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NATIONAL ENERGY EFFICIENCY ACTION PLAN 2014



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INTRODUCTION

1. INTRODUCTION

Through successive Action Plans, Ireland has maintained its commitment to a 20% energy savings target in 2020 and to achieving a 33% reduction in public sector energy use. These remain the central pillars of our national energy efficiency policy. While there have been substantial savings in the last three years, it is clear that a significant acceleration of effort is required if we are to

For the purposes of reporting on progress since our second NEEAP, the Commission template has been adopted which details the key actions underway in buildings, the public sector, industry, transport and energy distribution (a full list is provided at Appendix E). The anticipated energy and CO₂ savings achieved and anticipated in 2020 are contained in the table below:

Table 1: Anticipated energy and CO₂ savings achieved and anticipated in 2020

	Energy savings (GWh, PEE)			CO ₂ savings (kt CO ₂)		
	2012 (achieved)	2016 (expected)	2020 (expected)	2012 (achieved)	2016 (expected)	2020 (expected)
Public	1,050	2358	3716	238	583	918
Business (Commercial/Industry)	3,257	5,114	7,594	802	1,238	1,813
Buildings	3,778	6,896	10,379	922	1,641	2,459
Transport	1342	2746	4548	342	700	1134
Energy supply	1,710	1,996	4,418	488	362	597
Cross sectoral (carbon tax)	1,200	1,300	1,300	306	330	330
Total	12,337	20,410	31,955	3,098	4,854	7,251

The key message from these figures is that Ireland has achieved 12,337 GWh (primary energy equivalent) by end-2012, which represents 39% of the national target. Progress is also steady with respect to the 33% target set for the public sector. Nevertheless, the mix of energy policy measures across the various sectors of the economy will be kept under constant review and adapted as necessary to ensure they are contributing the energy savings required to meet our 2020 objectives.

1.1. International Developments

The global, EU and Irish energy landscape has undergone profound change as new technologies unlock cleaner fuels, the world economy re-gains positive momentum, and the threat of climate change becomes ever more pressing.

In its World Energy Outlook 2013, the IEA presented a scenario in which global energy demand rises by one-third in the period to 2035. It argues that the availability and affordability of energy is a critical element of economic well-being and of industrial competitiveness. It exhorts member countries and global partners to redouble efforts on targeting efficiency improvements in buildings, industry and transport. While energy efficiency is an important tool to mitigate the

impact of high energy prices, the report outlines that two-thirds of the economic potential for energy efficiency is set to remain untapped in 2035 unless market barriers can be overcome. Action is needed most particularly around the significant level of investment in energy efficiency that is required to mitigate high energy price variations, costly fossil-fuel subsidies and energy insecurity.

The NEEAP represents an ideal opportunity to draw together the actions and policies being implemented. The Action Plan remains a central component of Irish energy policy and the primary driver of emission reductions in many sectors of the economy. Ireland will continue to work closely with the IEA and member countries to ensure that energy efficiency remains at the forefront of international energy policy.

1.2. EU Developments

The European Energy Efficiency Plan of 2011 set out the major policy actions to be pursued under the Flagship Initiative for a Resource Efficient Europe. The Plan calls on Member States to prioritise energy efficiency as part of the Europe 2020 Strategy, given that the Union's 20% energy efficiency target is one of five headline goals. The emphasis in the European context is on delivering the benefits of energy efficiency for economic recovery, restoring competitiveness and creating business opportunities. This resonates closely with the national focus on the recovery and growth agenda.

The Energy Efficiency Directive (2012/27/EU) sets the policy roadmap for the period to 2020. The proper implementation and delivery of the many obligations will be critical to enable the Union to deliver on its 2020 targets. As part of its implementation all Member States were required to notify the Commission of their indicative national efficiency targets by April 2013. In June 2014 the EU Commission will assess individual MS national targets to assess whether or not the level of indicative ambition is sufficient to meet the overall EU target.

In January 2014 the EU Commission published, as part of a package of documents, a Communication COM (2014)15 setting out its ambition for a 2030 Climate and Energy Policy Framework. The Commission's proposals for 2030 include a reduction in greenhouse gas emissions (GHG) by 40% below the 1990 level, an EU-wide binding target for renewable energy of at least 27%, and renewed ambitions for energy efficiency policies.

The timelines proposed in the EU Commission's Communication for agreement around the 2030 Framework reflect a number of events in terms of climate change negotiations. The EU Commission has invited the Council and the European Parliament to agree by the end of 2014, that the EU should pledge a GHG reduction of 40% by early 2015 as part of the Climate negotiations which conclude in Paris in December 2015. The Union is also asked to be prepared to contribute positively to the summit hosted by the UN Secretary General in September 2014.

The 2030 Climate and Energy policy framework spans a number of complex and interlinked policy areas and it is clear that the achievement of the 2030 climate change objectives will require contributions from a range of sectors, including environment, energy, agriculture and transport.

The period between 2020 and 2030 is the next critical phase for the EU in its transition to a low carbon economy by 2050 underpinned by a secure, competitive, and sustainable energy supply.

1.3. National Developments

Ireland, like most Member States, experienced a period of significant economic change from 2008 onwards, representing an important backdrop for developments in energy policy. However, the Government, working with international partners, has in the intervening years enacted measures to put the Irish economy back on a sustainable growth path.

Overall, between 2007 and 2012, the economy contracted by 7.3% while energy demand for the same period decreased by 18%. With energy use falling at a faster rate than GDP and emissions falling faster than energy use, there continues to be decoupling of energy use from economic activity and emissions from energy use. This is an important trend and the indications are that there is no longer an automatic correlation between economic growth and energy demand. In 2010 the rate of decline of the economy slowed to 1.1% while overall energy use grew by 0.6% and emissions fell by 0.1%. The projection in 2014 and 2015 is for Irish GDP growth of between 2-3% per annum and 4% average annual growth expected in following years, up to 2020¹.

Since 2007, overall primary energy use has decreased driven largely by the downturn in economic activity and by gains in energy efficiency. Average energy use per home is 20% less than it was five years ago. Likewise, the average home produces 40% less emissions since the mid-nineteen nineties.

Energy, as both a sector within the economy, and a cross-cutting input into every aspect of the wider economy, is inextricably linked to the broader economic landscape, and has an integral role to play in enabling future growth. Government recognises that reliable, sustainable, affordable energy is vital to Ireland's economic success both at home and abroad, and has continued to make critical investments in energy research and infrastructure, despite challenging economic conditions.

The International Energy Agency (IEA) completed an In-depth Review (IDR) of Ireland's energy policy in 2012 and concluded that Ireland has a very proactive energy efficiency policy, acknowledging the 20% national and 33% public sector targets which it believes can contribute significantly to reducing our carbon dioxide emissions and Ireland's heavy dependence on energy imports. The review identified that development of the ESCO market should be a key focus, alongside improving the energy efficiency of the transport sector.

The IDR has been very instructive in informing current and future energy efficiency policy development to ensure that we remain on track to deliver on our 2020 commitments, a number of which are worth highlighting.

¹ Central Bank of Ireland Quarterly Bulletin, January 2014; Economic & Social Research Institute Forecasts & EU Commission Winter Economic Forecast, February 2014

The Energy Efficiency Obligations Scheme introduced in January 2014 will deliver significant savings from energy suppliers who are now mandated to meet specified annual targets every year until 2020. The Scheme imposes an obligation on suppliers to deliver energy efficiency measures to commercial and residential energy end users. To assist delivery a number of options have been provided, including buyout and trading of energy credits, to enable suppliers to meet their obligations. The comprehensive detail behind this Scheme was included as part of Ireland's compliance report under Article 7 of the Energy Efficiency Directive which was submitted to the Commission in December 2013 and is outlined in section 3.1 of this Action Plan.

The National Energy Services Framework, published in 2013, will help develop the energy-efficiency market in the non-domestic sector throughout Ireland. This Framework sets out the roadmap through which energy efficiency projects and specifically how an Energy Performance Contracting process is undertaken. It provides guidance on routes to project development, together with sources of finance and the support available from the Sustainable Energy Authority of Ireland (SEAI) to help develop projects in the public and commercial sectors. The provision of such a standard approach will provide confidence, build the knowledge base and reduce transaction costs while building capacity in the market.

Supporting the Framework, the aim of the Energy Efficiency Fund launched in 2014, is to address one of the predominant barriers to economic activity in the non-domestic sector – the availability of credit that is structured properly and of appropriate term. This financing gap is being experienced across all sectors of the economy, not least the public sector, and is precluding economically viable investments from taking place.

The National Smart Metering Programme is a central component of the strategy to radically enhance management of energy demand, deliver smart networks and enable greater energy efficiency through the use of cutting-edge technology and consumer empowerment. A major programme of technology and user trials showed that a national rollout of Smart Meters could lead to significant reductions in overall electricity and gas consumption, as well as an 8.8% reduction in peak-time electricity consumption. A national roll-out of Smart Meters will therefore lead to lower customer bills, greater customer information and choice, lower CO₂ emissions and environmental benefits for Ireland. The estimated cost is in the region of €800m - €1bn with the cost to the consumer (via network charges) spread over 20 years.

In 2014, the Government will publish a “Green Paper on Energy Policy in Ireland” which will stimulate debate as to future energy policy priorities and how they may be achieved. The feedback from the public consultation will contribute to the preparation of a new White Paper that sets out a balanced and workable energy policy framework for the next five years.

Finally, the Government is bringing forward a comprehensive climate policy package which will include legislation, the publication of national and sectoral low carbon roadmaps, and adaptation strategies over the next few years.

OVERVIEW

2. OVERVIEW OF NATIONAL ENERGY TARGETS AND ACHIEVED SAVINGS

2.1. Overview of national 2020 energy efficiency targets

2.1.1. Please state the indicative national energy efficiency target for 2020 as required by Article 3(1) of the EED (EED Article 3(1), Annex XIV Part 2.1)

The indicative national energy efficiency target was established in the Government's 2007 Energy White Paper and further detailed in Ireland's first NEEAP as 31,925 GWh (primary energy savings).

2.1.2. Please indicate expected impact of the target on primary and final energy consumption in 2020 (EED Article 3(1), Annex XIV Part 2.2(a))

SEAI produces an annual energy forecast to inform debate on future energy trends, particularly as they relate to national and EU policies on energy efficiency, renewable energy, climate change, air quality and security of energy supply. This includes providing information for use by Ireland's Environmental Protection Agency (EPA) in preparing energy related projections of greenhouse and trans-boundary gas emissions. This work is undertaken together with the Economic and Social Research Institute (Ireland) and relies on their detailed macro-economic model for initial outputs, on to which are mapped the expected impacts of energy efficiency policies and measures to 2020. Recent published reports, including a detailed methodological description of the process) are available here:

http://www.seai.ie/Publications/Statistics_Publications/Energy_Forecasts_for_Ireland/

The summary results provided in the table below are from the latest update (2013, unpublished). The difference between the baseline and the policy scenario is not equivalent to the target since much of the work completed is included in the baseline. The trends to 2020 are influenced by macro-economic variables (changes in projected energy prices, GDP growth rates etc.) together with the estimated impact of energy efficiency policies and measures. The NEEAP/NREAP scenario results indicate the expected final and primary energy demand in 2020 after the impacts of policies and measures detailed in Ireland's National Energy Efficiency Action Plan (NEEAP) and National Renewable Energy Action Plan (NREAP) as submitted to the Commission. The difference between final and primary energy are based on conversion efficiencies of all separate electricity generation stock and are accounted for using detailed electricity system modelling undertaken as part of the forecasting process.

Table 2: Summary primary and final energy forecasts for Ireland to 2020

	Baseline (primary) GWh	NEEAP/NREAP (primary) GWh	Baseline (final) GWh	NEEAP/NREAP (final) GWh
2013	151,399	148,003	122,441	119,033
2016	156,575	150,341	127,849	121,278
2020	167,821	157,110	140,607	129,802

Table 3: Underlying macro-economic assumptions for summary energy forecasts

	2005-10	2010-15	2015-20	2020-25	2025-30
GDP	0.1	2	3.9	2	2
GNP	-0.3	1.2	3.5	2	2.3
National Resources (GNDI + Capital Transfers)	-1.5	0.4	3.7	2.1	3.1
Investment	-12	1.2	10.1	1.7	3.9
Productivity (GDP per head)	0.8	2	1.6	1.3	0.9
Average Non-Agricultural Earnings	1.5	1.2	3.8	3.9	3.1
Consumption Deflator	14.7	-4.2	-2.8	-2.3	-2.7
Employment, April	-0.7	0.1	2.2	0.7	1
Labour Force, April	1.6	-0.2	0.7	0.8	0.6
For end Year:	2010	2015	2020	2025	2030
Net Immigration	-27.5	-16.5	0.8	0.7	2.9
Unemployment rate, ILO Basis %	16.4	15.2	8.9	9.3	7.3
Balance of Payments, % of GNP	0.5	5.7	4.3	3.9	4.2

2.1.3. Explain briefly the rationale for the 2020 target (EED Article XIV Part 2.2 (a))

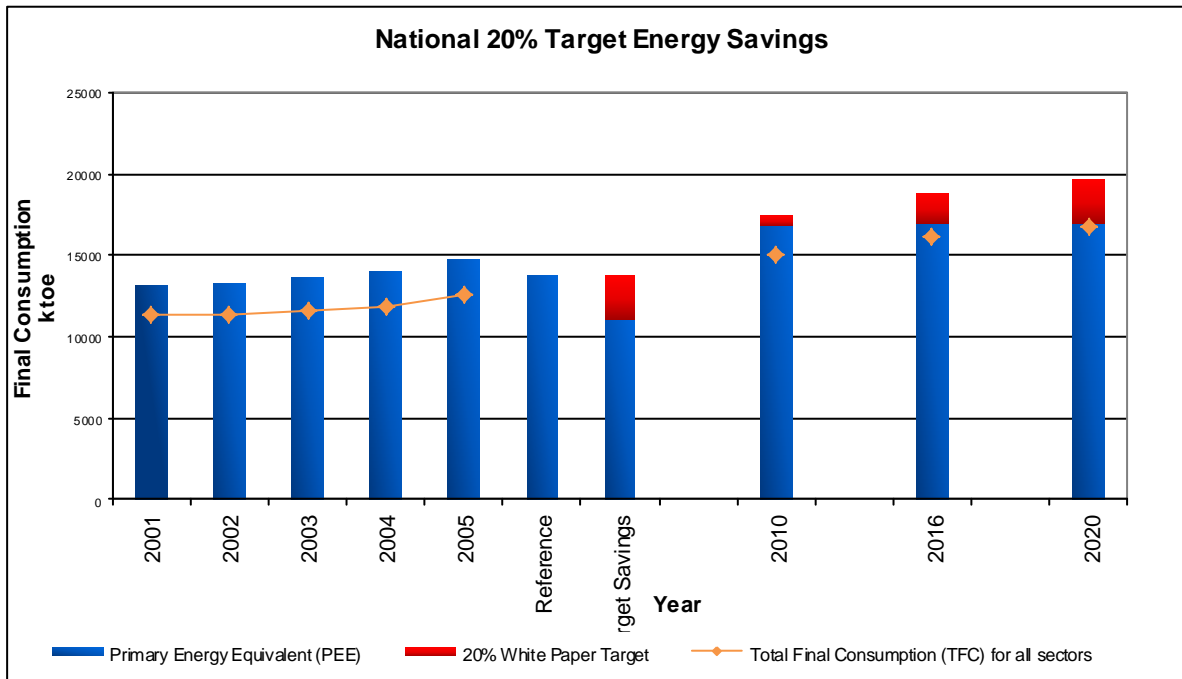
The ESD specified that the 9% target was to be calculated as 9% of a baseline Reference Energy Consumption (REC). The REC is calculated as the average of the most recent 5-year period (2001–2005) of unadjusted final energy consumption, expressed as ‘primary energy equivalent’. The conversion to primary energy equivalent takes into account the conversion losses in electricity generation and makes units of different energy streams more comparable. The final energy consumption is converted to primary energy equivalent by multiplying the electricity component by a factor (assumed to be 2.5) to reflect the average electricity generation efficiency during the reference period (assumed to be 40%) and adding it to the remainder of the final energy consumption, as in the following formula:

$$\text{Primary energy equivalent PEE} = (\text{Total Final Consumption (TFC)} - \text{Electricity TFC}) + (\text{Electricity TFC} \times 2.5)$$

In setting its national target for the first NEEAP Ireland adopted the ESD target setting approach for the national target. This is calculated as 20% of the average of unadjusted final energy

consumption 2001–2005, expressed as ‘primary energy equivalent’. The national target covers the whole economy, excluding aviation and marine bunker fuels.

Figure 1: Illustration of target energy savings against final consumption



2.1.4. In accordance with Article 24(2) of the EED please provide an estimate of overall primary energy consumption and consumption by sectors in 2020 (EED Article 24(2))

Table 4: Estimates of key national energy production and consumption figures in 2020

<i>Estimate of energy consumption in 2020</i>	<i>GWh</i>
Total primary energy consumption in 2020	157,110
Electricity transformation input (thermal power generation)	40,415
Electricity generation output (thermal power generation)	18,661
Electricity generation output (renewables)	11,603
Energy distribution losses (all fuels)	2,764
Total final energy consumption	129,805
Final energy consumption – Industry	27,177
Final energy consumption - Transport	59,976
Final energy consumption - Households	25,259
Final energy consumption - Services	13,472

<i>Estimate of energy consumption in 2020</i>	<i>GWh</i>
Final energy consumption - Agriculture	3,920

2.2. Additional energy efficiency targets

2.2.1. Please list any additional national targets related to energy efficiency (EED Annex XIV Part 2.1)

Ireland has established a 33% target for the public sector to demonstrate an exemplar role in that sector. It has been determined using the same methodology as for the national target but using final demand only for the public sector. It equates to 3,240 GWh (primary energy) savings by 2020.

2.2.2. Please identify a national intermediate target for nearly zero buildings for 2015 in accordance with recast EPBD Articles 9(11) and 9(3b) for new buildings (EPBD Article 9(1), Article 9(3b))

Table 5: National targets for Nearly Zero Energy Buildings

	<i>New buildings – target as a percentage of total newly constructed buildings</i>
2015	60% improvement is applied to all residential buildings since 2011. 40% improvement to all non-residential buildings
2020	100% of all buildings

2.3. Overview of primary energy savings

2.3.1. Please provide an overview of the primary energy savings achieved by the time of reporting and estimations of expected savings for 2020 (EED Article 3(1), Article 24(2), Annex XIV Part 2.2(a))

Table 6: Overview of the estimates of primary and final energy savings

	<i>Primary energy savings (GWh)</i>	<i>Final energy savings (GWh)</i>
2012 - Achieved	12,337	8,365
2016 - Forecast	20,410	14,285
2020 - Forecast	31,955	22,805

A description of the methodology for quantifying savings from individual measures is provided in Annex D.

2.4. Overview of final energy savings

- 2.4.1. For the purposes of Directive 2006/32/EC, in the first and the second NEEAP, please provide information on the achieved final energy savings and forecast savings in energy end-use by 2016 as defined by Directive 2006/32/EC (EED Article 27(1), Annex XIV Part 2.2(b), second paragraph)

The final energy savings achieved and projected are contained in Table 6.

- 2.4.2. For the purposes of Directive 2006/32/EC, in the first and the second NEEAP, it is necessary to provide description of the measurement and/or calculation methodology used for the calculation of the final energy savings.

A description of the methodology for quantifying savings from individual measures is provided in Annex D.

POLICY MEASURES

3. POLICY MEASURES IMPLEMENTING EED

3.1. Horizontal measures

3.1.1. Energy efficiency obligation scheme and alternative policy measures

- 3.1.1.1. Please provide information on the overall amount of energy savings that will be required over the obligation period in order to meet the target set in accordance with Article 7(1), and, if applicable, on how the possibilities listed in Article 7(2) and (3) are used (EED Article 7, Annex XIV Part 2.2(a)).
- 3.1.1.2. Please provide a description of the national energy efficiency obligations scheme as referred to in Article 7(1) (EED Article 7, Annex XIV Part 2.3.2)
- 3.1.1.3. Please provide a description of the alternative policy measures adopted in application of Article 7(9) and Article 20(6) including information on how their equivalence is ensured (EED Article 7, Annex XIV Part 2.3.2)
- 3.1.1.4. Please provide information on the methodology used to determine energy savings and their lifetimes of individual actions realised as a result of the energy efficiency obligation schemes or alternative policy measures and national coefficients chosen accordingly (EED Article 7, Annex V; Annex XIV Part 3.2). Furthermore, where applicable, provide information on other methods used to take into account lifetime of energy savings than the one provided in Annex V.2(e) and how it is ensured that it leads to at the least the same total quantity of savings (EED Annex V.2(e)).
- 3.1.1.5. Where applicable, please present published energy savings achieved as a result of the implementation of the energy efficiency obligation scheme and alternative policy measures (EED Article 7(6), (8) and (10), Annex XIV Part 2.2(a))

Energy Efficiency Obligation Scheme

The national target under Article 7 of the EED equates to 1,102GWh PEE per annum and is divided equally between Alternative Measures and Energy Supplier savings. The details of our approach are set out in the notification submitted to the Commission in December 2013.²

In pursuit of the Article 7 target, Ireland has sunsetted its voluntary agreements programme and introduced an Energy Efficiency Obligation Scheme from 1 January 2014 on qualifying energy suppliers (those with sales of more than 600GWh). Obligated energy suppliers are required to deliver energy efficiency savings in non-residential (75%), residential (20%) and energy poverty (5%) sectors equivalent to 550GWh per annum through to 2020. A full list of eligible savings in the residential sector are available on the SEAI website³.

The Energy Supplier targets are allocated to energy suppliers according to their proportion of energy market sales in Ireland. Energy suppliers can choose to achieve their energy savings independently or through partnerships with service providers in the market. The scheme permits the exchange of validated savings between obligated parties in certain circumstances.

² http://ec.europa.eu/energy/efficiency/eed/doc/article7/2013_ie_ee_article7_en.pdf

³ http://www.seai.ie/Grants/Better_energy_homes/Participating_Energy_Suppliers/

Alternative Policy Measures

Calculation of the energy savings to be achieved using alternative energy policy measures us set out in the table below.

Table 7: Alternative policy measures

Taking into account the lifetimes of savings 2014 - 2020 (GWh PEE)							
	2014	2015	2016	2017	2018	2019	2020
Alternative Measures							
SME programme	290	248	207	107	80	53	27
Large Industry Energy Network	747	640	533	493	370	247	123
2008 Building Regulations	609	522	435	732	549	366	183
2011 Building Regulations	359	308	256	366	274	183	91
2016 Building Regulations	0	0	0	172	129	86	43
EE boiler regulation for replacement boilers	700	600	500	400	300	200	100
Smart Meters	0	0	0	251	188	126	63
Accelerated Capital Allowances (ACA) Public and Private	519	445	371	453	339	226	113
VRT/Motor tax	210	180	150	120	90	60	30
Home Renovation Tax Incentive	TBC	TBC	TBC	TBC	TBC	TBC	TBC
CO2 tax	TBC	TBC	TBC	TBC	TBC	TBC	TBC
Supplier obligation target	3850	3300	2750	2200	1650	1100	550
Total per annum savings	7283	6242	5202	5292	3969	2646	1323
Total cumulative savings (GWh PEE)	31,958						
Resultant cumulative GWh (PEE) target	30,844						
Target complied with ...	YES						

3.1.2. Energy audits and management systems

- 3.1.2.1. Please provide an overview of measures planned or already undertaken to promote energy audits and energy management systems, including information on the numbers of energy audits carried out, specifying those carried out in large enterprises, with an indication of the total number of large companies in the Member State territory and the number of companies to which Article 8(5) is applicable (EED Annex XIV Part 2.3.3)

A strong energy management culture has developed in Ireland. This evolved by working with large industry and adopting energy management standards. Smaller organisations are now adopting a similar approach and we are mindful of our responsibilities under the EED to promote the availability of quality energy audits to final customers, ensuring mandatory and regular audits for large enterprises and developing programmes to encourage small and medium enterprises (SMEs) to undergo energy audits and most importantly, implementing the resulting recommendations as appropriate. Achieving these objectives will be important in terms of reducing energy costs for consumers and businesses alike.

Currently the SEAI sets the standards of training and qualification for energy auditors. This is being reviewed to ensure it is sufficient to meet the EED obligations. The public consultation on the Directive has informed the review underway which will in turn frame the measures that may be required to be implemented. Among those considerations will be to identify the governance structure around which the provision of high-quality audits takes place and to determine the criteria against which both audits and auditors will be assessed.

In the meantime, SEAI encourages and supports businesses, both large industry and smaller enterprises, to engage in energy management through its industry support programmes.

The Large Industry Energy Network (LIEN) is a voluntary grouping, facilitated by the Sustainable Energy Authority of Ireland (SEAI), of companies that work together to develop and maintain robust energy management. They provide annual data reports to SEAI on their energy use. 163 of Ireland's largest energy users are members of the LIEN.

See more at:

http://www.seai.ie/Your_Business/Large_Energy_Users/LIEN/#sthash.J9Db4Ebt.dpuf

The SEAI Energy Agreements Programme is a sub-set 80 LIEN companies, who agree to implement ISO 50001 and receive tailored support in return.

With respect to small businesses, SEAI has engaged with over 3,000 SMEs, providing strategic support, training funding, and advice for energy projects. 1,295 SMEs with a combined energy spend of €171,923,759 formally availed of SEAI's Advice and Mentoring assessments between 2009 and 2013.

3.1.3. Metering and billing

3.1.3.1. Please provide information on measures adopted or planned in metering and billing (EED Article 9, Article 10, Article 11, Annex XIV Part 2.2)

The Commission for Energy Regulation's (CER) primary economic responsibilities in energy is to regulate the Irish electricity and natural gas sectors. This includes electricity generation, electricity and gas networks, and electricity and gas supply activities. In particular the Regulator oversees and regulates the electricity and gas retail markets, licenses and energy suppliers. The CER is also responsible for the National Smart Metering Programme (NSMP).

Competitively priced meters

The network companies install and procure the gas and electricity meters. In doing such they must adhere to all relevant laws (e.g. procurement law) and determinations (this is a licence condition). The revenues of the network companies are regulated by the CER and as such the CER approves the revenues associated with the purchase of meters. The CER only allows efficiently incurred costs. The CER approves the charges for all meter works including meter replacement. These charges are set out in the relevant Statement of Charges.

Actual energy consumption

The CER has Service Level Agreements (SLA) in place with the Network Operators structured around 4 actual meter reads per annum (2 additional estimated reads are also conducted). In addition, customers can submit their own meter reads (customer reads). These customer meter reads are subject to validation criteria to ensure accuracy and eliminate erroneous meter reads. Where they pass this is taken as an actual read.

Under the Supplier Handbook, suppliers are required to ensure that customers receive prompt and regular scheduled bills for their electricity and gas usage, as per the terms and conditions of their contract. In addition, suppliers are required to issue scheduled bills to customers no later than one month after the receipt of scheduled meter reading data.

Frequency and type of billing information

The Supplier Handbook imposes requirements on suppliers in relation to the information they must include on the energy bills and the format in which this information must be presented. For example, the energy bills must include the period to which the bill relates, the date of issue of the bill, the date upon which the payment is due, tariff name and category, meter readings upon which the bill is based, including an indicator showing whether the meter reads are actual, estimated or self-reads, clear calculation of the amount due for electricity /gas supplied.

As part of the Supplier Handbook, suppliers are required to ensure that customers receive prompt and regular scheduled bills for their electricity and gas usage, as per the terms and conditions of their contract. In addition, suppliers are required to issue scheduled bills to customers no later than one month after the receipt of scheduled meter reading data for the billing period involved and provide clear and understandable explanation of how bills were derived.

The Supplier Handbook requires specific information to be placed on the bill (that is a minimum set of information that must be included). For example, the following information must be placed on the front page of the bill in a manner that allows the customer to find it easily:

1. Electricity Network Operator/Gas Network Operator's emergency/fault reporting contact number
2. Meter/Gas Point Registration Number (MPRN/GPRN)
3. Distribution Use of System (DUoS) Category Code (Electricity customers)
4. Metering Configuration Code (Electricity customers)
5. Profile Code (Electricity customers)
6. Meter Number (Non-Daily Metered (NDM) Gas Customers)
7. AC Band (Gas Customers)

In addition to requirements for minimum information included in the bill, the Supplier Handbook sets out specific requirements in relation to the format for presentation of promotional offers, estimates etc. to customers. For example, when presenting information on tariffs, a supplier must:

- display tariffs inclusive and exclusive of VAT on a per unit basis
- show annual standing charges as an annual amount inclusive and exclusive of VAT
- show discounts measured off the standard rate tariff for that supplier

- where a supplier compares its tariffs to competitors' tariffs, information must be dated to show when all tariffs presented were in place, comparison must be made on a like for like basis and customers must be made aware that the competitor's tariffs are subject to change.

Also, suppliers are required to notify customers of the tariff options available to them if applicable in advance of any tariff change or in line with the customer contract, whichever is the shortest period of time. Changes in tariffs will be clearly indicated on the bill and the method of application will be explained on the bill or in an accompanying insert (this may be an electronic notice where a customer has chosen this method of billing).

The roll-out of smart meters is being progressed under the National Smart Metering Programme and is discussed in more detail in section 3.7 of this Plan.

3.1.4. Consumer information programmes and training

- 3.1.4.1. Please provide information on measures adopted or planned to promote and facilitate efficient use of energy by SMEs and domestic customers (EED Article 132, Article 17 Annex XIV Part 2.2)

Domestic Supports

SEAI's consumer awareness activities are now implemented under the umbrella of Building Energy Rating, Better Energy Homes and Warmer Homes. SEAI maintains an extensive consumer website under the Power of One with supporting awareness and guidance in electronic and printed resource formats for homeowners. The website receives approximately 200,000 visits per year⁴.

In relation to the Building Energy Rating (BER) system for which SEAI is the Issuing Authority under the EPBD, a total of 436,000 domestic BER certificates are registered (end February 2014), with about 90,000 – 100,000 assessments carried out each year. This represents over a quarter of the occupied dwellings in the state (1.6m) who now have an energy rating for their home, which is a significant achievement since the BER was first launched in 2007. A BER Advisory report must accompany the certificate as it contains advice to homeowners on how best to use the features in their dwelling to maximise its energy efficiency. The recommended improvement measures are not mandatory and can be completed at the homeowner's discretion. They are however categorised across a range of low-high cost and low-high impact. Comprehensive information is available on the BER system via the SEAI website⁵.

⁴ http://www.seai.ie/Power_of_One/

⁵ http://www.seai.ie/Your_Building/BER/

Industry

The Large Industry Energy Network (LIEN) is a voluntary grouping, facilitated by the Sustainable Energy Authority of Ireland (SEAI), of companies that work together to develop and maintain robust energy management. The network provides sharing of best practice and case studies. Information seminars are organised on a regular basis to build capacity and exchange new learning and approaches to reducing energy consumption.

SME Supports

SEAI provides advice and training for SMEs through a number of different supports:

SME Advice and Mentoring Service

Small commercial energy users can avail of SEAI's Advice and Mentoring service, and energy management training. A series of practical guides and case studies are also available on the SEAI website. SEAI provides a range of Applied Training Courses for varying business needs:

- Businesses interested in training can work with their trade representation body, which can coordinate training offered via SEAI.
- Businesses without a trade representative body, or individuals can register their interest using the online form at http://www.seai.ie/Your_Business/Business_Training/

Small business training

Businesses with a total energy spend is less than €100,000 per year can avail of three half-day workshops over 10-12 weeks and tuition in SEAI's online tools and access to best practice. See more at:

http://www.seai.ie/Your_Business/Business_Training/SmallBusiness_Training/#sthash.nz7l8eIG.dpuf

EnergyMAP Training

Businesses with a total energy spend of more than €100,000 per year can avail of three full-day workshops and on-site support from energy advisors. See more at:

http://www.seai.ie/Your_Business/Business_Training/EnergyMAP_Training/#sthash.On4eiV67.dpuf

CER also provides a dedicated energy customers team and website resource for consumers who have questions about their electricity, gas supply or water supply, are looking for advice on switching or wish to make a complaint⁶.

⁶ <http://www.cer.ie/customer-care>

3.1.5. Availability of qualification, accreditation and certification schemes

3.1.5.1. Please provide information on existing or planned certification or accreditation schemes or equivalent qualification schemes (including, if applicable, training programmes) for providers of energy services, energy audits, energy managers and installers of energy-related building elements as defined in Article 2(9) of Directive 2010/31/EU (EED Article 16, Annex XIV Part 2.3.7)

Where there is a legislative requirement (e.g. Building Energy Ratings, BER) there are certification schemes in place. Where there are voluntary standards (e.g. ISO 50001) the Irish National Accreditation Body (INAB) maintains quality. For contractors availing of Grant schemes, certain minimum training requirements are defined by the grant awarding body (SEAI).

Building Energy Rating (BER) System

In the residential sector, the Building Energy Rating (BER) register represents a well-established accreditation system for domestic energy auditors, which is managed by the SEAI. The same system exists for non-domestic BERs.

