# Written evidence submitted by the Grantham Research Institute on Climate Change and the Environment (IND0036)

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The submission answers questions 1 and 2 of the Inquiry. It draws heavily on the joint response of CETEx (the Centre for Economic Transition Expertise) and the Grantham Research Institute to the consultation 'Invest 2035: the UK's modern industrial strategy' run by the Department for Business and Trade between 14 October and 25 November 2024. The response was published in November 2024 and can be found at: https://cetex.org/publications/response-to-invest-2035-the-uks-modern-industrial-strategy/

**Question 1: How can UK plc capture its fair share of the economic potential of emerging or less developed energy technologies?**

For UK plc to capture its fair share of the economic potential of emerging or less developed energy technologies, firstly a careful selection of priority areas is required. The UK has a tight fiscal position, a productive but small manufacturing base, and a relatively small domestic market. **These factors imply the UK would be best served by a targeted approach to allocating support into areas with greatest potential for economic and social returns,** as opposed to spreading efforts thinly over too many areas (Serin and Andres, 2024).

In November 2024, along with collaborator centres and programmes at LSE, we published an assessment framework – the 'green industrial policy matrix' – to assess various clean energy technologies for prioritisation for policy support based on their potential contribution to important economic and social objectives (Serin et al., 2024). Our chosen objectives for assessment (growth, net zero and regionally-balanced opportunities) map closely to the objectives set out by the Government in its Industrial Strategy Green Paper. We evaluate a technology's potential to contribute to each objective using multiple assessment criteria, as shown in Table 1. Our selection of these criteria has drawn on existing academic and policy literature on industry, and our own substantial policy engagement in recent years.

**Table 1. Overview of criteria assessed under the green industrial policy matrix**

| Opportunities for growth | Strategic importance | Distributional aspects |
|---|---|---|
| • Global tradeable market potential<br>• Comparative advantage in trade<br>• Comparative advantage in technology and innovation | • Domestic demand under net zero<br>• State of global supply chain | • Job creation potential<br>• Places – regional spread of opportunities |

The resulting assessment framework – i.e. the 'green industrial policy matrix' – can be summarised as follows:

- First, to assess **opportunities for growth**, we consider where there is evidence of UK comparative advantage in different clean energy technologies (using data on traded goods and patent data) and combine this with information on likely global demand growth.
- Second, we consider the **strategic importance of these technologies for meeting the UK's net zero commitments** (based on existing policy commitments where available), and the extent to which UK supply chain capabilities are needed given geopolitical uncertainties.
- And thirdly, we consider the likely **distributional aspects of growth** in these technologies, in terms of both job creation potential and the regional spread of opportunities.

In the first instance, we used the framework to assess seven selected clean technology categories. While the weights assigned to different objectives and the appetite for risk will matter for detailed implementation, at a

high level **our 'green industrial policy matrix' points to carbon capture, usage and storage (CCUS) and offshore wind (including floating offshore wind) as technology categories that have strong potential to contribute to the objectives assessed and could therefore take priority for industrial policies in the UK**. However, we found that all seven categories contain specific technologies and products that could represent opportunities for the UK. **For example, the UK currently has comparative advantages in the innovation of electrolysers, heat pumps, nuclear fusion and tidal stream energy which can be built upon.**

Once the priority technologies for support are identified, an in-depth understanding of the barriers and market failures hindering investment in each is required so that policy interventions can be designed with maximum efficacy. Some of the barriers will be technology-specific – such as coordination challenges when it comes to CCUS or building a hydrogen economy, or the availability of port infrastructure when it comes to developing floating offshore wind. Some barriers, on the other hand, will be 'horizontal' (i.e. economy-wide and not specific to one technology), hindering investment across all technologies. Examples include unavailability of a skilled workforce, and policy and political uncertainty.

Here, the need to prevent policy and political uncertainty requires special attention in light of recent developments around a proposed third runway at Heathrow (for an analysis, see Jameson, 2025) and Rosebank and Jackdaw oil and gas fields (for an analysis, see Ward, 2025). **The Government's emerging positions on these issues may lead to confusion about the direction of travel, undermine private sector confidence and slow down investment in the clean transition.**

**There is a growing body of evidence to show that uncertainty around climate policy is an important factor that can significantly undermine business confidence and slow investment behaviour.** For example, an analysis conducted by the OECD found that climate policy uncertainty is associated with economically and statistically significant decreases in investment, particularly in capital-intensive and pollution-exposed sectors (Berestycki et al., 2022). Basaglia et al. (2021) find a similar effect on R&D efforts and employment levels. Uncertainty is a critical barrier, particularly in those sectors that rely on strong demand signals to justify risky investments in new, innovative (and some of which are still unproven) technologies to achieve transition objectives. Such uncertainty can also prevent UK companies from building and retaining comparative advantage in those areas where it would be well-positioned to benefit from a global transition, such as those we have identified above. These trends are already visible in the UK and elsewhere. For example, the automotive industry reacted negatively when the previous administration U-turned on its Zero Emission Vehicle targets in 2023 (Institute of the Motor Industry, 2023), warning they would reduce domestic production of electric vehicles, likely leading to lower competitiveness over the medium term. Similar trends are emerging in Germany, where the automotive industry is losing its international competitiveness in light of a sluggish shift towards electrification (PwC, 2024).

