

product performance standard

Heating Controls

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Issue 2



Introduction

Heating Controls were previously introduced under the Energy Saving Trust recommended (ESTr) scheme in 2000. The last review in 2005 led to the following certification requirements being set:

Products must as a minimum conform to the basic recommendations found in the Central Heating System Specification (2005) and feature the explanatory text, as approved by the Plain English Campaign, at the front of the product instruction booklet.

The scope of products covered by the ESTr scheme included:

- Automatic bypass valves
- Cylinder thermostats
- Full programmers
- Programmable room thermostats
- Programmers
- Room thermostats
- Thermostatic radiator valves (TRVs)
- Time switches
- Weather compensators

This standard development shall look not only at what performance requirements for heating controls can help differentiate the best performing products on the market but also consider the scope of product types that can be endorsed by Energy Saving Trust and whether different product types require different metrics to be assessed against.

Eligible controls products shall be assessed against this Energy Saving Trust Endorsed Product standard and shall be valid for a period of 12 months from publication. The following organisations have committed to providing their input into the development of the standard:

- C&C Marshall Ltd
- Delta Dore
- Invensys Controls UK Ltd
- Logicor
- Pegler Yorkshire Group Ltd
- Tensor PLC
- TFC Group LLP
- Salus
- Sunvic Controls Ltd
- Timeguard Ltd

In addition the following key stakeholders will be kept up to date on the development and implementation of the standard:

- BEAMA: *'the independent expert knowledge base and forum for the electrotechnical industry for the UK and across Europe'*, Heating controls are represented through the BEAMA working group TACMA.
- Building & Research Establishment (BRE): Overall responsibility for SAP and the SEDBUK database on behalf of government
- BSRIA: An accredited test laboratory for the eu.bac scheme
- Department for Environment, Food and Rural Affairs (DEFRA): The government department responsible for feeding into the Eco-design and Energy Labelling Directives
- Gas Safe: The registered competent person scheme for gas engineers
- Heating & Hot Water Industry Council (HHIC): Trade Association representing the UK domestic heating market
- Intertek: Testing facility for electrical testing and certification body involved in the eu.bac scheme.
- Kiwa Gastec: Notified Body testing seasonal efficiency of boilers and administrator of the SEDBUK register
- Oftec: Trade Association for oil boiler manufacturers and competent person scheme for oil engineers

Consumers

Consumers may or may not have a choice in the product installed in their home dependant on their purchasing journey. In some instances the installation of new parts of a heating system (e.g. boiler, cylinder or radiators) may include the provision of controls, equally the purchase of a smart energy monitoring system may also include controls within the package. Where the purchase is made directly from a heating installer (i.e. as a result of heating breakdown or check) it is likely that the installer would choose the product. However consumers are able to buy controls products independently should the decision making process have started differently, B&Q and Wickes both stock a range of heating controls largely from Drayton, Danfoss and Honeywell where Amazon stocks a variety of products across all stakeholders.

All of the major energy suppliers feature energy saving areas for householders on their websites, the level of information available is limited mainly advising householder to turn the heating thermostat down by 1 degree and checking the thermostat setting on hot water cylinders. Some suppliers also give a general overview of the types of heating control that should form part of an efficient heating system and what they each do. In addition all energy suppliers have separate pages on their sites focussed on the roll out of smart meters

TACMA have a specific website for consumers: Control Your Home, this website includes an interactive house tool featuring heating controls related tips and savings potential as well as general information about controls and specific detail about the different types, what they do and example images. The site

also gives advice on how to find an installer and links to other useful sites and features the TACMA heating control user guide which gives an overview of the main types of heating and how to use them.

Very recent consumer research into heating habits from Worcester Bosch showed that nearly 22% of UK consumers set their thermostat between 20 and 21°C. Interestingly, out of the 2,000 UK consumers surveyed, 10% did not know their thermostat setting and, crucially, a further 17% either don't have or don't use a thermostat. 23% of consumers set their thermostat between 21 and 26°C.