A BER is a rating based upon the building fabric and building services in a building for typical occupancy patterns (to allow for objective comparison at time of purchase) with the outcome indicated in terms of energy consumption per unit area and also on a scale from A-G with A1 being the most efficient. There are currently 823 registered domestic energy assessors and a further 177 registered non-domestic assessors. The National Administration System currently holds over 421,600 domestic published BERs and just over 19,500 non-domestic published BERs.

In order to become a BER Assessor, potential assessors must have a National Certificate Level 6 in construction studies or equivalent. After successful completion of a recognised BER course (minimum 70% pass mark) from a listed training provider, the potential assessor is eligible to apply for inclusion on the BER register. In addition, qualification is on condition they have the required insurance policies, a valid tax clearance certificate, accepted the Code of Practice along with a number of other criteria.

Energy Management Systems

The Energy Management Systems Standard, ISO 50001 describes the principles and methodologies to be applied in order to ensure that energy management becomes integrated into organisational business structures.

A management systems certification body must be able to demonstrate its competence to assess and certify an energy management system that conforms to ISO 50001 and the associated technical guideline.

The Irish National Accreditation Board (INAB) accredits certification bodies to the international standard, ISO 17021 on demonstration of their competence to carry out energy management

system conformity assessments related to products, processes, systems or people. INAB publishes a Schedule of Accreditation for each accredited certification body which specifies industry sector codes within which the body has demonstrated its competence. Energy managers can be trained to the Certified Energy Manager (CEM) level delivered by SQT Ltd

<http://www.sqt.ie/CourseDetail.aspx?ID=524>

Build Up Skills Ireland (BUSI)

Build Up Skills Ireland was an 18 month project, commenced in November 2011, funded under the Intelligent Energy Europe (IEE) programme. The project was focused on the continuing education and training of craftsmen and construction workers in the fields of energy efficiency and renewable energy sources in buildings. Among its key objectives were to bring together all relevant stakeholders to identify and quantify the need for workforce qualified in energy efficiency and renewable energy by 2020; set up and agree a national qualification roadmap; and support concrete qualification schemes on the basis of that roadmap with identified needs and priorities.

The first major output of the project was a national roadmap⁷, published in June 2013, which outlined a combination of training actions and supporting actions required in order to upskill Ireland's construction workers in building energy management.

The second phase of the project currently underway is QualiBuild and the key objectives across a number of headings are:

Training:

- Develop, Validate and Foundation Energy Skills programme and roll out Nationally
- Develop, Validate and Implement Train 100 Trainers

Communication:

- Create and implement an innovative communication campaign focused on Quality Building

Quality Systems:

- Develop and implement a Quality Building Registration System

Finance & Sustainability:

- Mobilise €1m additional funding by project end
- Transfer project outcomes to relevant agencies for National Roll Out

The expected results are a nationally validated foundation energy skills and 'train the trainer' programme; a Quality Building Registration system which is integrated with other systems; a Quality Building Communications campaign and finance secured for a national roll out plan.

Existing Training and Certification Schemes

⁷ http://ireland.buildupskills.eu/sites/default/files/BuildUpSkillsRoadmap%28lowresUpdate%29_0.pdf

Training programmes covering energy efficiency and installation of energy efficiency products is available from the training body Solas and from various universities and Institutes of Technology, along with private sector training providers accredited by a variety of national and international bodies.

Quality and Qualifications Ireland (www.qqi.ie) is a new integrated agency (estd. 2012) capturing all HETAC and FETAC levels and is the agency responsible for the National Framework of Qualifications (NFQ).

A range of qualifications are required in order to register as an installer of energy efficient equipment under the Better Energy Schemes, administered by the SEAI. Some examples include:

- **Small-scale biomass boilers and stoves** - Certificate in Domestic Biomass Heating Installation (FETAC)
- **Solar thermal systems (Solar Water Heating)** - Certificate in Domestic Solar or approved City and Guilds qualifications.

3.1.6. Energy services

3.1.6.1. Please provide information on measures adopted or planned to be adopted for the promotion of energy services. The description should include a hyperlink to the list of available energy service providers and their qualifications (EED Annex XIV Part 2.3.8)

3.1.6.2. Please provide a qualitative review of the national market for energy services describing the current status and outlining future market developments (EED Article 18 (1e))

National Energy Services Framework

The Department of Communications, Energy and Natural Resources (DCENR) has developed the National Energy Services Framework to help develop the energy-efficiency market in the non-domestic sector⁸. Following the commitment in the second National Energy Efficiency Action Plan (NEEAP), this Framework, published in 2013, sets out the roadmap through which energy efficiency projects and specifically how an Energy Performance Contracting process is undertaken. It provides guidance on routes to project development, together with sources of finance and supports available from the Sustainable Energy Authority of Ireland (SEAI) to help develop projects in the public and commercial sectors.

The Framework provides, for public sector and commercial organisations, a standard and structured approach, supported with a suite of tools including comprehensive guidance documents, templates, model contracts, monitoring and verification requirements to support the efficient procurement and delivery of energy efficiency projects on the ground. The provision of such a standard approach will provide confidence, build the knowledge base and reduce transaction costs while building capacity in the market.

A key objective behind the development of the Framework is to address more complex, and potentially deeper, retrofits than is possible using existing approaches to procurement. This is necessary given our 2020 energy and climate targets. One of the features of large organisations'

⁸ http://www.seai.ie/Your_Business/National_Energy_Services_Framework/

energy use is the degree to which it is distributed across multiple processes, such that a number of solutions are required that address electricity usage, heat, ventilation, lighting etc. Introducing energy efficiency measures in these environments can be very difficult to manage given the level of knowledge at the disposal of the organisation. The Framework will seek to address this knowledge deficit by providing a means to procure the necessary expertise through a transparent and robust process.

It is intended that the National Framework will assist in identifying projects, both General Government Sector (GGS) and non-GGS, and subject them to a rigorous analysis so that projects brought forward to the Fund will be considered investment-grade. It is anticipated that this approach will reduce the cost and complexities associated with financing energy efficiency projects, and hence reduce the level of perceived risk.

With publication of the Framework, our focus in 2014 is on managing the exemplar projects already underway while bringing a further tranche through the development phase. We will also put in place appropriate governance structures to review and monitor progress against our NEEAP commitments and to address any policy issues that require resolution across Government.

Better Energy Financing (BEF)

In 2011, the Department convened a working group of stakeholders from across the energy industry to undertake a preliminary analysis of the Pay-As-You-Save (PAYS) concept. A number of research papers were produced, which formed a starting point for the BEF Project Team (the Project Team).

The Project Team was convened in November 2012 with representatives seconded from the finance community, energy suppliers and the retrofit industry. The Project Team was tasked with the objective of designing a national residential retrofit scheme that met the following criteria:

- Ensure the availability of competitive and accessible finance
- Assess and develop a compelling consumer proposition
- Improve the skills and quality of retrofit activity
- Expand the market for energy efficiency measures through marketing and awareness and
- Develop the route to deep retrofit, moving beyond the early adopters

The Project Team worked with over 200 stakeholders to develop an integrated suite of proposals for a retrofit financing scheme (the Scheme), which can make a meaningful contribution to the achievement of the national energy saving target, provide a sustainable mechanism for stimulating energy efficiency improvements in the residential sector and support employment in the construction industry.

Report link:

http://www.betterenergyfinancing.ie/Better_Energy_Financing/Project_Documents/Better_Energy_Financing_Report_on_Barriers_to_the_uptake_of_a_national_retrofit_scheme.pdf

The proposals from the Project Team are currently under consideration within DCENR with a number of pilot projects planned for 2014 and 2015.

3.1.7. Other energy efficiency measures of a horizontal nature

3.1.7.1. Please indicate which appropriate other energy efficiency measures have been undertaken or are planned to be adopted to implement Article 19. In particular, please provide the list of appropriate measures undertaken to remove regulatory and non-regulatory barriers to energy efficiency (e.g. split incentives in multi-owner properties; and public purchasing and annual budgeting and accounting of public bodies) (EED Annex XIV Part 2.3.9)

Split Incentives

The issue of split incentives is one of the most challenging issues to be addressed in order to comprehensively open up the market and encourage both tenants and landlords to undertake energy efficiency improvement measures, particularly in the residential market. A number of measures are under consideration in the rental and commercial sectors, which it is anticipated will feature in a Construction Sector Strategy to be published in 2014.

3.1.7.2. Please indicate whether the Member State has set up or is planning to set up an Energy Efficiency Fund (EED Article 20)

Energy Efficiency Fund

The Energy Efficiency Fund was established in March 2014, with the objective of providing appropriately priced finance for energy efficiency projects in the public and private sectors. The aim of the Fund is to address one of the predominant barriers to economic activity in the non-domestic sector – the availability of credit that is structured properly and of appropriate term. This financing gap is being experienced across all sectors of the economy, not least the public sector.

The Fund will directly assist in:

- Stimulating energy efficiency upgrades in the commercial and public sectors and
- Providing initial finance to test new mechanisms for delivering the estimated public sector funding requirement of €1 billion.

It is envisioned that the Fund will finance two main types of energy efficiency projects in public and commercial sectors, Energy Performance Contracts (EPCs) where funding is lent to an Energy Services Company (“ESCO”) and direct lending to the client company.

3.2. Energy efficiency measures in buildings

3.2.1. Addressing the requirements of the recast EPBD

3.2.1.1. Please present a calculation of cost optimal levels of minimum energy performance (EPBD Article 5(2))

3.2.1.2. In accordance with the requirements of Article 10(2) of the EPBD, please provide a list of measures and instruments to support EPBD objectives (EPBD Article 10(2))

3.2.1.3. Alternative measures for heating and air conditioning systems (EPBD Article 14(4), Article 15(4))

EU Recast Energy Performance of Buildings Directive (EPBD)

The Building Energy Rating (BER) scheme was established under the European Communities (Energy Performance of Buildings) Regulations 2006. A BER is an indication of the energy performance of a house on a scale of A (most efficient) and G (least efficient). The Sustainable Energy Authority of Ireland (SEAI) has been designated as the issuing authority with responsibility for registering BER assessors, logging BER assessments and managing the BER scheme. The BER was introduced for new dwellings in January 2007 and for all buildings from 1st Jan 2009.

The Recast EPBD has been fully transposed and implemented in Ireland largely in the form of the European Union (Energy Performance of Buildings Regulations) 2012 and Part L of the Building Regulations which requires:

- a valid BER to be obtained whenever a building is commissioned or is offered for sale or letting;
- the quoting of building energy ratings in advertisements for buildings offered for sale or letting;
- the setting of statutory minimum energy performance requirements for buildings and building elements to be informed by the cost optimal framework methodology developed by the EU Commission;
- the application of minimum energy performance requirements to existing buildings undergoing a major renovation;
- the development of plans for increasing the numbers of low or zero energy buildings with the public sector showing leadership by investing in such buildings; and
- the display of energy performance certificates in all large buildings which are frequently visited by the public.

As at the end of December 2013 some 776 BER assessors for dwellings were registered with the SEAI and over some 421,600 BER certificates for individual dwellings were in place. For buildings other than dwellings the corresponding numbers were 182 assessors and over 19,500 BERs (see Figures 2 and 3 below).

Figure 2: Domestic BERs by grade

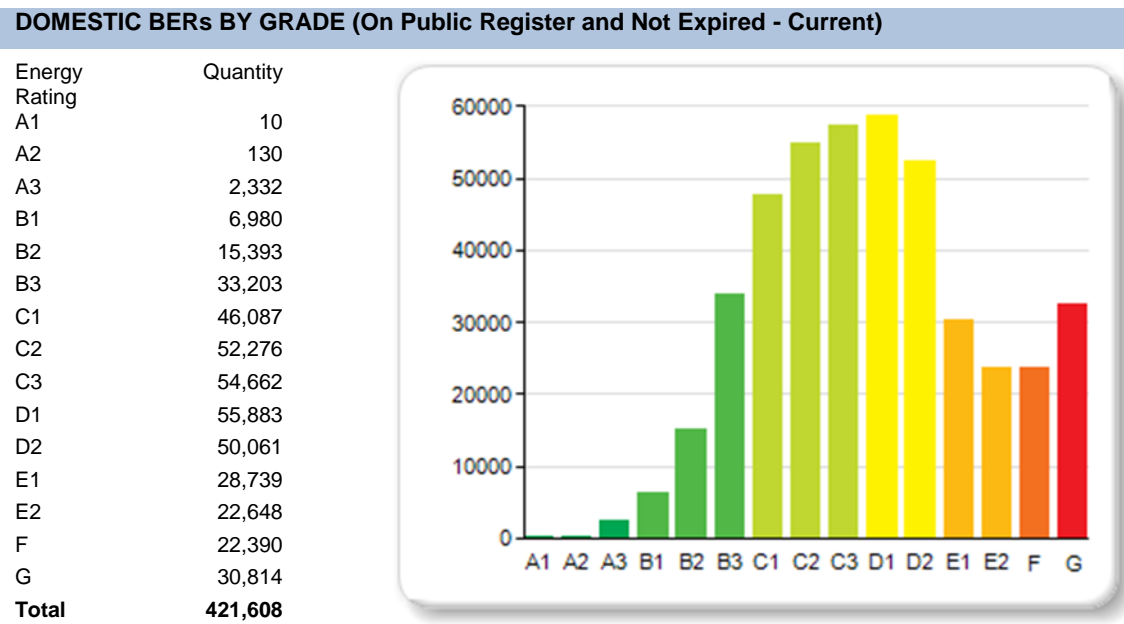
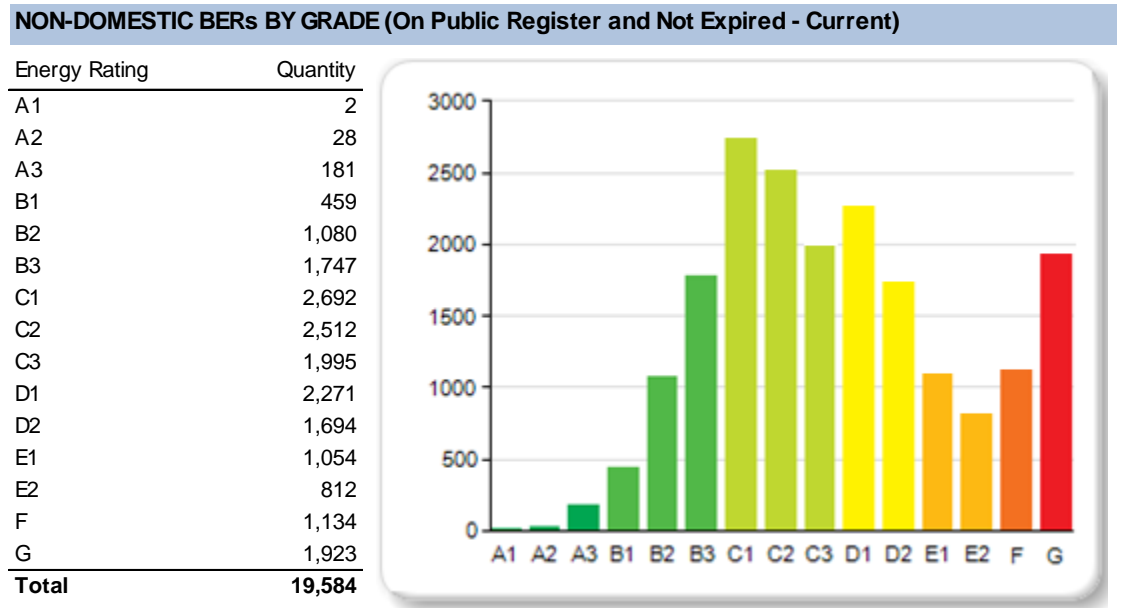


Figure 3: Non-domestic BERs by grade



Cost Optimal Methodology

Cost-optimal levels of minimum energy performance requirements for buildings and building elements have been calculated for residential and non-residential buildings as required by the Recast Energy Performance of Buildings Directive (EPBD). Ireland's first report on Cost Optimality was submitted to the EU Commission in March 2013 and is publicly available on the Commission website.⁹

Energy performance requirements set under Part L of the Building Regulations (Conservation of Fuel and Energy) are already at the lower end of the cost optimal range for new dwellings. Part L of the Building Regulations is currently under review in respect of new buildings other than dwellings and new energy performance targets will be set at cost optimal levels in 2015. Performance standards for existing buildings were also reviewed as part of the cost optimal study. Subsequent reports are due in 2018 and can be submitted at that stage in the NEEAP.

Nearly Zero Energy Buildings

Under Article 9 of the recast EPBD, Member States are required to draw up national plans for nearly-zero energy buildings. Ireland's outline plan, *'Towards Nearly Zero Energy Buildings in Ireland: Planning for 2020 and Beyond'*, was first submitted to the Commission in November 2012. An updated and more detailed plan was submitted to the Commission in April 2013. The Plan is intended to provide an evolving definition which will be further developed in light of cost optimal calculations, consultation and review as well as further developments in relation to policy and legislation. The Plan is available on the Commissions website¹⁰ and a copy is provided in Annex C.

The key measures that have been developed since our second NEEAP, which will support the recast EPBD objectives, include:

- The National Energy Services Framework (NESF)
- Exemplar Energy Projects under the NESF
- The Energy Efficiency Fund

All of the above measures are described in detail elsewhere in this report.

In addition, the EPBD Implementation Group – comprising the Department of Communications, Energy and Natural Resources (DCENR), Department of Environment, Community and Local Government (DECLG) and SEAI – actively monitor progress on the implementation of the recast EPBD's energy efficiency objectives in relation to new nearly zero energy buildings. Furthermore, energy efficiency measures in relation to existing buildings and Article 4 renovation plan will be monitored and implemented by the NEEAP Implementation Group.

All future reports from the European Commission will be reviewed in order to inform future policy decisions having particular regard to any specific recommendations that may be made in relation to the exchange of best practice and the establishment of any financial support programmes designed to improve energy efficiency in buildings.

⁹ http://ec.europa.eu/energy/efficiency/buildings/implementation_en.htm

¹⁰ http://ec.europa.eu/energy/efficiency/buildings/implementation_en.htm

Heating and Air-Conditioning Inspections

Ireland has opted for the alternative approach as permitted under Articles 14(4) and 15(4) of the EPBD. Ireland has submitted its equivalence reports, relating to both heating and air-conditioning, setting out the alternative measures with respect to the savings that will arise from these measures against those projected to arise under hypothetical inspection systems. These reports can be found on the Commission website.¹¹

A second set of reports required under the recast EPBD are under development for the next three-year period and will be submitted separately to the Commission by the 30 June 2014 deadline.

3.2.2. Buildings renovation strategy

3.2.2.1. Please provide information on the national building renovation strategy (EED Article 4)

In accordance with article 4 of the EED, a draft first version of the buildings renovation strategy is included at Annex B.

3.2.3. Additional measures addressing energy efficiency in buildings and appliances

3.2.3.1. Please provide details on additional measures addressing energy efficiency in residential and non-residential buildings as well as those that promote the use of energy efficient appliances and equipment in buildings (EED Article 24(2), Annex XIV Part 2.2(a))

New Buildings

As a result of the advancement in energy performance requirements of Building Regulations, new dwellings in Ireland are at the forefront of energy efficiency standards in Europe. The requirements for advanced energy performance materials and systems in new dwellings in Ireland are also building capacity for Irish manufacturers in systems such as triple glazed windows, biomass boilers, electrical heating, smart technology systems and insulation materials.

Part L of the Building Regulations

All new buildings, extensions to existing buildings as well as material changes of use to existing buildings are subject to Part L of the Building Regulations (Conservation of Fuel and Energy) which sets statutory minimum energy performance requirements.

In the case of dwellings, an ambitious programme for upgrading the Regulations has been advanced over the past decade with the standards that pertained in 2005 being used as a

¹¹ http://ec.europa.eu/energy/efficiency/buildings/implementation_en.htm

benchmark for further improvements. The Regulations were upgraded in 2007 to achieve a 40% improvement in energy efficiency and a 40% reduction in associated carbon emissions relative to 2005 requirements. These Regulations also provided for the mandatory use of Renewable Energy Sources in new dwellings (a minimum of 10 kWh/m²/annum contributing to energy use for domestic hot water heating, space heating or cooling). These Regulations were further revised in 2011 to achieve an aggregate 60% improvement in energy efficiency and an aggregate 60% reduction in associated carbon emissions relative to 2005 requirements. The 2011 Regulations became fully operational (on the expiry of transitional planning-related exemptions) from 1 December 2013 and included provision for:-

- specified values for calculated Primary Energy and Carbon Dioxide Performance Coefficients to be met for each dwelling to achieve a 60% improvement relative to the 2005 benchmark
- significant improvements in wall, roof and floor insulation levels and backstop U values;
- an improvement in window backstop U values
- a reduction in the air permeability backstop value
- an increased testing regime for air permeability where an air permeability value better than that of the default is being claimed
- more accurate thermal bridging heat loss calculations and specifications
- higher efficiency oil /gas fired boilers (also applies when replacing boilers)
- minimum performance levels for the efficiency of biomass boilers
- independent time control of space heating zones and
- improved maximum elemental U values to apply to building fabric elements where an existing dwelling undergoes a material alteration or where an existing building undergoes a change of use to function as a dwelling

This upgrade in performance standards is a significant milestone in the roadmap towards Nearly Zero Energy Buildings (NZEB) and sets the performance of a typical dwelling at approximately 59kWh/m²/yr. The ultimate aim is to achieve a Nearly Zero Energy Building (NZEB) Framework for new dwellings by 2015 which can be applied on a voluntary basis once published.

A comparable programme of change for buildings other than dwellings is currently being developed. A minimum 40% improvement in performance standards is planned as a first step over the 2008 requirements, with new Regulations due to be published in 2015. The final target for Nearly Zero Energy Buildings will be in the order of approximately a 60% aggregate improvement and will be defined in new Regulations in 2018 which will apply to public sector buildings with immediate effect and to all other buildings other than dwellings by 2020.

The Recast Energy Performance of Buildings Directive study to identify suitable cost optimal performance levels¹² for various categories of buildings (e.g. public buildings, hotels, offices, retail outlets, etc.) and to define Nearly Zero Energy Building targets¹³ was completed in 2013. This cost optimal study is now being used to inform performance standards for buildings other than dwellings and Nearly-Zero Energy Buildings. A definition of Nearly Zero Energy Buildings has also been submitted to the Commission as a requirement of the Recast EPBD.

¹² http://ec.europa.eu/energy/efficiency/buildings/implementation_en.htm

¹³ http://ec.europa.eu/energy/efficiency/buildings/doc/ms_nzeb_national_plans.zip

Design of Large Buildings

The European Communities (Energy Performance of Buildings) Regulations 2006–2008 required that the economic and technical feasibility of alternative/renewable energy systems be assessed during the design of large buildings over 1,000m². This requirement has been operative since 1 January 2007. The recast EPBD now further requires that such feasibility studies will apply to all buildings (the size threshold of 1000m² no longer applies).

A renewable energy technology component has been mandatory for dwellings since 1 July 2009. For buildings other than dwellings, the general position regarding alternative/renewable energy systems is being considered as part of the review of Part L requirements for such buildings. This review has commenced and revised energy performance requirements are due to be published in 2014 with new regulations to be signed in 2015.

Design Guidelines for Social Housing

In recent years significant efforts have been made to ensure that all new construction projects, including the delivery of social housing stock, are designed and built to high energy efficiency and sustainable development standards. To that end, Part L of the current Building Regulations requires that all new housing, including social housing:

- has 60% lower heat energy demand than under previous requirements
- requires the installation and replacement (where practicable) of oil and gas boilers with not less than 90% energy efficiency (condensing boilers)
- requires the mandatory use of renewable energy sources (a minimum of 10 kWh/m²/annum)
- a social housing demonstration programme for low energy housing is also in place known as “Towards Carbon Neutral Housing”

Renovation of Existing Buildings

Code of practice for the energy efficiency retrofit of dwellings

A national code of practice for the retrofit of dwellings – Standard Recommendation (S.R.) 54 of 2014 – has been developed by the National Standards Authority of Ireland (NSAI), the Department of Environment Community and Local Government (DECLG), the Department of Communications, Energy and Natural Resources (DCENR) and the Sustainable Energy Authority of Ireland (SEAI). The Standard Recommendation is based on the consensus of an expert panel and was subject to public consultation. This Code of Practice provides guidance to practitioners working on energy efficient retrofit works for dwellings. It provides technical guidance on the retrofit of the building fabric and services, the application of retrofit measures on a whole dwelling basis, general building science and the management of retrofit projects. The Guide is available to download for free from the National Standards Authority of Ireland website.¹⁴

¹⁴ <http://www.nsai.ie/S-R-54-2014-Code-of-Practice.aspx>

Better Energy Programme

The Better Energy Programme was launched in 2011 and brought the three existing programmes: Home Energy Saving Scheme (HES), Warmer Homes Scheme (WHS) and Greener Homes Scheme (GHS), under one umbrella, the 'Better Energy' brand. The programme is designed to ensure that there are more opportunities for householders and businesses to reduce their energy consumption leading to real and lasting cost savings. The Programme is administered by the SEAI on behalf of the Department of Communications, Energy and Natural Resources (DCENR).

Better Energy Homes

Better Energy Homes provides a financial incentive to private homeowners who wish to improve the energy performance of their homes. Fixed grants are provided towards the cost of a range of measures including attic insulation, wall insulation, heating systems upgrades, solar thermal panels and accompanying BER.

In 2014, €20m has been allocated to the scheme. It is anticipated that this will lead to approximately 70 GWh (24 ktCO₂) in energy savings, supporting an estimated 928 jobs. Since the start of the scheme over €162.7 million has been paid to homeowners, enabling 155,283 homes to undertake 387,870 energy efficiency measures.

Better Energy Warmer Homes

Better Energy Warmer Homes is a low-income housing retrofit scheme. The measures are delivered free of charge to the customer and the Government has committed significant funding of €20 million to the Better Energy Warmer Homes scheme in 2014 which will support the delivery of energy efficiency measures to approximately 12,000 energy poor homes, resulting in energy savings of 23 GWh, corresponding to monetary savings of €1.5 million (6 kt CO₂) and supporting 417 jobs.

The Better Energy Warmer Homes scheme delivers a range of energy efficiency measures to low income households who meet defined eligibility criteria and who are vulnerable to energy poverty. The scheme is managed by the SEAI and delivered through a range of Community Based Organisations (CBOs), augmented by a panel of private contractors in order to ensure national coverage. Recipients of the scheme do not receive grants but have measures installed free of charge. The scheme is also delivered through a separate Area Based strand. Measures available include draught proofing, attic insulation, lagging jackets for hot water tanks, low energy light bulbs and cavity wall insulation and are free of charge to the customer.

The scheme has addressed 104,068 fuel poor homes since 2000 of which 290 have been delivered since the start of 2014 to the end of February. There has been a spend of over €237,546 so far this year under Better Energy Warmer Homes. There has been an overall spend of over €116.39 million since the scheme commenced in 2000.

Better Energy Areas and Communities Schemes

2012 saw a shift in focus in the Better Energy Warmer Homes scheme to take account of the publication of the Affordable Energy Strategy and the involvement of energy suppliers in meeting their energy savings targets agreed as part of their Voluntary Agreements with the SEAI. An area based pilot was introduced to help mitigate energy poverty in 2012 which led to the full rollout in 2013.

The SEAI also administers the Better Energy Communities scheme, introduced in 2012, that supports sustainable energy upgrades to existing buildings, services, facilities and processes in the community sector.

The Areas and Community based schemes were amalgamated in 2014 with €13.5 million allocated this year. It is anticipated that the unified scheme will generate anticipated energy savings of 100 GWh (24.7 ktCO₂), supporting 1,018 jobs. The call for applications for 2014 was announced in February, the on-line applications facility was launched in mid-March with a closing date for applications of 30 April 2014.

Higher standards of energy efficiency in existing social housing

Local Authorities are responsible for the maintenance and upgrade of social housing which is in Local Authority (LA) ownership. LA owned housing makes up approximately 6.6% of total housing stock¹⁵. In accordance with the Energy Efficiency Directive and the Recast Energy Performance of Buildings Directive, Local Authorities (LAs) take an exemplar role in the retrofit of social housing.

Under the Social Housing Investment Programme, LAs are allocated capital funding each year in respect of a range of measures to improve the standard and overall quality of their social housing stock. The programme includes retrofitting measures aimed at improving the energy efficiency of older apartments and houses by reducing heat loss through the fabric of the building and the installation of high-efficiency condensing boilers. The energy efficiency target to be achieved by these dwellings in the period from 2009 to 2012 has been C1 on the BER scale.

Demonstration social housing schemes have been funded to achieve advanced energy efficiency standards with energy ratings beyond that of the Building Regulations. An example of such a scheme is the Tralee Town Council–Towards Carbon Neutral project¹⁶.

These programmes contribute to the reduction of energy poverty and are an example of the public sector being a leading example in the setting of higher standards for the energy efficiency of housing.

¹⁵ Based on data obtained from DECLG report “Service Indicators in Local Authorities 2011” and CSO Profile 4 “The Roof over our Heads”

¹⁶ http://www.nba.ie/en/inside_projectDetails.asp?pagelId=4§ionId=4&level=2&typelD=157&parentTypeI d=67&projectId=105

From 2009 to 2012, 7,762 empty social housing units have been upgraded to a target of C1. This has created energy savings of 31.2GWh/yr and carbon savings 10.2 ktCO₂/yr when adjusted to take account of actual energy use.

In 2013 the focus turned to targeting cavity wall insulation and attic insulation in occupied social housing. Over 10,000 social houses were upgraded, creating energy savings of 24 GWh/yr and carbon savings of 4.8 kt CO₂/yr.

In 2014 the budget for retrofit of social housing will increase from approximately € 10 million in 2013 to €25 million for occupied dwellings, with the number of homes also set to increase to 25,250 dwellings. It is anticipated that this will realise 60 GWh/yr in energy savings. There will be a further €15 million available for vacant properties in 2014. It is anticipated that this will enable a deep retrofit of a further 1,500 dwellings, realising savings of 20GWh/yr. €5 million will be available to local authorities to leverage finance from other sources.

Table 8: Energy efficiency savings in social housing

Year	Number of houses upgraded	Energy savings (GWh)	Carbon savings (kt/CO ₂)
2009-2012	7,762	31.2	10.2
2013	10,100	24	4.8
2014	26,750 (est.)	80	

Housing aid for older people

The Department of Environment, Community and Local Government administers the Housing Aid for Older People scheme which provides grants of up to €10,500 to assist older people living in poor housing conditions to have necessary repairs or improvements carried out. Grant eligible works include structural repairs or improvements, re-wiring, repairs to or replacement of windows and doors, provision of water supply and sanitary facilities, provision of heating, cleaning and painting.

Table 9: Housing aid for older people, 2010-2013

Year	Number of homes that received a grant	Total Investment €m
2010	7,205	30.774
2011	6,511	27.102
2012	4,848	19.910
2013	2,815	11.247
Total	21,379	89.033

It is anticipated that a further 3,120 homes will be improved in 2014.

Higher standards of energy efficiency in Building Regulations for existing Buildings

Building Regulations apply in various ways to existing buildings where works are being performed on a building. The current legislation¹⁷ prescribes how Building Regulations apply to existing dwellings.

With regards to building services, Part L of the Building Regulations applies to all works in connection with the provision (by way of new work or by way of replacement) to a building of services, fittings and equipment in respect of which Parts G (Hygiene), H (Drainage and Waste Water Disposal) or J (Heat Producing Appliances) impose a requirement.

Part L of the Building Regulations also requires that replacement oil or gas boilers where practicable should have a boiler efficiency of greater than 90% in dwellings (condensing boilers \geq 86% efficiency). This part of the regulations also requires that renewal works to existing buildings involving the replacement of external doors, windows and roof-lights are subject to current regulations.

With regards to material change of use of a building Regulation 13 of S.I. No. 497 of 1997 (as amended) provides that the requirements of certain parts of the regulations including Part L shall apply to the building.

The above application of the Building Regulations to works to existing buildings will ensure that Building Regulations will apply to major renovations as required by the Recast Energy Performance of Buildings Directive. The above requirements also apply to renovations which are less than 25% of the surface area of the building and as such, the current provisions of the Building Regulations apply beyond that required by the Recast Energy Performance of Buildings Directive requirements.

Currently Building Regulations for works which are major renovations of existing dwellings are at cost optimal levels. Building Regulations for major renovations of buildings other than dwellings will be set at cost optimal levels by early 2015.

Other Measures

Accelerated Capital Allowance/TripleE (Energy Efficient Equipment)

The Accelerated Capital Allowance for Energy Efficiency Equipment (ACA), introduced in 2008, aims to improve the energy efficiency of Irish companies by encouraging them to purchase energy saving technologies. The scheme offers a tax incentive for companies who invest in highly efficient equipment to avail of tax breaks by allowing such businesses deduct the full cost of such equipment from taxable profits in the year of purchase rather than over the usual 'Wear and Tear' eight year period.

¹⁷ SI 497 of 1997 as amended by SI 259 of 2008 and SI 513 of 2010

The scheme was introduced under the 2008 Finance Act for a trial period of three years and in 2011 was extended to 31 December 2014. The scheme has expanded from 3 categories and 5 technologies in 2008 to 10 technologies and 52 technologies. The scheme currently has over 10,000 eligible products and it is estimated that up to 85% of a companies' equipment procurement needs can be sourced through the ACA.

