Better regulation for existing Ecodesign measures

About us

The Energy and Utilities Alliance (EUA) provides a leading industry voice helping shape the future policy direction within the sector. Using its wealth of expertise and over 100 years of experience, it acts to further the best interests of its members and the wider community in working towards a sustainable, energy secure and efficient future. EUA has eight organisational divisions - Utility Networks (UN), the Heating and Hotwater Industry Council (HHIC), the Industrial & Commercial Energy Association (ICOM), the Hot Water Association (HWA), the Manufacturers' Association of Radiators and Convectors (MARC), the Gas Vehicle Network (GV Network) and the Manufacturers of Equipment for Heat Networks Association (MEHNA)

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Summary

Whilst EUA understand that BEIS and the UK Government would like to explore how enhanced labelling may be able to improve the energy efficiency of appliances sold in the UK, for heating much of what is described in the call for evidence is largely not necessary and superfluous. If BEIS wish to impose changes to what is sold in the UK they can already do so, without the need for changed energy labels, as has been shown with Boiler Plus, the move to condensing boilers and other changes to building regulations.

Much of the UK heating industry is European and currently Lots 1 & 2 are being reviewed at EU level by the European consultants VHK in conjunction with the European heating and hot water industry's and that this work must be accepted and adopted prior to considering any

UK deviation. The economies of scale and that most suppliers operate to are due to pan-EU supply chains and therefore barriers to trade would be incurred with UK specific labelling due to undue cost and complexity to the market.

We should also be mindful that UK variations of the Labelling Directive labels may be needed, a UKCA mark may be needed rather than CE and now potential deviation in product standards. Surely it would make some sense to limit the changes or consolidate into a considered whole to mitigate impact on business.

EUA are happy to discuss with BEIS how improvements to energy efficiency can be made in order to meet our Net Zero targets, but we do not believe labelling changes are the way to achieve this.

Response

1. Apart from the products listed in Table 2 and in sections 2.1.1 – 2.1.8, are there other energy-related products that could save additional energy and resources through better minimum energy performance standards and/or resource efficiency requirements? Please provide evidence and/or data.

Yes. Firstly, it is important to consider the criteria applied to decide whether a given product category should be regulated. The current EU approach for EcoDesign has well defined guidance in this regard in that, amongst other criteria, the product shall represent a significant volume of sales and trade (>200,000 units/year) and shall present significant potential for improvement without entailing excessive costs. Importantly there shall be no excessive administrative burden on manufacturers. A comparable approach for any potential future divergence in UK regulation would be necessary in order to maintain competitiveness and avoid undue burden on industry.

In relation to heating and hot water products there are some notable exclusions from the current EcoDesign framework, although review work in underway at EU level[1] which may widen the scope of the directive in future.

Products which could be considered include:

- Passive Flue Gas Heat Recovery (PFGHR) – (Currently under review by BEIS and Kiwa Gastec)
- Waste Water Heat Recovery (WWHR)
- Hydrogen Ready Boilers
- Heat Interface Units (HIU's) – used within heat network schemes.
- Grid Addressable "Smart" Hot Water Storage

Hybrid Unit (combination of a gas boiler with a heat pump and central control unit)It is important to consider that a heating or hot water system within a building is comprised of several products working in conjunction, this is recognised by the current Labelling Directive approach to labelling "packages" of combined products. Therefore, some of the products listed above may or may not have scope for significant improvement but can help to achieve higher efficiency ratings for an overall system.

There are some parallels here with recent work undertaken by the SAP Industry Forum to explore what technology types will become more prevalent in the new build sector in support of the proposed "Future Homes Standard". The output report of this workgroup[2] gives further detail on the technologies listed above.

Cooking appliances [N/A]

[1] https://www.ecoboiler-review.eu/index.html

[2] https://files.bregroup.com/SAP/SAP_11_Technologies_Report_Final_v2.0.pdf

2. Could better minimum energy performance standards, than those which currently apply, be set for cooking appliances to save more energy in the UK and facilitate a transition towards net zero?