Energy Saving Trust has the following information for consumers about heating controls on their website: *The right heating controls will let you keep your home at a comfortable temperature without wasting fuel or heat – so you'll reduce your carbon dioxide emissions and spend less on heating bills. If you have an electric storage heating and hot water system, with storage heaters use the off-peak electricity to 'charge up' overnight and then release heat during the day, you'll need a different set of controls. If your home is heated by a system of water-filled pipes and radiators running from a boiler, you have a 'wet' central heating system, whether it is gas, LPG or oil-fired. Your full set of controls should ideally include a boiler thermostat, a timer or programmer, a room thermostat and thermostatic radiator valves (TRVs).*

Energy Saving Trust estimates that installing and correctly using a room thermostat and thermostatic radiator valves could save £70-£150, additionally turning down a room thermostat by one degree could save around £75.

At the end of January 2014 as part of the Big Energy Saving Week, the Energy Saving Trust launched the energy saving "myth busters" in a bid to help UK householders cut fuel bills. The findings of the Ipsos MORI survey of 2,000 UK adults conducted in January, found that 50% of all UK householders think it's cheaper to leave their home heating on all day rather than turning the heating on or off and up or down when required. The findings also showed a level of consumer awareness in heating controls. Just 27% incorrectly said turning up their thermostat to a high setting heats the home faster, compared to 54% who said correctly that this statement was false.

Supply Chain

Existing clients of the ESTr scheme were sent a questionnaire to establish whether the market would like to continue with a best in class product standard for heating controls. The majority of respondents replied stating that they were interested in maintaining a product standard for heating controls and were willing to be involved in the development and maintenance. The majority of respondents felt that the product standard requirements originally set under the ESTr scheme would require review and further development.

All respondents replied that they wanted the Energy Saving Trust to maintain an online database of products that meet the standard; further the majority also stated that it was important that the standard be supported by a relevant Trade Association.

All clients providing input into the development of the standard have their own websites where they promote their products although these appear to be aimed at a supply chain audience rather than a consumer audience. Largely manufacturer's websites concentrate on the technical specification of their products although in some cases the product features are related to the energy saving benefits of controls. Very few have any generic educational information for consumers about heating controls, the different types and what they do.

TACMA is one of around 20 product category groups run through BEAMA that represents its members in the heating and hot water controls industry. It focusses on issues relating to heating controls products, such as legislation, standards, product safety, performance and energy efficiency. Members can benefit from TACMA's experience and support in these areas, as well as UK and European policy. Adopting a collaborative approach fosters product and market development.

TACMA is also instrumental in communicating about the benefits of heating controls. Testing carried out in 2008 by the University of Salford identified that the installation of room thermostats and TRVs could reduce the energy consumption of a heating system by 40%. Further the TRVs were shown to improve householder comfort by improving the heat distribution of the system. This research led to the publication of a white paper by TACMA which included research from 2008 showing that around 11 million UK homes did not have suitable heating controls

In early 2014, the Nest Learning Thermostat was bought by Google offering the prospect of revolutionising the way in which heating controls are marketed by the supply chain. Recognising the potential for heating controls to reduce energy consumption and heating bills, this represents an innovative opportunity for information about the benefits to be communicated, connecting the product with consumers in new ways.

Energy Saving Trust has developed a general guidance on Sustainable Refurbishment (CE309); this guidance document includes a section on heating considering the system as a whole. The document identified the key factors affecting the efficiency of a heating system as

- correct sizing
- efficient use of fuel
- accurate control by occupants.

More specifically to heating controls the Energy Saving Trust has developed two guidance documents for installers and specifiers covering both gas and oil fired heating systems (CE29 & CE30). These documents contain advice and information on the importance of effective heating system controls and gives a detailed explanation of the different types available and what they do.