A Cost Benefit Analysis of the scheme is currently underway to evaluate the impact of the ACA and to form the basis for recommendations for a post-2014 extension. It is expected that this analysis will be completed in Summer 2014 and, once finalised, will be published on the DCENR website.¹⁸

ACA eligible products are listed on SEAI's Triple E (Energy Efficient Equipment) Register which provides a benchmark register of best in class energy efficient products. In addition to the ACA, this register is used to fulfill requirements of the European Communities (Energy Efficient Public Procurement) Regulations (S.I. No. 151 of 2011). These Regulations oblige public bodies, when purchasing or leasing categories of products that are listed on the Triple E Register, to procure only products that meet SEAI's energy efficiency criteria.

Both the ACA and Triple E are managed by SEAI. Further information on the schemes, including a full list of categories, technologies and eligible products, can be found on SEAI's website¹⁹.

Energy-related products

The promotion of energy efficient appliances and equipment is regulated by two complementary framework Directives: the Ecodesign Directive (Directive 2009/125/EC) and the Energy Labelling Directive (Directive 2010/30/EU). Energy-related products account for a large proportion of energy consumption and have significant potential for being improved to achieve energy savings. In principle, the scope of these Directives covers all products which can have an impact on energy consumption - products currently covered include domestic & commercial appliances, consumer electronics, lighting, office equipment, heating and water equipment, motors and HVAC equipment. The combination of these directives is considered an effective policy tool for improving the performance of energy-related products – ecodesign by progressively removing the least efficient products from the market and energy labelling by guiding consumers to the more efficient products thus encouraging manufacturers to develop improved products.

Implementation of the Ecodesign and Energy Labelling Directives is well underway in Ireland. The Directives have been transposed into national legislation (S.I. No's. 366 of 2011 and 454 of 2013 respectively). Amending regulations expanding the list of products to which the regulations apply are published as new implementing measures, once adopted by the European Commission. The Minister for Communications, Energy and Natural Resources is the appointed Market Surveillance Authority (MSA) for both Directives and has responsibility for ensuring that products available on the market or put into service comply with efficiency requirements. Significant work was undertaken to design an Irish Ecodesign and Labelling market surveillance system that is both

¹⁸ <http://www.dcenr.gov.ie/Energy/Energy+Efficiency+and+Affordability+Division/ACA+Scheme.htm>

¹⁹ http://www.seai.ie/Your_Business/Triple_E_Product_Register/About/

comprehensive and consistent in application. Up to 2012 activity focused mainly on capacity building - developing monitoring and verification procedures and on raising awareness of the regulations among relevant stakeholders. Given our limited experience of enforcement we have engaged the support of other national and EU authorities in setting up the necessary frameworks.

DCENR has been an active participant in the national Market Surveillance Forum. This forum centralises the issue of market surveillance in Ireland and brings together the various MSAs, the Customs Service and the Irish National Accreditation Board, and provides a useful platform to communicate, coordinate and debate common national and EU market surveillance issues. This forum also co-ordinates the publication of the biennial national market surveillance programme, which includes sectoral plans, as required under Regulation (EC) No. 765/2008 setting out the market surveillance obligations of Member States.

DCENR is also represented at the EU Administrative Cooperation (ADCO) Groups for ecodesign and energy labelling. These groups comprise the Commission and the relevant national MSAs and provide an opportunity to exchange views and practices, harmonise surveillance practices and fix joint actions. In 2010, DCENR joined an ADCO consortium of MSAs seeking Intelligent Energy Europe (IEE) funding for a joint action project on Ecopliant. The aim of this project is to design, carry out and evaluate a coordinated market surveillance programme over a three year period to ensure that ecodesign requirements are applied consistently and effectively across the EU. The project formally kicked off in June 2012 and will run until June 2015. Ireland's work package under this project is on the sharing of information between Member States and involves the development of a database to share both the market surveillance plans of Member States and to record the results of market surveillance activities. The database is due to be operational this summer. At the end of the project, the database will be given to the Commission and made available to all interested Member States.

In November 2012, DCENR launched its first national inspection programme covering both Ecodesign and Energy Labelling Regulations. The inspections were carried out over a ten-week period between November 2012 and February 2013. Retailers representing approximately 20% of the Irish electrical retail market were inspected and visual checks were carried out on just over 14,000 products. The data collected during this programme will provide baseline information from which the impact of future programmes can be assessed. The table below shows the results of these inspections and indicates the target compliance level for future years. The full report from this inspection programme can be found on the DCENR website²⁰.

²⁰ www.dcenr.gov.ie/marketsurveillance

Table 10: Ecodesign and energy labelling compliance levels

Regulations	Product Compliance ²¹					
	2012	2013	2014	2015	2016	2020
Ecodesign	74%	98%	99%	99%	99%	99%
Energy Labelling	8%	59%	64%	69%	75%	95%

DCENR's market surveillance programme for 2014 - 2015 has been finalised. In order to ensure compliance levels improve, monitoring of retail outlets will be ramped up. It is expected that an additional 200 retailers will be inspected during this two year period. Promoting and raising awareness, especially among retailers and distributors, is essential to ensuring compliance and a training programme will be put in place where, in advance of a formal inspection, each retailer will receive a pre-inspection to advise them of, and assist them in meeting, their obligations.

Verification of non-compliance through testing plays an important part in the process of removing non-compliant products from the market. Due to the fact that Ireland does not have a large indigenous electrical or white good industry and the lack of any national accredited test laboratories, the testing of products will always prove challenging and expensive. However, a number of risk-based testing campaigns will be completed over the period 2014 – 2015, the number and type of products to be tested being dependent on budgetary allocations.

3.2.4. Savings arising from measures addressing energy efficiency in buildings

3.2.4.1. Please provide a breakdown of final and primary energy savings achieved so far by measures or groups of measures and savings expected up to 2020 (EED Article 24(2), Annex XIV, Part 2.2(a))

The primary and final energy savings achieved by measures targeted at energy use in buildings are detailed in Annex D. The following table summarises the total energy savings achieved by measures addressing buildings for 2012 together with projections for 2016 and 2020.

Table 11: Energy use in buildings for 2012 and projections for 2016 and 2020

	Primary Energy Savings (GWh)	Final Energy Savings (GWh)
2012	3,780	3,077
2016	8,447	6,630
2020	13,432	10,832

²¹ Products were deemed to be compliant with Ecodesign Regulations where the CE marking was visibly affixed to the product. Products were deemed to comply with the Energy Labelling Regulations where an energy label was correctly displayed on the product and the product's fiche was available for inspection.

3.3. Energy efficiency measures in public bodies

3.3.1. Central government buildings

3.3.1.1. Please provide information on the published inventory of heated and cooled central government buildings (EED Article 5(5))

3.3.1.2. Please provide details of the calculation for the renovation obligation (EED Article 5 (1-4))

The savings that paragraphs 1 to 5 of Article 5 of the EED would generate are estimated from standard values for energy consumption of reference buildings before and after renovation and according to estimates of the floor area of central government stock. The standard values are derived from the EPBD associated “cost-optimal” methodology (“Report on the Development of Cost Optimal Calculations and Gap Analysis for Buildings in Ireland under Directive 2010/31/EU on the Energy Performance of Buildings (Recast): Section 2 - Non Residential”), while the calculation methodology is based on the European Commission’s “Guidance note on Directive 2012/27/EU on energy efficiency, amending Directives 2009/125/EC and 2010/30/EC, and repealing Directives 2004/8/EC and 2006/32/EC Article 5: Exemplary role of public bodies' buildings”. Under this approach, only measures concerning the building envelope, building elements and technical systems are considered. The methodology reviews a series of energy efficiency measures (fabric and system upgrades) and the reduction in energy consumption associated with each measure, on an individual elemental basis. It should be noted that this will lead to a more onerous total energy saving requirement than if entire packages of measures were calculated together.

Table 12: Calculation of target for naturally ventilated office buildings

Energy Efficiency Measure	Delivered Energy Consumption (kWh/m ² .yr)	Cost Optimal Energy Consumption with measure applied (kWh/m ² .yr)	Total Estimated surface (per 1000m ²)	Total Delivered Energy Saving (GWh)
Upgrade External Wall	256	250	337.65	2.0
Upgrade Roof	256	240	337.65	5.4
Upgrade Heating	256	224	337.65	10.8
Upgrade Floor	256	243	337.65	4.4
Upgrade Windows	256	222	337.65	11.5
Upgrade Lighting	256	233	337.65	7.8
'Denominator' under alternative approach		41.9		

Table 13: Calculation of target for air conditioned office buildings

Energy Efficiency Measure	Primary Energy Consumption (kWh/m ² .yr)	Cost Optimal Energy Consumption with measure applied (kWh/m ² .yr)	Total Estimated surface (per 1000m ²)	Total Energy Saving (GWh)
Upgrade External Wall	265	260	15.59	0.08
Upgrade Roof	265	262	15.59	0.05
Upgrade Heating	265	263	15.59	0.03
Upgrade Floor	265	253	15.59	0.19
Upgrade Windows	265	250	15.59	0.23
Upgrade Lighting	265	247	15.59	0.28
Upgrade Chiller	265	231	15.59	0.53
Upgrade Air Handling Unit	265	256	15.59	0.14
'Denominator' under alternative approach				1.53

Table 14: Calculation of total energy saving target

Reference Building Type	Total Energy Saving (GWh)
Naturally Ventilated Office Building	41.9
Air Conditioned Office Building	1.53
Total	43.43

From the above figures, the annual target will therefore be:

$3\% \times 43.43 \text{ GWh} = 1.3 \text{ GWh}$ (the estimated amount of energy that would be saved if 3% of the central government buildings were renovated to meet cost-optimal energy consumption levels).

Table 15: Total useful floor area

Reference Building Type	Floor Area (m ²)
Naturally Ventilated Office Building	337,647
Air Conditioned Office Building	15,591
Total	353, 238

The Total Useful Floor Area (TUFA) of central government buildings greater than 500 m² not meeting national minimum energy performance requirements is 353,238 m². The renovation obligation for central government buildings in 2014 is thus 3% of 353,238 m² = 10, 597 m².

Under the behavioural change campaign, all central government buildings will be targeted. In line with EED Article 5(1), the poorest performing buildings will be prioritised on launching the campaign, where cost-effective and technically feasible.

3.3.1.3. Where applicable, please inform about the alternative approach to achieving savings equivalent to the fulfilment of the renovation obligation as allowed for in Article 5(6)

Ireland opted for the alternative approach allowed under article 5 and submitted the report to the Commission in December 2013.²²

The Office of Public Works (OPW), whose remit includes the management and maintenance of the State's property portfolio, will be responsible for delivering the target savings under this approach. €9 million in Government funding has been made available over the next three years, for the expansion of the OPW's Optimising Power @ Work staff energy awareness campaign into the wider public service. The existing programme has been running since 2008 and involves staff in over 270 buildings in the Central Government portfolio. Average energy savings of over 18% have been achieved, equating to approximately €4.3m per annum in cost savings. The new programme will initially target 500 large buildings from various Public Sector organisations.

A behavioural change campaign will be carried out in naturally ventilated buildings, comprising 96% of the total floor area of the central government inventory. In order to monitor and target energy consumption in each building, a dedicated energy monitoring system shall be installed to measure both electrical and thermal fuel consumption. Energy consumption data for the buildings, collated from utility bills, will be used to benchmark performance in the campaign.

The behavioural change campaign will be carried out by an external specialist service provider and will primarily involve:

- Ensuring that there is an energy officer appointed in each building;
- Ensuring that there is an active energy team established in each building comprising key stakeholders from different business functions within the organisation;
- Setting performance targets for each building;
- Measuring performance against targets;
- Intensively engaging the staff in the buildings to identify areas where energy can be saved;
- Running energy related staff lectures and workshops;
- Preparing monthly reports on progress.

The success of Optimising Power @ Work relies on three key fundamentals: Technology, Staff Engagement & Specialist Resources.

Technology involves installing dedicated energy monitoring equipment in each participating building, providing up to date reliable energy data so that performance can be measured against targets; Engagement with staff includes setting up energy teams in each building and working with staff through presentations and workshops as well as energy awareness days and awards that recognise achievements in the areas of energy reduction, creativity and sustained

²² http://ec.europa.eu/energy/efficiency/eed/inventories_article5_en.htm

engagement; Specialist resources means assigning experienced energy advisors to work closely with the energy teams in each building, develop customised energy reports and identify specific areas where energy can be saved.

With reference to benchmark energy consumption data, the total delivered energy consumption of the target buildings is approximately 72 GWh. Based on standard values for the energy consumption of reference central government buildings, the total energy saving that paragraphs 1 to 5 of Article 5 of the EED would generate is 1.3 GWh. This equates to an average saving of approximately 2% per annum in each building in which the campaign will be carried out.

It is anticipated that significantly higher savings will be achieved as a result of the campaign. Actual energy savings based on a comparison of actual annual energy consumption to benchmark data, shall be reported at the end of 2014 and each subsequent year.

3.3.2. Purchasing by public bodies

3.3.2.1. Please provide information on steps taken to ensure that central government purchases products, services and buildings with high-energy efficiency performance (*EED Article 6(1)*), and on measures undertaken or planned to encourage other public bodies to do likewise (*EED Article 6(3)*).

The Office of Government Procurement (OGP)²³ established in January 2014, formerly the National Procurement Service (NPS), is involved in the centralised purchasing of a wide range of goods and services for the Irish Public Service.

Although limited in their nature the OGP is required, on occasion, to approach the market to purchase goods that consume energy. This requirement is likely to increase significantly as the new Office develops and expands its field of influence.

It is the OGP practice that, prior to approaching the market for any purchase, research is conducted on any prevailing legislation, Government policies, approved standards that would be required for inclusion in the relevant specifications when compiling a 'request for tender'. Currently the OGP is involved in a number of competitive processes for energy consuming goods e.g. office machinery (printers, multifunctional devices). In such competitions the relevant energy and eco standards are referenced and only contractors who can supply such goods are deemed compliant. A recently completed competition for a framework agreement for laptops and tablets has ensured that all devices available to the public service are certified as meeting the necessary, high energy rating.

Through the establishment of a framework agreement for the supply of managed print services (MPS) the OGP has encouraged public bodies throughout the country to adopt an alternative approach to office printing that will see a dramatic rationalisation of the office machinery 'fleet' and the movement of printing activity on to modern, energy efficient equipment.

²³ <http://www.procurement.ie/>

On establishment of any centrally, established contract, all public bodies are strongly urged to use them. The Department of Public Expenditure and Reform issued Circular 16/13²⁴ requesting all bodies to utilise such contracts unless there was an economic justification for an alternative approach to market.

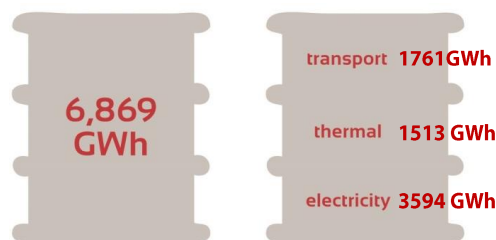
To date, with the exception of conducting competitive processes for the purchase of energy (supply contracts), the OGP has not had a role in long term energy performance contracts.

Energy Efficiency in the Public Sector

The existing energy policy framework commits to reducing energy consumption in the public sector by 33% by 2020. In order to track progress towards the 33% target, all public sector bodies are required from 1 January 2011 to report annually on their energy usage and actions taken to reduce consumption²⁵. As of 2011, the public sector has achieved 6% of the 33% target, with a number of exemplar public sector bodies nearing the 33% target for their organisation.

Monitoring of progress is undertaken through an online system, with the initial focus being on the top 135 energy using public sector bodies who use over 80% of total PS energy. In 2011, the reported energy consumption was extrapolated to estimate that the public sector spends over €600 million annually on energy (See Figure 4 below).

Figure 4: Reported energy consumption 2011

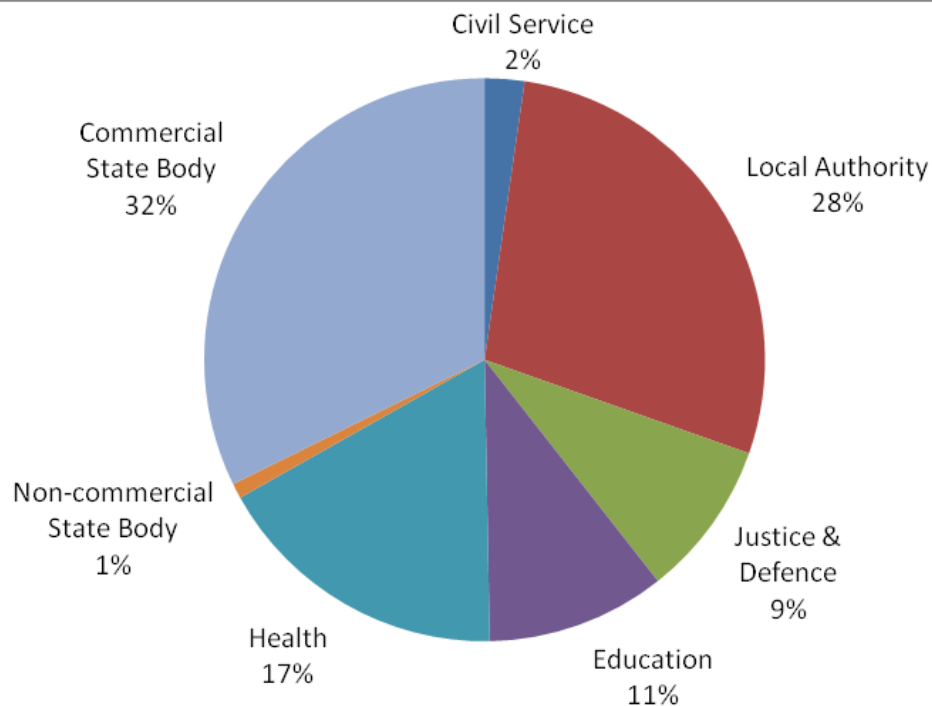


Consumption is spread across seven sectors, as shown in Figure 5 below, with commercial state bodies and local authorities making up the majority of consumption.

²⁴ http://www.procurement.ie/sites/default/files/circular_16_2013_-_revision_of_arrangements_concerning_the_use_of_central_contracts_put_in_place_by_the_national_procurement_service.pdf

²⁵ See http://www.seai.ie/Your_Business/Public_Sector/Reporting/AnnualReport/#sthash.ZISNVLNV.dpu for further information.

Figure 5: Breakdown of known Public Sector energy consumption by subsector



2014 will see the publication of a Public Sector Action Plan on Energy which will pull together a number of key actions across each of the seven energy-using sectors in order to ensure that the 2020 33% energy saving target is met. Actions that are under consideration for inclusion in the Action Plan are as follows:

- A circular on energy efficiency
- Procurement of energy and energy services
- Use of the National Energy Performance Contracting Framework
- Access to the Energy Efficiency Fund
- Engagement with Obligated Energy Suppliers
- Sectoral specific actions on energy efficiency

Existing Supports to the Public Sector

The SEAI has operated a public sector programme for a number of years, which provides supports to the entire public sector. There are 4 elements to the programme:

Partnership – CEO level commitment to the public bodies NEEAP obligations, with a specific commitment to implementing a structured Energy Management Programme, purchasing obligations and annual reporting to SEAI. The organisations have two Energy Management Tools they can implement - Energy MAP or ISO 50001. Under each approach, an annual energy action plan is required.

http://www.seai.ie/Your_Business/Public_Sector/Partnerships/

The more the organisation commits, the more services it can draw down. To date, there are 51 partners accounting for 70% of PS electrical consumption. As of 2013, an additional service was added to assist public bodies implement EPC projects, under the National Energy Efficiency Framework (see Procurement and funding below).

Best Practice – SEAI created Energy Link, an online forum exclusive to public bodies. There are 700 members to date, with specialist groups on such topics as ESCOs, public lighting, buildings, awareness etc. SEAI runs a number of workshops and training sessions on different topics, requested by members. Last year, 15 workshops were held which were attended by more than 500 people across all networking programmes. This year SEAI is focusing on the development of a project database with case stories.

Procurement and funding – the Irish policy document ‘Green Tenders’ presents a framework for procuring energy, equipment, services or capital projects that will use energy. Implementation on the ground is supported by the Partnership and Best Practice elements.

The DCENR and SEAI have developed the National Energy Services Framework, which provides a best practice approach to implementing energy efficiency projects, and provides different contracting options, including EPC. The DCENR also established the Energy Efficiency Fund, to provide a source of finance to public and private projects.

http://www.seai.ie/Your_Business/National_Energy_Services_Framework/.

SEAI is currently supporting 11 public sector projects to implement Energy Service projects, through a series of ongoing workshops. This model will be expanded to support more projects as an ongoing support. SEAI also provides technical assistance of up to €37,500 to EPC projects in particular, to cover legal, project management and baselining costs. Policy/legislation may be forthcoming to encourage/obligate public bodies to bring forward energy saving projects to the market.

Monitoring and Reporting – SEAI hosts an online reporting tool to track public bodies progress towards the NEEAP targets. Although initially focussed on the top 135 energy-using public bodies, in time it is aimed to include all 440 public bodies. Public bodies insert their electrical and gas meter numbers and SEAI gets the annual consumption for them for these energy uses. The database contains 40,000 meter numbers and is growing daily. Each public body receives a scorecard to show their progress, a version of which will be published.

3.3.3. Savings arising from measures in central government and other public bodies

- 3.3.3.1. Please provide, for all measures addressing energy efficiency in central government and in all other public bodies, a breakdown of achieved savings and savings expected up to 2020 by measure or by groups of measures (EED Article 24(2), Annex XIV Part 2.2(a) and (b))

The primary and final energy savings achieved by measures targeted at energy use in the public sector are detailed in Annex D. The following table summarises the total energy savings achieved by measures addressing the public sector for 2012 together with projections for 2016 and 2020.

Table 16: Energy savings achieved from public sector measures

	Primary Energy Savings (GWh)	Final Energy Savings (GWh)
2012	729	421
2016	1,971	1,149
2020	3,240	1,873

3.4. Energy efficiency measures in industry

3.4.1. Main policy measures in addressing energy efficiency in industry

3.4.1.1. Please provide details on all measures addressing energy efficiency in industry (EED Article 24(2), Annex XIV Part 2.2)

With the delivery of the National Energy Services Framework, supported by the Energy Efficiency Fund, the necessary supports are now in place to facilitate deep retrofit energy saving projects across the industrial sector. Client organisations have the tools to assist them in choosing appropriate solutions which will save energy and reduce costs, while energy service companies are seeing the emergence of a proper functioning market for energy performance contracting. Coupled with a strong energy management culture which has developed over many years in Ireland, we believe we are well placed to meet our 2020 targets.

Industry Programmes

The Large Industry Energy Network (LIEN) is a voluntary grouping, facilitated by the Sustainable Energy Authority of Ireland (SEAI), of companies that work together to develop and maintain robust energy management. They provide annual data reports to SEAI on their energy use and actions taken to reduce their consumption. 163 of Ireland's largest energy users are members of the LIEN.

The SEAI Energy Agreements Programme is a sub-set of 80 LIEN companies, who have agreed to work towards implementing ISO 50001. In return, they receive tailored support from SEAI in the form of assigning an Agreements Support Manager to provide both general and technical advice; assessing any gaps in order to achieve EN 16001; identifying special investigations to reveal opportunities for energy savings; organising tailored workshops, training and networking events; and providing EN 16001 implementation support.

SME Programmes

SEAI has engaged with over 3,000 SMEs, providing strategic support, training funding, and advice for energy projects. 1,295 SMEs, with a combined energy spend of €171,923,759, formally availed of SEAI's Advice and Mentoring assessments between 2009 and 2013.

Energy Standards

We recognise the role that standards can play in embedding good energy management practices in industry, with the dividend that brings in terms of reduced costs and productivity growth. Driving innovation in standards, products and services is essential if indigenous Irish companies are positioned to develop and expand markets for green goods and services. Ireland is well recognised internationally for our successes in energy management based on SEAI supported programmes. We will continue our support for standards development.

Energy Management is embedded into the programmes delivered by SEAI since 2005. Since that time we have seen the application of the original Irish Standard – IS 399 – that launched the SEAI Energy Agreements Programme, evolve to the adoption of the international ISO 50001 standard. ISO 50001 is strategically very important as a means to effectively manage energy use, reduce energy consumption and continually improve energy performance. It is a long-term strategy for SEAI to embed ISO 50001 in its programmes and for large energy users. There is also an opportunity for take-up within the public sector and SMEs.

There are over 70 sites certified to ISO 50001 in Ireland. Estimation suggests that within the LIEN 11% of national total primary energy requirement (TPER) is managed and controlled through these systems and covers in excess of 50% of total industrial energy use.

The greatest opportunity in energy management is often what was a lost opportunity during original design. The importance of integrating Energy Efficient Design (EED) principles into capital projects has been a long-standing principle on the basis that energy saving potential is much greater, and the investment required to achieve energy efficiency in operation is much reduced, if incorporated at this stage. It includes the organisation, activities, guiding principles and control implemented in design projects for the purpose of reducing the lifecycle energy consumption of its energy use(s). SEAI has sponsored projects that found between 20% – 50% annual energy savings during design. This is a central element of the energy principles included in Green Tenders – An Action Plan for Green Public Procurement published in 2012.²⁶

A case study of its application is Diageo St James’s Gate who won the Leadership award at the 2013 SEAI Energy Awards. Diageo adopted this new standards approach in their design of the new brewery and will save €2.3M in avoided energy expenditure annually.

There are two areas where Ireland is playing a leading role in further embedding energy standards:

1. The development of a new management system standard on Energy Efficient Design. This will be referred to as IS 399 and is planned for publication by the National Standards Authority of Ireland (NSAI) in April 2014. There is a tremendous opportunity to deliver lifetime avoided energy consumption from original investment stage of a new facility, building, process or renovation.
2. Ireland is the project leader of ISO 50004, which will be a guidance standard for implementation, maintenance and improvement of energy management systems, and is scheduled for publication in November 2014. This guidance will drive best use and effectiveness of systems development and maintenance globally.

Exemplar Projects

In order to demonstrate that the National Framework is robust and has the capacity to deliver at scale, a key objective for 2013 was to identify and select projects that can be considered

²⁶<http://www.environ.ie/en/Environment/SustainableDevelopment/GreenPublicProcurement/PublicationsDocuments/FileDownload,29208,en.pdf>

exemplars for the National Framework. One of the key objectives behind selecting a series of exemplar projects is to identify the level of economy-wide demand, which in turn will inform how information about the Framework and Fund will be disseminated to public and private sector organisations. Central to the success of both the Framework and the Fund will be our ability to identify and build a pipeline of investment grade projects. Undoubtedly, this will take time but once up and running should provide a steady stream of activity that will lead to jobs and economic growth in the retrofit and energy services markets.

Given that the first projects to complete procurement under this new national approach will also be contributing to its refinement, a level of facilitation support will be made available to guide them through the process. It is intended that the exemplar projects will also provide demonstration value for mass market replication elsewhere in the economy – a key facet of recent schemes, as this reduces uncertainties and promotes the adoption of new technologies and techniques.

The first tranche of exemplar energy efficiency projects was launched in June 2013. Collectively, the exemplar projects will see investment of up to €55m in energy saving measures, resulting in annual savings of €7M.

There are currently 21 exemplar projects – 11 public and 10 private sector – underway since June 2013. They attend a series of regular workshops monitoring their progress and a total of €550,000 in technical assistance has so far been committed across these projects.

Our focus in 2014 will be on managing the exemplar projects already underway while bringing a further tranche through the development phase. We will also put in place appropriate governance structures to review and monitor progress against our Action Plan for Jobs commitments and to address any policy issues that require resolution across Government.

Further detail on the National Energy Services Framework and how to apply as an exemplar project is available on: www.seai.ie/Your_Business/National_Energy_Services_Framework

Technical Assistance

One of our key objectives in 2014 is to provide financial support to encourage the development of projects through the National Framework – to drive a considerable increase in scale and depth of energy efficiency investments. To stimulate a pipeline of robust projects, SEAI will support the development of a limited number of large-scale projects that expect to achieve significant, guaranteed and verifiable energy savings through the use of new contracting processes. The supports will comprise several elements to assist procuring organisations, including consultancy support to identify potential projects and technical assistance to facilitate the completion of key stages in the Framework.

Grant support is provided to procuring organisations to undertake preliminary energy audits and other elements of Stage 2 of the Framework project development process. There is also grant support available to procuring organisations to undertake certain project development costs

incurred in undertaking Stages 3 and 4 of the Framework project development process for Energy Performance Related Payment (EPRP) and Energy Performance Contract (EPC) projects. Finally, ESCOs are able to avail of support – via procuring organisations – to complete investment grade audits (IGA) as part of Stage 4 of the Framework project development process.

3.4.2. Savings arising from industry measures

3.4.2.1. Please provide a breakdown of savings achieved and savings expected up to 2020 by measure or by groups of measures (EED Article 24(2), Annex XIV Part 2.2 (a) and (b))

The primary and final energy savings achieved by measures targeted at energy use in industry and small and medium enterprises are detailed in Annex D. The following table summarises the total energy savings achieved by these measures for 2012 together with projections for 2016 and 2020.

Table 17: Energy savings from industry measures

	Primary Energy Savings (GWh)	Final Energy Savings (GWh)
2012	3,474	1,973
2016	4,341	2,418
2020	5,820	3,213

3.5. Energy efficiency measures in transport

3.5.1. Main policy measures addressing energy efficiency in transport

3.5.1.1. Please provide an overview of policy measures aiming to improve energy efficiency in passenger and freight transport, and the promotion of a modal shift to more sustainable modes of transport (*EED Article 24(2), Annex XIV Part 2.2.*).

Purchase of energy efficient vehicles

A new basis of charging Vehicle Registration Tax (VRT) and motor tax for private vehicles was introduced from July 2008. The intention was to align the VRT and motor tax systems more closely to environmental policy objectives, in this case the reduction of carbon dioxide (CO₂) emissions. This basis of taxation was applied only to new passenger cars entering the fleet, as the aim was to influence the future purchasing decisions of vehicle owners. Vehicles were initially categorised in seven graduating bands, A – G, based on CO₂ emissions levels as specified on the Certificate of Conformity of a vehicle. Those choosing to purchase lower-emission vehicles pay less in VRT and motor tax, and that those choosing higher-emission vehicles pay more.

From January 2013, a revised banding structure was introduced for both motor tax and VRT, splitting the lowest CO₂ Bands A (1- 120g/km) into four and Band B (121 – 140g/km) into two. A zero emissions band for electric vehicles was also introduced for motor tax purposes only. The revised banding allows for the further differentiation of the fleet in favour of the ever more environmentally friendly cars coming on to the market, as well as ensuring that revenues can be maintained.

In 2009, the first full year of the new emissions based system of charging for motor tax, 12% of new vehicles purchased were in the lowest emitting A band, with 45% in the B band.

In 2012, for the first time, over half (54%) of all new car purchases were in the lowest emissions A band (compared to 38% in the B band).

In 2013, 61% of new purchases were in the A bands and 32% in Bands B. Cars with CO₂ emissions of 140 g/km or higher now comprise just 7% of new car purchases.

It is clear that the goal of incentivising the purchase of new lower emissions vehicles is being achieved. The implementation of this measure offers ongoing annual savings. As new cars are purchased each year the national fleet profile is changing as the new lower emissions cars remain in the fleet.

This policy ensures that technology improvements are impacting more rapidly on the composition of the national car fleet than a taxation system based on alternative criteria such as engine size. The net effect is to speed up the lowering of emissions within the national fleet, which offers significant fuel savings over the lifetime of each vehicle.

In relation to goods vehicles, the intention is to engage with relevant stakeholders and examine the case for considering charges based on CO2 emissions. As above, such incentives have solely concentrated on cars, which typically make up 83% of the vehicle fleet. However, it should be noted that there is a reduced rate for electric goods vehicles with an un-laden weight of 1,500kg or less (€92 versus €333 for the lowest goods rate), but that is the only environmental incentive in place at the moment for goods vehicles.

Deployment of electric vehicles

In 2009, electric vehicles (EVs) were identified as an important element in efforts to achieve both energy efficiency and renewable energy targets as part of the EU Climate Change-Energy Package.

In terms of public/domestic charging infrastructure to support the roll-out of EVs, the Electricity Supply Board (ESB) will have 1,000 publicly accessible charge points in place in 2014 including 70 fast chargers along all major inter urban routes. At the end of January 2014, 819 public charge-points had been installed, including 48 DC fast chargers. Additionally, there were 694 domestic/commercial installations in place. 95% of all major towns and cities already have electric vehicle recharging infrastructure in place.

Ireland had set an initial target of 10% of the car fleet or 230,000 cars to be electrified by 2020. Since 2009, good progress has been made in creating the best environment for promoting the penetration of EVs into the car market in Ireland. A grant support scheme for EV consumers has been in place since 2011 under which 351 electric vehicles have been grant aided to date and a further 47 await payment. The consumer receives up to €5,000 off the cost price of the vehicle. In addition, EVs are also treated favourably under the motor tax system and qualify for VRT reliefs of up to €5,000.

