Framework for Northern Ireland's Energy Efficiency Levy Programme

Prepared by:

The Energy Saving Trust

Presented to:

The Northern Ireland Authority for Utility Regulation

Updated September 2008

The Energy Saving Trust

EST is a non-profit organisation that promotes energy saving, funded by government and the private sector. Set up after the 1992 Rio Earth Summit, it has two main goals:

- To achieve the sustainable use of energy.
- To cut carbon dioxide emissions, one of the key contributors to climate change.

To achieve these goals, it works with households, businesses and the public sector:

- Encouraging more efficient use of energy.
- Stimulating the demand and supply of cleaner fuelled vehicles.
- Promoting the use of small-scale renewable energy sources.

Our Members

The Secretary of State for Environment, Food and Rural Affairs
The Secretary of State for Transport
The First Minister for Scotland
The First Minister for Northern Ireland
The Welsh Assembly Government
BG Group plc
BP Oil UK Ltd
BG Microgen
Centrica plc
Calor Gas Ltd
EDF Energy plc
Firmus Energy
Innogy plc
Johnson Mathey
Manweb
Northern Ireland Electricity Energy
National Grid Transco plc
Phoenix Natural Gas
Powergen plc
ScottishPower plc
Scottish and Southern Energy
Shell International Ltd

A FRAMEWORK FOR NORTHERN IRELAND'S ENERGY EFFICIENCY LEVY PROGRAMME

1. INTRODUCTION

1.1 Background to the Energy Efficiency Levy Programme

The EEL Programme was introduced in Northern Ireland (NI) as part of a review of the price controls on Northern Ireland Electricity plc (NIE) by OFREG (now known as the Northern Ireland Authority for Utility Regulation) in 1997/98. EST was asked by OFREG to assist in the development of a suitable framework and energy saving target for the operation of the programme, which has been implemented on an annual basis since 1997/98.

Initially, the programme was based on a levy of £1 per customer (equating to approximately £665K per annum), with an annual energy saving target of 55GWh. The size of the EEL has gradually increased over the years, reaching a level of £2.05 per customer with an annual energy saving target of 122 GWh by 2001/02. The concept and operation of the EEL Programme was very similar to the Energy Efficiency Standards of Performance (EESoP) Programme, run by the public electricity suppliers in GB, the major difference being that suppliers were awarded a financial incentive to overachieve their annual target. OFREG advised that a suitable level for this incentive would be £4,000 for each GWh saved (RPI linked) above the target.

In 2002 OFREG consulted on the future of the EEL. Following the consultation a new Framework for the operation of the EEL was developed. The Framework covered a five year period between 2002/03 to 2006/07 with funding based on £5 per customer increasing annually in line with RPI.

In recognition of the widespread problem of fuel poverty in NI, this new phase of the EEL required that 80% of the available funds were spent on schemes that focussed on alleviating fuel poverty. Two different types of fuel poverty scheme were implemented. Half of the funding was spent on supporting the Warm Homes Plus programme, by providing the necessary insulation measures when the full Warm Homes Plus grant had been spent installing a heating system. The rest of the funding was spent on schemes that provided a full package of insulation and heating measures to poorly insulated and/or poorly heated homes, thus ensuring that the properties were 'fuel poverty proofed'. This approach proved very successful, with approximately 3500 homes 'fuel poverty proofed' and a further ca 5000 homes "fuel poverty proofing assisted" (via Warm Homes/Warm Homes Plus).

1.2 Proposals for a new EEL Programme

In Mar 06, OFREG conducted a further consultation, entitled 'The Northern Ireland Energy Efficiency Levy - A Review". This consultation posed several questions such as whether the EEL should be increased to £10 per customer, whether it should be

extended to gas customers and whether or not the EEL should continue to support the Warm Homes Plus programme.

Following the consultation period, OFREG announced that the EEL would continue for a further three years (2007/08 - 2009/10) before a further review and that the Levy would increase to £7 per customer, increasing annually in line with inflation. Discussions held both during and after the consultation period have resulted in an agreement that an updated framework for the operation of the EEL would be developed, and that the majority of the funding would continue to be spent on projects to tackle fuel poverty.

Between 2002/03 - 2006/07, fuel poverty projects implemented under the EEL were required to target homes that either had no existing heating system or existing solid fuel or electric heating. The customers in such homes, along with those qualifying for the Warm Homes Plus scheme were defined as the 'priority group'. For this new phase, it has been agreed to redefine the priority group. The following activities will therefore be eligible to qualify for use of the 80% of EEL funds set aside for the priority group.

- Supporting the Warm Homes Plus scheme.
- Full packages of energy efficiency measures installed in homes that have no existing heating, electric heating or solid fuel heating.
- Full packages of energy efficiency measures for homes with old oil fired central heating systems (15 years old or more) or oil fired systems that are broken beyond viable repair.
- Provision of individual measures (insulation and heating controls) to priority group homes.

To ensure that this priority group funding is directed towards the most vulnerable homes it has also been agreed that a new, over-arching criterion will be applied, as discussed in section 2.5.6. Each scheme involving the priority group will therefore be required to set out how they will reach the most vulnerable homes, for example as defined in the DSD's Fuel Poverty Strategy. Information from the NIHE House Condition Survey and from NEA may also be used to help target the most vulnerable homes.

1.3 The Role of the Energy Saving Trust.

When the Northern Ireland Authority for Utility Regulation (the Utility Regulator) decided to introduce the EEL in 1997/98, EST was commissioned to recommend an appropriate framework for the operation of the programme. On behalf of the Utility Regulator, EST also evaluates all projects submitted under the EEL against the relevant criteria and provides technical advice to assist in project development. EST carries out audits of completed projects to verify that they have been delivered in line with the approved statement of method.

EST has long experience in the development and evaluation of regulatory energy efficiency programmes. As well as our involvement in the EEL, it has played a key role in the regulatory programmes run in GB, including:

- Developing the frameworks for the operation of the EESoP programmes run between 1994 – 2002;
- Undertaking the evaluation of all projects implemented under the EESoP programmes;
- Co-ordinating energy monitoring and auditing activities;
- Developing and managing national energy efficiency projects on behalf of the energy suppliers;
- Assisting DEFRA in the development of the current Energy Efficiency Commitment programme (EEC) which has replaced the EESoP programmes.
- Assisting Ofgem in the administration of EEC, in particular acting as their technical advisory agents.

At the Utility Regulator's request EST has undertaken to further develop the Framework for the delivery of the EEL programme. The Utility Regulator has also requested that EST continues its current evaluation role under the new Framework, and will be responsible for assessing all projects submitted by energy suppliers.

The EST/The Utility Regulator evaluation arrangements are formalised by a 'Heads of Agreement' contract.

1.4 Report Format

Section 2 of this document discusses in detail the various factors that need to be taken into account when developing the broad framework for the new EEL. Section 3 covers the detail of the assumptions made by EST when setting the overall energy saving target. Appendix 1 illustrates the administrative procedures to be followed by energy suppliers who submit projects under the programme. Appendices 2, 3, 4 and 5 contain examples of customer satisfaction surveys, the project completion proforma, guidance on the use of the different energy efficiency measures, and a list of legislation relevant to energy efficiency projects.

1.5 Equality Impact Assessment

The Utility Regulator has undertaken to incorporate equality consultation within its corporate strategy to be published this year.

EST has undertaken, through its Northern Ireland Sustainable Energy Database (NISED) (see para 3.4), to provide the Utility Regulator with monitoring information on the geographical and sectoral spread of households benefiting from the EEL on an annual basis such that any equality issues can be identified.

2.0 BROAD FRAMEWORK

2.1 Eligible Initiatives

The original Framework Document[1] for the EEL, developed by EST in 1998, set out a number of essential criteria that projects submitted for funding needed to satisfy. These criteria will continue to be applicable under this new phase of the Levy.

Projects submitted for funding must therefore meet all of the following essential criteria:

- Funding must be targeted at activities that result in energy efficiency measures being adopted. Funding cannot be used for research, demonstration or purely educational projects.

- Projects aimed at priority group customers must be targeted in line with the guidance provided in Section 2.4 and of this document.

- Measures promoted should be in customers' financial interest. In other words, the present value of the lifetime customer benefits (energy bill savings and improved comfort) should exceed the cost of the measures;

- Measures should deliver overall economic benefits to NI;

- Measures promoted should be proven technology which meet or exceed relevant standards (e.g. safety, quality, etc);

- Projects should be structured, where possible, to secure the maximum level of funding from customers and third parties, e.g. equipment manufacturers; housing providers; fuel suppliers;

- Projects should be designed and managed cost effectively;

- Consideration should be given to legislation specific to the scheme in hand, as well as statutes that affect many proposals, such as the Human Rights Act, or the Data Protection and Freedom of Information Acts.

2.1.1 Additionality

In order to approve suppliers' schemes EST must be satisfied that they deliver improvements in energy efficiency and that any reductions in carbon emissions that result will be over and above that which would have happened without the NI's EEL. This principle is known as 'additionality' and is central to EST's administration of the programme and determination of energy savings for completed schemes.

[1] "Northern Ireland Energy Efficiency Incentive"; EST: Jul 98

Projects must be additional to any planned activity, regulatory obligation or government-funded initiatives.

In order to ensure that EEL funding has effected the commencement of a project (i.e. the project would not have taken place without that funding) the supplier's contribution will normally need to be a minimum of 20%. This applies to all projects, but it is expected that this criteria would be applicable more to non-priority projects, as far higher levels of supplier funding are usually required for fuel poverty projects. Where it is proposed to fund less than 20%, clear evidence that the project would not otherwise proceed would need to be provided;

EST must be satisfied that the way in which a supplier proposes to undertake the action will result in an improvement over and above what would have occurred without the EEL, that is additional measures are installed.

EST must be satisfied that the supplier's action has led to an energy saving and that the total improvement is not due to other factors. Therefore, suppliers must not set up any retrospective agreements to provide funding for measures already installed.

Projects should be designed to minimise 'free riders', i.e. those who are likely to have adopted a measure without any support or encouragement;

2.1.2 Additionality – existing regulations and legal requirements.

EST must be satisfied that a supplier's notified action will result in improvements in energy efficiency which is additional to that required to be achieved as a result of other legal requirements. The Building Regulations, for example, require reasonable provision for the conservation of fuel and power in domestic premises. As there is already a legal requirement to meet the Building Regulations, a supplier's action must lead to improvements in energy efficiency above what would be achieved to meet the requirements of the Building Regulations.

Measures installed in new build homes will not be counted as additional, unless a declaration can be provided from the housing developer to confirm that the house would have met the Building Regulations without the measure, and that the supplier's funding has enabled the developer to exceed the Building Regulations.

EST will monitor any potential changes to the Building Regulations and will discuss the implications of these on qualifying action with the suppliers.

2.1.3 Additionality – actions with third parties

Where a supplier is undertaking action in partnership with third party, EST must be satisfied that the supplier's action will result in improvements in energy efficiency additional to those that would be achieved by the project partner without the supplier's funding. The following criteria will be taken into account:

Social Housing Providers

When partnering with Social Housing Providers (SHP), a supplier must obtain written confirmation that its involvement has resulted in additional improvements in energy efficiency. This declaration may be signed before the scheme commences or after it has been completed. If the declaration is signed beforehand, and any changes occur to the scheme, the SHP must sign another declaration once the action is completed. For this purpose a change will be considered to be a change in the measure types installed, or a reduction in the supplier's average cost contribution of more than five percentage points.

Manufacturers

When partnering with manufacturers to improve the energy efficiency performance of a new measure, such as at the production stage of consumer electronics, a supplier's action must result in improvements in energy efficiency additional to mandatory requirements and to those achieved as a result of voluntary industry agreements. The manufacturer should write to confirm that the improvement in energy efficiency would not result without the supplier's action.

Monitoring may be necessary to avoid double counting between different suppliers' schemes. EST may ask the supplier to inform the other suppliers of their partnership to help avoid double counting of measures.

