

## **CCC Call for Evidence on 5<sup>th</sup> Carbon Budget**

### **Response from the Energy Intensive Users Group – 1<sup>st</sup> June 2015**

**Question 1** *The IPCC's Fifth Assessment Report will form the basis of the Committee's assessment of climate risks and global emissions pathways consistent with climate objectives. What further evidence should the Committee consider in this area?*

EIUG is not competent to comment on climate risks generally, or the strengths and weaknesses of the IPCC 5<sup>th</sup> Assessment Report in particular. Nevertheless, we have no specific reason to question the suitability of the 5<sup>th</sup> Assessment Report as a key reference point for the CCC's analysis.

**Question 2** *To what extent are the UN talks in Paris likely to have implications for the Committee's advice beyond the pledges and positions announced in advance of the talks?*

The timing of the CCC's advice on the 5<sup>th</sup> Carbon Budget is unfortunate in that it is obliged to make recommendations to government before the outcome of the COP21 talks in Paris can be fully analysed. It may therefore be prudent for the CCC to consider recommending more than one Budget option, possibly even a range of options, which the government could choose depending on the outcome.

With respect to the international context, we urge the CCC to be very careful in interpreting countries' pledges ahead of the Paris talks. In particular, declared 'intentions' should not be confused with commitments to impose legally binding targets.

EIUG members compete in global markets. Without genuinely equivalent efforts (in terms of emissions reductions, timescale and degree of enforcement) in all competitor economies, UK / EU companies will remain at a commercial disadvantage. In the absence of truly comparable efforts, full mitigation is essential to retain international competitiveness. An immediate priority therefore is to secure post-2020 carbon leakage protection for all energy-intensive sectors, both in terms of production and investment. As a general principle, state-of-the-art energy-efficient installations in all EII sectors need full carbon allowances in order to be able to compete internationally.

UK EIIs already face a significant and growing comparative disadvantage in both gas and electricity prices. We would especially highlight that unilateral UK/EU climate policies are a significant factor behind the competitiveness gap in electricity prices, as the CCC have rightly recognised. It is possible that the 5<sup>th</sup> Carbon Budget may result in additional policy driven increases in the cost of UK energy supplies. In the light of this, and with the uncertain international situation, we hope that the CCC will recognise that it will be necessary for the government to retain and indeed expand the UK EII compensation package to cover those businesses and sectors facing commercial disadvantage. We note that some EII sectors and companies remain completely uncompensated as a result of the package to date. Current proposals for RO/FIT compensation and CFD exemption costs exclude many EII sites which compete with businesses that are receiving or likely to receive renewables compensation in other Member States (e.g. in Germany and Italy).

**Question 3** *Based on the available evidence, does the EU 2030 package reflect the best path to its stated 2050 ambition? How might this package change, specifically its targeted emissions reduction, either before the end of Paris or after Paris?*

The proposal for 40% emissions cut relative to 1990 levels (more than this for EU ETS sectors – 43% vs. 2005 emissions by 2030) is already very challenging, especially in the absence of similar commitments internationally.

We note that the proposed 2030 EU target marks a steep acceleration in ambition from the 2020 target of 20% reduction from 1990 (three decades to achieve the first 20% - one decade for second 20%). This is extremely challenging for EIs as the most cost-effective developments with current technology have largely been implemented. Asset life in these industries can be 40 years or even longer, making the financial case for rapid emissions cuts very challenging indeed.

The key objective should be *decarbonisation* – there should be no EU technology specific targets for 2030 – EIUG strongly supports the UK government’s position that member states should be free to determine the mix of technologies to ensure their emissions commitments are met, at least cost. The recent collaborative work by the eight most heat-intensive industries, Government and other stakeholders on the UK industrial 2050 Roadmaps<sup>1</sup> is a welcome start and shows the enormous challenges ahead to decarbonise and increase energy efficiency whilst remaining internationally competitive. Cost models in the UK roadmaps are insufficiently developed and considerable further work is required. The capital cost of some technology options has been underplayed, whilst pre-commercial technologies are subject to a large degree of uncertainty. Furthermore, a number of other significant costs have been excluded from these calculations, such as the costs of: operation, energy use, research / development / demonstration and writing-off of assets early. Where similar models have been produced by sectors in EU level roadmaps, they indicate the extra costs (compared with competitor economies that do not have equivalent emissions reduction targets and associated carbon costs) are prohibitive.

**Question 4** *How does the UK’s legislated 2050 target affect its ability to support international efforts to reduce emissions, including its position in negotiations? Does the level of UK carbon budgets have any additional impact (over-and-above the 2050 target) for the UK in international discussions?*

While countries are progressing their ‘Indicative Nationally Determined Contributions’ for COP21, few so far have implemented binding commitments. The UK’s legislated target has demonstrably failed to achieve such a binding commitment by any of the major global emitters (China, USA, India, Russia, Japan, Canada, Australia, the entirety of Africa, South America, Middle East, etc.) none of which has been prepared to propose let alone implement an equivalent constraint on their economies.

