SUBSIDY CONTROL PRINCIPLES ASSESSMENT CASE STUDY (SUBSIDY OF PARTICULAR INTEREST)

This case study has been prepared by the Department for Business and Trade to assist public authorities preparing principles assessments for referral to the Subsidy Advice Unit ('SAU'). It is a fictitious example to indicate a potential approach to an assessment[1] of a subsidy or scheme of particular interest (SSoPI) using the subsidy control principles assessment guide, the statutory guidance and the guidance on the subsidy control functions of the SAU.

The initial draft of a principles assessment should be done early in the policy development process (perhaps before the Strategic Outline Case and no later than the Outline Business Case) so the public authority can apply insights from the assessment process to design a more effective and less distortive subsidy.

The assessment should then be revised as necessary during the remaining policy development process to incorporate new insights and any adjustments to the subsidy's design. Once the subsidy has been referred to the SAU, the SAU will issue a non-binding report after 35 days. This is followed by a 5-day cooling-off period, during which the public authority should consider the report and whether to revise the assessment and subsidy in accordance with the SAU's advice. It should then be finalised before the decision to award the subsidy and retained as a record. The subsidy may be subject to legal challenge, and it is the public authority's assessment of compliance at the time the subsidy is given that will be most relevant.

This document is a hypothetical example and should not be seen as a 'gold standard'. This case study illustrates how you might approach an assessment. The depth of analysis should be commensurate to the size and potential distortive impact of the subsidy.

The public authority in this example does not exist. The subsidy is not modelled on any real scenario. It does not reflect actual technologies or circumstances in the sector. The statistics used in the assessment are not real and should not be used elsewhere. Value judgements about the policy objective, the proportionality of the subsidy and the conclusion of the balancing test will not be appropriate in other circumstances.

[1] To demonstrate compliance with the duty in section 12(1) of the Subsidy Control Act 2022.

Background
The Ministry for Building Standards and Efficiency aims to foster advanced manufacturing techniques in the UK. To help achieve this, it is beginning to prepare a business case to award a grant of up to £30 million to InsulaCore Ltd ('InsulaCore'), in order to support the development of a highly innovative and unproven new production method for manufacturing advanced insulation boards. These are typically sold for business-to-business use. The ministry has completed its strategic outline case. The ministry then ran a competition for bids to run a trial, which InsulaCore won. Having allocated a budget of £30 million to achieve its objective and agreed on a general approach, it is now undertaking a subsidy control principles assessment to help prepare a more detailed proposal alongside its outline business case. Once the ministry has completed the assessment, it will send it to the SAU, because it is above the value threshold for a SSoPI.

Summary of subsidy proposal

Public authority	Ministry for Building Standards and Efficiency
Location	West Midlands
Beneficiary	InsulaCore Ltd
Subsidy start	2026
Subsidy end date	2029
Subsidy size	Grant of up to £30 million £20 million to cover risk premium for trial and £10 million for upscaling and commercialisation

Step 1: Identify the policy objective, ensuring it addresses a market failure or equity concern, and determine whether a subsidy is the right tool to use

Principle A: Subsidies should pursue a specific policy objective in order to remedy an identified market failure or address an equity rationale (such as local or regional disadvantage, social difficulties or distributional concerns).

and

Principle E: Subsidies should be an appropriate policy instrument for achieving their specific policy objective and that objective cannot be achieved through other, less distortive, means.

Policy objective

Using evidence, establish the existence and significance of either a market failure or the inequality the subsidy seeks to address. In most cases one or the other will be sufficient. However you may address both if relevant.

Provide details of the specific policy objective that you hope to achieve with this subsidy and how it addresses the market failure or inequality you have identified.

See statutory guidance paragraphs 3.33 to 3.56

1.1 The Ministry for Building Standards and Efficiency ('the ministry') aims to establish the UK as an early mover and world leader in hot web compression techniques ('HWC production methods'). This nascent technology, initially developed at the University of Barchester in 2021, has the potential to dramatically improve the performance standards of advanced insulation boards.

1.2 Advanced insulation boards are used to reduce heat transfer in buildings and industrial applications. The boards are sold to the building sector to improve the thermal efficiency of walls, roofs and floors. The standard production process is injection compression ('IC production methods'). However, researchers believe that HWC production methods have the potential to replace conventional IC production and if widely disseminated, significantly improve the thermal efficiency of buildings.

