



House of Commons  
Energy and Climate Change  
Committee

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# Setting the fifth carbon budget

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**Fifth Report of Session 2015–16**





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*Report, together with formal minutes  
relating to the report*

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## The Energy and Climate Change Committee

The Energy and Climate Change Committee is appointed by the House of Commons to examine the expenditure, administration, and policy of the Department of Energy and Climate Change and associated public bodies.

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Evidence relating to this report is published on the [inquiry publications page](#) of the Committee's website.

### Committee staff

The current staff of the Committee are Dr Farrah Bhatti (Clerk), Gavin O'Leary (Second Clerk), Jenny Bird (Senior Committee Specialist), Dr Marion Ferrat (Committee Specialist), Stephen Habberley (Committee Specialist), Joshua Rhodes (Committee Specialist), Jamie Mordue (Senior Committee Assistant), Henry Ayi-Hyde (Committee Support Assistant), and Nick Davies (Media Officer).

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## Summary

The Climate Change Act commits the UK to reducing carbon emissions by at least 80% by 2050, compared to 1990 levels. To meet this target, the UK Government sets carbon budgets, or caps in emissions, for each five-year period between 2008 and 2050. The budgets are important stepping stones on the path to 2050 and provide the certainty needed for policy decisions and investment to take place.

The level of four carbon budgets have so far been set in law, covering the period up to 2027. The UK is currently on track to meet the first three carbon budgets but there are questions about whether adequate policies are in place to meet the emissions reductions needed in the late 2020s under the fourth carbon budget period. As required by the Act, the Secretary of State must set the level of the fifth carbon budget (for the period from 2028 to 2032) by 30 June 2016.

In November 2015, the Committee on Climate Change (CCC) published its advice on the level of fifth carbon budget and recommended that it should be set at 1,765 million metric tons of carbon dioxide equivalent (MtCO<sub>2</sub>e), including 40 MtCO<sub>2</sub>e emissions from international shipping. The CCC has produced robust advice that is in line with previous budgets and with the overall trajectory towards meeting the 2050 target. Our principal recommendation is that the Government should set the fifth carbon budget at the level recommended by the CCC. Should the Government deviate from the CCC's advice on the level of the fifth carbon budget, we will be looking carefully for a robust evidence-base on any alternative level proposed.

Further recommendations we make include:

- The fifth carbon budget should include emissions from international shipping, as advised by the CCC. We also urge the Government to work with international partners to secure an agreed international mechanism for controlling international aviation emissions.
- In the light of the climate agreement in Paris, the CCC and the Government must carry out further analyses as to what levels of emissions reduction may be required in the future to meet the more ambitious goal of limiting global temperature increase to 1.5 degrees Celsius.
- It is important that genuine action takes place in the power sector, not least as electrification of other sectors such as heat and transport becomes more prominent. The Government should set a power sector carbon intensity target of 100 gCO<sub>2</sub>/kWh for 2030 to provide the investment certainty needed.
- Uncertainties about the UK's share of the EU Emissions Trading System (ETS) cap for the period of the fifth carbon budget result in uncertainties in the share of the budget for the non-traded sectors such as heat, transport and buildings. We support the CCC's approach to dealing with the problem, that is to fix the net carbon budget for the traded sector at 590 MtCO<sub>2</sub>e over 2028–2032, thereby limiting emissions for the non-traded sector. However this support is conditional on Government clearly explaining how any discrepancies will be dealt with once the UK's share of the EU ETS cap is known.

Effectively meeting the Climate Change Act and the commitments made in Paris will require action across the board. The Government's emissions reduction plan, which it said it will publish by the end of the year, will be crucial in providing policy certainty across sectors. We will pay close attention to the development of this plan. We have already set out in recent reports what more Government must do to build investor confidence and tackle energy efficiency, and our scrutiny of DECC's policies in heat and transport is also underway.

# 1 Introduction

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1. The 2008 Climate Change Act commits the UK to reducing carbon emissions by at least 80% by 2050 compared to 1990 levels.<sup>1</sup> To meet this commitment, the Act requires the Government to set “carbon budgets” in law,<sup>2</sup> with specific emissions reduction targets for each period leading up to 2050. Carbon budgets are a cap on the emissions allowed over successive five-year periods. They effectively serve as stepping stones on the way to the 2050 target. The Act also set up an independent body, the Committee on Climate Change (CCC), to advise the Government on the appropriate level for each carbon budget period. To fulfil its role, the CCC carries out modelling and projections to determine the level at which the budgets should be set, and provides its analysis and advice to Government before it sets each budget. In providing this advice the CCC assesses, by sector, what can be achieved to reduce emissions at least cost, taking account of available technologies and Government policy.

2. Once the level of a given carbon budget is set, the Government develops further detailed plans to ensure that policies are in place to help deliver the required level of emissions reduction over the years ahead. The CCC must produce an annual report to Parliament and the devolved legislatures, setting out the CCC’s views on the progress that has been made towards meeting the carbon budgets already set, the further progress that is needed to meet those budgets and the 2050 target, and whether these are likely to be met.

3. Four carbon budgets have so far been set in law, covering the period up to 2027. The first three budgets were set in May 2009 through the Carbon Budgets Order 2009.<sup>3</sup> The Carbon Budget Order 2011, approved by the House on 28 June 2011,<sup>4</sup> set the fourth budget for the period from 2023 to 2027.<sup>5</sup>

4. The level at which a carbon budget is set must be fixed in legislation “not later than 30th June in the 12th year before the beginning of the period in question”.<sup>6</sup> The Secretary of State must therefore set the level of the fifth carbon budget (covering the period from 2028 to 2032) by 30 June 2016. As required by the Act,<sup>7</sup> the CCC carried out analyses and produced its advice to the Secretary of State on the level at which it should be set. This advice was published on 26 November 2015<sup>8</sup> and was accompanied by a technical report setting out the CCC’s full analysis.<sup>9</sup> Taking into account this advice and any representations made by the other national authorities, the Secretary of State must now set the carbon budget by laying a draft statutory instrument before Parliament. If the Government chooses to set the budget at a different level from that recommended by the CCC, the Act requires the Secretary of State to “also publish a statement setting out the reasons for that decision”.<sup>10</sup>

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1 Climate Change Act 2008, [section 1](#)

2 Climate Change Act 2008, [section 4](#)

3 Carbon Budgets Order 2009, [SI 2009/1259](#)

4 House of Commons Votes and Proceedings, [Tuesday 28 June 2011](#)

5 Carbon Budget Order 2011, [SI 2011/1603](#)

6 Climate Change Act 2008, [section 4](#)

7 Climate Change Act 2008, [section 7, 34](#)

8 Committee on Climate Change, [The Fifth Carbon Budget, The next step towards a low-carbon economy](#) (November 2015)

9 Committee on Climate Change, [Sectoral scenarios for the fifth carbon budget](#) (November 2015)

10 Climate Change Act 2008, [section 9](#)

5. We launched our inquiry *Setting the fifth carbon budget* on 2 December 2015,<sup>11</sup> to seek views on the CCC's advice, inform the Government's decision on whether to set the fifth carbon budget in legislation in line with this advice, and explore the main challenges the UK will face in meeting this budget. We received 45 pieces of written evidence, which can be found on our website,<sup>12</sup> and held three oral evidence sessions with stakeholders from industry, academia and third sector organisations, the CCC, and the Department of Energy and Climate Change (DECC). We are grateful to all those who took the time to contribute to this inquiry.

6. Chapter 2 of this report outlines the main CCC recommendations, the evidence we received as to whether these should be followed by the Secretary of State when setting the level of the fifth carbon budget, and our recommendations for the budget. In Chapter 3, we discuss in more detail the main policy challenges in meeting the fifth carbon budget across different sectors, what drivers may help address these challenges, and the need to set a clear, long-term policy framework to ensure that the UK is on the right track to drive the necessary investment to meet its target.

