Changes to the energy efficiency requirements of the Building Regulations for domestic buildings

Lead department	Department for Levelling Up, Housing and Communities
Summary of proposal	The proposal amends the Building Regulations, in particular uplifting minimum energy efficiency performance requirements for new domestic buildings and when certain works are undertaken on existing domestic buildings.
Submission type	Impact assessment (IA) – 29 October 2021
Legislation type	Secondary legislation
Implementation date	June 2022
Policy stage	Final
RPC reference	RPC-DLUHC-5129(1)
Opinion type	Formal
Date of issue	25 November 2021

RPC opinion

Rating[1]	**RPC opinion**
Fit for purpose	The assessment of direct impacts on business, and of impacts specifically on small and micro businesses, are satisfactory. Overall, the evidence used to inform the IA appears to have been improved significantly as a result of the consultation. There are some areas for strengthening, particularly in relation to monitoring and evaluation plans.

Business impact target assessment

	Department assessment	**RPC validated**
Classification	Qualifying regulatory provision (IN)	Qualifying regulatory provision (IN)
Equivalent annual net direct cost to business (EANDCB)	£475 million	£475.3 million (*2019 prices; 2020 pv base year*)
Business impact target (BIT) score	£2,376 million	£2,376.5 million
Business net present value	-£4,091 million	
Overall net present value	£4,548 million	

[1] 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. The RPC rating is fit for purpose or not fit for purpose.

RPC summary

Category	Quality	RPC comments
EANDCB	**Green**	The Department appears to have used the consultation to improve the evidence base for its estimates. There is a good discussion of the counterfactual. The IA appropriately classifies impacts on business as direct.
Small and micro business assessment (SaMBA)	**Green**	The Department engaged consultants to consider disproportionality of impacts and provides a useful summary of this research. It also usefully outlines mitigation measures. The SaMBA would benefit from strengthening in relation to impacts on small business architects and window/door manufacturers.
Rationale and options	**Satisfactory**	The IA sets out clearly how the proposal fits into wider Government strategy and usefully describes a number of relevant market failures. The IA would benefit from discussing further the options that were considered at consultation.
Cost-benefit analysis	**Good**	The IA sets out its assumptions and modelling approach clearly. It includes a useful sensitivity analysis, but would benefit from a broader consideration of risk, uncertainty and sensitivities.
Wider impacts	**Good**	The IA discusses several wider impacts including competition, innovation and trade. Particularly welcome is the discussion of rural impacts, given the proposal's implications for off-gas grid properties using oil or LPG for heating.
Monitoring and evaluation plan	**Weak**	The IA would benefit significantly from setting out details of the monitoring and evaluation plans, including what data will be collected and the questions the review would address.

Summary of proposal

The proposal is for an interim strengthening of the Building Regulations, in support of the Government's Heat and Buildings Strategy and its net zero carbon target. The aim is to reduce carbon emissions from buildings by increasing their energy efficiency and installing low-carbon heating systems. The proposal applies to new domestic buildings and certain types of work on existing domestic buildings. The IA notes that the proposal is an important stepping-stone to the full Future Homes Standard (FHS), expected to be introduced in 2025. The IA indicates there will be a separate consultation and IA on the FHS.

The main change for new domestic buildings is to raise minimum energy performance requirements, involving a 30 per cent reduction in CO_2 compared to current standards. To achieve this, the IA models two routes to compliance: a combination of gas boilers, solar panels and waste-water heat recovery (the most likely route before 2025) and air source heat pumps (expected to become equally common by 2025). This roadmap to compliance is the main component of the estimated cost of around £6.6 billion in present value terms.

For existing domestic buildings, minimum energy efficiency standards will also be raised; these will most commonly apply to building extensions, replacing windows or doors or renovating roofs. There are also changes to minimum standards in respect of replacement heating systems. The increased costs in respect of existing homes are estimated at around £0.7 billion, bringing the overall cost to around £7.3 billion.

Taking account of the estimated benefits of £11.8 billion (consisting of CO_2 and air quality savings of £9.8 billion and energy savings of £2.0 billion), the estimated net present value is around £4.5 billion.

