CA ESD
CONCERTED ACTION
ENERGY SERVICES DIRECTIVE

ESD implementation in Ireland

The Department of Communications, Energy and Natural Resources is responsible for the ESD in Ireland. The Sustainable Energy Authority of Ireland (Ireland's national energy agency) is responsible for measuring the energy savings achieved and for implementation of many energy efficiency support programmes. The ESD is fully transposed in Ireland and implementation is either in place or at an advanced stage of programme planning and design.

Legal context

The ESD has been fully transposed into Irish law through the European Communities (Energy End Use Efficiency and Energy Services) Regulations 2009 – S.I. No. 542 of 2009. The European Union (Energy Efficient Public Procurement) Regulations – S.I. No. 151 of 2011 supplement S.I. 542/2009 by placing obligations on public bodies relating to the procurement of energy efficient products from a Register maintained by the SEAI.

Status of the implementation

The Table below sets out details of transposition of each element of the ESD.

Directive Article Reference	Directive Paragraph	National Regulations Reference	Other National enactment Reference	Comment
1	all	-	-	No action required
2	all	3	-	
3	all	2	-	
4	1(1)	4		
4	1(2)	5(2)	-	
4	2(1)	4(2)	-	
4	2(2)	-	-	No action required
4	3	-	-	No transposition required

4	4	All and 5(1)		Minister and SEI
4	5	-	-	No action required
5	1(1)	11	-	
5	1(2)	12,13,14,15	-	
5	1(2) indent 1	13,15	-	Annex VI e & f
5	1(2) indent 2	14	-	
5	1(3)	11(5)	-	
5	2	Part 4	-	
6	1(a)	6	-	
6	1(b)	-	Competition Act	
6	2(a)	16	-	
6	2(b)	17	-	
6	3	16(15)	-	
6	4	-	-	No action required
6	5	-	-	No action required
7	1	-	-	No transposition required
7	2	16(6)	Section 6(1)(b) Sustainable Energy Act 2002	
7	3	-	-	No action required
8	all	9	-	
9	1	-	-	No transposition required
9	2	7	-	
10	1	19	-	
10	2	-	-	No action required
11	all	18	-	
12	1,2	8	-	
12	3	8(3),13(5)	-	
13	1	20	Electricity Regulation Act 1999	Smart metering trials ongoing and will determine economic and technical feasibility of providing smart meters
13	2,3	19,21	-	
14	1	-	-	No action required
14	2	-	-	No transposition required
14	3	-	-	No action required
14	4	-	-	No action required
14	5	-	-	No action required
15	all	-	-	No action required
16	all	-	-	No action required
17	all	-	-	No action required
18	all	-	-	This instrument
19	all	-	-	No action required
20	all	-	-	No action required

Article 4: Energy Savings Targets

Ireland has adoprted the indicative 9% target from Article 4 in its national regulations. SEAI monitors energy savings achieved and reports to the Minister for Energy. Ireland also has a national target of 20% savings by 2020. The latter target is Government policy and is not set in law.

Article 5 Energy end-use efficiency in the public sector

Ireland has adopted an indicative target of 15% savings by 2016 for its public sector in its national regulations, to demonstrate its exemplar role (SI542 of 2009). Ireland also has a national target of 33% savings by 2020 for its public sector. The latter target is Government policy and is not set in law.

Under SI 542 of 2009:

- all public bodies must report annually from 2011 on their progress towards the 9% and 33% targets. Also they must include an energy efficiency statement in their annual reports

- Public bodies are required to engage the services of an energy auditor within 3 years and at least every 5 years thereafter.

- Ireland introduced amending regulations in 2011 (SI151 of 2011) requiring public bodies to only purchase specified equipment and vehicles named on a public database of energy efficient products. The Triple E database covers 49 classes of technology, with more to be added in 2011 http://www.seai.ie/Your_Business/Triple_E_Product_Register/. SEAI has produced guidelines for public bodies on energy efficient procurement. The DCENR and SEAI are collaboratining with their colleagues in the Department of the Environment, Community and Local Government (DECLG) to integrate energy efficient producement and Energy Performance Contracting principles into the national Green Public Procurement guidelines.

- Public bodies can only purchase or lease new buildings which meet specified building energy standards. A phased approach is specified in the regulations, with a minimum standard of B3 from 2012 (equivalent to the current building standard for new buildings) and A3 from 2015. This phased approach will give certainty to the market and allow building owners to renovate if necessary, if they wish to rent to the public sector. The above standards do not apply to existing leases.