**Box 1: Working towards our goals**

At the start of the 2015 Parliament we set out three goals for our scrutiny work:

- Holding the Government to account on achieving a balanced energy policy;
- Setting the agenda on an innovative future energy system; and
- Influencing the long-term approach to climate targets.\*

Our work on setting the fifth carbon budget and this report are primarily focussed on our goal to influence the long-term approach to climate targets. Throughout the course of this Parliament, we welcome feedback on our work towards our goals.

\*Energy and Climate Change Committee, First report of session 2015-16, [Our priorities for Parliament 2015–20](#), HC 368, para 35-37

11 Energy and Climate Change Committee, '[Committee launches inquiry on setting the fifth carbon budget](#),' accessed 4 April 2016

12 Energy and Climate Change Committee, '[Setting the fifth carbon budget inquiry - publications](#),' accessed 4 April 2016

## 2 The fifth carbon budget advice

### Setting the level of the fifth carbon budget

7. In its advice published on 26 November 2015, the CCC recommended that the fifth carbon budget should be set at 1,765 MtCO<sub>2</sub>e<sup>13</sup> including 40 MtCO<sub>2</sub>e emissions from international shipping, or 1,725 MtCO<sub>2</sub>e on the current accounting basis (which excludes international shipping).<sup>14</sup> This would limit annual emissions to an average 57% below 1990 levels (Table 1), “[keep] the UK on its cost-effective path to 2050 and [continue] the UK’s historical rate of emissions reduction”.<sup>15</sup>

8. The majority of contributors to this inquiry (over half of the written evidence received) representing a range of stakeholders supported setting the budget at the level suggested by the CCC<sup>16</sup> and agreed with the proposed trajectory towards an 80% reduction in greenhouse gas emissions by 2050 and a low carbon economy.<sup>17</sup> Furthermore, two thirds of the evidence called for the budget to be set either at the proposed level or at a tighter, more ambitious one. We heard that it was “imperative that the Government sets the [...] budget in line with the CCC’s advice”<sup>18</sup> and that this would “give businesses the certainty to plan, innovate and invest”.<sup>19</sup>

9. Some stakeholders highlighted concerns with aspects of the CCC’s advice in specific sectors.<sup>20</sup> The Mineral Products Association judged that:

The Government should not adopt the Fifth Carbon Budget until sufficient safeguards are put in place to ensure that the Budget can be met entirely by UK domestic action and not by exporting UK manufacturing and emissions [...]. A re-evaluation of the Fifth Carbon Budget, and a clearer alignment to Government policy, is necessary to give industry confidence that the Budget is achievable.<sup>21</sup>

One submission disagreed with the process of setting domestic carbon budgets in general, in the absence of such caps internationally.<sup>22</sup> Another individual questioned the science behind the CCC’s conclusions and queried the CCC Members’ independence in assessing this science.<sup>23</sup> However, overall views of the CCC’s approach and the process by which it

13 Million metric tons of carbon dioxide equivalent. This measure can aggregate different greenhouse gases into a single measure, using global warming potentials. One unit of carbon is equivalent to 3.664 units of carbon dioxide.

14 Committee on Climate Change, *The Fifth Carbon Budget, The next step towards a low-carbon economy* (November 2015), p 12

15 Committee on Climate Change, *The Fifth Carbon Budget, The next step towards a low-carbon economy* (November 2015), p 11

16 Q2 [Dr Skorupska, Philip Sellwood, Lawrence Slade], Q63 [Dr McElroy, Dr Clarke], Marks and Spencer (FCB 003) para 8, Energy Technologies Institute (FCB 009) para 2, Grantham Institute Imperial College London (FCB 010), Scottish Carbon Capture and Storage (FCB 011) para 4.1, Energy Saving Trust (FCB 023) para 2, RenewableUK (FCB 026) para 2, Scottish Renewables (FCB 029), EDF Energy (FCB 030) para 11, Oil and Gas UK (FCB 031), RES (FCB 034), Statkraft (FCB 036) para 6, Renewable Energy Association (FCB 037) para 1, Tees Valley Unlimited (FCB 038) para 1.3, Aldersgate Group (FCB 040) para 8, RSPB (FCB 046), WWF-UK (FCB 047) para 1

17 Q63 [Dr McElroy], Oil and Gas UK (FCB 031), Statkraft (FCB 036) para 1

18 ClientEarth (FCB 049)

19 Vattenfall (FCB 018)

20 Renewable Energy Association (FCB 037) para 2, Tyndall Centre for Climate Change Research (FCB0048) para 13

21 Mineral Products Association (FCB 043) para 1, 5

22 Dave Campbell (FCB 050) para 3, 10

23 Alex Henney (FCB 006)

reached its conclusions were positive.<sup>24</sup> We heard that the CCC was “doing a pretty good job in providing a level of analysis on the budgets”,<sup>25</sup> that it “take[s] a fairly thorough and comprehensive approach”<sup>26</sup> and “produce[s] very professional, highly robust and scientifically relevant reports”.<sup>27</sup> Philip Sellwood, CEO of the Energy Saving Trust, added that he was “extremely impressed with the constructive nature of the CCC under its current leadership”.<sup>28</sup> Lord Bourne of Aberystwyth, Parliamentary Under-Secretary of State for Climate Change, said that the Government took “the advice of the Committee on Climate Change [...] very seriously”.<sup>29</sup> He stressed the importance of carbon budgets and of ensuring that the UK takes domestic action to mitigate against global climate change:

We are committed to the Climate Change Act. We believe it is the right way forward and it is totally inappropriate, I think, to say that our position is minor. If every country adopted that process, it would lead us to hell in a handcart very quickly.<sup>30</sup>

**Table 1: UK carbon budgets to date**

Budget	Carbon budget level	% reduction below base year (1990)
1st Carbon budget (2008–12)*	3,018 MtCO <sub>2</sub> e	23%
2nd Carbon budget (2013–17)	2,782 MtCO <sub>2</sub> e	29%
3rd Carbon budget (2018–22)	2,544 MtCO <sub>2</sub> e	35% by 2020
4th Carbon budget (2023–27)	1,950 MtCO <sub>2</sub> e	50% by 2025
5th Carbon budget (2028–32)**	1,765 MtCO <sub>2</sub> e	57% by 2030

\*The first to fourth budgets have been set in law at these levels.

\*\*CCC’s advice on the fifth carbon budget, to which the Government must respond by 30 June 2016.

