House of Commons

Committee of Public Accounts

Funding the development of renewable energy technologies

Seventh Report of Session 2010–11

Report, together with formal minutes, oral and written evidence

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The Committee of Public Accounts

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Powers of the Committee of Public Accounts are set out in House of Commons Standing Orders, principally in SO No 148. These are available on the Internet via www.parliament.uk.

Publication

The Reports and evidence of the Committee are published by The Stationery Office by Order of the House. All publications of the Committee (including press notices) are on the Internet at http://www.parliament.uk/pac. A list of Reports of the Committee in the present Session is at the back of this volume.

Committee staff

The current staff of the Committee is Philip Aylett (Clerk), Lori Verwaerde (Senior Committee Assistant), Ian Blair and Michelle Garratty (Committee Assistants) and Alex Paterson (Media Officer).

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Report

Summary

Developing renewable energy technologies is vitally important if the UK is to help tackle climate change and maintain secure national energy supplies. The Department of Energy and Climate Change (the Department) told us, however, that it is going to miss its target to supply 10% of electricity from renewable sources by the end of 2010. The Department and its predecessors had not done enough to address the slow progress in increasing the supply of renewable energy. As a result, it does not expect to meet the 10% target until 2012, from a starting position of 2.7% in 2000.

The Department is responsible for ensuring a series of targets are met over the next 40 years but direct government funding for developing renewable energy technologies is delivered through a complex web of organisations that the Department does not control. In consequence the Department does not have a clear understanding of how much has been spent or what has been achieved. Between 2000 and 2009, the Department and its predecessors failed to use nearly half of the resources available to it to encourage innovation in renewable energy. This is a wasted opportunity for providing investment that could have helped increase the supply of renewable energy.

We are concerned that the Department committed to a new, extremely ambitious and legally-binding EU target to supply 15% of all the UK's energy from renewable sources by 2020, despite not having a clear plan for how it would achieve this. The Renewables Obligation provides the major subsidy for renewable energy. The Department needs to get the best value and impacts from this funding framework. It must of course ensure a proper balance between providing effective incentives and a stable framework for private investors whilst minimising the cost to bill payers. However, we are most concerned that the review of the range of financial incentives provided through "banding" will not be completed until the summer of 2011 and to discover, after the hearing, that any changes to banding would not be implemented until April 2013. We note the Department is seeking to accelerate this timetable and introduce earlier staged reviews.

The Department is counting on a massive growth in wind power during the next decade to meet the 2020 target. While the technology may now largely be in place to meet the 2020 target, there is considerable lost ground to make up and difficult obstacles to overcome. For example, the 6000 2.5 megawatt or 10,000 1.5 megawatt onshore wind turbines the Department estimates will be needed to meet the 2020 target will have to overcome financing constraints and obtain planning approval, which typically results in around 40% of proposed projects being abandoned.

Achieving the 2050 target for an 80% reduction in greenhouse gas emissions will need further innovation in renewable energy technologies to increase supplies after 2020. We observed that the department has developed pathways to achieving the 2050 target, but has not set out the innovation milestones that it will need to meet if it is to achieve its longer-

term goals.

On the basis of a Report by the Comptroller and Auditor General,[1] this Committee took evidence from the Department on government funding for the development of renewable energy technologies.

1 C&AG's report, *Government funding for developing renewable energy technologies*, HC (2010-2011) 35

Conclusions and recommendations

1. **The Department needs a greater sense of urgency and purpose to drive the dramatic increase in renewable energy supplies needed to meet the 2020 target and secure the new technology innovation to help meet the 2050 target**. The Committee is concerned that the legally binding target to deliver 15% of energy from renewable sources by 2020 may be unrealistic. The Department has estimated that, to meet the target, the proportion of electricity supplied from renewable sources will need to increase to 31% by 2020. However, the supply of renewable electricity increased by only 4 percentage points from 2.7% to just 6.7% between 2000 and 2009. The Department is not expecting to meet the 10% target until 2012, leaving just eight years to increase it to 31%. Our recommendations set out actions we believe the Department must take to achieve its targets, create more coherence and meet its commitment to demonstrate value for money from direct funding.

2. **The Department and its predecessors planned to provide support for renewable energy technologies totalling £367 million between 2000 and 2009, but only £186 million was actually spent.** The Department should, in future, act more quickly to identify and address the reasons for underspends, so that resources available for supporting the development of renewable energy technologies are fully utilised.

3. **We are concerned that the Department agreed to the legally binding 2020 target without clear plans, targets for each renewable energy technology, estimates of funding required or understanding of dependencies such as planning issues.** The Department published its renewable energy strategy in July 2009, but did not start preparing a detailed delivery plan until January 2010 and does not intend to publish it until April 2011. The Department took far too long to begin to translate its high-level renewable energy strategy into a detailed delivery plan. It should in future demonstrate much greater urgency in preparing the detailed delivery plans that are needed to drive the implementation of its strategies.

4. **The Department does not know whether value for money has been achieved from previous spending on renewable energy technologies because it lacked a coherent plan**. The Department should include in its renewable energy delivery plan clear measures of the resources involved; quantified measures to demonstrate efficiency, such as management costs; intended milestones based on clear and consistent metrics to allow progress to be easily monitored; and cost-effectiveness so that they can be used to monitor value for money. It should also explain how the Department will review and report on progress and value for money.

5. **Many proposals for renewable energy schemes do not proceed, with 40% failing to secure planning approval in England and others not obtaining finance**. Unless planning rules are changed, the Department will need to build contingency for this project attrition rate into its 2020 delivery plan, to create a realistic picture of the number and size of renewable energy projects that need to be in the pipeline, and when construction must start if it is to meet its 2020 renewable energy target.

6. **In our view, the Department is taking too long to complete its review of the rates of subsidy provided through the Renewables Obligation for different technologies, although it is seeking to accelerate staged reviews of banding. We are particularly concerned that the Department told us that the review would not be completed until Summer 2011, but then subsequently informed us after the hearing that any changes from its current review would not be implemented until 2013**. We welcome the Department's efforts to accelerate staged reviews of banding and wish to be updated on the revised timetable once it is agreed. The Department will need to act more quickly in response to changing circumstances, which may require it to move away from rigid review timetables that could result in delayed investment or increased costs for the bill payers who fund the subsidies.

7. **The Department does not have a clear strategy to meet the 2050 target to reduce carbon emissions, although it.has identified various pathways toward meeting the 2050 target and recognises the need for further renewable energy technology innovation.** It must develop its innovation plans, setting out clearly the resources required and how they are to be allocated, interim milestones showing what needs to be achieved by when and by whom, and criteria that show how cost-effectiveness will be measured. Its overall strategy should include the interim milestones for innovation and indicative targets for renewable energy between 2020 and 2050, to provide a focus for action and clear benchmarks against which progress can be judged.

8. **The Department is responsible for meeting renewable energy targets but does not control Government funding for renewable energy provided by various other organisations.** Building on its involvement in the Low Carbon Innovation Group, which brings together various funders, the Department should lead the co-ordination of support for renewable energy innovation. It should also routinely collect information from other funders so that it knows what support is being provided to renewable energy; and take action to address its admission to us that the funding landscape could be simplified.

9. **The Department told us that funding previously provided by Regional Development Agencies for innovation would be transferred to the Technology Strategy Board**. In view of the scale of the previous Regional Development Agency funding the Department should ensure that it has a clear view of whether there is continuity in this spending and whether the Board is committed to providing innovation funding in support of the Department's renewable energy plans.