Retailers

Where additionality is being determined through the change in market share, for example some consumer electronics schemes, the market share will be determined before and after the supplier activity through the use of electronic point of sale (EPoS) data from the retailer.

When retailers or manufacturers are providing sales data to suppliers, a covering email or letter should be provided to confirm which period the EPoS data covers, that these sales all took place in NI and exclude trade sales. The letter should also confirm that the measures and/or marketing was subsidised by the supplier, and funding has not been received for these measures from any other supplier.

When delivering measures through a retailer a marketing plan detailing the activities the retailer or manufacturer has agreed to carry out which are funded by the supplier must be provided. This will help demonstrate that the supplier's action will result to an improvement in energy efficiency above what would have happened without suppliers' input. This should include when and how the measures will be promoted in the store(s).

With other Government programmes

Suppliers may be able to undertake action in conjunction with other government programmes, providing that the supplier can clearly demonstrate that its action has

resulted in an improvement in energy efficiency above what would have happened without its involvement. In this case:

a) A signed letter must be provided by the relevant project partner to confirm that the supplier's actions have exceeded those of the government programme and that the measures to be accredited to the supplier could not have been installed without the supplier's input, i.e. the supplier is not claiming measures which would have been installed through the other programme anyway.

b) There must be a clear, upfront agreement with the project partner to ensure there is no potential for double counting of carbon savings between the ELL and another government programme. If the supplier is part funding measures in conjunction with another government programme, then the carbon savings accredited to the supplier will be in proportion to the funding they have provided.

2.2 Eligible costs

In broad terms, any activity which satisfies the above criteria is eligible for funding. Individual projects may include some or all of the following costs:

- Project development costs;
- Project management costs (see also section 3.8);
- Direct subsidies for measures;
- Loans to customers or third parties;
- Project-specific external costs including marketing;
- Monitoring costs;
- Evaluation costs;
- The Energy Saving Trust's costs associated in assessing, approving, evaluating and auditing projects on behalf of the Utility Regulator.

2.3 The Funding Available

The new EEL has been introduced at a level of £7 per customer for 2007/08. With approximately 806,500 customers, this equates to overall funding of £5,645,800 in the first year. The Utility Regulator has stated that the EEL will increase in line with inflation, and the table 2.1 below illustrates the resulting increase in the EEL over the next 2 years of the programme. Following consultation with the Treasury an inflation rate of 2.5% per annum will continue to be used.

Table 2.1 - EEL adjusted for inflation

Year	Customer Numbers*	Rate of Funding	Total Available Funding
2008/09	823,500	£7.175	£5,908,613
2009/10	840,800	£7.354	£6,183,559
Total			£12,092,172

* Customer number forecast provided by NIE Energy**.**

Note: While bidding for this funding will be on an annual basis (see Appendix 1, Section 1.0), bids for projects lasting more than one year can be accepted, providing EST is satisfied that such projects represent better value for money. At least 25% of the funding shown above will still be available for bidding on an annual basis.

2.4 The Focus on Fuel Poverty

As mentioned earlier in this Framework, the priority of the new EEL will continue to be the alleviation of fuel poverty. Fuel poverty is caused by a combination of factors including poor energy efficiency of the home, the cost of fuel and low household income. The need to spend a large portion of income on fuel means that householders have to make difficult decisions about other household essentials. This can lead to poor diet, reduced opportunities to participate in the community, as well as an increased risk of ill health due to cold homes.

A Ministerial Group on Fuel Poverty has been set up, and has defined fuel poverty as follows:

' A household is in fuel poverty if, in order to maintain a satisfactory heating regime, it would be required to spend more than 10 per cent of its income (including Housing Benefit or Income Support for Mortgage Interest) on all household fuel use[2]'.

Following the Utility Regulator's consultation in Mar 06 it was agreed that 80% of the available funds would continue to be focussed on fuel poverty, with projects being aimed at priority group customers. The remaining 20% is available for non-priority customers and non-domestic customers. For clarity 'priority group customers' are those customers who would fall under the scenarios set out in paragraphs 2.5.2, 2.5.3, 2.5.4, and 2.5.5.

The reasons for continuing the 80/20 allocation are threefold:

- The overall level of energy savings arising from EEL projects will be optimised, balancing the objectives of tackling fuel poverty and the contribution to climate change targets. Due to the ability to lever in additional funding from non-priority customers to help pay for energy efficiency measures, projects delivered to these sectors are more cost effective. EST has calculated that by adopting an 80/20 allocation of funding as opposed 100% funding for fuel poverty, approximately 15% more energy savings will be achieved.
- Directing 20% of the funding toward non-priority customers would allow EEL projects to continue the 'market transformation' effect that has resulted from non-priority projects already implemented. Due in part to the wider availability of 'A' rated appliances and quality energy efficient light bulbs under previous EEL projects, the prices for these measures has dropped. These cost reductions can benefit all customer groups when they purchase these

[2] "Energy – its impact on the environment and society"; DTI: Jul 02

measures from retailers. In addition, some very successful non-domestic schemes have been implemented over the last few years, resulting in very cost effective use of EEL funds.

- All electricity customers in NI contribute to the EEL. It is therefore considered fair that all customers have access, should they wish, to participate in projects implemented by energy suppliers.

2.5 EEL Projects to tackle Fuel Poverty

2.5.1 Background

Between 2002/03 and 2006/07, the 80% of EEL funding set aside for schemes aimed at priority group customers was spent in two different ways with equal amounts of funding for each.

The first approach was for EEL projects to provide packages of heating systems and insulation measures to improve the least efficient properties in the housing stock, thus effectively 'fuel poverty proofing' those homes. The approach focuses on the energy efficiency of the dwelling rather than the benefit status of the householder, by targeting homes with either electric storage heating, solid fuel heating or no central heating system. These homes are recognised as being the least energy efficient, having been shown in the NIHE House Condition Survey to have the lowest SAP ratings. Adopting this criterion meant that homes ineligible for assistance under Warm Homes were instead assisted by EEL projects.

The second approach involved the EEL providing vital funding needed to 'top up' the grants that the Warm Homes Plus programme provides. 'Top up' funding from the EEL allowed a full package of heating and insulation measures to be installed in dwellings. It was required because the maximum grant available under the Warm Homes Plus programme is often insufficient to provide the package of measures required to 'fuel poverty proof' properties.

For the next three year phase of the EEL, 2007/08 - 2009/10, it was proposed that the 80% of Levy funding ring fenced for schemes aimed at priority group customers continues to be spent in a similar manner, with a slightly extended scope. The priority group funding will therefore be split into 4 distinct sections. This decision will be reviewed based on experience gained from 2007/08. The following sections discuss each in turn.

2.5.2 Support for the Warm Homes Plus Programme

As in previous years, EEL funding will continue to support the Warm Homes Plus Programme, in the form of 'top up' funding to enable a full package of measures to be installed in dwellings.

The amount of EEL funding available for this support will continue at the current level of £1.6M for 2007/08. However, in light of the significant increase in funding DSD now has for Warm Homes, the level of EEL funding available will reduce over the

following two years to nothing thereafter. Table 2.2 below illustrates the EEL funding available for Warm Homes Plus support between 2007/08 and 2009/10.

Table 2.2 - Levy Funding for Warm Homes Plus

Year	Total Available Funding
2007/08	£1,600,000
2008/09	£1,000,000
2009/10	£500,000
Total	£3,100,000

2.5.3 Whole House Solutions (Properties with either no central heating, or solid fuel heating or electric heating)

Of the remaining (non-Warm Homes Plus) funding for priority group projects, 50% is available to continue providing whole house solutions to qualifying households. As per previous years qualifying households will be those that either have no central heating, or solid fuel heating or electric heating. These homes are deemed to be most likely to have occupants who are fuel poor. EEL schemes must target such homes and install a full package of energy efficiency measures. Carrying out such work will effectively 'fuel poverty proof' the dwelling as far as is possible using EEL funding.

To effectively ‘fuel poverty proof’ dwellings, a package of heating and building fabric energy efficiency measures should be provided. It is expected that installing the following package of measures should effectively ‘fuel poverty proof’ a dwelling:

- Cavity wall insulation (£415)
- Loft insulation (£450)
- Tank insulation (£15)
- An efficient central heating system (Average £4,020)

The typical average cost of these measures is shown in brackets, providing a typical package cost of approximately £4,900. It is anticipated that in nearly all cases the homes targeted for ‘fuel poverty proofing’ will require this full package of measures, although the overall targets assume that in some cases dwellings may have, for example, their cavity walls already filled.

Table 2.3 below illustrates the funding available for electric/solid fuel CH or no CH replacement whole house solutions in qualifying homes over the next three years.

Table 2.3 - EEL Funding for Whole House Solutions (Elec/Solid Fuel CH; No CH)

Year	Total Available Funding
2007/08	£1,458,340
2008/09	£1,863,445

2009/10	£2,223,423
Total	£5,545,208

2.5.4 Whole House Solutions (Properties with old oil or LPG fired central heating)

While there is considerable potential remaining for installing whole house solutions in the homes discussed in section 2.6 (the 2006 House Condition Survey indicated that there are approximately 36,910 homes with electric heating, 12,780 homes with no central heating and 39,710 homes with solid fuel heating) EEL schemes have been targeting them for five years and feedback from NIE Energy indicates it is becoming increasingly difficult to find enough dwellings to participate in their schemes.

It has therefore been decided to add properties with oil or LPG boilers that are either older than 15 years or that are broken beyond viable repair as an additional property type which will also be eligible for whole house solutions.

Schemes replacing old oil or LPG boilers should ensure that the make, model type and age of the boiler are recorded. This will be required for audit purposes.

Of the remaining funding for priority group projects, 35% is available for providing whole house solutions to qualifying households. A full package of measures, as indicated in section 2.5.3 should be installed as appropriate. Table 2.4 below illustrates the funding available for oil/LPG boiler replacement whole house solutions in qualifying homes over the next three years.

Table 2.4 - EEL Funding for Whole House Solutions (Old or Broken Oil & LPG Boilers)

Year	Total Available Funding
2007/08	£1,020,838
2008/09	£1,304,412
2009/10	£1,556,396
Total	£3,881,646

2.5.5 Provision of Individual Energy Efficiency Measures to Priority Group Homes

The majority of EEL funding will be used to provide whole house solutions to dwellings most likely to have occupants suffering fuel poverty. However it has been decided to make an element of EEL funding available for the provision of individual measures (cavity/loft/tank insulation and heating controls) to homes containing priority group customers. This is in recognition of the fact that the properties may have central heating boilers less than 15 years old that are lacking in controls, or well-controlled heating systems but inadequate levels of cavity wall, loft or hot water tank insulation. Poor heating control and low levels of insulation can lead to considerable wasted energy and subsequent high fuel bills.

Dwellings receiving measures under this part of the Framework must be inhabited by vulnerable customers - section 2.5.6 provides relevant criteria. Cavity wall, loft and tank insulation and heating controls should be installed as appropriate. Guidance on heating controls is given in section 3.2 of Appendix 4. A minimum of room thermostat, hot water tank thermostat, associated heating and Domestic Hot Water (DHW) circuit valves, programmer and Thermostatic Radiator Valves (TRV's) must be installed as required.

Of the remaining funding for priority group projects, 15% is available for providing individual measures to qualifying households. Table 2.5 illustrates the funding available for individual measures in qualifying homes over the next three years.

Table 2.5 - EEL Funding for Individual Measures in Priority Group Homes

Year	Total Available Funding
2007/08	£437,502
2008/09	£559,034
2009/10	£667,027
Total	£1,663,563

2.5.6 Overarching Criteria to Help Target Priority Group Customers

As discussed previously it is essential that EEL funding is used to help those customers most at risk of fuel poverty. To ensure that this happens, energy suppliers submitting priority group schemes must include details of how they intend to target the most vulnerable homes in the scheme's Statement of Method.