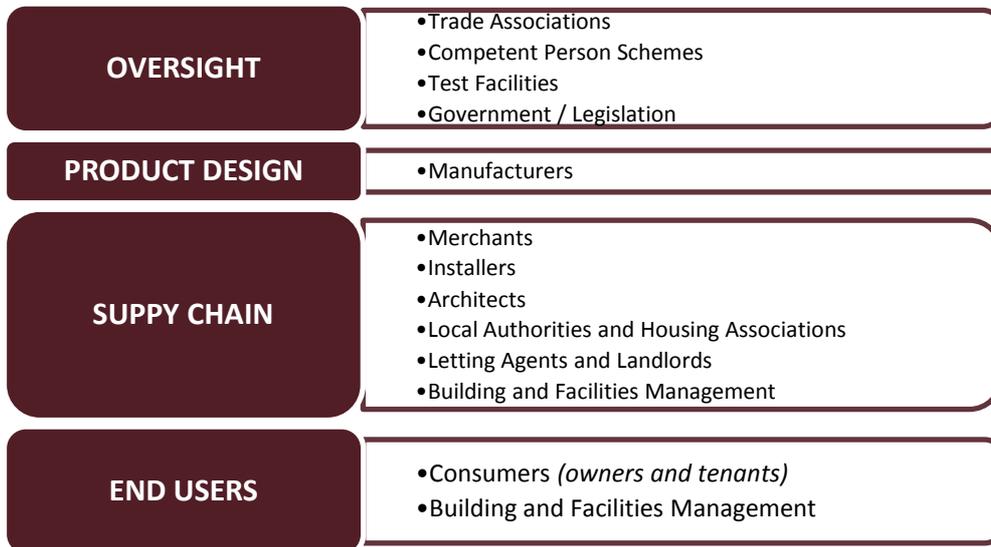
Summary Objectives

The objectives of this Endorsed Product Standard are to:

- Develop a central listing of endorsed products to which all relevant audiences can refer
- Identify the key performance requirements of endorsed products
- Increase awareness of the importance of independent product endorsement; and to

- Increase awareness of the standard, product listing and brand mark.

Stakeholder Mapping

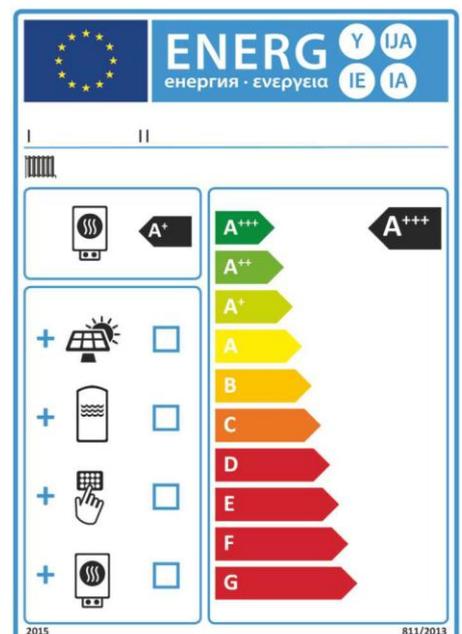


Wider Product Policy Context

Building regulations: The Building Act 1984 is the primary legislation under which the Building Regulations and other secondary legislation are made. The Building Regulations 2010 and The Building (Approved Inspectors etc.) Regulations 2010. Both came into force on the 1 October 2010. Space heating efficiency and controls is included within Approved Document Part L Conservation of Fuel & Power. The 2013 edition of Part L will come into effect from 6 April 2014.

Eco-design: Directive 2009/125/EC for establishing a framework for the setting of ecodesign requirements for energy-related products has been implemented for integrated heating controls in the form of Commission Regulation (EU) No 813/2013 with regard to ecodesign requirements for space heaters and combination heaters. The scope of the regulation includes boiler space heaters, cogeneration space heaters and heat pump space heaters with the first requirements coming into force 26 September 2015.