1 Progress to date

1. Renewable energy technologies have a central role to play in reducing greenhouse gas emissions and maintaining secure energy supplies.[2] The Department of Energy and Climate Change (the Department) is responsible for increasing renewable energy supplies in support of these aims. The Department was established in October 2008, when it took over responsibility for renewable energy policy from the former Department for Business, Enterprise and Regulatory Reform, and climate change policy from the Department for Environment, Food and Rural Affairs.[3]

2. The government provides direct financial support to encourage the development of new renewable energy technologies. The market provides the framework that in part determines companies' confidence to invest and financial subsidies are provided through levies and obligations on industry for more mature renewable energy technologies.[4] The main subsidy is provided through the Renewables Obligation, which gives renewable energy generators a subsidy for each megawatt hour of renewable electricity they produce.[5] The subsidy is worth around £40 per megawatt hour, although it varies by technology. The annual cost to suppliers of meeting the Obligation, which currently totals more than £1 billion, is met by consumers through higher electricity bills.[6]

3. Despite the financial incentives established by government, progress in increasing the supply of renewable energy has been slow. It has taken 10 years to increase the proportion of the UK's electricity supplied from renewable sources by just four percentage points, from 2.7% in 2000 to 6.7% in 2009 (figure 1), although that had dropped to 5.9% as at the second quarter of 2010-11.[7] The Department confirmed it would miss its target to supply 10% of electricity from renewable energy sources by the end of 2010, and that it was not expecting to reach this target until 2012.[8]

4. Action that had been taken following the National Audit Office's 2005 report on renewable energy to improve progress towards the target has had only a small impact.[9] This is reflected in the United Kingdom's poor performance compared to other EU Member States – only Malta and Luxembourg have a lower proportion of energy supplied from renewable sources.[10]

2 Qq 1, 74 and 153

3 Q 104, C&AG's report paras 18 and 1.7

4 Qq 5, 50 and 171

5 Qq 11 and 174

6 Qq 27, 40, 62 and 174

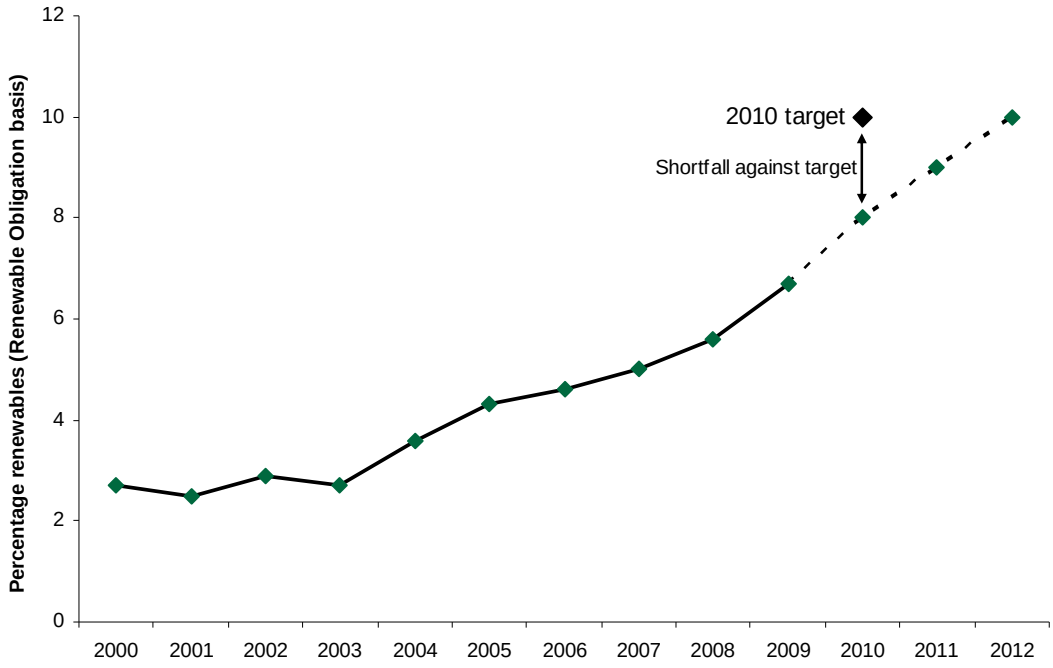
7 Qq 13-18

8 Qq 1-4, 21 and 32

9 Qq 5-8, 11-12

10 Q 8

Figure 1: Performance to 2009 against the target to increase the proportion of UK electricity supplied from renewable sources to 10% by 2010, and forecast for when it will be met



Source: Qq 21 (for forecast data); Department of Energy and Climate Change, Digest of UK Energy Statistics (for outturn data)

5. The Department maintained that although it would miss its 2010 target, it had taken steps to improve progress. For example, in 2009 it introduced 'banding' to the Renewables Obligation so that key technologies such as offshore wind would receive a higher subsidy.[11] At the time of the hearing, there were 15 offshore wind farms in UK waters compared to just one in 2003, and the Department told us there would be considerably fewer if it had not banded the Obligation.[12] It had also introduced Feed-in Tariffs to support small-scale generation and developed the Renewable Heat Incentive to incentivise further investment in renewable heat.[13]

6. The Department told us that the recession and credit crunch had affected progress by making it more difficult for renewable energy projects to access finance, although it did not know how much potential new renewable generating capacity had been lost or delayed because of this.[14] The Department had responded to financing issues by helping to secure investment from the European Investment Bank and British banks for renewable energy projects, and had provided new venture capital funding through the Carbon Trust. [15]

11 Q 11

12 Qq 7, 11, 40 and 47

13 Qq 5, 44 and 47

14 Q 7

15 Q 47

7. Given companies' difficulties in obtaining finance we were particularly concerned that the Department and its predecessors had not been able to spend all the funds allocated to developing renewable energy technologies.[16] The Department and its predecessors planned to provide support for renewable energy technologies totalling £367 million between 2000 and 2009, but only spent £186 million in gross terms during this period. Following the repayment of some large grants, net expenditure during the period was lower still, at £113 million.[17] Budgets allocated to developing renewable energy technologies that the Department and its predecessors did not utilise had been reallocated to entirely different purposes, such as funding nuclear decommissioning and the Insolvency Service.[18]

8. Part of the reason for the large underspend on developing renewable energy technologies was that no projects were able to meet the criteria needed to receive funding from the Department's £50 million Marine Renewables Deployment Fund. The Department confirmed that it was a bad decision to allocate this budget to the Fund as no-one was able to meet the criteria needed to access it. The Department waited some time for the companies developing the technology to attempt to meet the criteria before it decided to do something different with the money.[19]

9. We found that the Department did not know the total level of direct government funding that had been allocated to developing renewable energy technologies by the various organisations involved.[20] The absence of a coherent approach to delivering direct government funding for renewable energy technologies or framework for evaluating its impact meant the Department could not therefore demonstrate that funding had delivered value for money.[21]

16 Qq 48-49 and 69

17 Qq 48-49, 64-70, 64 and 75

18 Qq 73-76

19 Q 72

20 Q 110

21 Qq 47, 136; C&AG's report para 17

2 The challenge of meeting the 2020 target

10. In 2009, the Department committed to a new and legally-binding EU target to increase the supply of all the UK's energy from renewable sources from 3% in 2009 to 15% in 2020.[22] This is an extremely ambitious target. The Department expressed this target for 2020 variously in terms of percentages, gigawatts and terawatt hours, and was not wholly clear as to how these related to one another.[23] The Department has estimated that to meet the target, the proportion of electricity supplied from renewable sources will need to increase to 31% by 2020.[24] This will require a step change in performance, as by 2012 it will have taken the Department 12 years to increase this proportion from 2.7% to 10%, which will leave just eight years to increase it by a further 21 percentage points.[25]

11. The challenge of meeting the 2020 target is further compounded by the Department's forecast of an increase in electricity generating requirements from 80 gigwatts in 2008-09 to 110 gigawatts by 2020. It must therefore increase the proportion of electricity supplied from renewable sources to 31 per cent of a higher capacity.[26] Despite these challenges, the Department considered the 2020 target to be achievable. It cited the case of Germany, which, it told us, had increased its supply of renewable energy during the decade up to 2007 at a greater rate than the United Kingdom would need to achieve to meet the 2020 target.[27] It also noted that during the last decade it had supported technologies that were the first of a kind for the UK, but there are now large industries that know how to deliver these technologies with support from new measures such as Feed in Tariffs and the Renewable Heat Incentive.[28]

12. The Department published a renewable energy strategy in July 2009 that set out in broad terms how it intended to meet the 2020 target and had shared an early version of its supporting plan with the European Union. It had not, however, started preparing a detailed delivery plan, including its approach to evaluating and reporting on performance, until January 2010. The Department informed us that it expected to publish the plan in April 2011, nearly two years after the publication of its strategy. It told us there were a number of policy decisions that still had to be taken before it could complete the plan. In particular, the Department was looking at how to reform the electricity market so that different kinds of renewable and low carbon technologies are appropriately remunerated to

