Household Tumble Dryers options assessment

Title:	Raising Standards for Household Tumble Dryers
Type of measure:	Secondary Legislation
Department or agency:	Department for Energy Security and Net Zero
IA number:	…
RPC reference number:	…
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1. Summary of proposal

As an established technology, household tumble dryers are currently subject to Ecodesign (Assimilated Commission Regulation (EU) No 932/2012) and Energy Labelling (Assimilated Commission Delegated Regulation (EU) No 392/2012) regulations. There are around 17 million household tumble dryers used in the UK, which are estimated to consume a significant 8 TWh of electricity per annum, comprising around 9% of domestic electricity consumption[1]. There are around 1.2 million household tumble driers sold every year.

We are consulting due to developments in household tumble dryer technology. We believe that the existing minimum energy performance standards (MEPS) are no longer pushing the market towards more efficient products. Evidence suggests that inefficient technologies - such as gas, air-vented or condenser household tumble dryers - continue to be sold to consumers even though higher efficiency heat pump household tumble dryers offering the same functionality are readily available on the GB market. Our analysis suggests that government intervention could push the market towards manufacturing more efficient technology, which would reduce energy demand, reduce consumer bills and deliver carbon savings towards our Net Zero targets.

The improvements in efficiency of household tumble dryer products have also meant that the current Energy Labelling requirements no longer provide the consumer with clear information to make informed purchasing decisions. The current regulation establishes a

[1] https://www.gov.uk/government/statistics/electricity-chapter-5-digest-of-united-kingdom-energy-statistics-dukes

scale from A+++-D for household tumble dryers. However, the higher energy efficiency classes (A to A+++) has become overpopulated, meaning that the rating system therefore has the potential to obscure the relative efficiency of products. For example, an 'A'-rated household tumble dryer may in fact be less efficient than 60% of products on the market.

Following research, analysis and modelling, we have set out an Ecodesign and Energy Labelling proposal in this options assessment and associated consultation which we believe will ensure that only the most efficient heat pump tumble dryers remain available on the market, with less efficient technologies removed. The options we have considered and rejected are also detailed in this document.

In the current regulations, the metric used to set MEPS is the Energy Efficiency Index (EEI). The EEI is calculated as the quotient between the weighted annual energy consumption of the dryer model being tested and the standard energy consumption of all tumble dryers on the market at the time that the regulations were introduced. The EEI therefore provides information on the relative efficiency of the model against the rest of the models on the market: the lower the EEI, the better the energy performance. The measurements to be taken for calculating the EEI is for the standard cotton programme. The EEI of household tumble dryers must currently be:

- Less than 76 for condenser household tumble dryers
- Less than 85 for all other household tumble dryer technologies

We propose to update the Ecodesign regulations for household tumble dryers, which will introduce a number of technical changes to how the EEI is calculated and will set a blanket EEI value for all household tumble dryer technologies. Specifically, we propose that:

- The calculation of the EEI of a household tumble dryer now consider energy consumption *per drying cycle*, instead of *per annum.*
- The calculation of the EEI of a household tumble dryer be determined for the 'eco programme', instead of the 'standard cotton programme'.
- The EEI of household tumble dryers must be less than 85 to be placed on the GB market.

In effect, the combination of the new EEI calculation method and the new MEPS value will phase gas-fired, air-vented and condenser household tumble dryers from the market as only efficient, heat pump household tumble dryers will be compliant.

Additional to the changes to the MEPS, we propose the following changes to the existing Ecodesign requirements:

- Introduce a requirement that all household tumble dryers have an off mode, standby mode or both, with the power consumption not exceeding:
    - 0.50W in off mode and standby mode 6 months after the regulations are laid.
    - 0.30W in off mode from 9 May 2027.
- Raise the condensation efficiency requirement of condenser and heat pump tumble dryers from 70% to 80%.

On Energy Labelling, we propose to replace the current Energy Label which displays energy efficiency classes on an A+++-G scale with a new, re-scaled A-G class range. We propose to remove classes above A to reduce the risk of consumer confusion. The re-scaling of the thresholds to qualify for each efficiency class will also mean products on the

market will be represented across the A-G range, thereby enabling consumers to make informed purchasing decisions by allowing them to better discern between the relative energy efficiency of different products.

On Energy Labelling, we propose the following Energy Labelling changes:

- Replace the current Energy Label which displays energy efficiency classes on an A+++-G scale with a new, re-scaled A-G class range. The re-scaling of the thresholds to qualify for each efficiency class will also mean products on the market will be represented across the A-G range
- Replace the current condensation efficiency classification from an A-G scale to an A-D scale which is rescaled to better reflect the condensation efficiency levels achievable by household tumble dryers on the market.
- Introduce a new acoustic airborne noise emission classification system with a range from A-D, which is to be displayed alongside the absolute noise emission value on the energy label.
- Introduce a classification system on an A-E scale for the repairability of a household tumble dryer product, which must be displayed on energy labels from 1 January 2027.

These changes will enable consumers to make informed purchasing decisions by allowing them to better compare the performance of different products.

The proposals also include additional measures regarding:

- Improving the availability of, and customer information on, access to spare parts. This will enable users to repair their appliances, contributing to the circular economy and extending the functional lifetime of household tumble dryers.
- Circumvention of the regulations, by introducing a requirement that product performance during testing conditions be accurate to its use in practice.

The aim of this Options Assessment is to support the ecodesign and energy labelling consultation document, providing additional details regarding the analysis produced to support the development of tumble dryer policies, and specifically its contribution to the decision-making process as the policy options were refined.

2. Strategic case for proposed regulation

The UK was the first major economy in the world to set a legally binding target to achieve Net Zero greenhouse gas emissions by 2050. To ensure continued progress, we have set a series of legally binding ‘carbon budgets’, covering interim periods, which are among the most stringent climate targets in the world. The most ambitious is the target to cut emissions by 81% by 2035, compared to 1990 levels.

Our proposed regulation will enable our Clean Power 2030 mission by reducing emissions that currently come from electricity use in buildings and energy demand on the grid.

The recent increase in electricity prices combined with consideration of pressure on the grid illustrate the need to ensure only the most energy efficient products are available on the market. However, whilst more energy efficient products tend to be more expensive up front there is technical scope within tumble dryers to increase the energy efficiency of these

products, with condensing tumble driers using on average 564kWh per year compared to 225 kWh per year for heat pump tumble driers. This would have the following benefits.

- Carbon savings – a phase out of the least energy efficient tumble dryers from mid 2020s could see significant contributions to reducing the cost of achieving CB5 & CB6 through electricity demand reduction.
- Energy demand – By improving the energy efficiency of tumble dryers we expect to see a reduction in electricity demand compared to leaving the market unregulated.
- Reduced bills – Lowering the energy demand of tumble dryers used by households in GB by improving the efficiency of products available on the market will mean that consumers will see a halving of their tumble drier energy bill if switching from condensing to heat pump tumble drier.
- Reduced waste – Heat Pump tumble dryers have lifetimes on average 60% longer than condenser tumble dryers (an average of twenty years for heat pump tumble driers compared to twelve for condensing), meaning a reduction in overall waste from reduced replacements and greater whole product lifestyle benefits. The proposal also includes changes to the resource efficiency requirements, including an expansion of the spare parts that must be made available to consumers and the introduction of a repairability score to better inform consumers on ease of repair.

The argument for Government intervention is that the market is not moving quickly enough high efficiency tumble dryers to enable the potential benefits to be realised. This is on account of several market failures:

a) **Carbon externality**: the price of less energy efficient tumble dryers does not reflect the negative externalities associated with energy use. The excess energy used creates an avoidable cost to society in the form of excess power consumption and greenhouse emissions. Government intervention can help overcome this by ensuring that only more energy-efficient products are available.

b) **Imperfect Information:** in the absence of higher MEPS, consumers may be more likely to purchase tumble dryers with lower efficiency as they do not realise, or ignore, the opportunity cost of buying a less efficient product at lower upfront cost (i.e. forgone bill and energy savings which they would have benefitted from by buying a higher efficiency product at a slightly higher upfront cost). This is exacerbated by the unintuitive scaling of energy classifications for tumble dryers, which currently range from ‘D’ to ‘A+++’. Under this framework, a consumer may perceive a product rated ‘A’ to be relatively efficient. However, this product would actually be expected to consume more energy than around 60% of available products.