Energy Labelling: Directive 2010/30/EU on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products has been implemented for integrated heating controls in the form of Commission Delegated Regulations (EU) No 811/2013 with regard to the energy labelling of space heaters, combination heaters, packages of space heater, temperature control and solar device and packages of combination heater, temperature control and solar devices. The scope of the regulations include space heaters and combination heaters with a rated heat output ≤ 70 kW, packages of space heater ≤ 70 kW, temperature control and solar device and



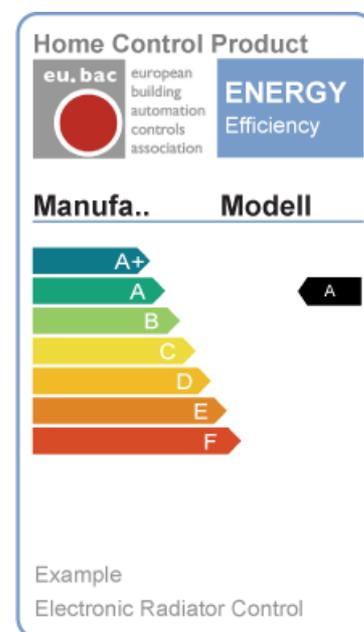
packages of combination heater ≤ 70 kW, temperature control and solar devices. Specifically, the new Energy Label for the Package of space/combo heaters, temperature controls, and other devices will be completed by the installer when they assess the system into which the new space/combo heater is being installed (the so called "Installer Energy Label"). This will include an assessment of the heating controls. This label will be launched in September 2015.

Energy Supplier Obligations: Government have set carbon reduction targets for energy suppliers which they meet through helping their customers reduce their energy consumption. The first energy supplier programme that was delivered was the Energy Efficiency Standards of Performance (EESoP) which ran from 1994 to 2002. This programme focussed on disadvantaged customers with 78,362 heating control installations completed. Following this the Energy Efficiency Commitment was launched also focussing on disadvantaged customers and ran from 2002 to 2008. Over the 2 phases of the programme 4,602,540 independent heating control installations were completed plus a further 196,068 installations as part of a boiler replacement. In 2008 and 2009 the Carbon Emissions Reduction Target (CERT) and Community Energy Saving Programme (CESP) were launched respectively and both ran until 2012. CERT focussed on 'priority group' customers, insulation measures and customers in receipt of certain state benefits while CESP focused on customers in low income areas. 2,909,488 heating control installations were completed under CERT and CESP delivered 60,016 heating control installations as part of a new heating system. The current programme for energy supplier is the Energy Company Obligation which was launched in 2013 and is due to run until 2015 (pending consultation), as of 21 January 2014, 22,813 heating control installations have been completed.

European Building Automaton Controls Association (eu.bac) energy efficiency label: A certification and labelling scheme for home controls and building automaton products aiming to identify quality and energy efficient products. The eu.bac scheme covers product and system certification through an Energy Efficiency Label and a certification mark. In the UK, products can be tested at the authorised lab, BSRIA, and certified by Intertek. Currently, the product certification element for controls focuses more on non-domestic than domestic controls, with the main focus of the scheme on building automation controls.

Green Deal: A government initiative that lets householders pay for energy saving improvements, like insulation, through savings on their fuel bills. Eligible measures for Green Deal include heating controls (central time control, local time control {room by room}, local temperature control {room by room} and weather compensation control). As at 21st January 129 heating control installations had been completed as part of a Green Deal plan.

Green Deal Cashback (England & Wales): The Green Deal Cashback Scheme is a first-come, first-served offer where householders can claim cash back from Government on energy saving improvements. The current cash back rate for installing heating controls (roomstat and/or programmer and time/temperature zone controls) is £70 however this cannot be claimed in addition to cash back for a replacement boiler. As of 21 January 2014, 4 cashback vouchers had been issued for heating controls.



An improved rate of cashback for heating controls was published in February, with the value rising from £70 to £100 for claims made since 13 December 2013.

Green Homes Cashback (Scotland): The Scottish Government is offering owner occupiers, private and social tenants, and private sector landlords cashback towards energy efficiency measures that are recommended in the property's Green Deal Advice Report. The current cash back rate for the installation of a heating controls (programmer, room thermostat and thermostatic radiator valves) is up to £300.