Although the risks from fuel poverty and cold-related ill health apply to all people, older householders, families with children and householders who are disabled or suffering from a long-term illness are especially vulnerable. People in these higher risk groups are found in more than half of NI households. They are also likely to be at home for more of the day, possibly all of the time, so that heating is needed for more of the time than in other households

A vulnerable customer is defined as one that is unable to safeguard their personal welfare or the personal welfare of other members of the household, for reasons of age, health, disability or severe financial insecurity.

Certain groups are more likely than others to find themselves suffering from fuel poverty, for example working people with low incomes or the elderly. It is recognised that the majority of fuel poor households have one or more of the characteristics that are included in the definition of vulnerable. However, the definition of ‘vulnerable’ should focus on the risk of suffering serious ill effects from fuel poverty, and therefore, for the purposes of this programme: the DSD’s definition of a vulnerable household will be used.

DSD's Fuel Poverty Strategy[1] provides a definition of the most vulnerable homes as follows:

"A vulnerable household is one that contains an elderly (over 60) person, someone living with a disability or long term illness, or a family with one or more child under 16".

The 2006 NIHE House Condition Survey[2] also contains statistical indicators for fuel poverty; these can also be used to help identify the most vulnerable homes. Analysis of homes in fuel poverty in 2006 showed that:

- Low income has been clearly shown to be a very significant cause of fuel poverty (26% of all households experiencing fuel poverty have an annual income of less than £7,000, 58% of fuel poor households have an annual income of less that £10,000 and 85% of fuel poor households have an annual income of less than £15,000)
- 32% of households living in isolated rural areas were in fuel poverty.
- 51% of those aged 60 plus, are much more likely to be living in fuel poverty.

2.6 EEL Projects for Non-Priority Customers

As discussed above, work with non-priority and non-domestic customers will continue under the new framework, as 20% of the overall funding will be available. Table 2.6 illustrates the amount of funding available over the next three years.

Table 2.6 - EEL Funding Available for Non-Priority Customers

Year	Total Available Funding
2007/08	£1,129,170
2008/09	£1,181,723
2009/10	£1,236,712
Total	£3,547,604

There is significant potential for investment in energy efficiency measures in these sectors. When setting the overall energy saving target EST has examined the remaining potential for energy efficiency in NI in the four main categories of measure - lighting, insulation, appliances and heating. The replacement of old, inefficient appliances is also a cost effective way of saving energy and forms part of the 'targeted measure mix'. The targeted measure mix is discussed in greater detail in section 3.5 of this document.

2.7 The Opportunity for Second Tier Suppliers

[1] http://www.dsdni.gov.uk/ending_fuel_poverty_-_a_strategy_for_ni.pdf
[2] http://www.nihe.gov.uk/index/sp_home/research-2/house_condition_survey.htm.

All energy suppliers with an appropriate supply license will be able to bid for EEL funding on an annual basis. The amount of EEL funding available each year is illustrated in section 2.3 of this document. The Utility Regulator writes to all suppliers in Sep of each year indicating the funding available in the coming year. Of this annual funding, 80% is available for expenditure on fuel poverty projects, with the remaining 20% available for projects focussed on non-priority customers. Second tier suppliers that become active under the programme will have a proportion of the targets allocated to them. This process is described in more detail in section 3.15.

The Utility Regulator requires suppliers to submit evidence of their ability to manage cost effectively such projects. In the case of no previous experience, first year access will be limited to a maximum of £150,000 per supplier. This limit will be extended as the supplier develops a successful track record.

Bids for funding must be submitted as illustrated in Appendix 1.

2.8 Project Monitoring

All projects implemented under the EEL will be subject to the monitoring criteria laid out in Appendix 1. This monitoring will involve two distinct activities. Firstly, energy suppliers will be required to survey a sample of customers receiving measures, to ascertain their satisfaction with the project. Secondly, suppliers will be required to carry out quality monitoring on a sample of homes receiving building fabric measures. This will be to check that the measures have been installed in line with relevant procedures and standards. Deficiencies in quality of installation will have to be rectified. Further guidance as to monitoring requirements is provided in Appendix 1.

2.9 Auditing

All projects implemented will be subject to random audit by the EST. This has also been the case under previous EEL programmes. The purpose of the audit will be to check that the project has been implemented in the manner approved by the Utility Regulator, and that the funding has been utilised as reported by the supplier. Further guidance as to the auditing procedure is provided in Appendix 1.

3.0 SETTING THE OVERALL ENERGY SAVING TARGETS

3.1 Energy Savings from Supplier's Projects

Historically, projects submitted under the EEL have had their energy savings assessed on the basis of ‘ex-ante’ figures. That is the savings are agreed in advance of implementation as opposed to an ‘ex-post’ methodology where the savings would be determined based on energy monitoring before and after the installation of the measure. This is a practical approach that gives an agreed and consistently utilised set of data for all players and should continue to be used.

BREDEM[3] has been the main source of assessing the energy savings from insulation and heating measures for both EEL and EESoP projects in the past. The model calculates the energy requirements of domestic dwellings and estimates the likely savings resulting from energy efficiency improvements. It is the best validated and most widely used energy model in the UK. The model, when aggregated over all users, has been shown to accurately predict national domestic energy consumption. EST recommends that BREDEM continues to be used as the basis for setting energy savings from heating and insulation measures. When setting the targets, EST has used weighted average energy saving figures for each measure type, based on the property mix in NI. When accrediting individual EEL projects, savings will be accredited on a property specific basis. These proposals will ensure that the energy savings accredited to EEL projects will be comparative to those currently used in the EEC programme in GB.

In the case of lighting and appliances EST has liaised with bodies such as FES, the Electricity Association and the Environmental Change Institute at Oxford University to ascertain suitable levels of energy savings for accreditation purposes.

The energy savings accredited under the new EEL framework (see also 3.2) will be expressed in terms of gigawatt hours (GWh) and will reflect the energy benefit to the consumer in terms of reduced bills and, where applicable, improved levels of comfort. It is recommended that 100 per cent of the energy savings arising from a project will be accredited to the supplier, provided the funding criteria set out in section 2.1 have been met.

3.2 Targets based on 'Accredited Discounted Lifetime energy Savings'

As with previous EEL and EESoP programmes, savings generated by the new EEL should be expressed in terms of lifetime GWh energy savings. In order to compare the cost of saving energy with the cost of energy supply, savings should be multiplied by the discount factor to give 'discounted lifetime energy savings'. As with the EEC programme in GB, it is proposed that a discount factor of 3.5% is used.

It should be noted, however, that the real year on year energy savings will consequently be greater than the figures shown in this document. For example, a discounted lifetime energy saving of 100 GWh could in fact represent an annual saving of 10GWh for 15 years (150GWh).

3.3 Types of Fuels Eligible to be Saved and 'Fuel Standardisation'

Suppliers undertaking projects under the EEL programme will be able to implement projects that save electricity, gas, oil, coal and liquid petroleum gas.

So that the savings of different fuels can be expressed in a consistent manner, the savings will be shown in 'fuel standardised' terms that reflects the fuel's carbon content. The carbon factors used under this framework are compatible (with the

[3] BREDEM - the Building Research Establishment Domestic energy Model

exception of electricity) with those used in the UK Climate Change Programme, and are consistent with the concept introduced in the new EEC programme in GB. This methodology means that the value of energy savings from gas, oil, coal and LPG will be relative to electricity savings in terms of the carbon content of each fuel. This means that the energy savings able to be claimed from measures installed in electrically heated homes will be higher than other fuels.

Table 3.1 below indicates the fuel standardisation factors that are applied to each fuel.

Table 3.1

Fuel	Carbon Content of Fuel (kgC/kWh)	Fuel Standardisation Factor
Electricity	0.166	1.00
Gas	0.052	0.31
Oil	0.068	0.41
Coal	0.082	0.49
LPG	0.058	0.35

The fuel standardisation factors are derived by dividing the carbon factor of each fuel by the carbon factor for electricity.

The example below shows how this methodology would work when comparing the installation of cavity wall insulation in an electrically heated semi-detached home to an oil heated one.

Example:

Heating fuel of dwelling	BREDEM annual energy savings (kWh)	Fuel standardisation factor	Savings accredited toward targets
Electricity	5,667	1.00	5,667
Oil	5,899	0.41	2,415

Utilising this methodology under the new Framework will be an improvement over that used for previous EEL programmes, where despite a lot of work being undertaken in homes heated by oil or coal, all the savings claimed were in terms of electricity. This will also increase the accuracy of reporting the financial and carbon savings resulting from the projects.

When setting the overall energy saving targets, EST has taken into account the heating fuel mix in NI and therefore the potential for savings of each fuel type. The fuel mix is shown in table 3.2:

Table 3.2

Heating Fuel	% of Northern Ireland Housing Stock
Electricity	5.2%
Coal	5.7%
Oil	70.3%
Gas	11.9%
LPG	0.6%

Source: 2006 NI House Condition Survey (with update for natural gas and adjustment for oil)

3.4 Homes Energy Efficiency Database / NISED

One of the programmes EST runs on behalf of Government and the Devolved Administrations is the Homes Energy Efficiency Database (HEED). HEED provides a repository for recording the physical characteristics of individual domestic properties and the status of the specific heating and building fabric energy efficiency measures in those dwellings. There is also reference to measures and initiatives that reduce the energy consumption of lighting and domestic appliances. As a result HEED provides a means to build up a detailed picture of the state of energy efficiency of the UK housing stock. It should be noted that the NI Sustainable Energy Database (NISED) is a NI specific pilot of HEED into which NI data is being accelerated. Currently 33% of NI domestic stock is in NISED.

Suppliers undertaking projects under the new EEL must submit data for inclusion in NISED. The data required would consist of the address of the property together with details of measures installed and other supporting information such as property type, number of bedrooms, heating fuel and installation date. The recording of this data in the database will allow a quick and easy way for the Utility Regulator and EST to verify what Energy Efficiency solutions have been installed in individual dwellings.

EST will accept data in electronic format from suppliers carrying out EEL projects and will also make software available to record this information if necessary.

3.5 Non-Priority and Non-Domestic Customer Projects

Outside of the main fuel poverty focus of the new EEL, 20% of the fund is proposed to be available for non-priority customer projects. This amounts to approximately £3.5M over the first three years, commencing in Apr 07.

When considering the contribution from the non-priority sector to the overall energy saving target EST has assumed that 10% of the work will be carried out in the non-domestic sector. This assumption is based on the fact that although little work has occurred in the sector in the past, there are likely to be an increasing number of opportunities for non-domestic energy efficiency projects with the planned activities

of the Carbon Trust[4]. Previous non-domestic projects have generally involved energy efficient lighting, and the energy savings assumptions in the target model reflect this.

With regard to the domestic non-priority sector, the availability of £3.5M in EEL funding over 3 years represents a significant opportunity for energy efficiency. EST has analysed the remaining potential for the installation of energy efficiency measures in NI to ascertain a suitable contribution to the overall energy savings target from this sector. Given the variations in cost effectiveness of the different measure types, it is necessary for modelling purposes to assume a particular mix of measures when developing targets.

The mix of measures assumed for this sector is illustrated in table 3.3 below:

Table 3.3

Measure Type	Target Savings Percentage
Lighting – CFLs	40%
Loft Insulation	8%
Cavity Wall Insulation	20%
Tank Insulation	1%
Efficient Appliances	4%
Heating Controls Upgrade	5%
Heating System Upgrade	15%
Non-Domestic	7%

For target setting purposes, the measure mix illustrated above has been applied to the NI heating fuel mix described earlier in table 3.2. While this measure mix is not prescriptive in terms of the types of projects that should be undertaken, suppliers are required to ensure that their projects seek to provide as broad a mix of measures as possible. In particular, it is recommended that projects involving heating system upgrades for the non-priority customer group must not lead to savings exceeding 15% of annual targeted energy savings for non-priority customers. This is to achieve an overall programme of measures that is balanced to have both market transformation impacts in lighting and appliances as well as reflecting that the Fuel Poverty projects will have significant numbers of heating system upgrades.

The energy savings targeted to be derived from EEL projects carried out in these sectors is illustrated in section 3.13.