Initial uptake of electric vehicles has been lower than originally anticipated and the target of 10% of the transport fleet by 2020 appears to be overly optimistic. Ireland now estimates that approximately 50,000 electric vehicles will form part of the transport fleet in 2020. This figure is based on an adoption rate of 0.5% of new EVs in 2014 rising steadily to an adoption rate of 15% of new EVs in 2020.

Smarter travel, modal shift and transport planning

The Department of Transport, Tourism and Sport (DTTAS) is investing in a Smarter Travel Initiative 2012-2016 through the administration of three strategic programmes, namely the National Cycle Network (NCN), Smarter Travel Areas and Active Travel Towns (ATT) Programmes. While the NCN Programme relates to the provision of cycle infrastructure, the ATT Programme was established to secure increased walking and cycling mode share in large population and employment centres. Funding is being provided to a number of towns for the development of walking and cycling strategies, which include both the provision of new cycle-lanes and walkways as well as behavioural change initiatives in local schools and workplaces to encourage people to switch to more sustainable transport modes.

Under the Smarter Travel Areas Programme, three towns – Westport, Dungarvan and Limerick - were selected to act as demonstration towns for sustainable transport initiatives. Funding is being provided to help these urban centres to identify the best means of improving cycling, walking and public transport use with the ultimate aim of reducing car usage. Good progress is being made across the three areas in terms of delivering both infrastructure and behavioural change measures.

DTTAS will also continue to support the National Transport Authority (NTA) through its administration of behavioural change programmes, namely Smarter Travel Workplaces, Smarter Travel Campuses and Green Schools Travel. These programmes are also designed to raise awareness of more sustainable travel options, and to encourage modal shift away from the car to more sustainable modes.

Additionally, the NTA, through its various statutory planning, regulatory and investment functions, is seeking to achieve a better integration of land use and transport planning, consistent with government spatial planning objectives.

Transport policies aimed at reducing both the need to travel and distances travelled can only be delivered if there are complementary spatial policies locating future populations closer to their employment and the services that support them, including education, retail and leisure opportunities. The location of schools, jobs, shops, local services and other land uses relative to the location of residential development is a critical determinant of the need to travel, the distances to be travelled and the modes of transport chosen. Additionally, the provision of sustainable transport alternatives can only be effective if matched with complementary development patterns which support and facilitate their use. It is vital, therefore that land use planning and transport planning are fully aligned, both spatial and temporally. Land use policy, as such, is a key determinant in transport investment decisions at both the strategic and local level.

This position is consistent with, and reflected in, national planning and transport policy objectives and guidelines and, through their application, the NTA seeks, in combination with other agencies and authorities, to ensure that the greatest possible benefit is derived from transport investment undertaken by or in conjunction with the NTA. These national policies include, inter alia, those set out in the following documents:

- Sustainable Residential Development in Urban Areas²⁷;
- Spatial Planning and National Roads Guidelines²⁸;
- Design Manual for Urban Roads and Streets²⁹; and
- National Cycle Manual³⁰.

The NTA is also responsible for the Dublin Bikes scheme³¹ (launched in 2009), which continues to be a great success. Dublin City Council has reported a 40% increase in numbers cycling in the city

²⁷ <http://www.environ.ie/en/Publications/DevelopmentandHousing/Planning/FileDownload,19164,en.pdf>

²⁸ <http://www.environ.ie/en/Publications/DevelopmentandHousing/Planning/FileDownload,29322,en.pdf>

²⁹ <http://www.environ.ie/en/Publications/DevelopmentandHousing/Planning/FileDownload,32669,en.pdf>

³⁰ http://www.nationaltransport.ie/downloads/national_cycle_manual_110728.pdf

³¹ <http://www.dublinbikes.ie/>

over the last four years. The scheme is also being rolled out to the regional cities of Cork, Galway and Limerick. The NTA, more generally, is charged with devising and implementing projects to encourage sustainable travel choices, in line with Government policy. The NTA also supports the development of other sustainable modes such as walking and cycling through the provision of infrastructure under its Sustainable Transport Measures Grants (STMG) Programme.

Additionally, the Tax saver scheme, which will continue over the period of NEEAP3, has proved to be a huge success with over 3,500 companies now purchasing Monthly, Part yearly (Bus Éireann only) and Annual tickets for their employees. Companies can save up to 10.75% in Pay Related Social Insurance (PRSI) while employees can save between 31% - 52% in tax, PRSI and Universal Social Charge (USC). The tax saver scheme is now incorporated into LEAP cards. Leap cards were originally introduced in mid-2012 and this integrated ticketing project has been steadily rolled out since then. Additional features and capabilities have been launched and plans are at an advanced stage to rollout Leap card in Cork and other regional cities. Integrated ticketing along with the use of smart technologies, journey planners and real time passenger information will help to make public transport more attractive over the coming years to 2020.

There are a range of other policy measures that seek to promote sustainable transport modes currently in place. These include taxation incentives such as the Bike to Work Scheme (introduced in 2009) and promotional events such as National Bike Week, which is held every year in June.

Among a range of sustainable transport measures planned by the NTA, are proposals for three Bus Rapid Transport (BRT) routes in Dublin. BRT is a high-quality bus based transit system that delivers fast, comfortable, and cost-effective urban mobility through the provision of segregated right-of-way infrastructure, rapid and frequent operations and excellence in marketing and customer service. As above, BRT is only one part of the public transport investment programme contained in the NTA's Integrated Implementation Plan³², which will help to promote the use of more sustainable travel modes in the Greater Dublin Area.

Public transport providers

A number of energy efficiency actions have been put in place in recent years in the area of public transport, covering both bus and rail.

Rail services

In terms of rail, Iarnród Éireann (IE) has altered its basic philosophy by introducing train configuration changes from locomotive-hauled trains with 1 large diesel engine to Diesel Multiple Units (DMUs) with each carriage having its own 14 litre diesel engine. This gives IE the flexibility to run any number of carriages (up to 8 carriages), which allows for matching the size of the train to the passenger number as well as matching engine capacity to the train size as each carriage has its own engine. For example, a 3 carriage locomotive-hauled train has a 156 litre engine and a 3 carriage DMU set has 3 engines totalling 42 litres. It is worth noting that the locomotive-hauled train is a very efficient configuration for 8 car or 9 car trains.

³² <http://www.nationaltransport.ie/wp-content/uploads/2011/12/Draft-Intergrated-Implementation-Plan-2013-2018.pdf>

A major programme of re-configuring train sizes has been completed (first iteration) and train sizes have been matched to demand across the network on all services, diesel and electric. This essentially means that full length trains run at peak times and smaller trains run at off-peak times. This is expected to reduce both diesel and electricity consumption for traction purposes by 7% equating to 31GWh in a full year.

In addition, traction control software is being rolled out on the Dublin Area Rapid Transit (DART) network, which will result in a further 5% reduction in traction electricity equating to a saving of 1.2 GWh in a full year.

IE also intend carrying out tests in relation to diesel additive. The measurement equipment has been commissioned on 4 DMUs and it has been recording the "Baseline" performance for some months. The additive dosing equipment is being fitted to 2 of the 4 DMUs and will commence operation in February 2014. IE will then run a test for 8 months with 2 DMUs in a set running as the "Control" with no additive and the other 2 DMUs running as the "Test" with the additive. The testing will be "Blind" with the drivers being unaware of which units are dosed and which are not dosed.

Finally, IE plans to tackle issues in relation to automatic engine shutdown for locomotives. Shutting down large engines used in locomotives presents significant challenges as there is significant risk of engine damage if the engine cools completely; this risk is obviously more pronounced in severe cold weather.

IE had planned to tackle this by retro-fitting Automatic Engine Start Stop (AESS) systems, which would re-start the engines before any damage could occur. This has now been overtaken by the developing market of retrofitting new traction packages with fuel-efficient engines to locomotives. Such a fit-out will incorporate an AESS as part of the specification and it will be carried out in line with the planned heavy maintenance cycle.

The current planned heavy maintenance cycle requires that the locomotive is completely refurbished at the rate of 4 per annum on a 5 year cycle. This new proposal will involve the substitution of a new, energy efficient, engine and generator, meeting the latest efficiency norms and complete with electronic controls. This project is only at the concept stage and IE expect to complete feasibility in 2014; initial indications suggest a reduction of the order of 15 to 20% of the fuel used by locomotives will be realised as a result of this programme.

There are other projects also at the concept stage; one involving gearbox replacement on the Japanese built Diesel Cars, and one involving re-programming diesel engines on the Intercity railcars.

In relation to light rail services, provided by the Railway Procurement Agency (RPA), two trials aimed at improving energy efficiency are currently being progressed.

The first trial involves the replacement of standard fluorescent tubes, used for internal lighting in the passenger saloon of the trams, with equivalent LED lights thus reducing energy consumption.

This tram is to be tested to determine if the replacement LED equivalent lights conform to certain quality, brightness and durability standards and operate successfully within the existing electrical set up on the tram. Should full fleet replacement be undertaken, it is estimated that there will be a reduction on the annual power output for lighting in the passenger saloon of the Light Rail Vehicles by an estimate of 227,699kWh.

The second trial involves an energy saver cubicle (the ECOMODE), developed by Alstom (manufacturer of the Luas Citadis trams and maintainer of the Luas fleet). This energy saving cubicle uses a supercapacitor to recover the braking energy generated by the traction motors. Alstom would like to trial the ECOMODE on the Luas Green Line. One of the reasons why Alstom selected Luas for the installation of the ECOMODE is because the cost of energy in Ireland is one of the highest in Europe.

Supercapacitors are power-storage devices that can supply onboard electrical power. Unlike batteries, supercapacitors can be charged and discharged in seconds and can withstand many hundreds of thousands of such charging cycles. This makes them ideal for energy-saving applications that capitalise on transient opportunities for recharging, such as energy capture during braking, and that require power to be delivered in short bursts.

The trial installation of the ECOMODE cubicle on one tram will require a number of modifications to the tram and as such, approval for the installation of the ECOMODE cubicle is currently being progressed.

Bus Éireann (regional) services

Bus Éireann (BE), continues to actively progress a number of initiatives to improve energy efficiency both across the fleet and within its infrastructure. Eco-driving training continues to be rolled out throughout the country to provide drivers with the most fuel efficient driving style. To complement the eco-driving training, all new vehicles since 2011 have been fitted with a telematics system which will provide the driver with a continuous on-board driving style improvement system. The telematics system also provides management reporting on individual vehicle and route fuel consumption as well as driver fuel usage improvements and driving style development progress.

Company policy requires drivers to shut engines down to avoid unnecessary fuel burn from idling at standstill. Since 2009, all new vehicles brought into the fleet have been fitted with an automatic engine idle shutdown to back up the company engine shutdown policy.

The primary energy consumption for Bus Éireann is diesel. Diesel used by the fleet accounted for 96.5% of BE's energy consumption for 2012. Bus Éireann consumed 302G GWh of energy in 2012 and this consisted of 292 GWh of diesel fuel for running of the bus fleet. An energy saving target of 14.6 GWh has been set for 2014. These savings are anticipated to arise from more eco-friendly driving and reduced engine idling in depots and garages.

Network reviews of city, commuter and inter-city operations since 2008 have provided reductions in the energy usage of the fleet. Higher capacity vehicles, including longer tri-axle coaches, double deck coaches and double deck buses have been deployed to reduce the overall fuel consumption per passenger.

Currently almost 14% of the service fleet is Euro V emissions compliant, with 46% compliant to Euro IV emissions standards. The remaining 40% of the service fleet is compliant with Euro III. In 2014 and 2015, up to 80 new vehicles meeting the Euro VI emissions standard are expected to replace older vehicles of higher emissions output levels and slightly higher fuel consumption. The new vehicles will be a mix of coaches and citybuses.

Telematics will be a standard feature on all new vehicles and older fleet vehicles will be assessed for their suitability for retrofit of a telematics system. Automatic engine idle shutdown systems will also be a standard feature of all new fleet.

On-board tyre pressure monitoring systems will be introduced from 2014 to compliment the current tyre management system and maximise the impact on reducing rolling resistance and related fuel consumption.

A number of strategies for long term replacement and upgrading of the Bus Éireann school bus fleet of 500 vehicles is also being considered. A phased transformation to new low emissions, environmentally friendly dedicated school buses will be assessed to determine potential energy savings.

Other longer term initiatives being considered are measures for reducing rolling resistance such as aerodynamic drag and overall un-laden vehicle weight reduction on future fleet acquisitions. Regenerative braking and micro-hybrid systems will also be considered, along with the introduction of electric ancillary systems such as electric fans and door systems.

Developing technologies and alternative fuel sources will continue to be monitored including hybrid bus systems and the development of full electric bus systems.

Bus Eireann, in conjunction with Bord Gais, have carried out a feasibility trial on a CNG powered citybus on two routes in Cork. The initiative forms parts of a broader plan to assess the viability of an expanded CNG city bus operation.

Dublin Bus (urban) services

In relation to bus services provided by Dublin Bus, a range of programmes aimed at improving energy efficiency have taken place since 2009. Reduced congestion on routes, brought about by improved bus priority on the network, has lowered fuel consumption. In addition, a number of technical measures, including a reduction of idle speed, automatic switch-off of engines after 5 minutes idling, acceleration limiting and the use of economy programmes in engine and gearbox management, have resulted in fuel savings. It is estimated that the combined effect of reduced

route congestion and technical measures have resulted in at least 15 GWh savings each year since 2010.

The Network Direct programme, which was introduced to redesign the route network to respond to demand and better meet the needs of existing and potential customers was completed in 2011. The service redesign has resulted in improved fuel efficiencies due to reduced bus mileages, estimated at 41 GWh in 2012. The result of these savings will continue up to 2020.

An Eco-driving initiative was introduced in 2012 and it is planned to provide drivers with real-time feedback to assist with changing driver behaviour. This eco-driving initiative in Dublin Bus provided savings of 3 GWh in 2012.

Dublin Bus is also engaged in fleet replacement and expects to trial a double deck hybrid bus for a six month period in 2014. With regard to fleet replacement, the NTA has funded the purchase of 160 new buses for Dublin Bus (80 in 2012 and 80 in 2013). Subject to funding approval, it is proposed to purchase further buses in 2014 (exact number of buses to be confirmed). The new buses are compliant with the latest European engine standards, which offer reduced emissions to the environment and some limited savings in fuel consumption. The greatest improvements are in relation to reduced maintenance (and hence improved reliability) and reduced emissions over the older vehicles they replace. In recent years, fuel efficiency has improved with technological advancements in vehicle manufacture. However, this is offset to an extent by the greater energy requirement of more advanced buses and systems such as required to operate intelligent transport systems. Nonetheless, the fuel cost per kilometre has reduced marginally and is likely to be reduced further in the future.

Aviation Emissions

The primary objective of the Single European Sky (SES) is to provide a framework to improve the performance of air traffic control in terms of its safety, capacity and cost efficiency needs. A key performance indicator with regard to aviation emissions is energy efficiency and it is anticipated that the Ireland-UK Functional Airspace Block (FAB) will be a key instrument to achieving significant aviation fuel savings in this area. The air navigation service providers (ANSP's), namely the Irish Aviation Authority (IAA) and National Air Traffic Services (NATS) in Ireland and the UK respectively, are planning to jointly implement a variety of operational measures which will help to deliver flight and energy efficiencies to airline customers. Since 2008, as a result of FAB-related measures, particularly more direct routings, over €70m has been saved through reductions of 232,000 tonnes of CO₂ and 73,000 tonnes of aviation fuel. A key focus of the FAB in the period up to 2020 will be the achievement of additional fuel savings by means of offering airlines more optimum flight paths.

Carbon Tax

A carbon tax was introduced in Budget 2010, at a level of €15 per tonne of CO₂ emitted. This tax applies to both petrol and diesel. This was equivalent to an increase of €0.042 per litre and €0.049 per litre respectively. Budget 2012 increased this level to €20/tonne of CO₂ emitted resulting in price increase relative to the baseline of €0.014 per litre for petrol and €0.016 per litre of diesel.

The impact of this carbon tax in terms of fuel efficiency is difficult to assess, in particular given the complex interaction with vehicle purchasing patterns, other fuel taxation increases, and general economic circumstances impacting on fuel demand. However, it is clear that the Carbon tax will have a long term impact on fuel efficiency. Research on the issue suggests that fuel prices are an important aspect in terms of long term fuel demand, with estimated long run elasticities as high as 0.7, and short run elasticities in the region of 0.3³³.

Intelligent Transport Systems (ITS)

Among the key advantages of intelligent transport systems is their ability to maximise the potential of infrastructural and consumable resources including fuel. A National ITS Strategy will be developed for completion in early 2015 in consultation with all stakeholders regarding the future direction of intelligent transport systems in Ireland. This will ensure that Ireland is positioned to take advantage of the wealth of new technology and thinking coming from this sector.

3.5.2. Savings arising from transport measures

3.5.2.1. Please provide a breakdown of savings achieved and savings expected up to 2020 by measure or by groups of measures (EED Article 24(2), Annex XIV Part 2.2 (a) and (b))

The primary and final energy savings achieved by measures targeted at energy use in transport are detailed in Annex D. The following table summarises the total energy savings achieved by these measures for 2012 together with projections for 2016 and 2020.

Table 18: Energy savings from transport measures

Year	Primary Energy Savings (GWh)	Final Energy Savings (GWh)
2012	1,341	1,219
2016	2,929	2,662
2020	4,921	4,474

³³ Thomas Sterner (2007) Fuel Taxes: An important instrument for climate policy. Energy Policy 35 (2007) 3194-3202

3.6. Promotion of efficient heating and cooling

3.6.1. Comprehensive assessment

3.6.1.1. In the 2014 NEEAP please include information about the process, participants and the methodology used for preparing the comprehensive assessment, including a short description of how the country-level cost-benefit analysis is carried out in accordance with Part 1 of Annex IX (*EED Article 14(1) and (3), Annex IX.1, Annex XIV Part 2.3.4*).

Ireland has not yet undertaken a comprehensive assessment of the potential for cogeneration and district heating as required by Article 14(1). The planning around the assessment is still at an early stage. However, over 300 MWe of CHP has been installed to date, mainly fueled by Natural Gas. In 2012, the Irish Government introduced a Feed-In-Tariff scheme to incentivise the installation of 150 MWs of CHP from biomass and anaerobic digestion.

3.6.1.2. In the second and subsequent NEEAPs, please provide an assessment of the progress achieved in implementing the comprehensive assessment of the potential for the application of high-efficiency cogeneration and efficient district heating and cooling referred to in Article 14(1) and the role of heat market developments in this progress (*EED Article 14(2) (EED Article 14(1), Annex XIV Part 2.3.4)*).

Not currently applicable.

3.6.1.3. In the 2014 NEEAP, please provide the identified economic potential for:

- i. High-efficiency cogeneration (*EED Article 14(1), Article 14(3)*);
- ii. The efficient district heating and cooling (*EED Article 14(1), Article 14(3)*);
- iii. Other efficient heating and cooling systems (optional, *EED Article 14(2), Article 14(3)*).

District heating has had very limited levels of development in Ireland for a range of reasons including our population dispersal patterns, the nature of our housing stock, the temperate climate and, compared to other countries where biomass district heating has developed, Ireland has relatively low levels of forestry. Additionally, given the deflated construction industry there are also very limited opportunities to incorporate district heating at the development stage of projects and networks would therefore have to be installed by way of retrofitting – a much more expensive exercise.

There are however a small number of small scale and pilot-level networks in place. There have also been a number of studies into its potential. Some of the benefits identified include:

- Job creation in the supply of fuel from the local farming community and the maintenance of the system going forward.
- Increased energy efficiency through retrofitting and investing in secure, local energy solutions in the private and commercial properties.
- Cost competitiveness enhancing the attractiveness of the region for inward investment.

45% of Ireland's heating is met through oil pointing to an opportunity or need to diversify our fuel sources. While having a clear strategic benefit in terms of facilitating any future need for fuel switching, the cost effectiveness of retrofitting District Heating is clearly a considerable challenge having regard to (a) the drive towards near zero energy buildings with accompanying low heat demand and (b) capital cost and logistics, both weakening the business case for District Heating.

The comprehensive assessment will examine these issues in greater detail.

3.6.1.4. In the 2014 NEEAP and other future NEEAPs please provide a description of measures, strategies and policies, including programmes and plans, at national, regional and local levels to develop the economic potential of high-efficiency cogeneration and efficient district heating and cooling and other efficient heating and cooling systems as well as the use of heating and cooling from waste heat and renewable energy sources, including measures to develop the heat markets (*EED Article 14(2), Article 14(4), Annex VIII 1(g)*).

Application of Planning and Building Regulations to high efficiency co-generation, district heating and cooling

Part L of the Building Regulations Conservation of fuel and energy in Dwellings requires the mandatory use of Renewable Energy Sources - a minimum of 10 kilowatt hours per square metre per annum. This requirement promotes the use of district heating fuelled by renewables and cogeneration schemes in new housing developments.

DECLG Guidelines for Planning Authorities on Sustainable Residential Development in Urban Areas encourage Combined Heat and Power schemes, particularly in higher density developments and where biomass (e.g. wood pellets) provides the energy source; and district heating, particularly if waste heat from nearby industries can be utilised.

The application of planning regulations with regard to properties as described in 1) and 2) are as follows:

- (1) Installation of heat or hot water meters in individual properties where heating and cooling or hot water is being supplied from a district heating network or central source; and
- (2) Installation of individual consumption meters, covering multi-unit / multi-purpose developments, to measure the consumption of heating or cooling of hot water for each unit **in existing buildings** (and where the use of individual meters is not technically feasible or not cost-efficient, individual heat cost allocators could be used for measuring heat consumption at each radiator).

REFIT 3

Following State Aid approval, supports in the form of feed in tariffs for electricity produced from biomass CHP plants were introduced in 2012 to incentivise the use of high efficiency cogeneration from renewables. The scheme called REFIT 3 (Renewable Energy Feed in Tariff)³⁴ supports up to 150 MWe of cogeneration from anaerobic digestion and solid biomass. The tariffs for cogeneration technologies range from €125 per MWh to €157 depending on the size of the plant and the technology used. REFIT was introduced for wind and hydro power in 2006 in order to assist Ireland to meet its obligation under EU Directive 2001/77/EC to increase the consumption of renewable electricity to 13.2% of total electricity consumption by 2010. REFIT 3 is the first of the REFIT schemes to offer support for cogeneration.

Accelerated Capital Allowance

The Accelerated Capital Allowances (ACA) scheme for energy efficient equipment specifies certain technical standards to be met by products to be eligible for ACA tax relief. Technologies covered include cogeneration. Companies may claim 100% of the capital cost of certain energy efficient plant and machinery against corporation tax in the year of purchase.

Cogeneration

In 2012, the operational installed electrical capacity for cogeneration was 306 MW(e) and the amount of electricity exported to the grid was 1,430 GWh. The operational installed capacity for heat was 688 MW(t). The total heat produced was 3,497 GWh of which 3,424 GWh was deemed useful heat. Primary Energy Savings of 2,194 GWh (or 25%) were saved and 511 kilotonnes of CO₂ were avoided.

Natural Gas fuelled 282 MWe of the operational capacity in 2012. Oil products fuelled 7.7 MWe, biogas 5.8 MWe, biomass 5.4 MWe and solid fuel was used by the remaining 5.2 MWe. See the SEAI full report on CHP in Ireland³⁵.

As of April 2014, a total of 909 MW of installed cogeneration units have been certified by the CER as being high efficiency.

3.6.2. Individual installations: cost-benefit analysis and results

3.6.2.1. In the 2014 NEEAP please identify the responsible competent authorities and actors, and explain the process and methodology of the installation level cost-benefit analysis, including district-heating companies and other stakeholders involved (*EED Annex IX Part 1*). In 2017 NEEAP please provide inform shortly about their outcome with some further details (e.g. the number of CBA prepared).

³⁴ <http://www.dcenr.gov.ie/Energy/Sustainable+and+Renewable+Energy+Division/REFIT.htm>

³⁵ http://www.seai.ie/Publications/Statistics_Publications/EPSSU_Publications/CHP_in_Ireland_2013_Report.pdf

The process and methodology of the Cost Benefit Analysis (CBA) is to be designed in the context of transposing the Directive.

3.6.3. Individual installations: exemptions and exempting decisions

3.6.3.1. Please provide details of the exemptions from the CBA allowed on the basis of Article 14(6) and the ad-hoc exemptions based on Article 14(8), (*EED Article 14(6) and (8)*).

Pursuant to Article 14(6) Ireland notified the Commission in December 2013 of exemptions to the requirement for a cost benefit analysis for installations

The following installation was notified on the basis that it had run for fewer than 1,500 hours in each of the last five tariff years:

- Rhode Peaking 2 Generator Unit

Nine further installations were notified as having run for fewer than 1,500 hours in some of the preceding five tariff years:

- **Rhode Peaking 1 Generator Unit**
- **Tawnaghmore Peaking 1 Generator Unit**
- **Tawnaghmore Peaking 3 Generator Unit**
- **North Wall Generator Unit**
- **Tarbert 2 Generator Unit**
- **Tarbert 1 Generator Unit**
- **Great Island 2 Generator Unit**
- **Cushaling Power PPMG2**
- **Cushaling Power PPMG1**

Ireland does not have any nuclear power installations and currently has no installations that are required to be located close to a geological storage site approved under Directive 2009/31/EC and therefore no exemptions are currently required for these categories. This is a situation that is unlikely to change in the short term, although Ireland considers that geological structures close to the current Kinsale natural gas field would be the most likely site in Ireland to be developed as a carbon capture and storage facility that would qualify under Directive 2009/31/EC. Ireland will notify the Commission in the event that such installations envisaged by Article 14(6)(c) are planned, in order to avail of the Directive's exemptions from the requirement for such installations to conduct a cost benefit analysis per 14(5).

Ireland has not, to date, exempted any installations under Article 14(8).

3.7. Energy transformation, transmission, distribution and demand response

3.7.1. Energy efficiency criteria in network tariffs and regulation

- 3.7.1.1. Please describe planned or adopted measures to ensure that incentives in tariffs that are detrimental to the overall efficiency (including energy efficiency) of the generation, transmission, distribution and supply of energy, or might hamper participation of demand response in balancing markets and ancillary services procurement, are removed (*EED Article 15(4), Annex XIV Part 2.2 first sentence*).

The Commission for Energy Regulation (CER), as National Regulatory Authority for energy in Ireland, has a specific requirement to consider the effects of its energy regulation on the environment and energy efficiency.

The Single Electricity Market (SEM) rules are designed to run the most cost efficient generators to meet electricity demand. Given the operational cost advantage of renewable energy, this increases the overall energy efficiency of generation. These SEM rules also facilitate and encourage the entry of more efficient new generation.

SEM rules allow Demand-Side Units (DSU), of which there is 60MW (as of 2013) to bid into the wholesale market and thus reduce the use of the least efficient generators.

Transmission and Distribution tariffs are location-based i.e. costs are reflective of distance from demand and strength of network. This provides a price signal to generators to build new generation close to sources of demand and thus reduce transmission losses.

Transmission Loss Adjustment Factors are also location-based. This provides a price signal to generators to build new generation close to demand centres or close to the stronger elements of the network, thus reducing transmission and distribution losses and increasing efficiency.

The Distribution System Operator (DSO) has addressed DSU in the Distribution Grid Code and over the coming months it is expected there will be a DSU representative on the Distribution Code Review Panel (DCRP). The capabilities and operational capacities and connection requirements to facilitate DSU connection to the distribution network have been publicly consulted on and clearly set out in the Distribution Grid Code³⁶ (DCC9.9).

The TSO has established a Transmission Grid Code working group to put in place enduring provisions to facilitate connection and operation of DSUs. The Transmission System Operator (TSO) has already passed Modification Proposal ID 24037 which was part of a broad review of the Transmission Grid Code to facilitate the connection and operation of DSUs.

The European Commission, in its priority list for Network Codes for 2014, has included the requirement that the Commission develop a Framework Guideline on Investment Incentives and

³⁶ <http://www.esb.ie/esbnetworks/ga/downloads/Distribution-Code.pdf>

³⁷ <http://www.esb.ie/esbnetworks/ga/downloads/Distribution-Code.pdf>

Harmonized Tariffs. This is likely to lead to a Network Code on Tariffs which will amend, or at least affect, Annex B of EC 2010/838. This Regulation currently makes reference to the generator-tariffs structure (including Ancillary services etc.) and range. The split between generation and demand tariffs is a matter for National Regulatory Authorities. ENTSO-E is currently beginning the early stage work, in anticipation of the proposed Framework Guideline, later in 2014. This work, in addition to developments on investment incentives could have an effect on whether Demand Response is treated as efficiently as possible in any future market.

The CER, under the auspices of the National Smart Metering Programme (NSMP), is currently evaluating the development of time of use tariffs, following consultation with stakeholders, for deployment as part of the NSMP and how they can facilitate consumer participation in energy efficiency measures.

In terms of ancillary services, CER and the Single Electricity Market Operator (SEMO) are engaged on a major review of the supply and utilisation of ancillary services on the island of Ireland, titled “Delivering a Secure, Sustainable Electricity System” (DS3)³⁸. DS3 is primarily aimed at facilitating the introduction of significant levels of renewable energy into the Irish grid. It also includes development of financial incentives for better plant performance, and development of operational policies and system tools to use the portfolio to the best of its capabilities.

There are already a number of incentives built into the tariff design in Ireland to promote the overall efficiency of the energy system. The Transmission Use of System (TUoS) charges, which are charges for the provision of access to the transmission network to transfer energy for trade in the market, are applied according to size (i.e. larger users pay more in tariffs) and location (i.e. generators should pay more to contribute to the cost of the reinforcement which their connection has caused). The objective of the transmission tariff arrangements is to provide locational signals to users that reflect the costs that they impose on the transmission system. On the basis of these price signals, users can make informed decisions concerning their use of the transmission system.

The TUoS charging arrangements reflect transmission investment costs based on system usage. Each Generator’s TUoS charge is designed to be reflective of transmission investment costs associated to its own use of the system. Generators that drive the need for additional investment pay higher tariffs. This tariff design aims to promote a more efficient development and use of the transmission system.

3.7.1.2. Please describe planned or adopted measures to incentivise network operators to improve efficiency through infrastructure design and operation (*EED Article 15(4), Annex XIV Part 2.2. first sentence*).

The Regulator has put in place, in its third Price Review (PR3) incentives on the TSO and ESB as the Transmission Asset Owner (TAO) to demonstrate to the CER, utilising an economic cost-benefit analysis, that a policy or design improvement introduced resulted (or will result) in a quantifiable benefit to the electricity consumer. The activities include transmission efficiency measures.

³⁸ <http://www.eirgrid.com/operations/ds3/>

In addition, the Network Operator is incentivised under the PR3 determination to reduce network losses. The Network Operator conducts annual reviews of Network Losses and reports on these reviews to CER.

The following sample measures have been undertaken to reduce network losses and increase system efficiency:

- i. 10kV to 20kV network conversion**
- ii. Installation of low loss network components – hexaform transformers**
- iii. Network refurbishment – conductor replacement, transformer upgrades etc.**

The DSO, is continually optimising asset replacement and investment plans to minimise losses on the distribution system.

One element of the PR3 is the adoption of an incentive-based approach for the TSO's and TAO's allowed revenues. Under the *ex- ante* incentive based revenue cap regime, the CER fixes the internal operating costs for both TSO and TAO for a five year period. If the TSO or TAO spends more than allowed, the utility bears the cost. If less money is spent, it is allowed to keep the surplus made in any one year for a period of five years as a means of incentivising efficiencies. In taking this approach the customer benefits in the medium term by the progressive decrease in operating costs allowed at subsequent price reviews. Each price review is based on the revenues/costs of the previous period. Efficiencies should be derived from internal business practices and procedures.

In addition to this general incentive to ensure only efficient levels of cost are faced by customers under the revenue cap mechanism outlined above the CER has also put in place a series of performance and outcome based incentives to ensure quality of service and supply are maintained and desired outcomes delivered. This suite of performance incentives covers traditional system performance measures as benchmarked internationally and also provides for incentives/ penalties to apply relating to the delivery of identified grid infrastructure requirements.

The proposed Framework Guideline on investment incentives could have the potential to incentivise network operators to improve efficiency when taken together with the Projects for Common Interest under the 10 Year Network Development Plan. As the framework guideline is not yet published it is too early to determine the extent to which this is the case.

3.7.1.3. Please describe planned or adopted measures to ensure that tariffs allow suppliers to improve consumer participation in system efficiency including demand response (*EED Article 15(4), Annex XIV Part 2.2. first sentence*).

A number of measures are underway - including in the area of Demand-Side Units (DSUs) and System Services and Smart Metering - to ensure that tariffs allow suppliers to improve consumer participation in system efficiency.

At the moment, the focus of DSU aggregators is on large scale industrial customers. Dispatch instructions are issued by the TSO at an aggregate level and the DSU Aggregator then coordinates the reduction from the Individual Demand Sites. With the advent of smart meters and home energy management systems towards 2020 the scope of DSUs to include smaller industrial and domestic customers will increase.