10. When it published its advice, the CCC said that it would revisit it following the outcome of the international climate change negotiations at the 21st Conference of Parties (COP21) in Paris in December 2015.<sup>31</sup> Global ambition at the meeting was higher than anticipated, with world leaders agreeing to collectively aim to:

Strengthen the global response to the threat of climate change [...] by holding the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels”.<sup>32</sup>

24 Q8 [Lawrence Slade, Philip Sellwood], Qq64–65 [Dr Clarke, Dr McElroy], Grantham Institute Imperial College London ([FCB 010](#)), Centre for Industrial Energy, Materials and Products ([FCB 019](#))

25 Q8 [Dr Leese]

26 Q64 [Dr McElroy]

27 Q8 [Professor Barrett]

28 Q8 [Philip Sellwood]

29 Q121 [Lord Bourne]

30 Q128 [Lord Bourne]

31 Committee on Climate Change, ‘[Domestic implications of the “Paris Agreement” to combat climate change](#),’ accessed 18 April 2016

32 United Nations Framework Convention on Climate Change, [Adoption of the Paris agreement](#) (December 2015), p 22

On 28 January 2016, the CCC wrote to the Secretary of State explaining that:

This increase in ambition raises the question of whether the fifth carbon budget should be tighter than we have proposed. Our judgement is that our existing recommendation [as published on 26 November 2015] is sufficient at this time, although a tighter budget may be needed in the future.<sup>33</sup>

11. In light of the outcome of COP21, we heard from stakeholders that the fifth carbon budget level suggested by the CCC should be considered a minimum level of ambition,<sup>34</sup> and that subsequent budgets might need to be tighter than the current trajectory modelled by the CCC.<sup>35</sup> The Grantham Institute at the London School of Economics warned that:

In light of the Paris Agreement the Government should consider, in due course, recommendations from the Committee on Climate Change about amendments to the Act to account for the global objectives of [COP21]. Such amendments may in turn require a subsequent review of existing carbon budgets.<sup>36</sup>

However, Oil and Gas UK stated that they did “not believe the agreement alone justifies a revision to either the existing EU energy and climate package for 2030 or to the advice on the Fifth Carbon Budget”.<sup>37</sup>

12. Some organisations called for the proposed fifth carbon budget itself to be tightened.<sup>38</sup> Professor John Barrett from the Centre for Industrial Energy, Materials and Products explained:

We would suggest that the budget needs to be tighter. The main reason for that is that it accepts a low probability of achieving two degrees. It fails to address the recent Paris agreement and potential ambition to reach 1.5 degrees.<sup>39</sup>

13. The Government told us it was “still in the process of considering what would be an appropriate budget level”, but “remains committed to the Climate Change Act and to meeting our target of an at least 80% reduction in greenhouse gas emissions by 2050”.<sup>40</sup> While stressing that he could not provide specific information on the Government’s plans to set the budget, Lord Bourne emphasised that “we have always followed [the CCC’s] budgets previously”.<sup>41</sup>

33 Committee on Climate Change, *Letter to Rt Hon Amber Rudd MP on the Implications of the Paris agreement for the fifth carbon budget* (January 2016), p 2

34 Q2 [Dr Skorupska, Philip Sellwood], RES ([FCB 034](#)), Aldersgate Group ([FCB 040](#)) para 7, Greenpeace ([FCB 041](#)), WWF-UK ([FCB 047](#)) para 1

35 EDF Energy ([FCB 030](#)) para 3, Grantham Research Institute on Climate Change and the Environment at the London School of Economics ([FCB 039](#)) para 5

36 Grantham Research Institute on Climate Change and the Environment at the London School of Economics ([FCB 039](#)) para 2

37 Oil and Gas UK ([FCB 031](#))

38 Fleming Policy Centre ([FCB 016](#)) para 1.8, Centre for Industrial Energy, Materials and Products ([FCB 019](#)), Energy Saving Trust ([FCB 023](#)) para 2, Friends of the Earth ([FCB 025](#)), Sandbag Climate Campaign ([FCB 045](#)), Tyndall Centre for Climate Change Research ([FCB0048](#)) para 1, ClientEarth ([FCB 049](#))

39 Q4 [Professor Barrett]

40 Department of Energy and Climate Change ([FCB 020](#))

41 Q121 [Lord Bourne]

### Principal recommendation

14. The Committee on Climate Change (CCC) has produced a robust report, and the proposed level of the fifth carbon budget is in line with previous budgets as well as the overall trajectory towards meeting the 2050 statutory emissions reduction target. The Government has not deviated from the CCC's advice in the past and we would not expect it to do so now.

15. *Our principal recommendation in this report is that the Government should set the overall level of the fifth carbon budget, in line with the CCC's recommendation, at 1,765 MtCO<sub>2</sub>e for the period from 2028 to 2032, or 1,725 MtCO<sub>2</sub>e on the current accounting basis. We agree with the CCC's conclusion that this level remains appropriate following the outcome of COP21 but we urge the CCC and the Government to carry out further analyses as to what levels of emissions reduction may be required to contribute to the increased ambition of the Paris Agreement. The Act requires the Government to publish a statement should it deviate from the CCC's advice. Should this happen, we will be looking carefully for a robust evidence-base on any alternative level proposed by Government.*

### International shipping and aviation emissions

16. The current basis of carbon budget accounting excludes international aviation and shipping. In its fifth carbon budget advice, the CCC recommended that the scope of the budget be broadened to include international shipping for the first time.<sup>42</sup> It did not specifically recommend including international aviation emissions, given “continuing uncertainties over aviation’s accounting within the EU [Emissions Trading System]”,<sup>43</sup> but did recommend that emissions from aviation continue to be allowed for in budgets by setting them consistent with their inclusion in the 2050 target:<sup>44</sup>

Emissions from international aviation should continue to be allowed for by setting the budget on the path to meeting the 2050 target with international aviation emissions included. However, the accounting for these emissions remain uncertain, so they should not be formally included in the fifth carbon budget.<sup>45</sup>

17. Jerome Glass, Deputy Director, Strategy at DECC, said that “part of the issue with international aviation and shipping is that there are international accounting systems that relate to them that are not quite settled yet. Part of the difficulty is working out how those international accounting systems fit with the carbon budget”.<sup>46</sup> However, the CCC told us that:

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42 Committee on Climate Change, [The Fifth Carbon Budget, The next step towards a low-carbon economy](#) (November 2015), p 119

43 Committee on Climate Change, [The Fifth Carbon Budget, The next step towards a low-carbon economy](#) (November 2015), p 14

44 Committee on Climate Change, [The Fifth Carbon Budget, The next step towards a low-carbon economy](#) (November 2015), p 14

45 Committee on Climate Change, [The Fifth Carbon Budget, The next step towards a low-carbon economy](#) (November 2015), p 12

46 Q152 [Jerome Glass]

There are no significant challenges in the formal accounting for emissions from international shipping. They are already included in the UK emissions inventory that tracks all emissions included in carbon budgets, and they are already reported on this basis to the relevant committee of the United Nations.<sup>47</sup>

Many witnesses strongly supported the inclusion of international shipping,<sup>48</sup> as “the Committee makes a convincing case that measurement and monitoring for international shipping have been resolved, and it is important to bring this emission source into the accounting framework”.<sup>49</sup>

18. While agreeing that these emissions should be included, the Tyndall Centre for Climate Change Research warned that the methodology for doing so was inappropriate:

While the advice to include shipping within carbon budgets is welcome, an intention to use bunker sales for this is inappropriate (unlike for aviation) as they are not a fair representation of UK shipping activity. [...] For shipping, the projection of 40MtCO<sub>2</sub> by 2050 should be revisited.<sup>50</sup>

19. We heard that the continued exclusion of aviation could become problematic, and that it “reduces pressure on [...] international bodies to deliver meaningful mitigation policy”.<sup>51</sup> Professor John Barrett, Chair in Energy and Climate Policy at the Centre for Industrial Energy, Materials and Products, told us that “it is very difficult to understand how ambitious targets could be achieved when potentially we leave out sectors and do not define a role for individual sectors, and I would include aviation in that”.<sup>52</sup> The Aviation Environment Federation, an NGO concerned with the environmental impacts of aviation, explained that:

It is particularly important that the fifth carbon budget reflects the need for aviation to play a part in delivering the 80% emissions cut to which the UK is legally committed in order to provide the appropriate framework for future policy. While we are disappointed that the CCC has not recommended formal inclusion of aviation in the budget, which would provide greater certainty in relation to the sector’s future development, we consider the CCC’s recommended approach of setting the budget with a view to aviation’s formal inclusion in future budgets to provide a ‘next best’ alternative [...] It is not critical as long as the current approach of setting aside headroom with a view to the sector’s future inclusion is continued.<sup>53</sup>