   Finally, there is little publicly available information regarding the likely economic lifetimes of different tumble dryer technologies, but newer, more efficient, heat pump dryers are expected to last around 60% longer. Although consumers generally show preferences for shorter-term benefits, investment decisions may differ if consumers were aware of the financial and hassle costs that could be avoided, were this information more readily available/products with much shorter lifetimes were not available.

c) **Economies of scale:** regulating the market by forcing it to develop more high efficiency products will lead to expanded volumes of production due to the large market to supply, which will bring down the costs to consumers and lead to greater deployment. New tumble dryer standards are also likely to push the market to increase innovation in order to drive down the cost of production. In the absence of government intervention, higher efficiency tumble dryers will continue to cost more than their lower efficiency alternatives.

d) **Misaligned incentives:** In rented properties where, commonly, electrical appliances are already installed by the landlord before tenants move in, the costs of higher energy bills and/or less efficient tumble dryers accrue to tenants. The issue of misaligned incentives here can crop up, as it is less likely for landlords to include tumble dryers which have higher efficiency when making a decision to buy at the point of replacement. Therefore, without government intervention, landlords are likely to keep purchasing less efficient tumble dryers, which carry a higher cost to their tenants and society.

The draft Regulations will apply in Great Britain only. The Windsor Framework provides that limited areas of EU law will continue to apply to and in the UK in respect of Northern Ireland. In accordance with the Windsor Framework, EU Ecodesign and Energy Labelling Regulations will continue to have direct effect in Northern Ireland and so businesses selling tumble dryers in Northern Ireland may choose to either only meet the less stringent EU rules or meet the higher GB standard. The costs and benefits in this Impact Assessment are therefore calculated on a GB basis.

The EU have adopted new measures for both Energy Labelling and Ecodesign requirements for household tumble dryers, which came into force on 1 March 2025 and 1 July 2025 respectively. If we did not mirror EU standards in GB, industry would need to manufacture products to different product specifications which comply with the differing regulatory regimes in GB and EU. This would raise costs for manufacturers due to lost economies of scale. Our proposal has been developed to align closely with these new EU requirements, based on research and stakeholder engagement which highlighted that that this would prevent unnecessary barriers to trade with the EU, reducing costs for manufacturers and consumers alike.

We have assessed the GB tumble dryer market to understand how the existing MEPS requirements have impacted the efficiency of tumble dryers. Through this review, we have established that tumble dryers are capable of far exceeding the existing MEPS.

3. SMART objectives for intervention

The update to existing ecodesign requirements for tumble dryers is intended to set optimal, new minimum standards for energy efficiency which reflect what is broadly achievable for tumble dryer products on the market. The intended effects are to:

- Increase innovation, investment, and uptake of more energy efficient products by phasing out the least efficient products on the market
- Reduce traded carbon emissions and energy bills for consumers and businesses
- Ensure effective regulation for consumers and businesses
- Reduce demand on the power sector and electricity networks

This policy intervention will help reduce consumer bills and reduce electricity demand, contributing to two key government priorities to increase energy security and reduce the cost of living. By reducing the running costs of tumble dryers it will also align with wider government aims to increase the take up of tumble dryers.

We believe this regulation follows the Smart objectives for the following reasons:

Specific: The regulations have been designed using the latest market analysis to ensure we achieve the desired effect of removing the least efficient tumble dryers from each market while preserving consumer choice. These have been informed through conversation with industry stakeholders and research bodies, backed up by detailed market data on the range of products available.

Measurable: The MEPS levels set a specific efficiency level, which is understood by industry and widely used to measure efficiency. The testing methodology has long been in place and the efficiency achieved is required to be present on the label and technical information of products sold.

Achievable: We have used the market data and expert advice to look at past market improvements and forecast future efficiency to ensure MEPS are set at a level targeted for the specific policy objective and ensuring sufficient consumer choice remains on the market.

Realistic: These MEPS have been set using comprehensive data of the product types available on the UK market, to ensure an accurate level is set.

Time limited: While ecodesign legislation in general does not have an expiry date, the Post-Implementation Review (PIR) is an opportunity to amend any unintended consequences of the legislation. Typically over a ten year cycle all product regulations under ecodesign have their legislation updated to reflect the current market position and how technology may have changed over the period.

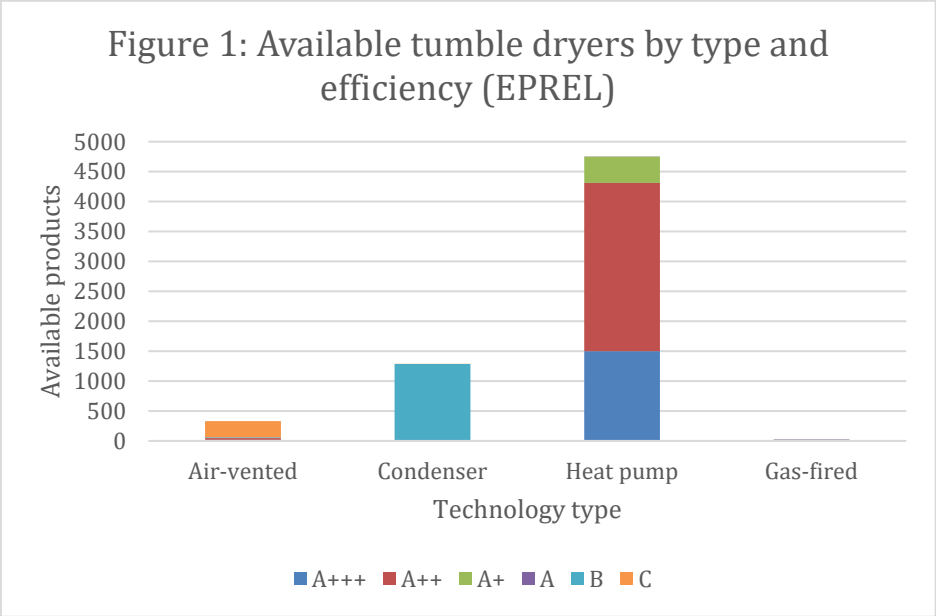
4. Description of proposed intervention options and explanation of the logical change process whereby this achieves SMART objectives

Preferred option – Update Ecodesign regulations for Domestic Tumble Driers in line with EU updates

In general products cluster near the current minimum standards as it is usually cheaper to produce less efficient products. Market forces will drive products to the cheaper end, at a long-term cost to the consumer society from energy consumption. This is therefore the reason for needing the intervention via Ecodesign measures.

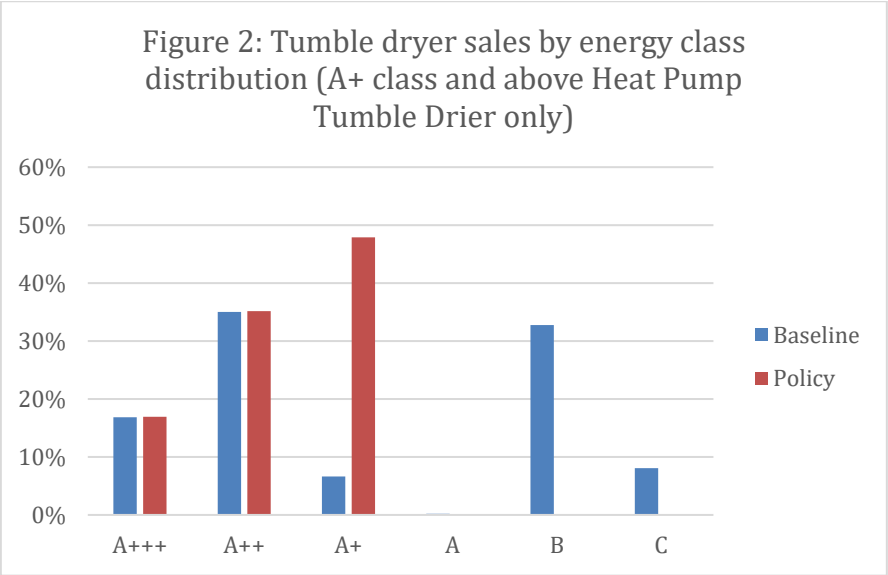
We know that manufacturers can in general produce more efficient products, and in most cases a manufacturer will be producing multiple products with different efficiencies in the same factory. Our MEPS proposals will in effect remove all types of domestic tumble drier apart from heat pump tumble driers from the market (see fig 1 for current market spread), in

line with the regulations introduced across the EU. In most cases manufacturers are already producing heat pump tumble driers alongside other varieties like condensing, but they would need to shift relative production volumes.



The long lead time for implementation of updates to the Ecodesign regulations in combination with the transparency obligation via a WTO notification is intended to allow manufacturers ample time to adjust their production. Whilst the consultation and notification process will be shorter for the introduction of the GB version of these regulations, manufacturers have been gearing up for the new EU regulations for some time. As such the effects of alignment would be smaller than they might have otherwise been.

