

## The Fifth Carbon Budget - Call for Evidence

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### Question and Response form

When responding please provide answers that are as specific and evidence-based as possible, providing data and references to the extent possible. Please limit your response to a maximum of 400 words per question.

### **RESPONSE FROM RENEWABLE ENERGY SYSTEMS LTD.**

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## Questions for consideration:

### A. Climate Science and International Circumstances

Climate science and international circumstances are important criteria in setting carbon budgets.

- The science indicates the impacts associated with different levels of climate change and the limit on emissions globally if these risks are to be contained.
- International circumstances inform the prospects of future action to reduce emissions globally, potential requirements of the UK to contribute to those actions, and prospects for low-carbon technology development and carbon pricing.
- The EU places obligations on Member States to reduce emissions to contribute to reductions in the bloc as a whole. These imply a minimum level of effort for the UK's carbon budgets.

The Committee intends to draw primarily on the work of the IPCC, as published in the Fifth Assessment Report, in assessing the implications of climate science for the budget advice

The Committee's advice is based on a climate objective to limit central estimates of temperature rise to as close to 2°C as possible, with a very low chance of exceeding 4°C by 2100 (henceforth referred to as "the climate objective"). This is broadly similar to the UNFCCC climate objective, and that of the EU.

In order to achieve this objective, global emissions would have to peak around 2020, before decreasing to roughly half of recent levels by 2050 and falling further thereafter.

The UNFCCC is working toward a global deal consistent with such reductions. Individual parties are submitting pledges for effort beyond 2020, with the details of the agreement to be discussed in Paris late in 2015.

The EU has agreed a package that requires a reduction in emissions of at least 40% on 1990 levels by 2030, on the way to an 80-95% reduction by 2050. The UK Government supported this package, while arguing for an increase to 50% in the context of a global deal.

The US and China have jointly made pledges for the period beyond 2020. The US has pledged a reduction of 26-28% by 2025 versus 2005, requiring a doubling of the rate of carbon reduction compared to 2005-2020 and on a trajectory to economy-wide cuts of the order of 80% by 2050. China has pledged to peak CO<sub>2</sub> emissions around 2030, and to make best efforts to do so earlier.

**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?*

ANSWER:

We agree that the IPCC's Fifth Assessment Report is the most authoritative and therefore the correct source.

**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?*

ANSWER:

We are hopeful for an ambitious outcome at the UN talks in Paris in terms of global legally-binding greenhouse gas emissions targets that send a strong and positive message to investors in the low carbon market like ourselves, as well as to governments and regulators. We would expect that this would then lead to robust recommendations from the Committee to the UK government for carbon reduction strategies, including greater visibility on the necessary energy mix post-2020, particularly the role that renewable energy is expected to play and the levels of investment needed.

**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?*

ANSWER:

The EU 2030 package as a whole is disappointing. We welcome the EU greenhouse gas target of "at least 40%" reduction and efforts to reform the ETS as a step towards creating an effective carbon price that puts renewables on a level

playing field with fossil fuels. However, the ETS has so far been woefully inadequate in setting a high enough carbon price to drive low carbon investment and the pan-EU renewable energy target of “at least 27% by 2030 is too low as it represents little more than business-as-usual. Analysis by the Commission in its own Impact Assessment prior to the agreement showed that an ambitious 2030 framework including a binding renewable energy target of 30% rather than 27% would deliver more savings in fossil fuel imports and more jobs, as well as being an effective way to make progress to improve Europe’s energy security, competitiveness and climate objectives.

The end of binding national-level targets for Member States raises concerns about how the pan-EU target will be achieved and it is essential that a robust governance system is put in place. The IEA’s Medium-Term Renewable Energy Market Report published in August 2014, in noting that policy and market risks were increasingly presenting challenges in a number of markets to meeting renewable energy deployment objectives, stated that the absence of a binding renewable energy target at national Member State level in the EU raises questions about how effective the overall target can be because it relies on the voluntary approach. It also noted that national targets and National Renewable Energy Plans for 2020 have driven deployment and cost reduction, particularly for onshore wind. We welcomed the announcement by the Commission in February that, as part of the Energy Union proposals, they will put forward a Renewable Energy Package including post-2020 legislation in the form of a Directive, to guarantee that the 2030 climate energy targets are met cost-effectively.

Given the difficulty of reaching agreement on the 2030 package and resistance to national renewables and energy efficiency targets by some Member States such as the UK, we think it is unlikely that discussion on the package will be opened up again.