22 Qq1, 101 and 165

23 Qq 39, 142-148

24 Qq 35, 38

25 Qq 35-37

26 Q 38

27 Q 37

28 Q 44

support the delivery of its targets.[29] The Department expected a White Paper on electricity market reform to be published in spring 2011.[30]

13. There are currently 8.9 gigawatts of renewable electricity generating capacity installed, and around 25 gigawatts of new renewable energy generating capacity in the pipeline, of which 4 gigawatts are under construction, 6.8 gigawatts have received planning permission and 14.2 gigawatts are still at the planning stage (figure 2).[31] However, the Department expected that some 30 per cent of projects currently in the pipeline would be abandoned.[32]

Figure 2: Renewable electricity generating capacity installed and in the pipeline (in gigawatts) as at September 2010

	All technologies	Onshore Wind	Bioenergy	Offshore wind
Installed and operating	8.9	3.7	2.2	1.3
Under construction	4.0	1.6	0.6	1.8
With planning permission and awaiting construction	6.8	3.0	1.8	1.9
In planning	14.2	7.6	4.3	2.3
TOTAL	33.9	15.9	8.9	7.3

Source: Ev 20

14. Meeting the 2020 target will require substantial new investment. The Department gave the example of a recent project which cost £2 billion to add just over 0.5 gigawatts of new offshore wind capacity off the coast of Wales.[33] The financing of projects will be determined by whether investors think they will get a return in the market, in the context of a difficult financial climate.[34] The Department did not know what proportion of the 25 gigawatts of new renewable energy capacity that is currently in the pipeline had secured the necessary finance.[35]

15. To meet the 2020 target, the Department told us that it is relying in large part on a major increase in installed wind energy generating capacity, from the current level of 5 gigawatts to 28 gigawatts by 2020.[36] The Department has not set specific targets for wind, but it has estimated the UK will need around 6,000 2.5 megawatt or 10,000 1.5 megawatt onshore wind turbines by 2020, compared to the current stock of 2,000.[37] This means a significantly greater number of new projects will have to enter the planning system than over recent years, particularly as around 40 per cent of planning applications for wind farms in England are rejected.[38] The Department is now trying to secure engagement from local communities, for example by seeking ways of rewarding them for supporting wind energy projects. It had also set out in its National Policy Statements guidance on the siting

29 Qq 93,102 and 136

30 Q9 3

31 Qq 43 and 50

32 Qq 80-83

33 Q 89

34 Q 90-91

35 Q 80

36 Q 142, Ev 20

37 Qq 150-152; Ev 20

38 Qq 154,

of wind farms and other issues that communities are concerned about without being deterministic about where wind farms should be located.[39]

16. The main form of subsidy for assisting progress towards the 2020 target is the Renewables Obligation. The Department changed the levels of subsidy (banding) in 2009 in response to evidence that some technologies were struggling, and noted that banding needs to reflect changing circumstances so that technologies are not subsidised for longer than necessary.[40] It agreed that bandings may not currently be sufficient for some technologies, while in some cases there is evidence that costs are decreasing.[41] It noted that revisions to bandings must achieve an appropriate balance between providing stable subsidies to incentivise investment and minimising costs to bill-payers who ultimately pay for these subsidies.[42]

17. The Department told us it was planning to start a scheduled review of the banding of the Renewables Obligation this year but would not complete it until Summer 2011.[43] The Department did not tell us until after the hearing, in a supplementary memorandum, that any changes to banding would not in fact be introduced until April 2013.[44] We identified the impact that uncertainty over future rates is having on financing biomass power stations, bio-liquids and other renewable energy projects that are currently in the pipeline but which could drop out.[45] The Department recognised that some renewable energy companies are seeking earlier decisions. It is trying to accelerate staged reviews and expects to confirm a new timetable before the end of 2010.[46]

39 Qq 159, 163 and 168

40 Qq 51 and 56

41 Qq 23, 27, 47 51 and 176

42 Qq 27

43 Q 26

44 Ev 20

45 Q 23-24, 27-28, 47, 54 and 62

46 Q 28; Ev 20

3 Delivering new technology innovation to support 2050 targets

18. Beyond 2020, the Department's target is to reduce greenhouse gas emissions by 80%, compared to 1990 levels, by 2050. It had identified a range of options in its 2050 pathways analysis, but does not have a clear strategy setting out milestones against which to plan its activities or measure progress. Progress will be required not just in developing new renewable energy but also other technologies such as carbon capture and storage and new nuclear power. The government had decided that the proposed Severn tidal project, which could have contributed to the 2050 target, was too expensive to progress now but it had not ruled it out completely. [47]

19. At the time of the hearing the Department was consulting with experts and the public on possible pathways to meeting the 2050 target.[48] The 40 year timescale for achieving the target means that the Department's approach will have to be flexible and adapt to changing circumstances. The Department had not, however, set targets for the contribution it expected renewable energy as a whole, or individual technologies, to make to the 2050 target. It had asked the Committee on Climate Change for advice on targets for renewable energy after 2020, and was awaiting the Committee's advice. [49]

20. Achieving the 2050 target will require an extensive amount of further innovation across a range of technologies, including renewable energy.[50] For example, there is a strong need for innovation support for biomass technology, which currently needs a significant level of energy inputs to generate new energy and requires better chemical engineering processes to improve its efficiency in support of the 2050 target.[51]

21. The main sources of future funding for renewable energy technology innovation will be the Department of Energy and Climate Change and the Department for Business, Innovation and Skills.[52] Innovation funding previously provided by Regional Development Agencies, which exceeded the Department's own funding for renewable energy technologies in 2008-09, will transfer to the Technology Strategy Board, a public body sponsored by the Department for Business, Innovation and Skills. [53] Much of the funding had supported the development of technologies that are now mature.[54] While the Department expected that some support for energy innovation previously provided by Regional Development Agencies would continue, it did not think the funding they had provided for renewable energy (around £30 million in 2008-09 and £58 million in 2009-10)

47 Qq 93 and 178-183

48 Q 93

49 Qq 93 and 96

50 Qq 93, 132 and 134

51 Q 134

52 Qq 132 and 135

53 Qq 116 and 120

54 Q 117

would be needed to support its targets.[55] The principal role of Regional Development Agencies was to deliver regional economic benefits. The Department told us that energy will be a very significant employer and that it is working hard to bring investment to the UK and to support the manufacture of renewable energy technologies in this country.[56]

22. Various different organisations are involved in providing funding for innovation in the renewable energy sector and the Department does not have control of all this funding.[57] Some simplification has already happened, such as the winding up of Regional Development Agencies and transfer of their innovation responsibilities to the Technology Strategy Board. The Department told us that it intended to examine the scope for further simplification, but in the meantime it was committed to monitoring expenditure and using its membership of the Low Carbon Innovation Group to help co-ordinate support.[58] The Department told us it would not be accountable for support provided by other departments, but acknowledged that it needed to know about and report on all public sector funding that is significant to its delivery plans for renewable energy. [59]

55 Qq 117-122 and 130-131; Ev 20

56 Qq 124 and 131

57 Qq 93 and 104-110

58 Q 101

59 Qq 112-113

Formal Minutes

Tuesday 23 November 2010

Members present:

Rt Hon Margaret Hodge, in the Chair

Mr Richard Bacon	Joseph Johnson
Mr Stephen Barclay	Rt Hon Mrs Anne McGuire
Dr Stella Creasy	Mr Austin Mitchell
Chris Heaton-Harris	Ian Swales

Draft Report (*Funding the development of renewable energy technologies*), proposed by the Chair, brought up and read.

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

Paragraphs 1 to 21 read and agreed to.

Conclusions and recommendations 1 to 9 read and agreed to.

Resolved, That the Report be the Seventh 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, in accordance with the provisions of Standing Order No. 134.

Written evidence was ordered to be reported to the House for printing with the Report.