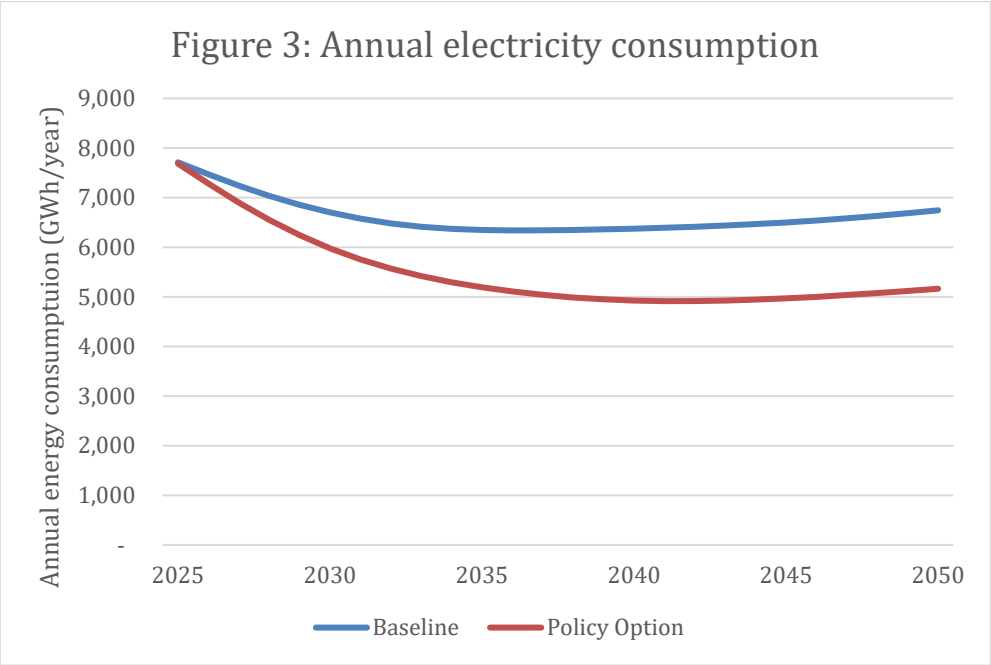
In terms of costs to the consumer, the electricity savings from using more efficient products will outweigh the cost of the new efficiency standards over time. Small upfront costs increase per product as a result of the tumble drier technology change will result in direct energy bill savings for consumers. For example, a tumble drier purchased after the introduction of the regulations would expect to pay back the increased cost of the unit (£60 from an average cost of £560) within two years, with continued energy bill savings past this point. On average over the twelve year lifetime of a condensing tumble drier an owner of a heat pump tumble drier will have an undiscounted net saving of £250. As the heat pump tumble drier also has a longer lifetime the same owner would be a net £900 benefit over the twenty year appliance lifetime from a combination of energy bill savings and deferred cost of replacement. Without raising MEPs, consumers are likely to buy products with lower efficiencies as they do not realise, or ignore, the opportunity cost of buying a less efficient product at lower upfront cost (see fig 2 for spread of efficiencies by energy class before and after legislation).



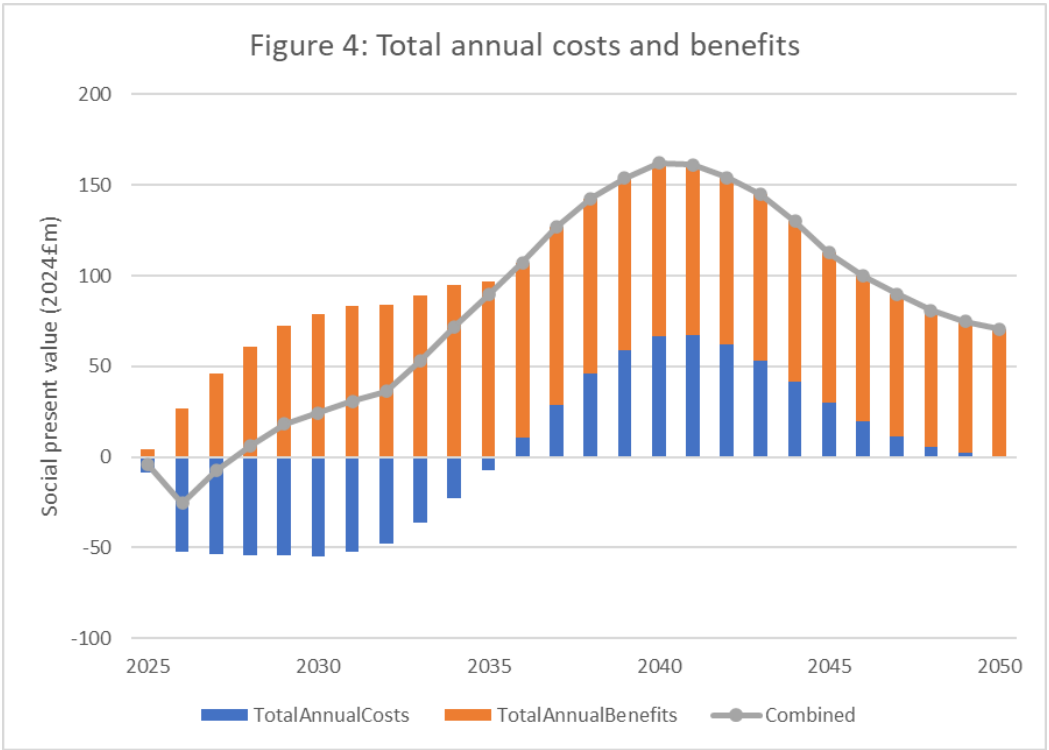
A summary of the headline costs and benefits associated with this option are tabulated below:

Total NPV					
	Discounted monetized benefit (£m)	**Discounted policy cost (£m)**	**Discounted NPV (£m)**	**Traded Carbon savings (MtCO2e)**	**Electricity savings (GWh)**
CB5	400	274	130	0.37	3,730
CB6	510	27	480	0.24	6,050
Total to 2050	2,160	-70	2,230	0.91	30,280

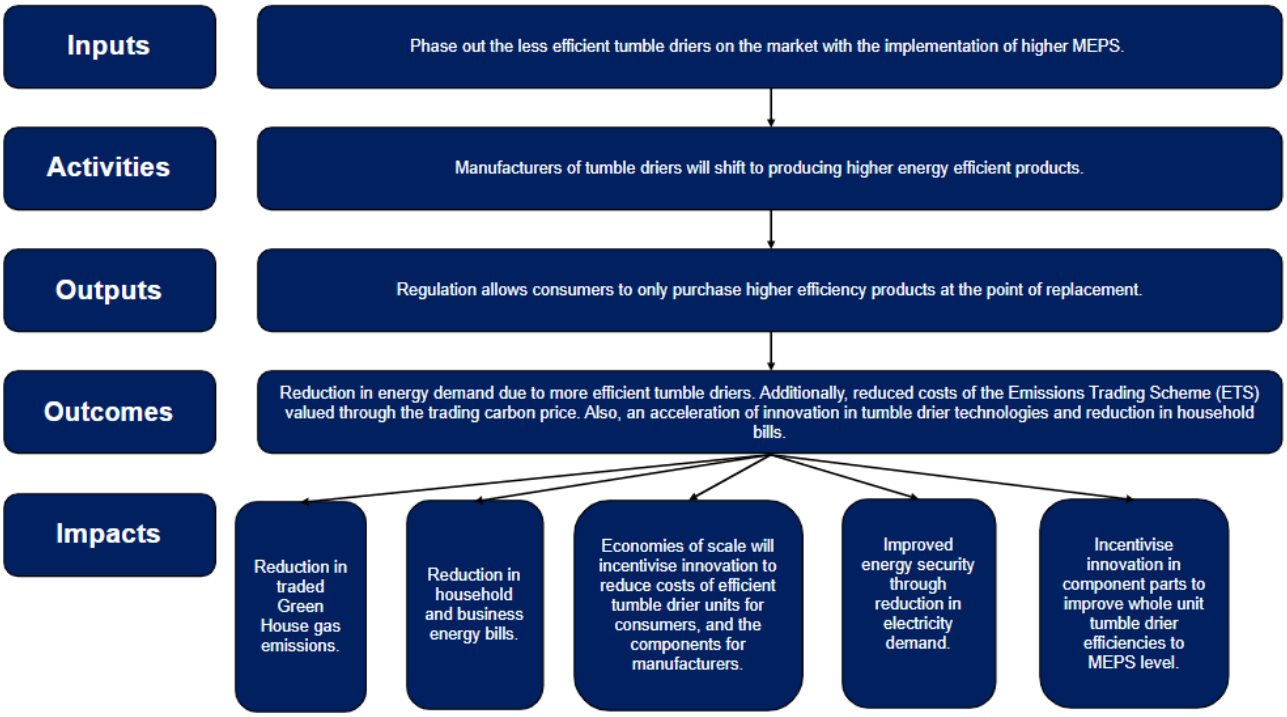
Whilst traded savings are overwhelmingly positive, there is a small increase in non-traded emissions as a result of the Heating Replacement Effect, by which domestic consumers have to increase their heating to compensate for heat no longer generated by an inefficient appliance. For this option this amounts to a total increase of Carbon of 34 kTCO2e by 2050, which is around 3.5% of the total traded emission saved, and accounts for £7m of additional costs over the appraisal period. The cost of this increase has been taken into account in the cost-benefit analysis.