3.6 The Lifetimes of Energy Efficiency Measures

In line with the Government's Climate Change Programme, and as has been the case with EEL projects since 2001, the energy saving benefits will be assessed over the full lifetime of the measures. The measure lifetimes are indicated in table 3.4 below:

[4] The Carbon Trust, a non-profit making company set up by Government in 2001, to manage the development of energy efficiency in the non-domestic sector. (http://www.thecarbontrust.co.uk/)

Table 3.4

Energy efficiency measure	Lifetime (years)
Loft insulation	30
Cavity Wall insulation	40
Internal/external wall insulation	30
Efficient boiler	15
Heating Controls	15
Hot water tank and pipe insulation	10
Energy efficient lighting (CFLs)	10*
Domestic refrigeration and appliances	Various**

* But may change depending on lamp types supplied. The scheme submission spreadsheet will calculate the lifetime automatically.

** Please refer to Appendix 4.

3.7 Direct Cost Assumptions – Non-Priority Group Work

For the purpose of setting the non-priority element of the energy saving targets, the base direct cost (i.e. expenditure on energy efficiency measures) data has been based on an analysis of the costs incurred by NIE Energy in delivering previous EEL projects. The following factors have also been considered when setting suitable measure costs, to determine whether or not any adjustment should be made:

- The impact of inflation over the period of the new EEL;
- The reduction of costs due to bulk purchases on installations;

Table 3.5 indicates the direct costs of the key measures assumed when setting the targets.

Table 3.5

Energy efficiency measure	Direct Cost
Loft insulation	£450
Cavity Wall insulation	£415
Heating System Upgrade	£2,900
Hot water tank Insulation	£15
Energy efficient lighting (CFLs)	£2.55

3.8 Indirect Cost Assumptions

Indirect costs include all the supplier's management costs associated with overseeing the programme, including design and development of projects, marketing, reporting, administration, monitoring and evaluation.

EST has examined the indirect costs incurred by EEL Projects and determined the proportion of EEL funding also required for indirect costs.

It is important that indirect spend under the EEL is clearly reported in project submissions. A supplier submitting a project will have to build the indirect costs into the overall scheme costs, breaking them down as follows:

- Project development;
- Project facilitation;
- Grant administration;
- Marketing;
- Monitoring;
- Evaluation & reporting;
- Third party indirect costs.

When each submitted project is evaluated by EST, the level of indirect costs will be analysed to ensure that indirect costs do not constitute an undue amount of overall scheme costs.

The Utility Regulator has ruled that an individual scheme's indirect costs (excluding EST compliance costs) should not exceed 5% of the total (all parties) scheme cost.

It is understood that it is not in the interest of suppliers to allow indirect costs to be higher than need be, since only measures costs lead to savings and thus potential incentive payments. However, it is also understood that schemes do incur management costs and other indirect costs, some of which may be borne by the EEL. In cases where supplier indirect costs (not including EST compliance) are unavoidably greater than 5% of total project costs, for example in very small schemes or where it is not possible to lever-in indirect costs from other partners, representation must be made to the Utility Regulator via EST, for one-off consideration. All relevant information must be included to justify the level of indirect costs and evidence (eg letters from third parties) provided that indirect costs are not available from other sources. This procedure must be followed at initial submission stage and at any stage in the development of a scheme, including post-implementation, when it becomes apparent that indirect costs may exceed 5% on the above basis.

Currently EST will incur costs amounting to approximately 1.4% per annum of the available EEL funding. This will be reviewed on an annual basis. EST's costs are incurred in undertaking the following activities:

- Developing, and adjusting as necessary, energy efficiency and fuel poverty targets for energy suppliers in NI;
- Developing and updating as necessary a suitable administrative framework under which schemes are implemented;
- Providing guidance to energy suppliers who wish to develop energy efficiency or fuel poverty schemes;
- Evaluating schemes submitted by energy suppliers and recommending to the Utility Regulator whether or not they should proceed;
- Evaluating completed schemes and quantifying the energy savings to be

accredited to the energy suppliers by the Utility Regulator;
- Auditing energy supplier's records to ensure schemes have been implemented and reported appropriately;
- Compiling an annual report for the Utility Regulator's consumption, and contributing to suppliers annual reports on their activities under the EEL scheme;
- Providing ad-hoc advice and information to the Utility Regulator and energy suppliers in relation to energy efficiency and fuel poverty schemes implemented under the EEL.

3.9 Third Party Funding Assumptions

As discussed in section 2.1, suppliers will receive 100 per cent of the energy savings resulting from a measure as long as the minimum funding level of 20 per cent (including indirect costs) for a project has been met (Note: if a measure is joint funded by the EEL and another publicly funded energy efficiency programme, the savings may need to be apportioned between the two programmes). There is therefore an incentive for suppliers to secure financial contribution towards measures from a variety of other sources, such as customers, landlords, local authorities, manufacturers or retailers.

The Utility Regulator has indicated that the ability to lever in additional funding to a project will be an important evaluation criterion, as it increases the cost effectiveness of EEL funding. The assumptions made with regard to third party funding when setting the targets have been based on the levels achieved by previous EEL projects run by NIE Energy, as well evidence from the EESoP programme in GB.

EST believes that suppliers should aim for the following contributions toward the cost of measures from customers and third parties in order to maximise the cost effective use of EEL funding:

- Non-priority customer owner occupiers 50%
- Priority customer owner occupiers 0%
- Social housing 25%
- Non-domestic 70%

Based on previous NIE Energy heating system replacement projects for non-priority customers, it is assumed that third parties will fund a higher proportion than 50 per cent of the measure cost. In the target-setting model it has therefore been assumed that 90 per cent of the cost of such upgrades will be borne by the customer and other parties, while the supplier would provide the remaining 10 per cent.

3.10 EEL Targets

EST recommends that annual energy saving targets are set, rather than aggregate targets for the three year period. It should be noted that while the targets proposed in the next paragraphs are unlikely to change, there are certain factors that could

influence the targets which will have to be reviewed on an annual basis. Carbon factors, for example could change (if the NIE Energy generation mix changes) and this would affect the targets in terms of the fuel standardisation factors discussed in section 3.3. Another example would be the proposed WEEE Directive[5], which would impact on the measure costs incurred by suppliers.

The Utility Regulator has also stated that EEL funding that remains unspent during a given year will be carried over to the following financial year. The targets for that following year will be adjusted upwards accordingly.

EST will carry out the annual review of targets by the end of Oct each year. This will follow a six month review of progress to be submitted by all energy suppliers implementing schemes (see Appendix 1, section 4.0 for further details in supplier interim reporting requirements). Any necessary changes will be notified to suppliers at that point. For example, if some of the 2008-09 funding is likely to remain unspent, it will be carried over into 2009/10. This will result in a bigger target for 2009/10 and EST would notify suppliers of the forecast increase by the end of Oct 08. A further review of targets will take place in early Feb each year. **Suppliers must therefore inform EST, by the end of the first week of Feb each year, of any perceived under-spend in the projects they have implemented.**

3.11 The Overall Energy Saving Target

The overall aggregate energy saving target forecast for each year is illustrated in the table below.

Table 3.8 – Overall Energy Saving Targets

Year	GWh/a
2007/08	374.29
2008/09	431.751
2009/10	429.517
Total	1,124.41

These overall targets will be apportioned between the suppliers who are implementing schemes in a given financial year. This apportionment will be based on the suppliers forecast spend on each type of scheme(e.g. priority/non-priority group schemes) and the 'target cost effectiveness' for each type of scheme.

A worked example is given on the next page:

[5] WEEE Directive – Waste Electrical and Electronic Equipment Directive – this will require manufacturers of such equipment to be responsible for recycling it at end of life. This will have an impact on the cost of the equipment. The Directive will become active during 2007/08.

2007/08

A supplier wishes to implement schemes in 2007/08 that will spend £1,000,000 on priority group projects and £500,000 on non-priority group projects.

The target costs effectiveness for 2007/08, set in terms of money spent against energy saved (p/kWh), is as follows:

Priority group schemes (excl Warm Homes Plus support): **2.0p/kWh**
Non-priority group schemes: **0.80p/kWh**

The target for priority group schemes will be **50GWh** ((£1,000,000 x 100) / 2.0 / 1,000,000).

The target for non-priority group schemes will be **62.5GWh** ((£500,000 x 100) / 0.80 / 1,000,000).

This supplier's forecast total target for 2007/08 will therefore be **112.5GWh.**

Target Cost Effectiveness by Scheme Type - 08/09 and 09/10

The following tables illustrate the target cost effectiveness for each type of scheme for the three years of the current Framework period. These target figures will be used to calculate, as per example above, an individual supplier's target based on the value and types of schemes they submit. Please note that for 2008/09 onwards non-priority schemes will have separate target cost effectiveness figures depending on whether they are targeted at non-priority domestic or non-priority commercial customers.

2008-09		
Scheme Type	***Target Cost Effectiveness (p/kWh)***	***Overall Energy Saving Target (GWh)***
WH+	1.145	87.354
Other Priority	2.532	132.255
Non-Priority Domestic	1.207	55.157
Non-Priority Commercial	0.348	156.985
TOTAL		431.751

2009-10		
Scheme Type	***Target Cost Effectiveness (p/kWh)***	***Overall Energy Saving Target (GWh)***
WH+	1.145	43.677
Other Priority	2.493	159.059
Non-Priority Domestic	1.191	56.695
Non-Priority Commercial	0.348	170.086
TOTAL		429.517

As mentioned in section 2.3, projects lasting more than one year may be accepted provided evidence can be provided that they represent better value for money. Despite this, the annual target will still need to be achieved and reported on. Should suppliers be running projects lasting more than one year, an interim completion report will be required at year-end, to demonstrate the level of savings achieved at that time.

3.12 Incentive to Exceed the Target

The Utility Regulator has requested that, as with previous EEL programmes, energy suppliers be awarded an incentive to overachieve the targets. This is on the basis that should suppliers deliver the target level of savings for a sum less than that bid for they are required to use the remaining sum to deliver additional energy savings, rather than retaining it for their own profit. This incentive will only be applicable if the overall annual energy savings target has been met.

When calculating incentive payments, the target apportioned to a supplier at the beginning of a financial year (as discussed in 3.13 above) will be recalculated based on the suppliers final spend on each type of scheme. The supplier's actual energy savings achieved will then be compared to this target figure and if their achievements are greater an incentive will be payable.

The Utility Regulator has asked that the level of incentive remain the same as under previous programmes (£4,000 per GWh overachieved), but that it be adjusted in line with inflation since it was originally introduced in 1998. The incentive rate for 2007/08 will be £4,995 per GWh overachieved and will increase in line with inflation for 2008/09 and 2009/10.

No incentive is payable for simply meeting the target.

The Utility Regulator wishes to ensure that individual energy suppliers do not profit unduly from incentives earned from running EEL schemes. Suppliers must note that incentives earned in excess of 8% of total project costs should be recycled into energy efficiency and/or fuel poverty initiatives that are additional to work already planned.

The example below shows how a succesful energy supplier's incentive payment would be calculated based on the earlier example of schemes run in 2007/08.

2007/08

A supplier planned to implement schemes in 2007/08 that would spend £1,000,000 on priority group projects and £500,000 on non-priority group projects.

In reality, the supplier spent only £970,000 on priority group schemes and £495,000 on non-priority group. The targets set in the previous example are thus reworked as follows:

The target for priority group schemes will be **48.5 GWh** ((£970,000 x 100) / 2 / 1,000,000).

The target for non-priority group schemes will be **61.875 GWh** ((£495,000 x 100) / 0.8 / 1,000,000).

The total energy saving target is therefore **110.375GWh.**

The priority group schemes generated savings of **54GWh** and the non-priority group schemes generated savings of **67GWh -** a total saving of **121GWh**.

This is an overachievement against target of **10.625GWh**. At an incentive rate of £4995 per GWh the resulting incentive payment would be £53,051 (£4,995 x 10.625).