1.3 The ministry has identified imperfect information and co-ordination failure as the primary market failure which limits the development of HWC production methods. The specific policy objective is to support the development of HWC production methods in order to demonstrate their commercial viability and enable widespread domestic production and use. This will address the market failure and enable the UK to position itself as an early mover and global leader in HWC production methods. This approach aligns with the government's broader objectives which are

to foster advanced manufacturing techniques in the UK in order to boost sales and investment, and to improve building efficiency thereby lowering heating costs for businesses and households.

1.4 In March 2025, the ministry sought bids for funding to trial and commercialise HWC production methods. Responses to the ministry's bidding competition assessed the cost of proof-of-concept trial, scale-up trial and the purchase of premises, tooling and machinery to be on average £70 million.[2]

1.5 In November 2025, InsulaCore was selected as the winner of the competition. The ministry opted to award InsulaCore a subsidy of up to £30 million to cover the risk premium associated with expected failure cost and to support upscaling and commercialisation.[3]

Market failure: imperfect information and co-ordination failure

Uncertainty and risk in nascent technologies

1.6 Imperfect information means that firms do not have the appropriate level of certainty about future outcomes to make investments which are socially desirable. In the context of research and development, a combination of technical uncertainties, financial uncertainties and market uncertainties compound to make it prohibitively risky for firms to invest in the absence of external support or incentives. Without this investment, the UK economy may lag behind in technological innovation, productivity and global competitiveness.

1.7 Risk-adjusted returns for nascent technologies, such as HWC production methods, are generally lower than for established technologies. In this instance, critical information about possible engineering challenges, efficiency gains and the price point for the product, do not yet exist. When combined with the substantial upfront investment required and the prospect of large additional costs if the initial trial fails, the risk becomes commercially prohibitive.

Present challenges

1.8 The present challenges inhibiting the development of HWC production methods are twofold. First, the development of trial production techniques demands considerable initial expenditure. For context, in 2002, the development of the

[2] Responses to Hot Web Compression Challenge Fund. The ministry announced the plan to promote the UK commercialisation of HWC production methods in March 2025, inviting all interested UK businesses to submit bids for funding by September 2025. Bids were required to detail the candidates' proposed method and anticipated costs for conducting a trial, a business plan for scaling up production after any successful trial as well as information about the applicant, including evidence of their minimum expected IRR. The ministry received 5 bids, all from existing producers in the advanced insulation sector. See further information at Step 3.

[3] For full calculations, see Annex 1. Initial trial costs range from £60 million to £80 million.

current IC production model cost £38 million[4] at InsulaCore, and £59 million[5] at PolySpan Unit – equivalent to approximately £72 million and £112 million respectively in 2025 terms.[6] IC production built on existing materials and workforce capabilities, whereas HWC production requires entirely new machinery, processes and technical standards. The Thermal Panelling Manufacturers' Association of America (TPMAA) estimates that converting from an IC production model to any potential HWC production model would require at least two thirds of the machinery to be replaced, and the remainder significantly retooled, at a rough cost of $42 million to $58 million (£33 million to £46 million).[7] However, these figures assume conversion within existing facilities. In practice, it is assumed that any enterprise currently using IC production methods would want to develop HWC production methods alongside (using separate premises and separate equipment) so as not to stop production during a trial period and upgrade process that could take up to 2 years.[8] This means the actual costs will be higher than those estimated by the TPMAA, as the enterprise would need to set up a new production line in expanded or separate premises. Evidence from the bidding competition suggests that total land and rental costs will be around £10.5 million. Combined with the purchase and installation costs for a full production line, estimated at 150% of TPMAA's baseline, or roughly £49.5 to £69 million, the total cost of an initial trial is estimated at £60 million to £80 million.

1.9 Second, the results of any such trial remain uncertain. In 2023, the UK Federation of Insulation Professionals commissioned independent engineering consultants McClintock Cramm LLP to assess the feasibility of moving to a HWC production model.[9] The report concluded that while HWC production methods were more likely than not to succeed, several critical variables could significantly affect outcomes. The most important of these is uncertainty around what state and composition input materials would need to be in for the process to be viable. If the initial trial failed it would require replacing or retooling the entire production line to adapt it to a different state or composition of input materials. The costs of conducting a second or subsequent trial would be close to those of conducting the first, estimated by TPMAA at £40 million to £60 million.[10] Taken together, this could push the total cost of the trials in the range of £100 million to £140 million. The