>IF YES, please provide further evidence and/or data (e.g. energy savings potential; carbon savings potential; technical feasibility; facilitation of behavioural change etc.)

>IF YES, in what timeframe could these minimum energy performance requirements be implemented after 1 January 2021? Please choose one of the below options and provide evidence and/or data:

• 6-12 months • 12-24 months • 2-3 years • 3-5 years • More than 5 years

>IF NO, why not? Please provide evidence and/or data (e.g. lack of energy savings potential; technical unfeasibility etc.)

3. Could better resource efficiency measures (material consumption, emissions, pollution and waste generation, as well as durability, repairability, recyclability and ease of material recovery) be set under Ecodesign regulations for cooking appliances in the UK?

>IF YES, in what timeframe could these resource efficiency requirements be implemented after 1 January 2021? Please choose one of the below options and provide evidence and/or data:

• 6-12 months • 12-24 months • 2-3 years • 3-5 years • More than 5 years

>IF NO, why not? Please provide evidence and/or data (e.g. barriers to production; costs etc.)

4. To what extent are energy efficient products and practices taken up in the catering sector?

Lighting [N/A]

5. Could better minimum energy performance standards, than those due to take effect from September 2021 in the EU, be set for lighting products to save more energy in the UK and enable a transition towards net zero?

>IF YES, please provide further evidence and/or data (e.g. energy savings potential; carbon savings potential; technical feasibility; facilitation of behavioural change etc.)
>IF YES, in what timeframe could these minimum energy performance requirements be implemented after 1 January 2021? Please choose one of the below options and provide evidence and/or data:
• 6-12 months • 12-24 months • 2-3 years • 3-5 years • More than 5 years

>IF NO, why not? Please provide evidence and/or data (e.g. lack of energy savings potential; technical unfeasibility etc.)

6. Could better resource efficiency measures (material consumption, emissions, pollution and waste generation, as well as durability, repairability, recyclability and ease of material recovery) be set under Ecodesign regulations for lighting products in the UK?

>IF YES, in what timeframe could these resource efficiency requirements be implemented after 1 January 2021? Please choose one of the below options and provide evidence and/or data:
• 6-12 months • 12-24 months • 2-3 years • 3-5 years • More than 5 years
>IF NO, why not? Please provide evidence and/or data (e.g. barriers to production; costs etc.)

7. Which lighting-related service businesses exist in the UK? Please provide data on service types, volume and any other relevant market information where possible.

Water pumps [N/A]

8. Could better minimum energy performance standards, than those which currently apply, be set for water pumps to save more energy in the UK and enable a transition towards net zero?

>IF YES, please provide further evidence and/or data (e.g. energy savings potential; carbon savings potential; technical feasibility; facilitation of behavioural change etc.)
>IF YES, in what timeframe could these minimum energy performance requirements be implemented after 1 January 2021? Please choose one of the below options and provide evidence and/or data:
• 6-12 months • 12-24 months • 2-3 years • 3-5 years • More than 5 years

>IF NO, why not? Please provide evidence and/or data (e.g. lack of energy savings potential; technical unfeasibility etc.)

9. Could better resource efficiency measures (material consumption, emissions, pollution and waste generation, as well as durability, repairability, recyclability and ease of material recovery) be set under Ecodesign regulations water pumps in the UK?

>IF YES, in what timeframe could these resource efficiency requirements be implemented after 1 January 2021? Please choose one of the below options and provide evidence and/or data:
• 6-12 months • 12-24 months • 2-3 years • 3-5 years • More than 5 years
>IF NO, why not? Please provide evidence and/or data (e.g. barriers to production; costs etc.)

10. Does the UK provide any water pumps services (including research & development, repair and/or design etc.)?

11. Is there scope for introducing systems-level Ecodesign regulations for water pumps in the UK? Please provide evidence and/or data.

Boilers

12. For the different heating systems discussed, what are the potential benefits, technical barriers, costs and impacts on UK businesses and consumers? Please provide evidence and/or data.