While costs in the early years of the policy are positive, due to the increased cost of purchasing Heat Pump tumble driers over other technologies (around £60 on average), in later years of the policy costs turn negative as the much longer lifetime of heat pump tumble driers mean consumers will not need to replace them as often (see fig. 4), as energy bill savings (as well as Carbon and air quality savings) are realised across the policy lifetime overall NPV is positive.



Below is a logic model showing how this intervention will achieve the objectives stated in the previous section.



5. Summary of long-list and alternatives

Do Nothing - Under this option the current Ecodesign Regulations for space heating products would remain unchanged.

The main reason why this option has not been pursued further is that, without updated regulation, the market will not achieve the full potential efficiency savings possible given the market and associated negative impacts described above.

In a Do Nothing scenario, it is reasonable to assume that GB and global manufacturers of tumble dryer products have less incentive to innovate and produce products increase energy efficiency, as their focus is likely to be price competition. They will have the opportunity to undercut higher priced, more efficient products with cheaper, less efficient products. Without updating ecodesign requirements, the market failures listed above would be unmitigated.

Self Regulation - Under this option the manufacturers would agree a common set of standards to adhere to.

We have considered self-regulation as an option, whereby suppliers of tumble dryers would voluntarily ensure that their products met a higher minimum energy performance standard. This could either replace the existing ecodesign regulations entirely or be a means by which manufacturers go beyond the existing mandatory requirements to meet the higher MEPS proposed by this policy. Under the ecodesign legislative framework, the Secretary of State must not regulate an energy-related product that is already the subject of self-regulation; the legislative framework also sets out principles which voluntary initiatives should follow.

Where self-regulatory initiatives have been considered at an EU level for products other than tumble dryers, concerns were raised about the lack of guidance around the criteria used to evaluate self-regulatory initiatives, particularly with respect to monitoring and evaluation.

A self-regulation scenario could create a coordination failure. In the absence of government intervention, there is a real risk of free riders introducing inefficient products into the market if a voluntary agreement were to be used. Particularly in a scenario in which a voluntary agreement replaced the existing mandatory requirements, there would be a risk that free-riders could re-introduce highly inefficient products, which were previously banned, back into the market. Free riders would be those who do not sign up to the voluntary agreement but benefit from higher costs voluntarily incurred by their competitors which allows them to undercut the market cost. Therefore, government intervention is necessary to avoid a coordination failure and allow for an equilibrium to be reached in the market where firms can supply higher efficiency tumble dryers avoiding free riders.

Further, research suggests that voluntary agreements around energy efficiency are best considered for products which are not regulated in other economies, or where regulation is not practical . Since mandatory requirements are practical and indeed already exist in many nations for tumble dryers, we have ruled out self-regulation in GB as a possible option. Continuing with a mandatory regulation approach provides clarity and a level of continuity for GB businesses.

Alternative Tumble Dryer MEPS or delay in implementation of MEPS

Alternative Tumble Drier MEPS were discussed but ultimately rejected as an option to take forward as any more stringent MEPS would have limited additional energy and carbon savings, due to the bulk of savings being from phasing out non-heat pump tumble driers which the lead option does at the earliest opportunity, whilst introducing potential complication from diverging from the implemented EU MEPS.

The option of delaying the introduction of MEPS was also considered but has also been rejected as an option. This is due to a loss in energy and Carbon savings with no significant gains as manufacturers have already adapted to the new EU regulations. The impact of delayed implementation is set out in the Summary of Analysis section at the end of this options assessment.

6. Description of shortlisted policy options carried forward

For the reasons outlined in the section above, the option to raise existing minimum energy performance standards for tumble driers in line with EU proposals has been carried through to consultation.

We believe this option does not cause disproportionate impacts for small businesses as the tumble dryer manufacturers active in the GB market are large multinational suppliers. They hold large shares of the GB market and also supply extensively to the European market. There does not appear to be a large presence of small and micro businesses

manufacturers in the GB market, with the market dominated by large international suppliers. Surveying members of the trade organisation AMDEA found 31 members with an interest in tumble driers or vacuum cleaners, with additional research identifying only one GB supplier of tumble driers. The number of businesses of all size manufacturing domestic appliances number only 180 in total (with none located in NI).[2]

If there were any such small businesses they would likely be disproportionately affected by the transitional and compliance costs associated with the lead policy option, particularly around testing and, where possible, amending their products to make them compliant. There are also likely to be fewer alternative products for them to market or recoup losses if a product fell outside of the acceptable efficiency range. However given no such businesses have been identified we judge this risk to be low.

In addition, they may also be disproportionately affected by Option 1 (Do Nothing) and the other discarded options in a scenario where further international standards are introduced as smaller businesses might find it harder to capitalise on the lower levels of regulation in the GB compared with elsewhere, for example, through scaling-up production or bargaining with suppliers.

To mitigate the impact on small and micro businesses, possible options considered and ruled out include:

- phasing the transition period; or
- providing an exemption.

However, the first two options would be challenging to enforce as requirements relate to products and not manufacturers and so enforcement activities relate to checking whether products on the market comply with the requirements. An exemption, or a phasing of the regulation, would mean that products would have a 2-tier structure: those manufactured by medium (50-249 employees) and large manufacturers (250+ employees), and those by smaller businesses (10-49 employees). Such an approach would make enforcement activities harder and much more costly as businesses, as well as products, would have to be investigated. Further, if smaller businesses were exempt, such an approach could distort competition between large and SMEs, create a mechanism to bypass the regulations and reduce productivity through loss of economies of scale. Therefore, we do not consider a transition period or an exemption to be appropriate or proportionate.

7. Regulatory scorecard for preferred option

Part A: Overall and stakeholder impacts

(1) Overall impacts on total welfare	Directional rating Note: Below are examples only

[2] https://www.ons.gov.uk/businessindustryandtrade/business/activitysizeandlocation/datasets/ukbusinessactivitysizeandlocation

Description of overall welfare impact	Costs will be increased as a result of these proposals as the cheaper alternatives to heat pump tumble driers will be removed from the market. However, these additional costs are expected to be recuperated within two years of use in a domestic setting. In addition heat pump tumble dryers have a significantly longer lifetime (twenty years in comparison to twelve years for other technologies), meaning additional savings from delaying the need for replacement. The policy is expected to increase the cost of a tumble dryer by £60 on average, compared to an average price before policy implementation of £560. Bill savings as a result of increased efficiency are directly proportional to the amount a tumble dryer is used by a household or business across purchasers of tumble dryers. The overall impact of these regulations is expected to be positive due to these bill savings.	**Positive** **Based on all impacts (incl. non-monetised)**
Monetised impacts	For the reasons outlined above monetised impacts for particular protected groups have not been calculated. But overall bill savings mean the impacts of this measure are net positive with a total NPSV of £2,229m based on the following: • carbon emissions savings = £192m • reduced long variable running costs = £1,965m • air quality improvements = £5m • Total Costs = -£66m This is outlined in more detail in the business and household sections below.	**Positive** **Based on likely £NPSV**
Non-monetised impacts	There is an additional benefit to the electricity system through deployment of more efficient tumble dryers which has not been monetised for this analysis. As heat pump tumble dryer deployment increases in future, increasing their efficiency will reduce total electricity demand, which will reduce the need for generation capacity and distribution network reinforcement, reducing system costs and increasing security of supply.	**Positive**
Any significant or adverse distributional impacts?	We do not expect any significant distributional impacts as a result of this policy. Impacts are proportional to energy use of households and businesses and so are distributed proportionally to population and business concentrations. Impacts only fall on homes or businesses that purchase and use household tumble driers. Tumble drier ownership is represented across income distributions, though with higher representation in higher income groups. Analysis from Statista in 2020[3] shows 36% ownership in the lowest ten percent of household income, growing steadily to 73% of ownership in the highest income decile. So impacts of these regulations will be felt across all income groups, but at a higher rate in the highest income households.	**Neutral**

[3] https://www.statista.com/statistics/289276/household-drying-machines-in-the-uk-by-income-group/