[4] See Annex 2, for 2002 financial statement, InsulaCore, Companies House.
[5] See Annex 2 for 2002 financial statement, PolySpan Unit, Companies House.
[6] Using an annual inflation rate of 2.8%.
[7] TPMAA analysis, 2021. TPMAA estimates in USD converted to GBP for comparison.
[8] TPMAA analysis, 2021. TPMAA estimates in USD converted to GBP for comparison.
[9] Feasibility assessment, Hot Web Compression production potentialities, 2023, McClintock Cramm LLP.
[10] Bids to the ministry's competition showed that all bidders planned to either purchase land outright or on long leases, because they would then need to build dedicated production facilities and storage units on the land. The average cost of constructing these and of rental over the trial and set-up period was £10.5 million. As the enterprises would already have purchased or entered into rent agreements for the land and constructed buildings for the production facilities, these costs have not been included in the estimate of the cost of running a second trial.

report also highlighted that while advanced insulation boards produced using HWC production methods were expected to deliver superior thermal performance (estimated at 8 to 12% improvement) and so justify a higher product price, uncertainty remains over whether that price would be sufficient to generate returns that offset the total costs of production.

1.10 Therefore, the high initial investment, coupled with unpredictable trial outcomes and unclear prospects for commercialisation, acts as a significant deterrent for private investors. This was reinforced by InsulaCore during the bidding process, when it shared internal documentation[11] with the ministry showing that between 2021 and 2023 the firm had explored trailing HWC production methods given their high potential to deliver step-change improvements in insulation performance. InsulaCore had ultimately determined that a higher risk premium was necessary to account for these uncertainties and projected that commercially viable returns would not materialise until 2032 at the earliest.

Co-ordination failure

1.11 Imperfect information is also leading to co-ordination failures, whereby different insulation board manufacturers, or firms in the supply chain, delay investment decisions until upstream or downstream firms have made an investment decision – a dynamic often referred to as early-mover disadvantage. This is supported by internal modelling[12] carried out by the ministry which shows that there is an underinvestment in nascent technologies for the purpose of energy efficiency improvements in advanced insulation boards. Several firms indicated in their grant applications that, while fully funding research and development (R&D) in HWC production methods could unlock new market opportunities, no firm is willing to act as the first mover because they would bear the full financial risk while competitors could later benefit without incurring those costs.

1.12 Taken together, these factors create a market failure where private investment is deterred despite potential social benefits. The subsidy will, consequently, address the risk exposure by offsetting the expected failure cost, making it more financially viable for InsulaCore to undertake the initial trial and progress toward commercialisation. This will correct the imperfect information market failure and reduce early-mover disadvantage.

Appropriateness

[11] For submission by InsulaCore, see Annex 3.
[12] For investment gap modelling, see Annex 4.

Justify why a subsidy is the most appropriate instrument for addressing the identified policy objective and explain why other non-subsidy instruments have not been chosen, such as:

(a) regulation

(b) direct provision of the good or service by the authority

(c) loans or equity investment on commercial terms

State why the next-best alternative to a subsidy would not achieve the policy objective.

See statutory guidance paragraphs 3.57 to 3.59.

Alternatives to subsidy

1.13 The ministry has considered whether the specific policy objective described above could realistically be achieved without using a subsidy.

Tax

1.14 There are existing tax incentives for businesses that reinvest profits into R&D. However, modelling carried out by the ministry demonstrates that these have not been sufficient to create the desired change in behaviour. As described in paragraph 1.9, the expected failure cost means what stops the investment happening now is not related to cash flow, but that manufacturers are unwilling to assume the risk. Furthermore, a subsidy ensures essential cash flow, which is critical for a project of this nature that requires liquidity.

Guarantees

1.15 A guarantee could partially de-risk the trial and help mitigate the information failure, while mobilising private capital without the immediate need for public spending. For example, the government could act as a guarantor on commercial loans. However, despite the theoretical appeal, commercial lenders remain reluctant to finance trials for HWC production methods on acceptable terms and within appropriate timescales due to high perceived risk. This has been reinforced by internal documentation shared with the ministry by InsulaCore outlining correspondence with commercial lenders. The circumstances here are not compatible with a loan guarantee from the ministry or a publicly backed lender because the underlying barriers relate to unusually high risk and uncertainties, as well as debt aversion, such that a loan would not generate the necessary behavioural change.

Loan or equity on commercial terms

1.16 As previously stated, commercial lenders also remain reluctant to finance trials on acceptable terms due to high perceived risk.

Regulation

1.17 The ministry could regulate higher insulation standards in new builds to stimulate demand from manufacturers. However, since HWC production methods are not yet commercially available, such regulation could be counterproductive, potentially increasing costs and delaying projects without guaranteeing uptake.