Simplified Building Energy Model (SBEM): The software used to analyse the energy consumption of non-domestic buildings which includes calculations for space heating and hot water.

Smart Meter Implementation Programme: Under the Energy Act 2008 the Department of Energy and Climate Change aims to install 53 Million gas and electricity meters with smart meters by 2020 through an obligation set on energy suppliers. Although energy suppliers are obliged to reach all households the roll out is not mandatory and therefore suppliers have no authority to take legal action against householders not wishing to have a smart meter installed. For those customers that do have smart meters installed the programme includes the offer of an in-home display linked to the smart meter so consumers can see their energy usage and the associated costs in real time.

Standard Assessment Procedure (SAP): The methodology used by DECC to assess and compare the energy and environmental performance of dwellings which includes calculations for space heating and domestic hot water. Reduced Data SAP (RDSAP) is also available as lower cost method of conducting an assessment. SAP 2012 is due to be implemented in April 2014.

System Approaches in Product Policies: A recent strand in the debate, design and development of energy using and energy related product policy has focused on increasing the prominence, consideration and delivery of a systems approach to certain products – including controls. This has been exemplified by the seminar last month arranged by ECEEE – the European Council for an Energy Efficient Economy – in co-operation with the Swedish Energy Agency, Fraunhofer and CLASP – the Collaborative Labelling and Appliance Standards Programme. As well as a presentation by eu.bac, the seminar heard from the European Commission about how the “Installer Energy Label” will experiment how heating systems can be assessed by the installer for packages of different products. Side events at the recent International Conference in Brussels on Energy Labelling and Eco-design Product Policy heard from eu.bac on the many benefits of a systems approach to controls.

Thermostatic Efficiency Labelling (TELL) scheme: A product certification scheme for TRVs administered by the European Valve Manufacturers Association (EUnited Valves). Products are tested in accordance with BS EN 215:2004 Thermostatic radiator valves, requirements and test methods following which the Energy Efficiency Index is calculated to determine the energy rating (A-F).

Requirements

Products shall as a minimum conform to the basic recommendations found in the former Central Heating System Specification documents. These product categories are:

- Room Thermostat
- Programmer (Timer, or Timeswitch)
- Thermostatic Radiator Valves (TRVs)
- Cylinder Thermostat
- Automatic Bypass Valves
- Full Zone Controls

Eligible product categories also include derivatives of those above, and are:

- Boiler Thermostat
- Programmable Room Thermostat or Programmable Thermostat
- Programmable TRVs

For product categories not covered by the former Central Heating System Specification documents, e.g. Smart Controls / Intelligent Heating Controls, Weather Compensators, Compensating Boiler Controls, these products are considered eligible for endorsement providing they are accompanied by a verification performed by a competent, independent third party (e.g. a UKAS Accredited testing and/or certification body; SAP Appendix Q certification; an eu.bac certification). The verification shall include for instance, but not be limited to, the following characteristics:

- Sensitivity and Accuracy
- Compatibility
- Suitability of Use

Manufacturers shall have guidance for householders that explains how the product can be used to support the control of the heating system, including, where appropriate to the product type, how to make adjustments to the timing and temperature control settings.

NOTE - This Energy Saving Trust Endorsed Product standard does not cover or endorse any performance claim made by the product (such as how much energy or money using one saves). Manufacturers seeking such endorsement would need to apply under the Energy Saving Trust's Green Claims Verification.

Verification & Conformity Assessment

For product categories formerly covered by the Central Heating System Specification documents, the manufacturer shall supply their Declaration of Conformity.

For product categories not covered by the former Central Heating System Specification documents, e.g. Smart Controls / Intelligent Heating Controls, Weather Compensators, Compensating Boiler Controls, these products are considered eligible for endorsement providing they are accompanied by a

verification performed by a competent, independent third party (e.g. a UKAS Accredited testing and/or certification body; SAP Appendix Q certification; an eu.bac certification).

Manufacturers shall reference their guidance on application.