Public sector programme

In order to assist public bodies in meeting the 9% target, and the higher 33% policy target, SEAI launched a new support programme in 2009 for the public sector. The focus of the programme is to underpin public bodies' own efforts in reaching the target by embedding energy management into the general management of public sector organisations. This also requires collaborating with the various government departments and agencies to embed energy management principles into their administrative processes and systems.

Energy Partnership - engages senior management within organisations and provides tailored support delivered in partnership with those organisations who demonstrate commitment to strategic energy management. In November 2010 a group of fourteen leading public bodies committed to the SEAI's Energy Partnership initiative to deliver total cumulative energy savings of €330 million by 2020. The initial group of leading organisations, which have a combined annual energy spend in excess of €150 million, is expected to be joined by other public bodies across the sector.

Best Practice Energy Assessments - Since 2009 the SEAI has provided free, one-to-one advice and mentoring to over four hundred public sector facilities through its Advice Mentoring & Assessments service. This service is delivered by expert energy advisors that help and motivate these organisations to assess their own energy use, to identify opportunities for savings and to take action to realise savings. To date, the participant public sector facilities have achieved 58 GWh in annual savings. In 2011 the SEAI and the DCENR established a new working group on Financing Retrofit in the Public Sector. The focus of this group is to facilitate the development of a market for innovative models based on the concepts of energy performance contracting.

Best Practice Training - The SEAI offers two innovative training programmes on energy management that have been developed and tailored specifically for the public sector. Since

2009, 30 public bodies have participated in the training sessions, including 20 local authorities.

Energy Efficient Design EED is a methodology that facilitates the design, construction and management of projects so that they consume the minimum quantity of energy during subsequent operation. In 2009 and 2010, the SEAI supported eight EED reviews for large capital projects including for the National Paediatric Hospital, Metro North, a new school development and several water services facilities. The methodology will be part of the national Green Procurement guidelines.

Public Sector Energy Link - The Public Sector Energy Link was launched in May 2011 as an online network for sharing and exchanging information, knowledge and real-life experience on energy management in the public sector. The network, which is administered by SEAI, helps public sector professionals to get answers and solve problems through sharing and exchanging knowledge and experience on energy management with their peers in other public bodies.

Funding and financing – provides tailored supports to public bodies to investigate innovative forms of procurement and drive the implementation of Energy Performance Contracting and ESCos. Early activity on these latter items is happening in the health and local authority sectors.General guidance on sources of funding & grants is also provided.

Monitoring and Reporting – SEAI are developing a comprehensive online reporting package for public bodies to report annually on their energy usage and performance. In 2010 over 20,000 electricity and gas meter numbers were reported to SEAI by public bodies in response to a request by the DCENR. In 2011 SEAI will use these meter numbers to enable automatic reporting of network connected energy use, therefore reducing the annual reporting burden on public bodies.

Funding programmes

Supports for Exemplar Energy Efficiency Programme

As part of the SEAI's energy cost reduction services for the public sector, €5.9 million of financial support was made available in 2009 through the Supports for Exemplar Energy Efficiency Programme for the implementation of 69 exemplar energy efficiency projects in the public sector. The estimated annual savings achieved was 30 GWh.

Energy Efficiency Fund

In 2010, the SEAI provided a further €5.3 million of grant support to 30 public sector projects through the national Energy Efficiency Fund, which targeted upgrades to buildings, services and facilities involving ambitious packages of energy efficiency investment actions aimed at achieving ongoing and lasting energy savings of 33 GWh per annum.

Article 6 Energy distributors, distribution system operators and retail energy sales companies

Ireland's national regulations provide the legal basis for the Minister for Energy to impose the obligations outlined in Article 6. The national regulations are expected to be revised in 2011 through an act of parliament giving the Minister additional powers to set quantitive energy saving targets to be achieved by energy companies. The Energy Miscellaneous Provisions Bill 2010 provides for requirements on energy suppliers, voluntary agreements and the creation of an Energy Efficiency Fund (currently Part 5 of S.I. 542/2009) in primary legislation and is expected to be enacted in 2011.