[Adjourned till Wednesday 24 November at 3.00 pm

Witnesses

Tuesday 19 October 2010

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Oral evidence

Taken before the Public Accounts Select Committee

on Tuesday 19 October 2010

Members present:

Margaret Hodge (Chair)

Stephen Barclay	Austin Mitchell
Jackie Doyle-Price	Ian Swales
Matthew Hancock	James Wharton
Joseph Johnson	

Amyas Morse, Comptroller and Auditor General, gave evidence. **Jill Goldsmith**, Director, NAO, **Gabrielle Cohen**, Assistant Auditor General, and **Paula Diggle**, Treasury Officer of Accounts were in attendance.

REPORT BY THE COMPTROLLER AND AUDITOR GENERAL

Government funding for developing renewable energy technologies

Examination of Witnesses

Witnesses: **Moira Wallace OBE**, Permanent Secretary, **Hugh McNeal**, Chief Executive of the Office on Renewable Energy Deployment, and **David Mackay**, Chief Scientific Adviser, Department of Environment and Climate Change.

Q1 Chair: Right, welcome to all three of you. This is a new Committee. Richard Bacon and Austin Mitchell are the only ones who were here previously.
Austin Mitchell: Age concern!
Chair: Continuity and experience they bring to our proceedings. But welcome to you all for this hearing on the renewable energies technology. If I can just start: we didn't need Stern really—we did get Stern—to remind us of the huge importance of this agenda: the most serious global threat, which demands an urgent global response. The Government responded to that by funding a lot of innovation in renewable energy, and that is covered in this Report, and produced three targets: the 2010 target, where the target was to have 10% of electricity from renewables; the 2020 target, where 15% of the total UK energy was to come from renewables; and then the 2050 legal obligation to reduce carbon emissions by 80%. If we can, Moira, start with the 2010 target. Are you going to get there?
Moira Wallace: It doesn't look like we are.

Q2 Chair: It doesn't.
Moira Wallace: It doesn't look like we are, no. We are not going to be far behind in that our prediction is that we will meet it at some point in 2012. But we will not meet it in—

Q3 Chair: So where will you be at the end of 2010?
Moira Wallace: Our projection is that we will be at about 8% compared with the 10%. We feel fairly confident of that. This is against the background of an enormous growth in renewables over the last—

Q4 Chair: Sorry?
Moira Wallace: This is against a background of an enormous growth in renewables over the last decade, but we don't think we are going to meet the 10% until 2012.

Q5 Chair: What I find rather depressing about that is that in a Report by the NAO in 2005, it predicted then that you would get to, I think, 7.6% or something by 2010 and that was five years ago. Why wasn't action taken then on the outcome of that NAO Report to ensure that performance was better than you are now predicting you will achieve by the end of this year?
Moira Wallace: Well, a huge amount has been done across a variety of technologies. And this Report covers some of the work that has been done in terms of funding innovation support. You all know that, through your constituencies, you see a lot more renewable electricity, and you are starting to see a lot of renewable heat, so there has been an enormous expansion funded both by specific innovation R and D support and also by some, in a way more significant, financial incentives, like the Renewables Obligation, which are really driving a huge change. So just to give you one of my favourite facts, which gives you a sense of the scale of what has been happening: if you take wind, wave and tidal, in 1990 we had a mighty 9 GWh coming from those sources, which is almost nothing. In 2000, we had 946 GWh and in 2009 we had more than 9,000 GWh—the precise figure was 9,304 GWh. So that is just one example of a technology that has been expanding very fast. Now, we have been learning as we go and I think that is one of the pictures you get.

Q6 Chair: But I have got to take you back; in 2005 the NAO reported that you would, by 2010, on current performance, get to 7.6%, if I remember the figure correctly, of electricity produced by renewables. You are reporting to us now, five years on, that you might get to 8%. So it looks to me that in the five years

since that Report, while of course there has been an increase in renewables across the piece, nothing has happened to improve the performance that was predicted in 2005.
Moira Wallace: Well, 7.6% and 8% are not hugely different, but the key thing which I agree with you about, and I acknowledge, is that we are not meeting the 10%. But in terms of what has happened, there has been a huge expansion across a range of renewable technologies.

Q7 Chair: Why has no action been taken to improve it? This is such a key issue; it's so hugely important. You get a Report five years ago telling you, "You are not doing good enough." Five years later you come to us and say, "We are doing great things." We know you are, but the final paragraph of the Report says the stuff you are doing is good, but you have not taken action collectively across government led by DECC to improve that potential outcome on that very first target.
Moira Wallace: Well, a great deal of action has been taken, but there have been challenges. One challenge that it would be wrong of me not to mention is that we have actually had a very significant recession and a credit crunch, which has affected the ease with which large projects can get financed. And we have seen that. We have seen a huge fall, for example, two years ago in the availability of venture capital, so we have taken steps to step in and help with that. So I'm not pretending everything is perfect, but I think it would be wrong to underplay what has been done, and I think it would be wrong to underplay the action that has been taken when a problem has been spotted. I think that is one of the things that is at the core of delivery and programme management, that you get the best information you can on whether you are on track and when you see that something is not going according to plan, you take action.

Q8 Chair: Well, it appears that the outcome of the action hasn't impacted on the target. Just one last issue that I want to raise and then my colleagues want to come in. If you look at our performance relative to Europe, we are at the bottom of almost every league. The only countries that I could find that performed worse than us were Luxembourg and Malta in terms of the proportion of our energy that is delivered by renewables. On the European league—these are 2005 figures—1.3% for us, 5.3% for Germany, 10.3% for France, 39.8% for Sweden and Poland doing brilliantly. We are doing appallingly, so it is a dismal outcome for a hugely important issue.
Moira Wallace: We start a long way back and we're going to have to move very fast, and we are.

Q9 Chair: But we are not moving fast.
Moira Wallace: We are moving fast—

Q10 Chair: If we were moving fast we would have got closer to our 10% on that very first target.
Moira Wallace: Well, this year, 2010, we predict that 8% of electricity will come from renewables. In 2007, so a few years ago, it was 4.9%.

Q11 Matthew Hancock: The argument that the number has increased is different from the argument that you haven't hit your target, and whenever we ask about hitting your target your response is, "Well, it's gone up." We know it's gone up, but you've missed your target. That is the point that the Chair is getting to. Sorry for interrupting, but I was just infuriated by an answering one question with another answer.
Moira Wallace: I haven't pretended we have met our target. My answer to the Chair's first question was to say that we expected to meet it in 2012 and I'm disappointed about that too, so I'm not attempting to obscure that. But the Chair has also asked me, "Have we taken no action?" I don't think it's fair to say that no action has been taken. For example, if I may give you an example, one of the key policies to drive renewables is the Renewables Obligation policy. And we have been learning as we go and one of the things we have been learning was that it needed to be more differentiated. That was a clear message from industry. So two years ago we took steps to band that so that there was a better incentive for some of the key technologies, notably offshore wind, where it was clear to us from the efforts that we'd been taking and we'd been monitoring that we were not going to meet the target unless we took action. So, I'm afraid I am not disputing we did not meet the target and like you I am very disappointed about it; what I am saying is I don't think it is fair to say no action has been taken, because actually I think there has been a lot going on.

Q12 Matthew Hancock: If on the existing policy you were going to, five years ago, get to 7.6% and now you are going to get to 8% by the end of this year—you say you have taken action—that is a very small, as you said, difference. So, in that case that action has not been successful.
Moira Wallace: It hasn't been entirely successful, because we probably wouldn't be having this conversation if I could tell you the answer was 10% this year and it isn't and we are disappointed by that and we are working really hard on that. But no, we haven't made up the whole of the gap and that is a matter of great concern to me.
Chair: Stephen, then Austin, then Ian.

Q13 Stephen Barclay: Can I actually just pick up on how reliable the 8% and the 10% figures that you are saying today are? The starting point in 2000 was that 2.7% of electricity was from renewables, was it not?
Moira Wallace: I believe so, yes.

Q14 Stephen Barclay: By 2009 we had gone up to 6.7%, so in nine years we increased by 4%.
Moira Wallace: Yes, four percentage points, yes.