There is an extensive body of work regarding the challenges for heat and hot water already, with recent publications and calls for evidence from BEIS including:

- A Future Framework for Heat in Buildings[3]
- Clean Growth – Transforming Heating, Overview of Current Evidence[4]
- Heat in Buildings – The Future of Heat ("Boiler Plus")[5]

EUA have provided heating industry responses to these and other consultations.[6]

As detailed in the call for evidence commentary the current mass market means for heating and hot water production in UK buildings is via natural gas boilers, with over 85% of the housing stock connected to the gas grid.

Whilst specific detail is given in response to question 13 below regarding potential for higher boiler system efficiencies the potential for change is essentially represented by two pathways:

- Decarbonisation of input fuel (hydrogen, biomethane, green gas, bioLPG etc.)
- Electrification of heat (heat pumps, direct electric, hybrids)

[3] https://www.gov.uk/government/consultations/a-future-framework-for-heat-in-buildings-call-for-evidence

[4] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/766109/decarbonising-heating.pdf

[5] https://www.gov.uk/government/consultations/heat-in-buildings-the-future-of-heat

[6] https://www.eua.org.uk/resources/consultation-responses/

It is clear that a proportion of both of these options will form part of the future energy mix in order to achieve net zero ambitions, with both facing barriers to adoption at present.

A considered and balanced package of policy measures will be required to effect change and ensure a just transition. Part of which will entail whole systems thinking as enabling steps will be reliant upon systemic change at grid supply level, either in terms of capacity and reinforcement in the case of electricity or supply of clean input fuel and repurposing the gas network.

Key considerations include:

- Housing stock – the UK has the worst performing housing stock in the EU with regard to energy efficiency, this curtails the potential for deployment of some technologies if running costs are to be affordable.
- Fabric upgrades – in order to make some options technically viable for a given building a complementary package of fabric upgrades may be needed
- Consumer sentiment – future change may entail disruption dependent upon the given technology option, this includes the need to install a hot water store if moving away from a combination boiler, fabric as mentioned and changes to the existing heating system together with finding physical space for additional equipment.
- Fuel poverty – running costs and ability to pay are key concerns.

As such product standards are but part of the overall picture and should be considered later in the journey, as some interim steps are likely needed to facilitate a change before raising the bar on minimum individual appliance performance.

13. Could tighter minimum energy efficiency levels above the existing 92% (for example 120%, 130%, 140% etc.) help bring to market low-carbon heating technologies?

>IF YES, what exemptions may be required for certain applications? Please provide evidence and/or data.

>IF NO, why not? Please provide evidence and/or data.

In theory, yes.

For natural gas fired boilers as a standalone product 92% seasonal space heating energy efficiency (SSHEE) is nearing the maximum achievable, therefore there is no realistic potential to increase the minimum currently required by "Boiler Plus", which is already well in excess of the 86% rating required by EcoDesign at present.

There is scope to increase overall system efficiency through use of the package label and inclusion of controls, heat recovery and other options as detailed previously.

To introduce significantly higher efficiency targets at 120% or greater, as detailed in the question, would mean a move away from today's gas boiler, which then~~m~~ brings about the consumer, infrastructure and housing stock barriers described in question 17. Significant work and a complementary package of support and incentive would be required to consider such a change. Of course, any proposed change would need to have a fully detailed impact assessment and be both technically and economically viable for consumers to adopt. This is because a move to 120% would mean incorporating a heat pump into all installations in the UK. This would increase the cost to consumers by at least £6k in capital costs, not considering the extra costs for home improvements, such as new radiators and storage tanks. Whilst this may be desirable in certain circumstances, for many this will be a cost they cannot afford, especially post Covid. In some circumstances it will also increase energy bills. Therefore any move to efficiencies above 98% would need very careful consideration and financial support.

14. To what extent could raising the minimum energy efficiency of boilers drive improvements in emissions savings in heating and enable a transition towards net zero?