The CCC told us that the International Civil Aviation Organisation (ICAO) would be meeting later this year to agree an international mechanism for controlling international aviation emissions, and that, if agreed, the CCC “will assess the implications for carbon budgets”.<sup>54</sup>

47 [Letter](#) from Lord Deben to the Chair of the Energy and Climate Change Committee (March 2016)

48 Q50 [Professor Barrett], Centre for Industrial Energy, Materials and Products ([FCB 019](#)), Grantham Research Institute on Climate Change and the Environment at the London School of Economics ([FCB 039](#)) para 2, Tyndall Centre for Climate Change Research ([FCB 048](#)) para 14, ClientEarth ([FCB 049](#))

49 Grantham Research Institute on Climate Change and the Environment at the London School of Economics ([FCB 039](#)) para 7

50 Tyndall Centre for Climate Change Research ([FCB 048](#)) para 17

51 Tyndall Centre for Climate Change Research ([FCB 048](#)) para 16

52 Q25 [Professor Barrett]

53 Aviation Environment Federation ([FCB 013](#))

54 [Letter](#) from Lord Deben to the Chair of the Energy and Climate Change Committee (March 2016)

20. *We support the inclusion of emissions from international shipping in the fifth carbon budget and recommend that the Government follow the advice of the CCC to broaden the scope of the budget accordingly.*

21. *We urge Government to work with international partners to secure progress on the issue of international aviation at the upcoming International Civil Aviation Organisation (ICAO) meeting in 2016. We recommend that the CCC report back to us and DECC on this after the meeting and produce an update on the inclusion of international aviation, and how it could be formally included in future carbon budgets.*

## Accounting issues

22. The Climate Change Act sets limits on the UK's 'net carbon account' for 2050 and each carbon budget period. The net carbon account is calculated by adjusting UK emissions of greenhouse gases for any carbon credits bought or sold in international markets by UK firms or the government.<sup>55</sup> As required in the Climate Change Act,<sup>56</sup> the CCC must identify the respective contributions towards meeting the overall carbon budget that should be made by the so-called 'traded' and 'non-traded' sectors. Traded sectors are those sectors of the economy covered by the EU Emissions Trading System, or EU ETS, primarily electricity generation and energy-intensive industry. The 'non-traded' sector refers to sources of emissions outside the EU ETS, including transport, heating in buildings, agriculture, waste and some industry. If international shipping is included in the budget as recommended by the CCC, an additional contribution of 40 MtCO<sub>2</sub>e would be added to the fifth carbon budget in addition to the cap on emissions from the traded and non-traded sectors of the economy.<sup>57</sup>

23. The traded sector's share of the fifth carbon budget is determined by the UK's share of the EU ETS cap for the period 2021-2030, which is currently uncertain.<sup>58</sup> The CCC have carried out analyses as to what this cap could be, and concluded that the best estimate was 590 MtCO<sub>2</sub>e over the fifth carbon budget period.<sup>59</sup> As the total cap for the fifth carbon budget period is the sum of the traded and non-traded caps, the total emissions allowed in the non-traded sector will depend on that of the traded sector as set by the EU ETS. Uncertainties over the traded sector emissions therefore result in uncertainties in the non-traded sector.

24. To address this issue, the CCC has recommended using the Carbon Accounting Regulations to fix the net carbon account for the traded sector at the assumed level (i.e. 590 MtCO<sub>2</sub>e over 2028–2032), thereby limiting emissions to 1,135 MtCO<sub>2</sub>e over 2028–2032 for the non-traded sector.<sup>60</sup> While some contributors to our inquiry agreed that the CCC's approach would provide certainty and a credible signal to businesses about the

55 Committee on Climate Change, [Fourth carbon budget review – part 2](#) (December 2013), p 21

56 Climate Change Act 2008, [section 34](#)

57 Committee on Climate Change, [The Fifth Carbon Budget, The next step towards a low-carbon economy](#) (November 2015), p 119

58 Committee on Climate Change, [The Fifth Carbon Budget, The next step towards a low-carbon economy](#) (November 2015), p 41-42

59 Committee on Climate Change, [The Fifth Carbon Budget, The next step towards a low-carbon economy](#) (November 2015), p 42

60 Committee on Climate Change, [The Fifth Carbon Budget, The next step towards a low-carbon economy](#) (November 2015), p 124

level of emission reductions that needs to be delivered across the UK economy,<sup>61</sup> others raised concerns about the difficulties in dealing with the complex accounting issues and did not support the implementation of this recommendation.<sup>62</sup> Oil and Gas UK were “concerned that this proposal may have an adverse effect”,<sup>63</sup> and RWE warned that “the EU ETS should remain the primary mechanism for achieving cost-effective reductions in the energy and industrial sectors covered by the scheme”.<sup>64</sup> RWE npower’s Director of Policy and Public Affairs, Dr John McElroy, explained that:

There is a certain amount of finger in the air on this because the Climate Change Committee has to take a best guesstimate of what it thinks the EU ETS bubble or cap for the UK is. The issue is if it gets that wrong [...] what does the Government then do about the difference between the UK carbon budget and the ETS cap?<sup>65</sup>

While he supported the CCC’s recommendation,<sup>66</sup> Dr David Clarke, Director of the Energy Technologies Institute (ETI), explained that “it is quite a challenge and it is one that has been addressed probably as well as possible so far. The challenge is this point around trying to produce a view of what is stable and clear but at the same time they have to retain a degree of flexibility”.<sup>67</sup> He added that the ETI’s own analyses were in line with the CCC’s.<sup>68</sup>

25. The CCC’s report explained that:

There is a specific risk that the accounting rules for the EU ETS, which are not yet finalised for the fifth carbon budget period, could undermine the integrity of the budget. If the UK ends up with a smaller share of the EU ETS cap than assumed in our analysis, then the budget could be met with less effort from the rest of the economy [the non-traded sector], and vice versa. The intention of the proposed budget is that emissions in the non-traded sector should fall an average of 2% (6 MtCO<sub>2</sub>e) annually to 2030, whatever the UK share of the EU ETS cap. To ensure this is clear, we recommend that the Government uses the Carbon Accounting Regulations to fix the net carbon account for the traded sector at the assumed level (i.e. 590 MtCO<sub>2</sub>e over 2028–2032).<sup>69</sup>

Matthew Bell, CEO of the CCC, explained that the CCC’s recommendation was “a way of fixing the accounting framework such that the actions that we envision being taken—the actions in transport, in buildings, on the power section and elsewhere—are actually taken”.<sup>70</sup> Lord Bourne said that DECC was looking at this recommendation “very seriously” but he did not comment on the advantages or disadvantages of accepting it. He explained:

61 Energy Technologies Institute ([FCB 009](#)) para 7, Renewable Energy Association ([FCB 037](#)) para 6, Aldersgate Group ([FCB 040](#)) para 10, Sandbag Climate Campaign ([FCB 045](#))

62 Energy UK ([FCB 012](#)) para 2.3

63 Oil and Gas UK ([FCB 031](#))

64 RWE npower ([FCB 022](#)) para 1.9

65 Q66 [Dr McElroy]

66 Q66 [Dr Clarke]

67 Q66 [Dr Clarke]

68 Q66 [Dr Clarke]

69 Committee on Climate Change, *The Fifth Carbon Budget, The next step towards a low-carbon economy* (November 2015), p 13

70 Q104 [Matthew Bell]

More broadly the accounting framework is an issue that has to be looked at, perhaps, but that is beyond the immediate scope of the fifth carbon budget. I suspect it involves wider considerations, but once again, yes, of course, we will look at the advice very carefully, study it very carefully and respond appropriately.<sup>71</sup>