In practice, Ireland will implement these obligations through its national retrofit programme. *Better Energy – The National Upgrade Programme*, was launched in May 2011 and represents the culmination of 18 months planning and consultation and fulfils a commitment that was made in the NEEAP. There are three strands to Better Energy. The first strand allows domestic customers to apply for a state supported incentive, currently a grant but

which will migrate to an aupfront discount later in the year. The second strand consists of the imposition of energy saving obligations on energy suppliers who each supply more than 75 GWh of energy each year. The companies will conclude voluntary agreements with the SEAI (national energy agency) to deliver energy savings to customers. The third stand provides support for energy efficiency upgrades in low-income privatge housing.

Ireland's national regulations also provide the legal basis for recognition of voluntary agreements as an alternative to obligations.

Article 7 Availability of Information

SEAI has a statutory role in promoting energy efficiency to all sectors of the economy including the general public, industry, business and the public sectors. SEAI fulfils this mandate through a range of programmes and in particular its Power of One energy efficiency awareness and behavioural change programme **www.powerofone.ie.** Ireland's national regulations place a legal obligation on energy distributors, distribution system operators and retail energy sales companies to promote energy efficiency to their customers. If the Minster is not satisfied that a company is adequately complying with this general obligation, he can issue a Direction to the company specifiying what remedial action is required.

For the general public, SEAI has an extensive array of web and print collateral on all aspects of energy use in the home and transport, including guidance on how to minimise energy use through behavioural change, home improvements and efficient product purchase. SEAI operates a helpline for people with specific queries about their energy issues. SEAI's web content includes a range of self help guides and calculators and a recently launched iPhone app on home energy management. SEAI also delivers a curriculum-based schools energy programme which engages pupils of all ages with a view to informing the attitudes, values and beliefs of the energy consumers of the future.

In the industry, business and public sectors SEAI's programmes provide a range of advice and guidance through seminars, workshops, case studies and web content to inform those with a responsibility for energy management. The materials are generally identified in respect of the sectors targeted or the technologies addressed, thereby enhancing their relevance to particular audiences.

Article 8 Accreditation etc.

Ireland's national regulations provide for the establishment of a system of registration for energy auditors for which the existing building certification system, BER, run by the SEAI is deemed equivalent.

Article 9 Financial instruments for energy savings

Under Ireland's national regulations, SEAI is mandated to ensure model contracts are made available for the use of ESCOs and final users in connection with the procurement by those final users of energy services and energy efficiency improvement measures and to promote their availablility. One model contract for ESCO contracts has already been developed by SEAI in conjunction with a hospital. Ireland is proposing to further develop its model contracts as part of its national retrofit programme, which will involve supports for energy efficency improvement in the public sector being focused on an approach involving ESCOs and energy performance contractors.

Article 11 Funds and Funding Mechanisms

Ireland's national regulations provide for the establishment of an Energy Efficiency Fund. The Energy Efficiency Fund will be introduced by way of primary legislation through enactment of the Energy Miscellaneous Provisions Bill 2010.

Separately the Ministry for Energy is developing proposals for the rollout of a national pay-as-you-save (PAYS) scheme by the end of 2013.

Article 12 Energy Audits

High quality energy audits are commercially available to all final consumers from the market in Ireland. Under Ireland's national regulations, SEAI is tasked with monitoring such market availability and advising the Minister for Energy if market intervention is necessary. Where this is necessary, the Minister is obliged to make appropriate arrangements to promote or support their provision, or otherwise ensure their availability. This approach is consistent with article 12 and it would not be appropriate for the State to intervene when the market is functioning satisfactorily.

A scheme for the accreditation of energy auditors is being considered pursuant to the development of the national PAYS scheme. Currently *Better Energy* part funds Building Energy Rating (BER) assessments for final customers.

Energy assessments by suitably qualified professionals, including site visits and follow up support, are available free of charge from SEAI to SMEs and public sector bodies. Energy management training is also available. These programmes are proving highly popular.

Article 13 Metering and Informative Billing

The rollout of the Smart Metering Programme in Ireland for both electricity and gas is progressing in line with the commitment in the Government's Energy Policy Framework and in the Programme for Government. The Smart Metering Programme is a central component of the strategy to radically enhance management of energy demand and to deliver greater energy efficiency through the use of cutting-edge technology.

This is a highly complex technological project. The pilot phase of the Smart Metering Programme involves conducting a number of trials to ensure that the optimum and most cost effective technology and systems are identified for the implementation phase. The specifications of the metering systems chosen for these trials will allow the testing of a range of functions to deliver enhanced demand management. These include, interval metering reading, time of use tariffing and the use of In Home Display devices.