Q15 Stephen Barclay: And what you're saying today is in our final year we are going to go up by 8%. What was the trend between quarter two of 2009 and quarter two of 2010?
Moira Wallace: Hugh is volunteering to answer this.
Hugh McNeal: The important thing I think the Committee will want to know is that the target is based on the average load factor over a number of

years. If it blows a lot or if it is very windy in a particular quarter or it's not particularly windy—

Q16 Stephen Barclay: Sure. With respect what I was asking was: what are the figures? And the figure is that actually between the second quarter of 2009 and the second quarter of 2010 the percentage went down by 0.6%.
Hugh McNeal: Right.

Q17 Stephen Barclay: So the renewable figure as at quarter two 2010 is not moving towards 8%; it's actually gone down to 5.9%. Is that not correct?
Hugh McNeal: That's the figure for that quarter and historically that quarter is one where you have less wind blowing and that's why that is shown. As I said, the message that I want to try and convey to the Committee is that the target is based on an average over a five-year period—

Q18 Stephen Barclay: Mr McNeal, I am quoting from your Department's *Energy Trends* September 2010.
Hugh McNeal: Yes.

Q19 Stephen Barclay: Which says, I quote "the renewables sector made up 6% of total electricity" and it cites various reasons for that. So what we've just established is between 2000 and quarter two 2010, we've moved from 2.7% to 6% and yet you're telling us that in the final six months of 2010 we're going to suddenly add another 2%.
Hugh McNeal: Well, I can give you the figures in gigawatts if that would be helpful.

Q20 Stephen Barclay: But those are your projections, are they, that in the final six months we are going up 2%?
Hugh McNeal: The current position is this: in terms of GW—

Q21 Stephen Barclay: Well surely that is a yes or no?
Hugh McNeal: The projection is for 8% this year on target and to hit about 9% next year and to hit 10% in 2012. We have 4 GW in construction right now, including 1.8 GW in offshore wind, 1.6 GW in onshore wind—

Q22 Stephen Barclay: Sure, but surely that is a yes or no. The end of 2010is only three months away; Ms Wallace has just said that we are going to be at 8%. So we are going to add 2% of capacity in the next three months. Is that correct?
Hugh McNeal: No, that is not correct, because we are not comparing like with like. The target is based on an average of load factors. In quarter two in any given year, there is always less wind blowing and that is why that percentage looks lower. I completely understand the question, but we will hit 8% this year based on the European figures. That's our projection, yes.

Q23 Ian Swales: I'd like to ask a question about what's getting in the way of all this progress and if I could give the example of biomass power stations where there are now 17 scheduled at £500 million a piece. The first one is likely to be in my constituency. What is holding that project up is simply clarity from your Department about Renewables Obligations, grace periods and so on. They re-announced the project in July and are still waiting for the kind of clarity that their financiers need from your Department. Since July one of the companies that was going to build a biomass power station has gone bankrupt while waiting for this clarity. So can you tell us what you feel is getting in the way of this progress?
Moira Wallace: Do you want to answer the specific point about biomass?
Hugh McNeal: We grandfathered biomass support in July; that was one of the first announcements of the new Government. The issue is that the length of time from a decision to invest until a plant is built is longer than the guarantee for the ROC support and we understand that issue and are in discussions with a number of companies about how we might solve that.

Q24 Ian Swales: But how long is it going to take? I've had parliamentary questions and all sorts and all we get is a stone wall. If we are wanting to increase the pace, what we want to know is what happened yesterday on that subject? What's happening today? What will happen tomorrow, and when will we get an announcement?
Hugh McNeal: The challenges for us is we set in place the new ROC banding scheme as the Permanent Secretary just announced, which sets levels of support and if we react at every point to concerns about the level of support—

Q25 Chair: Why don't you just answer the question? When will we get an announcement?
Ian Swales: On that point—because I think it's a wider point—but on the specific, when will we get an answer?
Hugh McNeal: We will get an answer through the banding review process which is set out—

Q26 Chair: When? What sort of timeframe?
Moira Wallace: The banding reviews are announced with a particular regularity and the next one is due in two thousand and—
Hugh McNeal: It's due to start this year and we should have answers for people by the summer of next year.

Q27 Chair: By the summer of 2011. Ian, do you want to come back now?
Ian Swales: So these people who thought they were going to start their project this summer are going to have to wait a whole year before they even know whether they've got the certainty to go ahead?
Hugh McNeal: Except that there is information from the Department in the public domain. This is all about how much subsidy you provide, how much it is worth for the taxpayer to subsidise particular levels of support, and there is information through the Redpoint analysis in the public domain and some of these plants are being built. We absolutely understand the position around uncertainty, but we have to balance that

against potentially overpaying and over subsidising for support now and that is the challenge. That is the thing that is difficult for us.
Chair: How long have they been waiting for a decision?
Ian Swales: Since July, obviously, for the latest round of decisions, but they first announced this project two years ago and these biomass power stations are massive energy generators. These will, on their own, move this whole thing forward enormously.
Moira Wallace: Chair, might I just come in on a more general point? One of the issues that we're trying to strike the right balance on is trying to provide a frame work that is reasonable stable, trying to provide a framework that we can be sure offers value for the taxpayer and in many cases the bill payer, because the subsidies we are talking about come from a generality of bills, but also responding when industry tells us—and we test the argument and believe it is right—that actually they cannot generate power and make a return on the basis of subsidy. So we're trying to trade these things off. I don't think it would be right to come to this Committee and say that anyone who comes and says they would like more subsidy should get the answer yes straight away, because it comes from the bill payers.
Chair: No. But this particular instance demonstrates a theoretical framework translated into practice. There is too long a delay for what is an incredible urgent public policy issue, where we're either going to run out of energy capability or we're certainly not going to meet our obligations to cut carbon emissions.

Q28 Ian Swales: Can I just come back on this issue because I think it's so important? You say this—I think you called it a banding review—is going to report next summer. Again, what is happening over these eight months? What work is going on every day, every week, by how many people in order to produce an answer? It does not feel like there is the urgency that this issue requires.
Moira Wallace: We can itemise the specific points around this, but I think I'm right in saying that what the particular company you are talking about is looking for is an earlier answer than the regular banding reviews that the Government has committed to. So actually having set the Renewables Obligation and tried to give it some stability and said that it will only be reviewed this frequently, there are some companies in some industries, perhaps with good reason, who are saying, "We need help more urgently." So we're trying to bring it forward. So we're trying to accelerate staged reviews.

Q29 Stephen Barclay: Yes, I think the point that flows from what Ian is saying is that you are setting out these targets which are hugely optimistic; at the same time actually getting things live is taking so long. You have set a new target looking forward, which we will come onto, duly, but can I just clarify from you, what is your expected increase as a percentage, year on year, moving forward for renewables?
Hugh McNeal: I can tell you where we are right now and anyone can see that, since July, because it is publicly available on our website. So if you want to know where we are with renewable electricity right now, we have 25 GW in the pipeline. That is either in planning, through planning but awaiting construction, or being built.

Q30 Stephen Barclay: My question was what percentage do you expect to increase over each of the next couple of years?
Chair: And this is not just electricity, this is across the board.
Hugh McNeal: Absolutely. We need—

Q31 Stephen Barclay: Yes, I am really interested in electricity.
Chair: Are you?
Stephen Barclay: Yes. So for renewables driving electricity, what is your percentage increase that you are projecting on?
Hugh McNeal: I'll have to check.

Q32 Stephen Barclay: Because your funding must be based on this, so you must know it, surely.
Moira Wallace: What we're projecting for electricity for the next few years, I can tell you—this year, we have just been discussing it—we expect 8%. Next year we expect 9% and we expect to meet the 10% target in 2012.

Q33 Stephen Barclay: So you're going up at 1% a year?
Moira Wallace: One percentage point.

Q34 Stephen Barclay: Yes. But you have given a legally binding agreement that by 2020 in essence 31% will come from electricity.
Moira Wallace: Yes.

Q35 Stephen Barclay: So, what you're saying is in our first 12 years, it took us 12 years to deliver 10%, from a starting point of 2.7%. So it took us 12 years to deliver 8.2%. Yet in our final eight years we're going to get all the way from 10% up to 31%?
Moira Wallace: It is very challenging, but—

Q36 Chair: Will you achieve it?
Moira Wallace: Well, we are going to do our damndest.
Chair: But that's not answering the question.