**26. We recognise that given current uncertainties in the UK's share of the EU ETS cap, there are legitimate concerns about the CCC's recommendation to fix the net carbon budget for the traded sector at the assumed level (i.e. 590 MtCO<sub>2</sub>e over 2028-2032), thereby limiting emissions to 1,135 MtCO<sub>2</sub>e over 2028-2032 for the non-traded sector. The key challenge is providing a clear signal to both the traded and non-traded sectors, whilst retaining the flexibility to respond to changes in the traded sector once the UK's share of the EU ETS cap is agreed. The Government should set out clearly how it would deal with a discrepancy between the assumed level for the traded sector and the actual level once set. If clarity on this can be provided, we would support fixing the net carbon budget for the traded sector at 590 MtCO<sub>2</sub>e over the fifth carbon budget period. Over the longer-term the CCC should review the pros and cons of changing accounting methodology to ensure that we have the most robust framework in place to achieve emissions reduction.**

27. While carbon budgets account for emissions produced on UK soil, they exclude emissions embodied in materials and products produced elsewhere but imported in the UK ("consumption emissions"). Dr Richard Leese, Director for Energy and Climate Change at the Mineral Products Association, explained that:

The consumption emissions that are imported into the UK in manufactured goods are missing from the current carbon budget. We are at a stage of maturity now with our carbon accounting whereby we should be taking that into consideration.<sup>72</sup>

Professor John Barrett, from the Centre for Industrial Energy, Materials and Products, explained that the Government have put the accounting in place to measure consumption-based emissions and that these numbers were used by the Department for Environment, Food and Rural Affairs (Defra) but not DECC.<sup>73</sup> He questioned whether DECC "were very anti extending or including indicators that might question progress".<sup>74</sup> However, Lord Deben, Chair of the CCC, warned that accounting for these emissions presented challenges:

At the moment we account for those emissions over which we have control. If you do your own emissions, the emissions you create in your own country, you can control those to a very large extent. If you measured emissions on the basis of your consumption, you would be measuring an awful lot of emissions over which you have no control at all except not to import that product or whatever it may be. [...] I think it is right to do two things. One is to account for your emissions nationally, the emissions you create, and you do that all over the world. The second thing is from time to time to do an assessment as to what it

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71 Q132 [Lord Bourne]

72 Q2 [Dr Leese]

73 Q13 [Professor Barrett]

74 Q19 [Professor Barrett]

means as far as our consumption emissions are, and that is what we have done once and we will do again, so that all the time you are seeing your national emissions in that context.<sup>75</sup>

***28. While accounting for emissions from products consumed in the UK but produced elsewhere may be complex, it is important to properly understand the full extent of the UK's carbon emissions. We recommend that DECC work with the CCC to explore the options for incorporating consumption-based emissions data into their policy-making process and the potential for including these in future carbon budgets.***

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75 Q106 [Lord Deben]

## 3 A framework for meeting the carbon budgets

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### Developing an emissions reduction plan

29. As soon as is reasonably practicable after making an order setting the carbon budget for a budgetary period, the Secretary of State must lay before Parliament a report setting out proposals and policies for meeting the carbon budgets for the current and future budgetary periods up to and including that period.<sup>76</sup> The Climate Change Act explains that:

The report must, in particular, set out (a) the Secretary of State’s current proposals and policies [...], and (b) the time-scales over which those proposals and policies are expected to take effect. [...] The report must explain how the proposals and policies set out in the report affect different sectors of the economy [and] outline the implications of the proposals and policies as regards the crediting of carbon units to the net UK carbon account for each budgetary period covered by the report.<sup>77</sup>

30. The last report, referred to as the “carbon plan” was published in December 2011, setting out proposals for meeting the first four carbon budgets.<sup>78</sup> In 2013, the Environmental Audit Committee warned in its report on carbon budgets that “the Carbon Plan—the Government’s plan for meeting the carbon budgets—is out of date and requires revision”.<sup>79</sup> The CCC warned in its 2015 progress report to Parliament that there currently is a “policy gap,” whereby a shortfall in terms of the carbon savings that are required to meet the budgets can be expected, even if all current policies are delivered in full. The report concluded that “action is needed in this Parliament to ensure the pace of emissions reduction accelerates whilst supporting economic growth”.<sup>80</sup> In their response to the CCC’s June 2015 Progress Report, the Government stated:

After we set the fifth carbon budget (by the end of June 2016), we will be able to set out more detail about our expectation for how we intend to meet the targets. Our new emissions reduction plan towards the end of 2016 will set out our proposals in full.<sup>81</sup>

Many contributors stressed that addressing this policy gap and meeting the targets will require Government to provide consistent messages as to the direction of policy over the next decades.<sup>82</sup> We heard that setting the carbon budgets was an integral part of this signal.<sup>83</sup>

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<sup>76</sup> Climate Change Act 2008, [section 14](#)

<sup>77</sup> Climate Change Act 2008, [section 14](#)

<sup>78</sup> HM Government, [The Carbon Plan: Delivering our low carbon future](#) (December 2011)

<sup>79</sup> Environmental Audit Committee, Fifth Report of Session 2013-14, [Progress on Carbon Budgets](#), HC 60, para 68

<sup>80</sup> Committee on Climate Change, [Reducing emissions and preparing for climate change: 2015 Progress Report to Parliament](#) (July 2015), p 9

<sup>81</sup> HM Government, [Government response to the Committee on Climate Change](#) (October 2015), p 6

<sup>82</sup> Q70 [Dr McElroy], Energy Technologies Institute ([FCB 009](#)) para 4, Grantham Institute, Imperial College London ([FCB 010](#)), Statkraft UK Ltd ([FCB 036](#)) para 7, Tees Valley Unlimited ([FCB 038](#)) para 4.1, Grantham Research Institute on Climate Change and the Environment at the London School of Economics ([FCB 039](#)) para 2, WWF-UK ([FCB 047](#)) para 15

<sup>83</sup> CPL industries ([FCB 014](#)) para 3.1, Good Energy ([FCB 028](#)) para 3, RES Ltd ([FCB 034](#)), WWF-UK ([FCB 047](#)) para 15

31. However, concerns remain that Government was not yet providing the clear signals needed, and that recent policy changes had undermined investor confidence.<sup>84</sup> Scottish Renewables warned that “there is significant concern with the ability of the market to deliver the level of low-carbon capacity required”.<sup>85</sup> Dr John McElroy, Director of Policy and Public Affairs at RWE, warned that “the various changes and interventions that we have seen over the last 12 months have played their part on demanding investor confidence”,<sup>86</sup> and added that “the immediate priority has to be to restore investor confidence”.<sup>87</sup>

32. Clarity over support for low-carbon policies will be central to providing this certainty. Our *Investor confidence in the energy sector* report published earlier this year covered this subject in greater detail. Our report emphasised that clarity and transparency over the support for low carbon technologies — both through updates on the Levy Control Framework<sup>88</sup> (LCF) and future Contracts-for-Difference rounds — was crucial to provide the right signals to investors. We recommended that DECC should set out more detail about the CfD auctions that are due to take place this decade, and on how the Levy Control Framework is managed pre-2020. We also recommended that clarity be provided about the Levy Control Framework post-2020.<sup>89</sup>

33. We heard calls for certainty on the LCF and CfDs throughout this inquiry as well.<sup>90</sup> We were pleased that the Chancellor’s Budget statement made on 16 March 2016 provided some further details regarding the future rounds of CfDs in this Parliament.<sup>91</sup> However, it fell far short of the level of detail we had called for, and clarity over the LCF post-2020 is still missing. We expect a more detailed response from Government to all of our recommendations made in that report next month and will follow up with Ministers as appropriate.