EANDCB

For new domestic buildings, the capital, transition and installation costs will be paid by business, with the majority being incurred by private developers. Maintenance and replacement costs will be borne by the building owner-occupiers or, where rented, by private rented sector landlords or housing associations. The IA states that benefits will be experienced by individuals (owner-occupiers or tenants) in the form of lower fuel bills and by society through better air quality and reduced carbon emissions. The IA estimates an EANDCB of £475 million (2019 prices; 2020 present value base year).

Direct/indirect

The EANDCB appears to be based upon proportionate evidence. The IA appropriately identifies initial impacts on business and discusses potential pass-through of costs and benefits, in relation to both private developers and PRS landlords, for example, in the case of the latter, through higher rent prices at the time of tenancy renewal (page 22).

Counterfactual/baseline

The IA provides a good discussion of the counterfactual (pages 28-30). This uses public commitments by local authorities (such as in the Greater London Authority's London Plan) to adjust the counterfactual to take account of the power of local authorities to set their own standards beyond the national requirements.

See also comments under 'cost benefit analysis' below.

SaMBA

The SaMBA adequately addresses disproportionality of impacts, exemption and mitigation. The Department engaged external consultants to consult with key stakeholders and explore the extent to which SMBs would be disproportionately affected. The IA helpfully includes a summary of the findings. The IA usefully describes mitigation measures, such as an extra year's transition period for those identified from the analysis as being most affected (window manufacturers – see below), support to industry from the Future Homes Hub and availability of templates on.*gov.uk*.

There are some areas where the assessment of disproportionality could be strengthened, in particular the section on 'small architects'. The IA could discuss familiarisation costs further, given that if these are "…*expected to be similar, irrespective of size of practice*…" this would imply a disproportionate impact on smaller businesses. The discussion around smaller firms being 'nimbler' would also benefit from clarification and substantiation. This could take account of compliance costs potentially exhibiting economies of scale (for example, design costs or procurement contracting) which may give larger firms more flexibility. On 'small timber window and door manufacturers', the consultants usefully sought input from four businesses and identified this sector as likely to be particularly affected. The SaMBA provides a useful discussion of this, including quoting figures provided by business. However, this section could usefully expand upon why it does not consider it proportionate to quantify the impacts on this sector and discussing the representativeness of the businesses surveyed. The IA would also benefit from discussing the extent to which mitigation measures are targeted at SMBs.

Rationale and options

The IA sets out clearly how the proposal fits into wider Government strategy. It also usefully describes several market failures such as negative externalities, credit constraints and imperfect information that justify government intervention (pages 12-14), and explains how the specifics of the proposal might remedy them.

The IA reports that two options were presented at consultation stage: to uplift the current energy efficiency requirements by amounts sufficient to reduce CO_2 by either 20 per cent or (the subsequently chosen) 30 per cent reduction. It also reports that it

consulted on whether the Fabric Energy Efficiency Standard (FEES) should be at a "full or reduced level." While the IA discusses qualitatively the case for the preferred option and sub-options, it would benefit from describing their costs and benefits relative to these alternatives. Overall, the IA would benefit from discussing further the options considered at consultation.

The IA would also benefit from clarifying further the net cost associated with the 100 per cent sample testing measure (paragraph 7.41) and the rationale retaining it in the overall policy.

Cost-benefit analysis

Evidence and data

The IA explains that extensive engagement was undertaken with industry to "…*ensure capital cost estimates in the IA align with the expected industry level*" (paragraph 7.13). The IA provides a particularly good description of how it estimated familiarisation costs, using consultation with a small sample of businesses (paragraph 7.85) The Department appears to have used this to improve its estimates; the IA provides a good description of how costs were revised from the consultation stage IA (for example at page 37).

Modelling

The IA describes its modelling approach in high-level terms, with some further detail in annexes (such as that for assumptions of new domestic buildings at appendix A). As noted above, the IA models two routes for compliance. The IA reports that the modelled profile is based on internal expertise, views of consultants and extensive engagement with industry. The IA uses standard values for carbon from Treasury Green Book Supplementary Guidance.

Assumptions

The IA generally sets out its assumptions well, although more detail could be provided in places. Even though the IA reports that the capital cost of heat pumps have increased considerably since consultation, the IA would benefit from providing more explanation around the assumptions in table 8 (page 34) since these figures still look low in comparison to those reported in the media, including the trade press (albeit with literature suggesting costs will fall substantially over the coming decade). The IA would also benefit from further discussion of other costs associated with heat pumps, such as larger radiators and of the behavioural changes required (for example, as a result of them not heating existing buildings as effectively) (page 46).