In addition, a considerable amount of work in the area of System Services has been undertaken as part of the Delivering a Secure and Sustainable Electricity System (DS3). There is clear evidence that enhanced system services will be required in order to maintain a secure, efficient and reliable electricity system under conditions of high wind penetration. A final decision on System Services is expected towards the end of 2014.

Smart Metering

The National Smart Metering Programme is a central component of the strategy to radically enhance management of energy demand, deliver smart networks and enable greater energy efficiency through the use of cutting-edge technology. It is also in line with EU requirements where Member States are obliged to progress smart metering. A major programme of technology and user trials showed that a national rollout of Smart Meters could lead to reductions in overall electricity and gas consumption, as well as an 8.8% reduction in peak-time electricity consumption. Following the successful completion of these exploratory trials, a decision to proceed to the second phase of the National Smart Metering Programme was taken in July 2012. The first Smart Meters are anticipated to be installed in Irish homes and businesses during 2016.

3.7.1.4. Please inform if network tariffs support the development of demand response services (*EED Annex XI 3.*).

Currently, there are no elements of network tariffs which support the development of demand response services, although the Transmission Grid Code and Distribution Grid Code working parties are considering the issue.

The current DUoS tariff structure supports network access for a range of different user types and the network operator has contributed to the design of tariffs as part of the ongoing consultations on Smart Metering. Ongoing development and management of the DUoS Groups will be conducted in conjunction with the NSMP and in consultation with CER as appropriate.

The system of Generator-Tariffs used on the island of Ireland is locational in nature. As a result, participants who drive the need for additional deep reinforcements of the network infrastructure pay higher tariffs than those who don't. In the event that demand response participants are to be treated similarly to generators with regard to tariffs, and where demand response participants are reducing or negating the need for deep reinforcements, then this would be reflected in any

generator-charges that they face. The review by the European Commission of tariffs may impact on this. Ireland will participate fully in this process, as with the network codes negotiated at the Electricity Cross Border Committee.

3.7.2. Facilitate and promote demand response

3.7.2.1. Please provide information on measures adopted or planned to enable and develop demand response, including those addressing tariffs to support dynamic pricing (*EED Annex XI 3., Annex XIV Part 2.3.6., EED Article 15(4), Article 15(8)*).

Demand Response

DSM has been a feature of the Irish and Northern Irish transmission systems for a number of decades. The types of DSM in operation at the moment are:

- Demand Side Units: a DSU consists of one or more individual demand sites that can be dispatched by the TSO as if it was a generator. A DSU Aggregator may contract with these sites and aggregate them together to operate as a single DSU. Dispatch instructions are issued by the TSO at an aggregate level and the DSU Aggregator then coordinates the reduction from the Individual Demand Sites.
- Powersave: this scheme encourages large and medium sized customers to reduce their electricity demand on days when total system demand is close to available supply. In return, participating customers are made payments on the basis of kWh reductions
- Short Term Active Response (STAR): in this scheme electricity consumers are contracted to make their load available for short term interruptions. This service provides the TSO with reserves that are utilised in the event of the loss (tripping) of a large generating unit.
- Static Time of Use Tariffs: schemes are in place in Ireland (Night Saver Electricity) which offer a static discounted ToU tariff to encourage customers to run electrical heating (such as storage heaters) during the night.

EirGrid and ESB Networks (ESBN) are supporting the large scale penetration of DSM (from domestic to industrial customers), through initiatives such as the DS3 (DSM workstream), SmartGrid Demonstration Projects, Smart Metering and Electric Vehicles.

Growth in DSU penetration is heavily influenced by the System Operators. To this end, EirGrid and ESBN will continue to work with the industry to achieve the following DSU penetration targets:

- End 2014: 150 MW
- End 2020: 500 MW

ESB Networks has initiated a project called IVADN – Integrated Vision for an Advanced Distribution Network – which will aim to complement DS3 and deliver additional network efficiency.

Changes to the Distribution Code to make DSUs more effective will be agreed in 2014 and presented to CER by the Distribution Code Review Panel for approval.

System Services

A considerable amount of work in the area of System Services has been undertaken as part of DS3 programme. One of the key work streams in the programme is the Review of System Services (or Ancillary Services). The aim of the review is to put in place the correct structure, level and type of service in order to ensure that the system can operate securely with higher levels of wind penetration (up to 75% instantaneous penetration).

The TSO has statutory responsibilities in Ireland in relation to the economic purchase of services necessary to support the secure operation of the system. The Regulatory Authorities recognise the need for new system services, in particular services that will reward flexibility and assist in the delivery of the 40% renewable targets in Ireland. There is clear evidence that enhanced system services are required in order to maintain a secure and reliable electricity system under conditions of high wind penetration. A final decision on System Services is anticipated before the end of 2014.

Demand Side Management Benefits

The Regulatory Authorities (RAs) in the Republic of Ireland and Northern Ireland recognise the potential which demand side management has to deliver significant economic and environmental benefits to the All-Island market. Benefits of demand side participation include:

- the potential to reduce the need for building additional plant
- being able to increase demand in off-peak periods and especially at times of high wind availability, when increasingly there will be times at which not all of the wind on the Island can be accommodated
- the ability to move load at relatively short notice in response to changing wind conditions, in order to avoid generator part-loading and unit starts, which otherwise would increase;
- demand side services will be increasingly valuable as thermal generation is squeezed from the merit order and the cost of provision of frequency response and similar ancillary services increases
- demand side can mitigate transmission constraints, which are expected to increase

In May 2011, the RAs published a decision paper on its review of demand side management in the SEM. That decision paper set out the RAs' assessment of the merits of different demand side management options, the associated development of a Demand Side Vision for 2020, and the identification of supporting policy measures and their implementation path to enable the 2020 Demand Side Vision to be delivered.

Examples of Demand Side Initiatives

This facility can be useful to the TSO to help balance the system, such as occasions when demand is increasing and a flexible demand source could pick up when there is excess energy available e.g. during a warm night when there is plenty of wind energy on hand.

Electricity consumers providing this service can expect 10 to 20 unplanned and instantaneous interruptions per annum of some, or all, of their load. Interruptions would typically be in the order of 5 minutes duration and no notice is given of Interruptions. The cost of installing metering, communications and control equipment is paid for by customers participating in the scheme. In return for providing this service, the TSO makes payments to customers based on the energy that they make available for interruption.

The objective of the Powersave scheme, also managed by EirGrid and approved by the CER, is to encourage large and medium sized customers to reduce their electricity demand on days when total system demand is close to available supply. In return, participating customers are made payments on the basis of kWh reductions achieved during a Powersave Event. A Powersave Event may be called on any business day of the year and for any time of day. The charges and terms and conditions of these two schemes are approved by the Commission for Energy regulation.

The network operator has proposed a research and development project on electric vehicles and their impact on the distribution system. The proposed project will focus on the impact of electric vehicles on the distribution system from a demand side management perspective, along with considerations such as the impact on safety, security and reliability of the system.

The National Smart Metering Programme is a central component of strategy to radically enhance management of energy demand, deliver smart networks and enable greater energy efficiency through the use of cutting-edge technology. It is also in line with EU requirements where Member States are obliged to progress smart metering. The objectives of the NSMP are to:

- Encourage Energy Efficiency
- Facilitate Peak Load Management (electricity only)
- Support Renewable and Micro Generation (electricity only)
- Enhance Competition and Improve Consumer Experience.
- Improve Network Services

Following the successful completion of Phase 1, National Trials into Technology and Customer Behaviour the CER embarked on Phase 2, Requirements Definition & Procurement, which should be completed in 2014. This will be followed by Phase 3, Build & Test, during 2015-2016 and followed by the final Phase of the programme, Deployment, which is expected to begin in 2016 and end in 2019.

CER anticipates that the use of smart meters will see an improvement in demand side management on the part of suppliers by providing further possible opportunities for innovation in the area of energy tariffs. Suppliers are regarded as key enablers of behavioural change and energy efficiency.

The statistical evidence from the residential customer behaviour trial demonstrated that the deployment of time of use tariffs in combination with other demand side management stimuli results in a change in electricity consumption. Specifically, the residential trial participants achieved reductions in electricity consumption, both overall usage and at times of peak usage.

Changes to the Market

The SEM Committee has been aware of the benefits that demand response would have for the Single Electricity Market (the 'Market') and has sought to identify barriers to participation in the market by industrial and commercial customers. Modifications to the rules of the Market have been introduced which address particular barriers to participation. The rule setting forum of the Market, the Trading & Settlement Code Modifications Committee, will consider barriers to DSM identified in current modifications and the implications for demand side participation in relevant future modifications.

The SEM Committee is also assessing the possible ways in which the SEM could be re-designed to comply with the European Target Model and while ensuring consistency with other elements of Government and regulatory policy, including demand side participation. This market design will also be one that accommodates renewables and which should therefore provide efficient signals for appropriate investment in flexible plant and demand side management.

3.7.3. Energy efficiency in network design and operation

3.7.3.1. In the 2014 NEEAP Please report on progress achieved in the assessment of the energy efficiency potential of national gas and electricity infrastructure, as well as adopted and planned measures and investments for the introduction of cost effective energy efficiency improvements in network infrastructure and a timetable for their introduction (*EED Article 15(2), Annex XIV Part 2.3.5.*).

Electricity Infrastructure – (cost effective energy efficiency improvements)

EirGrid's strategic grid development plan, GRID25³⁹, is designed to deliver an efficient and cost effective transmission network for Ireland. The plan aims to strike a balance between costs, reliability and environmental impact. It examines the totality of developments which are likely to affect the grid and electricity supply, and considers a variety of options to minimise the net length of new line build in a region through a number of initiatives designed to maximise the use of the existing network. A number of key aspects of the design which will help with improve efficiency include:

- New transmission lines will be built at 400 kV and at 110 kV. Building at 400 kV rather than 220 kV is more efficient and provides greater power carrying capability.
- The inclusion of Smart Technology such as the dynamic monitoring of line loading. This involves installing devices to monitor the loading of a line and the climatic environment. Combining dynamic knowledge of the environment, the line design and the system conditions may enable an existing circuit to carry more power.

³⁹ http://www.allislandproject.org/en/wholesale_overview.aspx?article=d3cf03a9-b4ab-44af-8cc0-ee1b4e251d0f&mode=author

ESB Networks is proactively investing in the distribution system to reduce losses which is the primary method of delivering increased energy efficiency at an infrastructure level. Conversion of the MV network from 10kV to 20kV is the largest contributor to the reduction in network losses.

Network losses reductions are calculated annually and reported to the Regulator.

ESB Networks is also continually developing the operational IT systems that it uses to manage the Distribution System. These are being developed to deliver additional network optimisation capability and deliver more services without additional grid build out.

Since the Grid25 strategy was launched in 2008, significant progress has been made in optimising our investment plans and in building new transmission circuits and upgrading existing circuits. Table 19 below provides an overview of the type and km of line commissioned between 2009 and 2012.

Table 19: Overview of lines commissioned 2009 to 2012

Circuit Type / YEAR	2012	2011	2010	2009	Total
110kV New Line (km)	73	66	20	104	263
220kV New Line (km)	55	10	17	5	87
110kV Line Uprate (km)	136	225	215	167	743
220kV Line Uprate (km)	79	114	0	1	194

Although the facility to be a Demand-Side Unit (DSU) in SEM has existed since the start of the market, EirGrid maintained Winter Peak Demand Reduction Scheme (WPDRS) because it was important to avoid load shedding and operators were not fully confident that there would be large enough DSUs participating in SEM (which turned out to be the case). There were aspects of the market rules that were identified as being barriers to entry which were changed in 2012 and the level of DSU participation in SEM has increased subsequently (currently 83MW with more in the process of registration). By 2020 it is hoped this will increase to 500 MW.

WPDRS was effective in providing demand response in periods of forecast capacity shortfall, but WPDRS was very limited (winter months only, 5pm to 7pm). In a system such as ours with high wind penetration, actual periods of tight generation capacity margin may not always coincide with periods of high forecast demand. Demand response which is available throughout the trading day, rather than during specific periods is more efficient in dealing with the variation of capacity shortfall, which is where the real benefit lies in having active DSU participation in the SEM. In short, the move from a limited WPDRS scheme to a market-driven initiative where demand response is available throughout the trading day (to be called on when we might need it). This approach could be viewed as being generally more efficient.

3.7.3.2. In 2017 NEEAP please include information from the assessment of the energy efficiency potential of gas and electricity infrastructure, in particular relating to transmission and distribution, load management and interoperability, and connection to generating installations including access possibilities for micro generators. The NEEAP needs to describe the measures and investments identified to utilise the energy efficiency potentials of gas and electricity infrastructure (*EED Article 15(2), Annex XIV Part 2.3.5.*).

3.7.4. Savings arising from all energy supply measures

3.7.4.1. Please provide for all measures addressing energy efficiency in supply, including those to promote the increased use of efficient cogeneration, a breakdown of savings achieved by measure or by groups of measures up to 2012 and savings expected up to 2020 (*EED Article 24(2), Annex XIV Part 2.2.(a)*).

The primary and final energy savings achieved by measures targeted at energy energy supply are detailed in Annex D. The following table summarises the total energy savings achieved by these measures for 2012 together with projections for 2016 and 2020.

Table 20: Savings from energy supply measures

	Primary Energy Savings (GWh)	Final Energy Savings (GWh)
2012	1,710	684
2016	1,996	798
2020	4,419	1,767

3.8. Financing Energy efficiency measures

Ireland has no specific budget for the administration or implementation of energy efficiency measures. Overall, the cost is largely borne by the general operating and capital costs of the various State, Semi-State and Regulatory bodies tasked with carrying out such measures. Details of direct financing are provided below where direct costs are identifiable.

EPBD

The Building Energy Rating (BER) Scheme is administered by the Sustainable Energy Authority of Ireland (SEAI), who has responsibility for the registration of BER Assessors, logging of BER assessments and ongoing management and development of the scheme, including the collection of registration and assessment fees from BER assessors. A list of fees and levies currently being charged can be found on the SEAI's website⁴⁰.

The scheme operates on a cost-neutral basis⁴¹ and the EPBD Regulations allow SEAI to use BER revenue to offset costs incurred in connection with carrying out its functions under the EPBD Regulations. Expenditure under the scheme to date is shown in the table below which also provides an estimation of funding required for the period 2014 – 2016.

Table 21: BER expenditure and estimation of funding for 2014-2016

2007 – 2011 €m	2012 €m	2013 €m	2014 €m	2015 €m	2016 €m
12.051	2.245	4.740	2.651	2.271	2.271

In September 2012, DCENR in consultation with SEAI, undertook Fee Review of the Building Energy Rating scheme. The review examined the suitability of the existing BER fees and made recommendations as the appropriate future levels, taking into account the cost of providing the BER service. A further fee review will be conducted in 2014 to re-assess the appropriateness of the fees being charged and to ensure that the scheme would continue to operate on a cost-neutral basis.

Buildings

Ireland has traditionally relied on State supports to incentivise energy efficiency measures in this area and approximately €203m in Exchequer funding has been invested in recent years. Better Energy - The National Upgrade Programme (BE) was launched in May 2011 to support the energy efficiency upgrade of one million homes, businesses and public buildings. The BE Programme as outlined in Section 3.2.3 offers financial assistance for energy efficiency upgrade works. Since 2011 BE has provided €203m in grant assistance. Details of funding provided to date and estimated levels of funding for future years are shown in the table below.

⁴⁰ http://www.seai.ie/Your_Building/BER/BER_Assessors/BER_Assessor_Registration/Schedule_of_Fees/

⁴¹ Initial seed capital of €3.2 m provided by the Exchequer is being periodically repaid as surplus funds become available.

Table 22: Better energy funding

2011 €m	2012 €m	2013 €m	2014 €m	2015 €m	2016 €m	Total €m
97	71	35	57	12	12	284

The 2015 / 2016 level of funding is significantly lower than in previous years reaffirming Ireland's commitment to move away from state supports in favour of more sustainable market-oriented financing models.

Under the Housing Investment Programme, Local Authorities are provided with capital funding to undertake a suite of measures, including energy retrofitting, to improve the standard and quality of LA-owned housing stock. In 2014 the funding available for LA's for the retrofit of social housing will increase from €10m in 2013 to €25m in 2014. It is expected that funding will continue to 2020 and is estimated to be in the region of €15m per annum.

The Housing Aid for Older People scheme, administered by the Department of Environment, Community and Local Government, provides grants of up to €10,500 to assist older people living in poor housing conditions to have necessary repairs or improvements carried out. Since 2010, investment of €87m has been provided for this scheme and a further €15m has been made available for 2014.

Equipment

The Accelerated Capital Allowances for Energy Efficient Equipment (ACA) receives no direct Exchequer investment. Instead the scheme offers a tax incentive for companies who invest in highly efficient equipment to avail of tax breaks by allowing such businesses deduct the full cost of the eligible equipment from taxable profits in the year of purchase rather than over the usual eight year period. The tax savings are complimented by a reduction in energy costs and carbon emissions.

The ACA was introduced by Government in the Finance Act 2008 for a trial period of three years and was extended in the Finance Act 2011 until 31st December 2014. The ACA is based on the existing Capital Allowances tax structure (also referred to as Wear and Tear Allowance) for plant and machinery and is only applicable to eligible energy efficient equipment and claiming the ACA is carried out the same way as for the standard capital allowances.

Data received from the Revenue Commissioners on ACA tax claims submitted are shown in the table below.

Table 23: ACA tax claims

Year	No. Claims Submitted	Investment in ACA equipment	Tax Rebate Claimed
		€m	€m
2009	93	13.4	1.6
2010	68	5.0	0.6
2011	76	11.3	1.3
2012 - 2014	Info not yet available from Revenue		

A Cost Benefit Analysis of the scheme is currently underway to evaluate the impact of the ACA to date and to form the basis for recommendations for a post-2014 extension.

The cost of carrying out the market surveillance function for the Ecodesign and Energy Labelling Directives for energy-related products is provided by DCENR’s programme budget. An allocation of €150,000 per annum has been provided over the period 2011 – 2013 and this increased to €200,000 in 2014 as a result of the increased number of product categories to which the Directives relate. It is expected that a similar level of funding will be available annually beyond 2014.

Public Sector

In February 2014, €9m in Government funding over the next three years was announced for the expansion of OPW’s Optimising Power at Work awareness campaign to the wider public service and will target 500 large buildings from various Public Sector organisations.

Energy Efficiency Fund

In March 2014, the Minister for Communications, Energy and Natural Resources formally announced the establishment of the Energy Efficiency Fund (EEF)⁴² and the appointment of Sustainable Development Capital Ltd (SDCL) as the fund managers.

The EEF marks the first stage in the transition from Exchequer supported grants to a sustainable financing model and will enhance the level of finance available in the market to support the clear opportunity that exists in the public and commercial sectors and it is expected that the Fund will finance Energy Performance Contracts (EPCs) where funding is lent to an Energy Services Company (“ESCO”) and direct lending to the client company.

The Government has committed €35m to the fund with a view of establishing a total fund of over €70m when matched with private sector investment.

⁴² See section 3.4.1

Exemplar Projects

The first tranche of exemplar energy efficiency projects was launched in June 2013. Collectively, the exemplar projects will see investment of up to €55m in energy saving measures. There are currently 21 exemplar projects – 11 public and 10 private sector – underway since June 2013.

Electric Vehicles

An electric vehicle grant scheme was introduced in 2009 providing grant supports of up to €5,000 for the purchase of Battery Electric Vehicles (BEV's) and up to €2,500 for the purchase of Plus-in Hybrid Electric Vehicles (PHEV's). To end 2013, €1.6m in grant funding has been provided which has incentivised the purchase of 351 electric vehicles. Funding of €1.15m has been allocated for this scheme in 2014 and a similar level of funding is expected for the period to end 2016.

Modal shift

The National Transport Authority (NTA) provide funding, largely through Exchequer capital, for a range of projects and measures to support modal shift through behavioural change plans and the promotion of cycling, walking and public transport. €146m was spent in 2013, including €4m on integrated ticketing, almost €3m of Real Time Passenger Information, €0.7m on journey planning and almost €5m on the expansion of the Dublin bikes scheme.

In addition, the NTA also provided €11.3m in capital funding on behalf of the DTTAS on the development and implementation of sustainable transport measures in the regional cities of Cork, Galway, Limerick and Waterford and expenditure of €0.49m on public transport promotion in 2013.

NEEAP3 Energy Saving Measures & Tables
Under Article 24(2) of Directive 2012/27/EU
IRELAND



Department of Communications, Energy and Natural Resources
An Roinn Cumarsáide, Fuinnimh agus Acmhainní Nádurtha

Summary table

	Energy savings (GWh, PEE)			CO ₂ savings (kt CO ₂)		
	2012 (achieved)	2016 (expected)	2020 (expected)	2012 (achieved)	2016 (expected)	2020 (expected)
Public	1,050	2358	3716	238	583	918
Business (Commercial/Industry)	3,257	5,114	7,594	802	1,238	1,813
Buildings	3,778	6,896	10,379	922	1,641	2,459
Transport	1342	2746	4548	342	700	1134
Energy supply	1,710	1,996	4,418	488	362	597
Cross sectoral (Carbon tax)	1,200	1,300	1,300	306	330	330
Total	12,337	20,410	31,955	3,098	4,854	7,251

Measures in the Public and Business sectors

Public sector

No.	Title of the energy saving measure	End-use targeted	Duration	Energy savings (GWh, PEE)			CO ₂ savings (kt CO ₂)		
				2012 (achieved)	2016 (expected)	2020 (expected)	2012 (achieved)	2016 (expected)	2020 (expected)
P.1.	Green Public Procurement via Accelerated Capital Allowances (ACA)	Public and business sectors - all end uses	2008-ongoing	57	154	287	14	33	59
P.2.	SEEEP and EERF	Public and Commercial sectors	2009 and 2010 (completed)	88	88	88	21	20	20
P.3.	Public Sector Building Demonstration Programme	Public sector - building energy use	Completed 2009	140	140	140	33	32	31
P.4.	CHP	Public sector heat/electricity demand	2008-2011	132	158	183	32	38	45
P.5.	ReHeat	Public sector heat demand	2008-2011 (Completed)	123	123	123	30	30	30
P.6.	Public transport efficiency	Public Transport	2008 (Completed)	113	158	158	29	40	40
P.7.	Better Energy Workplaces (Public Sector)	Public sector buildings	2011/2012 (closed)	237	237	237	60	60	60
P.8.	Public Sector Retrofit (Including Public Sector Programme)	Public sector buildings and services	2011- ongoing	160	1,300	2,500	19	330	633
Sector total				1050	2358	3716	238	583	918

Business sector

No.	Title of the energy saving measure	End-use targeted	Duration	Energy savings (GWh, PEE)			CO ₂ savings (kt CO ₂)		
				2012 (achieved)	2016 (expected)	2020 (expected)	2012 (achieved)	2016 (expected)	2020 (expected)
B.1.	SEAI Large Industry Programmes	Final energy in large industry - all end uses	2000 - ongoing	1,802	2,235	2,728	449	539	642
B.2.	SEAI SME Programme	Commercial sector (SMEs)	2008 - ongoing	270	404	511	64	92	114
B.3.	ACA (private sector)	Business sectors - all end uses	2008-ongoing	137	368	688	32	80	140
B.4.	SEEEP and EERF (private sector)	Commercial sectors	2009 and 2010 (completed)	177	177	177	42	41	40
B.5.	CHP	Business sectors - heat/elec demand	2008-2011 (closed)	309	368	428	75	90	104
B.6.	ReHeat	Business sector - heat demand	2008-2011 (closed)	288	288	288	70	70	70
B.7.	Better Energy Workplaces (private sector)	Business sectors - heat/elec demand	2011/2012 (closed)	274	274	274	70	70	70
B.8.	Commercial/Industry Sector Retrofit	Commercial sectors - all end uses	2011 - ongoing	0	1,000	2,500	0	256	633
Sector Total				3,257	5,114	7,594	802	1,238	1,813

P.1. & B.3.

Title of the Energy saving measure		Accelerated Capital Allowance (ACA) – Commercial sector TripleE List – Public Sector
Description	Category	2.7, 4.3
	Timeframe	2008 – 2014 (Budget 2011 extended ACA for further 3 years)
	Aim/brief description	The measures promotes the use of (qualifying) energy efficient products and technologies by providing a tax incentive
	Target end use	Selected energy end uses in industry and SMEs
	Target group	Industry, SMEs, and public sector
	Regional application	N/A
Information on Implementation	List and description of energy saving actions substantiating the measure	<p>The ACA, introduced by the Government in the Finance Act 2008, offers a tax incentive for companies to purchase highly energy efficient equipment. The ACA allows purchasers of eligible energy efficient equipment to write off the full cost of their purchase against their profit for that year instead of having to write it off as normal over a period of eight years. By encouraging companies to purchase energy efficient equipment, the ACA aims to improve the overall energy efficiency of Irish companies and assist Ireland in meeting EU targets for the reduction of carbon emissions.</p> <p>The ACA currently covers 10 different equipment categories and 49 associated technologies, and only energy efficient equipment that meets the relevant eligibility criteria is listed on the ACA Specified List (<i>Triple E Products Register</i>). This list has been adopted by many public sector organisations as a best practice list for public procurement.</p>
	Budget and financial resource	The ACA scheme results in reduced tax revenues in the year of purchase but is revenue neutral, on a non-discounted basis, over eight years.
	Implementing body	The Office of the Revenue Commissioners, Department of Finance
	Monitoring authority	Department of Finance / SEAI
Energy savings	Method for monitoring/measuring the resulting savings	<p>Sustainable Energy Authority of Ireland (SEAI), the body responsible for creating and maintaining the ACA specified list of eligible products for which the incentive can be claimed, carried out a mid-term review of the scheme in October 2010 to determine the awareness of the Scheme, the influence that the Scheme has on purchasing decisions and the level of energy savings attributable to it.</p> <p>A Cost Benefit Analysis of the scheme is currently underway to evaluate the impact of the ACA to date and to form the basis for recommendations for a post-2014 extension. It is expected that this analysis will be</p>

Title of the Energy saving measure		Accelerated Capital Allowance (ACA) – Commercial sector TripleE List – Public Sector
		completed in Summer 2014 and will be published later in the year.
	Savings achieved in 2012	Primary energy: Public sector: 57 GWh, Commercial sector: 137 GWh Final energy: Public sector: 24 GWh, Commercial sector: 56 GWh
	Expected energy savings in 2016	Primary energy: Public sector: 154 GWh, Commercial sector: 368 GWh Final energy: Public sector: 63 GWh, Commercial sector: 151 GWh
	Expected impact on energy savings in 2020	Primary energy: Public sector: 287 GWh, Commercial sector: 688 GWh Final energy: Public sector: 118 GWh, Commercial sector: 283 GWh
	Assumptions	Survey data used to determine penetration/sale rates of energy efficient technologies on the <i>Triple E Products Register</i> . Number of approved technologies on the list increasing over time as new categories introduced. Awareness of scheme increasing over time through promotion within the public and private sectors.
	Overlaps, multiplication effect, synergy	By way of the ACA incentive and market benchmarking the scheme has managed to bring considerable confidence to the energy efficient product market as a whole. This indicated a potential multiplier effect through promoting a general improvement in the energy efficiency of end use products.

P.2. & B.4.

Title of the Energy saving measure		Supports for Exemplar Energy Efficiency Projects (SEEEP) and Energy Efficiency Retrofit Fund (EERF) – Public and Business sectors.
Description	Category	2.7, 3.1
	Timeframe	SEEEP – 2009 EERF – 2010 Both completed.
	Aim/brief description	The Supports for Exemplar Energy Efficiency Projects (SEEEP) programme aimed to achieve significant energy efficiency gains through increasing the capability of the supply chain and stimulating direct employment focusing on energy efficiency projects. The Energy Efficiency Retrofit Fund (EERF) provided for funding towards the implementation of a limited number of qualifying energy efficiency projects.
	Target end use	Selected energy end uses in the Public and Private Sectors
	Target group	Public and commercial sectors
	Regional application	N/A
	Information on Implementation	List and description of energy saving actions substantiating the measure
Budget and financial resource		The EERF programme closed in August 2010 and was funded and managed by SEAI. Funding under the SEEEP programme provided for c.35% for private projects and c.50% for public sector projects. Support under the EERF programme provided for typically 35% funding for private projects and 50% up to 80 % funding for public projects.
Implementing body		SEAI / DCENR
Monitoring authority		SEAI / DCENR
Energy savings	Method for monitoring/measuring the resulting savings	Sustainable Energy Authority of Ireland (SEAI), the body responsible for implementing the programme collected and vetted project detail and savings estimations at project outset. Savings are calculated based on primary energy savings from electricity and heat.
	Savings achieved in 2012	Primary Energy: Public sector: 88 GWh, Commercial sector: 177 GWh Final Energy: Public sector: 53 GWh, Commercial sector: 107 GWh
	Expected energy savings in 2016	Primary Energy: Public sector: 88 GWh, Commercial sector: 177 GWh Final Energy: Public sector: 53 GWh, Commercial sector: 107 GWh
	Expected impact on energy savings in 2020	Primary Energy: Public sector: 88 GWh, Commercial sector: 177 GWh Final Energy: Public sector: 53 GWh, Commercial sector: 107 GWh
	Assumptions	Savings based on individual projected reductions in energy consumption for the range of projects funded. Calculated on the basis of, for example, number of lights to be replaced, demand reduction through building fabric improvements etc.
	Overlaps, multiplication effect, synergy	Projects funded to date provide demonstration and development of techniques for energy savings in commercial and public buildings.

P.3.

Title of the Energy saving measure		Public Sector Building Demonstration Programme
Description	Category	2.7
	Timeframe	Completed 2009.
	Aim/brief description	The Public Sector Building Demonstration Programme offered financial support to public and commercial sector organisations to stimulate the innovative application of sustainable energy design strategies, technologies and services in new and retrofit projects, acting as both an exemplar for good practice and as a demand leader for the services and technologies involved
	Target end use	Public sector buildings
	Target group	Public sector
	Regional application	N/A
Information on Implementation	List and description of energy saving actions substantiating the measure	<p>Funding under Public Sector Building Demonstration Programme was provided for new and retrofit public sector buildings via three main elements.</p> <ul style="list-style-type: none"> • Design Support • Model Solutions Investment Support • Energy Management Bureau Services – support made available for outsourced energy management to monitor and report on energy control and management.
	Budget and financial resource	The programme was funded by DCENR through the SEAI.
	Implementing body	SEAI / DCENR
	Monitoring authority	SEAI / DCENR
Energy savings	Method for monitoring/measuring the resulting savings	Sustainable Energy Authority of Ireland (SEAI) was the body responsible for implementing the Public Sector Building Demonstration Programme.
	Savings achieved in 2012	Primary energy 140 GWh; final energy 84 GWh
	Expected energy savings in 2016	Primary energy 140 GWh; final energy 84 GWh
	Expected impact on energy savings in 2020	Primary energy 140 GWh; final energy 84 GWh
	Assumptions	Savings based on individual projected reductions in energy consumption for the range of projects funded. Calculated on the basis of, for example, number of lights to be replaced, demand reduction through building fabric improvements etc.
	Overlaps, multiplication effect, synergy	A consequent multiplication effect is the development of the capacity for energy efficient retrofit of public sector buildings.

P.4. & B.5.

Title of the Energy saving measure		CHP Deployment - Public and Business sectors
Description	Category	3.1
	Timeframe	2006 – 2011 The CHP Deployment programme ran from 2006 to 2011.
	Aim/brief description	The CHP Deployment programme provided grants for selected renewable and alternative heat sources and was designed to prime the market and to establish a supply chain.
	Target end use	Electricity and Heat Demand
	Target group	Public and Private Sector
	Regional application	N/A
Information on Implementation	List and description of energy saving actions substantiating the measure	The CHP Deployment programme provided grant aid towards the installation of small scale CHP, up to 1 MWe at sites with a suitable heat load. Applicants were required to submit a feasibility study demonstrating the suitability of the site.
	Budget and financial resource	The CHP deployment programme closed in May 2010. €4.8m was disseminated across the public and private sectors, representing around 25% of total installed costs for upgrades.
	Implementing body	SEAI
	Monitoring authority	SEAI
Energy savings	Method for monitoring/measuring the resulting savings	Sustainable Energy Authority of Ireland (SEAI), the body responsible for administering the grant scheme, collects and collates data on the funded installations. The energy saving is calculated based on the installed capacity of each technology, the aggregate efficiency and the aggregate efficiency of the displaced fossil fuel heat source. In the case of solar thermal the energy savings are calculated based on the installed capacity, the projected energy yield and the efficiency of the displaced gas or oil boiler.
	Savings achieved in 2012	Primary Energy: Public sector: 132 GWh, Commercial sector: 309 GWh
	Expected energy savings in 2016	Primary Energy: Public sector: 158 GWh, Commercial sector: 368 GWh
	Expected impact on energy savings in 2020	Primary Energy: Public sector: 183 GWh, Commercial sector: 428 GWh
	Assumptions	Key assumptions include: <ul style="list-style-type: none"> • Aggregate efficiency of displaced heat source • Aggregate efficiency or yield from CHP technology
	Overlaps, multiplication effect, synergy	The CHP programme acted as a demonstration and market priming programme which increased the capacity of the supply chain. As such there will be a multiplier effect through facilitating the wider deployment of these technologies.

