from 1st January 2008. The Action Plan was published by an interdepartmental working group known as the EPBD Implementation Group, which consists of senior members from the Department of Communications, Energy and Natural Resources, Department of Environment, Community and Local Government and the Sustainable Energy Authority of Ireland (SEAI), in July 2006. The EPBD Implementation Group was established to oversee implementation of the EPBD in Ireland.

The options under Article 8 were:

(a) Introduce mandatory regular boiler inspections of boilers fired by non-renewable liquid or solid fuel of an effective rated output >20kW and of (building) heating systems with large boilers (>20kW) more than 15 years old, or

(b) Promote best practice in maintenance, use and replacement of boilers and modifications of heating systems. This option must be shown to achieve a broadly equivalent overall impact to energy and CO_2 reduction as could be achieved under option (a).

As set out in the original notification to the Commission, the proposed approach sought to centre on developing an effective information campaign and other support actions aimed at encouraging regular inspection and maintenance of residential and commercial boilers and the replacement of inefficient boilers or heating installations. This approach was set within a goal of accelerating market change in favour of more energy efficient products and practices relating to boilers / heating systems in Irish buildings. The focus was on establishing a well structured set of initiatives, led by Government bodies, but with a partnership approach aligning with the business interests of energy efficiency product and service providers, especially key influencers, in the boilers / heating systems sector.

Baseline study

The following are the summary findings of a study commissioned to establish the baseline distribution profile in 2005 of boilers in Irish buildings by fuel, size / output, age, the prevailing practice and potential in respect of inspection / servicing / maintenance of boilers, and the potential energy and CO_2 saving impacts under differing scenarios.

It was estimated that, out of a total of 1.25 million boilers, there were 693,000 boilers of over 20 kW and subject to Article 8, Option (a). This comprised 580,000 oil boilers, 100,000 gas boilers and 13,000 solid fuel boilers respectively.

Total energy consumption by all boilers has been estimated at 24,000 GWh, accounting for 5.8 Mt CO_2 emissions.

Of boilers over 20 kW and therefore within the remit of Article 8, Option (a), on a weighted average annual basis, approximately 87% of commercial boilers and 49% of domestic boilers receive a

maintenance servicing annually. The numbers to target for regular inspection and servicing in these cases were therefore respectively 13% of commercial boilers and 51% of domestic boilers.

The inspection regime under Option (a) would also incorporate all (building) heating systems with large boilers (>20kW) and that are more than 15 years old. This option largely precluded gas fired appliances (except those older than 15 years or greater than 100kW in size). Moreover, given that solid fuel accounted for almost 80% of the domestic heating market in Ireland in 1990, with the progressive installation of oil and gas fired appliances in the interim, less than 8% of the boiler population was more than 15 years old in 2005.

No explicit targets are set in Article 8 for energy efficiency or emissions improvements. Indeed inspection *in itself* will not achieve such improvements. It is the act of maintenance servicing that achieves the improvement (whether stimulated by an inspection, an information campaign, or other means).

Nevertheless a scenario exercise was conducted to assess the hypothetical maximum national savings that would derive from an estimated 2.5% average seasonal efficiency improvement arising from servicing boilers every two years. This was calculated per annum at 413 GWh gross or 108,000 tCO_2, and excluded energy consumption in transport to provide the service. It should be noted that this regime would represent little or no net cost saving to a household in many cases, which was a key influence in the approach taken under Option (b) to promote the benefits of safety and reliability as much as energy efficiency.

In light of the above, it was difficult to assess the conversion rate of inspection advice findings into action in the form of maintenance servicing. It was assumed that the conversion rate is 50%, equating to a potential impact under Option (a) of **207 GWh** and 54,000 tCO_2 per annum. These figures thus represented the **baseline** against which equivalence was to be assessed, and equated to approximately 0.7% of the annual emissions associated with the total target population under Option (b).