Step 2: Ensure that the subsidy is designed to create the right incentives for the beneficiary and bring about a change

Principle C: Subsidies should be designed to bring about a change of economic behaviour of the beneficiary. That change, in relation to a subsidy, should be conducive to achieving its specific policy objective, and something that would not happen without the subsidy.

and

Principle D: Subsidies should not normally compensate for the costs the beneficiary would have funded in the absence of any subsidy.

Baseline no-subsidy decision

Set out the counterfactual by describing what would most likely happen in the future—over both the long and short term—if no subsidy were awarded.

See statutory guidance paragraphs 3.60 to 3.65.

Short term

2.1 The most likely counterfactual in the short term is that no enterprise will trial HWC production methods. InsulaCore indicated that based on current projections, commercially viable returns would not materialise until 2032 at the earliest.[13] In addition, until the trial costs reduce or the R&D surrounding HWC production methods improve, there will be a lack of appetite from industry to invest. This is supported by evidence from independent forecasting, which has indicated that there is minimal risk appetite associated with this research in HWC production methods in the UK.[14]

Longer term

2.2 The ministry believes that HWC production methods will be fully trialled eventually. The most likely counterfactual in the longer term is that UK industry might conduct trials more slowly (for example, within the next 5 to 10 years) or alternatively invest

[13] See Annex 3.
[14] See Annex 4.

in a factory outside the UK to take advantage of lower labour, material and land and rent costs.[15]

2.3 There is an upward trend in the standards of insulation required by building regulations globally.[16] So eventually, it is likely that newbuilds will have to use more efficient insulation boards meaning at some point, this source of uncertainty will diminish or disappear. However, without government incentives, it is likely that the technique would be pioneered abroad, which is contrary to the ministry's policy objective for the UK to be an early mover in demonstrating the commercial viability of HWC production methods and establish widespread production and use.

Additionality assessment

Provide details of how the subsidy will lead to a change in the economic behaviour of the beneficiary, such as:

(a) a project or activity being carried out, which would have otherwise not gone ahead (or at least not in a way that benefited a certain group of people or a specific geographical area)
(b) measurable improvement in the quality of the output or outcome
(c) an increase in the scale or scope of a project or activity, for instance to extend the geographic area or number of groups benefiting from it
(d) a project or activity occurring at a significantly earlier point than it would have otherwise

Outline how the subsidy will be conducive to achieving the policy objective identified in step 1.

See statutory guidance paragraphs 3.63 to 3.74.

Additionality

2.4 The anticipated change in economic behaviour is that the trial and commercialisation of HWC production methods, led by InsulaCore, will occur well before 2032, as assumed in the counterfactual. This acceleration enables the associated benefits to be realised earlier. The evidence presented above indicates that the development of HWC production methods is constrained by risk, uncertainty, and significant upfront costs. As a result, it will not progress in the UK

[15] See *Feasibility assessment, Hot Web Compression production potentialities, 2023, McClintock Cramm LLP*. The report includes a review of international feasibility studies completed to date, highlighting comparative advantages and disadvantages of overseas production, cost structures, regulatory environments, and projected implementation timelines in countries such as China, the United States, and Canada.
[16] Global Thermal Insulation Market Outlook 2025, Institute for Built Systems Economics, 2024.

within acceptable timelines (1 to 2 years) without government intervention. Consequently, the subsidy is expected to generate additionality beyond the counterfactual.

2.5 The proposed grant offer conditions ensures that the subsidy will not fund 'business as usual' activities and will only support costs relevant to the project.[17] As part of the bidding process, applicants had to provide supporting evidence which clearly justified why the project cannot be funded independently.

2.6 The funding will be subject to clawback if the company breaches the terms of the grant funding agreement, while monitoring arrangements will impose obligations for delivery of the key outputs and outcomes.

Step 3: Consider the distortive impacts that the subsidy may have and keep them as low as possible

Principle B: Subsidies should be proportionate to their specific policy objective and limited to what is necessary to achieve it.

and

Principle F: Subsidies should be designed to achieve their specific policy objective while minimising any negative effects on competition or investment within the United Kingdom.

Market assessment

Identify the immediate affected markets, including the relevant products and geographic scope. What are the major characteristics of the market, for example:

(a) concentration

(b) barriers to entry, expansion and exit

(c) the state of growth

See statutory guidance annex 3 paragraphs 17.29 to 17.62.