IMPORTANT NOTE:

Some schemes might involve funding from other energy suppliers or Government Departments/Organisations such as DSD or NIHE. Some of these scheme partners may also need to claim energy/carbon savings towards Government targets. To avoid double counting of savings in such a scenario the energy savings accredited to an energy supplier will be apportioned according to the level of funding provided by the EEL.

For example, NIE Energy puts £1,000,000 of top up funding into the Warm Homes Plus scheme. This funding was used to part fund the cost of heating systems that had a total installed cost of £2,000,000. In this example NIE Energy would be able to claim 50 per cent (£1,000,000/£2,000,000) of the savings generated by the heating systems.

If a scheme partner is a Utility Regulator gas/water/electricity license holder, subject to a price control, the energy savings from the scheme must be split between the two license holders pro-rata on the basis of funding provided. This is to ensure that there is no double counting between energy savings attributed to another license holder's price control and the EEL.

Apportionment of savings will be discussed with energy suppliers, as required, when they are submitting schemes for the following financial year.

3.13 The Impact on Targets of Second Tier Supplier Activity

If all the funding is utilised by NIE Energy, 100 per cent of the targets will also be applicable. Should second tier suppliers successfully bid for funding, NIE Energy's targets will be reduced pro rata with the share of savings NIE Energy would have been expected to achieve, had they remained responsible for that category of project.

For example, should a second tier supplier successfully bid for 5 per cent of the available annual fund, then 5 per cent of the relevant targets would be apportioned to that supplier.

The same incentive indicated in section 3.14 will be payable to second tier suppliers who overachieve the energy savings target they have been set.

3.14 Customer Financial Savings

Customers who benefit directly from energy efficiency improvements do so in two principal ways:

- reduced energy consumption leading to lower bills.
- improved comfort.

The total benefits to customers should therefore consider both the direct cost savings on electricity and fuel bills and the value of the savings taken up in improved comfort levels. These should be valued at the same rate as the energy savings. Thus, the total benefit to customers is simply the potential energy saving before comfort is accounted for multiplied by the appropriate unit price.

When calculating the benefits that result from EEL projects, the fuel prices illustrated in table 3.9, should be used:

Table 3.9

Fuel type	**Cost per kWh**
Electricity peak rate (for lighting and appliances)	11.01 p/kWh
Electricity (heating or insulation measures)	5.46p/kWh[5]
Gas	3.55p/kWh
Oil	3.39p/kWh
Coal	2.65p/kWh
LPG	5.10p/kWh

[5] Based on a mix of 80% of the savings being night rate and 20% day rate. This mix has been derived from EESoP 1 energy monitoring projects.

EST will review these prices on an annual basis, and update if necessary, so that an accurate picture of the financial benefits realised by customers benefiting from the EEL can be derived.

3.15 Carbon Savings

EST recommends that the carbon emission factors illustrated in table 3.10 are used when reporting the carbon savings resulting from EEL projects. These are consistent, with the exception of electricity, with those used in the EEC programme in GB.

Table 3.10

Fuel type	**Carbon emission factor (kgC / kWh)**
Electricity	0.163
Gas	0.052
Oil	0.068
Coal	0.082
LPG	0.058

The financial and carbon savings resulting from projects will be calculated automatically by the scheme submission software developed by the EST.

To ensure that carbon savings are accurately calculated, comfort benefits taken up by customers need to be removed from the overall energy savings. Comfort factors are therefore applied to the overall energy savings.

The comfort factors applied to the theoretical BREDEM savings are based on EST's previous experience in the EESoP programmes, and energy monitoring projects undertaken over the last three years. A comfort factor for insulation measures of 30 per cent is assumed for both priority and non-priority customers.

In light of there being no data available with regard to comfort uptake from heating measures such as boilers or heating controls, EST recommends that no comfort factor be applied to these measures.

For appliances there is unlikely to be any significant change in usage between efficient and less efficient products, so no comfort factor will apply.

For lighting a no comfort factor will apply.

APPENDIX 1 – ADMINISTRATIVE PROCEDURES

1.0 BIDDING FOR EEL FUNDING

All energy suppliers will be able to bid for EEL funding on an annual basis. The amount of EEL funding available each year is illustrated in section 2.1 of this document. Of this annual funding, 80 per cent is available for expenditure on fuel poverty projects, with the remaining per cent available for projects focussed on non-priority customers.

Bids for funding must take the form of a formal project submission as discussed in Section 2 below. Projects proposed for a given financial year can be submitted between 1 Oct to 31 Dec the preceding year (i.e. projects proposed for the 2009/10 financial year can be submitted between 1 Oct 08 to 31 Dec 08).

Following the bidding period, EST shall endeavour to inform suppliers by mid Feb if their bids have been endorsed.

All bids for funding must be sent to EST at the following address:

Lynsey Byrne
Energy Saving Trust
Enterprise House,
55/59 Adelaide Street,
Belfast
BT2 8FE

Tel: 028 9072 6005

Fax: 028 9023 9907

Electronic copies of bids must also be sent to the following e-mail address:

lynsey.byrne@est.org.uk

2.0 PROJECT SUBMISSION

2.1 Project Reference Numbering

Each EEL project submitted by an energy supplier must have a specific reference number. This format of this number shall be made up as follows:

Supplier ID / Year / Project Number / Project Measure Type / Customer Type

The supplier ID should consist of 3 letters that clearly identify that supplier, for example NIE Energy's ID would be 'NIEE'.

The year should be shown as the last two digits of the financial year in which the project is to be implemented.

The project number should consist of two digits. Should a supplier submit more than one project in a given financial year, the project number should increase sequentially for each scheme, e.g. 01, 02 etc.

The project measure type should be shown as follows:

A = Appliances only
H = Heating (Including boilers and controls) only
I = Insulation only
L = Lighting only
M = Mix (e.g. a lighting & insulation scheme or a heating and appliance scheme)
O = Other measures not covered by the above

The customer type should be shown as follows:

P = Priority group customers
NPD = Non-Priority Domestic customers
NPC = Non-Priority Commercial customers

To illustrate an example, if NIE Energy submitted their first project during the 2008/09 financial year, and that project was a lighting project aimed at non-priority domestic customers, the project reference number would be **"NIEE 08 01 L NPD".**

2.2 Project Submission

Suppliers must submit a Statement of Method for each project. Each submission must consist of the following:

- Written description of the scheme.
- Technical details of the scheme.

Suppliers must send their project submissions to EST at the details given above.

A guide showing the main areas Suppliers must cover is contained in the following paragraphs. This is not intended to be definitive in itself, however it is hoped it will provide a useful template for Suppliers to use when preparing their project submissions for the Utility Regulator and EST.

Suppliers are required to complete and send to EST a signed, hard copy of each submission. Projects must also be submitted electronically to EST using the software that will be provided by EST.

2.3 Written Description of the Scheme

The intention of the written description is to provide EST and the Utility Regulator with sufficient information to be able to effectively evaluate submissions. Where projects are particularly large, complex or innovative, additional information may need to be provided.

The following details must be included in the written part of the submission:

- Project reference number.
- Project title.
- Project description - this must include:

- A brief description of the scheme, including the measures involved. This must clearly indicate whether or not the scheme is aimed at fuel poverty proofing homes, assisting other programmes in fuel poverty proofing homes, or is aimed at non-priority customers.
- A description of the properties targeted by tenure type (OO/PR/NIHE/HA). This applies only to building fabric measures such as insulation.
- A description of the project partners involved.
- An indication if the scheme links in with other programmes such as Warm Homes Plus.
- The time-scale of the scheme – the intended time plan for implementing the scheme, i.e. start and finish dates.
- An indication of who will carry out the project, and how they were selected (e.g. has a competitive tender process been undertaken).
- Where the project is to take place (geographically).
- A brief summary of the forecast costs (by Supplier, customers and other parties) of the project.
- The forecast energy savings.
- A statement of how the scheme will address the monitoring requirements laid out in section 3 of this document.
- A statement of how the scheme will target the most vulnerable homes, as per section 2.5.6 (see section 2.6 of this Appendix for example criteria).

- A description of how the scheme is to be marketed and targeted – this must include:

- Which type of customer groups are being targeted.
- An estimate of the proportion and type of disadvantaged customers targeted, and on what grounds they are deemed to be disadvantaged.
- An indication of how the scheme is to be promoted and marketed.
- A description of the terms on which the project is being offered to customers.
- An indication of what commitments, if any, are required of customers covered by the project.

Note: The Utility Regulator require applicants to provide evidence of their ability to effectively manage the cost of such projects. In the case of no previous experience first

year access will be limited to a maximum of £150,000 per applicant.

2.4 Technical Details of the Project

Suppliers must submit the technical details of the project using the submission software, which will be provided by EST.

The main technical details which require inputting are:

- Project reference number.
- The total number of different types of measures targeted by the scheme. This must be broken down by property type, property heating fuel type and customer grouping (this applies to building fabric measures only).
- Details of the direct cost of each measure per property type and customer grouping (non-priority / priority).
- Details of the amount of supplier, customer & third party financial contribution per measure.
- A forecast of the total level of indirect (management and administration) costs.

2.5 Project Approval

Upon receipt of an energy efficiency project submission, EST will review it to check that the criteria in sections 2.3 and 2.4 above have been met.

Once EST is satisfied that the relevant criteria have been met they will endorse the project. This endorsement, as well as the project submission will then be passed onto the Utility Regulator for final approval. Suppliers **must not** commence projects until final approval has been granted. Final approval effectively constitutes an agreement from the Utility Regulator that the scheme has been successful in being awarded EEL funding, following the bidding process described earlier. Suppliers will be notified of final approval in writing from the Utility Regulator.

Suppliers should note that the Utility Regulator's written approval for a scheme essentially becomes an agreement between the Supplier and the Utility Regulator to undertake the scheme as per their submission. Any subsequent significant change to the delivery of the scheme will require a Scheme Variation Form to be completed by the Supplier and forwarded to EST (see Appendix 4). Suppliers will be notified of final approval in writing from the Utility Regulator.

The Utility Regulator have clearly stated that only the projects that make best use of EEL funding i.e. those that are the most cost effective in terms of energy saved compared to expenditure will be approved.

2.6 Over Arching Vulnerability Criteria

Section 2.5.6 in the main body of this document introduces the use of over arching criteria to ensure funding targets the most vulnerable customer's homes. Each scheme

must state how it intends to address this, and this will be assessed on a case by case basis. Two possible example criteria are illustrated below;

1) Single person aged 60+ years; income no more than £220 weekly and savings no more than £10,000 (Disability Living Allowance / Attendance allowance are not counted as income).

2) Couple aged 60+ years; income no more than £350 weekly, savings no more than £20,000 (Disability Living Allowance / Attendance allowance are not counted as income).

3.0 PROJECT MONITORING REQUIREMENTS

3.1 Customer Satisfaction Monitoring

Suppliers are required to undertake and report on the monitoring of customers' satisfaction with the project. The supplier should target a minimum of 5 per cent of all homes receiving measures, with the exception of CFLs.

For CFL projects, customer satisfaction monitoring must be carried out on the following sample size:

- For each type of CFL scheme undertaken (e.g. bulk delivery / mail order CFLs etc); 1 per cent or 1000 customers, whichever is less.

For further guidance, Appendix 2 of this document contains examples of customer satisfaction surveys that suppliers could use. An example is given for both lighting projects and heating / insulation projects.

3.2 Quality of Installation Monitoring

The installation of energy efficiency measures through EEL projects so far, has generally been carried out to very high standards. It is important that standards are maintained and are part of a 'quality culture' that suppliers adopt in their approach to delivering energy efficiency. With this in mind, suppliers must include within the written description of the scheme the QA approach they intend to adopt when undertaking the project. The text must address issues such as the quality of materials used, products installed and working practices.

Suppliers undertaking EEL schemes must survey and report on the quality of installation in a minimum of 10 per cent of homes receiving fixed insulation and controls measures. Where heating measures are installed, suppliers must survey and report on the quality of installation in 100 per cent of homes receiving measures. This quality monitoring should be carried out by a suitably qualified person, and should check whether or not the measures have been installed in line with approved British Standards etc. Any deficiencies in quality of installation identified must be rectified. Some of the more frequently referred to Standards are listed in Appendix 4 of this document.