Implementation Progress to date

An aligned set of actions contributing to improving boiler and heating system efficiency in the Irish building stock is in place. The table below summarises actions up to the end of 2010. These consist of actions yielding energy savings and CO_2 abatement of a direct nature from capital investment in high efficiency systems, plus actions of an indirect nature that influence such capital upgrading works or influence improvements to operational heating system efficiency, notably boiler maintenance servicing.

Ref	Category of action	Action	Key elements	Annual energy saving	Annual emissions abated	Year commenced
1.	Regulatory	Building Regulations Part L	Mandatory minimum boiler efficiency of 86%+ *Increased to 90%+ in* December 2011	48 GWh direct	12,000 tonnes direct	2008
2.	Incentive	Greener Homes Scheme Grants	Support for installation of solar heating, heat pumps and biomass boilers – 32,000 homes	126 GWh direct	56,800 tonnes direct	2006 Concluded 2011

3.	Incentive	Better Energy Homes Scheme Grants	Support for efficient boiler and controls upgrades – 33,000 of 127,000 homes benefited from boiler and control upgrades	90 GWh direct	24,000 tonnes direct	2009 Ongoing to end 2013
4.	Incentive	REHeat grants scheme	Support for installation of solar heating, heat pumps and biomass boilers	500 GWh direct	96,000 tonnes direct	2007 Concluded 2010
5.	Promotion	Multiannual national media campaign	Promoting boiler servicing and upgraded replacement	20 GWh indirect	5,000 tonnes indirect	2008 Ongoing
6.	Accompanying resource	Boiler efficiency databases	Heating Appliances Register of Energy Performance (HARP), Triple E register for business sector and Building Energy Rating advisory report	Indirect	Indirect	2006
7.	Accompanying resource	Consumer and business sector information and advice	Highlighting high efficiency boiler technologies and operational and maintenance practices	Indirect	Indirect	Ongoing
8.	Accompanying resource	Training initiatives	Training of boiler maintenance and installation technicians	Indirect	Indirect	Ongoing
	Sub-total			**784 GWh**	**193,800 tonnes**	

These annual energy savings in relation to boiler installation and maintenance are difficult to quantify in many instances, but the savings from the above measures are in significant excess of both the realistic and hypothetical baselines outlined above.

The eight individual actions are outlined below:

1. Part L of the Building Regulations - provisions on minimum boiler efficiency

The Department of the Environment, Community and Local Government published a revision to Ireland's Building Regulations governing the conservation of fuel and energy in dwellings (Part L) in December 2007. The revision included a provision that from 31 March 2008 all oil or gas boiler installations in new dwellings must have a minimum seasonal efficiency of 86%. In addition, all replacement oil or gas boilers in existing dwellings must also have a minimum seasonal efficiency of 86% unless such an installation is impractical. In effect, this means that the vast majority of all boiler installations from the 31st March 2008 will be high efficiency condensing boilers. At a conservative estimate of 20,000 boiler installations (new or existing homes) per year over two years, this equates to direct annual energy and CO_2 savings of 48 GWh and 12,000 tonnes respectively.

In addition, the regulations set a requirement for a minimum contribution of 10 kWh/m² from renewable energy technology in new homes thus further reducing the fossil fuel consumption and associated emissions.

There is also a requirement to provide the home owner with instructions on how to operate the systems installed in the house effectively, specifically including the following:

- Information regarding the importance of servicing for boilers and establishing a schedule for same;
- Information on how to make adjustments to the time and temperature control settings; and
- Information on the routine maintenance required to enable the operating efficiency of the systems to be maintained at a reasonable level.

Part L of the Building Regulations were revised further in 2011 and introduced new efficiency requirements in relation to oil and gas fired boilers. Under the new regulations, all oil and gas fired boilers in new dwellings must meet a minimum seasonal efficiency of 90% from 1st December 2011. Similarly, all replacement oil or gas boilers in existing dwellings must also have a minimum seasonal efficiency of 90% unless such an installation is impractical. Proposals are also in hand to review Part L of the Building Regulations in respect of buildings other than dwellings with a view towards improving energy efficiencies in the non-residential built environment.