Identifying the markets

Product dimension

3.1. The market for advanced insulation boards exists largely to meet the demand for energy efficiency and heat management in construction and industrial sectors. These boards are primarily marketed and sold to the building industry, where they play a critical role in improving the thermal performance of walls, roofs, and floors. The pace of innovation is driven by net-zero commitments,

[17] For summary of proposed grant offer conditions, see Annex 5.

reinforced by stricter building regulations and standards, and rising demand for energy-efficient construction due to higher energy costs.

3.2. The main competitive alternative to advanced insulation boards made via HWC production methods is IC-produced boards.[18] In particular, premium IC boards which offer a higher standard of thermal efficiency.

Geographic dimension

3.3. In the UK, procurement for advanced insulation boards typically occurs through large developers and national frameworks. Large players in the market, such as InsulaCore, primarily serve national distribution channels.

3.4. Imported boards typically originate from countries with advanced insulation technologies or lower production costs, such as parts of mainland Europe or Asia. Export opportunities exist for UK-based manufacturers who can offer advanced products and competitive pricing. The overall competitive constraint from imports is relatively small.

Input and related markets

3.5. Raw materials for HWC boards are expected to be broadly similar to those used in IC boards, with premium IC boards likely representing the closest match.

Market concentration

3.6. The UK market for advanced insulation boards is moderately concentrated. Three leading manufacturers, InsulaCore, CoreVanta Panels and PolySpan Unit hold market shares of approximately 12%, 10%, and 8% respectively, together accounting for around 30% of total market value. The market comprises approximately 25 manufacturers operating nationally, with a mix of large-scale producers and smaller, niche suppliers.

Barriers to entry, expansion and exit

3.7. The present market structure and concentration suggest moderate barriers to entry, with established manufacturers holding strong positions. New entrants face several significant hurdles including:

- high initial set-up costs: establishing production capability for advanced insulation boards requires substantial initial investment
- economies of scale are significant: large suppliers have lower average costs than smaller ones and can leverage this advantage when negotiating with developers and securing contracts
- regulatory barriers are significant: there are existing building regulations and safety standards that incur compliance costs. Any future tightening of

[18] See step 1.

insulation standards for new builds could further increase compliance costs for new entrants

Market growth

3.8. The UK market for advanced insulation boards is valued at approximately £1.5 billion annually, compared to an estimated £50 billion globally.[19]

3.9. The Compound Annual Growth Rate (CAGR) for the advanced insulation board market in the UK is 3 to 4% over the next 5 years.[20] Globally, it is estimated that the CAGR for this market is 5 to 6% with global drivers being mainly decarbonisation policies in Europe and North America and urbanisation and construction growth in East Asia.[21]

Assessment of effects on competition or investment

3.10. HWC production methods are expected to deliver superior thermal performance which will likely rival or exceed premium IC boards. This segment is currently dominated by niche suppliers, and in the short term, the subsidy to InsulaCore, which will bring HWC boards to the market sooner, is expected to intensify competition at this end of the market. As HWC production methods scale and costs fall, they will increasingly compete with standard IC-produced boards. Over time, this differentiation will narrow as supply reliability for HWC boards improves, increasing competitive intensity with larger players in the market. Therefore, the introduction of HWC boards will change the manufacturing landscape for advanced insulation boards, which is currently entirely IC-based. This will create a new production paradigm that could redefine performance benchmarks and shift competitive dynamics across the insulation market.

3.11. At the UK level, the strongest competitive impact will be among domestic IC board producers and distributors, with the subsidy influencing UK rivals more than foreign ones initially. Internationally, the subsidy could strengthen the UK's position as a leader in advanced insulation technology, but this is a long-term dynamic effect rather than an immediate distortion.

3.12. While there may be some localised effects around the site of the trial, such as employment and setup activity, there is no evidence that the subsidy will create exclusive regional supply or foreclose local markets. This is supported by the ministry's experience from similar manufacturing trials in advanced construction materials, which showed that subsidised early-stage facilities do not distort regional markets.

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[19] Global Thermal Insulation Market Outlook 2025, Institute for Built Systems Economics, 2024.
[20] Global Thermal Insulation Market Outlook 2025, Institute for Built Systems Economics, 2024.
[21] Global Thermal Insulation Market Outlook 2025, Institute for Built Systems Economics, 2024.

3.13. The process will demand specialized compression machinery and tooling for new production lines, alongside additional premises, but these changes are not expected to cause significant disruption to local supply chains or property markets.