P.5. & B.6.

Title of the Energy saving measure		Renewable Heat (ReHeat) Deployment Programme – Public and Business sectors.
Description	Category	3.1
	Timeframe	2007 – 2011 The ReHeat programme ran from 2008 to 2011.
	Aim/brief description	The ReHeat programme provided grants for selected renewable and alternative heat sources and was designed to prime the market and to establish a supply chain.
	Target end use	Heat demand in the private and public sectors
	Target group	Public and business sectors
	Regional application	N/A
Information on Implementation	List and description of energy saving actions substantiating the measure	The ReHeat programme provided grant aid towards the installation of renewable and alternative heating technologies in the tertiary sector. The eligible technologies were: <ul style="list-style-type: none"> • Biomass boilers • Solar thermal • Heat pumps <p>A full list of installations supported, including capacities, is available at http://www.seai.ie/grants/renewable_heat_deployment_programme/</p>
	Budget and financial resource	This programme closed in December 2010. Over €8m in funding was provided, representing around 25% of the costs of installed technologies.
	Implementing body	SEAI
	Monitoring authority	SEAI
Energy savings	Method for monitoring/measuring the resulting savings	Sustainable Energy Authority of Ireland (SEAI), the body responsible for administering the grant scheme, collects and collates data on the funded installations. The energy saving is calculated based on the installed capacity of each technology, the aggregate efficiency and the aggregate efficiency of the displaced fossil fuel heat source. In the case of solar thermal the energy savings are calculated based on the installed capacity, the projected energy yield and the efficiency of the displaced gas or oil boiler.
	Savings achieved in 2012	Primary Energy: Public sector: 123 GWh, Commercial sector: 88 GWh Final Energy: Public sector: 288 GWh, Commercial sector: 262 GWh
	Expected energy savings in 2016	Primary Energy: Public sector: 123 GWh, Commercial sector: 88 GWh Final Energy: Public sector: 288 GWh, Commercial sector: 262 GWh
	Expected impact on energy savings in 2020	Primary Energy: Public sector: 123 GWh, Commercial sector: 88 GWh Final Energy: Public sector: 288 GWh, Commercial sector: 262 GWh
	Assumptions	Key assumptions include: <ul style="list-style-type: none"> • Aggregate efficiency of displaced heat source • Aggregate efficiency or yield from ReHeat technology
	Overlaps, multiplication effect, synergy	The ReHeat programme acted as a demonstration and market priming programme which increased the capacity of the supply chain. As such there will be a multiplier effect through facilitating the wider deployment of these technologies.

P.6

Title of the Energy saving measure		Public transport efficiency
Description	Category	2.1, 2.7
	Timeframe	Start: 2009 End: Ongoing Major changes foreseen, improvements: N/A
	Aim/brief description	The aim of the measure is to promote efficiency in the public transport system including: <ul style="list-style-type: none"> Eco-driving in buses Efficiency in suburban electric rail Efficiency in national rail network
	Target end use	Public Transport
	Target group	Public Transport
	Regional application	N/A
	Information on Implementation	List and description of energy saving actions substantiating the measure
Budget and financial resource		N/A
Implementing body		Irish Rail, Bus Eireann, Dublin Bus
Monitoring authority		Irish Rail, Bus Eireann, Dublin Bus, SEAI
Energy savings	Method for monitoring/measuring the resulting savings	Periodic surveys and ongoing monitoring.
	Savings achieved in 2012	Primary energy 113 GWh; final energy 102 GWh
	Expected energy savings in 2016	Primary energy 158 GWh; final energy 144 GWh
	Expected impact on energy savings in 2020	Primary energy 158 GWh; final energy 144 GWh
	Assumptions	Energy savings are evaluated based on reported data from operators.
	Overlaps, multiplication effect, synergy	There is no potential for overlaps with other measures.

B.1.

Title of the Energy saving measure		Large Industry Programmes
Description	Category	4.1
	Timeframe	2000 - Ongoing
	Aim/brief description	The Large Industry Energy Network (LIEN) is a voluntary network, facilitated by SEAI, of companies working to maintain strong energy management and environmental protection practices. The Energy Agreements Programme is a subset of these companies implementing structured energy management.
	Target end use	Selected energy end uses in industry and SMEs
	Target group	industry and SMEs
	Regional application	N/A
Information on Implementation	List and description of energy saving actions substantiating the measure	Regular workshops, seminars and site visits enable LIEN members to learn from energy experts and other specialists, and share knowledge and experiences with other energy managers. Companies joining the LIEN commit to: <ul style="list-style-type: none"> • Developing an energy-management programme • Setting/reviewing energy targets • Undertaking an annual energy audit • Producing an annual statement-of-energy account
	Budget and financial resource	The programme is funded by SEAI .
	Implementing body	SEAI
Energy savings	Monitoring authority	SEAI
	Method for monitoring/measuring the resulting savings	Each of the member companies (160+) submits an annual statement of energy accounts to SEAI. These accounts are then collated, analysed and the energy savings are reported on in the LIEN annual report each year.
	Savings achieved in 2012	Primary energy 1,802 GWh; final energy 1,086 GWh
	Expected energy savings in 2016	Primary energy 2,235 GWh; final energy 1,347 GWh
	Expected impact on energy savings in 2020	Primary energy 2,727 GWh; final energy 1,643 GWh
	Assumptions	Energy intensity and output together with details of energy efficiency improvement measures (reported by participant companies) used to establish savings rate achieved with participant companies to date. Decomposition analysis undertaken of projections for total primary energy requirement of Irish industry and the proportion covered by participant companies. Paasche index developed to project future programmatic savings.
Overlaps, multiplication effect, synergy	There are no overlaps with other measures. The promotion and dissemination of best practice energy management in large industry (one component of the programme) has the potential to have a multiplier effect across industry and SMEs.	

B.2.

Title of the Energy saving measure		SME Programme
Description	Category	4.2
	Timeframe	2008 - Ongoing
	Aim/brief description	The programme aims to increase energy efficiency in SMEs through providing advice, mentoring and training to participating SMEs
	Target end use	Energy end use in SMEs
	Target group	SMEs
	Regional application	N/A
Information on Implementation	List and description of energy saving actions substantiating the measure	<p>SMEs that participate in the programme receive targeted supports to improve energy efficiency including:</p> <ul style="list-style-type: none"> • Advice and mentoring from a specialist including a site assessment for companies with a significant energy spend • Training in energy management for groups of SMEs • Online energy management tools <p>Participating companies are required to commit to engaging with an energy advisor, to providing information on energy use, implementing saving opportunities and reporting on savings.</p>
	Budget and financial resource	The programme is funded and managed by SEAI.
	Implementing body	SEAI
	Monitoring authority	SEAI
Energy savings	Method for monitoring/measuring the resulting savings	Participating companies report on energy savings via their SEAI appointed energy advisor. These reports are collated and analysed to monitor savings.
	Savings achieved in 2012	Primary energy 270 GWh; final energy 167 GWh
	Expected energy savings in 2016	Primary energy 404 GWh; final energy 250 GWh
	Expected impact on energy savings in 2020	Primary energy 511 GWh; final energy 316 GWh
	Assumptions	Savings per company estimated by SEAI appointed energy advisors based on historic billing analysis, identification of energy savings opportunities (energy assessment) and savings realised after a three month period. Estimated extrapolated for annual savings based on improvements committed to in the first year following programme interaction.
	Overlaps, multiplication effect, synergy	There are no overlaps with other measures. The promotion and dissemination of best practice energy management in SMEs has the potential to have a multiplier effect across industry and SMEs.

P.7 and B.7

Title of the Energy saving measure		Better Energy Workplaces – Public and Business sectors
Description	Category	Grant support for exemplar projects.
	Timeframe	2011-2012; Programme closed
	Aim/brief description	Stimulating energy-saving actions in the business and public sectors.
	Target end use	All end-uses
	Target group	Business and public sectors
	Regional application	N/A
Information on Implementation	List and description of energy saving actions substantiating the measure	Support was available for sustainable energy upgrades to buildings, services, facilities and processes, involving investment actions comprising individual or packaged measures, aimed at achieving ongoing and lasting energy savings. Projects entailing upgrades to thermal, electrical or transport energy performance are all considered eligible. In addition the wider programme helps businesses and the public sector to improve their energy efficiency and competitiveness through networking, training and advisory programmes and integration of energy management into workplaces.
	Budget and financial resource	€11m (2011) & €13m (2012).
	Implementing body	SEAI oversees consultants and contractor companies in the market delivering the energy efficiency savings
	Monitoring authority	SEAI
Energy savings	Method for monitoring/measuring the resulting savings	All projects receiving grant aid must on completion of the works and following one year of operation in the case of buildings, or of 3 months operation in the case of facilities or processes, provide monitored results to SEAI for verification and dissemination purposes. In addition both the networks and advisory programmes monitor and measure energy savings accruing from activities carried out.
	Savings achieved in 2012	Primary energy 511 GWh; final energy 332 GWh
	Expected energy savings in 2016	Primary energy 511 GWh; final energy 332 GWh
	Expected impact on energy savings in 2020	Primary energy 511 GWh; final energy 332 GWh
	Assumptions	Savings based on individual projected reductions in energy consumption for the range of projects funded. Calculated on the basis of, for example, number of lights to be replaced, demand reduction through building fabric improvements etc.
	Overlaps, multiplication effect, synergy	Adjustments will be made to eliminate potential double counting with the public sector programme (P.1.)

P.8.

Title of the Energy saving measure		Public Sector Retrofit (Including SEAI Public Sector Programme)
Description	Category	2.7
	Timeframe	2011 – Ongoing
	Aim/brief description	The programme aims to increase energy efficiency by providing a range of funded services including advice, mentoring and training to participating Public Sector bodies.
	Target end use	All energy end uses in the public sector
	Target group	Public sector
	Regional application	N/A
Information on Implementation	List and description of energy saving actions substantiating the measure	<p>Public Sector Programme: Public sector organisations who demonstrate commitment to energy efficiency can avail of energy management training and support for exemplary design and energy management practices. Types of supports range from visits to individual sites to advanced supports for whole organisations who commit to a 3% annual energy saving. Advanced supports include: Dedicated energy advisor; Strategic energy planning; Prioritisation of energy efficiency opportunities; Coordination of energy efficiency activities; Detailed & in-depth assessments; Advanced & targeted training; Working group facilitation; Energy Efficient Design; Monitoring of progress and savings.</p> <p>Energy Supplier Obligation: In accordance with Article 7, Ireland will implement an Energy Supplier Obligation with an annual target currently set at 550GWh per annum. A portion of these savings will be achieved in the public sector.</p> <p>Energy Efficiency Fund: The Irish Government has committed €35 million as seed capital for investment in an Energy Efficiency Fund. This has been matched with investment from the private sector and a fund of €70 million has been established. The fund will enhance the level of finance available in the market to support the clear opportunity that exists in the public and commercial sectors.</p> <p>National Energy Services Framework (NESF): SEAI will provide supports to develop the contractual arrangements and mechanisms to promote the use of the fund via innovative finance arrangements including energy performance contracts (via ESCOs) and via direct lending to client companies.</p>
	Budget and financial resource	The Public Sector Programme is funded by the DCENR through the SEAI.
	Implementing body	SEAI / DCENR
	Monitoring authority	SEAI / DCENR
Energy savings	Method for monitoring/measuring the resulting savings	Sustainable Energy Authority of Ireland (SEAI) calculates savings based on on-going programme monitoring. In 2014, a new monitoring and reporting system will be established, collecting electricity (and gas) meter data from 40,000 meters.
	Savings achieved in 2012	160 GWh primary energy; 104 GWh final energy
	Expected energy	1,300 GWh primary energy; 845 GWh final energy

Title of the Energy saving measure		Public Sector Retrofit (Including SEAI Public Sector Programme)
	savings in 2016	
	Expected impact on energy savings in 2020	2,500 GWh primary energy; 1,625 GWh final energy
	Assumptions	Future savings for the public sector retrofit package of measures is approximately equivalent to the gap to the public sector target (3,240 GWh) for 2020 after other public sector actions taken in to account. Savings achieved will be measured via M&R system.
	Overlaps, multiplication effect, synergy	The saving estimate for this programme represents the residual of the public sector 33% target after savings from current and completed measures in the public sector are taken into account.

B. 8.

Title of the Energy saving measure		Commercial/Industry Sector Retrofit
Description	Category	Combination of advice, subsidies and obligation scheme
	Timeframe	2014 - 2020
	Aim/brief description	Stimulating energy-saving actions in the business (commercial and industrial) sectors.
	Target end use	All end-uses
	Target group	Business and public sectors
	Regional application	N/A
Information on Implementation	List and description of energy saving actions substantiating the measure	<p>Energy Supplier Obligation: In accordance with Article 7, Ireland will implement an Energy Supplier Obligation with an annual target currently set at 550GWh per annum. A portion of these savings will be achieved in the commercial/industrial sector.</p> <p>Energy Efficiency Fund: The Irish Government has committed €35 million as seed capital for investment in an Energy Efficiency Fund. This has been matched with investment from the private sector and a fund of €70 million has been established. The fund will enhance the level of finance available in the market to support the clear opportunity that exists in the public and commercial sectors.</p> <p>National Energy Services Framework (NESF): SEAI will provide supports to develop the contractual arrangements and mechanisms to promote the use of the fund via innovative finance arrangements including energy performance contracts (via ESCOs) and via direct lending to client companies.</p>
	Budget and financial resource	Fund of €70m plus support funding for the NESF.
	Implementing body	SEAI/DCENR
	Monitoring authority	SEAI/DCENR
Energy savings	Method for monitoring/measuring the resulting savings	The impact of the fund will be monitored on a project by project basis and saving initially estimated at the application stage with M&V to follow as the fund rolls out.
	Savings achieved in 2012	n/a
	Expected energy savings in 2016	Primary energy 1,000 GWh; final energy 650 GWh
	Expected impact on energy savings in 2020	Primary energy 2,500GWh; final energy 1,625GWh
	Assumptions	<p>Expected energy savings based on stated Government commitment to achieve a total of 8,000 GWh from retrofit of both domestic and non-domestic buildings and services.</p> <p>Business sector retrofit will notionally represent approx. 60% of the total effort, with the remainder expected in the residential sector (Refer measures under BL. 13.)</p>
	Overlaps, multiplication effect, synergy	Adjustments will be made to eliminate potential double counting with the public sector programme (P.1.)

Measures in the buildings sector

No.	Title of the energy saving measure	End-use targeted	Duration	Energy savings (GWh, PEE)			CO ₂ savings (kt CO ₂)		
				2012 (achieved)	2016 (expected)	2020 (expected)	2012 (achieved)	2016 (expected)	2020 (expected)
BL.1.	2002 Building Regulations -Dwellings	New domestic buildings	31 st January 2003 to 1st July 2008	1,294	1,294	1,294	316	316	316
BL.2.	2008 Building Regulations -Dwellings	New domestic buildings	1 st July 2008 to July 2011	215	546	1,100	53	133	268
BL.3.	2011 Building Regulations -Dwellings	New domestic buildings	July 2011 to 2016	6	164	441	2	40	108
BL.4.	Building Regulations - Nearly Zero Energy Dwellings	New domestic buildings	2016 to 2020	0	9	138	0	2	34
BL.5.	2005 Building Regulations - Buildings other than dwellings	New commercial buildings	2005 - 2013	209	250	250	50	60	60
BL.6.	2012 Building Regulations - Buildings other than dwellings	New commercial buildings	2014 onwards	0	146	518	0	35	123
BL.7.	Energy efficient boiler regulation	Domestic buildings	1 st July 2008 onwards	400	800	1,200	98	195	293
BL.8.	Domestic Lighting (Eco-Design Directive)	Domestic lighting	2009 onwards	533	1,200	1,200	126	259	242
BL.9.	Greener Homes Scheme (GHS)	Upgrades in Residential fuel poor domestic sector.	March 2006 – 2011 (complete)	119	119	119	28	28	28
BL.10.	Better Energy Warmer Homes Scheme (WHS)	Heating and hot water in vulnerable	2000 – 2011	130	130	130	33	33	33

No.	Title of the energy saving measure	End-use targeted	Duration	Energy savings (GWh, PEE)			CO ₂ savings (kt CO ₂)		
				2012 (achieved)	2016 (expected)	2020 (expected)	2012 (achieved)	2016 (expected)	2020 (expected)
		homes	(complete)						
BL.11.	Home Energy Savings (HES) scheme	Existing domestic sector	2008 – 2011 (complete)	365	365	365	90	90	90
BL.12.	Smart Meter roll-out	All domestic dwellings	2016 - 2020	0	373	624	0	80	126
BL.13	Residential retrofit	Existing dwellings	2011 - ongoing	507	1,500	3,000	126	370	738
	Sector totals			3,778	6,896	10,379	922	1,641	2,459

BL.1.

Title of the Energy saving measure		2002 Building Regulations - Part L Conservation of Fuel and Energy in Dwellings
Description	Category	1.1
	Timeframe	Start: 1 st January 2003 End: 1 st July 2008 Major changes foreseen, improvements: The 2002 Part L Building Regulations was the first in a series of incrementally improved efficiency standards which is now moving towards low to zero carbon housing.
	Aim/brief description	The measure imposes minimum efficiency standards for new dwellings
	Target end use	Domestic energy use
	Target group	General population
	Regional application	N/A
	Information on Implementation	List and description of energy saving actions substantiating the measure
Budget and financial resource		The measure is a regulated minimum standard and has no direct budgetary or resource requirements costs.
Implementing body		Department of Environment, Community and Local Government
Monitoring authority		Department of Environment, Community and Local Government
Energy savings	Method for monitoring/measuring the resulting savings	Energy savings are evaluated and predicted based on a bottom up model of the housing stock, specific energy consumption and new build activity. Ex post savings have been monitored by populating the model with statistical activity data on new housing completions (Department of the Environment, CSO) The model uses the aggregate efficiency of new dwellings built to 2002 Building regulation standards as the reference specific energy consumption and pre 2002 buildings have a higher SEC (122%).
	Savings achieved in 2012	Primary energy 1,294 GWh; final energy 1,177 GWh
	Expected energy savings in 2016	Primary energy 1,294 GWh; final energy 1,177 GWh
	Expected impact on energy savings in 2020	Primary energy 1,294 GWh; final energy 1,177 GWh
	Assumptions	Key assumptions/statistics informing the monitored and projected savings are: <ul style="list-style-type: none"> • Specific Energy Consumption (SEC) of the reference (pre 2002) housing stock • SEC of new dwellings (kWh/m²/yr) • Dwelling type and floor area of new dwellings • Number of new dwellings per annum (2009: 20,000, 2010: 12,500, 2011 – 2015: 30,450, 2016 – 2020: 38,200) (Source, ESRI).

Title of the Energy saving measure		2002 Building Regulations - Part L Conservation of Fuel and Energy in Dwellings
	Overlaps, multiplication effect, synergy	<p>There is potential for double counting of savings attained through incrementally improving building standards that target energy efficiency in new housing.</p> <p>To avoid this, the energy savings from each measure (i.e. new building regulations) are calculated incrementally in the model so that the savings attributable to each regulation are calculated on the basis of the reduction in aggregate specific energy consumption with respect to the previous regulation.</p>

BL.2.

Title of the Energy saving measure		2008 Building Regulations Part L Conservation of Fuel and Energy in Dwellings
Description	Category	1.1
	Timeframe	Start: 1 st July 2008 End: 30 st November 2011 Major changes foreseen, improvements: The 2008 Part L Building Regulations for Dwellings were one of a series of incrementally improved efficiency standards which is now moving towards low to zero carbon housing.
	Aim/brief description	The measure imposes minimum efficiency standards for new dwellings This measure is also eligible for EPBD reporting.
	Target end use	Domestic energy use
	Target group	General population
	Regional application	N/A
	Information on Implementation	List and description of energy saving actions substantiating the measure
Budget and financial resource		The measure is a regulated minimum standard and has no direct budgetary or financial resource requirement.
Implementing body		Department of Environment, Community and Local Government
Monitoring authority		Department of Environment, Community and Local Government
Energy savings	Method for monitoring/measuring the resulting savings	Energy savings are evaluated and predicted based on a bottom up model of the housing stock, specific energy consumption and new build activity. Future savings are based projections new build rates based on projections of key economic indicators (population, demographic profiles, GDP). Ex post savings are being monitored by populating the model with statistical activity data on new housing completions (Department of the Environment, CSO) The model uses the aggregate efficiency of new dwellings built to 2002 Building Regulation standards as the reference specific energy consumption. The 2008 Building regulations require a 40% improvement in these as calculated by the Dwelling Energy Assessment Procedure.
	Savings achieved in 2012	Primary energy 215 GWh; final energy 196 GWh
	Expected energy savings in 2016	Primary energy 546 GWh; final energy 496 GWh
	Expected impact on energy savings in 2020	Primary energy 1,100 GWh; final energy 1,000 GWh

Title of the Energy saving measure		2008 Building Regulations Part L Conservation of Fuel and Energy in Dwellings
	Assumptions	<p>Key assumptions/statistics informing the monitored and projected savings are:</p> <ul style="list-style-type: none"> • Specific Energy Consumption (SEC) of the reference (2002-2008) housing stock • SEC of new dwellings (kWh/m²/yr) • Dwelling type and floor area of new dwellings • Number of new dwellings per annum (2009: 20,000, 2010: 12,500, 2011 – 2015: 30,450, 2016 – 2020: 38,200) (Source, ESRI).
	Overlaps, multiplication effect, synergy	<p>There is potential for double counting of savings attained through incrementally improving building standards that target energy efficiency in new housing.</p> <p>The energy savings from each measure (i.e. new building regulations) are calculated incrementally in the model so that the savings attributable to each regulation are calculated on the basis of the reduction in aggregate specific energy consumption with respect to the previous regulation.</p>

BL.3.

Title of the Energy saving measure		2011 Part L Conservation of Fuel and Energy in Dwellings
Description	Category	1.1
	Timeframe	Start: 1 st December 2011 End: Ongoing Major changes foreseen, improvements: The 2011 Part L Building Regulations for dwellings are one of a series of incrementally improved efficiency standards which is moving towards low to zero carbon housing.
	Aim/brief description	The measure imposes minimum efficiency standards for new dwellings
	Target end use	Domestic energy use
	Target group	General population
	Regional application	N/A
Information on Implementation	List and description of energy saving actions substantiating the measure	The 2011 Part L Building Regulations improve minimum standards set in previous regulations: <ul style="list-style-type: none"> • Insulation levels in building fabric • Ventilation and air infiltration • Thermal bridging reduction • Heating and hot water system controls • Insulation of hot water storage vessels, pipes and ducts In addition a minimum overall performance is set on the Specific Energy Consumption, defined in the regulations as the Energy Performance Co-efficient (EPC) and Carbon Performance Coefficient (CPC). The maximum EPC is set as a 60% improvement on equivalent dwelling built to 2002 Regulations.
	Budget and financial resource	The measure is a regulated minimum standard and has no direct budgetary or financial resource requirement.
	Implementing body	Department of Environment, Community and Local Government
	Monitoring authority	Department of Environment, Community and Local Government
Energy savings	Method for monitoring/measuring the resulting savings	Energy savings are evaluated and predicted based on a bottom up model of the housing stock, specific energy consumption and new build activity. Future savings are based projections new build rates based on projections of key economic indicators (population, demographic profiles, GDP). Ex post savings will be monitored by populating the model with statistical activity data on new housing completions (Department of the Environment, CSO) The model uses the aggregate efficiency of new dwellings built to 2002 Building Regulation standards as the reference specific energy consumption. The proposed 2011 Part L Building regulations will require a 60% improvement in these as calculated by the Dwelling Energy Assessment Procedure. This measure is also eligible for EPBD reporting.
	Savings achieved in 2012	Primary energy 6 GWh; final energy 6 GWh
	Expected energy savings in 2016	Primary energy 164 GWh; final energy 149 GWh
	Expected impact on energy savings in 2020	Primary energy 441 GWh; final energy 401 GWh
	Assumptions	Key assumptions/statistics informing the monitored and projected savings are:

Title of the Energy saving measure		2011 Part L Conservation of Fuel and Energy in Dwellings
		<ul style="list-style-type: none"> • Specific Energy Consumption (SEC) of the reference (2002-2008) housing stock • SEC of new dwellings (kWh/m²/yr) built to 2010 Building Regulations • Building type and floor area of new dwellings • Number of new dwellings per annum (2009: 20,000, 2010: 12,500, 2011 – 2015: 30,450, 2016 – 2020: 38,200) (Source, ESRI).
	Overlaps, multiplication effect, synergy	There is potential for double counting of savings attained through incrementally improving building standards that target energy efficiency in new housing. The energy savings from each measure (i.e. new building regulations) are calculated incrementally in the model so that the savings attributable to each regulation are calculated on the basis of the reduction in aggregate specific energy consumption with respect to the previous regulation.

BL.4.

Title of the Energy saving measure		Building Regulations - Nearly Zero Energy Dwellings
Description	Category	1.1
	Timeframe	Start: 2016 (assumed) End: N/A Major changes foreseen, improvements: The planned 'Nearly Zero Energy Dwellings - Domestic Building Regulations' revision will occur in accordance with the re-cast EPBD in or around 2016. It is the last of a planned series of incrementally improved efficiency standards and will reflect near zero carbon and energy housing before 2020.
	Aim/brief description	The planned measure will impose minimum efficiency standards for new dwellings
	Target end use	Domestic energy use
	Target group	General population
	Regional application	N/A
Information on Implementation	List and description of energy saving actions substantiating the measure	The Nearly Zero Energy Dwellings – Part L Building Regulations are planned to improve minimum standards set in previous regulations: <ul style="list-style-type: none"> • Insulation levels in building fabric • Ventilation and air infiltration • Thermal bridging reduction • Heating and hot water system controls • Insulation of hot water storage vessels, pipes and ducts In addition a minimum overall performance will be set on the Energy Performance Co-efficient (EPC) and Carbon Performance Coefficient (CPC). The maximum EPC will be set as a 70% improvement on and equivalent dwelling built to 2002 Regulations.
	Budget and financial resource	The measure is a regulated minimum standard and has no direct budgetary or financial resource requirement.
	Implementing body	Department of Environment, Community and Local Government
	Monitoring authority	Department of Environment, Community and Local Government
Energy savings	Method for monitoring/measuring the resulting savings	Energy savings are evaluated and predicted based on a bottom up model of the housing stock, specific energy consumption and new build activity. Future savings are based projections new build rates based on projections of key economic indicators (population, demographic profiles, GDP). Ex post savings will be monitored by populating the model with statistical activity data on new housing completions (Department of the Environment, CSO) It should be noted that the model uses the aggregate efficiency of new dwellings built to 2002 Part L Building Regulation standards as the reference specific energy consumption. This revision will require a 70% improvement in these as calculated by the Dwelling Energy Assessment Procedure. This measure is also eligible for EPBD reporting.
	Savings achieved in 2012	N/A
	Expected energy savings in 2016	Primary energy 9 GWh; final energy 8 GWh
	Expected impact on energy savings in 2020	Primary energy 138 GWh; final energy 126 GWh

Title of the Energy saving measure		Building Regulations - Nearly Zero Energy Dwellings
	Assumptions	<p>Key assumptions/statistics informing the monitored and projected savings are:</p> <ul style="list-style-type: none"> • Specific Energy Consumption (SEC) of the reference (2002-2008) housing stock • SEC of new dwellings (kWh/m²/yr) built to 2013 Building Regulations • Nature and floor area of new dwellings • Number of new dwellings per annum (2009: 20,000, 2010: 12,500, 2011 – 2015: 30,450, 2016 – 2020: 38,200) (Source, ESRI).
	Overlaps, multiplication effect, synergy	<p>There is potential for double counting of savings attained through incrementally improving building standards that target energy efficiency in new housing. The energy savings from each measure (i.e. new building regulations) are calculated incrementally in the model so that the savings attributable to each regulation are calculated on the basis of the reduction in aggregate specific energy consumption with respect to the previous regulation.</p>

BL.5.

Title of the Energy saving measure		2005 Building Regulations Part L Conservation of Fuel and Energy – Buildings other than dwellings
Description	Category	1.1
	Timeframe	Start: 2005 End: 2014 Major changes foreseen, improvements: N/A
	Aim/brief description	The planned measure will impose minimum efficiency standards for new Buildings other than Dwellings
	Target end use	Energy use in the tertiary sector
	Target group	Tertiary sector buildings
	Regional application	N/A
Information on Implementation	List and description of energy saving actions substantiating the measure	The 2005 Building Regulations revision for Buildings other than dwellings improved minimum standards set in previous regulations: <ul style="list-style-type: none"> • Insulation levels in building fabric • Ventilation and air infiltration • Avoidance of excessive solar gain • Thermal bridging reduction • Heating plant efficiency and control • Air-conditioning plant efficiency • Insulation of hot water storage vessels, pipes and ducts
	Budget and financial resource	The measure is a regulated minimum standard and has no direct budgetary or financial resource requirement.
	Implementing body	Department of Environment, Community and Local Government
	Monitoring authority	Department of Environment, Community and Local Government
Energy savings	Method for monitoring/measuring the resulting savings	Energy savings are predicted and evaluated based on a top down model of energy use in the tertiary sector based on projections of key economic indicators. Increases in projected energy use are then ascribed to new buildings and the savings predicted based on a 30% reduction in the specific energy consumption. This measure is also eligible for EPBD reporting.
	Savings achieved in 2012	Primary energy 209 GWh; final energy 168 GWh
	Expected energy savings in 2016	Primary energy 250 GWh; final energy 203 GWh
	Expected impact on energy savings in 2020	Primary energy 250 GWh; final energy 203 GWh
	Assumptions	Key assumptions/statistics informing the monitored and projected savings are: <ul style="list-style-type: none"> • Specific Energy Consumption of post 2005 regulation buildings compared to previous regulations • Proportion of tertiary energy use impacted by regulations.
	Overlaps, multiplication effect, synergy	There are no overlaps with this measure.

BL.6.

Title of the Energy saving measure		2015 Part L Conservation of Fuel and Energy - Buildings other than dwellings
Description	Category	1.1
	Timeframe	Start: 2016 End: N/A Major changes foreseen, improvements: N/A
	Aim/brief description	The planned measure will impose minimum efficiency standards for new buildings other than dwellings
	Target end use	Energy use in the tertiary sector
	Target group	Tertiary sector buildings
	Regional application	N/A
Information on Implementation	List and description of energy saving actions substantiating the measure	The 2015 Building Regulations revision for Buildings other than dwellings are planned to improve minimum standards set in previous regulations (2005): <ul style="list-style-type: none"> • Insulation levels in building fabric • Ventilation and air infiltration • Avoidance of excessive solar gain • Thermal bridging reduction • Heating plant efficiency and control • Air-conditioning plant efficiency • Insulation of hot water storage vessels, pipes and ducts In addition a minimum overall performance will be set on the Energy Performance Co-efficient (EPC) and Carbon Performance Coefficient (CPC). The maximum EPC will be set at a 40% improvement on an equivalent building built to 2008 Regulations.
	Budget and financial resource	The measure is a regulated minimum standard and has no direct budgetary or financial resource requirement.
	Implementing body	Department of Environment, Community and Local Government
	Monitoring authority	Department of Environment, Community and Local Government
Energy savings	Method for monitoring/measuring the resulting savings	Energy savings are predicted and evaluated based on a top down model of energy use in the tertiary sector based on projections of key economic indicators. Increases in projected energy use are then ascribed to new buildings and the savings predicted based on a 30% reduction in the specific energy consumption. This measure is also eligible for EPBD reporting.
	Savings achieved in 2012	N/A
	Expected energy savings in 2016	Primary energy 146 GWh; final energy 118 GWh
	Expected impact on energy savings in 2020	Primary energy 518 GWh; final energy 418 GWh
	Assumptions	Key assumptions/statistics informing the monitored and projected savings are: <ul style="list-style-type: none"> • Specific Energy Consumption of post 2015 regulation buildings compared to existing regulations • Proportion of tertiary energy use impacted by regulations.
	Overlaps, multiplication effect, synergy	There are no overlaps with this measure.

BL.7.