As above there is potential for marginally higher overall heating system efficiency buy use of additional measures as part of a package, however the significant opportunity lies in decarbonisation of fuel input. This brings about the question of metrics. Given the goal is to decarbonise heating would it not make more sense to incorporate a secondary or additional carbon metric? If the UK moves to a hydrogen energy system then this will decarbonise heating regardless of the overall efficiency, so whilst energy efficiency is very important, it alone cannot come close to enabling a transition towards net zero.

15. What role do you think minimum energy performance standards should play in driving a transition to zero-carbon heat? Are there alternatives, or complementary measures, that might work better?

This issue is far wider than minimum product standards given the need to assess fabric energy efficiency, existing system configuration, consumer needs, the resilience of the network and availability of fuel options in a given geographic area.

A blend of building level efficiency targets, as mentioned in the Clean Growth Strategy, fiscal incentives and consumer awareness will be needed to achieve a pragmatic and fair transition.

Historically Building Regulations have proven a successful agent of change, in particular the 2005 amendment to Approved Document L which mandated condensing boilers. However, the scale of change at a system level required to support any of the future pathways is far greater. The increase in sales of better performing heating controls is also a measure of the success and energy saving of the boiler plus legislation

Building the market and supply chain skill base to enable alternative heating system choices, together with a comprehensive consumer engagement campaign would be necessary before committing to changing regulations around what is placed on the market.

16. What regulatory product standard changes could be put in place to reduce cycling and improve the performance of boiler installations?

We take issue with the statements in this section of the call for evidence related to cycling and in-use efficiency. No substantive evidence is provided to validate these statements other than a 12-year-old study from the Energy Saving Trust.

Load and weather compensation controls are proven to reduce boiler cycling, they do this by reducing the mean water temperature and reducing the boiler relative modulation. Standard on off controls run the boiler at maximum temperature and (until the boiler self modulates on return temperature) full load, in bursts – this directly leads to increased cycling and reduced condensing efficiency; conversely compensation controls intelligently run the appliance at lower temperature and lower percentage output for longer periods and lower temperatures and maximised condensing efficiency. Where the boiler is unable to reduce its flow temperature or to continue to deliver that flow temperature because deltaT has narrowed then the combustor will switch off. This leads to inefficiency as when the appliance re-starts it will need to initially run a high burner modulation before it throttles back.

During the intervening period heating manufacturers have been refining and innovating to deliver better reliability, ever higher combustion efficiencies, modulation ratios and system efficiency gains through effective control. This has been partly driven by the EcoDesign Directive as well as market competition and the recent "Boiler Plus" policy.

Most boilers sales today are combination boilers, whereby space heat and instantaneous domestic hot water are generated by a single appliance, typically in a compact wall hung case. This means that boilers are typically selected based upon hot water delivery and the ability to comfortably provide hot showers and baths on demand, sales statistics and installer feedback indicate that 30kW rated combi boilers are the most popular output.

It is important to realise that the peak space heating output of a combination boiler is lower than the maximum hot water figure and that modern condensing boilers have very good modulation ratios, meaning that minimum space heating output can be as low as 1/10th of the full value, therefore historic issues of cycling attributed to older "on/off" controlled boilers are mostly eliminated. A further point to appreciate is that condensing boilers typically operate more efficiently at part load, with design improvements such as modulating circulating pumps and compensation controls adding benefit. In part owing to "Boiler Plus" compensation control is becoming more commonplace, whereby the boiler flow temperature is reduced in response to measured internal or external temperatures ensuring higher part load efficiencies are exploited whenever possible.

17. Would wider modulation boilers address the performance issues in combination boilers?

As detailed above current boiler designs incorporate high levels of modulation and for many specifiers this is a key feature therefore point of competition and differentiation in the marketplace.

Heat pumps

18. Could better minimum energy performance standards, than those which currently apply, be set for heat pumps to save more energy in the UK and enable a transition towards net zero?