3.14. While a trial for HWC production methods would involve an increase in energy consumption at the site, energy markets are broad and competitive, so no significant distortion is expected. Upstream, chemical suppliers and machinery manufacturers may see increased demand, creating potential short-term bottlenecks but not foreclosure. Downstream, distributors, wholesalers, and installers will experience minimal short-term impact since InsulaCore's trial output will be limited and no exclusivity arrangements are anticipated; however, the longer-term impact will depend on how quickly HWC boards can be brought to market and the speed of uptake across the construction sector.

3.15. The proposed subsidy to InsulaCore is likely to increase market concentration in the short to medium term. By significantly reducing the financial risk and accelerating commercialisation of HWC production methods, InsulaCore gains an early-mover advantage in a market where entry costs are high. This early lead will allow InsulaCore to capture additional market share, particularly within the premium segment, as it can leverage scale. As the technology becomes more widely accessible, competitive pressure will force other large players to invest. Therefore, given the industry's moderate concentration and barriers to entry, market distortion could be material, though it is expected to diminish over time as HWC production methods become the norm.

3.16. Subsidies in moderately concentrated markets can sometimes crowd out private investment and reinforce incumbents' positions. In this case, the subsidy is specifically targeted at overcoming technical uncertainties and high entry barriers, enabling InsulaCore to demonstrate feasibility and reduce risk. By signalling government confidence and sharing the initial cost burden, the subsidy is expected to "crowd in" future investment rather than deter it. Rival manufacturers remain capable of expanding capacity, and as knowledge from early trials diffuses, barriers to entry will fall, encouraging broader participation and reducing concentration over time. Nevertheless, the ministry acknowledges that competitive pressures are expected to be particularly acute for niche suppliers currently active in the premium segment.

3.17. With the adoption of HWC boards, the CAGR in the UK is expected to accelerate from 2028 and rise to 7 to 8% by 2030.[22] A subsidy in an emerging

[22] Global Thermal Insulation Market Outlook 2025, Institute for Built Systems Economics, 2024.

and growing market is less likely to cause market distortions or create overcapacity.

Proportionality and minimising distortion

Demonstrate how the subsidy is proportionate to the policy objective identified in Step 1.
Demonstrate how the subsidy has been designed to minimise any negative effects on competition or investment within the UK whilst still allowing it to meet the policy objective. This should include details of how you have considered the following subsidy characteristics:

(a) nature of the instrument
(b) breadth of beneficiaries and the selection process
(c) size of the subsidy
(d) subsidy ratio
(e) timespan over which the subsidy is given
(f) nature of the costs being covered
(g) performance criteria
(h) ringfencing
(i) monitoring and evaluation
See statutory guidance paragraphs 3.75 to 3.112 and 17.6 to 17.28.

(a) nature of the instrument

3.18. The subsidy is a grant offering capital funding to InsulaCore over the financial years 2026 to 2029. The ministry actively explored other forms of subsidy, such as below market-rate loans. However, loans must be serviced and repaid and so increase leverage and financial liabilities. In this case, the returns would be too low for private investors. Therefore, a grant was deemed the most appropriate instrument.

(b) breadth of beneficiaries and the selection process

3.19. The ministry held a transparent selection process.[23] This process of competing for the grant funding helps to reduce the overall distortion. The ministry concluded that it was more appropriate to provide a grant to one firm, rather than splitting the budget available between multiple businesses, since this could risk fragmenting the money in such a way that none could mount a fully-fledged trial. There was therefore a competition where 5 companies completed an application form with supporting evidence. The applicants outlined how the research would take place and how much it would cost. The ministry then

[23] See Annex 6 for a full description of the grant funding selection process.

reviewed and scored the applications against an objective set of criteria such as cost-effectiveness, scalability and alignment with policy goals.

(c) size of the subsidy

3.20. The ministry proposes to provide total support of up to £30 million to InsulaCore. This will include a base subsidy of £20 million, covering the calculated risk premium to ensure that the government shares in the exposure to trial failure. Risk-premium analysis[24] carried out by the ministry demonstrates that the level of support represents the minimum necessary to enable the trial to proceed. In addition, a further grant of £10 million will be available post-trial completion to support upscaling and commercialisation.

i. Relative to market size: The subsidy represents 2% of the annual market size for advanced insulation boards in the UK.

ii. Relative to operating costs: The subsidy represents between 21% and 30% of InsulaCore's estimated annual operating costs for advanced insulation board production (approximately £100 to £140 million per year).

iii. Relative to project costs: If the trial succeeds at mid-range cost (£70 million), the £20 million base subsidy would cover around 29% of total expenditure, rising to about 43% when the £10 million commercialisation grant is included. In contrast, in a scenario where the first trial fails, and costs increase up to £140 million, the same £30 million subsidy would account for about 21% of total expenditure.