For CFL projects, quality criteria will be fulfilled if lamps included on EST's approved list are used.

For appliance projects, assuming that all products used have relevant CE marking, there are no additional quality monitoring requirements.

Should suppliers undertake projects in conjunction with Local Authorities it is often the case that the Local Authority will undertake quality monitoring themselves. Should this be the case, suppliers must provide an outline of the QA procedure adopted by the Local Authority. Likewise, QA procedures adopted by other nominated scheme partners may be used if suitable.

4.0 INTERIM PROGRESS REPORTING

Suppliers who have schemes approved must notify EST and the Utility Regulator after 3 months (July) whether or not the scheme will proceed in a timely manner and as originally submitted. If this notification is not received the scheme approval will be cancelled.

Suppliers undertaking EEL schemes must submit an interim report (see Appendix 5) to EST and the Utility Regulator after 6 months (Oct) and 9 months (Jan) of each financial year they implement EEL schemes in. This report must provide details, on a scheme by scheme basis, of the current EEL spend to date and the forecast final EEL spend. Suppliers are encouraged to provide additional detail of any issues they think may be of interest to EST and the Utility Regulator.

In addition, suppliers should inform EST and the Utility Regulator of any forecast under spend in their schemes by the end of the first week in Feb.

5.0 PROJECT COMPLETION REPORTING

Once projects have been completed, suppliers are required to complete a post-implementation form (see Appendix 3). The information submitted must include:

- Submission spreadsheets containing final outturn data. All information to be quoted on the post-implementation form can be derived from these sheets.
- Results of customer satisfaction or quality monitoring activities. If it is not possible to submit the customer satisfaction information at the time of completion submission, it may be supplied subsequently. It should always be possible to submit quality monitoring feedback on installed measures prior to final reporting.
- Completed Post-Implementation Form (See Appendix 3 for sample proforma). Suppliers may adopt a different format provided that all information contained in the sample proforma is included. All sections must be completed. Within the additional information section, it is important to explain any discrepancies between original scheme submission and completion. In the case of costs and savings figures, this may simply be down to more or less uptake

than was initially envisaged (in which case any known factors should be cited), or something more specific such as extra fulfilment costs. In the case of scheme methodology, it may be an alteration of delivery mechanism, or a change in terms of the measures offered. The model of measures delivered must be specified where relevant. CFL models should be specified so as to allow cross-checking with the EST approved list, and cold appliances and boilers, where the savings are related to the manufacturer's energy label, should be included.

Post implementation documentation must be submitted to EST by 1 July of the financial year following the year the scheme was implemented. For example, the required documentation must be submitted by 1 July 09 for schemes implemented during the 2008/09 financial year.

Once a scheme has been completed, post implementation reports should be submitted to EST as soon as possible.

6.0 ANNUAL REPORTING

An annual report is required by the Utility Regulator in respect of each supplier's performance under the EEL Programme. Annual Reports will be due by the end of Sep each year, and must be made public by all suppliers undertaking projects under the Programme during the previous financial year.

Annual Reports must cover the following particular issues:

- The level of performance against the targets.
- A description of each project implemented during the previous financial year including:

  - The type of customers involved.
  - The objective(s).
  - The achievements and energy savings of energy each project achieved.
  - The benefits to customers in terms of bill savings and comfort.
  - The benefit to the environment in terms of carbon savings.

The amount of money spent by the Supplier in preparing each project and causing them to be implemented over the last financial year.

7.0 AUDITING

Projects implemented under the new EEL will be subject, once completed, to audit by EST. This has also been the case during past EEL programmes

The following information is likely to be reviewed during audit:

- **Financial Information:**

The customer / third party / supplier contributions to the scheme will be established, and checked against those claimed in the projects completion report. Purchase orders, invoices etc. will be viewed to verify this.

The key aim will be to establish the amount of the EEL funds spent by the Supplier.

- **Tendering:**

  The audit will check that the selection of scheme installers, managing agents and key product providers has been subject, where necessary, to competitive tender. If affiliated organisations have been used, the justification for doing so will be explored.

- **Installation of Measures:**

  The audit will check that the types of measures installed are consistent with the Statement of Method. With regard to completed projects, it will be necessary for the Supplier to provide evidence that the numbers and types (including property types) of measures claimed to be installed in the completion report are correct.

  Some specific areas may include:

  - That cold appliance projects have made appropriate arrangements for the disposal of old appliances.
  - That CFLs delivered are on EST's approved list.
  - That appropriately trained installers have been used.

- **Delivery Mechanisms:**

  The audit will check that the delivery mechanisms and terms under which a scheme is offered to customers is in line with that described in the approved Statement of Method, including the involvement of any retailers or contractors.

- **Monitoring:**

  The audit will check the methodology the Supplier had in place for:

  - Quality assurance, with regard the installation of measures (including how failures are rectified, what per cent of installations checked, who carries out these checks, whether or not measures, in particular CFLs, are of a correct specification).
  - Customer satisfaction (including the per cent of customers questioned and how dissatisfied customers are dealt with).

APPENDIX 2 – CUSTOMER SATISFACTION SURVEY EXAMPLES

Customer Satisfaction Survey

Northern Ireland Energy Efficiency Levy Programme

Your name: **Your address:**	

CFL Projects

Q1	**Where were the lamps installed?**	**Hallway**	
		Kitchen	
		Living Room	
		Bathroom	
		Bedroom	
		Other (please state)	
Q2	**Were you already using energy saving lamps before installing low energy lamps?** (please circle how many)	**1 2 3 4 5 6 Other**	
Q3	**Do you use your lighting more or less than before installing low energy lamps?**	**Much less**	
		A bit less	
		About the same	
		A bit more	
		Much more	
Q4	**Are you likely to fit another energy saving lamp when the current one(s) fail?**	**Yes**	
		No	
		Don't know	
Q5	**What do you think are the main advantages of energy saving lamps?** (tick any that apply)	**Save energy**	
		Save the environment	
		Save money	
		They last longer	
Q6	**What do you think are the main Disadvantages?** (tick any that apply)	**Different tone of light**	
		They are ugly	
		Take time to brighten up	
		Other (please specify)	
Q7	**What is your overall level of satisfaction with the lamps you have received?**	**Very satisfied**	
		Quite satisfied	
		Neither satisfied nor dissatisfied	
		Not very satisfied	
		Not at all satisfied	

Customer Satisfaction Survey
Northern Ireland Energy Efficiency Levy Programme

Your name:
Your address:

Heating/Insulation Measures

Q1	**How satisfied were you with the quality of work undertaken by the installers?**	**Very satisfied**	
		Quite satisfied	
		Neither satisfied nor dissatisfied	
		Not very satisfied	
		Not al all satisfied	
Q2	**Is your home warmer than before the energy saving measure(s) were installed?**	**Yes**	
		No	
		Don't know	
Q3	**Are your fuel bills lower since the energy saving measures(s) were installed? (may not be applicable if no bill received since installation).**	**Yes**	
		No	
		If yes, please comment	
Q4	**Were you given energy saving advice at the same time as the work was carried out?**	**Yes**	
		No	
Q5	**How would you rate this energy advice?**	**Excellent**	
		Good	
		Satisfactory	
		Poor	
		Very Poor	
Q6	**Overall, how would you rate the energy saving scheme?**	**Excellent**	
		Good	
		Satisfactory	
		Poor	
		Very Poor	

APPENDIX 3 – SAMPLE PROJECT POST IMPLEMENTATION PROFORMA
Scheme Completion Post-Implementation Form
Northern Ireland Energy Efficiency Levy Programme

Supplier:		**Scheme Reference No:**	
Scheme Name:			

Principal Costs & Savings:

	Statement of Method	**Scheme Completion**
Supplier Accredited Savings - (GWh)		
Total Carbon Savings - (tC)		
Supplier Direct Costs (£)		
Supplier Indirect Costs (£)		
Total Scheme Costs (£)		
Supplier Cost Effectiveness - (p/KWh)		

Additional information from supplier to confirm whether there was any discrepancy between the Statement of Method and scheme completion and if so to explain in terms of scheme delivery mechanism, savings and costs, and to specify the model of measures installed where appropriate (e.g. CFLs / Refrigerators / Boilers):

	Date	**Signature**
Project completed as stated above, and savings calculated, and scheme delivered in accordance with the Statement of Method		

APPENDIX 4 - SCHEME VARIATION FORM
Northern Ireland Energy Efficiency Levy Programme

Year:	**Scheme Reference:**	
Scheme Name:		
Endorsed by:		**Date:**
	Original	**Revised**
Levy Funding	£	£
Total Project Cost:	£	£
Other Party Funding	£	£
Cost Effectiveness	p/kWh	p/kWh
Submitted By:		**Date:**
Variation endorsed by:		**Date:**

ADDITIONAL INFORMATION

APPENDIX 5 – SAMPLE OF INTERIM REPORT TO BE SUBMITTED TO EST(NI) AFTER 6 AND 9 MONTHS
Northern Ireland Energy Efficiency Levy Programme

Interim Progress 6-month Report for 09/10 Schemes - Submitted to EST(NI) by 7 Oct 09

					Submission						Interim Progress Report									
	Supplier	Scheme Name	Scheme No	Category	Total Project Cost	Levy Funding exc EST	Energy Savings GWh	Indirect Costs exc EST (%)	Measures spend (£)	Supplier Cost Effectiveness	To Date Spend	To Date Energy Savings**	Indirect Costs exc EST (£)	Indirect Costs exc EST (%)	% Variance	To Date Supplier Cost Effectiveness	Referrals to Date	Work Complete	Proposed No of Jobs/Measures	Progress/Action
1																				
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				
15																				
16																				
17																				
18																				
19																				
20																				
21																				
22																				
23																				
24																				
						0					0									
				TOTAL	0	0	0.000				0.00	0.000								

KEY

% Variance highlighting UNDERSPEND (Negative Value)
* Apportionment Applied

Indirect Costs (Other Management Costs exc EST)

0 - 5 %	on target (as authorized)
5 - 10 %	NIAUR must be notified of increased spending for management costs
>10 %	Need Permission from NIAUR for this level of spending

** re the Energy Savings, an estimate should be provided based on the assumptions on the measure mix and type as specified in the scheme submission spreadsheet. The actual out-turn should be reported in the post-implementation report.

APPENDIX 6 – GUIDANCE ON THE USE OF ENERGY EFFICIENCY MEASURES

The following text provides guidance on the installation of the more common energy efficiency measures. Where appropriate, reference is made to relevant British Standards or guidance notes. An overview of British Standards is available at the BSI website at the following address. Copies of the Standards can also be ordered through this site http://bsonline.techindex.co.uk/.

1.0 INSULATION MEASURES

1.1 Loft insulation

Loft insulation provided under EEL projects should ideally be installed to a depth of 270mm. Depths of less than 270mm will only be considered for the accreditation of energy savings where it is physically impossible or unsafe to install 270mm.

The lifetime of loft insulation is assumed to be 30 years.

There are two British Standards relevant to the installation of loft insulation. These are:

BS 5803 Part 1: 1985 "Thermal insulation for use in pitched roof spaces in dwellings. Specification for man made mineral fibre thermal insulation mats." This specifies the standard loft insulation materials must meet to be eligible for installation under the EEL.

BS 5803 Part 5: 1985 "Thermal insulation for use in pitched roof dwellings." Specification for installation of man-made mineral fibre and cellulose fibre insulation. This standard specifies the requirements when installing loft insulation in pitched roof dwellings.

All lofts insulated by a EEL scheme must include, where appropriate, loft boarding in order to provide safe access to the cold water tank. When insulating lofts, the loft hatches must be insulated and draught sealed.

In addition to these requirements, good practice when insulating roof spaces requires the insulation of the cold water tank and associated pipe work. The relevant British Standard is:

BS 5422: 2001 "Method for specifying thermal insulation materials for pipes, tanks, vessels, ductwork and equipment operating within the temperature range -40^{o}C to +700^{o}C".