2. Greener Homes Scheme of grants for renewable energy heating installations

The Greener Homes scheme was established in 2006 to encourage the upgrading / replacement of fossil fuel based heating systems with low CO_2 alternative systems - solar heating, heat pumps and biomass boilers and stoves - in both new and existing homes. From 2008, this was confined to existing homes. By end 2010, such works had been installed in almost 32,000 homes and had been assessed to yield direct annual energy and CO_2 savings of 126 GWh and 56,800 tonnes respectively.

3. Better Energy Homes (formerly Home Energy Saving) scheme of grants for efficient heating installations

Included in the eligible actions under the current Better Energy Homes scheme, established in 2009, are grants to existing homes for the installation of boilers with seasonal heating efficiencies in excess of 90% and advanced heating controls to replace inefficient old systems. By February 2012, high efficiency boilers, including heating controls upgrades or heating controls upgrade only, had been installed in 33,000 homes. It is estimated that the direct annual savings attributable to the boilers and heating controls elements are energy and CO_2 savings of 90 GWh and 24,000 tonnes respectively.

4. Renewable Heat deployment scheme for non-domestic heating installations

This grant scheme, introduced in 2007, has encouraged the upgrading / replacement of fossil fuel based heating systems with low CO_2 alternative systems - solar heating, heat pumps and biomass boilers and stoves - in non-domestic installations. By end 2010, such works had been installed in 500 buildings or facilities and have been assessed to yield direct annual energy and CO_2 savings of 500 GWh and 96,000 tonnes respectively.

5. National Promotion Campaigns encouraging regular servicing or replacement

Since 2008, Ireland has run national promotional / advertising campaigns in relation to regular servicing of boilers, using website and popular and trade media. The campaign has been a partnership between SEAI and key heating industry stakeholders, viz. Bord Gáis Energy (BGE) (natural gas), OFTEC (oil) and Irish Liquid Petroleum Gas Association (ILPGA) (LPG). The campaign

has had as its core message the encouragement of regular maintenance of residential and commercial boilers and the replacement of inefficient boilers or heating installations. In collaboration with industry stakeholders, the campaign has encompassed all major media streams including television, radio and national newspaper advertising, as well as web advertising and promotional literature. The campaign directed consumers to a portal web page at www.seai.ie/boilers which in turn linked directly to the web sites and panels of specialist boiler maintenance service providers maintained by the three key stakeholders.

A more holistic message than energy efficiency alone was carried in these campaigns. Specifically, they have promoted the benefits of safety and reliability as well as energy efficiency / cost savings. This is because of known consumer perceptions from the baseline study and the weakness, in economic terms, of an energy efficiency message alone.

The following table summarises the changing consumer attitudes to boiler servicing frequency relative to a pre 2010 baseline demonstrating a significant shift to the frequency of servicing towards more efficient practice. On average 71% of boilers were serviced annually in 2011 compared to 63% in 2010 and 58% before 2010.

Servicing frequency	Every Year	Every 2 Years
Pre 2010	49%	18%
2010	57%	11%
2011	64%	14%

As an example of boiler campaign statistics, the campaign in 2011 had reached daily and Sunday newspapers each with a readership of 3.6 million, broadcast listenership of 3.1 million and online advertising achieved 100,000 visits. The campaign led to an increase of over 20% in visits to the relevant web pages, and the residual effect was sustained for a significant period after the primary campaign ceased.

6. Boiler efficiency databases: Information dissemination

a. Heating Appliance Register of Performance

The Heating Appliance Register of Performance (HARP) database is a product efficiency database for home-heating appliances that are used in Ireland. The database is published by SEAI and is accessible on the SEAI website at www.seai.ie/harp. It is used for the following purposes:

- as a resource in the boiler efficiency promotion campaign above;
- to provide consumers with comparative performance related information for heating appliances to enable them make informed decisions;
- to provide registered Building Energy Rating (BER) assessors with specific product efficiency information which they can use when calculating BERs for dwellings;
- to facilitate compliance with the original Boiler Efficiency Directive; and
- has the potential to facilitate the monitoring of market patterns, either in a procurement context or through the Building Energy Rating (BER) system.