Key Messages, Audience & Dissemination

The goal of this product standard in 2014 is to maintain a position in the market for the Energy Saving Trust to improve communication about the benefits of heating controls recognising that an estimated 11 million UK homes do not have suitable heating controls.

We aim to do this by giving useful and credible domestic energy efficiency advice to households by increasing consumer education about how to choose suitable products for their home and circumstances, and use them effectively, through our media channels. Aligned with this messaging, will be engagement with the supply chain to aid and support more informed choices about the products they choose to procure or install.

Secondly, it is our intention to establish an independent and verified register of heating control products which comply with recognised quality and performance criteria that is freely available as a reference source to both consumers and the supply chain. This will also provide a platform for manufacturers to present their products.

It is Energy Saving Trust's aim that these activities would run in parallel during the coming months with the intention of strengthening the communication proposition about heating controls for consumers and the supply chain; establishing a pathway for the future direction of the standard and product performance improvement; and supporting the development of the market for manufacturers.

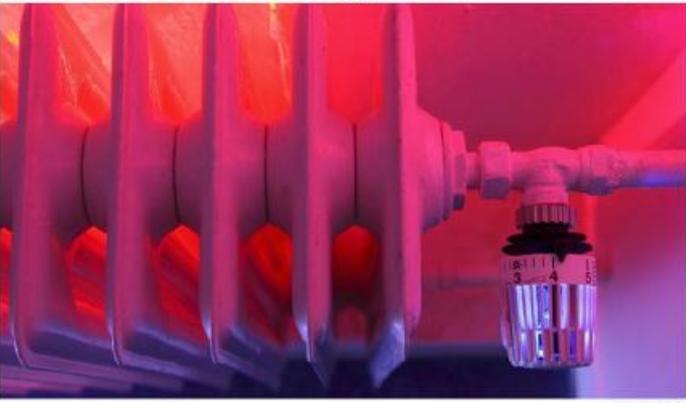
The Energy Saving Trust are designing, contracting and promoting product assurance solutions (endorsement & verification) covering a whole range of products within the domestic heating system:

- Gas and oil fuelled boilers
- Heating controls
- Hot water cylinders
- Circulating pumps
- Chemical inhibitors
- Water softeners and limescale reduction devices
- Radiators
- Heating system insulation (pipes and cylinder jackets)

This Endorsed Product Standard for Heating Controls is one element of a wider picture of how the Energy Saving Trust is replacing the former ESTr with a series of bespoke product assurance solutions for our clients. There will inevitably be beneficial crossovers for our clients with these other services. For example, our innovative insulation solution will see the Energy Saving Trust specifically target buyers in the supply chain and direct them to our online listing of products – the same location where endorsed

heating products will be listed – so buyers, for example, from local authorities, installers, merchants and landlords will see these.

The Energy Saving Trust will build from the successes of the “myth-busting” campaign and the associated media cut through, to message the importance for consumers to make the right choice when it comes to their home heating solution.

<p>Installer Online 29th January 2013 Page 1 of 2 Monthly unique visitors: 60,000</p> <p>HOUSEHOLDERS THINK IT'S CHEAPER TO LEAVE HEATING ON ALL DAY AT LOW TEMPERATURE</p> <p>British accused of over-heating homes</p>  <p>Rex Features</p>	<p>ITV News Central 28th January 2013 Page 1 of 2 Monthly unique visitors: N/A</p> <p>Heating bills expensive? Try these useful tips</p> <p>by James Clark - last updated Tue 28 Jan 2014 UK • West Midlands • Energy</p> 
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Press Clippings from the recent “myth-busting” campaign within Big Energy Saving Week.

The Energy Saving Trust will maintain an online database of products that have been endorsed against this standard. It is envisaged that this database will be utilised not only by consumers but also by the wider supply chain. Once products are endorsed against the new standard the Energy Saving Trust will ‘advertise’ the existence of the database through social media and trade press. Energy Saving Trust is also happy to provide quotes for any stakeholder PR activity where this is considered appropriate.