Q37 Stephen Barclay: Given what Ian just said about the slowness of getting things on stream you are saying in 12 years we do 8% and then miraculously in our final eight years we're going to get all the way up to 31%.
Hugh McNeal: It is achievable. It is not historically unprecedented. That is the first point to make. Germany increased its level of deployment in the 10 years before 2007 at a greater rate than we need to achieve to 2020.

Q38 Stephen Barclay: Well perhaps we can get into the figures, because it is actually even worse than that, isn't it? Because actually you are talking about the percentage of energy consumption at the time and if

one looks at your forecast of consumption in 2008/9 it was 80,000 MW, and it's going up to 110,000 MW. So actually we're talking 31% not of the 2008/9 level or the 2010 target level, we're talking about 31% of the energy that we're going to be using in 2020, which is a higher level.
Moira Wallace: Yes.

Q39 Stephen Barclay: So each percentage is going to require you to generate more electricity for each percentage you achieve.
Moira Wallace: If I may come in here, in our planning we do not, in a sense, target percentages; we target terawatt hours. We have a projection, which we have adjusted in the light of for example the recession, all the latest data we have got on demand and our own projections of how policy will affect demand. What we're targeting is 234 TWh in 2020, so we're not viewing it in terms of percentages.

Q40 Stephen Barclay: Ms Wallace, my point is you're saying at the moment that our current run rate is 1% a year. And yet actually between 2012, those final eight years, we have got to add 21%, so more than double your run rate to date, and each percentage point is going to be harder to achieve than it was previously. It just doesn't strike me as credible to say—
Moira Wallace: Well it may or it may not. I would like to answer this in some detail if you don't mind. So, talking about our run rate going back, we are now in 2010. In 2003 we had one offshore wind farm. Now we have 15. This is a technology about which we have learnt an enormous amount: about how to reduce its cost, how to deploy it, how to maintain it, how to finance it. Earlier on in the decade we were funding this through individual grants which are the subject of the Report. Now we have a Renewables Obligation, which is costing over £1 billion a year. That is a much more heavy duty mechanism to deploy that. Let me take another technology that's going to be—

Q41 Stephen Barclay: Well, just on that, figure 4, page 16, refers to one of the offshore wind farms produced in 2005, could you tell us how long it took from that going operational in 2005, from the start point, what was the actual time lag between work starting on that—and presumably we have started with the easiest wind farms in the most successful locations, so it will become harder as we proceed—but how long was it from work starting on that to—
Moira Wallace: I don't have that information.

Q42 Stephen Barclay: You must have a ballpark figure.
Hugh McNeal: I can tell you what we think now about the Round 3 farms, if that's helpful to you.

Q43 Stephen Barclay: No, my question, with respect, was how long does it take on average for a sizeable wind farm—we have just heard the issues around planning and other difficulties of funding, we know with the credit crisis, and we can come on to funding, that there is difficulty accessing capital; we can get into the EIB funding by all means—but there must be an average time that it takes from work starting on a major offshore project—because we have got 10 years before this legally binding target applies. How long does it take for the average offshore wind farm from start to finish?
Hugh McNeal: It takes between four or five years on average.
Moira Wallace: Can just say a little bit more about that? There's a lot to say about what is to happen between now and 2020 so we need to go into it in some depth, but we have, as my colleague has explained, a good knowledge of what we call the pipeline. And just to focus on renewable electricity for the moment, at the moment we have 8.3 GW of renewable electricity. Compared with that 8.3 GW, we have 25 GW in the pipeline of which 4 GW is actually under construction, 6.8 GW has planning permission and 15 GW is at the planning stage. So 25 GW is in the pipeline compared with the 8.3 GW we have at the moment. We now have enough information to start to estimate the attrition around that 25 GW, so actually some of those will drop out and we are trying to estimate how much of that will drop out and how that will help us to our target. The calculation we have done is therefore of what is in the pipeline right now, at the beginning of this 10-year period to the target. That alone, what we know about now, this month, will deliver 30% of the gap. Now, I'd love it if it was 100% of the gap, but actually that—

Q44 Stephen Barclay: Sorry, 30% of what gap?
Moira Wallace: I am talking about 30% of the gap between where we are right now this year on renewable electricity and where we need to be in 2020. But if I may pursue this question of the run rate, and what it's likely to be in future, there are technologies coming on stream which we expect to come on stream in this 10-year period, that are barely off the ground at the moment. I think the renewable heat sector is a very good example of that, where actually the Renewable Heat Incentives will come in, which will start to support that as the Renewables Obligation supports its technologies and feed-in tariffs support theirs. So what I am saying is there are some things that were, for this country, first of a kind and in the last decade we have gone through those first-of-a-kind experiences and we're not in that first-of-a-kind world now. These are big industries; we know how to do them; we have learned a huge amount.

Q45 Stephen Barclay: I take that but the Severn barrier project was apparently going to provide 5% of the target and that, one understands, is going. Where is it that you have set out what element of this overall 2010 target is coming from each of the various sources and what your projections are? Because I was struggling to find it. Have you set that out somewhere?
Hugh McNeal: The most up-to-date public figures are in the Renewable Energy Strategy produced by the previous Government last year. We will update those figures as part of our delivery plan process next year.

Q46 Stephen Barclay: So if we're talking about 30% for offshore, what's your actual overall target for 2020 for offshore?
Hugh McNeal: Well, we don't have an overall target for offshore, but bear with me. The reason is, if we set an overall target and the technology is incredibly expensive—so we can talk about technical potential and I will return to that in a minute—but if we set a target for a specific technology and it turns out that that technology is incredibly expensive but another technology is cheaper, we need to be able to move between the different technologies.
Stephen Barclay: Sure, but no one is going to—
Chair: I am going to stop you Stephen, is that alright?
Stephen Barclay: Absolutely. Sorry.

Q47 Austin Mitchell: I have to say I was horrified by the answers on biomass. I hope you can give a note to the Committee on how this has affected the Drax biomass proposal on Humberside, where it seems to be drastically messed about. But moving on from biomass, your answers there seemed to me to be typical of the problems that I see from this Report which is really a Report on the way you have been fart-arsing around for three years since the creation of the Department. Just look at the record. As I read it from there, you've not spent a lot of the money that you've been given. You have achieved about as much on tidal and marine power as Luxembourg has in the same period. You have no coherent plans and research and you've not developed any way of co-ordinating the approach across Government. You have not reached any of the targets and you do not seem likely to reach any of the targets and meanwhile, the technology, particularly in wind generation, has migrated—we had a lead 15 years ago—to Germany and to Denmark and we are now having to buy it back to put it in the North sea. This is no achievement. What basis does that record give us for confidence that you're going to be able to pull it all together to achieve the targets for the next period and particularly the European one in 2020?
Moira Wallace: Okay, there's quite a lot in there. I haven't written it all down verbatim, to save the blushes of my piece of paper. There are several bits to that. First, I think we have made a huge amount of progress in the last couple of years, two years, since the Department was formed, in actually building on what was going well and changing those things that were not. So in that time we have banded the Renewables Obligation, without which I am sure we would not be seeing anything like the amount of offshore wind we are seeing now. That message was quite clear and we have acted on it. We've introduced feed-in tariffs. We've developed a policy on Renewable Heat Incentives, without which we will not have renewable heat in this country. We have done various things to try and mitigate the effect of the credit crunch on a very important sector that was finding it extremely difficult to get finance for this and I could go on.
There are two particular points I'd like to touch on. One is marine and tidal; you're absolutely right that we have had some false starts here. And one of the things we did—and I think the Report sets this out very well—is we set up a fund that you could only access if you had a working device. And we set a threshold which was that something had to work for, I think, three months and no one could meet that threshold. Now I'm quite sure at the time before that fund was set up there were lots of people saying "this is the fund we need" and we responded, but actually they were mistaken because they weren't at that stage yet. What we did was we changed that fund to actually push it back into an earlier stage of innovation because actually the evidence told us that this technology was at an earlier stage. And actually our triumph at the moment—and we're better than Luxembourg and we're actually better than anyone at this—is we have got devices in the water that are now generating. Now I'm really sad that we're not five years further along the road but that is not because DECC did not provide the funding. It was because actually it turned out, contrary to the advice we'd received, which I am sure was best advice at the time, that the sector was not ready for that. So, I just wanted to respond to that.
Joseph Johnson: You mentioned the credit crunch for the second time today; I'm just a bit worried that it is something of an easy get-out for the Department. You said right at the start that large projects had had difficulty in securing financing, but could you quantify for us what gigawattage went begging, as it were. What gigawattage from viable projects could have been generated but wasn't because of the credit crunch and because of good projects failing to get access to finance.
Moira Wallace: I'm not sure I can quantify it on the spot, but anyone who is interested in the subject I think will remember that a couple of years ago there was a serious problem with a lot of significant offshore wind projects saying "we can't finance ourselves". I mean, I am sure I can quantify it after the event, but I'm afraid I can't quantify that precisely now.