In the latter regard, the changing database population will be used as a tool for assessing market trends. Over time, as a result of the marketing potential of the database, the proportion of higher efficiency boilers can be expected to increase. This will be used as a basis to model the distribution of such boilers and estimate the resulting CO_2 savings.

b. Triple E register

The online Triple E register of energy efficiency products at www.seai.ie/aca includes high efficiency boilers and controls. This has been developed and maintained as a procurement support resource for organisations in the non-domestic sector – and is the reference point for eligible products under the current 'Accelerated Capital Allowance' tax incentive scheme.

SEAI provides a number of services whereby information on boiler efficiency and the effect efficiency plays in CO_2 emission reductions can be assessed.

c. Building Energy Rating advisory report

Within Ireland's implementation of building energy certification under Article 7 of Directive 2002/91/EC, the Building Energy Rating advisory report to the building owner or user at the point of construction, sale or rental includes the provision of heating system advisory information. In particular, in combination with the rating methodology itself, the report highlights the effect of boiler type and efficiency, controls, response time and fuel type. The BER database provides a tool for monitoring the energy and CO_2 patterns, including boiler efficiency and related patterns and trends, across the accumulating population of buildings receiving BER certificates.

7. Consumer and business informational action

In addition to a number of publications specifically aimed at energy efficiency in the home (e.g. "Home Heating Guide") SEAI has been involved in a number of joint initiatives with Government bodies. Among these is the publication of the "The Domestic Heating Compliance guide" and the "Guide to the Condensing Boiler Assessment Procedure for Existing Dwellings" in association with the Department of Environment, Community and Local Government.

The SEAI also provides ongoing information and advice services to both the domestic and non-domestic sectors, the latter including large industry, SMEs and the public sector. Included in these programmes are information and advice highlighting high efficiency technologies and operational and maintenance practices to maximise heating system efficiencies.

8. Training initiatives

Competency building is important to ensure that a suitably trained and skilled workforce is available to facilitate the implementation plan. The SEAI worked with industry leaders to develop energy efficiency training courses for oil and gas installers and has also worked with the national accreditation authority and relevant bodies to attain national accreditation for these courses.

Since 2005, SEAI has developed nationally accredited training courses for Renewable Energy System installers and has maintained a registered list of installers.

Conclusion

As outlined in this report, Ireland has already taken a number of promotional, regulatory, incentivising and accompanying initiatives in relation to heating system efficiency which are achieving impacts on energy saving and CO_2 abatement to levels significantly higher than would have been realistically achievable under Article 8(a) of Directive 2002/91/EC.

The mandatory minimum boiler efficiency of 90% introduced in December 2011 will provide ongoing reductions in energy use. In addition, the Better Energy Homes Scheme grants will be available until the end of 2013. SEAI will also continue to coordinate the national media campaign promoting boiler servicing and upgraded replacement. Consumer and business sector information, advice highlighting high efficiency boiler technologies, operational and maintenance practices, and training of boiler maintenance and installation technicians will continue to be important initiatives

in the future in disseminating and promoting the importance of regular inspection and maintenance of heating systems having regard to energy performance improvements.

Having regard to the outcome of the measures taken in accordance with the provisions of Article 8(b) of Directive 2002/91/EC, it is envisaged that the savings from the listed measures above will be significantly in excess of both the realistic and hypothetical baselines that would be applicable under Articles 14(1) to 14(3) of Directive 2010/31/EU. Accordingly, Ireland is proposing to continue with its existing approach in relation to the provision of advice on the replacement of boilers and other modifications to heating systems and opts, therefore, to submit this report in accordance with the alternative approach set out under Article 14(4) of Directive 2010/31/EU on the energy performance of buildings (recast).