

Briefing: Industrial decarbonisation policies for a UK net zero target

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About the report

UK industrial greenhouse gas (GHG) emissions must fall by more than 90% over the next 30 years to reach net zero GHG emissions targets by 2050.

Current industrial decarbonisation policies fall far short of what is required and so there is an urgent need to consider the design and implementation of new policies to deliver wide-scale and rapid reductions in industrial emissions. We propose that:

- policy must address multiple challenges to decarbonisation and go beyond an overarching carbon reduction mechanism.
- there is no 'policy panacea' and policy solutions need to be flexible and adapt over time.
- a number of principles should guide effective policy design (co-ordinated, lean, consistent, and phased).

Action to cut industrial GHG emissions must be taken quickly, and there are many uncertainties about the policy interventions that will work best. This research will help to inform decision makers about the policy areas that merit further consideration and scrutiny.

This summary provides a quick look at the full report, which can be accessed from [the CREDS website](#).

A recent report from the Centre for Research into Energy Demand Solutions (CREDS) calls for the Government to introduce a strategic policy approach to deliver rapid and widespread industrial decarbonisation.

The independent report was developed by researchers from the University of Leeds to help inform the Climate Change Committee's (CCC) 6th Carbon Budget recommendations.



The report identifies that there are six challenges that industrial decarbonisation policy must address:

- Providing an overarching carbon reduction incentive (whether through carbon pricing, subsidies or regulation) and incorporating appropriate mechanisms to address carbon leakage.
- Deploying and coordinating infrastructure with industrial applications, for instance carbon capture, utilisation and storage (CCUS) networks and hydrogen pipelines, whilst encouraging integration and clustering where appropriate.
- Improving the energy performance of existing assets, technologies and processes, by encouraging early upgrade, refurbishment or even retirement where the net mitigation benefit would be highest.
- Incentivising innovation by supporting research across the commercialisation stages, and stimulating investment in demonstration and deployment.
- Improving the efficiency of material and product use, acting on the demand-side and creating markets for low-carbon goods and services.
- Creating 'enabling policies' with a socioeconomic focus that would support long-term industrial strategy, for instance skills, (re)training investment, and generating low-carbon manufacturing jobs across the supply chain in the sectors and regions in which they are most needed.

Policy principles

Though there are clearly no policy 'panaceas' in the available policy mechanisms and it would be difficult to pick a 'policy winner'. The report outlines a series of policy 'principles' for effective industrial decarbonisation policy:

- **Developing policy 'packages':** an effective approach could be in the use of policy 'packages', which link overarching carbon policies with complementary policies addressing each of the industrial decarbonisation challenges identified. This would create a strategic approach, optimising the synergies between policies and reducing their negative spill-over effects.
- **Providing clear and consistent policy signals:** communicating the long-term design of policies with industry was identified as particularly important to allow for planning and adaptation. This also promotes certainty in the long-run policy signal, creating confidence to invest in low-carbon technologies with large upfront capital costs.
- **Streamlining policy:** policies should deliver the required mitigation outcome in as lean a way as possible, without excessively 'layering' policy burden or creating inefficiency in the incentive or penalty. This would require cumulative policy impact to be assessed when evaluating any new policies, and how any additional measures would contribute to overall policy burden and cost.

Policy packages

The report identifies the need for the Government to adopt a co-ordinated approach, based on the implementation of 'policy packages', a group of policy instruments which work together strategically to drive decarbonisation.

Such a package would be comprised of an overarching carbon reduction mechanism (for instance pricing, subsidies, or regulatory tools such as standards), alongside complementary policies addressing key areas where action is needed and, importantly, mitigating any negative impacts on the competitiveness of UK industry.

The research identified a 'typology' of future policy options that could be considered to close the policy gap for industrial decarbonisation (Figure 1). Ultimately it was clear that the effectiveness of any given policy will be dependent on its specific design, which is why it is so important that Government announcements of funding are accompanied by a clear sense of the delivery mechanisms and policy tools which will be used to achieve the desired outcome.