3.21. The above demonstrates that the subsidy is proportionate because its share is moderate across different scenarios.

3.22. A Green Book-compliant Cost-Benefit Analysis[25] has also been conducted, confirming that the subsidy represents good value for money and is commensurate to the expected benefit.

(d) subsidy ratio

3.23. Due to uncertainties regarding total costs[26], the subsidy percentage may vary; however, the subsidy cannot cover more than 50% of overall project costs and the beneficiary may receive no more than £30 million.

[24] See Annex 1.
[25] See Annex 7.
[26] See Para 3.20 (iii).

(e) timespan over which the subsidy is given

3.24. The subsidy will be disbursed in multiple stages across the financial years 2026 to 2029. Exact dates may vary, but the overall framework is explicitly time-limited and performance-based.

(f) nature of the costs being covered

3.25. The costs will be limited to cover a range of HWC specific activities including:

i. Funding of trial phase, such as:
- Purchase and installation of new production line
- Land or rental for separate premises
- Supporting infrastructure and utilities
- Tooling and machinery
- Engineering and commissioning costs

ii. Commercialisation activities, such as:
- Market validation and certification
- Product testing and compliance
- Supply chain integration

(g) performance criteria

3.26. A detailed project delivery plan for the project will need to be agreed between InsulaCore and the ministry as a precondition. In line with normal processes, payment will be made when expenditure has been evidenced against agreed activities and investment costs. This funding for upscaling and commercialisation will be contingent on InsulaCore achieving agreed milestones, such as scaling production and bringing the products to market. The subsidy also includes a clawback mechanism where profits above an agreed internal rate of return (IRR) are shared equally between the ministry and recipient. This ensures against excessive private gain.

(h) ringfencing

3.27. InsulaCore will be expected to ringfence the funding.[27] Ringfencing can be ensured by the use of a clear accounting and transactional separation. Additionally, the awards should only be used for stipulated activities as outlined in the grant funding agreement between the ministry and InsulaCore.

[27] See Annex 5.

(i) monitoring and evaluation

3.28. The ministry will provide robust processes, monitoring, and governance.[28] The project will be monitored for 4 years from the signing of the agreement. This will be in line with Government Functional Standards.

Step 4: Carry out the balancing exercise.

Principle G: Subsidies' beneficial effects (in terms of achieving their specific policy objective) should outweigh any negative effects, including in particular negative effects on competition or investment within the United Kingdom, and international trade or investment.

Balancing exercise
Set out details of the anticipated negative effects of the subsidy, the likelihood they will materialise and the extent of the harm if they do.
Identify any:
(a) negative effects on competition or investment within the UK
(b) negative effects on international trade or investment
(c) negative geographical impacts
(d) negative distributional impacts

Set out the expected benefits of the subsidy in relation to the identified policy objective.
Explain why you are of the view that the negative effects are outweighed.
See statutory guidance paragraphs 3.113 to 3.118.

(a) Negative effects on competition or investment within the UK

4.1 The subsidy will provide InsulaCore with a competitive advantage through early adoption and development of HWC production methods. This may temporarily distort the UK market, particularly for domestic competitors who do not yet have access to the technology.

4.2 However, this distortion is expected to be short to medium-term. Once HWC production methods become more widely available, other UK firms will be able to adopt the technology, reducing the long-term impact on competition.

(b) Negative effects on international trade or investment

4.3 The impact on international trade is moderate and time bound. International competitors may be temporarily disadvantaged if the UK gains early access to

[28] See Annex 5.

superior technology. However, given the global nature of the advanced insulation board market and the ministry's expectation that the technology will be developed abroad over time regardless, the overall effect on international competition is likely to be limited.

4.4 In the longer term, the technology is expected to be disseminated internationally, reducing any sustained distortion and potentially enhancing global thermal efficiency standards. In the meantime, international companies who may have inferior technology may be disadvantaged.

(c) Negative geographical impacts

4.5 The trial is expected to be conducted in the West Midlands, creating a regional concentration of benefits such as job creation and investment. While this is positive for the region, it may result in geographic imbalances in the short term.

4.6 If the trial is successful and production scales up, there is a possibility that operations may relocate to other regions, potentially leading to displacement effects. These impacts will be monitored and addressed through future policy interventions if necessary.

