

Regional Power, Gas, Coal, and Renewables Insight

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Aiming for net zero: UK Committee on Climate Change raises 2050 ambition from 80% reduction to net zero

Catherine Robinson, Executive Director

Key implications

On 2 May 2019, the UK Committee on Climate Change (CCC) issued its recommendation for the United Kingdom's 2050 climate target. The CCC is the official body that provides recommendations to the government on long-term climate targets, including setting the multiannual carbon budgets.

- **Increased ambition, but no increase in cost.** The CCC is recommending that the United Kingdom's long-term target is increased to net-zero greenhouse gases (GHGs) by 2050 from the current target of reduction of emissions by 80% versus 1990 levels. The target is for GHG reduction across the entire economy, including aviation and shipping, and does not allow for the use of offsets. The revised target is in line with the current French proposal, but more aggressive than the EU proposal in which the status of aviation and shipping remains to be determined. It is estimated that the new target will cost 1–2% of GDP—in line with the cost assessment for the 80% target when it was adopted in 2008.
- **Urgent action is required.** To provide the necessary policy impetus and long-term clarity needed for the scale of the investment the target implies, the CCC recommends that the new target is enshrined in law by the end of 2019 and that a range of current policy proposals—most notably in transport—are accelerated.
- **All aspects of the economy are impacted.** The CCC report envisages a transformation of the UK economy, including a central role for hydrogen, which is projected to be the size of the current UK gas generation fleet by 2050. Power demand is expected to double with 75 GW of offshore wind. Carbon capture and storage—linked to power, industry, and hydrogen production—is described as a “necessity, not an option.”

UK long-term climate ambition raised

On 2 May, the UK Committee on Climate Change (CCC) proposed raising the long-term climate target to net-zero greenhouse gas (GHG) emissions by 2050. This is a 20 percentage point increase on the current target. The CCC proposes raising the target in light of overwhelming evidence that GHGs are driving climate change and that technology developments allow the revised target to be met with existing technologies at a reasonable cost.

It is estimated that reducing emissions 80% will cost 1% of GDP and moving from 80% to 100% will cost a further 1%. The costs of moving to 100% are now estimated to be at the same level as was estimated in 2008

Contacts

Catherine Robinson, Executive Director • catherine.robinson@ihsmarkit.com, +44 781 761 7935

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for an 80% reduction. The reduction in cost is due to falling costs of batteries, electric vehicles, and renewable generation. The CCC report highlights that the allocation of costs is of primary importance and potentially more contentious than the overall level of costs.

In terms of pace and scale of ambition, the CCC states that advancing the net-zero carbon target to earlier than 2050 would undermine its validity, as it would not be credible for the economy as a whole—although some sectors (power) could achieve net-zero carbon by 2045. The 2050 date is deemed feasible since about 95% of the decarbonization can come from known technology, with the remainder coming from less mature technologies. In addition, the target takes into account the differing ability of the nations in the United Kingdom to decarbonize—it is proposed that Scotland reaches net zero in 2045 and Wales aims for 95% decarbonization in 2050.

An achievable, but challenging, target

Although the CCC believes that the target is achievable, this does not mean it will be easily met. While the UK climate targets so far have been met, decarbonization of the power sector has been a major driver. In other areas, policy to date has been much less effective, including the failure to implement large-scale trials of low-carbon heating options: heat pumps or hydrogen and the stalling of carbon capture and storage (CCS) in the country. The 2040 date for the phaseout of the sale of internal combustion engines is called out by the CCC as too late if long-term climate goals are to be met.

Looking forward, the CCC sees energy efficiency, changes in diet, electrification, hydrogen, CCS, and changes in land use as driving deep decarbonization in the United Kingdom. Bioenergy and nuclear are seen as playing only a limited role.

- **Electrification.** The report foresees UK power demand doubling by 2050 with generation totally decarbonized. Offshore wind plays a critical role in the future power mix, with installed capacity of 75 GW in 2050, an increase from today's 30 GW target for 2030 and the 7 GW installed currently. This projection contrasts with the IHS Markit base case, which anticipates a 15% increase in power demand between 2019 and 2050 and 40 GW of offshore wind.
- **Hydrogen.** It is envisaged that low-carbon hydrogen will play a major role in decarbonizing industry and providing backup to intermittent renewables. Hydrogen is also described as potentially providing heating on the coldest days through a gas distribution system that has been covered to carry 100% hydrogen, with heat pumps providing heat through the rest of the year. The report foresees large-scale low-carbon hydrogen production from natural gas with CCS by 2030 and hydrogen production on the scale of the current natural gas generation fleet—35 GW—by 2050.
- **CCS.** CCS is described as a necessity, not an option. By 2050, it is envisaged that 75–175 million metric tons will be sequestered annually in five clusters. The first cluster should be operational by 2026 and two by 2030—one of which should be linked to low-carbon hydrogen production.

In terms of investment, the greatest requirements will be in the power sector, buildings, and emission removal (carbon dioxide from air, etc.). In some sectors (transport and agriculture), future costs are expected to be below current costs.

The next stage of the energy transition: Moving beyond power

Although the United Kingdom is only a small emitter in global terms (about 1%), this report reaffirms the United Kingdom's desire to remain a leader in climate change. Additionally, as Europe enters the next phase of the energy transition, the report provides a very useful review of the challenges involved in deep decarbonization. Perhaps most telling is the change in focus from prior reports—previously much of the attention was on reducing emissions in power through renewables and on electrifying end uses. Now, discussion is on the limits to electrification and how other approaches will be needed—with carbon capture and hydrogen at the heart of the long-term plans. Counting the number of references to each topic in the report highlights this change of tone: CCS 277, hydrogen 141, electricity 111, renewable(s) 96, efficiency 93, and nuclear 13.

IHS Markit Customer Care

CustomerCare@ihsmarkit.com

Americas: +1 800 IHS CARE (+1 800 447 2273)

Europe, Middle East, and Africa: +44 (0) 1344 328 300

Asia and the Pacific Rim: +604 291 3600

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