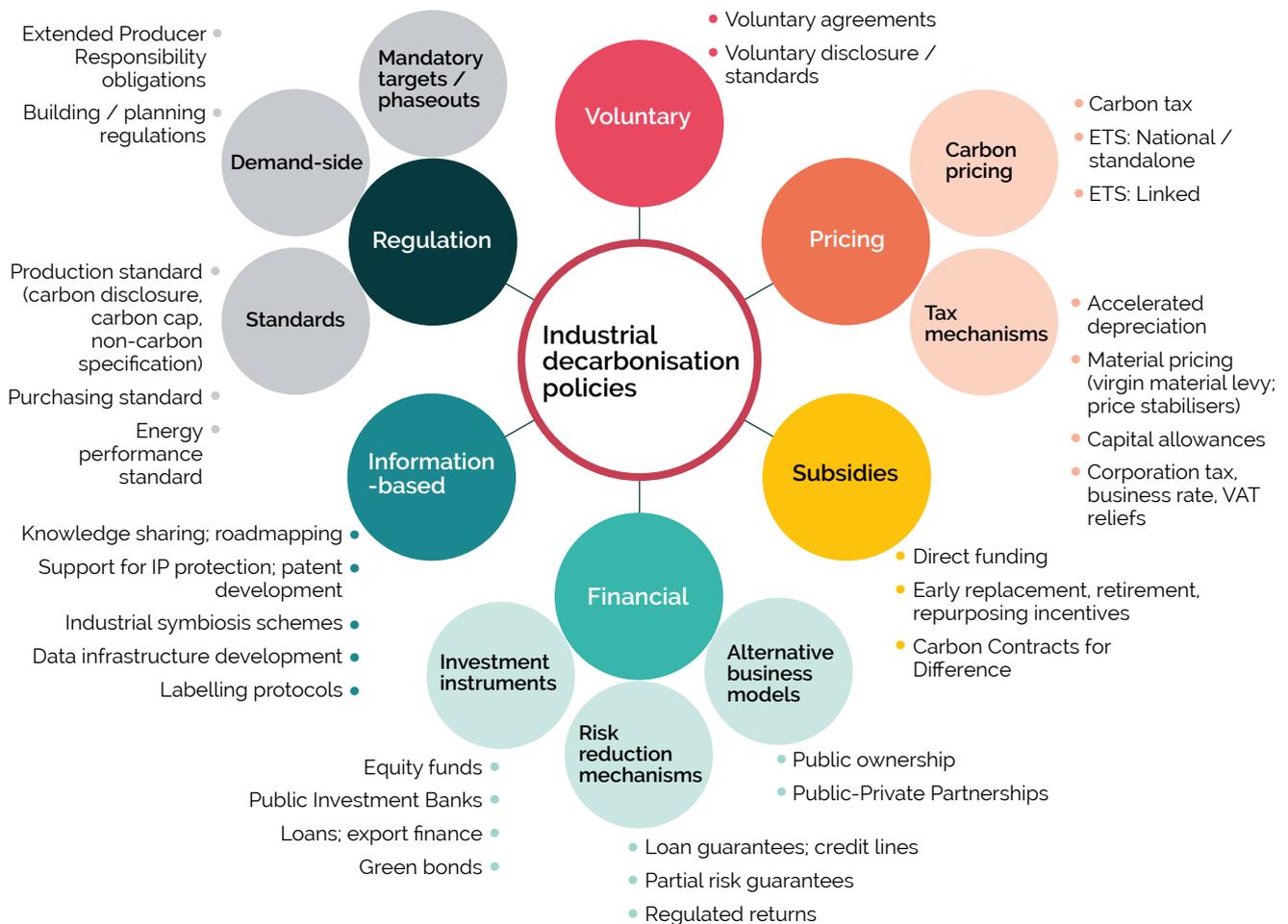


Figure 1: Typology of potential industrial decarbonisation policies.

