

## Ecodesign and Energy Labelling for Lighting Products

<b>Lead department</b>	Department for Business, Energy and Industrial Strategy
<b>Summary of proposal</b>	New and updated <i>ecodesign</i> and energy-labelling requirements aimed at generating energy and carbon emission savings for light sources and separate control gears (lighting products).
<b>Submission type</b>	Impact assessment (IA) – 24 March 2021
<b>Legislation type</b>	Secondary legislation
<b>Implementation date</b>	1 September 2021
<b>Policy stage</b>	Final
<b>RPC reference</b>	RPC-BEIS-5014(2)
<b>Opinion type</b>	Formal
<b>Date of issue</b>	22 April 2021

## RPC opinion

Rating <sup>1</sup>	RPC opinion
<b>Fit for purpose</b>	The EANDCB is based upon sufficient evidence and reasonable assumptions, and the assessment has been strengthened through consultation. The IA provides sufficient description of the impacts on small and micro businesses (SMBs) and addresses exemption, disproportionality of impact, and mitigation, although the latter could be strengthened in response to the comments in this opinion.

## Business impact target assessment

	Department assessment	RPC validated
<b>Classification</b>	Qualifying regulatory provision (OUT)	Qualifying regulatory provision (OUT)
<b>Equivalent annual net direct cost to business (EANDCB)</b>	-£21.0 million	-£21.0 million (2019 prices, 2020 pv)
<b>Business impact target (BIT) score</b>	£105.0 million	£105.0 million
<b>Business net present value</b>	£399.9 million	
<b>Overall net present value</b>	£784.8 million	

<sup>1</sup> The RPC opinion rating is based only on the robustness of the EANDCB and quality of the SaMBA, as set out in the [Better Regulation Framework](#). RPC ratings are either fit for purpose or not fit for purpose.

## RPC summary

Category	Quality	RPC comments
EANDCB	<b>Green</b>	The EANDCB is based upon sufficient evidence and reasonable assumptions, and the assessment has been strengthened through consultation. The IA's classification of impacts into direct and indirect is in line with previous <i>ecodesign</i> IAs but would be improved by further discussion.
Small and micro business assessment (SaMBA)	<b>Green</b>	The IA provides a sufficient description of the impacts on SMBs and addresses exemption, disproportionality of impact and mitigation, although the latter would be improved significantly by discussing further why phasing the transition period and/or providing an exemption are not appropriate. The assessment has been strengthened following consultation, with transition costs to SMBs monetised.
Rationale and options	<b>Good</b>	The IA sets out the rationale clearly and provides a discussion of non-regulatory options, explaining why these have not been taken forward. The IA would benefit from further discussion of self-regulation.
Cost-benefit analysis	<b>Good</b>	The Department has used consultation to gather additional evidence, enabling it to quantify transition costs and to refine its assumptions for the counterfactual. The IA monetises carbon savings.
Wider impacts	<b>Satisfactory</b>	The IA includes a useful discussion of trade and competition impacts, with a short competition assessment included as an annex. The assessment of innovation impacts could focus more on the drivers of innovation.
Monitoring and evaluation plan	<b>Good</b>	The IA provides a more-detailed plan for post-implementation review (PIR) than previous <i>ecodesign</i> IAs and includes a fuller justification, on proportionality grounds, of why the PIR would be primarily a qualitative assessment.

## Policy detail

### Description of proposal

The IA states that light sources and separate control gears (lighting products) have a substantial environmental impact and present significant potential for improvement in terms of energy performance as large numbers are sold annually. In December 2018 the UK, as a European Union (EU) member state, voted in favour of new and updated *ecodesign* and energy labelling requirements for lighting products. These requirements do not apply automatically in the UK because the transition period ended on 31 December 2020; separate UK legislation is, therefore, required. The IA states that the proposal carries significant benefits in relation to realising the Government's carbon budget and net zero targets.

### Impacts of proposal

The IA indicates that the proposal will affect 1,700 companies across the supply chain (paragraph 172) but that the main impact will be on manufacturers of lighting products. The IA states that the Department's desk-based research suggests that the UK currently imports around 75 per cent of its consumption of lighting products (paragraph 64, page 20), of which just over half (39 per cent of the total) is from the EU (paragraph 113, page 34). Consumers will incur higher purchase costs (as manufacturers pass on their costs) but benefit from savings in energy usage over the lifetime of the products. Requirements on manufacturers include ensuring that the declared power consumption of a light source does not exceed the maximum allowed by regulation and that separate control gears (devices which prepare the electrical mains for the light source which is connected to it) operating at full load meet the minimum energy efficiency requirements set out in the regulations.