> **>IF YES, please provide further evidence and/or data (e.g. energy savings potential; carbon savings potential; technical feasibility; facilitation of behavioural change etc.)**
>
> **>IF YES, in what timeframe could these minimum energy performance requirements be implemented after 1 January 2021? Please choose one of the below options and provide evidence and/or data:**
>
> **• 6-12 months • 12-24 months • 2-3 years • 3-5 years • More than 5 years**

>IF NO, why not? Please provide evidence and/or data (e.g. lack of energy savings potential; technical unfeasibility etc.)

Potentially yes, given EcoDesign backstops are somewhat behind current product offerings in the case of ASHP. A key enabling factor for widescale adoption of heat pumps will be grid capacity and local network resilience, by introducing higher efficiency standards this issue can be slightly mitigated. [Input needed]

19. Could better resource efficiency measures (material consumption, emissions, pollution and waste generation, as well as durability, repairability, recyclability and ease of material recovery) be set under Ecodesign regulations for heat pumps in the UK?

>IF YES, in what timeframe could these resource efficiency requirements be implemented after 1 January 2021? Please choose one of the below options and provide evidence and/or data:

• 6-12 months • 12-24 months • 2-3 years • 3-5 years • More than 5 years

>IF NO, why not? Please provide evidence and/or data (e.g. barriers to production; costs etc.)

This work is already underway at EU level. We should look to adopt same in the first instance in order to prevent undue burden on industry. [Input needed]
We need to work on building supply chain and installation capacity in the UK before considering divergence in standards.

20. Could better measures be delivered under Ecodesign regulations to improve product design, such as better integration with smart systems?

>IF YES, in what timeframe could these requirements be implemented after 1 January 2021? Please choose one of the below options and provide evidence and/or data:
• 6-12 months • 12-24 months • 2-3 years • 3-5 years • More than 5 years

>IF NO, why not? Please provide evidence and/or data (e.g. barriers to production; costs etc.)

In theory yes with a clear definition of "smart" and sufficient development time to implement. [>5 years?]

21. Should different product standards apply to higher temperature heat pumps which may be required for hard-to-treat homes?

No. This concept directly contradicts earlier points in the call for evidence which speak to the need for more efficient heat pumps in order to reduce grid loads. Permitting lower efficiency for a specific application type poses a number of issues. How would the requirement for a higher temperature heat pump be defined, what stops lower efficiency heat pumps being installed where not required, how would this be effectively regulated and enforced?

Electric motors [N/A]

22. Could better minimum energy performance standards, than those due to take effect from July 2021 in the EU, be set for electric motors to save more energy in the UK and enable a transition towards net zero?

>IF YES, please provide further evidence and/or data (e.g. energy savings potential; carbon savings potential; technical feasibility; facilitation of behavioural change etc.)
>IF YES, in what timeframe could these minimum energy performance requirements be implemented after 1 January 2021? Please choose one of the below options and provide evidence and/or data:

• 6-12 months • 12-24 months • 2-3 years • 3-5 years • More than 5 years

>IF NO, why not? Please provide evidence and/or data (e.g. lack of energy savings potential; technical unfeasibility etc.)

23. Could better resource efficiency measures (material consumption, emissions, pollution and waste generation, as well as durability, repairability, recyclability and ease of material recovery) be set under Ecodesign regulations for electric motors in the UK?

>IF YES, in what timeframe could these resource efficiency requirements be implemented after 1 January 2021? Please choose one of the below options and provide evidence and/or data:

• 6-12 months • 12-24 months • 2-3 years • 3-5 years • More than 5 years

>IF NO, why not? Please provide evidence and/or data (e.g. barriers to production; costs etc.)

Space cooling [N/A]

24. Could better minimum energy performance standards, than those which currently apply, be set for space cooling products to save more energy in the UK and enable a transition towards net zero?

>IF YES, please provide further evidence and/or data (e.g. energy savings potential; carbon savings potential; technical feasibility; facilitation of behavioural change etc.)