Title of the Energy saving measure		Energy Efficient Boiler Regulation
Description	Category	1.1
	Timeframe	Start: 1 st July 2008 End: N/A Major changes foreseen, improvements: As new boilers and heat producing appliances emerge and as EU regulations on energy efficiency for domestic heating appliances develop (for example through the Energy Related Products Directive) the efficiency standard will be reviewed.
	Aim/brief description	The measure set a minimum seasonal efficiency of 86% for boilers installed in existing or new dwellings from 2008 and 90% from 2011.
	Target end use	Energy use in the domestic sector
	Target group	Domestic buildings
	Regional application	N/A
	Information on Implementation	List and description of energy saving actions substantiating the measure
Budget and financial resource		The measure is a regulated minimum standard and has no direct budgetary or financial resource requirement.
Implementing body		Department of Environment, Community and Local Government
Monitoring authority		Department of Environment, Community and Local Government
Energy savings	Method for monitoring/measuring the resulting savings	Energy savings are predicted bottom up model of energy use domestic boilers and an assumed replacement rate (based on a 25 year lifetime) of existing boilers. This measure is also eligible for EPBD reporting.
	Savings achieved in 2012	Primary energy 400 GWh; final energy 364 GWh
	Expected energy savings in 2016	Primary energy 800 GWh; final energy 727 GWh
	Expected impact on energy savings in 2020	Primary energy 1,200 GWh; final energy 1,091 GWh
	Assumptions	Key assumptions/statistics informing the monitored and projected savings are: <ul style="list-style-type: none"> • Replacement rate of boilers in existing (pre 2008) dwellings • Aggregate efficiency of boilers in existing (pre 2008) dwellings • Assumed efficiency of replacement boilers
	Overlaps, multiplication effect, synergy	Boiler efficiency affects the specific energy consumption (Energy Performance Coefficient) calculated for new dwellings under the 2008 building regulations. The impact of the minimum efficiency requirement for boilers in existing (pre 2008) housing stock is evaluated separately. There is a potential for overlap with the Home Energy saving scheme and with the retrofit programme. The boiler replacement rate outside of these measures has been reduced to account for and allow for this.

BL.8.

Title of the Energy saving measure		Domestic Lighting (Eco-Design Directive)
Description	Category	1.2
	Timeframe	Start: 1 st July 2008 End: N/A Major changes foreseen, improvements: N/A
	Aim/brief description	The measure is a phasing out of incandescent lights through the Energy related Products Directive (2009/125/EC) and Commission Regulation (EC) No 244/2009.
	Target end use	Energy use in domestic lighting
	Target group	Domestic buildings
	Regional application	N/A
Information on Implementation	List and description of energy saving actions substantiating the measure	Commission Regulation (EC) No 244/2009 of 18 March 2009 implements Directive 2005/32/EC (superseded by Directive 2009/125/EC)with regard to eco-design requirements for non-directional household lamps. The regulation provides for the phased introduction of minimum efficiency standards for lamps and effectively phases out incandescent lamps.
	Budget and financial resource	The measure is a regulated minimum standard and has no direct budgetary or financial resource requirement.
	Implementing body	Department of Enterprise Trade and Innovation
	Monitoring authority	Department of Enterprise Trade and Innovation
Energy savings	Method for monitoring/measuring the resulting savings	A bottom up model of the housing stock, lighting requirements by room and by lamp rating was developed. The aggregate savings are 45 kWh/yr per lamp replaced based on aggregate savings of 55W and 830 operating hours per annum.
	Savings achieved in 2012	Primary energy 533 GWh; final energy 213 GWh
	Expected energy savings in 2016	Primary energy 1,200 GWh; final energy 480 GWh
	Expected impact on energy savings in 2020	Primary energy 1,200 GWh; final energy 480 GWh
	Assumptions	Key assumptions/statistics informing the monitored and projected savings are: <ul style="list-style-type: none"> Existing deployment rate of energy efficient lighting (CFLs) in dwellings Number of fixtures per (average) dwelling Run-time per fitting Number of dwellings moving to full use of CFLs or energy efficient alternative before 2016.
	Overlaps, multiplication effect, synergy	Lighting affects the specific energy consumption (Energy Performance Coefficient) calculated for new dwellings under the 2008 and subsequent building regulations. The impact of the improved efficiency of lighting in existing (pre 2008) housing stock is evaluated separately.

BL.9.

Title of the Energy saving measure		Greener Homes Scheme (GHS)
Description	Category	3.1
	Timeframe	Start: 2006 End: 2011 The Greener Homes scheme was subsumed into the residential retrofit programme, launched as 'Better Energy' in May 2011.
	Aim/brief description	The measure provided grant aid for the installation of renewable domestic heating systems.
	Target end use	Energy use for domestic heating and hot water
	Target group	Domestic buildings
	Regional application	N/A
Information on Implementation	List and description of energy saving actions substantiating the measure	Grant assistance is provided towards the purchase of certain energy efficient and renewable energy heating appliances for the domestic sector. These are: <ul style="list-style-type: none"> • Heat pumps (ground source, air source and water source) • Biomass boilers (wood pellet boilers, wood pellet stoves, wood pellet stoves with integral boiler and gasification boilers) • Solar thermal systems A list of qualifying products that meet the requirements of relevant EN standards and defined performance characteristics was developed. Similarly a list of registered installers who had received appropriate training and demonstrated competency was developed.
	Budget and financial resource	Over €70 million in grants paid to end-2010. Leveraging over €160 million from the private sector.
	Implementing body	Sustainable Energy Authority of Ireland
	Monitoring authority	Sustainable Energy Authority of Ireland
Energy savings	Method for monitoring/measuring the resulting savings	As the grant scheme is administered by SEAI, full statistics on the systems installed under the scheme are recorded and are used to calculate the energy and CO ₂ savings achieved. The savings are calculated as the difference in primary energy use and CO ₂ emissions for the GHS technology and those for a standard boiler and open fire.
	Savings achieved in 2012	Primary energy 119 GWh; final energy 96 GWh
	Expected energy savings in 2016	Primary energy 119 GWh; final energy 96 GWh
	Expected impact on energy savings in 2020	Primary energy 119 GWh; final energy 96 GWh
	Assumptions	Key assumptions/statistics informing the monitored and projected savings are: <ul style="list-style-type: none"> • Useful heat demand and breakdown • Efficiency of displaced technologies (fossil fuelled boilers and open fires) • Efficiency of new technologies

Title of the Energy saving measure	Greener Homes Scheme (GHS)
Overlaps, multiplication effect, synergy	<p>The GHS was limited to existing dwellings once new building regulations were enacted, and there is therefore no potential overlap with measures to promote renewables in new buildings.</p> <p>The GHS was instrumental in developing the supply and installer base for these technologies and enabling the Building Regulations to be revised and has a consequent multiplier effect.</p> <p>There is some potential for overlap with measures to promote energy efficient refurbishment of existing homes but the incidence of households availing of both energy efficient refurbishment and alternative space heating technologies is small and considered negligible.</p>

BL.10.

Title of the Energy saving measure		Better Energy Warmer Homes Scheme (WHS)
Description	Category	3.1
	Timeframe	Start: 2000 End: N/A Major changes foreseen, improvements: The Warmer Homes scheme was incorporated in to the residential retrofit scheme, launched as 'Better Energy' in May 2011.
	Aim/brief description	The measure targets vulnerable and fuel poor homes and provides funding for the installation of domestic energy efficiency upgrades via regional not-for-profit organisations and private contractors.
	Target end use	Energy use for domestic heating and hot water
	Target group	Domestic buildings
	Regional application	N/A
Information on Implementation	List and description of energy saving actions substantiating the measure	Energy efficiency improvement measures include: <ul style="list-style-type: none"> • attic insulation, • draught proofing, • lagging jackets, • energy efficient lighting, • cavity wall insulation, and • energy advice.
	Budget and financial resource	The measure is funded by SEAI via regional not for profit organisations and private contractors.
	Implementing body	Sustainable Energy Authority of Ireland via regional not for profit organisations.
	Monitoring authority	Sustainable Energy Authority of Ireland
Energy savings	Method for monitoring/measuring the resulting savings	As the scheme is administered by SEAI, statistics on the measures implemented and number of homes covered are collected and analysed. The savings are calculated as the aggregate Unitary Final Energy Saving per household
	Savings achieved in 2012	Primary energy 130 GWh; final energy 111 GWh
	Expected energy savings in 2016	Primary energy 130 GWh; final energy 111 GWh
	Expected impact on energy savings in 2020	Primary energy 130 GWh; final energy 111 GWh
	Assumptions	Key assumptions/statistics informing the monitored and projected savings are: <ul style="list-style-type: none"> • Unitary final energy savings per dwelling based on estimated demand reduction from a typical measure package (from list of measures above) installed in a representative low income household • High level of comfort uptake/rebound effect associated with low income households (estimated at 70%)
	Overlaps, multiplication effect, synergy	The WHS is limited to low income households and there is no potential overlap with measures to promote efficiency in new buildings.

BL.11.

Title of the Energy saving measure		Home Energy Saving (HES) scheme
Description	Category	3.1
	Timeframe	Start: 2008 End: 2011 The Home Energy Savings scheme was incorporated in to the residential retrofit scheme, launched as 'Better Energy Homes' in May 2011, together with the Greener Homes and Warmer Homes Schemes.
	Aim/brief description	The measure provides funding for the installation of approved building fabric and energy efficient heating system upgrades in existing dwellings.
	Target end use	Energy use for domestic heating and hot water
	Target group	Domestic buildings
	Regional application	N/A
Information on Implementation	List and description of energy saving actions substantiating the measure	The HES programme provided for grant-aid of up to 40% of the typical cost of energy efficiency upgrade measures, varying depending on the measure concerned. Grant funding for energy efficiency improvement measures included: <ul style="list-style-type: none"> • Cavity Wall Insulation • Internal Dry-Lining • External Wall Insulation • Heating Controls Upgrade • Heating controls upgrade plus high efficiency boiler (>90%) • Heating controls upgrade plus high efficiency boiler (>90%) • Roof/Attic Insulation
	Budget and financial resource	Over €60 million in grants paid to end-2010. Leveraging over €140 million from the private sector.
	Implementing body	Sustainable Energy Authority of Ireland.
	Monitoring authority	Sustainable Energy Authority of Ireland
Energy savings	Method for monitoring/measuring the resulting savings	As the grant scheme is administered by SEAI, full statistics on the measures installed under the scheme are recorded and are used to calculate the energy and CO ₂ savings achieved. Estimated savings are based on efficiency improvements resulting from the installation of approved building fabric and heating system upgrades in existing dwellings.
	Savings achieved in 2012	Primary energy 365 GWh; final energy 312 GWh
	Expected energy savings in 2016	Primary energy 365 GWh; final energy 312 GWh
	Expected impact on energy savings in 2020	Primary energy 365 GWh; final energy 312 GWh
	Assumptions	Unitary final energy savings per dwelling based on modelled demand reduction from installed measures (actual) since programme inception. Savings per-measure and per-dwelling type calculated using Ireland's Dwelling Energy Assessment Procedure (DEAP) software tool (as used to produce Building Energy Rating certification). Number of households upgraded and measures installed captured during programme delivery.
	Overlaps, multiplication effect, synergy	There is a potential for overlap with the Retrofit programme.

BL.12.

Title of the Energy saving measure		Smart meter roll-out
Description	Category	2.8
	Timeframe	Start:2007 End: Ongoing Major changes foreseen, improvements: Utilities plan to roll out smart meters in 2015/2016.
	Aim/brief description	The Smart Metering Programme will facilitate improved energy efficiency by empowering consumers with more detailed, accurate and timely information regarding their energy consumption and costs, thus helping consumers reduce any unnecessary energy usage and shift any discretionary usage away from peak consumption times.
	Target end use	Domestic and SME electricity and gas end uses
	Target group	Domestic and SME
	Regional application	N/A
Information on Implementation	List and description of energy saving actions substantiating the measure	Smart meters offer a range of benefits for both the electricity and gas consumer and the installation of smart metering will allow electricity and gas suppliers to create innovative pricing arrangements that can be offered to customers to support the efficient use of electricity and gas, such as time-of use tariffs.
	Budget and financial resource	The Smart Metering Project is funded by the DCENR.
	Implementing body	DCENR/CER
	Monitoring authority	CER
Energy savings	Method for monitoring/measuring the resulting savings	Estimated savings are based on 3% (PEE) of baseline projections for total final consumption of household electricity to 2020.
	Savings achieved in 2012	0 GWh
	Expected energy savings in 2016	Primary energy 373 GWh; final energy 149 GWh
	Expected impact on energy savings in 2020	Primary energy 624 GWh; final energy 250 GWh
	Assumptions	Forecasted residential electricity demand as per SEAI 2010 forecast to 2020 (NEEAP/NREAP scenario). Savings due to smart meters combined with time-of-use tariffs, in-home-displays and informative billing estimated at 3% (Source: Smart Metering Customer Behaviour Trails (CBT) Findings Report (CER11/080a) (May, 2011). Main Report and Appendices available at www.cer.ie .
	Overlaps, multiplication effect, synergy	There are no overlaps associated with this measure.

BL.13.

Title of the Energy saving measure		Residential retrofit
Description	Category	Combination of advice, subsidies and obligation scheme.
	Timeframe	2011 - Ongoing
	Aim/brief description	Stimulating energy-efficiency actions to reduce energy usage by homeowners and the general public
	Target end use	All end-uses
	Target group	Residential sector
	Regional application	N/A
Information on Implementation	List and description of energy saving actions substantiating the measure	<p>Better Energy Homes (BEH): SEAI grant-aids householders who want to make their homes more energy-efficient by providing incentives towards the implementation of energy efficiency measures including attic and wall insulation and heating controls with efficient boilers and/or solar thermal.</p> <p>Better Energy Warmer Homes (BEWH): SEAI provides funding towards improving the energy efficiency of homes experiencing fuel poverty.</p> <p>Better Energy Area Based Grant Programme (BEAB): The Area Based grant programme will to support targeted geographic or area-based projects that are of high quality, competitively priced and deliver improvements in energy efficiency to energy poor households. The focus in 2014 is on funding a comprehensive suite of projects which deliver energy savings to vulnerable homeowners and communities, through projects which encourage a partnership approach and are thus cost effective. Projects that offer opportunities for replication and are readily scalable are of a particular interest in 2014.</p> <p>Energy Supplier Obligation (ESO): In accordance with Article 7, Ireland will implement an Energy Supplier Obligation with an annual target currently set at 550GWh per annum. A portion of these savings will be achieved in the residential sector.</p>
	Budget and financial resource	€80m in 2011 and thereafter.
	Implementing body	SEAI oversees consultants and contactor companies in the market delivering the energy efficiency savings.
	Monitoring authority	SEAI/DCENR
Energy savings	Method for monitoring/measuring the resulting savings	An official Building Energy Rating (BER) is completed on each home which receives an energy upgrade under BEH detailing all energy efficiency measures carried out on the house. BEAB based on project level savings estimates. Deemed savings used for ESO.
	Savings achieved in 2012	Primary energy 507 GWh; final energy 434 GWh
	Expected energy savings in 2016	Primary energy 1,500 GWh; final energy 975 GWh
	Expected impact on energy savings in 2020	Primary energy 3,000 GWh; final energy 1,950 GWh
	Assumptions	Expected energy savings based on stated Government commitment to achieve a total of 8,000 GWh from retrofit of domestic and non-domestic buildings and services. Measurement and verification of savings is being developed as part of the supplier obligation scheme delivered from 2011 onwards.
	Overlaps, multiplication effect, synergy	Adjustments made for any potential double counting with energy efficient Boiler and lighting regulations..

Measures in the transport sector

No.	Title of the energy saving measure	End-use targeted	Duration	Energy savings (GWh, PEE)			CO ₂ savings (kt CO ₂)		
				2012 (achieved)	2016 (expected)	2020 (expected)	2012 (achieved)	2016 (expected)	2020 (expected)
T.1.	Electric vehicle deployment	Private car	1st January - ongoing	1	4	103	0	1	26
T.2.	Vehicle registration tax (VRT) and annual motor tax (AMT) rebalancing	Private car	1st July 2008- ongoing	503	926	903	128	236	230
T.3.	Improved fuel economy of private car fleet (EU Regulation)	Private car	2008 - ongoing	522	1,386	2,979	133	353	760
T.4.	More efficient road traffic movements	Private car	2008 - ongoing	63	177	310	16	45	79
T.5.	Aviation efficiency	Aviation	2008 - ongoing	253	253	253	65	65	65
	Sector totals			1342	2746	4548	342	700	1134

T.1.

Title of the Energy saving measure		Electric vehicle deployment
Description	Category	3.1, 2.1, 2.6
	Timeframe	Start: 1 st January 2011 End: Open Major changes foreseen, improvements: N/A
	Aim/brief description	Grant support for new electric vehicles.
	Target end use	Private cars
	Target group	General population
	Regional application	N/A
Information on Implementation	List and description of energy saving actions substantiating the measure	Specific measures towards this target include: <ul style="list-style-type: none"> • information campaigns, • installation of the charging infrastructure and • €2,000 - €5,000 grant for new purchases of electric cars to stimulate activity. A list of qualifying electric vehicles and dealers will be published prior to the launch of the grant scheme.
	Budget and financial resource	€1.15 million in 2014
	Implementing body	SEAI/DCENR
	Monitoring authority	SEAI/DCENR
Energy savings	Method for monitoring/measuring the resulting savings	New electric vehicles purchase under the grant scheme will be recorded by SEAI as part of the grant administration process. Total electric vehicle registrations are recorded by the CSO as part of the new vehicle registration statistics set. An electric vehicle uptake rate to 2020 has been modelled and the savings are predicted and monitored on the basis of the accelerated uptake stimulated by the measure. The impact of the increased uptake of electric vehicles is predicted based on projected uptake rates and monitored on the basis of actual uptake rates.
	Savings achieved in 2012	Primary energy 1 GWh; final energy 1 GWh
	Expected energy savings in 2016	Primary energy 4 GWh; final energy 3.6 GWh
	Expected impact on energy savings in 2020	Primary energy 103 GWh; final energy 93 GWh
	Assumptions	Key assumptions include: <ul style="list-style-type: none"> • Uptake rate for electric vehicles and reference 'no action' uptake • Specific energy consumption of electric vehicles • Primary energy factor for electricity
	Overlaps, multiplication effect, synergy	The replacement of an increasing proportion of the private car fleet with electric vehicles is accounted for in the bottom up private car fleet and energy consumption model and the impact of other measures targeted at the sector reduced accordingly.

T.2.

Title of the Energy saving measure		Vehicle registration tax (VRT) and annual motor tax (AMT) rebalancing
Description	Category	3.2
	Timeframe	Start: 1 st July 2008 End: No end date Major changes foreseen, improvements: As the fuel efficiency of new cars improves, the efficiency bands on which the measure is based may be reviewed.
	Aim/brief description	The measure was a fundamental shift in the Vehicle Registration Tax and Annual Motor Tax regime whereby vehicles have been taxed on the basis of their CO ₂ emission levels since 1 st July 2008.
	Target end use	Private cars
	Target group	General population
	Regional application	N/A
Information on Implementation	List and description of energy saving actions substantiating the measure	Seven bands, ranging from A-G, of specific CO ₂ emissions were defined and all new cars are categorised within these bands. VRT and AMT are then applied according to the cars specific CO ₂ emission categorisation.
	Budget and financial resource	The measure is a reweighting of VRT and AMT to favour more energy efficient cars. As such it was designed to be largely revenue neutral.
	Implementing body	Department of Finance
	Monitoring authority	SEAI, via statistical analysis
Energy savings	Method for monitoring/measuring the resulting savings	Energy savings are evaluated and predicted based on a bottom up model of the private vehicle stock, efficiency (specific energy consumption) and activity. Future savings are based projections of vehicle stock composition and activity based on projections of key economic indicators (GDP, disposable income). Ex post savings are monitored by populating the model with statistical activity data collected by state agencies: <ul style="list-style-type: none"> • New car registrations (Central Statistics Office) • Disaggregated passenger car vehicle stock (Department of Transport, SEAI EPSUU) • Specific Energy Consumption of new cars (SEAI EPSUU) • Distance travelled by private cars (SEAI EPSUU based on National Car Test odometer data)
	Savings achieved in 2012	Primary energy 503 GWh; final energy 457 GWh
	Expected energy savings in 2016	Primary energy 926 GWh; final energy 841 GWh
	Expected impact on energy savings in 2020	Primary energy 903 GWh; final energy 821 GWh
	Assumptions	Key assumptions/statistics informing the monitored and projected savings are: <ul style="list-style-type: none"> • Specific Energy Consumption of the reference (2008) private car stock • Composition of car stock and SEC of new cars • Vehicle activity data
	Overlaps, multiplication effect, synergy	There is potential for double counting of savings attained through the various measures that target private car use. The trajectory for improvement in new car efficiency under this measure is taken to be an early and accelerated improvement in efficiency compared to the improvement trajectory on the basis of EU

Title of the Energy saving measure	Vehicle registration tax (VRT) and annual motor tax (AMT) rebalancing
	<p>regulation (measure 1.2 transport)</p> <p>There is potential for double counting of savings attributed to the various measures that target private car use, however, the energy savings from each measure are applied sequentially, thereby accounting for the impact of each measure prior to saving of the next measure.</p> <p>The energy savings from each measure are calculated sequentially in the model so that the sum of savings attributable to all measures is the total energy saving target for the sector.</p>

T.3.

Title of the Energy saving measure		Improved fuel economy of private car fleet (EU Regulation)
Description	Category	1.2
	Timeframe	Start: 1 st January 2012 End: Ongoing Major changes foreseen, improvements: The path to 2020 is defined and signalled
	Aim/brief description	The EU, through Regulation 443/2009 has mandated an improvement in average new car efficiency to 130 g CO ₂ /km by 2015 with a target of 95 g CO ₂ /km for 2020
	Target end use	Private cars
	Target group	General population
	Regional application	N/A
Information on Implementation	List and description of energy saving actions substantiating the measure	N/A
	Budget and financial resource	N/A
	Implementing body	European Commission
	Monitoring authority	European Commission
Energy savings	Method for monitoring/measuring the resulting savings	Energy savings are evaluated and predicted based on a bottom up model of the private vehicle stock, efficiency (specific energy consumption) and activity. Future savings are based projections of vehicle stock composition and activity based on projections of key economic indicators (GDP, disposable income). Ex post savings are monitored by populating the model with statistical activity data collected by state agencies: <ul style="list-style-type: none"> • New car registrations (Central Statistics Office) • Disaggregated passenger car vehicle stock (Department of Transport, SEAI EPSUU) • Specific Energy Consumption of new cars (SEAI EPSUU) • Distance travelled by private cars (SEAI EPSUU based on National Car Test odometer data)
	Savings achieved in 2012	Primary energy 522 GWh; final energy 474 GWh
	Expected energy savings in 2016	Primary energy 1,386 GWh; final energy 1,260 GWh
	Expected impact on energy savings in 2020	Primary energy 2,979 GWh; final energy 2,708 GWh
	Assumptions	Key assumptions/statistics informing the monitored and projected savings are: <ul style="list-style-type: none"> • Specific Energy Consumption (SEC) of the reference (2008) private car stock • Composition of car stock and SEC of new cars • Vehicle activity data
	Overlaps, multiplication effect, synergy	There is potential for double counting of savings attained through the various measures that target private car use. The energy savings from each measure are calculated sequentially in the model so that the sum of savings attributable to all measures is the total energy saving target for the sector.

Title of the Energy saving measure	Improved fuel economy of private car fleet (EU Regulation)
	<p>Both this measure and the National tax incentive (transport measure 1.1) affect the specific emissions and energy consumption of the private car fleet. The savings ascribed to each are on the basis of a trajectory of improved efficiency due to the EU regulation and an accelerated trajectory for the National tax incentive. The sum of the savings for each measure is the total saving due to improved efficiency in the national private car fleet. This measure has the effect of ensuring a trajectory of improved car fleet efficiency in line with EU policy. The effect of measure 1.1 is to accelerate this effect in the short term. The savings outlined here are based on an assessment of the savings that would result from EU policy without the additional measure of taxation rebalancing (measure 1.3).</p>

T.4.

Title of the Energy saving measure		More efficient road traffic movements
Description	Category	2.1, 2.5
	Timeframe	Start: 2010 End: Ongoing. Major changes foreseen, improvements: Since NEEAP1 progress made in terms of speed enforcement which will result in improved energy efficiency, mainly of private car fleet.
	Aim/brief description	The promotion of eco-driving techniques has been demonstrated to achieve significant on-road energy savings and to be successful in reducing the gap between observed on-road energy use and emissions and standard test cycle emissions. It is planned to launch an awareness campaign and driver skills development programme to promote energy efficient driving behaviour.
	Target end use	All road vehicles
	Target group	General population
	Regional application	N/A
Information on Implementation	List and description of energy saving actions substantiating the measure	N/A
	Budget and financial resource	N/A
	Implementing body	Department of Transport Department of Environment
	Monitoring authority	SEAI
Energy savings	Method for monitoring/measuring the resulting savings	Energy savings are evaluated and predicted based on a bottom up model of the private vehicle stock, efficiency (specific energy consumption) and activity. Specific emissions and energy use are defined in the model as fleet test cycle efficiency and an 'on-road factor' to account for driver behaviour and the difference between test cycle specific emissions and energy use and actual specific emissions and energy use. Future savings are based projections of vehicle stock composition and activity based on projections of key economic indicators (GDP, disposable income). A trajectory for improvement of actual 'on-road' specific energy use is defined to model, predict and report on savings due to improved driver behaviour and eco-driving initiatives. Ex post savings are monitored by populating the model with statistical activity data collected by state agencies: <ul style="list-style-type: none"> • New car registrations (Central Statistics Office) • Disaggregated passenger car vehicle stock (Department of Transport, SEAI EPSSU) • Specific Energy Consumption of new cars (SEAI EPSSU) • Distance travelled by private cars (SEAI EPSSU based on National Car Test odometer data) • Actual reported energy use in the private car fleet
	Savings achieved in 2012	Primary energy 63 GWh; final energy 58 GWh
	Expected energy savings in 2016	Primary energy 177 GWh; final energy 161 GWh
	Expected impact on	Primary energy 310 GWh; final energy 282 GWh

Title of the Energy saving measure		More efficient road traffic movements
	energy savings in 2020	
	Assumptions	<p>Key assumptions/statistics informing the monitored and projected savings are:</p> <ul style="list-style-type: none"> • Specific Energy Consumption of the reference (2008) private car stock • Composition of car stock and SEC of new cars • Vehicle activity data • 'on-road' specific energy use factor
	Overlaps, multiplication effect, synergy	<p>There is potential for double counting of savings attained through the various measures that target private car use. The energy savings from each measure are calculated sequentially in the model so that the sum of savings attributable to all measures is the total energy saving target for the sector.</p>

T.5

Title of the Energy saving measure		Aviation Efficiency
Description	Category	N/A
	Timeframe	Start: 2008 End: Ongoing Major changes foreseen, improvements: N/A
	Aim/brief description	The aim is to increase operational efficiency in aviation through international co-operation in air space control. The Irish and UK National Supervisory Authorities (NSAs) created the UK-Ireland Functional Airspace Block in
	Target end use	Aviation
	Target group	Aviation - NSAs
	Regional application	N/A
Information on Implementation	List and description of energy saving actions substantiating the measure	N/A
	Budget and financial resource	N/A
	Implementing body	Irish Aviation Authority and UK National Air Traffic Services
	Monitoring authority	Irish Aviation Authority and UK National Air Traffic Services
Energy savings	Method for monitoring/measuring the resulting savings	As per the annual report on the UK-Ireland FAB issued by the Irish Aviation Authority and UK National Air Traffic Services.
	Savings achieved in 2012	Primary energy 253 GWh; final energy 230 GWh
	Expected energy savings in 2016	Primary energy 253 GWh; final energy 230 GWh
	Expected impact on energy savings in 2020	Primary energy 253 GWh; final energy 230 GWh
	Assumptions	Energy savings are evaluated based on reported data from Irish Aviation Authority and UK National Air Traffic Services.
	Overlaps, multiplication effect, synergy	There is no potential for overlaps with other measures.

Supply side measures

No.	Title of the energy saving measure	End-use targeted	Duration	Energy savings (GWh, PEE)			CO ₂ savings (kt CO ₂)		
				2012 (achieved)	2016 (expected)	2020 (expected)	2012 (achieved)	2016 (expected)	2020 (expected)
S.1.	Increased efficiency in power generation	Power generation	1 st January 2008; ongoing	1,431	1,675	4,056	422	293	524
S.2.	Reduced transmission and distribution losses	Electricity Supply	1 st January 2008; ongoing	279	321	362	66	69	73
Sector totals				1,710	1,996	4,418	488	362	597

Cross Sectoral

No.	Title of the energy saving measure	End-use targeted	Duration	Energy savings (GWh, PEE)			CO ₂ savings (kt CO ₂)		
				2012 (achieved)	2016 (expected)	2020 (expected)	2012 (achieved)	2016 (expected)	2020 (expected)
C.1.	Carbon tax	Power generation	1 st January 2008; ongoing	1,200	1,300	1,300	306	330	330

S.1.

Title of the Energy saving measure		Energy Efficiency in Power Generation
Description	Category	
	Timeframe	Start: 1 st January 2008 End: - Ongoing Major changes foreseen, improvements: None
	Aim/brief description	Investment in new, efficient power generation plant and RES
	Target end use	Power generation
	Target group	Electricity generators.
	Regional application	N/A
Information on Implementation	List and description of energy saving actions substantiating the measure	Measures to improve efficiency include: <ul style="list-style-type: none"> Promoting and prioritising energy efficiency in investment decisions for new generation plant Promoting competition in the All-Island Single Electricity Market Providing incentives to encourage large energy users to reduce peak energy use
	Budget and financial resource	Any financial or budgetary requirements are included within the Single Electricity Market.
	Implementing body	Department of Communications, Energy and Natural Resources (DCENR), the Commission for Energy Regulation (CER)
	Monitoring authority	DCENR / CER
Energy savings	Method for monitoring/measuring the resulting savings	Primary energy use in electricity generation is forecast annually based on a model of future electricity demand and power station dispatch. Energy savings are calculated based on improvements in efficiency of the generation stock since 2008 (base year). Ex-post savings have been monitored by populating the model with statistical activity data collected by SEAI (EPSSU) for the annual energy balance.
	Savings achieved in 2012	Primary energy 1,431 GWh; final energy 572 GWh
	Expected energy savings in 2016	Primary energy 1,675 GWh; final energy 670 GWh
	Expected impact on energy savings in 2020	Primary energy 4,056 GWh; final energy 1,622 GWh
	Assumptions	Key assumptions/statistics informing the monitored and projected savings are: <ul style="list-style-type: none"> New capacity in fossil fuel and renewable electricity generation Level of electricity imports and exports
	Overlaps, multiplication effect, synergy	There is no potential for overlaps. There may be synergies with electricity demand side management measures promoting load shifting and load reduction.

S.2.

Title of the Energy saving measure		Energy Efficiency in Electricity Transmission and Distribution
Description	Category	
	Timeframe	Start: 1 st January 2008 End: - Ongoing. Major changes foreseen, improvements: None
	Aim/brief description	Upgrades to the transmission and distribution networks to improve efficiency
	Target end use	Transmission and distribution
	Target group	Transmission System Operator (TSO) and Distribution System Operator (DSO).
	Regional application	N/A
Information on Implementation	List and description of energy saving actions substantiating the measure	Measures to improve efficiency include: <ul style="list-style-type: none"> Placing targets for reduced losses on the TSO
	Budget and financial resource	Any financial or budgetary requirements are included within the Single Electricity Market and the regulated revenues of the TSO and DSO.
	Implementing body	Department of Communications, Energy and Natural Resources, The Commission for Energy Regulation
	Monitoring authority	Department of Communications, Energy and Natural Resources, The Commission for Energy regulation
Energy savings	Method for monitoring/measuring the resulting savings	Losses reduction targets set by the CER. Forecasted electricity demand to 2020 used to calculate energy savings based on percentage reduction of losses.
	Savings achieved in 2012	Primary energy 279 GWh; final energy 112 GWh
	Expected energy savings in 2016	Primary energy 321 GWh; final energy 128 GWh
	Expected impact on energy savings in 2020	Primary energy 362 GWh; final energy 145 GWh
	Assumptions	Key assumptions/statistics informing the monitored and projected savings are: <ul style="list-style-type: none"> Forecasted electricity demand
	Overlaps, multiplication effect, synergy	There is no potential for overlaps. There may be synergies with electricity demand side management measures promoting load shifting and load reduction.

C.1.

Title of the Energy saving measure		Carbon tax
Description	Category	Cross sectoral
	Timeframe	Start: 1 st January 2008 End: - Ongoing
	Aim/brief description	Incorporate a price signal for carbon on the non-ETS sector
	Target end use	Fuel based heating and transport
	Target group	Cross sectoral (Household, industry, commercial, agriculture and transport sectors)
	Regional application	N/A
Information on Implementation	List and description of energy saving actions substantiating the measure	Tax applied to fuels for heating and transport.
	Budget and financial resource	Administrative costs.
	Implementing body	Revenue – Irish Tax and Customs
	Monitoring authority	Revenue – Irish Tax and Customs
Energy savings	Method for monitoring/measuring the resulting savings	An estimation is made on the basis of price elasticities for the various fuels impacted. These are applied to demand scenarios that take account of the impact of all other NEEAP measures.
	Savings achieved in 2012	Primary energy 1,200 GWh; final energy 1,090 GWh
	Expected energy savings in 2016	Primary energy 1,300 GWh; final energy 1,180 GWh
	Expected impact on energy savings in 2020	Primary energy 1,300 GWh; final energy 1,180 GWh
	Assumptions	Key assumptions/statistics informing the monitored and projected savings are: <ul style="list-style-type: none"> • Price elasticities per fuel type • Demand projections by fuel • Current carbon tax €20 per tonne
	Overlaps, multiplication effect, synergy	Estimate applied to demand scenarios where all NEEAP measure impacts have been applied.