## Challenges in meeting the budgets

34. Meeting the fifth carbon budget will require efforts across all sectors, including power generation, energy intensive industries, heat, transport, buildings and agriculture. Effective drivers need to be put in place by Government to encourage innovation and investment across the board. The Committee on Climate Change stressed that:

It is important to signal this direction in advance given the time required to develop new policies, to grow currently nascent markets, for consumer behaviours to adapt and to invest in supporting infrastructure and innovation.<sup>92</sup>

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84 Wolseley UK ([FCB 008](#)), Vattenfall ([FCB 018](#)), Grantham Research Institute on Climate Change and the Environment at the London School of Economics ([FCB 039](#)) para 16, Aldersgate group ([FCB 040](#)) para 13

85 Scottish Renewables ([FCB 029](#))

86 Q70 [Dr McElroy]

87 Q86 [Dr McElroy]

88 The Levy Control Framework is Government’s tool for controlling the costs to consumers from pursuing energy policy objectives such as investment in low carbon generation

89 Energy and Climate Change Committee, Third Report of Session 2015-16, *Investor confidence in the UK energy sector*, HC 542, para 42

90 Q22 [Dr Skorupska], Q70 [Dr McElroy], Q74 [Dr McElroy, Dr Clarke], Energy UK ([FCB 012](#)) para 3.1, Vattenfall ([FCB 018](#)), RWE ([FCB 022](#)) para 1.16, RenewableUK ([FCB 026](#)) para 8, 11, EDF Energy ([FCB 030](#)) para 6, RES ([FCB 034](#)), Aldersgate Group ([FCB 040](#)) para 19

91 HM Treasury, ‘[Budget 2016: George Osborne’s speech](#),’ accessed 12 April 2016

92 Committee on Climate Change, *The Fifth Carbon Budget, The next step towards a low-carbon economy* (November 2015), p 11

35. The CCC's report stressed that priorities for the fifth carbon budget period included:

- Developing effective, low-cost approaches to energy efficiency in buildings and driving a shift to low-carbon forms of heating (e.g. heat pumps and heat networks);
- Continuing efficiency improvement in vehicles, especially by shifting towards ultra-low emission (e.g. electric and plug-in hybrid) vehicles;
- Ensuring that low-cost, low-carbon power is rolled out in the 2020s;
- Supporting development of key emerging options such as carbon capture and storage.<sup>93</sup>

36. Given the policy gap identified by the CCC, it is important that the new plan provides the certainty needed to drive low carbon investment across all sectors, “[taking] into account what is achievable in practice by 2028 to 2032”.<sup>94</sup> The evidence we received for this inquiry called for policy certainty in a number of specific areas:

- Measures to address the deployment of renewables and low-carbon power generation;<sup>95</sup>
- The implementation of the coal phase-out;<sup>96</sup>
- The deployment of CCS;<sup>97</sup>
- Certainty over carbon pricing.<sup>98</sup>

### **Decarbonising the power sector**

37. We heard that decarbonising the power sector would be critical, not just in the context of electricity generation, but also to decarbonise other sectors such as heat and transport, where emissions reductions might in part be achieved through increased electrification.<sup>99</sup> Energy UK explained that the key challenge in the power sector was “how to continue to attract the investment required in new low carbon plant, particularly given that this finance is internationally mobile”.<sup>100</sup>

38. To drive cost-effective emissions reduction across the UK economy, the CCC's fifth carbon budget report concluded that policies should be developed to reduce the power sector carbon intensity to below 100 gCO<sub>2</sub>/kWh<sup>101</sup> in 2030 (compared to 450 g/kWh now and 200 to 250 g/kWh expected around 2020).<sup>102</sup> The CCC explained that this reduction

93 Committee on Climate Change, *The Fifth Carbon Budget, The next step towards a low-carbon economy* (November 2015), p 19

94 RWE (FCB 022) para 1.13

95 Q22 [Dr Skorupska], Energy UK (FCB 012) para 3.1, RES (FCB 034), Statkraft (FCB 036) para 9, Grantham Research Institute on Climate Change and the Environment at the London School of Economics (FCB 039) para 15, Sandbag Climate Campaign (FCB 045)

96 Energy UK (FCB 012) para 3.2, Sandbag Climate Campaign (FCB 045)

97 Tees Valley Unlimited (FCB 038) para 2.3, UK CCS Research Centre (FCB 042), Sandbag Climate Campaign (FCB 045)

98 Q80 [Dr McElroy], CPL Industries (FCB 014) para 4.2, Drax Group (FCB 015), EDF Energy (FCB 030)

99 Q22 [Dr Skorupska], Vattenfall (FCB 018), Energy Networks Association (FCB 024), EDF Energy (FCB 030) para 9, Statkraft (FCB 036) para 3, Aldersgate Group (FCB 040) para 18, Greenpeace UK (FCB 041)

100 Energy UK (FCB 012) para 3.1

101 Grammes of carbon dioxide emitted per kilowatt hour of electricity generated.

102 Committee on Climate Change, *The Fifth Carbon Budget, The next step towards a low-carbon economy* (November 2015), p 12

could be delivered by a range of different mixes of low-carbon generation to reach a total share of around 75% of generation by 2030.<sup>103</sup> Dr Nina Skorupska, CEO of the Renewable Energy Association, explained why such a target was important:

There are no renewable energy targets anymore beyond 2020. All we hear about is that it is technology-neutral and it is based on market, and at the moment all those market instruments are not working to drive down the ambition to hit lower than 220 grams per kWh by 2020 and to achieve that 100 grams per kWh on the power sector by 2030. We are missing those clear step-wise signals of how we are going to drive and persuade technologies to move that way.<sup>104</sup>

39. We heard that setting such a target was necessary to deliver the UK's long-term target and its contribution to the Paris agreement,<sup>105</sup> and would provide the certainty needed to drive investment in low carbon technologies. RES, an independent renewable energy developer, said:

By setting a clear carbon intensity target for the power sector, Government will eliminate a lot of investment risk going forward. This will ensure investment in the right generation technologies as well as ensure lower risk premiums, driving down costs.<sup>106</sup>

EDF Energy on the other hand did not advocate a specific target, stating that it was “more important to focus on ensuring that the right set of policies are in place to incentivise the investment required to deliver a diverse, low carbon generation mix”.<sup>107</sup>

40. One of the Government's current policies is to develop new gas-fired generation assets.<sup>108</sup> However, this drive, coupled with a lack of a firm framework for fitting these new power stations with CCS to mitigate their emissions, could make meeting a power sector carbon intensity target challenging.<sup>109</sup> Statkraft, Europe's largest renewable energy company, explained that:

Gas-fired power stations have a role to play in the energy mix; but this needs to be a limited one given the need to reduce emissions as set out in the fifth carbon budget. Gas is not a low carbon energy source. Emissions of modern CCGT gas-fired power stations are estimated at around 360g CO<sub>2</sub>/kWh, – well above the CCC's 100g CO<sub>2</sub>/kWh target – so there will need to be a considerable proportion of the UK's energy generation from renewables and other low carbon sources, supported by interconnection and storage.<sup>110</sup>

We discussed the role of carbon capture and storage in depth in our *Future of carbon capture and storage in the UK* report.<sup>111</sup> In light of the cancellation late last year of the CCS

103 Committee on Climate Change, [The Fifth Carbon Budget, The next step towards a low-carbon economy](#) (November 2015), p 16

104 Q15 [Dr Skorupska]

105 Statkraft UK Ltd ([FCB 036](#)) para 6

106 RES ([FCB 034](#))

107 EDF Energy ([FCB 030](#)) para 4

108 Department of Energy and Climate Change, ['Amber Rudd's speech on a new direction for UK energy policy,'](#) accessed 18 April 2016

109 Q32 [Dr Skorupska], Scottish Carbon Capture and Storage ([FCB 011](#)) para 4.3, Drax Group plc ([FCB 015](#)), Good Energy ([FCB 028](#)) para 7

110 Statkraft UK Ltd ([FCB 036](#)) para 13

111 Energy and Climate Change Committee, [Future of carbon capture and storage in the UK](#), HC 692

competition, we called for Government to produce a new CCS strategy by the summer of 2016. We will analyse DECC's response to our report and will continue to monitor developments in this area.