(2) Expected impacts on businesses		
Description of overall business impact	The impacts on businesses purchasing and installing tumble dryers on their premises is expected to overall be positive for these proposals. Whilst there will be a small increase in upfront costs relative to the cost of the heat pump, this is made back through bill savings and these savings will continue into future years. We expect the impacts on manufacturers and installers of tumble dryers to be small and time limited as outlined in the business environment impacts below.	**Positive**
Monetised impacts	Business NPV = £56 million These do not include pass through costs to households, which have been accounted for in the cost/benefit analysis of household impacts.	**Positive**
Non-monetised impacts	We do not expect any further non-monetised impacts to those outlined above.	**Neutral**
Any significant or adverse distributional impacts?	We do not expect any significant distributional impacts as a result of this policy. Impacts are proportional to energy use of households and businesses and so are distributed proportionally to population and business concentrations.	**Neutral**

(3) Expected impacts on households		
Description of overall business impact	The impacts on households is expected to overall be positive for these proposals. Whilst there will be a small increase in upfront costs relative to the cost of the tumble dryer, this is made back through bill savings and these savings will continue into future years. For example, a tumble drier purchased after the introduction of the regulations would expect to pay back the increased cost of the unit within two years on average, with continued energy bill savings past this point. On average over the twelve year lifetime of a condensing tumble drier an owner of a heat pump tumble drier will have an undiscounted net saving of £250. As the heat pump tumble drier also has a longer lifetime the same owner would be a net £900 benefit over the twenty year appliance lifetime from a combination of energy bill savings and deferred cost of replacement.	**Positive**
Monetised impacts	Household NPV = £2,173m These include the costs of manufacturers passing through the increased cost of MEPS compliant tumble dryers to households.	**Positive**
Non-monetised impacts	We do not expect any further non-monetised impacts to those outlined above.	**Neutral**

Any significant or adverse distributional impacts?	We do not expect any significant distributional impacts as a result of this policy. Impacts are proportional to energy use of households and businesses and so are distributed proportionally to population and business concentrations. While it is true that lower income households spend a higher level of income on energy than high income ones, We consider there be no impact on groups with the following protected characteristics as a result of the policy proposal, as no evidence has been found to demonstrate any impact: age; disability; gender reassignment; marriage or civil partnership; pregnancy and maternity; race; religion or belief; sex; or sexual orientation.	**Neutral**

Part B: Impacts on wider government priorities

Category	Description of impact	Directional rating
Business environment: Does the measure impact on the ease of doing business in the UK?	We do not expect that these requirements will directly limit the number nor range of manufacturers because the manufacturing of tumble dryers is already concentrated amongst a very small number of international firms. We do not expect that these requirements will indirectly limit the number or range of suppliers through increasing suppliers' costs. The UKCA mandate will marginally raise the costs associated with the declaration for conformity and we expect these costs to be small and affect all suppliers equally. The Regulations are not expected to limit the ability of manufacturers to compete. MEPS will remove products from the GB market, inevitably reducing consumer choice in the short run. However, these regulations mirror those already introduced in the EU, so manufacturers are already pivoting to the new standards, meaning adequate consumer choice will remain. We also expect manufacturers to innovate quickly to increase the number of models on the market which can meet the new MEPS; failure to implement the policy could lead to a failure of the fourth Competition and Market Authority condition listed above due to a lack of incentive to continue to improve efficiency when current minimum standards will be far exceeded. It has been concluded that there are no adverse effects on competition from our preferred policy option as manufacturers will still be able to place their products internationally as these will be world leading efficiency standards.	**Neutral**

International Considerations: Does the measure support international trade and investment?	The UK exports approximately £21m worth of tumble driers and parts per annum, accounting for 0.05% of the world export share. The UK imports around £188m of tumble driers and parts per annum with the largest imports from Türkiye (48%), Poland (17%) and China (17%). Therefore, the UK imports large quantities of tumble driers from EU and the rest of the world, with a very small export market. The negative effect on imports (for both quantity and value) is caused by the fact that the higher standards in place in GB would exclude around 40-50% of products currently on the market, therefore the pool of products which could be imported and be compliant with the new Regulations would be smaller than at present. Nevertheless, we judge there would be a low risk of non-GB businesses choosing to stop exporting tumble driers to the GB market as a way of avoiding the need to comply with the proposed new ecodesign requirements. In addition as global manufacturers have already adjusted for the similar EU standards we believe the risk of shortages of choice on the market to be low. The negative effect on exports (for both quantity and value), comes from marginally higher prices of domestic products due to the assumed passthrough of innovation costs. However, as the expected cost increase per product is small relative to the total cost of a tumble drier, we expect this effect on to be small. there is expected to be minimal impact on trade as a result of these regulations, given we are aligning with the EU market MEPS and GB manufacturers will continue to be able to export to the EU under the new regulations. Further, as the market for higher efficiency heat pumps evolves to meet the new standards, we would expect these additional costs to fall away and for costs to return to a new equilibrium due to economies of scale. As a result, we do not believe the proposed MEPS are likely to have more than a negligible impact on trade. In accordance with the Windsor Framework, EU Ecodesign Regulations will continue to apply in Northern Ireland. However, as these regulations will align with those implemented in the EU, we do not expect any impacts in the internal market or for Northern Ireland in general as a result of these regulations as these regulations will continue our alignment with the EU for tumble driers, so no trade barriers are introduced.	**Neutral**

	Approximately 9,000 tumble driers were exported from GB to NI between 2021 and 2024. We do not expect this volume of trade to be affected as a result of aligning with EU regulations.	
Natural capital and Decarbonisation: Does the measure support commitments to improve the environment and decarbonise?	Environmental impacts, including greenhouse gas emissions, have already been costed and included in our analysis above. This policy is expected to generate electricity savings, thereby reducing green house gas emissions and demand from electricity generation.	**Supports**

8. Monitoring and evaluation of preferred option

We plan to undertake a light-touch Post Implementation review (PIR) conducted no later 1 January 2031. A PIR date five years after the regulations come into force is appropriate because suppliers will benefit from the policy certainty around what requirements will apply. It will provide sufficient time for the market to adjust to the new requirements such that the market data should show the impact of the regulations, which will help better inform the PIR.

This review will determine whether these regulations have met its objectives and inform any adjustments or updates needed to the policy. We expect the review will largely be a qualitative assessment of the impacts of the draft Regulations supported by quantitative analysis where possible. The PIR will use available evidence to assess the impacts of the Regulations - in particular, whether they have met the objective of phasing out lower energy efficiency household tumble dryers from the market and shifting production to higher efficiency models. The review will interrogate whether these Regulations remain the best option for achieving energy, carbon and bill savings from tumble dryers. The findings of the review will be used to inform future policy development.

In order to assess the impacts of the Regulations, the PIR will aim to assess the energy efficiency of household tumble dryers available on the market at the time of the review and compare this to the predictions made in this Options Assessment. To do this sales data, stock data, product lifespan estimates, product energy consumption, and market observations will be obtained at the time of the review.

However, this quantitative analysis will have limitations due to the difficultly in isolating the direct impacts resulting from the Regulations. The sales data will be impacted by external factors including, but not limited to, advancements in technology, the effect of international regulations and changes in consumer preferences (for example as consumers become more climate aware). To address this, the PIR will use a qualitative analysis to assess the extent to which the Regulations were a significant factor in any changes in the market.

We anticipate that the PIR will also use market observations (for example breaches such as putting products on the market that do not fully comply with the requirements of the Ecodesign regulation) as well as an informal consultation with a range of stakeholders including NGOs, charities, members of the public and industry (manufacturers, retailers,

trade associations, etc.). We expect the review will focus on whether the Regulations have resulted in only tumble dryer products that comply with the requirements being placed on the market, rather than attempting to quantify the energy savings of their use.

We predict that measuring direct energy savings from improved ecodesign requirements for tumble dryer products would be difficult in the context of the GB energy market due to the relative size of savings to total energy use as a whole. We also believe it would be disproportionate to launch a GB-wide study evaluating the quantitative impact of the Regulations in a more fair and representative way. Hence why the PIR would largely be a qualitative assessment, supported by quantitative analysis where possible.

In addition, we expect the review to consider whether, as a result of technological advances, further savings could be made by setting better Ecodesign and Energy Labelling requirements, or whether these Regulations remain the most effective option for achieving greater traded carbon savings from tumble dryer products. To achieve this, data on the contemporary stock of tumble dryer on includes energy efficiency of the products. The PIR would seek to understand the scope for future energy and resource efficiency improvements in the product through a combination of market research and consultation with relevant stakeholders.