### Costs

The Department monetises a cost of £78 million in present value terms. The main element is increased variable production cost (£72 million) from use of more-expensive component parts and/or more-advanced/expensive manufacturing processes. Manufacturers bear these costs initially but are expected to pass them on to consumers in the form of higher retail prices for products. Transitional (one-off) implementation costs, including familiarisation costs, are described qualitatively. The Department expects these costs to be minimal as other requirements for lighting products already exist.

### Benefits

Monetised benefits are estimated at £932 million in present value terms. Net energy savings account for the bulk of the benefits, in the form of reduced energy bills for consumers (commercial and domestic). Reduced CO<sub>2</sub>e and improved air quality account for the remaining monetised benefits.

The societal net present value (NPV) is, therefore, estimated at £854 million over ten years in present value terms. Of this, £435 million accrues to business; over the 30-year appraisal period, this translates to an EANDCB of -£22.9 million using 2021 prices and present value base years. This information is presented on page 1 of the IA as -£18 million in 2016 prices, 2017 present value year. The accompanying EANDCB spreadsheet provides a figure of -£21.0 million in the BIT base years of 2019 (price) and 2020 (present value). This EANDCB figure, associated BIT score (and associated NPV and business NPV figures in the same base years) are reported on page one of this opinion.

## EANDCB

### Evidence and data

*Non-monetised impacts.* The RPC commented at the consultation stage that the Department should use consultation to gather further evidence to enhance the assessment. In particular, the RPC suggested that the Department should aim to monetise transitional costs or explain more fully why it would not be proportionate to monetise them at the final stage. The IA now provides a fuller assessment of transition costs, including monetising the cost of reading and understanding the requirements (section 5.2.1, pages 28-30). The assessment refers to the role of trade associations in helping to communicate the changes but the IA would benefit from addressing this area further, particularly where there is a fragmented supplier market and where industry representation does not seem to be strong.

The IA has strengthened its assessment of enforcement and compliance costs (section 5.3.3, paragraphs 99-111). This area would benefit from further strengthening in relation to the cost of product fiches, online information provision (machine-readable) and modified testing and market surveillance protocols, in particular when existing and new stocks are being sold at the same time. Also, the assessment that testing costs would not increase significantly over the counterfactual could be strengthened.

*Counterfactual.* The Department has also used consultation to obtain evidence on the percentage assumed 'additionality'. This term refers to the proportion of businesses that would not otherwise make the changes. (The IA assumes that many businesses will make the changes anyway as the regulations will be in force in the EU, and the relevant markets are global). The consultation stage IA assumed 50 per cent additionality. Information gathered from consultation, however, indicated that 25 per cent additionality would be more appropriate. Primarily as a result of this changed assumption, the estimated costs and benefits at the final stage are around half of those estimated pre-consultation.

*Direct/indirect impacts.* The method to apportion impacts on businesses into direct and indirect is consistent with that used in previous *ecodesign* IAs and appears to be reasonable.<sup>2</sup> The energy savings to business users, net of increased purchase costs, are treated as a direct impact, on the basis that they would be automatic through purchase of the product and not dependent upon a change in behaviour. The IA would be improved by further discussion of why impacts on business consumers, including increased purchase costs, should be treated as direct in this specific case. The IA would also benefit from referring explicitly to RPC guidance on direct and indirect impacts.<sup>3</sup> The IA would benefit from explaining further why realising energy savings does not depend upon a change in behaviour. The IA could usefully discuss choices that businesses will have, around when to replace existing equipment and whether to buy new or old replacements, trading off energy costs against purchased cost. A discussion of complementary measures, such as changes in building codes and financing rules, to force more rapid uptake, would also be useful.

See also comments under 'cost benefit analysis' below.

## SaMBA

The SaMBA describes the size distribution of affected businesses (pages 51-54). The IA describes helpfully, potential disproportionate impacts on SMBs from transitional costs, particularly around testing, and (where possible) amending products to make them compliant. The monetisation of transition costs helps to strengthen the SaMBA as well as the IA more generally. The IA notes, however, that SMB users of lighting products will benefit from the proposed requirements through reduced costs over the lifetime of the products. The IA's argument that SMBs would be affected less because they are expected to be "...flexible and agile enough..." (paragraph 183) is a particular concern. This does not appear to be a valid argument. For example, a large business might have a dedicated electrician/facilities management services who can rapidly respond to changes, whereas micro businesses could be much less focussed on the costs of their lighting. The SaMBA could usefully differentiate more clearly between impacts on SMB users and on SMB manufacturers/suppliers. The SaMBA would be improved by discussing further why the Department believes that the mitigation options referred to in the IA, of phasing the transition period and/or providing an exemption, are not appropriate.