Product endorsement will include use of the Energy Saving Trust Endorsed Product brand mark which manufacturers will be able to use in line with the relevant Brand Guidelines and Licence Agreement. Energy Saving Trust will include the brand mark within the online database and any promotional activity in order to increase recognition. Other potential avenues of dissemination are the Energy Saving Trust blog and short webinars where these are considered appropriate. Endorsed products will also be displayed on the online product database hosted on the Energy Saving Trust website.



Following publication of the standard the Energy Saving Trust will conduct PR activity via social media and relevant trade press.

Although this standard is concerned with the performance of heating controls the Energy Saving Trust can ensure that communications to both consumers and the supply chain give holistic advice related to heating systems including reference to boilers, radiators, heating system insulation and heating system maintenance.

Energy Saving Trust can also provide supporting services to stakeholders on a bespoke one to one basis or as larger projects including all stakeholders. Services include:

- Verification of specific product performance claims in addition to endorsement against the standard
- Quick reference consumer and/or supply chain guides and literature
- Update of existing supply chain guidance documents
- Supply chain training
- Web tools – either for the supply chain or consumers to aid surveys, installation and/or buying decisions.

What is the resulting added value of the standard

This standard and the supporting communication will:

- Support the ambition to reach the 11 million homes without suitable heating controls
- Create an independent and verified register of heating controls
- Aid the supply chain in making more informed choices about the products they choose to procure or install
- Increase consumer education about the products being installed in their homes and how to use them effectively
- Provide a pathway of product performance improvement within the market
- Provide a platform for manufacturers to promote and develop the market for their products

Future Direction

The scope of this Endorsed Product Standard will be reviewed again next year to ensure it appropriately reflects market development. There will be a further review of the different measurement metrics that could be applied and assessed for different product categories, as part of a review of the continued suitability of the conformity assessment processes.

There will be a thorough review of the effectiveness of the combined EST and Industry communication activities and approach, which have resulted from this Endorsed Product Standard, to secure the future development of this market.

As well as placing the context of the next review within the systems approach to heating controls, the next review will also consider the plans in place at the time for the deployment of the new “Installer”

Energy Label. The deployment of the eu.bac scheme for domestic controls in the UK shall also be considered.

There is potential for significant growth and development of Heating Controls, and the information and messaging around the benefits. The Literature Review of Consumers and Heating Controls by Consumer Focus in 2012 provides some enlightening conclusions. The ambition remains to continually improve communication about the energy and money saving potential offered by different types of controls, how to select the most appropriate product and its' effective use, to encourage take-up by consumers and the supply chain.

References

Energy Saving Trust Publications

- Domestic heating by oil - [CE29](#)
- Domestic heating by gas - [CE30](#)
- Sustainable refurbishment - [CE309](#)

External Publications

- Consumer Focus – Consumers and Domestic Heating Controls – [Literature Review](#)
- Domestic building services compliance [guide 2013](#)
- Non-domestic building services compliance [guide 2013](#)
- Simplified Building Energy Model Technical [Manual](#)
- Standard Assessment Procedure [2009](#)
- Standard Assessment Procedure [2012](#)
- Eco-Design Directive [813/2013](#)
- Energy Labelling Directing [811/2013](#)
- TACMA Heating Control [Report](#)
- TACMA Heating Control [User Guide](#)
- TELL [standard](#)

Websites

- [BRE](#)
- [Control Your Home](#)
- [DECC](#)
- [Energy Saving Trust](#)
- Energy Supplier websites: ([British Gas](#), [EDF](#), [E.ON](#), [N.Power](#), [Scottish Power](#), [SSE](#))
- [Eu.bac](#)
- [Gas Safe](#)
- Manufacturer Websites (see introduction)
- Merchant websites ([B&Q](#), [Wickes](#), [Amazon](#))
- [National Calculation Method](#)
- [Ofgem](#)
- [Planning Portal](#)
- Stakeholder Websites (see introduction)
- [TELL](#)