Further, an assessment on the development of global regulatory standards, particularly in the EU, may help to inform GB policy and whether GB legislation requires updating, for example by increasing the stringency of the requirements, broadening the scope of the requirements, or introducing further circular economy principles. This will help to establish if the objectives of the regulation remain appropriate. The EU are due to review their equivalent regulations by 1 January 2030, a year before our planned PIR date.

Between the implementation of these regulations and the PIR date, we will undertake light-touch market monitoring of the policy, as well as keeping track of regulatory changes for tumble dryer products in other markets. If we found market information which suggested that changes were required to the policy ahead of time, we could bring forward this review and undertake a fuller investigation to inform an appropriate policy response.

9. Minimising administrative and compliance costs for preferred option

Transitional costs are estimated to be minimal as a result of updating the ecodesign requirements for tumble dryers. Manufacturers are required to read and understand regulatory changes regarding the update in MEPS.

Generally, transitional (one-off) costs of implementing the policy, include familiarisation costs of understanding the requirements, and are inclusive of training staff and setting up IT. We have included a one-off cost to monetise the impact of reading and understanding the new GB legislation. This cost, valued at £16,100 in total for all GB businesses affected, will be realised in 2025 only. This transitional cost is calculated by multiplying the cost of one and a half days of labour by the estimated number of businesses that manufacture tumble dryers. The number of GB businesses affected is estimated from research conducted on AMDEA members with follow up desk-based research identifying 31 businesses with a possible interest in tumble drier legislation. While difficult to say exactly how many businesses are involved with tumble drier manufacture, we are confident that this is an overestimate of true

costs as only one definite UK supplier of tumble driers could be identified. We have therefore taken this as an upper bound for analysis.

For hours taken, our proposal seeks to align with the requirements set out in the equivalent EU ecodesign and energy labelling measures for household tumble dryers (which are already published by the Commission), so we expect that businesses will take minimal time to confirm they are compliant with the new MEPS. This has been estimated as a day and a half of labour based on feedback from a previous consultation.

To estimate the price of labour it has been assumed that reading and comprehending legislative text is unlikely to be low paid work. For small and micro businesses, it is likely that the business owner will take responsibility. In large companies it is likely to be members of a legal department or an expert in advising on changes in government regulation. This is reinforced by job titles included in responses to previous consultations on ecodesign.4 The Annual Survey of hours and Earnings finds the median hourly earnings for full-time legal professionals and quality and regulatory professionals to be £23 and £22 per hour respectively.5 These hourly wages are the equivalent of £40,600 and £38,700 per-annum based on working 220 eight-hour days. As a result of this a £23 per hour wage has been assumed. An additional 30% is added to this wage to account for overhead costs businesses face when employing workers. This provides a final cost for the comprehension of the regulations. An opportunity cost equal to the transitional cost has been included to account for this member of staff being diverted from other duties.

Enforcement and compliance costs are not easily quantified. Enforcement action is undertaken where the market surveillance authority (MSA) believes there is sufficient risk-based justification to do so, in line with standard enforcement policy[6]. Additional costs resulting from the preferred policy option are considered to be minimal because the aspects of the verification procedure to be followed by MSAs and the wider enforcement and sanctions regime (set out in the Ecodesign for Energy-related Products Regulations 2010) will remain unchanged under the preferred policy option.

Testing costs are not expected to increase under the lead policy option because the updated MEPS requirements only displace the existing MEPS requirements and no additional testing or reporting requirements are introduced. Also, product suppliers would be able to continue using the methods of measurement set out in established international standards which are used for testing under the existing ecodesign regulations. There are no extra costs associated with the declaration of conformity and the mandate for tumble dryers sold on the GB market, as the CE marking will continue to be recognised in GB under our proposal. GB businesses retain the option to display the UKCA mark and perform the UKCA declaration of conformity if they wish, and any costs incurred are expected to be absorbed by the supplier[7].

Any increase in frequency of testing or increase in the cost of testing, is expected to positively benefit UK Small and Medium-sized Businesses (SMEs, defined as having up to 49 Full Time Equivalent (FTE) and 10 FTE employees respectively[8]) involved in these sectors, who would have the opportunity to profit from the increased demand.

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[4] Job titles include: Senior Product Specialist, Head of EU technical market access.

[5] Earnings and hours worked, occupation by four-digit SOC: ASHE Table 14 accessed here: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/datasets/occupation4digitsoc2010ashetable14. SOC codes 241 and 248

[6] OPSS enforcement policy, May 2018. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/712141/safety-and-standards-enforcement-enforcement-policy.pdf.

[7] Based on DBT research on average costs for UKCA compliance.

[8] BEIS Better Regulation Framework Manual, February 2018. Available at: https://www.gov.uk/government/publications/better-regulation-framework.

As suggested in HM Government's OIOO (One-In, One-Out) Methodology[9], the cost and benefits calculated have assumed 100% compliance since we have no evidence to suggest significant non-compliance would arise. Lack of compliance would, however, impact on both costs and savings.

Declaration

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Director responsible: David Capper

I have read the Options Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed: David Capper

Date: 17/07/2025

[9] HM Government's OIOU (One-In, One-Out) Methodology, July 2011. Available at: https://www.regulation.org.uk/library/2011_oioo_methodology.pdf

Summary: Analysis and evidence

For Options Assessment, it is not a requirement to complete all the below, but please complete as much as you can where possible.

Price base year: 2025

PV base year: 2025

This table may be reformatted provided the side-by-side comparison of options is retained	**1. Business as usual (baseline)** **Do Nothing**	**2. Do-minimum Option** **Self Regulation**	**3. Preferred way forward** **Aligning MEPS with EU proposals**	**4. More ambitious preferred way forward** **Stricter MEPS than EU**	**5. Less ambitious preferred way forward** **Delaying introduction of MEPS by six months**
Net present social value (with brief description, including ranges, of individual costs and benefits)	Under this option there would be no change from business as usual. So only the small improvements in overall efficiency in the market factored into our baseline would take place, with the majority of worst performing products remaining. As such there are no additional costs or benefits associated with this option.	As described in the rationale for not pursuing this option we do not believe this would produce significant further savings to those already in the baseline. As such, there are no additional costs or benefits associated with this option.	The benefits of this policy will come from the reduction in energy consumption, and the policy costs are derived from higher product prices as a result of setting higher efficiency standards. The assumption is that these costs will be transferred from manufacturers to consumers. The total NPV is £2,229m. The benefits of this policy compared	Scenarios exploring strict MEPS standards than the EU have not been developed. This is because the standards being introduced by the EU are already relatively stringent, forcing transition to the most efficient product type. Any further savings would be incremental compared to this, with significant additional resource and delay to implementation required to develop them. Which in turn	Delays to the implementation of the policy by six months was explored as a way to allow more lead in time for industry. This was dismissed as a potential option as large international suppliers of tumble driers are already preparing for EU legislation. The effects of a six month delay are shown below. The benefits of this policy will come from the reduction in energy

			to the baseline scenario are the following: • carbon emissions savings = £192m • reduced long variable running costs = £1,965m • air quality improvements = £5m Expected traded carbon savings: • CB5 = 0.37 MtCO2 • CB6 = 0.25 MtCO2 • To 2050 = 0.93 MtCO2 Increased emissions due to Heating Replacement Effect: • To 2050 = -0.034 MtCO2 The policy cost is -£66m due to the improved lifetime of heat pump tumble driers offsetting the increased average	could reduce savings overall due to delayed implementation.	consumption, and the policy costs are derived from higher product prices as a result of setting higher efficiency standards. The assumption is that these costs will be transferred from manufacturers to consumers. The total NPV is £2,026m. The benefits of this policy compared to the baseline scenario are the following: • carbon emissions savings = £167m • reduced long variable running costs = £1,852m • air quality improvements = £4m Expected carbon savings: • CB5 = 0.32 MtCO2 • CB6 = 0.23 MtCO2 • To 2050 = 0.82 MtCO2

			price at the point of purchase.		Increased emissions due to Heating Replacement Effect: • To 2050 = -0.034 MtCO2 The policy cost is -£2m due to the improved lifetime of heat pump tumble driers offsetting the increased average price at the point of purchase.
Public sector financial costs (with brief description, including ranges)	N/A	N/A	There are no public sector financial costs associated with applying new MEPS thresholds.	There are no public sector financial costs associated with applying new MEPS thresholds.	There are no public sector financial costs associated with applying new MEPS thresholds.
Significant un-quantified benefits and costs (description, with scale where possible)	N/A	N/A	Whilst the value of energy savings to households and businesses have been captured in our impacts above, there is an unquantified saving to public finances from the reduction in energy generation/infrastructure costs as a result of reduced demand. There are also unquantified circular economy benefits from the increased lifetime of heat pump tumble driers and health benefits from		Whilst the value of energy savings to households and businesses have been captured in our impacts above, there is an unquantified saving to public finances from the reduction in energy generation/infrastructure costs as a result of reduced demand. There are also unquantified circular economy benefits from the increased lifetime of heat pump tumble driers and health benefits from