APPENDIX II – NEEAP ACTIONS MATRIX

Current actions

No.	Action	Owner	Comments
Public Sector			
Ongoing NEEAP Actions			
1	We are supporting public sector bodies through the Energy Partnership programme.	DCENR/SEAI	On-going Being managed through SEAI Public Sector (PS) Partnership programme. Currently 47 partners have signed up
2.	We are to facilitating and enabling the exchange of energy efficiency best practice between public sector bodies at local, national and international level.	SEAI	On-going This is being facilitated through Energy Link – an online networking tool for exchange of information across public sector
3.	We are supporting the integration of Energy Efficient Design into capital projects.	SEAI	On-going EED review is a service available under PS Programme on an on-going basis. Also features in Green Public Procurement Action Plan.
5.	We are working together with Local Authorities to reduce their energy consumption.	SEAI	On-going Actively working with LAs on energy use through PS programme. 20 of the 31 local authorities are signed up to partnership
New Actions			
7.	We have introduced several important pieces of legislation to promote energy efficiency in the public sector. <ul style="list-style-type: none"> ➤ <i>European Communities (Energy End-use Efficiency and Energy Services) Regulations 2009</i> ➤ <i>European Union (Energy Efficient Public Procurement) Regulations 2011</i> 	DCENR	On-going Under constant review. Next major piece of legislation will be the transposition of the Energy Efficiency Directive (December 2013 & June 2014)

No.	Action	Owner	Comments
	<ul style="list-style-type: none"> ➤ Accelerated Capital Allowances Scheme Orders (2008 to date) ➤ European Communities (Renewable Energy) Regulations 2011 		
8.	The OPW will continue to operate the Optimising Power @ Work programme. The initiative is to be expanded into the wider public service over the next 3 years, in support of public sector energy savings targets.	OPW	On-going Expansion of the programme into the wider public sector is currently under-way. 500 large public sector buildings being targeted over a 3 year period.
9.	The Department of Education and Skills will continue to improve the energy efficiency of existing schools and construct highly efficient school buildings.	D/ES via SEAI	On-going Close interaction with D/Education & Skills: - Summer works programme for 2014 announced (€70m). - Extensive programme of training available to school principals, staff and boards of management to assist improve energy management
10.	We will develop a suite of integrated programmes and supports to assist public bodies comply with their obligations, meet national targets and achieve significant energy and cost savings.	SEAI	On-going Monitoring and report system, supported by PS partnership programme, facilitates this activity for Public Bodies
11.	We will introduce an obligation on all public bodies to develop and implement energy management programmes appropriate for their organisations.	DCENR	On-going Reporting obligations require PS bodies to indicate what they have done and their future plans regarding energy management. DCENR considering drafting a circular to be issued through DPER which would deal with this action and also actions 12, 13 & 17.
15.	We will build on the success of the three working groups set up by the SEAI to address energy efficiency in Water Services, Public Lighting and ICT by establishing new working groups to tackle the technological, organisational	SEAI	On-going Linked to work on National Energy Services Framework through public sector exemplars.

No.	Action	Owner	Comments
	and cultural barriers to better energy performance in specific technology / end-user segments.		
16.	We will provide independent expert energy advisors to undertake enhanced energy assessments at specific public sector facilities – to assist public bodies in identifying, targeting and achieving large scale energy savings. This will help them to unlock the valuable energy savings potential that exists at their facilities by identifying the business case for action.	SEAI	On-going Service available under SEAI's PS programme
19.	We are facilitating the sharing and exchange of information on energy management between public bodies.	SEAI	On-going As for action 2 – facilitated through Energy Link - an online networking tool for exchange of information across public sector
20.	We will work with public bodies to fulfil their exemplar role with respect to building energy efficiency.	SEAI	On-going Linked to work on National Energy Services Framework through public sector exemplars.
22.	We will investigate options for the provision of private and public finance for energy efficiency projects through innovative project-based financing arrangements.	DCENR/SEAI	On-going Underway as part of the National Energy Services Framework and Energy Efficiency Fund policy development
23.	We will develop an energy monitoring and reporting system to satisfy the reporting requirements of both S.I. 542 of 2009 and the NEEAP, and to facilitate public bodies in reporting on energy efficiency in their own annual reports.	DCENR/SEAI	On-going System developed and fully functional. Utilised for 135 public bodies in 2012 and now to be extended to 440 for 2013/2014. Training of public bodies on-going.
24.	To achieve this we will investigate and, where appropriate develop and implement a methodology to formally assign robust and transparent energy saving targets (by 2020) on an organisational, sub-sectoral or technology basis within the public sector.	DCENR/SEAI	On-going Under consideration by DCENR in the context of NEEAP3 preparation and post-2020 horizon.

No.	Action	Owner	Comments
Energy Supply Sector			
Ongoing NEEAP Actions			
25	We are promoting competition and choice and continuing to developing the All-Island Energy market framework across a range of energy priorities, building upon the establishment in 2007 of the Single Electricity Market, leading to a more efficient supply sector.	CER/Eirgrid	<u>On-going</u> The most important development in the SEM over the past few years was the introduction of Intra-Day Trading (IDT). The new system promotes more competition in the market by allowing electricity trading closer to real time and enabling the use of increasing amounts of variable renewable generation. The project was launched in July 2012
26	We are providing incentives to encourage large energy users to reduce peak energy use.	CER/Eirgrid	<u>On-going</u> Eirgrid now engaged with Govt Depts & Regulatory Authorities to facilitate the integration and promotion of Demand-Side Units into SEM
30.	We will continue to investigate the scope for reducing energy transmission and operational losses	Eirgrid / ESB Networks	<u>On-going</u> As a matter of course, EirGrid work to manage the power system as efficiently as possible
32.	We will significantly expand our demand side management initiatives.	CER / Eirgrid	<u>On-going:</u> There are now two Demand side units operational in the market with a number of other potential participants potentially operational in the coming months
34.	We are examining the convergence of communications and electricity generation and distribution networks in order to develop a smart grid. [New Action: (EirGrid) This could come under a new action including a reference to the EirGrid Smart Grid Innovation Hub which is doing exactly this]	Eirgrid / ESB Networks	<u>On-going:</u> At its core, EirGrid's Smart Grid programme is a collection of technologies, services, and a series of projects to upgrade our current electricity system to deliver a low carbon energy future while continuing to operate and maintain a safe, secure, reliable, economical and efficient system. The programme

No.	Action	Owner	Comments
			focuses on four key areas – Technology & Infrastructure; DS3; Smart Grid Innovation Hub; and Demonstration Projects.
New Actions			
35.	<p>We will work collaboratively to maximise the full potential of Smart Grid development and deployment and Smart Metering deployment in Ireland.</p> <p><i>Opportunity to merge actions 34 & 35 or split out into two with focused deliverables?</i></p>	Eirgrid/CER/ ESB Networks	<p><u>On-going:</u> It is the application of digital technology on the grid infrastructure that allows us to optimise the power system to ensure that it is used as efficiently as possible and which really makes our Grid “Smart”. This technology or intelligence layer will allow two-way communication across the network. EirGrid are in the process of both trialing and deploying a number of innovative Smart technologies onto the system and this work will continue in the coming years.</p> <p>The Smart Grid Innovation Hub (SGIH) combines the energy and ICT industries and is a collaborative initiative between EirGrid, SONI and the National Digital Research Centre (NDRC) to promote the development of innovative Smart Grid ideas on the island of Ireland.</p> <p>EirGrid’s DS3 programme is developing innovative solutions to the challenges associated with increasing levels of renewable generation, particularly with regard to secure power system operation, as we work to achieve the 2020 renewable targets.</p> <p>The EirGrid demonstration projects initiative is in place to promote and support innovation in new grid applications across the Smart Grid domain.</p>

No.	Action	Owner	Comments
Transport Sector			
Ongoing NEEAP Actions			
40.	We will continue to incentivise the purchase of more energy efficient vehicles.	DoF/DECLG/Revenue	On-going While DTTAS is not the 'owner' of this action, an exercise in quantifying the impact of changes has been carried out – See note below. Department also wants to examine potential for incentivising purchase of energy efficient HGVs/LGVs with 'Owners' under this Action.
43.	We are maintaining the fuel efficiency of older private cars through vehicle testing.	DTTAS/RSA	On-going See Note below
45.	We will continue to assess the potential for demand management measures.	DTTAS – consultation with Agencies (NRA, NTA, etc)	On-going See Note below
46.	We will continue to promote mobility management plans in schools, workplaces and at home.	DTTAS / NTA	On-going See Note below
47.	We will continue to promote National Cycle Policy Initiatives.	DTTAS / NTA	On-going See Note below
New Actions			
49.	We will realise energy efficiencies through the operation of the Ireland-UK Functional Airspace Block (FAB)	DTTAS	On-going See Note below
51.	We have introduced a carbon tax on petrol and diesel which sends a strong pricing signal to road users.	DoF	On-going While DTTAS is not the owner of this action, an exercise in quantifying the impact of changes has been undertaken. See Note below
53.	We will continue to improve the energy efficiency of rail and bus services, including the promotion of ecodriving.	DTTAS / Irish Rail	Includes Actions 44 and 54 On-going Update sought from Dublin Bus, Bus Eireann and Irish Rail
55.	We are introducing integrated ticketing in public transport.	DTTAS / Agencies	

No.	Action	Owner	Comments
56.	We are introducing programmes to improve driver behaviour through speed enforcement.	DTTAS / RSA	On-going: The RSA have not published a 'Free Speeds' Survey since 2011. Update on action has been sought from the RSA.
Business Sector			
Ongoing NEEAP1 Actions			
57.	We are providing tax incentives to encourage companies to buy the most energy-efficient equipment.	DCENR/SEAI	On-going The Accelerated Capital Allowances Scheme was extended in Budget 2011 until end-2014. Review of Scheme operation underway.
58.	We are supporting the networking and exchange of best energy efficiency practice by the largest industrial energy users through the Large Industry Energy Network (LIEN).	SEAI	On-going Through SEAI's the LIEN and Agreements programmes
59.	We are assisting the SME sector with a targeted scheme providing assessments of energy use and advice on energy management.	SEAI	On-going Range of services available to SMEs including energy assessments, advice, mentoring and Energy MAP training.
60.	We will continue to demonstrate the significant potential available through ICT efficiencies, working closely with the industry, utilizing technological solutions such as virtualization, co-location, efficient IT hardware, optimized cooling technologies, and energy management controls.	SEAI	On-going Action commenced with Public Sector ICT group with suite documents prepared including Server Guides, ICT equipment Guides and working group report. Will be further enhanced in 2014.
New Actions			
61.	We will work with State enterprise and business promotion agencies and industry representative bodies to promote the benefits to business of greater energy efficiency.	DJEI	On-going DJEI have a lead role on a similar action in the Sustainable Future in relation to resource efficiency (Resource Efficiency Programme for Business. The relevant agencies (e.g. IDA, EI, SEAI and EPA) should continue to work to offer an integrated suite of resource efficiency programmes for business).

No.	Action	Owner	Comments
			DJEI will commence work on a web-based Green Economy signposting exercise to direct Irish enterprises to the supports available to them in relation to energy and resource efficiency and promote the benefits of those practices.
62.	We are implementing a market surveillance programme intended to ensure compliance of products across a range of product categories, under both the Energy Labelling and Ecodesign Directives and the Tyre Labelling Regulation.	DCENR/DJEI	On-going Market surveillance regime operational through ELMS. First inspection programme completed in 2013 covering c. 20% of electrical retail market. A contract is due to be signed shortly for 2013/2014 which will see an additional 200 retailers inspected and will include a training programme to promote & raise awareness of the regulations. The scope of this contract will be further expanded to cover product testing and the Tyre Labelling Regulations which came into force in November 2012.
63.	We will work with our European partners in implementing the new Energy Star Agreement.	DCENR/DJEI	On-going New energy star agreement (Regulation No 174/2013) signed by the EU & the US in early 2013.
67.	We will ensure that the SME sector has access to the necessary supports to reap the financial benefits from investment in appropriate energy management practices.	SEAI	On-going Continuation of action 59 above
68.	We will develop the ACA products list and Triple E register to serve as the recognized reference list for energy efficient procurement.	DCENR/SEAI	On-going As above for action 57. It is an on-going process which is continually promoted – eg promotional campaign about to get underway to dovetail with budgeting period for companies.
69.	We will develop the construction industry's capacity to achieve higher energy performance standards and in creating sustainable jobs over the lifetime of this Action	DES/ FAS, DECLG	On-going: Energy efficiency activities and review of Building Regulations towards Cost Optimal and Nearly Zero

No.	Action	Owner	Comments
	Plan.		Energy Buildings are developing capacity in this area.
Residential Sector			
Ongoing NEEAP1 Actions			
71.	We are providing grant assistance to householders to upgrade the energy efficiency of older homes through Better Energy: Homes.	SEAI	On-going Better Energy Homes remains open for business and is widely promoted.
72.	We are upgrading the energy performance of homes occupied by those on low incomes through Better Energy: Warmer Homes.	SEAI	On-going Better Energy Warmer Homes remains open and is delivering retrofits to low income homes free of charge.
73.	We will encourage more energy-efficient behaviour by householders through the introduction of smart meters.	DCENR / CER / Industry	On-going CER is the mandated authority responsible for the roll out of the National Smart Metering Programme in the electricity and natural gas retail markets. Following the successful completion of Phase 1, Consumer Trials and Cost Benefit Analysis, the CER is now embarking on Phase 2, Requirements Definition & Procurement, which should be completed in 2014. This will be followed by Phase 3, Build & Test, during 2015-2016 and followed by the final Phase of the programme, Deployment, which is expected to begin in 2016 and end in 2019.
74.	We are providing grants to older people through the Housing Aid for Older People Scheme, including for works that will improve the energy efficiency of their homes.	DECLG	On-going In 2012, 4848 homes received grants under the Housing Aid for Older People Scheme to a total value of €19,909,716. It is anticipated that a further 2800 homes will be improved in 2013.
76.	Promote awareness of regular boiler servicing benefits	SEAI	Ongoing Promotional campaigns run on a regular basis.
77.	We are promoting higher standards of energy efficiency in social housing.	DECLG/SEAI	On-going Between 2004 and 2012, 32762 houses have had

No.	Action	Owner	Comments
			heating systems upgraded or energy retrofits
78.	We will update the Building Energy Rating Regulations on foot of the Recast Energy Performance of Buildings Directive (EPBD)	DECLG	On-going In 2011 Part L Building Regulations for Dwellings were upgraded to Cost Optimal. In 2014 Building Regulations for buildings other than dwellings will be upgraded to Cost Optimal.
New Actions			
81.	We will target those in energy poverty through the implementation of the Affordable Energy Strategy.	DCENR	On-going Affordable Energy Strategy being delivered through the IDAG chaired by DCENR
82.	We will implement Measurement and Verification Systems to accurately measure energy savings achieved in the domestic sector.	SEAI	On-going We have completed and published a billing analysis that measures the impact of upgrades (Better Energy Homes) in the residential sector. Scheme rules now include provision for SEAI to seek energy use data directly from meter operators.
84.	We will develop a framework for achieving low- or nearly-zero energy housing.	DECLG	On-going: NZEB Definition has been submitted to the Commission and will be developed at a national level.
Cross-Sectoral Measures			
86.	We will ensure that the Better Energy Programme will upgrade Ireland's building stock to high standards of energy efficiency, thereby reducing fossil fuel use, running costs and greenhouse gas emissions.	DCENR/SEAI	On-going Better Energy Programme continues to fund grants in the residential and community sector to improve energy efficiency.
89.	We will introduce an appropriate Pay-As-You-Save (PAYS) model for Ireland to replace existing exchequer supports for domestic and non-domestic energy efficiency upgrade measures.	DCENR	On-going Better Energy Finance project team is shortly due to make recommendations to DCENR on an appropriate model for Ireland (Q4 2013)
92.	We will continue to raise awareness of the impact of energy usage on climate change and resource efficiency through supporting a range of educational and awareness-raising activities.	DECLG	On-going: The following programmes are on-going: <ul style="list-style-type: none"> - Green Schools - Green Campus

No.	Action	Owner	Comments
			<ul style="list-style-type: none"> - Green Homes - EPA's Cleaner Greener Production Programme [CGPP}
97.	We will fully implement the Energy Efficiency Directive.	DCENR	<p><u>On-going</u> Consultation on EED published (Q4 2013). RIA due in early 2014. Drafting of Regulations underway.</p>
[NEW]	We will introduce a set of Cross Sectoral plans for all sectors to achieve a near zero carbon economy for 2050 in 2013	DECLG	<p><u>On-going</u> In progress. Due to be published in 2014</p>

Completed Actions

No.	Action	Owner	Comments
Public Sector			
Ongoing NEEAP 1 Actions			
4.	We are providing funding support for Energy Efficiency Projects in the public sector.	SEAI	Complete Scheme closed, efforts have moved to supporting PS bodies via the Exemplar club and NESF.
6.	We have developed a framework for energy efficient public procurement.	DCENR, SEAI, DECLG, NPS	Complete With publication of the Green Public Procurement Action Plan
New Actions			
Energy Supply Sector			
Ongoing NEEAP 1 Actions			
28.	We are working towards the introduction of Energy Savings Targets for energy suppliers	DCENR	Complete Mandatory Energy Obligations scheme introduce (S.I. 131/2014)
New Actions			
Transport Sector			
Ongoing NEEAP1 Actions			
41.	We will continue to support the deployment of electric vehicles in Ireland.	DCENR/ESB	
42.	We are enabling more fuel-efficiency, interurban freight and private car movements through improved road infrastructure.	DTTAS/NRA	Complete See Note below
New Actions			
50.	We will use spatial planning policies to reduce unnecessary commuting	DECLG	Complete
52.	We will ensure that Regulation 1222/2009 on the labelling of tyres is implemented in full.	DCENR	Complete
Business Sector			

No.	Action	Owner	Comments
Ongoing NEEAP1 Actions			
New Actions			
64.	The Better Energy Workplaces scheme will achieve significant, measurable and verifiable energy performance gains in the public and private sectors that will act as exemplars leading to replication of energy efficient retrofit measures across these sectors.	SEAI	<u>Complete</u>
65.	We will develop a standardised energy performance contract process with a view to overcoming the extant barriers that exist for the public sector in particular	DCENR/SEAI	<u>Complete</u>
70.	We will support the Build Up Skills Ireland (BUSI) initiative in the development of a National qualification roadmap.	DES/FAS, DCENR, DECLG, SEAI, NSAI	<u>Complete</u>
Residential Sector			
Ongoing NEEAP1 Actions			
75.	We are ensuring a move to highly efficient condensing boilers through Regulations setting a minimum efficiency standard for all new and replacement oil and gas boilers.	DECLG/SEAI	<u>Complete</u>
79.	We are encouraging more energy-efficient communities through our spatial and planning policies.	DECLG/SEAI	<u>Complete</u>
New Actions			
80.	We have introduced new Building Regulations, delivering a 60% improvement in new housing energy efficiency standards.	DECLG	<u>Complete</u>
83.	We will implement the provisions of the Recast Energy Performance of Buildings Directive (EPBD)	DECLG, SEAI	<u>Complete</u>
[NEW]	To ensure quality and robust retrofit works we will produce a national code of practice with the National Standards Authority of Ireland to ensure good retrofit practice	DECLG, SEAI, NSAI, DCENR	<u>Complete</u>
Cross-Sectoral Measures			
87.	We will establish a national Energy Performance	DCENR/SEAI	<u>Complete</u>

No.	Action	Owner	Comments
	Contracting (EPC) process to deliver innovative models of retrofitting and financing of energy efficiency measures in the commercial and public sectors.		
94.	We will establish a Cross-Departmental Implementation Group to deliver the actions contained in this Action Plan.	DCENR	<u>Complete</u>
96.	We will review the Voluntary Agreements for energy suppliers in the context of international best practice.	DCENR/SEAI	<u>Complete</u>

Actions that have been removed or superseded

No.	Action	Owner	Comments
Public Sector			
Ongoing NEEAP 1 Actions			
New Actions			
12.	We will also introduce obligations on public bodies that spend more than €5 million annually on energy to fulfil an exemplar role in energy management by: <ul style="list-style-type: none"> ➤ Publishing 3-year energy efficiency strategies; ➤ Formally setting energy efficiency objectives and targets and reporting on progress against them in their annual reports; ➤ Implementing ISO 50001 <i>Energy Management System</i>. 	DCENR/DPER	See action 11 comment
13.	We will introduce an obligation on public sector bodies to invite proposals from the market for energy saving solutions where the public body has an annual energy bill equal to or greater than €500,000.	DCENR/DPER	See action 11 comment
14.	We will encourage the development of industry representative groups.	SEAI	Delete
17.	We will introduce an obligation on public bodies that are contracting the development of capital projects with projected energy consumption in excess of 1 GWh per annum to formally integrate the principles of energy efficient design into the project development phase.	DCENR/DPER	See action 11 comment
18.	We will work together to overcome barriers to the deployment of innovative solutions and will disseminate lessons learned to all market participants.		Delete
[NEW]	Energy Exemplar projects	DCENR/SEAI	

No.	Action	Owner	Comments
Energy Supply Sector			
Ongoing NEEAP 1 Actions			
27	We will reduce electricity distribution losses to 7.5% in 2010.	CER/ESB Networks	Eirgrid: DS3 in conjunction with DSO
29.	We will prioritise energy efficiency in investment decisions for new-generation plant.		Delete
31.	We will implement a wide-ranging programme to fully investigate the opportunities and long-term policy options for the micro-generation of electricity via small-scale technologies.	DCENR	
New Actions			
36.	We will reduce electricity distribution losses to 7.1% in 2014	CER/ ESB Networks	
37.	We will continue to invest in the electricity distribution network in order to reduce losses	ESB Networks	Merged with 36
38.	We will continue to promote competition in the wholesale and retail energy markets.	CER	Delete
39.	We will introduce a renewable energy feed-in tariff scheme (REFIT) to support new renewable generation of electricity in 2012.	DCENR	
Transport Sector			
Ongoing NEEAP1 Actions			
43.	We are maintaining the fuel efficiency of older private cars through vehicle testing.	DTTAS/RSA	
New Actions			
Business Sector			
Ongoing NEEAP1 Actions			
New Actions			
66.	We will extend the Large Industry Energy Network (LIEN) membership, achieve deeper energy savings and intensify	SEAI	

No.	Action	Owner	Comments
	participation in the international energy management standard ISO 50001.		
67.	We will ensure that the SME sector has access to the necessary supports to reap the financial benefits from investment in appropriate energy management practices.	SEAI	Continuation of action 59 above
68.	We will develop the ACA products list and Triple E register to serve as the recognized reference list for energy efficient procurement.	DCENR/SEAI	As above for action 57. It is an on-going process which is continually promoted – eg promotional campaign about to get underway to dovetail with budgeting period for companies.
Residential Sector			
Ongoing NEEAP1 Actions			
New Actions			
85.	We will encourage industry to work towards the building requirements outlined in the framework for achieving low or nearly zero energy housing on a voluntary basis from 2013.	DECLG	<u>Delete – addressed under 84</u>
Cross-Sectoral Measures			
90.	We will change behaviour using the pricing mechanisms which incorporate the externalities of fuel consumption into the prices as encountered by producers and consumers in society.	DCENR	<u>Delete</u>
91.	We will actively participate in the negotiations on the revision to the Energy Taxation Directive.	Finance	
93.	We will ensure that energy measurement and verification systems are in place across all publicly-funded programmes as standard.	SEAI	<u>Delete</u>
95.	We will investigate the mechanism by which we could replicate the Australian Energy Efficiency Opportunities Programme in our large industry supports.	DCENR	<u>Not yet commenced</u>

ANNEX A – ENERGY EFFICIENCY DIRECTIVE ANNUAL REPORT

A.1. National energy efficiency target for 2020

A.1.1. Please state the national energy efficiency target for 2020 as required by Article 3(1) of the EED (*EED Annex XIV Part 1.*).

The indicative national energy efficiency target was established in the Government's 2007 Energy White Paper and further detailed in Ireland's NEEAP as **31,925 GWh** (primary energy savings).

A.2. Key statistics

A.2.1. Please fill out the key statistics listed in the table below (*EED Annex XIV Part 1.(a)*).

Table 1. Estimates of key statistics related to energy consumption in the year before last (year X – 2)

Estimate of key statistics related to energy consumption	Value (in each case indicate the units used)
Total primary energy consumption	13,490 ktoe
Total final energy consumption ⁽¹⁾	10,761 ktoe
Final energy consumption - Industry	2,252 ktoe
Final energy consumption - Transport	4,195 ktoe
Final energy consumption - Households	2,715 ktoe
Final energy consumption - Services	1,326 ktoe
Gross value added- Industry ⁽²⁾	€40.7 billion
Gross value added- Services ⁽²⁾	€98.6 billion
Average disposable income per household	€19,318 per capita
Total number of households	1,658,243
Gross domestic product (GDP) ⁽²⁾	€164 billion
Electricity generation from thermal power plants	1,759 ktoe
Electricity generation from combined heat and power plants	183 ktoe
Heat generation from thermal power generation ⁽⁵⁾	1,728 ktoe
Heat generation from combined heat and power plants ⁽⁶⁾	0 ktoe

Estimate of key statistics related to energy consumption	Value (in each case indicate the units used)
Fuel input for thermal power plants	3,873 ktoe
Fuel input for combined heat and power plants ⁽⁷⁾	300 ktoe
Energy transmission and distribution losses (all fuels) ⁽⁸⁾	449 ktoe
Total passenger kilometres (pkm) if available	1,886,421 pkm - cars
Total tonne kilometres (tkm) if available ⁽³⁾	9,895 tkm
Total kilometres (if pkm and tkm are not available) ⁽³⁾	NA
Total population	4,588,252
Heat generation from district heating plants ⁽⁴⁾	-
Fuel input in district heating plants ⁽⁴⁾	-

⁽¹⁾ No climate adjustment.

⁽²⁾ In constant prices (in volume) of 2005.

⁽³⁾ Excluding transport in oil pipelines.

⁽⁴⁾ Useful data to provide a clearer overview of the progress in the Member States, required by Energy Statistics Regulation (Regulation (EC) No 1099/2008).

⁽⁵⁾ Including waste heat produced in industrial installations.

⁽⁶⁾ Including waste heat recovered from industrial installations.

⁽⁷⁾ Useful data to follow the improvements of efficiency of combined heat and power generation

⁽⁸⁾ Useful reference data particularly for the measures implementing EED Article 15

A.3. Analysis of energy consumption trends

A.3.1. In each case where energy consumption for a sector reported in Table 4 above is stable or is growing please provide an analysis of the reasons for these trends (*EED Annex XIV Part 1.(a)*).

For a comprehensive analysis of the key energy trends, sectoral indicators and related policy issues, please refer to the Energy in Ireland 2013 report from the SEAI⁴³.

A.4. Update on major measures implemented in the previous year

A.4.1. Provide an update on all major legislative and non-legislative measures implemented in 2013 that contribute towards 2020 energy efficiency targets (*EED Annex XIV Part 1.(b)*).

⁴³ http://www.seai.ie/Publications/Statistics_Publications/Energy_in_Ireland/Energy-in-Ireland-1990-2012.pdf

Legislative

The European Union (Energy Labelling) (Amendment) Regulations 2013 (S.I. 261/2013)⁴⁴ were introduced which transposed the EU Energy Labelling Directive (2010/30/EU) and expanded the list of products and associated EU measures that are now covered by the legislation.

Non-legislative

Energy Saving Targets for Energy Suppliers

The energy saving targets for energy suppliers' programme operated on a three-year cycle (2011 – 2013). The programme ran on a voluntary basis, with 19 energy suppliers, spread across electricity, gas, solid fuels and oil importers signed up to voluntary energy saving agreements. These companies had a target delivery of 878GWh in energy saving measures in the period 2011-2013. At the end of 2013, 74% of the target energy savings had been achieved, however further projects are still being submitted for the 2013 period which will increase this achievement. Energy Efficiency Supplier Obligations are being introduced for the period 2014-2016 requiring energy suppliers above a certain threshold to achieve annual savings of 550GWh.

Energy Efficiency Fund and Energy Services Contracting Framework

A call for Expressions of Interest (EoI) for the appointment of an Energy Efficiency Fund manager was advertised in August 2013, with Sustainable Development Capital LLP (SDCL) subsequently chosen as the preferred applicant to manage the Energy Efficiency Fund in November 2013. The Fund was established on 26 March 2014.

The Fund is being supported by the National Energy Services Framework, which standardises the modality for energy performance contracting in Ireland⁴⁵. The Framework was published in 2013. Central to the success of both the Framework and the Fund will be the ability to identify and build a pipeline of investment grade projects. The first tranche of exemplar energy efficiency projects was launched in June 2013. Collectively, the exemplar projects will see investment of up to €55m in energy saving measures, resulting in annual savings of €7m. There are currently 21 projects (11 public and 10 private sector) underway.

Energy Efficiency in Products (Market Surveillance)

The Department of Communications, Energy and Natural Resources operates the National Market Surveillance Authority for ensuring compliance with the Energy Labelling, Ecodesign and Tyre Labelling Regulations and is obliged to carry out surveillance activities to ensure manufacturers and retailers are meeting their obligations under EU energy legislation. The first national Market Surveillance Inspection Programme took place in 2013 to meet the requirements of Regulation 765/2008, insofar as it applies to products regulated under Directives 2010/30/EU (Energy Labelling)

⁴⁴ <http://www.dcenr.gov.ie/NR/rdonlyres/178ABDBB-760A-4C15-A1E5-2AD96F5513CA/0/SI261of2013.pdf>

⁴⁵ http://www.seai.ie/Your_Business/National_Energy_Services_Framework/

and 2009/125/EC (Ecodesign). A total of 65 retailers and just over 14,000 products were inspected across 26 counties representing approximately 20% of the Irish electrical retail market. The data collected will provide baseline information from which the impact of future programmes can be assessed.

In late 2013, a contract was awarded for DCENR's 2014 – 2015 market surveillance programme, the scope of which will be expanded to include an awareness campaign, further inspections of retail outlets and product testing in certified laboratories. Manufacturers, retailers and products under the Tyre Labelling Regulations will also, for the first time, be included in the 2014 – 2015 Programme.

A.5. Central government buildings

- A.5.1. Please quantify the total floor area of all buildings with a useful floor area over 500m² owned and occupied by central government on the 1 January 2014 that did not meet the energy performance requirements detailed in Article 4 of Directive 2010/31/EU (*EED Annex XIV Part 1.(c)*).
- A.5.2. Please quantify the total floor area of all buildings heated and /or cooled owned and occupied by central government that was renovated in 2013 (*EED Annex XIV Part 1.(d)*).
- A.5.3. If the Member State has opted for an alternative approach for achieving an equivalent amount of savings, as allowed for by Article 5(6), please provide detailed descriptions of the alternative measures, such as deep renovations and measures for behavioural change of occupants (*EED Annex XIV Part 1.(d)*).

Ireland opted for the alternative approach allowed under Article 5 and submitted the report to the Commission in December 2013⁴⁶.

A.6. Energy Efficiency Obligations

- A.6.1. Please state the savings achieved in 2013 by the national energy efficiency obligations scheme introduced in response to the requirements of Article 6 of the Directive (*EED Annex XIV Part 1.(e)*).

A voluntary agreements programme was introduced in 2011 to run to end-2013. This programme has been replaced by an obligations scheme.

- A.6.2. Please provide a breakdown of the savings recorded for the last calendar year according to type of action undertaken (*EED Annex XIV Part 1.(e)*).

- See below.

- A.6.3. If the Member State intends to fulfil the energy savings target for the energy obligations scheme, in part or in full, by undertaking alternative measures as allowed for in Article 6(9),

⁴⁶ http://ec.europa.eu/energy/efficiency/eed/inventories_article5_en.htm

please provide a list of these alternative measures and a description of each (*EED Annex XIV Part 1.(e)*).

The national target under Article 7 of the EED equates to 1,102GWh PEE per annum and is divided equally between Alternative Measures and Energy Supplier savings. The details of our approach are set out in the notification submitted to the Commission in December 2013.⁴⁷ The total savings achieved under the Voluntary Agreements programme (the precursor to the Energy Efficiency Supplier Obligations Scheme) was 454 GWh in 2013.

⁴⁷ http://ec.europa.eu/energy/efficiency/eed/doc/article7/2013_ie_ee_article7_en.pdf

ANNEX B – BUILDING RENOVATION ROADMAPS

- B.1. Provide an overview of the national building stock based, as appropriate, on statistical sampling (*EED Article 4(a)*);
- B.2. Identify cost-effective approaches to renovations relevant to the building type and climatic zone (*EED Article 4(b)*).
- B.3. Provide information on policies and measures to stimulate cost-effective deep renovations of buildings, including staged deep renovations (*EED Article 4(c)*).
- B.4. Demonstrate a forward-looking perspective to guide investment decisions of individuals, the construction industry and financial institutions (*EED Article 4(d)*).
- B.5. Provide an evidence-based estimate of expected energy savings and wider benefits (*EED Article 4(e)*).

ANNEX C – NATIONAL PLAN FOR NEARLY-ZERO ENERGY BUILDINGS