Unilateral climate and energy policies create costs for EU / UK industry thereby leading to a risk of relocation to countries with less ambitious (or no) climate policy. The resulting loss of manufacturing not only costs EU / UK jobs but could also give rise to an increase in global energy use and emissions through the use of less-efficient production processes, more carbon-intensive electricity and greater transportation of goods. We must ensure that the UK is not simply decarbonising by deindustrialising or its climate change leadership will do little to encourage others to follow.

**Question 5** *In the area(s) of your expertise, what are the opportunities and challenges in reducing emissions to 2032, and at what cost? What may be required by 2032 to prepare for the 2050 target, recognising that this may require that emissions in some areas are reduced close to zero?*

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<sup>1</sup> <https://www.gov.uk/government/publications/industrial-decarbonisation-and-energy-efficiency-roadmaps-to-2050>

The UK Roadmaps for the eight heat-intensive sectors are a useful start in that they identify strategic conclusions and potential next steps to deliver decarbonisation over the period 2020-50, but (as noted above) lack a rigorous, full analysis of the likely costs.

A key requirement to building more energy and carbon efficient EIs is capital investment in new plant. However, most of the remaining opportunities with existing technologies require investments that are prohibitively expensive and / or have excessively long payback times. And the roadmaps highlight that high energy related costs (including policy costs) in the UK make it increasingly difficult for EIs to compete with other production locations when seeking investment capital from their multinational owners. Achieving greater energy and carbon efficiency is therefore intimately linked to policies that encourage significant capital investment. Improved access to affordable finance and adequate incentives and grants are critical to facilitate the uptake of proven technologies.

Government also has a key role to play by providing a method for companies to obtain finance at affordable rates or by funding improvement grants. Government may also need to provide support for scrapping less efficient plant, ahead of its natural life, before it is fully depreciated.

It is clear that meeting ambitious targets will also require far greater investment in the development of breakthrough technologies. The high risks associated with investing in unproven technologies, the high level of resources required and the long timescales involved mean that individual companies or sectors are highly unlikely to act in isolation. Government support to incentivise more challenging technological breakthroughs will be essential, including funding (or co-funding) for pre-commercial technologies. Key technologies with broad, cross-sectoral applicability include (but are not limited to) switching to low carbon fuels biomass, industrial CCS, improved energy efficiency/heat recovery, clustering, and electrification of high temperature processes<sup>2</sup>.

The CCC must be prepared to ask politically unpopular questions about the practicality and affordability of deep electricity decarbonisation by 2030 (e.g. in the range 100-50g/kWh) in light of the much slower than expected deployment of CCS and new nuclear power. To date, the UK has yet to start work on a single CCS demonstration project at a coal or gas fired power station and there are serious doubts about when (or even if) a contract might be signed to enable nuclear construction work to start at Hinckley Point. It is unclear therefore whether either technology will be deployable on any significant scale during the 4<sup>th</sup> Carbon Budget period, let alone ahead of it. Unless and until these circumstances change (and EIUG sincerely hopes they do) it would be reckless and irresponsible to recommend a target for the near total decarbonisation of UK electricity supplies by 2030.

For the foreseeable future there will also be a continuing role for gas. Gas is a low carbon energy source relative to the other conventional sources of hydrocarbon like coal and oil which are being phased out as fuels for electricity generation. It is therefore the lowest carbon fuel for backing-up intermittent sources of power and for heating our homes during the low carbon transition. As the CCC has noted the development of indigenous sources of shale gas also offers a source of gas that, if well regulated, offers lower lifecycle carbon emissions than imported sources of liquefied natural gas (LNG). With supplies of gas from the North Sea in decline and imports otherwise projected to rise to 80% by 2030 it will therefore be important to realise this carbon reduction opportunity by encouraging the market driven development of indigenous sources of shale gas.

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[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/419912/Cross\\_Sector\\_Summary\\_Report.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/419912/Cross_Sector_Summary_Report.pdf) Table 1 provides a useful summary

**Question 6** *What, if any, is the role of consumer, individual or household behaviour in delivering emissions reductions between now and 2032? And, separately, after 2032?*

It is not clear what direct role, if any, individual consumers are likely to play in reducing emissions beyond reducing their consumption of energy and other goods in response to increasing prices arising as a result of climate policies (except for their consumption of goods imported from outside the EU, of course, which are not subject to these costs), thus lowering their standard of living. EIUG appreciates that the CCC is obliged to propose a Carbon Budget expressed in terms of *production* emissions, but believes that consideration should also be given to the likely implications of the Budget in terms of *consumption* emissions, which is the more relevant concern as far as global emissions is concerned.