The objective of the pilot phase of the programme is to arrive at a fully informed decision on the most suitable model of smart meter/IT system, tariffing structure, communications systems and demand stimuli. The model must have the proven capability to deliver the anticipated benefits of smart metering, taking account of the specifics of the Irish energy system.

The pilot phase encompasses two strands – a Technology Trial and a Customer Behaviour Trial for each of electricity and gas.

The Technology Trials are testing a number of advanced metering systems and their associated IT and communications infrastructure.

Up to 5,000 meters have been deployed for the electricity techonolgy trial. Up to 100 meters were installed to facilitate the Gas Technology Trials.

The aim of the Customer Behaviour Trials was to determine the potential of smart meters to achieve measurable change in consumer behaviour. The participants in the Customer Behaviour Trials were

selected to ensure that the sample is representative of Ireland's electricity and gas consumers both in terms of usage profiles and geographical spread.

The electricity Customer Behaviour Trial commenced on 1 January 2010 following a six month benchmarking period and this trial was completed at end December 2010. The trial was able to capture seasonal changes in usage for peak demand management purposes. A range of Smart Metering enabled energy efficiency initiatives such as monthly billing, In Home displays, Time of Use Tariffs etc. were tested as part of the Customer Behaviour Trials.

Over 1,900 meters have been installed for the gas Customer Behaviour Trials. The benchmarking period for the gas Customer Behaviour Trials commenced in December 2009 and the trail began on 1st June 2010. The trial will be completed at end May 2011.

The potential for a Smart Metering Prepayment Model, similar to 'Pay As You Go' mobile telecommunication arrangements, is now being assessed by the Smart Metering Steering Group for both electricity and gas.

Smart Meter trials will provide reliable, quality data on actual energy use which will provide important information for the development of our energy efficiency strategy and, it is anticipated, lead to significantly better services to consumers in areas such as improved fault monitoring and outage recording, power quality monitoring, reduced theft and losses and improved network planning.

The electricity element of the smart metering pilot is proceeding in parallel with Ireland's current microgeneration initiative and there are important links between the two. The data gathered from the interval meters being used in this microgeneration scheme will provide vital information on the import and export of electricity, which will feed into the analysis of electricity use being carried out in smart metering pilot. In this way, the findings of the smart metering pilot will in turn inform the development of a long term micro generation programme.

The present estimated cost of the smart metering pilot is €27m. This comprises €22m for the electricity element and €5m for the gas element. The cost of a national roll out will be determined on foot of the results of the pilot programme and decisions taken on the optimum type of cost effective smart metering system that will deliver the level of functionality required in an Irish market.

A key component of the pilot phase is the associated Cost Benefit Analysis which will critically inform future decisions. The analysis on the electricity trial has been completed and the final analysis, to include the results of the gas trials, to be completed by September / October 2011.

The results of the electricity trials were published in May 2011 on the Commission for Energy Regulations (CER) website. The reports on the technology trials, the customer behaviour trials and the cost benefit analysis can be found here and are synopsised as follows.

Technology Trial:
The main objective of the technology trials was to assess the performance of representative smart metering systems and communication technologies and to identify risks and issues for a national rollout. Three main communications technologies were trialled; Power line carrier (PLC), wireless LAN (2.4GHz wireless mesh) and point to point wireless (GPRS).
The trials found that PLC could reliably deliver monthly readings but daily collection of data from every meter (e.g. daily profiles) and the performance of on-demand tasks proved more difficult.
The GPRS based system underpinned communications in the customer behaviour trial and worked well with good availability. However, mobile vendor (sim cards) lock-in and the longevity of GPRS as a technology were identified as issues.
Wireless mesh worked well in urban areas where a good mesh topology could be established due to the proximity of meters. It did not work well in rural areas however where European Regulatory limitations on signal power at the 2.4GHz frequency resulted in poor signal strength. Mesh systems outside of Europe operating in the sub-1GHz range at relatively higher transmission power appear to be more successful.
Based on the meters used in the trial, it is believed that there will be a good choice of metering technology to meet the functional requirements of a full roll-out.