Q48 Joseph Johnson: And why didn't the Department step in to fill any financing gap?
Moira Wallace: We did, in several ways. One of the things we did was we secured EIB backing for some co-lending with British banks. We actually started up venture capital funds through the Carbon Trust. So we spotted the gap and we did step into it.

Q49 Joseph Johnson: But you either filled the gap adequately or you didn't. So it's either an excuse or it's not.
Moira Wallace: I think what I would say is it probably has led to a delay. The other thing we did was—and this was in response to credit crunch and other things that had emerged from the early grant schemes that are detailed in this Report—we banded the Renewables Obligation, recognising that some technologies are much more difficult to deploy than others and we needed to differentiate more. I'm not suggesting it's an excuse, but it had a big impact on the firms that were trying to do this and we had to respond.

Q50 Joseph Johnson: And going forward, it is reasonable to assume that there will be further periods of financial instability, possibly—we never know—periods of economic slowdown. To what extent are they going to derail your plans and allow you to say "We got blown off course because GDP growth wasn't the 2.5% that we projected extrapolating forward two or three decades into the future"?
Moira Wallace: Well what we're trying to do is develop a framework that gives companies and those who invest in them confidence about the returns that they are going to get so they can make these very significant high upfront capital investments with confidence. And the Renewables Obligation and the Renewable Heat Incentives are obviously large parts of that and we're trying to get the right amounts, get the right differentiation, get the right stability, but we're also looking at the whole operation of the electricity market—I think this is well known—at how you reform the electricity market going forward so that the balance that we need of different kinds of low carbon including, but not only, renewable and flexible generation, so that they are remunerated. I don't want to downplay what a significant change that might be. So we're trying to put a framework in. If I may be very clear about this we are not going to get the transition we need to renewables on the basis of small innovation grants from the Government. We are going to get this when the private sector can see that this is going to be appropriately remunerated and rewarded in the market. That is what is going to do the heavy lifting and I think we have moved a huge amount in that direction over the last few years.
Chair: Matt?

Q51 Matthew Hancock: I want to come in on exactly that point, because you've mentioned the rebanding exercise in Renewables Obligations as an important step. Does that mean that at the moment you think the bandings aren't quite right?
Moira Wallace: We changed the banding last year in response to all the evidence we were getting about some technologies that were struggling. There are many technology sectors who think we still haven't got it quite right and one of our difficult tasks is to judge whether they are right or they would just like a higher remuneration for it.

Q52 Matthew Hancock: Or lower, in some cases.
Moira Wallace: Very few people are asking for lower. Bill payers might be but very few companies are.

Q53 Matthew Hancock: No, but there are more stakeholders in this process than just companies.
Moira Wallace: Indeed.

Q54 Matthew Hancock: So, for instance there are arguments about whether the subsidy on some of the onshore wind is too high, in some cases. And I have examples also from my constituency about bioliquids, which are arguing that they need to be higher. So would you say that you need to review the bandings of those?
Moira Wallace: That is what the banding review will do, yes.

Q55 Matthew Hancock: So they're not perfect at the moment, and you need to improve them?
Moira Wallace: Well, events change. I'm not saying that we schedule in banding reviews because we think we might have got it wrong. Events change.

Q56 Matthew Hancock: But at the moment, in response to several questions, you've said that the banding review is necessary. You've cast forward and said "I know there are problems, but we need the banding review". And that implies that you know that there are changes that need to be made in the banding review.
Moira Wallace: There are things that change all the time and indeed part of the philosophy of Renewables Obligations and other mechanisms of that type is that you don't subsidise anything for a minute longer than you need to.
Matthew Hancock: Yes.
Moira Wallace: So the purpose of these is to bring on a market, develop it, see costs fall—the sooner costs for some of these technologies that are expensive can fall, the better—so you are trying both to make sure that they are adequately remunerated and that they are not over-remunerated.

Q57 Matthew Hancock: Yes. So given the need to make those improvements and given some of the problems that we've heard from the private sector suppliers—as you said, this private sector is very important in delivering on this—why is there such a long lead in to another re-banding exercise? Doing it in eight months time when people are waiting on it now seems odd.
Moira Wallace: We have tried. I think this Government and the last Government have tried to strike a balance between stability and responsiveness. I don't want that to sound superficial; there are obviously people who make investments or are planning to make investments in the hope that the regime will stay exactly as it is now and will be quite unhappy if it falls, and others who are desperate for one or other to rise. So we are trying to strike a balance. We are obviously trying not to drag our feet, but we are trying to provide some certainty. It does not help industry overall and those who invest in it overall if the rules are changing all the time.

Q58 Matthew Hancock: No, understand that, but it just strikes me as odd that you have referred several times to the re-banding exercise being important in hitting targets and improving the run rate yet at the same time you're quite happy to have a delay of eight months between now and the rebanding exercise.
Hugh McNeal: It is a significant exercise.
Matthew Hancock: Well, the Strategic Defence and Security Review is a significant exercise, and that has just taken place in four months.
Chair: And you are looking for £100 billion investment to reach your 2020 target so taking a year to reband every time loses you some incentives.

Q59 Matthew Hancock: How quickly could you do it if you needed to do it fast?

Moira Wallace: I think we are probably doing it about as quickly as we could.

Q60 Matthew Hancock: Really?
Moira Wallace: With all the interest groups—there is a very, very diverse sector and as you say it is not just the sector but there are other stakeholders who do need to be taken into account. I suspect we are probably obliged under statute to consult for a given period in the middle of this so I really—

Q61 Matthew Hancock: You are doing it as quickly as you can? So given that there is only 10 years to go until this legally binding target which at the moment you are further off than you hoped to be at this point, you think that taking this amount of time is as quickly as you could go?
Moira Wallace: I believe so, yes.

Q62 Ian Swales: Can I just add to this point? How do you react to the accusation that some sectors of the industry already have the certainty that they need and are piling capital and so on, like offshore wind, which we all know is an intermittent source of energy, yet other sectors who want to invest are having to wait for this exercise. I'm sure that the regime that you have put in place to encourage all this wind investment isn't going to change in any significant way, so the effect of this delay is in effect to further favour those sectors who already have the certainty they need and delay the other sectors who do not.
Moira Wallace: We're trying to respond to concerns raised by a very diverse mix of technologies and we try to respond to them as swiftly as we can while striking a balance and not uprooting the framework all the time. Because actually, every time you uproot one bit of the framework you do have an impact on others. So I'm not sure there is a lot more I can say about it. We are trying to do this as quickly as we can to respond to evidence from the sector, but one of the things I've got to say is these are very significant incentives. There are real balances to be struck and I think it's important that we have a process that is transparent, where we follow the steps, we look at the evidence because this money will go on people's bills. It is in that sense public money and actually just saying yes to everything that is asked for by one group of stakeholders I don't think is appropriate.
Matthew Hancock: But nobody is asking you to say yes to everything. Having argued that this will help, and the quicker it happens, the better, it is then surprising that you say you cannot do it any quicker than you were planning to.

Q63 Chair: Can I take you back to the direct funding of renewable energy, which is the subject of the Report? What I found deeply depressing was if I could get to the basis of the figures and the figures are very muddling.
Moira Wallace: They are complex.

Q64 Chair: If you look at the DECC budget, between 2000 and 2009 you had something like £367 million to spend and you underspent by £200 million. You actually spent £186 million; you underspent by £200 million. So again, given the urgency of the need to develop renewable energy, what on earth led you to this massive underspend?
Moira Wallace: There are several points I would like to make about this because in the last few days I have become something of an expert on it.