41. The call for a specific carbon intensity target to drive down the carbon emissions of the power sector in real terms has been called for in the past, not least by our predecessor Committee. In its pre-legislative scrutiny of the draft Energy Bill 2012, the then Committee recommended:

The Government should set a 2030 carbon intensity target for the electricity sector in secondary legislation based on the recommendation of the Committee on Climate Change. [...] We believe that setting a decarbonisation target should be a duty on the Secretary of State.<sup>112</sup>

However, the then Government decided against this approach. WWF-UK said that “it appears unlikely that the [current] Government will follow this advice, as it has already refused to use its power granted under the Energy Act 2013 to set a 2030 decarbonisation target”.<sup>113</sup>

42. *Given the importance of the power sector, not least as electrification of other sectors such as heat and transport becomes more prominent, it is crucial that clear decarbonisation signals are in place. We recommend that the Government set a carbon intensity target of 100 gCO<sub>2</sub>/kWh for 2030, in line with the advice from the CCC and as argued for by our predecessor Committee.*

### **Decarbonising other sectors: heat, transport and energy efficiency**

43. In addition to clarity in the power sector, the carbon plan must provide certainty across the building,<sup>114</sup> heat<sup>115</sup> and transport<sup>116</sup> sectors. Contributors also called for a more joined-up approach from Government on energy policy to meet the budgets,<sup>117</sup> with “greater cross departmental working between the Department for Energy and Climate Change, Department of Health and Department of Communities and Local Government”.<sup>118</sup> For instance, Philip Sellwood, CEO of the Energy Saving Trust, said that “there definitely needs to be a much clearer joining up of personal transport and personal energy”.<sup>119</sup>

44. On buildings, adequate policies to drive the take up of energy efficiency measures will be crucial. Our *Home energy efficiency and demand reduction* report recommended that Government renew its efforts to drive demand for energy efficiency for ‘able-to-pay’ consumers, commission, and publish, research to help it understand behaviour change

<sup>112</sup> Energy and climate change Committee, *Draft energy bill: Pre-legislative scrutiny*, HC 275-I, para 37, 44

<sup>113</sup> WWF-UK (FCB 047) para 16

<sup>114</sup> Q81 [Dr McElroy], Q116 [Lord Deben], Marks and Spencer (FCB 003) para 9, Wolseley UK (FCB 008), EDF Energy (FCB 030) para 22, RES (FCB 034), Aldersgate group (FCB 040) para 23, Future Climate (FCB 044) para 8, WWF-UK (FCB 047) para 19

<sup>115</sup> Good Energy (FCB 028) para 6, Scottish Renewables (FCB 029), EDF Energy (FCB 030) para 24, SGN (FCB 033) para 3, RES (FCB 034), Aldersgate group (FCB 040) para 21, Greenpeace UK (FCB 041), WWF-UK (FCB 047) para 19

<sup>116</sup> Qq 118 [Lord Deben], Good Energy (FCB 028) para 6, EDF Energy (FCB 030) para 10, RES Ltd (FCB 034)

<sup>117</sup> Q22 [Dr Skorupska], EEF (FCB 035) para 7, Statkraft (FCB 036) para 9, Tees Valley Unlimited (FCB 038) para 4.6, Grantham Research Institute on Climate Change and the Environment at the London School of Economics (FCB 039) para 2

<sup>118</sup> Wolseley UK (FCB 008)

<sup>119</sup> Q46 [Philip Sellwood]

in energy efficiency and demand reduction and reinstate the zero carbon homes policy.<sup>120</sup> There are also questions around the Government's approach to non-domestic buildings, which we have not yet looked at in detail.

45. Low carbon heat in particular was identified as a key priority and challenging area.<sup>121</sup> Dr John McElroy, RWE, explained:

Heat is difficult and partly it is difficult because of the current approach in the UK where we basically have a gas network and for most consumers or small businesses it is a gas boiler. We do not have the experience of Scandinavia in delivering heat networks, and so on. There is a need for a significant mindset change. If we are going to persuade people that heat networks have a role to play, the issue then is what does that mean for consumer choice and are they going to be treated fairly. There are a lot of technologies there but it is the issue of the cost and the hassle factor. Heat pumps are not easy to install in terms of just replacing a conventional gas boiler.<sup>122</sup>

RWE npower warned that they were “concerned that well before 2030 the focus should also move to measures that are necessary to decarbonise other sectors and in particular heating and transport if 2050 goals are to be met efficiently and cost effectively”.<sup>123</sup> They added:

Increased electrification of transport and heating will become more important and we support the CCC's conclusion that meeting the fifth carbon budget will require progress in increasingly difficult areas”.<sup>124</sup>

Lord Bourne acknowledged this challenge:

In terms of heat [...] there are things that we need to do. We will detail these in the emissions reduction plan [...] by the end of the year in responding to action on the fourth budget and what we are doing in relation to the fifth by the end of the year. [...] We do agree there is a challenge. There is a significant ramping-up, I think, between the third and the fourth budgets and it is for Government to step up to the plate and do things about that.<sup>125</sup>

46. Our work on heat networks continues in our *Low carbon network infrastructure inquiry*.<sup>126</sup> We have also recently launched an inquiry into the *2020 renewable heat and transport targets*.<sup>127</sup> We will return to these issues through our work on these two areas and provide specific recommendations in the relevant reports.

120 Energy and Climate Change Committee, *Home energy efficiency and demand reduction*, HC 552

121 Q71 [Dr Clarke], Q75 [Dr McElroy], Good Energy (FCB 028), Scottish Renewables (FCB 029), EDF Energy (FCB 030) para 24, SGN (FCB 033), RES (FCB 034), Aldersgate group (FCB 040) para 22, Greenpeace UK (FCB 041), WWF-UK (FCB 047)

122 Q75 [Dr McElroy]

123 RWE (FCB 022) para 1.6

124 RWE (FCB 022) para 1.7

125 Q129 [Lord Bourne]

126 Energy and Climate Change Committee, '*Low carbon network infrastructure inquiry*,' accessed 7 April 2016

127 Energy and Climate Change Committee, '*2020 renewable heat and transport targets*,' accessed 7 April 2016

## Conclusions and recommendations

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### Setting the level of the fifth carbon budget

1. The Committee on Climate Change (CCC) has produced a robust report, and the proposed level of the fifth carbon budget is in line with previous budgets as well as the overall trajectory towards meeting the 2050 statutory emissions reduction target. The Government has not deviated from the CCC's advice in the past and we would not expect it to do so now. (Paragraph 14)
2. *Our principal recommendation in this report is that the Government should set the overall level of the fifth carbon budget, in line with the CCC's recommendation, at 1,765 MtCO<sub>2</sub>e for the period from 2028 to 2032, or 1,725 MtCO<sub>2</sub>e on the current accounting basis. We agree with the CCC's conclusion that this level remains appropriate following the outcome of COP21 but we urge the CCC and the Government to carry out further analyses as to what levels of emissions reduction may be required to contribute to the increased ambition of the Paris Agreement. The Act requires the Government to publish a statement should it deviate from the CCC's advice. Should this happen, we will be looking carefully for a robust evidence-base on any alternative level proposed by Government. (Paragraph 15)*