>IF YES, in what timeframe could these minimum energy performance requirements be implemented after 1 January 2021? Please choose one of the below options and provide evidence and/or data:

• 6-12 months • 12-24 months • 2-3 years • 3-5 years • More than 5 years

>IF NO, why not? Please provide evidence and/or data (e.g. lack of energy savings potential; technical unfeasibility etc.)

25. Could better resource efficiency measures (material consumption, emissions, pollution and waste generation, as well as durability, repairability, recyclability and ease of material recovery) be set under Ecodesign regulations for space cooling products in the UK?

>IF YES, in what timeframe could these resource efficiency requirements be implemented after 1 January 2021? Please choose one of the below options and provide evidence and/or data:

• 6-12 months • 12-24 months • 2-3 years • 3-5 years • More than 5 years

>IF NO, why not? Please provide evidence and/or data (e.g. barriers to production; costs etc.)

Ventilation [N/A]

26. Could better minimum energy performance standards, than those which currently apply, be set for ventilation units to save more energy in the UK and enable a transition towards net zero?

>IF YES, please provide further evidence and/or data (e.g. energy savings potential; carbon savings potential; technical feasibility; facilitation of behavioural change etc.)

>IF YES, in what timeframe could these minimum energy performance requirements be implemented after 1 January 2021? Please choose one of the below options and provide evidence and/or data:

• 6-12 months • 12-24 months • 2-3 years • 3-5 years • More than 5 years

>IF NO, why not? Please provide evidence and/or data (e.g. lack of energy savings potential; technical unfeasibility etc.)

27. Could better resource efficiency measures (material consumption, emissions, pollution and waste generation, as well as durability, repairability, recyclability and ease of material recovery) be set under Ecodesign regulations for ventilation units in the UK?

>IF YES, in what timeframe could these resource efficiency requirements be implemented after 1 January 2021? Please choose one of the below options and provide evidence and/or data:

• 6-12 months • 12-24 months • 2-3 years • 3-5 years • More than 5 years

>IF NO, why not? Please provide evidence and/or data (e.g. barriers to production; costs etc.)

Taps and showers [Assume no input on this section? HWA?]

28. What is the size of UK manufacturing for taps, shower valves and shower heads in the domestic and non-domestic sectors? Please provide evidence and/or data for each of these product categories separately (e.g. stock, annual sales, rate of replacement, water flow rate, annual water consumption, annual primary energy demand etc.)

29. Are there any existing measures in place which encourage energy and water savings in these products?

>IF YES, how can they be made more effective? Please provide evidence and/or data.

>IF NO, should some be introduced (e.g. restriction of flow rates, mandatory or voluntary labelling)? Please provide evidence and/or data.

30. What more could be done to enhance the resource efficiency (material consumption, emissions, pollution and waste generation, as well as durability, repairability, recyclability and ease of material recovery) of taps, shower valves and shower heads in the UK? Please provide evidence and/or data for each of these product categories separately

31. Based on existing technologies, what is the maximum amount of energy and water that could be saved from taps and showers in the following timeframes after 1 January 2021? Please provide evidence and/or data:

• 6-12 months • 12-24 months • 2-3 years • 3-5 years • More than 5 years

Smart appliances

32. What quantifiable environmental benefits do you see as being potentially available if the UK became international leaders on the regulation of smart appliances?

33. Are there any technical barriers in achieving these benefits? Please provide evidence and/or data.

34. Would leading in the regulation of smart appliances allow the UK to develop economic benefits from DSR?

>IF YES, would these economic benefits be exploitable in an export market? Please provide evidence and/or data.
>IF NO, why not? Please provide evidence and/or data.

EUA has representation from the Hot Water Association who represent the manufacturers of hot water cylinders in the UK. A lot of work is being undertaken by these manufacturers to develop smart systems that will allow a cylinder to be connected to the grid and provide demand side management. This is already happening with a number of manufacturers.

Our calculations show that with the current population of installed cylinders there is approximately 29GWh of stored energy that could be made use of by the grid. This could be

improved on further with 'smart' controls to manage usage and calculate free storage capacity. Again, these systems are already being worked on.