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<sup>2</sup> For example, RPC-4447(2)-BEIS 'Ecodesign Requirements for Electric Motors and Variable Speed Drives, and Electrical Mains-operated Welding Equipment Energy-Related Products (Amendment) Regulations 2020', 2 February 2021.

<sup>3</sup> Available at: <https://www.gov.uk/government/publications/rpc-case-histories-direct-and-indirect-impacts-march-2019>

The SaMBA could also address whether SMB suppliers with unsold inventories of non-compliant items might be less likely to write them off and more likely to sell them on, either directly or via third-party platforms, and consider further whether SMBs, with lots of non-compliant items, might be more likely to leave the market.

The SaMBA, and cost benefit analysis more generally, would benefit from providing further support for the expectation that the lifetime cost of ownership will fall. In particular, the IA could address evidence (e.g. from *Which?*) about early product failures, due to factors such as voltage fluctuation and overheating, and whether such events might require costly retrofitting (e.g. to improve fixture ventilation and voltages) which could fall disproportionately on SMB users.

## Rationale and options

The Department explains that agreement on the EU *ecodesign* legislation was reached after lengthy consultation. The Government also consulted UK stakeholders and carried out their own cost-benefit analysis prior to voting in favour of the EU regulations. The RPC welcomes the discussion of non-regulatory options such as self-regulation and voluntary agreements and the IA's explanation of why they were not taken forward. However, since no self-regulation option was proposed during consultation, the IA would benefit from strengthening in this area. This could include further discussion of the lack of clear criteria for acceptable self-regulation potentially suppressing industry's appetite for developing and proposing such a scheme. The IA could helpfully discuss its potential advantages in relation to, for example, flexibility, innovation-friendliness and proportionality.

The IA would benefit from further assessment of potential options either side of the proposed adoption of EU standards (i.e. more modest or stronger alternatives), including other nations' (e.g. China) standards and mutual recognition/market surveillance. The discussion of non-regulatory options could be strengthened by considering how voluntary agreements could work in theory and whether co-regulation is a possible option.

## Cost-benefit analysis

### Evidence and data

*Description of businesses affected.* The IA includes useful information on the industry affected but would benefit from providing a more-detailed assessment of the number and size of the businesses likely to be affected. This could cover, in particular, the size distribution of businesses undertaking assembly work, how this has changed over time and how it is expected to develop in the future, including possibilities of either greater consolidation or fragmentation (possibly driven by economies of scale or entrants using new technical solutions).



*Consideration of further use of European Commission (EC) assessments.* The IA would benefit from further consideration of whether the analysis and assessment by the EC for EU-wide policy could be used or modified for the UK. This could involve more detailed analysis (e.g. of distributions of installed base and factors affecting replacement cycles) or a more accurate picture of the markets into which UK exporters might sell, or from which they might expect domestic competition (i.e. after the EU has bedded in fully the new requirements).

*Impacts on lighting products dealers.* The IA has helpfully expanded its discussion of impacts on dealers in lighting products (mainly at paragraphs 101-03). The IA would benefit from further discussion on how distributors, wholesalers, importers, retailers, etc. would be affected differently, for example by labelling requirements. It would also be helpful for the IA to discuss, perhaps again by reference to the EU IAs, the impact of machine-readability and online commerce in changing the relationship of retail marketing and the new standards.

#### Modelling<sup>4</sup>

*Profile of cumulative costs.* As with previous *ecodesign* IAs, the assessment uses the BEIS *Energy Using Products Policy* model, which takes into consideration the costs and benefits associated with updating existing *ecodesign* requirements for each product separately. Figure 2 of the IA shows cumulative costs falling during periods of the appraisal, meaning that there are periods of negative costs over the appraisal period. Paragraph 77 of the IA suggests this is due to the “variation in lifespan in technologies”, for example “non-compliant lamps will have a much shorter lifespan than the compliant LED lamps.” This would appear to explain why there are periods where costs are lower than in the counterfactual. However, the IA would be improved significantly by explaining this more clearly and confirming that this ‘negative cost’ from a longer lifespan is additional to the energy savings monetised in the benefits section. The IA could also discuss the assumption that any such energy savings are not wholly recaptured in increased purchase prices. As part of this analysis, the IA could address a study which indicated that purchase price increases associated with higher energy efficiency classifications (e.g. A+++ compared to A++) exceeded the energy savings when lifetimes were taken into account.