			reduced mould formation due to condensation from other tumble drier technologies.		reduced mould formation due to condensation from other tumble drier technologies.
Key risks (and risk costs, and optimism bias, where relevant)	Misaligned market incentives outlined above continue or become worse. Risk of dumping of more inefficient products onto the GB market as other countries improve standards. Loss of potential energy/carbon savings and resulting societal costs.	Misaligned market incentives outlined above continue or become worse. Risk of dumping of more inefficient products onto the GB market as other countries improve standards. Loss of potential energy/carbon savings and resulting societal costs.	Risk of external factors moving the key assumptions that underpin the policy decisions (market distribution, costs, efficiency) deviating from what has been predicted. The Post-Implementation Review will assess if this is the case and adjustments to the policy made if needed.	Risk of the elimination of too high a proportion of the market, reducing customer choice and risking the overall strategic objective to accelerate the electric heating transition.	Risk of improvements in energy efficiency on the market outpace implementation of MEPS, rendering the MEPS levels set less effective.
Results of sensitivity analysis	N/A	N/A	The modelling is sensitive to the deployment of heat pump tumble driers in the baseline, particularly over the late 2020s-2030s when MEPS are expected to have their largest impact. If the total sales of heat pump tumble driers in these periods is higher or lower than predicted this is directly proportional to the costs and benefits expected.	N/A	Sensitivities to key assumptions are the same as discussed for the preferred way forward.

			Sensitivity to other key variables is shown in the tables below.		

Assumption	Impact	Risk
Efficiency	Medium – Benefits are proportional to the average efficiency of products on the market, a 1% variation in average efficiency results in a +/-3 variation in NPV.	High – The market for heat pump tumble driers is still evolving. The mix of eventual energy label class of heat pump tumble driers on the market is based on assumptions based on existing sales trends with assumptions on where peaks in the efficiency classes will lie.
Prices	High – Varying the Long Run Variable Costs of energy used to either the high or low Green Book scenarios instead of the central values results in a +/-10% variation in NPV	Medium– These assumptions are updated regularly as part of yearly updates to assumptions for Green Book analysis[10]. While we have used the latest available these will vary over time as the result of government policy and external factors affecting prices.
Energy Usage	Medium – Benefits are directly proportional to energy usage per tumble drier, so a 10% variation in energy usage results in a +/-10% variation in NPV.	Medium – The average energy consumption is the result of DESNZ analysis on the demand for the current tumble drier market. Variations in individual use or changes in behaviour could impact this.
Cost Increase	Low – Overall costs are sensitive to the cost increase of a heat pump after MEPS, so a +/-10% variation in cost increase results in a +/-0.5% variation in NPV. Due to lifespan savings being substantially more impactful than purchase costs.	Medium – The cost increases are estimated from analysis of the current heat pump market. But market shifts and innovation as sales increase could alter this cost profile.
Carbon Values	Low – Varying the Carbon Values used to either the high or low Green Book scenarios instead of the central values results in a +/-4% variation in NPV.	Medium– These assumptions are updated regularly as part of yearly updates to assumptions for Green Book analysis[11]. While we have used the latest available these will vary over time as the result of government policy and external factors affecting prices.

[10] https://www.gov.uk/government/publications/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal

[11] https://www.gov.uk/government/publications/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal

Scenario	Low (NPV)	Central (NPV)	High (NPV)
Efficiency	£2,176m	£2,229m	£2,294m
LRVC electricity prices	£2,024m	£2,229m	£2,452
Energy Consumption (+/- 10%) (Carbon savings to 2050 also shown)	£2,018m To 2050 = 0.84 Mt	£2,229m To 2050 = 0.93 Mt	£2,452m To 2050 = 1.02 Mt
Cost Increases	£2,216	£2,229m	£2,242
Carbon Values	£2,136m	£2,229m	£2,335m

Annex 1 - Key assumptions and modelling approach for Heat Pumps

This annex sets out the modelling approach used in this Options Assessment, the detail of the costs and benefits analysed in the CBA as well as the key assumptions made.

The main purpose of the model is to assess the impact of policies around tumble dryers. Its outputs include the likely costs (in particular, higher costs resulting from the purchase of new products); and benefits (primarily in the form of energy and traded carbon savings from using more energy-efficient products.

The model uses a “bottom-up” approach, allowing detailed scenarios to be modelled for specific products such as the setting of minimum energy performance standards (MEPS). Each product and scenario require specific inputs to be calculated/estimated, including:

- Stocks and/or sales of EUP being modelled (including breakdown by technology type);
- The lifespan of the EUP;
- The energy consumption of EUP (including by mode type and mode such as “on” or “standby”);
- The level of usage of EUP (hours/year); and
- The price and value estimates, to calculate costs and benefits.

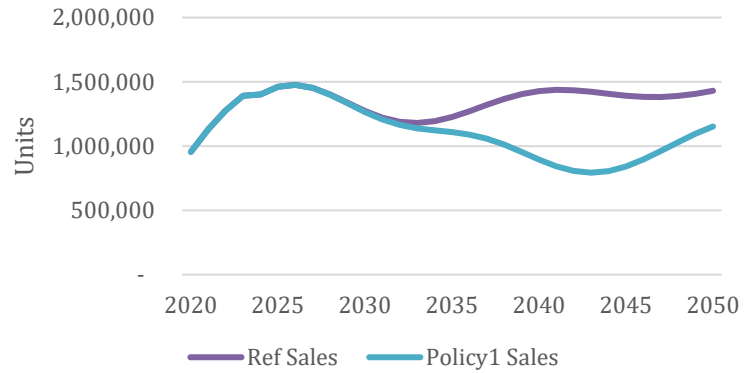
Comparing the outputs of the model under different scenarios, the model quantifies the:

- **Additional purchase/production costs** associated with new products (typically incurred by the consumer, and/or other groups such as industry or government);
- **Benefits of energy savings** over the lifetime of the products from switching to more energy efficient products;
- **Costs and benefits of non-monetary factors** such as improved air quality and a reduction in emissions; and
- **Costs of the additional heating requirements** due to the heat replacement effect. This is the extra heating required in the colder months to replace the reduced waste heat loss from more efficient products. It is only considered for domestic products since, for non-domestic use, it is considered to be cancelled out by reduced cooling costs in the warmer months.

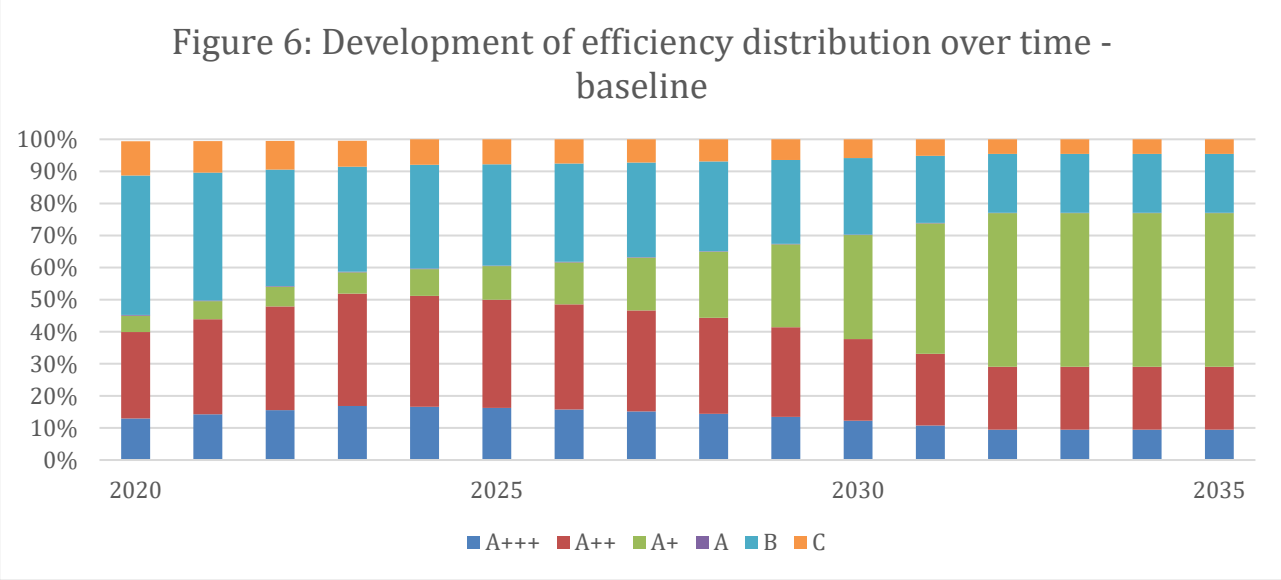
Table A1: Overview of the key inputs into the cost/benefit analysis for Heat Pumps