HWA is planning on launching a label later this year so each cylinder can show the potential energy storage capacity of each cylinder and to allow manufacturers to enhance this if they have controls to enable more storage capacity.

It would be a positive step if this work was recognised by BEIS. However, we do not think that this needs extensive regulation that could actually stifle this work. What is really needed at this point is support for the storage industry to encourage households to buy hot water storage and to actually stop removing them from their homes. There are approximately 9 million cylinders installed in UK homes, each year that number decreases. If we want to meet net zero this trend has to be reversed.

Our members have also said: The administrative burden placed on aggregators of domestic DSR assets is disproportionate and is acting as a disincentive to participation in ancillary services such as monthly and

weekly dynamic Firm Frequency Response (dFFR) auctions. Aggregators are, for instance, required to provide householder level data (i.e. contact details, asset specific data).

The Energy System Operator (ESO) is also tightening metering requirements for smart appliances which will increase the cost of those appliances and erode returns for householders, e.g. it is proposed that meters are able to monitor power flows every 100 milliseconds (10 Hz), which is a gold plating of standards. Adding costs to customer solutions will simply erode returns for customers, especially when revenues are currently only c.£75 pa for customers with solar and storage assets.

Regulation needs to ensure there is a level playing field between regulated network operators and the commercial market. National Grid, alongside other European system operators is actively considering whether smart appliances should be "steerable". If domestic DSR is to succeed and innovate, then network operators and the ESO must avoid seeking to place requirements on DSR which will compromise customer confidence.

Heat distribution systems, hot water and heat storage

35. Do heat emitters, hot water and heat storage products have a high energy savings potential, either directly or as an enabler for the adoption of lower-temperature heating, in the following timeframes after 1 January 2021? Please provide evidence and/or data:

• 6-12 months • 12-24 months • 2-3 years • 3-5 years • More than 5 years

Heat emitters are already subject to a well-established EN standards framework (EN442). The critical factor which impacts on energy savings is system design, operation temperature and commissioning.

Work is already underway in this regard to provide a "Low Temperature Heating Systems" qualification for installers which could be adopted.

There are differences in how heat emitters affect heat production and how heat emitters compensate for cold air flow downwards and "cold radiation" caused by a cold window.

Radiators with a large heat radiating surface compensate well for the air flow (draft) and radiating effect of the window. Work well in both heat pump systems and condensing boiler systems (gas boilers and district heating) also at partial power (proportional control by thermostat).

Convectors (Cu pipes plus Al lamellas) compensate for the draft of the window but not the "cold radiation", so that the room air temperature has to be raised to reach the desired operating temperature. They work reasonably well in heat pump systems (high water flow). In contrast, in condensing boiler systems, it is worse because at partial power (lowered water flow) the heat output is impaired, and the return water temperature remains high. Higher return water temperature reduces the efficiency of the condensing effect.

There are no significant differences in the up heating of radiators and convectors. But we can consider that, convectors cool down faster than radiators due to their lower mass. This also does not have a large effect, as the room temperature behaviour is dominated by the slowness of the thermostatic valve and the heat capacity (inertia) of the room and the room air itself.

We do not support labelling for radiators because the differences are relative and largely due to factors other than the properties of the emitter itself. Such a classification easily constitutes a system of unfair and speculative competition.

With regard to hot water storage the Hot Water Association are developing guidance and a labelling mechanism for "heat pump ready" cylinders. The HWA have produced a heat pump cylinder standard which has been referenced by MCS in their installation and specifying process. Manufacturers can work to this standard to all installers and consumers to know how cylinders will perform with a heat pump to ensure optimal output. The HWA are working on a label for these cylinders which will be published later this year. The standard can be found here: https://www.hotwater.org.uk/uploads/5EEB25D1ED859.pdf

Making energy labels more useful for consumers

36. Apart from the products listed in Table 3, are there other energy-related products that could be subject to energy labelling requirements to help increase the uptake of the most energy and resource efficient products? Please provide evidence and/or data.