**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?*

**ANSWER:**

We are of the opinion that legally-binding targets, such as the UK’s 2050 carbon target, and a mechanism to set interim steps and monitor progress, such as the carbon budgets, put the UK in a strong position to influence and lead ambitious action at an international level, as well as providing a clear domestic framework for action and investment.

## B. The cost-effective path to the 2050 target

The carbon budgets need to set a path that is achievable from today without being over-optimistic about what is achievable in later periods to prepare for the 2050 target.

The Committee has previously set out scenarios for 2030 that balance effort before 2030 with potential opportunities from 2030 to 2050. The scenarios aim to include ways of reducing emissions that are likely to be relatively low cost and actions that will develop options that may need to be deployed at scale by 2050.

These scenarios, reviewed in detail in the Committee's report *The Fourth Carbon Budget Review – the cost-effective path to the 2050 target*, include substantial investment in low-carbon power generation, roll-out of low-carbon heat (heat pumps and district heating), development of the markets for ultra-low emissions vehicles and a combination of energy efficiency measures and fuel switching in industrial sectors.

The scenarios also reflect detailed assessments of what is practically deliverable, and the Committee monitors progress towards them as part of its statutory duties. The *2014 Progress Report to Parliament* indicated that current policy would not be enough to meet the fourth carbon budget, but that the 'policy gap' could be closed at affordable cost.

The set of policy options required to close the gap include:

- Strengthening the EU Emissions Trading System.
- Setting a clear objective for Electricity Market Reform (EMR) beyond 2020.
- Focusing on low-cost residential energy efficiency.
- Simplifying policies targeting commercial energy efficiency.
- Tackling financial and non-financial barriers to low-carbon heat.
- Pushing for strong EU targets for new vehicle efficiency in 2030.

The Government has subsequently published various documents, including its formal response, as required under the Climate Change Act, and the National Infrastructure Plan. The Plan includes investments of around £100 billion in low-carbon power generation in the 2020s, in line with the scenarios from the EMR Delivery Plan that reach 100 gCO<sub>2</sub>/kWh by 2030. It also has significant investments in offshore oil and gas and in the road network. This includes £15 billion of new spending on roads and around £50 billion on offshore oil and gas.

**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?*

ANSWER:

It is the UK Government's objective to achieve climate change targets 'as cheaply as possible', according to the Conservative party's 2015 election manifesto. The cheaper and more established renewable power technologies – such as onshore wind and solar – present an opportunity to do this and their deployment must therefore continue beyond 2020. This will reduce the overall cost of renewable energy for the benefit of UK consumers. It will also maximise supply chain and local economic and community benefit. The cost of onshore wind is falling (see, for example, Renewable UK's Onshore Wind Cost Reduction Taskforce Report, April 2015<sup>1</sup>) and continuing to support the cheapest technologies now will stimulate continued technology cost reductions until we can be subsidy-free in the early 2020s. It will also stimulate deployment, ensuring that we reduce emissions (as well as achieve security of supply objectives) and are able to meet 2050 targets in the most cost-effective way.

For more detail, we refer you to the response to this consultation by the British Wind Partnership, of which RES is a member, which cites analysis recently undertaken on our behalf by Baringa. This demonstrates that continued deployment beyond 13GW of onshore wind will be essential in meeting the UK's legally-binding renewable energy target of 2020 (particularly because of an anticipated heat shortfall) and in doing so in the most cost-effective way for the consumer. In addition, there is significant potential post-2020 when it can provide average annual savings of £190million if we have 20GW of capacity and £450million with 30GW by 2030, and continued decarbonisation cost reductions to 2050.

The political climate in which we investors and developers operate, however, is presenting a significant challenge - in particular, the post-election announcements that the Government will seek to end subsidies for onshore wind. In order to shore up investor confidence, it is important that there are no sudden changes to policy, that transition arrangements between support schemes are honoured and that we have visibility and stability on the CfDs and on the Levy Control Framework budget - so a swift announcement on this is important. This will provide certainty to stimulate the supply chain and continued project development, helping to keep costs on a downward trajectory.

Action is also required to support the development of 'enabling technologies' for low carbon generation penetration, such as energy storage and Demand Side Management, to support decarbonisation of the grid and ensure consumers can benefit from the associated cost reductions with least possible delay. This will require modification of the electricity market regulatory framework to remove barriers and

increase opportunities. See answer to Question 15 for further detail.