### International shipping and aviation emissions

3. *We support the inclusion of emissions from international shipping in the fifth carbon budget and recommend that the Government follow the advice of the CCC to broaden the scope of the budget accordingly. (Paragraph 20)*
4. *We urge Government to work with international partners to secure progress on the issue of international aviation at the upcoming International Civil Aviation Organisation (ICAO) meeting in 2016. We recommend that the CCC report back to us and DECC on this after the meeting and produce an update on the inclusion of international aviation, and how it could be formally included in future carbon budgets. (Paragraph 21)*

### Accounting issues

5. *We recognise that given current uncertainties in the UK's share of the EU ETS cap, there are legitimate concerns about the CCC's recommendation to fix the net carbon budget for the traded sector at the assumed level (i.e. 590 MtCO<sub>2</sub>e over 2028-2032), thereby limiting emissions to 1,135 MtCO<sub>2</sub>e over 2028-2032 for the non-traded sector. The key challenge is providing a clear signal to both the traded and non-traded sectors, whilst retaining the flexibility to respond to changes in the traded sector once the UK's share of the EU ETS cap is agreed. The Government should set out clearly how it would deal with a discrepancy between the assumed level for the traded sector and the actual level once set. If clarity on this can be provided, we would support fixing the net carbon budget for the traded sector at 590 MtCO<sub>2</sub>e over the fifth carbon budget period.*

*Over the longer-term the CCC should review the pros and cons of changing accounting methodology to ensure that we have the most robust framework in place to achieve emissions reduction. (Paragraph 26)*

6. *While accounting for emissions from products consumed in the UK but produced elsewhere may be complex, it is important to properly understand the full extent of the UK's carbon emissions. We recommend that DECC work with the CCC to explore the options for incorporating consumption-based emissions data into their policy-making process and the potential for including these in future carbon budgets. (Paragraph 28)*

### **Decarbonising the power sector**

7. *Given the importance of the power sector, not least as electrification of other sectors such as heat and transport becomes more prominent, it is crucial that clear decarbonisation signals are in place. We recommend that the Government set a carbon intensity target of 100 gCO<sub>2</sub>/kWh for 2030, in line with the advice from the CCC and as argued for by our predecessor Committee. (Paragraph 42)*

# Formal Minutes

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**Tuesday 19 April 2016**

Members present:

Angus Brendan MacNeil, in the Chair

Rt Hon Alistair Carmichael

Matthew Pennycook

Glyn Davies

Antoinette Sandbach

Draft Report (*Setting the fifth carbon budget*), proposed by the Chair, brought up and read.

*Ordered*, That the draft Report be read a second time, paragraph by paragraph.

Paragraphs 1 to 46 read and agreed to.

Summary agreed to.

*Resolved*, That the Report be the Fifth Report of the Committee to the House.

*Ordered*, That the Chair make the Report to the House.

*Ordered*, That embargoed copies of the Report be made available (Standing Order No. 134).

[Adjourned till Tuesday 26 April at 9.30am

## Witnesses

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The following witnesses gave evidence. Transcripts can be viewed on the [inquiry publications page](#) of the Committee's website.

### Tuesday 1 March 2016

*Question number*

**Dr Richard Leese**, Director, Energy and Climate Change, Mineral Products Association, **Lawrence Slade**, Chief Executive Officer, Energy UK, **Philip Sellwood**, Chief Executive Officer, Energy Saving Trust, **Dr Nina Skorupska CBE**, Chief Executive, Renewable Energy Association, and **Professor John Barrett**, Chair in Energy and Climate Change Policy, Centre for Industrial Energy, Materials and Products, University of Leeds

[Q1–61](#)

### Wednesday 16 March 2016

**Dr David Clarke**, Chief Executive, Energy Technologies Institute, and **Dr John McElroy**, Director of Policy and Public Affairs, RWE

[Q62–93](#)

**Lord Deben**, Chairman, Committee on Climate Change, and **Matthew Bell**, Chief Executive, Committee on Climate Change

[Q94–119](#)

### Tuesday 22 March 2016

**Lord Bourne of Aberystwyth**, Parliamentary Under-Secretary of State and **Jerome Glass**, Deputy Director, Strategy, Department of Energy and Climate Change

[Q120–165](#)

## Published written evidence

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The following written evidence was received and can be viewed on the [inquiry publications page](#) of the Committee's website.

FCB numbers are generated by the evidence processing system and so may not be complete.

- 1 Aldersgate Group ([FCB0040](#))
- 2 Aviation Environment Federation ([FCB0013](#))
- 3 Centre for Industrial Energy, Materials and Products ([FCB0019](#))
- 4 ClientEarth ([FCB0049](#))
- 5 CPL Industries ([FCB0014](#))
- 6 David Campbell ([FCB0050](#))
- 7 DECC ([FCB0020](#))
- 8 Drax Group ([FCB0015](#))
- 9 EDF Energy ([FCB0030](#))
- 10 EEF, the Manufacturers' Organisation ([FCB0035](#))
- 11 Energy Networks Association ([FCB0024](#))
- 12 Energy Saving Trust ([FCB0023](#))
- 13 Energy Technologies Institute ([FCB0009](#))
- 14 Energy UK ([FCB0012](#))
- 15 Friends of the Earth ([FCB0025](#))
- 16 Future Climate ([FCB0044](#))
- 17 Good Energy ([FCB0028](#))
- 18 Goodwin PLC ([FCB0017](#))
- 19 Grantham Institute, Imperial College London ([FCB0010](#))
- 20 Grantham Research Institute on Climate Change and the Environment at the London School of Economics ([FCB0039](#))
- 21 Greenpeace UK ([FCB0041](#))
- 22 Marks & Spencer ([FCB0003](#))
- 23 Mineral Products Association ([FCB0043](#))
- 24 Mr Alex Henney ([FCB0006](#))
- 25 Mr David Bowen ([FCB0001](#))
- 26 NIBE Energy Systems UK ([FCB0021](#))
- 27 Oil & Gas UK ([FCB0031](#))
- 28 Renewable Energy Association ([FCB0037](#))
- 29 RenewableUK ([FCB0026](#))
- 30 RES Ltd ([FCB0034](#))
- 31 RSPB ([FCB0046](#))
- 32 RWE ([FCB0022](#))
- 33 Sandbag Climate Campaign ([FCB0045](#))

- 34 Scottish Carbon Capture and Storage ([FCB0011](#))
- 35 Scottish Renewables ([FCB0029](#))
- 36 SGN ([FCB0033](#))
- 37 Statkraft UK Ltd ([FCB0036](#))
- 38 Storelectric Ltd ([FCB0002](#))
- 39 Tees Valley Unlimited ([FCB0038](#))
- 40 The Fleming Policy Centre ([FCB0016](#))
- 41 Tyndall Centre for Climate Change Research ([FCB0048](#))
- 42 UK CCS Research Centre ([FCB0042](#))
- 43 Vattenfall ([FCB0018](#))
- 44 Wolseley UK ([FCB0008](#))
- 45 WWF-UK ([FCB0047](#))

## List of Reports from the Committee during the current Parliament

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All publications from the Committee are available on the [publications page](#) of the Committee's website.

The reference number of the Government's response to each Report is printed in brackets after the HC printing number.

### Session 2015–16

First Special Report	Linking emissions trading systems: Government response to the Committee's Fifth Report of Session 2014–15	HC 376
First Report	Our priorities for Parliament 2015–20	HC 368
Second Report	Future of carbon capture and storage in the UK	HC 692
Third Report	Investor confidence in the UK energy sector	HC 542
Fourth Report	Home energy efficiency and demand reduction	HC 552