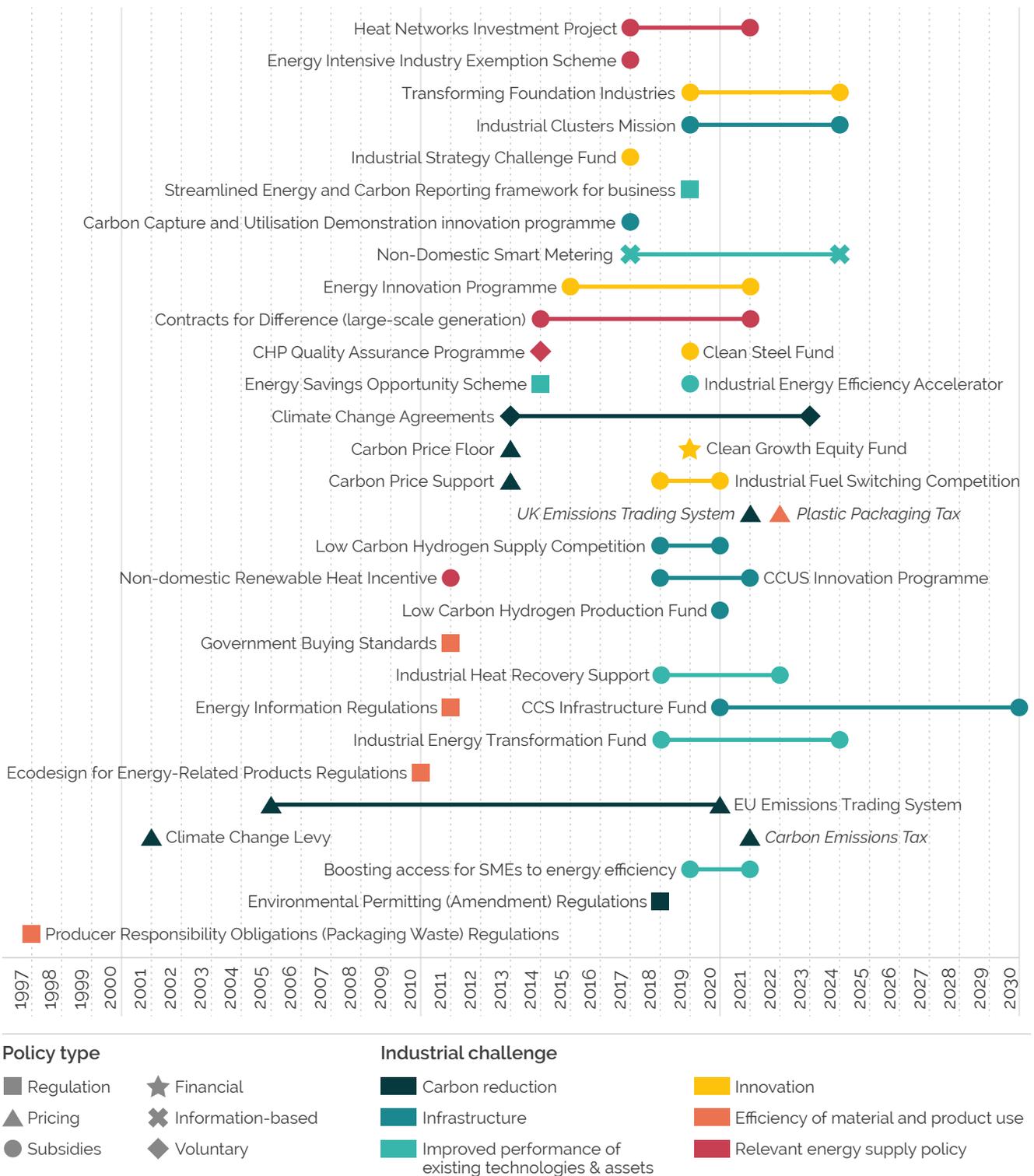


Figure 2: Timeline of current and prospective industrial decarbonisation policies. Symbols denote types of policy, colours highlight the type of industrial challenge while the lines indicate the policy lead times (where this has been clearly specified). Policies which have expired over the time period are not included, and only those prospective policies with clearly outlined delivery mechanisms have been documented. Please see the policy database for full details (which can be [downloaded as a separate xlsx file](#)).



Rapid policy response is essential for net zero

There are many uncertainties in planning future industrial decarbonisation policy in the current political and economic environment. This report is only able to provide an initial evidence base to inform such policy development and more detailed work will be needed to inform policy choices, not least on the impact of particular policies on specific industrial sectors.

However, the urgency of the climate crisis and the need for industrial emissions reductions to be accelerated to meet the UK's net zero target demands a rapid policy response. We do not have the luxury of waiting while we design the perfect policy approach; action is needed now and we hope that this report can provide some guidance towards creating a clean and competitive future for UK industry.

The full report, Industrial Decarbonisation Policies for a UK Net Zero Target, can be accessed from the CREDS website: www.creds.ac.uk/publications/industrial-decarbonisation-policies-for-a-uk-net-zero-target

Reference

This summary should be referenced as:

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About CREDS

The Centre for Research in Energy Demand Solutions (CREDS) was established as part of the UK Research and Innovation's Energy Programme in April 2018, with funding of £19.5M over five years. Its mission is to make the UK a leader in understanding the changes in energy demand needed for the transition to a secure and affordable, low carbon energy system. CREDS has a team of more than 140 people based at 24 UK universities and organisations.

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