The IA could also justify further its occasional use of assumptions or figures from previous IAs. For example, the IA would benefit from explaining why it is not possible or proportionate to improve upon the assumptions used in the 2016 BEIS IA for the level of energy savings from thermostatic radiator values or the Green Deal IA in relation to comfort-taking (paragraphs 7.79 and 7.97). In particular, the IA would benefit from discussing the availability of post-implementation review information for these measures.

Risk and uncertainty

The IA has a useful appendix on sensitivity analysis. This provides varying estimates based upon low and high carbon values and routes to compliance. The IA could usefully comment on the negative NPV of the proposal for new buildings under the low carbon value scenario. Given other uncertainties across the analysis, the appendix would benefit from a wider assessment of risk, uncertainty and sensitivities to assumptions. In places the IA uses a ±20% uncertainty around the central estimate; it would benefit from explaining the basis for this approach. It may be useful if the IA discussed whether, in the light of COP26 and recent developments in the gas market, a 20 per cent margin around the Green Book figures remains appropriate. The IA would also benefit from a discussion around technological change potentially affecting the choice of cost effective low-carbon solutions, such as in relation to heat pumps (paragraph 4.25). The sensitivity analysis would benefit from considering the impact of variations in the assumptions around asset life and the appraisal period.

Non-monetised impacts

The IA does not monetise some impacts, arguing some moderate changes are not expected to significantly affect the costs and benefits of the policy. The IA would benefit from explaining further in places, for example at paragraphs 7.3 and 7.62, why it would not be proportionate to monetise impacts.

Appraisal period

The IA provides a good discussion of the appraisal periods chosen for the cost benefit analysis (CBA) and the calculation of the EANDCB (pages 24-25 and 57). This explains that a 70-year appraisal period has been used for the CBA for new buildings, reflecting an assumed 60-year life for measures such as building fabric insulation (external walls, floors, roofs) for a new building constructed in year 10. Impacts for existing buildings are assessed over a 40-year period, reflecting the assumed shorter asset life of measures taken in response to the policy. The IA explains that the EANDCB has been calculated over the conventional 10-years, on the basis that nearly all direct and quantifiable impacts on business occur during this period (page 57). Overall, the IA's approach appears to be reasonable. However, the IA would benefit from discussing further the relationship of the assumed ten-year policy implementation period and the expected introduction of the FFS in 2025.

Clarification/detail of calculations

The IA is presented clearly and concisely but would benefit from presenting additional information on the calculations behind the estimates in places (for example paragraph 7.77). The IA would also benefit from providing a greater breakdown of costs.

Wider impacts

The IA includes a useful section on wider impacts (pages 64-69). This covers areas such as competition, innovation and trade. (The IA correctly notes that environmental

impacts are central to the policy and therefore covered in the main body of the IA.) On innovation, the IA notes that flexibility for developers to choose building technologies to meet standards should encourage innovation among manufacturers. The discussion around the interaction of minimum standards and innovation impacts (paragraphs 9.5 to 9.9, pages 65-66) would benefit from distinguishing between different types of innovation. In particular, addressing the issue that forcing adoption of early-stage technology embedded in durable equipment and building components may inhibit further innovations, or new approaches that may become efficient as the environment and energy sectors evolve.

Particularly welcome is the inclusion of an assessment of rural impacts, given the proposal's implications for off-gas grid properties and using oil or LPG for heating. The IA also considers the impacts of the proposal on housing supply, which notes that "…*areas in London and the south might be expected to be able to cope better with cost impacts given the large gap between development cost and sale prices*." (paragraph 9.11). The assessment could be improved by considering this in the context of the Government's 'levelling-up' agenda. The IA would also benefit from an assessment of impacts on the public sector.

Monitoring and evaluation plan

The IA notes that a statutory review clause has not been included in the 2021 uplift since the policy will be monitored and reviewed, with extensive stakeholder engagement, as part of the technical consultation on the FHS planned in 2023 (paragraph 11.3). However, given the very significant impacts of the 2021 uplifts, the IA would benefit significantly from setting out details of monitoring and evaluation plans, including what data will be collected and the questions the review would address.

Regulatory Policy Committee

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