1. <http://www.renewableuk.com/en/publications/reports.cfm/Onshore%20Wind%20Cost%20Reduction%20Taskforce%20Report>

**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?*

**ANSWER:**

We consider the role of the consumer will become increasingly significant as we increasingly see the evolution from consumer to a 'prosumer', combining energy efficiency and demand reduction with decentralised energy generation and storage through to active engagement in the energy market through Demand Side Management. We are very positive about the speed and diversity of innovation in these sectors coupled with the smart grid technologies that enable the full benefits to be realised. This has to be supported with an appropriate regulatory framework that is able to respond and support these innovative developments.

**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?*

**ANSWER:**

Long-term investor confidence across the whole renewables and low carbon sector is key. Policy certainty stimulates investment and innovation, and also reduces the risk premium for financed infrastructure investments, thereby lowering costs. It should be noted that continuing to encourage and foster those businesses that are currently investing in the more mature and cost-effective technologies, like onshore wind and solar power, will also stimulate growth in the new and emerging technologies (and supply chain) so that they can their reduce their costs and deliver cost-effectively at volume post 2032, when achieving carbon reduction targets will be more challenging.

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

**ANSWER:**

We support the set of policy options outlined above. We would add that setting a framework and objectives for the growth of 'enabling technologies', such as energy storage and demand side management technologies, will also be essential.

In setting a clear objective for EMR beyond 2020, we would include visibility on the LCF.

**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?*

**ANSWER:**

Regarding the UK's current infrastructure pipeline (published in the NIP 2014), RES was one of a number of investors in low carbon infrastructure and representative organisations who raised concerns with the CCC at the end of 2014 about an apparent shift from low carbon to high carbon investment in both energy and transport. For the energy sector, this was largely due to an increase in oil and gas investment (and it was noted that supportive government policies had been put in place to incentivise this). This was based on an analysis of the pipeline by the Green Alliance, which can be found here: [http://www.green-alliance.org.uk/resources/Briefing\\_The%20December%202014%20HM%20Treasury%20Infrastructure%20Pipeline%20FINAL.PDF](http://www.green-alliance.org.uk/resources/Briefing_The%20December%202014%20HM%20Treasury%20Infrastructure%20Pipeline%20FINAL.PDF)

We questioned how this would impact on the ability for the UK to meet future carbon budgets to meet the 2050 target. We understand that further assessment of the implications of this trend was going to be undertaken.

### **C. Budgets and action**

The UK's statutory 2050 target requires actions across the economy to reduce emissions. Many of these actions will be driven by (UK and devolved) Government

policy and implemented by businesses and consumers. There will be an important role for Local Authorities in successful delivery.

Although the carbon budgets do not require specific actions, they provide an important indication of the overall direction that policy will take in future. Once set, carbon budgets can only be changed if there has been a significant change in the relevant circumstances set out in the Climate Change Act.

Feedback from businesses as part of the Committee's 2013 Call for Evidence for the review of the fourth carbon budget was that stability is an important and valuable characteristic of carbon budgets.

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

ANSWER:

As a business, long-term, clear and legally-binding policy is essential in stimulating and maintaining investor confidence. Legislated targets with clear interim steps, such as through the carbon budgets, contribute to this certainty and visibility.

**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?***

ANSWER:

Whilst they do not have direct impact on our ability to compete in external markets, they have a significant impact on the UK's ability to attract finance into the sector and reduce the cost of delivery. Given the international competition to attract this finance, it is very important in terms of our international competitiveness.

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

ANSWER:

Long-term visibility; clear signals on the market place size, opportunity and structure for investors; the expected role of government and regulators in meeting the budgets; and detail on what is expected from each energy sector, including targets.

#### D. Other issues

The Climate Change Act requires that in designing the fifth carbon budget we consider impacts on competitiveness, fiscal circumstances, fuel poverty and security of energy supply, as well as differences in circumstances between UK nations. High-level conclusions on these from our advice on the fourth carbon budget were:

- **Competitiveness** risks for energy-intensive industries over the period to 2020 can be addressed under policies already announced by the Government. Incremental impacts of the fourth carbon budget are limited and manageable.
- **Fiscal impacts.** The order of magnitude of any fiscal impacts through the 2020s is likely to be small, and with adjusted VED banding and full auctioning of EU ETS allowances could be neutral or broadly positive.
- **Fuel poverty.** Energy policies are likely to have broadly neutral impacts on fuel poverty to 2020, with the impact of increases in electricity prices due to investment in low-carbon generation being offset by energy efficiency improvement delivered under the Energy Company Obligation. Incremental impacts through the 2020s are likely to be limited and manageable through a combination of further energy efficiency improvement, and possible income transfers or social tariffs.
- **Security of supply** risks due to increasing levels of intermittent power generation through the 2020s can be managed through a range of flexibility options including demand-side response, increased interconnection and flexible generation. Decarbonisation of the economy will reduce the reliance on fossil fuels through the 2020s and thus help mitigate any geopolitical risks of fuel supply interruption and price volatility.
- **Devolved administrations.** Significant abatement opportunities exist at the national level across all of the key options (i.e. renewable electricity, energy efficiency, low-carbon heat, more carbon-efficient vehicles, agriculture and land use).

**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?*

**ANSWER:**

It is widely acknowledged that green growth can have a positive impact on the UK economy and competitiveness.

As noted above, in assessing the impact of low carbon policy, such as support for renewable energy through levies on consumer energy bills, it is worth acknowledging that increasing deployment of the cheapest renewable energy technologies, such as onshore wind and solar, can help keep bills down as well as mitigating risk from the volatile costs of imported fossil fuels.

It is also worth noting the direct economic benefit provided to communities that host renewable energy infrastructure, particularly onshore wind farms, where the industry has been at the forefront of good practice (see for example RenewableUK: 'Onshore Wind: Our Community Commitment' October 2013). A recent report from BiGGAR Economics for RenewableUK (April 2015) also quantified the overall economic benefit of the onshore wind industry to the UK economy at a national level and broken down by region. It reported that each megawatt of onshore wind installed brings more than £2 million to the UK over its lifetime, with 69% of the industry's total spend remaining in the UK and, on average, 27% of the economic benefits enjoyed in the local authority area around each project.

At RES, we are keenly aware that a key objective of public support for renewable energy is to drive down costs with increasing deployment such that it competes with fossil fuels. Our goal, as publicly stated last year, is for our onshore projects to reach grid parity as soon as possible. This, however, as noted above, needs a sensible transition and an agreed trajectory to reach a subsidy-free future in the early 2020s.

At a project level, as well as providing the traditional community benefit packages, we have developed our own innovative scheme to reduce household energy bills near our onshore wind farms. Under our Local Electricity Discount Scheme (LEDS), residential, commercial and community properties in the vicinity of our new onshore wind farms (of more than 5MW) become eligible for a fixed discount of £200 per year on their electricity bills, which is paid directly to their electricity supplier, regardless of their supplier or the tariff they are on. It is a simple and equitable way for local people to have a financial 'share' in their local wind farm and can help to address fuel poverty.

**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?*

ANSWER:

We refer you to the response from British Wind to this question, which we endorse:

*The Government's decision to cut subsidies for onshore wind will impact the future energy mix. The Committee should consider how this would cut across the spirit of "devo-max" and the commitments made under the aegis of the Smith Commission to the ability of Scotland to deploy electricity capacity of its own choosing within the Levy Control Framework.*

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

ANSWER:

The electricity market regulatory framework needs to be modified to permit the entry of new enabling technologies that will pave the way for a decarbonised, secure and effective electricity system. The UK's ageing national grid is increasingly ill-equipped to cope with the modern day requirement for flexible electricity networks to accommodate changing characteristics on both supply and demand sides, the increasing penetration of low cost renewables and changing 'single largest loss' possibilities. Also, Ofgem's funding regime for grid companies now encourages economic improvement in network performance rather than just the owning and operation of wires. This is leading to grid companies exploring and trialling new innovative technologies and system operation techniques.

A strategic approach is needed to enable timely integration of these new sources of flexibility or 'enabling technologies' – such as energy storage and Demand Side Management – so that consumers can benefit from the associated cost reductions with least possible delay. These cost reductions would arise through the use of

these new enabling technologies to provide services in a number of markets, including the deferral of network investment, operating reserve, energy balancing and frequency response. However, the existing regulated commercial frameworks that govern the electricity industry are structured around the traditional activities of generation and supply, which gives rise to barriers to the commercial deployment of new enabling technologies. These barriers include, for example, non-cost reflective network charging methodologies, design of ancillary services markets and a general lack of efficient market signals and contracting mechanisms to enable a single installation, such as an energy storage facility, to deliver multiple services in support of a secure and economic electricity system.