Cases of condensation in newly insulated lofts have been identified in previous EESoP programmes in GB. There are several factors that can lead to condensation in lofts, such as failing to draught seal the loft hatch or the blocking of loft vents with

insulation. Energy suppliers must ensure that their installers take care to minimise the risk of condensation when installing loft insulation.

1.2 Cavity wall insulation

The energy savings associated with cavity wall insulation are displayed in the Scheme Submission Spreadsheet, and also in the Excel spreadsheet entitled 'Energy Savings Data'. Note that the energy savings differ considerably between homes constructed pre 1976 and those constructed post 1976. Installers must therefore provide the age of the property insulated when reporting to energy suppliers, to enable suppliers to accurately report on their completed projects.

The lifetime of cavity wall insulation is assumed to be 40 years.

Insulation materials used must be certified by the British Board of Agrement (BBA) and must conform the following British Standards:

BS EN 13162: 2001 "Thermal insulation products for buildings. Factory made mineral wool (MW) products. Specification". This standard replaces the current BS6232.

BS 6676 Part 1: 1986 "Thermal insulation of cavity walls using man made mineral fibre batts (slabs). Specification for man made mineral fibre batts". This is the relevant standard for materials if man-made mineral fibre batts are used as the insulating material when insulating a cavity wall.

BS 6676 Part 2: 1986 "Thermal insulation of cavity walls using man-made mineral fibre batts (slabs). Code of practice for installation of batts (slabs) filling the cavity".

BS 8208: 1985 "Guide to the assessment of suitability of external walls for filling with thermal insulants. Existing cavity construction".

A Cavity Insulation Guarantee Agency (CIGA) guarantee must be provided to the customer when the insulation work has been completed.

1.3 Draught proofing

When calculating the draught-proofing energy savings, BRE have assumed that only buildings with 'high ventilation rates' should be insulated to merit the accreditation of the energy savings listed in the Submission Spreadsheet. Energy suppliers should therefore attempt to target homes with 'high ventilation rates' when undertaking draught proofing projects. Typically, this type of home will be in an exposed position, or have ill fitting or sash style windows.

The lifetime for draught proofing measures is assumed to be 10 years.

The British Standard relevant to the materials used for draught proofing is:

BS 7386: 1997 "Specification for draught strips for the draught control of existing doors and windows in housing". This Standard specifies the requirements for products to fit the common types of installed doors and windows in housing not originally designed to incorporate draught stripping.

1.4 Hot water tank insulation

Details of the assumptions behind the energy savings for tank insulation is provided in the BRE report, contained in Appendix 1 of this document.

A lifetime for tank insulation is assumed to be 10 years. The relevant British Standard for tank insulation is:

BS 5615: 1985 "Specification for insulating jackets for domestic hot water storage cylinders". This Standard specifies the performance, in terms of the maximum permitted heat loss, the materials, design and marking of jackets for cylinders to BS699 and BS1566.

1.5 High Efficiency Cylinders

Using R&D funds from the EESoP 3 scheme in GB, a comparison was made between the energy required to heat 3 different types of hot water cylinders, namely the 'stock average' cylinder, the British Standard cylinder and the 'high performance' cylinder.

The stock average cylinder was defined by a combination of survey data on insulation and expert opinion on the mixture of tank (i.e. heat exchanger) types in the stock. The British Standard and high performance types are described in 'Central Heating System Specifications', CHeSS (Energy Efficiency Best Practice programme General Information Leaflet 59).

For dwellings where the water is heated from a gas fired boiler the findings were:

In a property with no primary pipework insulation, the energy saved by replacing a stock average cylinder with a high performance cylinder is **994 kWh/annum.**
In a property with insulated primary pipework, the saving from replacing a stock average cylinder with a high performance cylinder is **533 kWh/annum.**
In a new house, the energy saved by installing a high performance cylinder rather than a British Standard cylinder is **153 kWh/annum.**

For dwellings with water heated by electric immersion heater the savings are:

181 kWh/annum for replacing a stock average with a high performance cylinder.
39 kWh/annum for installing a high performance rather than a British Standard cylinder.

These energy savings values should be entered into the 'other insulation' section of the Scheme Submission Spreadsheet. The cylinders are classed as insulation measures,

because the vast majority of the energy savings result from the high levels of insulation in their design.

A lifetime of 20 years should be assumed for this measure.

Installations of hot water cylinders should meet the best practice guidance set out in CHeSS (Energy Efficiency Best Practice programme General Information Leaflet 59). This document has been distributed by EST to energy suppliers previously.

1.6 Radiator panels

The energy savings shown below are attributable to radiator panels constructed in a 'louvered' or 'saw toothed' fashion (with raised ridges), which is by far the most common method of design.

The energy savings on a 'per square metre installed basis' are 93kWh/a for both gas and oil heated homes. These savings are attributable to panels installed behind radiators on external walls.

The above data is based on measurements on a panel with a reflective surface. Panels are available which do not have a reflective surface, in which case its effect on energy saving should be taken as **one half** of the above value.

Radiator panel energy savings should be calculated on a 'per panel' basis. This calculation requires the assessment of the area of the radiator panel, which should then be applied to the data shown above. For example, a panel with a surface area of 0.3 square metres would achieve energy savings of 30 kWh when installed. In submitting such projects, suppliers should indicate the numbers of panels forecast to be installed, therefore allowing the overall scheme savings to be calculated. Suppliers should include a breakdown of their calculations in their Statement of Method for the scheme. The energy savings values and total area of panel installed should be entered into the 'other insulation' section of the Scheme Submission Spreadsheet.

A measure lifetime of 10 years should be assumed for radiator panels.

The energy savings attributable to radiator panels will be revised in the near future, when the results of an energy monitoring exercise currently being undertaken are finalised.

2.0 LIGHTING MEASURES

2.1 Compact fluorescent lamps (CFLs)

For the purposes of accrediting ex-ante energy savings, all lamps used in EEL projects must be included on EST's list of approved CFLs, and have achieved Energy Saving Recommended status, awarded by EST's ESR Programme. These lamps have been tested in accordance with the requirements of EST's lamp specification. The approved CFL list is circulated on an ongoing basis, as and when revisions are necessary. For

confirmation of the current version, contact EST(NI). All the lamps currently listed on the EST's approved list have also successfully achieved ESR status.

Energy suppliers are required to enter the numbers and types of lamps installed by their lighting projects into the relevant place in the Scheme Submission Spreadsheet. The lifetimes of the lamps (in hours) is also required to be entered into the spreadsheet. The lifetime entered should be as displayed on the approved list. Where the life status is shown as 'ongoing' the manufacturer's claimed lifetime (i.e. as shown on the packaging) should be entered into the spreadsheet.

If CFLs not approved by EST are used in lighting projects, additional quality monitoring will be required.

2.2 Luminaires

Projects involving the installation of luminaires must only use lamps that are displayed on EST's approved CFL list. These lamps have been tested in accordance with the requirements of EST's lamp specification.

The ballast used in conjunction with the approved lamp must meet the requirements of EST's Luminaire Specification. Energy efficient luminaires meeting the requirements of this specification are eligible for use of the 'ESR' logo, under EST's energy Saving Recommended Programme. For details of endorsed luminaires please contact EST(NI).

The Scheme Submission Spreadsheet enables the calculation of energy savings arising from the installation of luminaires. The relevant part of the CFL worksheet should be used to input the number, type and hours of use of luminaires to be delivered by the scheme.

3.0 HEATING MEASURES

3.1 Boilers

Any new boiler provided by a EEL scheme should be gas fired wherever gas is available to fuel it. The details of any customer who does not wish to have a gas boiler installed must be given to NIE Energy, who will discuss the issue with the Utility Regulator.

Schemes replacing old oil boilers (see section 2.5.4) should ensure that the make, model type and age of the boiler is recorded.

Boilers installed by projects must be a SEDBUK rated 'A' or 'B' model. The SEDBUK database has been set up as part of the Government's Energy Efficiency Best Practice Programme and can be viewed at http://www.sedbuk.com/. It indicates the combustion efficiency of all currently available boilers.

When evaluating boiler projects, the energy savings will be based on the combustion efficiency of the new boiler (as provided by SEDBUK) against the average combustion efficiency of new non-condensing boilers, which is assumed to be 78 per cent. The numbers of boilers installed by a scheme should be entered into the relevant part of the Scheme Submission Spreadsheet (there is a different heating worksheet for each fuel). The worksheets are set to a default combustion efficiency of 88 per cent for condensing boilers. If the energy supplier does not provide the actual combustion efficiency of the boilers provided by a scheme, this is the efficiency that will be used.

The lifetime assumed for boilers is 15 years.

Installations of boilers must meet the best practice guidance set out in CHeSS (Energy Efficiency Best Practice programme General Information Leaflet 59).

Several British Standards also apply:

BS 5440 Part 1: 2000 "Installation and maintenance of flues and ventilation for gas appliances of rated input not exceeding 70kW net (1st, 2nd and 3rd family gases). Specification for installation and maintenance of flues".

BS 5440 Part 2: 2000 "Installation and maintenance of flues and ventilation for gas appliances of rated input not exceeding 70kW net (1st, 2nd and 3rd family gases). Specification for installation and maintenance of ventilation for gas appliances".

BS 6798: 2000 "Specification for installation of gas-fired boilers of rated input not exceeding 70kW net".

BS 5449: 1990 "Specification for forced circulation hot water central heating systems for domestic premises".

BS 7671: 2001 "Requirements for electrical installations, IEE wiring regulations, 16th Edition".

Energy Efficient Best Practice in Housing CE29: 2008 "Domestic heating by oil – boiler systems".

Energy Efficient Best Practice in Housing CE30: 2008 "Domestic heating by gas-boiler systems".

3.2 Heating controls

In general, heating controls must be installed in line with the best practice guidance provided in CHeSS (Energy Efficiency Best Practice programme General Information Leaflet 59).

The Submission Spreadsheet enables the calculation of energy savings from heating controls. The savings are calculated by entering the existing controls scenario before

installation, and then entering the type of heating controls installed by the project. The spreadsheet assumes different 'packages' of controls, as follows:

Package A: No controls or hot water tank thermostat.
Package B: Room thermostat*.
Package C: Roomstat & TRV's (thermostatic radiator valves)*.
Package D: TRV's without a roomstat*.
Package E: Delayed start roomstat and TRV's*.
Package F: Intelligent heating controls and TRV's*.

* These control options include a hot water tank thermostat. For packages C – F, TRV's are assumed to be fitted on each radiator in the property.

Relevant Standards and guidance documents for heating controls are:

BS 5499: 1990 "Specification for forced circulation hot water central heating systems for domestic purposes".

BS 7671: 1992 "Requirements for electrical installations, IEE wiring regulations, 16th Edition".

A lifetime of 15 years is assumed for heating controls.

The Scheme Submission Spreadsheet should be used to calculate the energy savings from heating controls. The spreadsheet contains savings options for either installing heating controls in tandem with a new boiler or installing controls only. The numbers of each type of control package to be installed should be entered into the relevant worksheet. . The results are linked automatically to the main spreadsheet.

The best practice guidance set out in the CheSS document states that TRVs should be fitted on all radiators in a dwelling except in rooms where there is a room thermostat. The number of TRVs that can be fitted in a dwelling is dependent on a number of factors such as the number of radiators present and the number of rooms. To allow flexibility when reporting on heating projects involving TRVs, the Scheme Submission Spreadsheet has a section where the total number of TRVs installed under a scheme can be inputted. The spreadsheet calculates the energy savings by multiplying the number of TRVs installed by the savings attributable to a single TRV.

3.3 Solar Panels

Solar panels, used for the purposes of domestic hot water heating are an eligible measure for use in EEL projects. The lifetime of such measures is assumed to be 20 years.