We noted in our response of November 2024 that policy uncertainty was not sufficiently reflected as a key barrier to investment in the Government's Industrial Strategy Green Paper. Now, given also reports that the publication of the Industrial Strategy will be delayed until June 2025 (from an original target of spring 2025), **there is a need for the Government to take all opportunities to reinstate its commitment to net zero as the only way to grow the economy in a sustainable way, and align both its own investments and the signals that it sends to private investors with that commitment fully.**

**Question 2: What more can the Government do to encourage greater domestic supply chain investment in the energy industry by 2035, including through the Contracts for Difference scheme?**

The existence of the Contracts for Difference (CfD) scheme is important to drive supply chain investment to the extent that it provides certainty about a pipeline of projects to be developed over the several years ahead for the technologies within its scope. The Government has already assigned a more direct role to the CfD for driving supply chain investment by introducing the Clean Industry Bonus in the upcoming seventh allocation round, which will allow fixed and floating offshore wind applicants to receive extra revenue support under the scheme if they choose to invest in more sustainable supply chains. This is intended to incentivise investment in manufacturing facilities in deprived areas and in more sustainable means of production. **If it is seen to be an effective tool in the context of these initial technologies, the Clean Industry Bonus could be expanded to further technologies within the scope of the CfD.**

However, for some emerging (and therefore currently higher-cost) technologies, participation in the scheme does not automatically provide a route to market. **This can make the use of a ringfence (a minimum budget set aside for a specific technology) necessary to drive a sizeable project pipeline (which can ultimately drive supply chains)**, as the experience with tidal stream demonstrates. A ringfence for tidal stream was set aside for the first time in the fourth allocation round of the scheme (£20mn in 2022) and has been available every year since (£30mn in 2023 and £10mn in 2024). This has enabled a pipeline of projects to secure revenue support and put the UK on track to have over 130MW of tidal stream capacity deployed in its waters by 2029 (Marine Energy Council, 2024).

Continuation of this approach should grow the project pipeline, enable economies of scale and assist the technology down the cost curve, ultimately reducing the need for the ringfence and enabling the technology to compete self-sufficiently in the scheme. However, as the availability and the size of the ringfence is only confirmed in the year prior to the auction being held, the incentive for relevant supply chains to invest is still likely to be limited. Supply chain companies would naturally expect to have a better idea of the likely demand for their products and services in the longer term if they are to invest in scaling up. **The Government should therefore consider providing longer-term funding certainty for tidal stream (and other similarly early-stage but promising technologies) through the CfD.** That way, associated supply chains would have the necessary confidence to scale up, maximising economic benefits and UK jobs (Serin et al., 2023).

**The Government can also consider expanding the ringfencing approach to other technologies in a similar situation in the future.** Wave energy is one example, which is around ten years behind tidal stream according to one assumption (Offshore Renewable Energy Catapult, 2018). The technology is currently unable to undercut other technologies within the auction pot it competes in and its cost reduction pathway is uncertain, but its modular nature and transferable learnings from offshore wind and tidal supply chains imply strong potential for cost reductions (ibid.).

**However, it is also important to take a step back and ask whether the CfD is the right mechanism to rely on for the supply chain question.** While the Clean Industry Bonus reflects the right kind of joined-up thinking between deployment and supply chain development, the effectiveness of placing the incentive on project developers to drive supply chain investment has yet to be seen. We also know that the current practice of recovering policy costs of the CfD through energy bills is regressive (Owen and Barrett, 2020). Therefore, increasing policy costs associated with the CfD to incentivise supply chains without reforming this approach would exacerbate the disproportionate burden on poorer households. **An alternative to allocating support through the CfD could be direct supply-side support for priority areas – for example, through the National Wealth Fund and GB Energy.** Such an approach might be more likely to achieve the speed and scale in supply chain investment needed to maximise regional growth benefits and jobs, but it would need to be accompanied by careful consideration of distributional implications to ensure policy costs are passed on fairly.

**Lastly, the Government could consider adopting explicitly stated domestic deployment targets (in capacity terms) for promising emerging or less developed technologies**, as it does for many established technologies in its Clean Power 2030 Action Plan. This could help as a signal to the private sector that the Government intends to work together to drive the necessary investment (in deployment and supply chains) towards that target, while allowing flexibility on the precise amount and shape of future support.

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