Improving the UK energy label

37. Are existing energy labels effective in encouraging the purchase of the most energy efficient products? Please choose one of the below and provide further evidence and/or data:

- Very • Somewhat • Not very

Not very.

In the case of heating and hot water systems consumers predominantly trust their chosen local installer (of a relevant competent persons scheme such as Gas Safe) to specify a solution to meet their needs. Energy labelling is not typically a part of this conversation. The installer will then procure the required products from a merchant trade counter therefore there is little to no consumer involvement in the selection process whereby factors such as price, manufacturer warranty and installer brand preference come before labelling.

This is disparate to the typical route to market for other regulated goods such as kitchen appliances where a consumer may visit a retail outlet and energy labels will be prominently displayed and form a strong part of the sales proposition.

It is also noteworthy that the energy label for a given sub-set of heating products will not offer significant diversity to encourage the purchase of a more efficient alternative, this is because efficiency is not declared as a percentage figure and the lettered bands are relatively wide. Therefore, it is not unusual for all comparable products in a sub-category to have the same efficiency band rating despite there being a reasonable spread of efficiency values.

38. Can energy labels be used to promote more energy efficient in-use practices by consumers? Please provide evidence and/or data.

Doubtful in the case of heating and hot water systems. The regulated products form part of a wider installed system whereby the commissioning and setup are relatively detailed and tailored to a given dwelling. This means that meaningful advice in this regard would be incredibly difficult to convey using a simple label format.

39. What impact would expanding the scope of energy labels, to include information about resource efficiency, have on consumer purchasing decisions? Please provide evidence and/or data.

As previous comments consumers do not typically engage with energy labels in the heating sector. We would also refer to the wider circular economy work which is currently underway at EU level for the product categories in our interest area (EcoDesign Lots 1 & 2).

40. How can energy labels be made more useful for UK consumers (e.g. by including a product's average lifetime energy costs, by using more/less text or imagery etc.)? Please provide evidence and/or data.

Energy labels are not particularly relevant for consumers in the heating sector given the reasons described above.

Strengthening UK market surveillance

41. How effective are existing UK market surveillance activities for Ecodesign and Energy Labelling? Please choose one of the below options and provide evidence and/or data:

- **Very • Somewhat • Not very**

Somewhat.

Industry has seen some "round robin" testing and stakeholder engagement with the BEIS OPSS team across several product groups. In the case of heating and hot water products it is important to consider that heat generating products are covered by a well established and comprehensive set of harmonised EN standards which support the EcoDesign framework. Products are also generally subject to third party conformity assessment via a notified body in order to satisfy the requirements of other safety related legislation and in order to attain CE certification. Therefore the current approach to product validation is considered to be robust.

42. How effective are existing UK market surveillance activities for products that are purchased online? Please choose one of the below options and provide evidence and/or data:

- **Very** • **Somewhat** • **Not very**

Somewhat.

In comparison to other sectors the sale of heating products online is a relatively niche part of the market at present.

43. How can the process of reporting non-compliant businesses and/or products to UK market surveillance authorities be improved?

No comment?

44. Would the provision of UK Ecodesign and Energy Labelling regulations and guidance in languages other than English help improve levels of compliance?

>IF YES, which language(s) should be prioritised? Please provide evidence and/or data.

>IF NO, why not? Please provide evidence and/or data.

No. [Views?]

Exploring other policy levers

45. Which of the policy levers listed in Table 5 would be the most effective in making energy-related products more energy and resource efficient in the UK?

Adoption of current and close to market technology is key rather than raising product standards. As detailed earlier a blend of incentives, capital investment and consumer awareness will be crucial enabling factors for future regulation.

46. Are there additional policy levers, which have not been listed in Table 5, that could be effective in market energy-related products more energy and resource efficient in the UK?

Building Regulations has in the past been very effective at driving change in the appliances market as it can literally dictate what can and cannot be installed.