The tables below illustrate the energy savings attributable to installations of the two different types of solar panel, namely the 'flat plate' and 'evacuated tube' varieties. The savings are presented in two formats. Energy savings for a typical installation are

given for the different property types, and the different heating fuels. The savings are also shown on a 'per square metre installed' basis, again for the different heating fuels. Suppliers can enter measures in either format into the Scheme Submission Spreadsheet, using the 'Other Heating' sections of the worksheets.

Suppliers may find it easier to submit new projects using the savings estimates for the different property types. Once projects have been completed it should be possible to calculate the total area of solar panels installed, in which case the 'per square metre installed' data should be used in the completion report. However if this information is not accurately available, suppliers can also use the property type data when submitting completion reports.

FLAT PLATE COLLECTORS		**Water Heating Fuel**				
		Gas	Electricity	Oil	LPG	Solid
Average kWh/yr saving per square metre of panel		**454**	**304**	**400**	**441**	**553**
Typical dwelling types, average occupancy levels and typical daily hot water requirements	**l/day**	**Energy Saving (kWh/yr)**				
FLAT 2.1	90.5	**1791**	**1200**	**1579**	**1739**	**2182**
MID-TERRACED 2.6	103	**1824**	**1222**	**1608**	**1771**	**2222**
END-TERRACED 2.6	103	**1824**	**1222**	**1608**	**1771**	**2222**
SEMI-DETACHED BUNGALOW 2.2	93	**1791**	**1200**	**1579**	**1739**	**2182**
DETACHED BUNGALOW 2.3	95.5	**1824**	**1222**	**1608**	**1771**	**2222**
SEMI-DETACHED HOUSE 2.9	110.5	**1824**	**1222**	**1608**	**1771**	**2222**
DETACHED HOUSE 3.3	120.5	**1824**	**1222**	**1608**	**1771**	**2222**

EVACUATED TUBE COLLECTORS		**Water Heating Fuel**				
		Gas	Electricity	Oil	LPG	Solid
Average kWh/yr saving per square metre of panel		**582**	**390**	**513**	**565**	**709**
Typical dwelling types, average occupancy levels and typical daily hot water requirements	**l/day**	**Energy Saving (kWh/yr)**				
FLAT 2.1	90.5	**2214**	**1483**	**1952**	**2150**	**2697**
MID-TERRACED 2.6	103	**2284**	**1530**	**2013**	**2217**	**2782**
END-TERRACED 2.6	103	**2284**	**1530**	**2013**	**2217**	**2782**
SEMI-DETACHED BUNGALOW 2.2	93	**2214**	**1483**	**1952**	**2150**	**2697**
DETACHED BUNGALOW 2.3	95.5	**2284**	**1530**	**2013**	**2217**	**2782**
SEMI-DETACHED HOUSE 2.9	110.5	**2343**	**1570**	**2066**	**2275**	**2855**
DETACHED HOUSE 3.3	120.5	**2378**	**1593**	**2096**	**2309**	**2897**

4.0 ENERGY EFFICIENT APPLIANCES

4.1 Introduction

As a general rule, efficient cold and wet appliances provided by EEL projects must be 'A' rated, and must also have achieved ESR status, awarded by EST's Endorsement Programme. A list of ESR products can be viewed on EST's website, at the following

link: http://www.est.org.uk/myhome/efficientproducts/recommended/. Energy Suppliers should contact EST if further details of the Endorsement Programme are required or if an appliance they wish to use in a scheme does not appear on EST's website. The ESR application process for new appliances is straightforward, and manufacturers of qualifying products who have not yet applied can quickly and easily do so.

4.2 Energy saving data used for cold appliance projects

This section explains the methodology for calculating savings for appliance projects. The two most common scenarios for delivering appliance projects are:

- An incentive to purchase a more efficient appliance.
- A trade-in of a working appliance.

The lifetime for freezers or fridge-freezers is **15 years**. For refrigerators/larders it is **12 years**, however, when refrigerators/larders are provided to customers classed as falling within the priority group, a lifetime of **15 years** (rather than 12) should be assumed. This is based on the assumption that these customer groups will retain the appliance for a longer time period prior to replacement.

For 'trade in' projects, the lifetime of the appliance must be reduced by 1/3.

The matrix below lists the average annual consumption of different refrigeration appliances by label for products currently on sale in the UK, the sales weighted average (this means the average consumption based on the different numbers of A, B or C rated appliances that are sold in the marketplace) and the consumption of existing appliances.

Energy consumption data for cold appliances

Energy Efficiency Levy Appliance Savings

Non Fuel Standardised kWh/yr	A Rated	Sales Wte Ave	Existing Appliances	Incentive saving (kWh/yr)	Trade-in saving (kWh/yr)
Dishwasher (Compact/Tabletop)	113	167	-	54	-
Dishwasher (Slimline)	157	183	-	26	-
Dishwasher (Full Size)	214	249	377	35	163
Washing Machine	163	182	243	19	80

	Annual Electricity Consumption (kWh/yr)					Incentive savings from Sales Wte Ave (kWh/yr)			Trade-in savings from Existing Average (kWh/yr)		
Non Fuel Standardised kWh/yr	A++	A+	A	Sales Wte Ave	Existing Appliances	To A++	To A+	To A	To A++	To A+	To A
Fridge Freezer (Frost Free)	149	223	301	379	852	231	156	79	703	628	551
Fridge Freezer (Standard)	136	204	275	357	572	221	153	82	435	367	296
US Style (Side by Side)	220	330	445	531	-	311	201	86	-	-	-
US Style (Top/Bottom)	177	265	358	504	-	327	238	146	-	-	-
Chest Freezer	77	115	155	266	442	189	150	110	365	326	286
Upright Freezer (Frost Free)	113	170	228	331	641	218	162	103	528	471	413
Upright Freezer (Standard)	98	146	197	290	425	193	144	93	327	278	228
Refrigerator (Icebox)	74	112	151	216	295	142	104	66	221	184	145
Refrigerator (Larder)	68	101	137	176	277	109	75	40	209	175	140

Source: GfK Q4 2001 sales data for the average 'A' rating and sales weighted average; DEFRA Market Transformation Programme website 2002.

When calculating energy savings for cold appliance projects, suppliers should follow the following guidelines.

4.2.1 Incentive projects

Customers in the market for a new appliance, normally buy the average product currently sold within the range of energy labels. In this scenario they are incentivised to purchase a more efficient appliance. The savings will be the difference between the sales weighted average consumption and the consumption of the promoted product.

For example:

'A' Rated frost free fridge freezer = 295 kWh/a consumption.
Sales weighted average for frost free fridge freezer = 516 kWh/a.

Energy Saving = 516 - 295 = 221 kWh/a over a 15 year lifetime.

4.2.2 Trade In Projects

Under trade-in projects, customers are able to trade in a working appliance for a more efficient appliance. To qualify, the appliance is assumed to be working at the time of trade in and then be destroyed (in an environmentally acceptable manner) to avoid entry into the second hand market. The savings will be the difference between the average consumption of the existing population of that particular product and the more efficient product.

There is a two-fold saving; firstly, by removing the existing, inefficient appliance from the market, the consumption over the remainder of the product life is avoided; and secondly, a more efficient appliance is purchased than would normally be the case. Estimating the remaining lifetime of the existing appliance is subject to considerable uncertainty. On the one hand, it could be argued that only very old appliances will be traded in, so the lifetime will be relatively short. On the other hand, once an appliance enters the second hand market, its lifetime will tend to be longer than the normal average lifetime.

EST has analysed a number of scenarios taking account of the two elements of savings. The conclusion is that a simple basis for estimating the total savings from trade in projects is to apply the savings from 'existing appliance' to the promoted product for two thirds of the appliance life.

For example:

An 'A' rated frost free fridge freezer is provided by the scheme = 295 kWh/a consumption.
Existing frost free fridge freezer = 785 kWh/a consumption.

Energy saving = 785 - 295 = 490 kWh/a over a 10 year (15 year lifetime for a fridge freezer discounted by 1/3) lifetime.

4.2.3 Cold Appliance Disposal

Due to new European legislation concerning ozone depleting substances and their disposal, appliance retailers or delivery agents will no longer remove the old appliance when delivering the new one. Until such a time as this situation is resolved, the appliance will have to remain with the customer. There is considerable risk of these appliances entering the second hand market, even when collected by a Local Authority. To ensure that this does not happen the appliance must be disabled by the following method:

- The appliance's electricity supply cable must be cut, as close to the body of the appliance as possible, or alternatively pulled out of the appliance;
- The gasket (the seal running around the door) must be removed. As this may mean that the door cannot close, the door should be taped or tied shut.

Despite the new legislation, Local Authorities will still have a responsibility to remove domestic appliances from customer's homes. The energy supplier should provide the customer with the relevant contact details.

4.3 Wet Appliances

The following energy consumption figures should be used when considering a scheme that will provide a washing machine or dishwasher. Data is provided that illustrates the average energy consumption of 'A' rated washing machines and dishwashers, and the typical energy consumption of the existing appliances that they will replace in a trade-in scenario. A sales weighted average value is also provided. If the energy consumption of the appliance provided by the scheme is known, this figure can be used in place of the average 'A' rated consumption. The lifetime for these types of appliance is assumed to be 15 years. In a trade in scenario, as with cold appliances, this would be reduced by 1/3.

Washing Machines:
Average 'A' rated energy consumption: 165 kWh/annum.
Energy consumption of existing appliances: 237 kWh/annum.
Sales weighted average: 210kWh/annum.

Dishwashers:
Average 'A' rated energy consumption: 228 kWh/annum.
Energy consumption of existing appliances: 415 kWh/annum.
Sales weighted average: 297 kWh/annum.

Source: GfK home audit; ECI Oxford.

4.4 Jug Kettles

The energy savings derived from the provision of a jug kettle have been calculated as the result of energy monitoring carried out under EESoP I in GB. The result of this

monitoring has shown the saving to be 71.9 kWh per annum, if the following criteria are followed:

- The customers targeted should fall within the Priority group.
- The jug kettle must replace a traditional electric kettle (i.e. a kettle that does not have a water meter on the side).
- Advice on the use of the new kettle should be provided (e.g. that the kettle can be used for boiling just one cup of water).

A lifetime of 8 years should be assumed for kettles.

5.0 OTHER RELEVANT LEGISLATION

The following legislation may or may not apply to works carried out during a EEL scheme. The legislation can be reviewed at the following website: http://www.hmso.gov.uk/.

As stated earlier, it is the responsibility of each energy supplier to ensure that they have carried out their projects in accordance with appropriate legislation.

Construction (Health Safety & Welfare) Regulations 1996.

These regulations are aimed at protecting the health, safety and welfare of everyone who carries out construction work. They also give protection to other people who may be affected by the work.

Health and Safety at Work Act 1974

(HASAWA) provides a wide, embracing, enabling framework for health, safety and welfare in the UK.

Construction Design and Management (CDM) Regulations 1994

These regulations have been produced to ensure that Health , Safety and Environmental issues are addressed during the life-cycle of a building or plant.

Control of Substances Hazardous to Health 1994 (COSHH)

This legislation prohibits work involving exposure to hazardous materials (chemicals, microorganisms, gases, etc.) unless a "suitable and sufficient" assessment of these exposures has been carried out.

Noise at Work Regulations 1989

These regulations aim to protect workers from the risk of hearing damage due to excessive noise.

Electricity at Work Regulations 1989

The purpose of these regulations is to ensure precautions are taken against the risk of death or personal injury from electricity in work activities.

Environmental Protection Act 1990

The aim of this Act is to ensure that any potential polluting process has an authorisation from either the Environment Agency or Local Authority and that control measures are in place to prevent, minimise or render harmless emissions into the surrounding environment.

Ozone depleting substances (ODS) regulation 2000

This regulation affects users, producers, suppliers, maintenance and servicing engineers, and those involved in the disposal of all ODS. These include chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), halons, 1,1,1 trichloroethane, carbon tetrachloride and bromochloromethane (CBM). These substances are mainly used in refrigeration, air-conditioning, foam blowing, as solvents and in fire fighting.