Electricity Customer Behaviour Trial (CBT):
The main objective of the CBT was to determine the impact that the introduction of smart meters in conjunction with various stimuli could have on customer behaviour.
The electricity trial entailed installation of 5,600 meters in dwellings and 600 meters installed in SMEs, accompanied by extensive preliminary statistical work to ensure population representativeness and design of appropriate tariff stimuli. This was followed by a 6 month baseline/ benchmark data collection period an indication of "normal" customer behaviour over a demi-seasonal cycle. On 1st Jan 2010 the behavioural stimulus trials commenced and ended on December 31st 2010.
The data collected was used to assess the impact of various stimuli and tariffs on customer behaviour as compared against the benchmark data. There were 4 tariffs (with day, night and peak rates) and 4 associated stimuli (monthly and bi-monthly detailed bills, in-home displays and an overall load reduction reward) in the residential trial. The tariffs varied from modest to more onerous (i.e. from 20 cents to 38 cents for peak rate) with commensurate off-peak and night rates. The overall load reduction offered participants a cash reward (€20) if they can reduce their consumption by 10% over the trial.
Detailed one on one interviews were conducted with the participants both before and after the trial to establish things like attitude to energy usage, openness (or ability) to change or adapt energy usage socio-economic status etc. Participants who left during the trial (for example due to change of supplier) were similarly interviewed to determine what, if any, effect the trial had on their decisions to leave.
The main results of the trial are:

- Participants in the trial achieved an overall reduction in consumption of 2.5% compared to the control group.
- A peak shift (i.e. move away from peak prices between 5pm and 7pm weekdays) of 8.8% was recorded (again compared to the control group),
- The in-home display in conjunction with a printed bi-monthly detailed energy statement and bill delivered a peak shift of 11.3%
- Participants adapted their usage to realise the potentially positive impact of time of use tariffs on their bills.
- Simple informational measures, such as the use of fridge magnets depicting the times that different tariffs applied proved to be effective.
- SME participants reduced overall electricity consumption by 0.3% and peak usage by 2.2%.

Cost Benefit Analysis (CBA):
The CBA was on the electricity trial was carried out by the ESRI and delivers a robust economic assessment of all of the long term costs and benefits to the market and individual consumer of a national electricity smart metering rollout. The CBA examined a number of rollout options and found that the net present values for the 12 main ones to be generally positive. It found that a rollout of smart meters could provide a net benefit to customers and Ireland of up to circa €174 million over the next 15-20 years. It also found that the rollout of smart meters would realise reduced CO_2 emissions of 100,000 to 110,000 tonnes below baseline per annum.

Next steps:
The CER will publish a consultation paper on a proposed national smart metering high level design and implementation approach for both gas and electricity in August 2011. In October 2011, they will publish a decision paper on the design and rollout of smart meters.

Additional efforts

Ireland has a higher policy target of 20% energy savings by 2020, including a 33% target for the public sector.

Ireland will submit a second National Energy Efficiency Action Plan in June 2011 under the ESD which will include an update on national energy efficiency policy measures undertaken and energy savings target progress since our first NEEAP was published in 2009.

Future planning

The National Upgrade Programme is designed to make it as easy as possible for homeowners, irrespective of financial means, to access energy efficiency measures, be it through obligated energy suppliers or through market operators. The SEAI will maintain an online application tool that will act as the focal point for applications. This represents phase one of the Upgrade Programme.

Phase two of the Upgrade Programme will see a transition to upfront discounts rather than retrospective grant payments. This is anticipated to lesson one of the most persistent barriers to action, namely the availability of financial resources.

In phase three, additional partners will be added, such as DIY stores, electrical retailers, builders' providers etc. In fact, any organisation that has the potential to unlock energy savings could have a role within the Upgrade Programme. It is anticipated to gradually integrate phase three partners into the programme from late-2011. Future growth will depend upon innovative financing packages being made available.

Relevant information

Department of Energy **www.dcenr.ie**

Sustainable Energy Authority of Ireland **www.seai.ie**

Ireland's 2009 NEEAP

http://www.dcenr.gov.ie/Energy/Energy+Efficiency+and+Affordability+Division/National+Energy+Efficiency+Action+Plan.htm

Scheme of Accelerated Capital Allowances for Energy Efficient Equipment **www.seai.ie/aca**

Better Energy – The National Upgrade Programme

www.seai.ie/Grants/Better_energy_homes/

Power of One awareness and behavioural change programme **www.powerofone.ie**

Public Sector supports **http://www.seai.ie/Your_Building/Public_Sector_Programme/**

Ireland's schools programme **http://www.seai.ie/Schools/**