Variable	Source(s)	Values / Assumptions:
Stocks/sales	Statista data Lights, appliances and smart technologies report; Percentage of households with durable goods: Table A45 - Office for National Statistics EPREL Public website	Information on tumble dryer ownership in the UK, used to estimate overall ownership, energy consumption, and sales of new tumble dryers was obtained via analysis of available data sources by Statista. These Statista estimates are based on a combination of sources, including: ONS estimates for the proportion of UK households owning a tumble dryer, EPREL data on product availability, and web-scraped data on product reviews, to infer relative product market shares. Total sales were estimated by applying average lifetime assumptions to overall stock data from ONS, assuming that a new tumble drier is bought as a replacement for an old one. Distribution of sales by product was obtained by assigning a weighted algorithm to position of listings on websites, number of reviews, ratings of products and appearance of products across websites. Whilst in the baseline scenario we expect reasonably static sales of around 1.5m units per year, increasing by household growth only. In the policy scenario due to increased lifetimes of Heat Pump Tumble driers we expect sales to peak at around 1.5m units shortly after the policy is introduced, dropping to 0.8m by the 2040s, and finally growing to 1.2m by 2050 (see fig 5).

Figure 5:Tumble dryer sales, by year



Heat pump tumble dryers were introduced around 2010 and have become the dominant technology. Their share of the market appears to continue to increase, despite a significant chunk of the population which prioritises low up-front costs over lower running costs, not least because tightening regulations overseas are likely to reduce global sales of condensing tumble dryers, further raising their costs and undermining their up-front cost advantage over heat pump tumble driers. Therefore, it is assumed that heat pump tumble dryers continue to increase their market penetration somewhat over the next 10 years, albeit plateauing around 2035 at around 69% of the market, reflecting that there will likely remain a segment of the market with strong preferences for the lowest up-front costs (see fig 6 noting all A+ and above units are Heat pump tumble driers).

		
	Office for National Statistics	ONS household data was used to obtain total populations, to which the percentage of tumble drier ownership data from Statista was used to create a stock estimate. A stock-driven model is used, meaning that new sales are endogenously calculated using stock and economic lifetimes to estimate required replacement rates. ONS population growth has also been factored into future sales estimates.
Usage / Consumption	European Product Registry for Energy Labelling (EPREL). COMMISSION DELEGATED REGULATION (EU) No 392/2012 - Energy Labelling	Data relating to energy consumption and energy efficiency of tumble dryers, by technology type, etc. This is used to determine efficiency distributions, overall energy consumption, etc.
		Information on hours of usage per year, etc. This is used to estimate energy consumption, particularly for businesses which have different usage rates from the test standard, so energy label energy consumption needs to be adjusted (see business impacts below).
		Heat Pump tumble driers have longer run times than other technologies due to their lower running temperature (average of 3h 12 mins compared to 2h 24 mins for a condensing drier) however their higher efficiency result in less than half the energy consumption overall compared to other drier types (average of 225 kWh/year compared to 564 kWh/year for a condensing drier). We have assumed that overall usage (uses per year) remains constant

		for each technology type, and that there is no increase in usage frequency for technologies that are cheaper to run, on the assumption that use is more related to household need than cost per run.
Costs of product	Statista (proprietary, web-scraped information) Quantifying the Impact of Technical Barriers to Trade: A Framework for Analysis Technical barriers to trade, product quality and trade margins: firm-level evidence | Review of World Economics	Information on retail prices for identifiable products in the EPREL database has been collected through web scraping. This information is used to reflect the up-front costs of ownership of tumble dryers and forms part of the analysis of their overall cost-of-ownership. This CAPEX is scaled towards the end of the appraisal period to reflect the fact that while costs are felt upfront, the benefits are realised over the product lifetime, so to ensure a fair appraisal of costs vs benefits if benefits are not realised in the remaining appraisal period the costs are scaled proportionately to the proportion of years calculated to product lifetime.
		An uplift in costs of 5% has been applied to products in the baseline due to be phased out under the proposed regulations. This is as a result of a review of the academic literature has found that regulatory alignment on technical barriers to trade under diverging regulatory conditions.
		The model assumes that consumers' purchasing behaviour (and the development of the stock) would only be affected if reduced product availability would lead to the consumer purchasing a different technology, instead of a no-longer available heat pump product being removed from the market due to increased standards. It is very unlikely that all heat pump dryers would be removed from the market, and those continuing to supply these products would likely increase their supply to capture market share.
Business impacts	Statista (proprietary survey information)	This survey information is used to determine commercial ownership and usage patterns of domestic tumble dryers in hospitality, laundromat and healthcare facilities. It has been used to determine that business impacts are likely, and to estimate the likely scale of those impacts. The Statista survey indicates that commercial businesses use their tumble dryers at a far higher rate, with nearly 60% using their tumble dryers 5-7 days per week. This usage frequency has been combined with the average programme time from tumble dryer energy labels, and the average energy consumption for domestic use to estimate consumption for commercial tumble dryer users.
	Office for National Statistics	This data is used to scale business survey data to broadly reflect the likely overall size of the commercial stock of domestic tumble dryers, and associated impacts. The Statista survey also asked on the likelihood of replacement with another domestic tumble drier

		following regulation and this has also been factored into the future sales projections. The number of total commercial businesses assumed to currently use household tumble driers is set out below. Total sales are projected to be around 20,000 units at the start of the policy, then following a similar profile to domestic stock due to increased lifetimes, reducing to 14,000 units in the 2040s before rising to 15,000 units by 2050. **Count of commercial business domestic dryers** Hospitality 16,435 Laundromat services 31,691 Healthcare facilities 26,828
Lifespans	Do Heat Pump Dryers Last Longer Than Traditional Dryers? (attainablehome.com), Heat Pump Dryer Pros and Cons: An Eco-Friendly Guide (switchingtoelectric.com)	Information of the likely economic lifetimes of conventional and heat pump tumble dryers. Used to estimate the turnover of the tumble dryer stock over time, and estimate differences in costs-of-ownership. A review of available literature and consumer survey data suggests that heat pump dryers may last for around 20 years, on average, versus around 12 years for other dryer technologies. Product lifetimes are generally closely associated with usage patterns, as wear and tear is a key driver of product failure. Given that commercial tumble dryers are expected to be used roughly four times as much as those in domestic settings, they may be expected to last a significantly shorter period of time. In order to reflect this, a simple proportional adjustment is made using the reciprocal of the usage adjustment; that is, as they are used roughly four times more, they are expected to last roughly one fourth of the time as those in domestic settings. This means that the payback is much faster for commercial purchases due to the increased use leading to more bill savings, but the turnover of purchases is much higher than for domestic users.

Monetized benefits and NPVs	HMT Green Book Supplementary Guidance tables[12].	Discounting rate used in the model: The Standard Discount Factors of 3.5% each year have been used from the HMT Green Book Supplementary Guidance, with 2025 being used as the base year.
		LRVC Tables 9-13 were used to look up HMG's assumptions on long-run variable costs of energy supplies - the central values for Electricity LRVC, within the 2025-2050 period, were applied to domestic and commercial energy consumption forecasts of the heat pump stocks in the model, to calculate monetized LRVC savings resulting from setting efficiency standards on the tumble dryer market in this policy.
		Electricity Emissions Factor The consumption-based, long-run marginal, electricity emissions factors in Table 1 were used to convert the electricity consumptions of tumble dryer stocks in our model to carbon emissions, and therefore carbon savings associated to reductions from setting MEPS on the tumble dryer market in this policy. Carbon Values The central carbon price values, within 2025-2050 period, in Table 3 was used to calculate the monetized savings associated to carbon reductions from setting efficiency standards (MEPS) on the tumble dryer market in this policy.
		Air Quality Activity Costs Table 15 was used for HMG's assumptions on air quality impacts of electricity consumption of tumble dryer usage between 2025 and 2050, to calculate monetized air quality impact savings resulting from setting efficiency standards on the tumble dryer market in this policy.
		Retail Fuel Prices

[12] https://www.gov.uk/government/publications/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal

		Tables 4-8 were used to look up assumptions on fuel prices of energy supplies – the central values for retail electricity prices (p/kWh), within the 2025-2050 period, were used to calculate the bill savings associated to the energy savings of the national tumble dryer stock from setting MEPS on the heat pump market in this policy.