It is worth noting that some EIs manufacture durable products (e.g. for use in construction) that obviate the need for early replacement, and others provide materials and technologies that enable energy carbon reductions across wider sectors of the economy (e.g. materials for insulation and wind turbines). This represents an opportunity for EIs to contribute both to greening and rebalancing the economy towards manufacturing but is contingent on carbon leakage risks being fully addressed. Lifecycle analysis would also help to fully understand the net impact of these industries activities on UK emissions. Without a policy shift to measure emissions based on the whole lifecycle rather than during production only, there is a danger that legislation will misguidedly drive consumers to either products made in less environmentally stringent countries, or to other products with higher annualised emissions over the lifecycle. This approach would be detrimental both to the UK economy and global emissions.

There is an opportunity for CCC to take a stronger leadership role on both these issues.

**Question 7** *Is there evidence to suggest that actions to further reduce emissions after 2032 are likely to be more or less challenging to achieve than actions in the period up to 2032?*

Yes – cheaper options will have already been deployed by this time – absent unforeseeable technological breakthroughs, remaining options are likely to prove exceptionally expensive. (See response to Q3).

To some extent this process has already begun, e.g. for electricity emissions reductions the increasing recent ‘investment’ in highly expensive, subsidy-dependent offshore wind as land use, visual amenity and other sustainability issues constrain the ability to expand the deployment of somewhat less expensive onshore wind and biomass.

**Question 8** *Are there alternatives for closing the ‘policy gap’ to the fourth carbon budget that could be more effective? What evidence supports that?*

For EIs, investment in demonstration, development and implementation of breakthrough technologies in all sectors and measures to encourage investment in state of the art energy efficiency and decarbonisation technologies (both heat and electricity) are essential.

The UK needs a long-term strategy that recognises the strategic economic benefits of maintaining EIs within the UK. Given their importance to the UK economy, the vision should be to develop and grow the world’s most carbon-efficient EIs. This will require open and ongoing dialogue and partnership between Government (various departments), industry and other stakeholders, such as

technology developers / academics, trade unions etc. This EII strategy also needs to be linked to energy policy, environmental policy and other industrial policies (e.g. construction).

As noted earlier, throughout all stages of the transition to a low-carbon economy, energy and carbon costs must remain internationally competitive. Manufacturing capacity cannot be maintained under a unilaterally high cost environment since this damages profitability and stifles investment.

EII sectors are capital-intensive with long-term investment cycles. Consequently, long-term clarity on energy, climate, environmental and innovation policy is vital to underpin high cost, long-term investments in new equipment and innovation required to deliver energy and carbon savings. Continuous alterations to policies and targets leads to uncertainty, deterring such investment and can render existing investments unviable.

For large-scale deployment in industrial on-site, heat applications, a secure supply of competitively-priced, sustainable sources of energy is critical. Without security of supply for the duration of the asset life, the required investment in low carbon fuel will not occur. Even if there is an economic case, fuel switching will not occur without the required sources of energy. It is essential that scarce sources of low carbon energy such as biomass and land are used efficiently and prioritised for best use.

**Question 9** *Are the investments envisaged in the National Infrastructure Plan consistent with meeting legislated carbon budgets and following the cost-effective path to the 2050 target? Would they have wider implications for global emissions and the UK's position in international climate negotiations?*

The NIP currently focuses on low carbon power and investments in off-shore oil and gas, but in longer term there also needs to be greater emphasis on electricity storage. Gas will be required in cost-effective options at least in the short to medium term for industrial and domestic heating and to back up intermittent renewable power generation. The development of the gas network therefore remains a priority, too. Key elements include encouraging the market driven development of indigenous sources of shale gas, and keeping the gas infrastructure policy under review.

As already stated (see question 4) we must ensure that the UK is not simply decarbonising by deindustrialising. Carbon leakage risks need to be fully addressed or the UK's climate change 'leadership' will do little to encourage others to follow.

**Question 10** *As a business, as a Local Authority, or as a consumer, how do carbon budgets affect your planning and decision-making?*

EII businesses compete in fiercely competitive global markets. By their very nature, the international success of EIIs is reliant on competitive energy and carbon prices. Divergence in these costs relative to competitor nations is leading to relocation of production, loss of jobs / skills, financial costs to Government (e.g. benefit payments, lost revenue to HM Treasury) and the potential for net increases in global emissions. High unilateral UK energy or carbon prices cannot be passed through to our customers. EIIs are faced with the certainty that these costs will increase in future, while the level of compensation under measures to mitigate the impact on EIIs are projected to decline and are narrow in their coverage of sectors and businesses. UK climate and energy policies must therefore ensure price differentials are limited for carbon leakage to be avoided.