(d) Negative distributional impacts

4.7 No significant distributional impacts have been identified. However, the regional concentration of benefits may have indirect equity implications, which should be considered in future scaling decisions.

Expected benefits of the subsidy

4.8 The subsidy is designed to support the trial and commercialisation of HWC production methods. Key benefits include:

- **Demonstrate commercial viability:** By addressing an information and co-ordination market failure, the subsidy will demonstrate the commercial viability of HWC production methods, enabling more informed investment decisions.
- **Enable widespread production and use:** Supporting HWC trials will drive innovation and accelerate the production and adoption of advanced manufacturing techniques, strengthening the UK's insulation sector. The enhanced thermal performance (estimated 8 to 12% improvement) of HWC boards will boost demand for advanced insulation products due to the expected cost savings for businesses and households.
- **Strategic positioning:** Although individual firms may be reluctant to move first because they would shoulder disproportionate risk, the subsidy will deliver an early-mover advantage for the UK overall, positioning the UK as a global leader in HWC production methods.

Balancing

4.9 Whilst some short-term distortions are anticipated, these are limited to the temporary advantage InsulaCore will receive in domestic and international markets. Over time, advanced insulation board manufacturers will gradually develop their own expertise in HWC production methods. Moreover, the subsidy's design also serves to limit distortion by ensuring initial competition for the grant. It also ensures that the subsidy only covers the risk premium for the trial and initial commercialisation and the use of clawback mechanisms to avoid overcompensation. Overall, the UK market will benefit in the long run by correcting the information failure which currently exists. Therefore, the benefits of the subsidy will significantly outweigh any short-term negative effects.

Energy and environment principles

5.1 The ministry has also considered the energy and environment principles, as required by section 13 of the Subsidy Control Act 2022. Principles A and B apply. The remaining Principles do not apply. In particular, Principle I does not apply because this subsidy is not targeted at industrial activities.

Principle A

5.2 This principle requires that:

> Subsidies in relation to energy and environment shall be aimed at and incentivise the beneficiary in—
>
> (a) delivering a secure, affordable and sustainable energy system and a well-functioning and competitive energy market, or
>
> (b) increasing the level of environmental protection compared to the level that would be achieved in the absence of the subsidy.

5.3 The subsidy directly incentivises InsulaCore to develop and commercialise HWC production methods, which have a significantly higher thermal performance, thereby lowering energy costs and increasing the environmental performance of households and buildings beyond which would occur in the absence of intervention. The subsidy promotes competitiveness in the energy market by accelerating the trial, production and dissemination of innovative insulation technologies.

Principle B

5.4 This principle requires that:

> Subsidies in relation to energy and environment shall not relieve the beneficiary from liabilities arising from its responsibilities as a polluter under the law of England and Wales, Scotland or Northern Ireland.

5.5 The subsidy does not relieve and is not capable of relieving the beneficiary of such liabilities. The subsidy's structure and conditions do not alter or remove any environmental liabilities that would apply to InsulaCore. The proposed grant

funding agreement[29] explicitly reinforces this by limiting the subsidy strictly to the costs of the HWC trial and commercialisation activities, prohibiting the use of funds for environmental compliance costs.

Conclusion

6.1. The subsidy is considered to be consistent with the subsidy control principles, and therefore compliant with the Subsidy Control Act 2022. The subsidy is proportionate, targeted, and justified, and will contribute meaningfully to the UK's ambition to lead in HWC production methods and advanced manufacturing techniques.

Annexes [illustrative, not included]

- Annex 1: Full Calculations for Subsidy Award Size and Initial and Subsequent Trial Cost Estimates
- Annex 2: Financial statements (2002) for InsulaCore and PolySpan Unit
- Annex 3: Assessment of commercial viability of HWC production methods (submitted by InsulaCore)
- Annex 4: Investment Gap Modelling for Nascent Energy-Efficiency Technologies for Advanced Insulation Boards
- Annex 5: Summary of Proposed Grant Offer Conditions
- Annex 6: Grant Funding Selection Process
- Annex 7: Green Book Compliant Cost-Benefit Analysis

References [illustrative / fictional]

- TPMAA Analysis (2021) HWC potentialities, Thermal Panelling Manufacturers' Association of America
- Feasibility Assessment (2023) Hot Web Compression production potentialities, McClintock Cramm LLP
- Global Thermal Insulation Market Outlook 2025 (2024) Institute for Built Systems Economics.

[29] See Annex 5.