*Market for lighting products.* The IA would benefit from presenting further evidence about the lighting products market, for example elasticity of demand and the extent to which firms will pass costs onto consumers through higher prices. More generally, the assessment regarding energy demand would benefit from taking prices further into account, particularly since, with smart meters, consumer use of lighting should be sensitive to energy prices and energy efficiency.

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<sup>4</sup> This RPC opinion is specifically relevant to the approach under the current better regulation framework, where environmental impacts (such as carbon savings) are not part of the business impact target.

The IA could usefully discuss further competitive impacts up the production chain, including whether prices might be higher due to inherent cost or increased demand in different segments of the market.

### Energy savings

The IA could usefully discuss further how potential confounding factors could affect the robustness of the assessment of changes in energy costs, such as apparent persistence of legacy lighting products operating at lower efficiency and changes in consumer behaviour tied to smart meters. The same analysis could consider the impact of longer lifetimes on the pace of future innovation.

In addition to considering 'short run' cost savings to users of lower energy light bulbs resulting from lower electricity costs, the IA would benefit from addressing further the potential for 'long run' cost savings, such as having more lights on the same lighting circuit, and factors that might mitigate any such long-term efficiencies.

### Risk and uncertainty

Following RPC comments on the consultation stage IA, the Department has helpfully expanded the sensitivity analysis and risk sections, in particular by varying the length of the appraisal period in the sensitivity analysis.

*Energy price assumptions.* Annex 1 of the IA provides a comprehensible and appropriate description of the modelling assumptions and scenarios. The model uses an assumed (central estimate) Green Book price for 2023 of 1.08 £/kWh. The IA would benefit from explaining more clearly how the evolution of this price is incorporated into the analysis, in particular any subsequent improvements resulting from the market stimulus provided by this measure.

*Demand factors.* The IA would benefit from further consideration of demand factors. This could include discussion of whether any previous lighting product measures have raised prices by more than the energy saved, meaning a net burden on purchasers, including business users. There are two potential aspects of this discussion. First, a technical aspect, where the new approaches are fairly priced but might not pay for themselves. Second, that lighting firms take advantage of the dynamic and static barriers to entry to raise purchase prices excessively. This second aspect could, perhaps, be analysed using panel data to compare costs of lighting to lighting-related energy costs over time.



## Wider impacts

The IA includes a discussion of trade, innovation and competition impacts (pages 34-35, with a short competition assessment at page 75). The assessment of trade impacts refers to UK firms being likely to comply with EU requirements voluntarily; the IA would benefit from discussing whether this compliance would still need to be verified and certified, and what this might cost. The IA could also address whether there would be a need to check imports from the EU to guard against ‘dumping’ sub-standard ‘export quality’ products or getting rid of non-compliant obsolete inventories. The IA could also cover in more detail, potential impacts in respect of trade with other countries that have different standards to the EU and UK vs imported supply of key components, such as control gears.

On innovation, the assessment focusses on opportunities for innovation but could be strengthened significantly by additionally focussing on the drivers of innovation and its distribution across firms in different places and of different sizes.

On competition, the IA notes that not implementing the proposal could affect the third Competition and Market Authority (CMA) condition (limiting the ability of manufacturers to compete). This assessment would benefit from addressing whether this depends upon EU recognition of the proposal. The assessment would benefit from considering whether the fifth CMA condition, on limiting choice and information available to consumers, could also be affected.

The IA now explains helpfully that the Department intends to launch a communications campaign to inform consumers and stakeholders about the changes (paragraph 221).

### Competition assessment

The IA would benefit from further discussion of competition impacts, linked to the assessment of impacts on trade and SMBs. It would be helpful if the IA included a discussion of whether any manufacturers may be forced to exit the market due to lack of mitigation, and the impact this could have on competition and innovation.

### Enforcement

The Department expects enforcement costs to the relevant market surveillance authority to be minimal given that requirements already exist for lighting products. The IA would benefit from providing further justification for this assessment.

## Monitoring and evaluation plan

The IA sets out a more-detailed plan for post-implementation review (PIR) than in previous *ecodesign* IAs (paragraphs 224-232). This section provides additional detail on what will be done, and how, and a fuller justification on proportionality grounds of why the PIR would, primarily, be a qualitative assessment. The section could be strengthened further by comparison against the level of analysis undertaken for evaluation of the original EU *ecodesign* and energy labelling directives. The plan could also set out briefly the information that will be collected on an ongoing basis, including any needed to update the preparatory studies referred to. The plan would also benefit from setting out how it might address some of the factors raised in this opinion.

### Regulatory Policy Committee

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