The existence of Carbon Budgets, and the policy actions to which they give rise, are a deterrent to industrial investment in the UK generally, and to EIs in particular, in the absence either of global commitment to reduce emissions, or certainty that mitigating measures to prevent carbon leakage will be maintained for as long as this inequitable situation persists.

Even where demand has increased for some products as the recession ends, it is proving increasingly difficult to justify investment in new long life (and state of the art energy efficient) assets in the UK since higher UK costs and increased UK uncertainty render the business model less attractive compared to investments in other competitor economies (e.g. USA, Asia, some other EU countries).

**Question 11** *What challenges and opportunities do carbon budgets bring, including in relation to your ability to compete internationally? What evidence do you have for this from your experience of carbon budgets to date?*

As stated above, in the absence of global action on emissions or full compensation to mitigate the effects, the policy actions that arise in order to meet unilateral Carbon Budgets directly undermine the ability of UK manufacturing generally, and EIs in particular, to compete in global markets. Obvious casualties in EI sectors include electro intensive processes such as aluminium and zinc smelting (industries no longer present in England or Wales) and a number of electro-intensive ceramics processes but investment leakage is also evident in sectors such as steel, chemicals paper, cement, glass and ceramics. Not all of this investment leakage is attributable to climate policy, of course. Nevertheless, it is undoubtedly the case that future competitiveness of industrial energy supplies, electricity in particular for some industries, taken cumulatively with the costs of climate-related charges– is a key factor, and in many cases the dominant one, in decisions by internationally owned companies to direct their investment outside the UK to countries which do not expose their EIs to climate policy costs and have no plans to do so now or for the foreseeable future.

**Question 12** *What would you consider to be important characteristics of an effective carbon budget? What is the evidence for their importance?*

An effective carbon budget is one that is credible – i.e. technically feasible with current technologies, affordable, and likely to prove politically tolerable throughout its duration and beyond. Assuming the ultimate objective is to address climate change (and not simply to meet a unilateral national target regardless of the wider consequences) the most important characteristic of an effective carbon budget is its ability to *reduce* global emissions, not *displace* UK emissions. Full costs need to be measured, including the value of current businesses to the UK economy. A realistic proposal needs to be addressed explaining how unilateral costs will be mitigated. We note that the CCC's assessment of the fourth carbon budget concluded that fiscal impacts could be neutral or broadly positive and ask that this be revisited in its work on the fifth carbon budget.

**Question 13** *What evidence should the Committee draw on in assessing the (incremental) impacts of the fifth carbon budget on competitiveness, the fiscal balance, fuel poverty and security of supply?*

The CCC should take into account the findings of ICF's report for BIS on climate policy impacts on international energy prices, and the revision BIS has commissioned which we understand will be published later this year – and the fact that the CCC's own most recent analysis shows a near 100% increase in industrial electricity prices by 2030 as a result of *existing* climate policies. We note that

some UK EITs which are unlikely to be compensated may face even higher prices than those indicated in these reports – and for those that are compensated, the level of mitigation is projected to decline.

The CCC's proposals must consider the probable consequences for security and affordability of baseload electricity supplies should budget constraints imply very high deployment of intermittent power generation technologies such as wind and solar PV, which cannot be relied upon to generate when power is most required (in some cases for days at a time) and the consequent need for potentially expensive flexible conventional backup.

As noted above, the UK roadmaps for the eight heat-intensive sectors should also be included in the assessment as they contain a number of strategic conclusions and potential actions covering relevant areas such as competitiveness, future energy costs, energy supply security and industrial energy policy.

**Question 14** *What new evidence exists on differences in circumstances between England, Wales, Scotland and Northern Ireland that should be reflected in the Committee's advice on the fifth carbon budget?*

Ideological differences should not undermine the long term objective of *cost-effective* decarbonisation of the UK economy. The CCC is entitled to draw attention to the probable consequences for the UK's decarbonisation plans of persisting with extremist anti-nuclear, anti-shale gas, anti-CCS or other anti-environmental policies, as advocated by some devolved governments and single issue pressure groups. Decarbonisation plans for electricity production in Northern Ireland must also recognise the need for generators to compete within a single all-Ireland market.

**Question 15** *Is there anything else not covered in your answers to previous questions that you would like to add?*

Support for heat decarbonisation through the Renewable Heat Incentive is currently funded through general taxation rather than through a levy on gas bills, as originally proposed. If this were to change (in effect an additional and substantial UK-only tax, in addition to EU ETS charges) this would have an enormous and damaging impact on the international competitiveness of industrial gas users.