

Powering the Future - sector pages

Industry

Industry consumes about 17% of UK fossil fuel and emits around 23% of CO₂

Emissions are high across this sector with many processes, including steel production, oil refining and cement manufacture having inherently high levels. Consumption is dominated by gas (40%), followed by oil (24%), electricity (24%) and coal (11%).

Significant report findings - industry:

The diversity of the sector means that generic measures offer inadequate CO₂ reductions. Radical process energy efficiency improvements will be required to cut consumption by over 50%.

The application of gas-fuelled CHP has the potential to offer a large reduction of up to 20% in sector CO₂ emissions and industrial electricity demand by 2025. However, the subsequent decline in carbon intensity of power production in the electricity sector would progressively reduce the value of this improvement after 2025, so that later implementations would not deliver useful emission reductions.

The application of CCS to large industrial emitters offers a reduction in sector CO₂ emissions of up to 30% in 2050.

The conversion of many high-temperature processes to electricity after 2025, when the carbon intensity of electricity from the electricity sector is reduced, would offer a reduction in CO₂ emissions of around 8% in 2050.

The substitution of biomass fuels for fossil fuels is not feasible on the required scale because of the limited available resources.

Embedded renewable energy systems such as wind and solar could supply around 10% of current industrial electricity consumption by 2050.

Industry sector emissions are closely related to the UK's economic growth. A 1% increase in the assumed long-term growth rate of 1.5% results in a significant increase in sector CO₂ emissions.

UK and EU government intervention will be essential to maintain industrial competitiveness. Funding the requirements for substantial reductions in CO₂ emissions and improvements in energy efficiency necessary from UK industry – without undermining its competitiveness – is a fundamental challenge.

There is widespread concern that the inadvertent costs to industry of carbon trading and improvement programmes may force industries offshore to areas with lower or no emission targets. This would damage the UK economy directly by the loss of employment and indirectly by increasing imports. The latter would increase global CO₂ emissions – the exact reverse of the intent of such measures.

Further work - industry:

Review the status of industry sector CO₂ emissions reduction efforts; prepare a strategy to strengthen actions and delivery of efficiency improvements in products and processes.

Review the mechanisms available to fund process improvements in industry to reduce CO₂ emissions; develop strategies to support industry in achieving reductions in emissions without breaching EU regulations.

Identify those EU regulations which limit the funding of CO₂ emission reduction measures in industry; propose and negotiate changes to ensure support is permitted to prevent industry leaving the EU and increasing its emissions by transferring production elsewhere.

Assess the application to major industrial emitters of carbon capture and storage technology currently being supported through the UK CCS pilot project competition, identifying changes required in scale, process and operation; establish a programme to support the development needed to make this technology appropriate to industrial applications.