Q65 Chair: Well, you might be able to help us with better figures then.
Moira Wallace: Well the first point I'd like to make is that this funding goes through several Departments. DECC itself has been here for two years.

Q66 Chair: No, I was talking about DECC—my figures are that DECC had £367 million. It spent £186 million. The money we have got for Government as a whole, not including the RDAs but Government as a whole, which is BIS basically, really, is £464 million of which only £265 million was spent. And DECC's contribution to the underspend was enormous. DECC was the worst offender in terms of underspending.
Moira Wallace: Chairman, the only point I am making is that we are talking about budgets that go back well before DECC's formation. But I'm very happy to give you an account of them because we inherited them. So this Report says planned expenditure was £367 million. That is a plan that covers seven financial years. Now, there never was a plan that covered seven financial years so—and this is perfectly fair to do— it is an aggregation of budgets that were set over successive years, probably including times when you were in the Department setting them. Of that £367 million, so that is the sequencing of different plans for different, probably three and one-year periods, £241 million gross was spent.

Q67 Chair: No, £186 million was spent according to the Report.
Moira Wallace: Some £186 million net was spent and the difference between the gross and the net is that quite a large amount of the gross was repaid.

Q68 Chair: No. I direct you to the table I've got in front of me. Some £186 million was spent, and £73 million was taken in repayments. I was being kind to you, the actual spending if you take off the repayments is £113 million from that inherited DECC budget out of £367 million. So we failed to spend even more than £200 million just through DECC alone.
Moira Wallace: Okay, well, the main reasons for the underspending are some budgets that we had where there wasn't the demand or we were trying to grant money to projects that were experiencing difficulties—they couldn't finance themselves, they couldn't meet the criteria.

Q69 Joseph Johnson: But you said there was a credit crunch and now you're saying there wasn't demand for this money. I am struggling to reconcile these two statements.
Moira Wallace: Well there are a whole set of criteria around how this money was granted and what it could

finance and it obviously couldn't finance the whole cost of some of these projects.

Q70 Chair: But across the seven years, at least admit it's shocking. It is a shocking waste of potential investment in new technologies which might have helped us achieve our targets better, if we'd spent more. Because the final paragraph of this Report, which I keep coming back to, says "where we did invest we actually invested where the private sector wouldn't; we brought in private sector money; we created jobs; we did all sorts of good things". Yet it is shocking that we underspent. You could have changed your rules halfway through; if it was an inappropriate programme you could have reconfigured the programme in a way that meant it targeted the sort of expenditure you wanted. This is shocking, isn't it?
Moira Wallace: I want to come back to some of the reasons for this—

Q71 Chair: Is it shocking?
Moira Wallace: Yes and no. I'm sorry to say it that way but some of this money could not be spent. We have given the example of the Marine Renewables Deployment Fund. That was £50 million. Now, it was a bad decision to put £50 million into that fund, because no one can meet the criteria.

Q72 Chair: And somebody should have taken it out of that fund and put it into something else.
Moira Wallace: Yes; there were great efforts by the companies that were trying to meet the criteria for access to that fund. They were trying like crazy to get those schemes to work to get this money. It took time quite a while, understandably, for them to try, to fail, to try again and us finally to say, "This isn't going to work; we are going to have to do something different with that money." But I would also like to say that some of this money has been reallocated to other things in departmental budgets, which this Report itself states in paragraph 3.

Q73 Chair: It went to nuclear decommissioning in BIS and it went to insolvency services. That's hardly anything to do with the purpose for which this money was voted to you, which was to increase our use of renewable energy.
Moira Wallace: Can I just say on that, that did happen in BIS and Departments do have to make judgments about how to deal with overspends that arise in their area.

Q74 Chair: But it's shocking. It's shocking. This is one of the most important bits of the world. If we don't get this right, we leave to our grandchildren a terrible legacy and yet, you've failed to—
Moira Wallace: Chairman, with respect, the same is true of nuclear decommissioning; I did not reallocate this money—it was before DECC was founded—but nuclear decommissioning is a budget that now sits on my Department and it is one of the most unpredictable budgets because it is the net of a whole range of things. And Departments are not allowed to overspend. If they have pressures in year they have to reallocate.

Q75 Matthew Hancock: You can't argue that actually this was used for useful renewables type—although it was underspend it was used. Although it was underspend it wasn't used on this; it was taken away and put into another project. So actually there is no way surely, on this evidence, that you can argue that the underspend actually was used.
Moira Wallace: The underspend was used by the Department.

Q76 Matthew Hancock: Yes, elsewhere on something completely different.
Moira Wallace: Yes, it was used by BIS elsewhere on something completely different and Departments have to absorb pressures that arise in the year otherwise they overspend.
Chair: But they shouldn't have underspent. Stephen?

Q77 Stephen Barclay: Can I just clarify, you mentioned the make or break role for offshore. Last year how much offshore capacity did we add?
Moira Wallace: Pardon?

Q78 Stephen Barclay: How much offshore capacity did we add last year?
Moira Wallace: I do not know whether you can give that.
Hugh McNeal: I do not know, but I can tell you the figure from this year. We have moved from 600 MW to 1.3 GW. The figures—

Q79 Stephen Barclay: PwC says we added 0.3 GW. It just doesn't seem very much.
Hugh McNeal: Okay, but as I tried to say earlier, this is all publicly available now so people can see. We have got 1.8 GW in construction right now. There are five farms—three are going to be completed next year and two in the early part of 2012.

Q80 Stephen Barclay: Sure. You mentioned earlier that 25 GW is in the pipeline. We've just been hearing about the finance side. How much of that has reached financial close?
Hugh McNeal: I can't tell you the answer to that.

Q81 Stephen Barclay: Could you let us have a note setting that out? It is just it is very difficult to say that you can rely on the 25 GW if they have not actually closed the deal.
Moira Wallace: As I said earlier, we are taking an extremely close interest, as you can imagine, on how much we can rely on that.

Q82 Stephen Barclay: Can you give us a rough estimate? You have given us that figure today. I am sure you have prepared very well for today. How much of that 25 GW has closed? Just give us a rough estimate.
Hugh McNeal: The historic figure about how much goes through the pipeline is approximately 30%.

Q83 Chair: 30%?
Hugh McNeal: No, 30% falls out from the pipeline.

Q84 Stephen Barclay: Sorry, I'm not quite clear what you mean. What I am saying is of the 25 GW—I appreciate they have not been built, because it will take a while to build them—on how many has the financial deal been done?
Moira Wallace: I do not think we have that information precisely in that form and I will make sure you get it.

Q85 Stephen Barclay: Well how can you tell us there's going to be 25 GW added if the deal has not even been done?
Moira Wallace: Let me just give you the breakdown that we do have and I am quite happy to add more detail later on. Some 4 GW of that is under construction already. Another 6.8 GW has planning permission and is presumably seeking to agree financial close and 15 GW is in the planning phase.

Q86 Stephen Barclay: Say that again, sorry—so 4 GW.
Moira Wallace: 4 GW is under construction, 6.8 GW has planning permission, which is of course one of the—

Q87 Stephen Barclay: But isn't financially agreed, necessarily.
Moira Wallace: I think it will be a mixture. I think it will be a mixture and we will try and give you that. And 15 GW is in the planning phase. I want to add that one of the things we're trying to do—because we're fascinated by this and we thing everyone else ought to have the right to see this—is to put all this information in much greater detail on our website and a lot of it is already there, so that people can actually see what is in the pipeline.

Q88 Stephen Barclay: As a sort of rough estimate, because until 24 hours ago I was totally new to this subject matter, so forgive me my basic questions, but what's the estimated finance per GW of offshore?
Moira Wallace: I'm not sure I can answer that.

Q89 Stephen Barclay: Okay. Because again I was just looking at this PwC report, which says that an estimated £33 billion or so would be needed between now and 2020 to develop 12 GW of offshore. So presumably one would need to double that to £66 billion.
Hugh McNeal: The most recent example we have is the Gwynt y Môr deal, which was announced in the summer. So that's a £2 billion investment just off the north Wales coast, which involves a three way split between RWE, Siemens and the Munich Municipal Utility. That wind farm will have 560 MW to 570 MW capacity. So those are the latest figures we have.

Q90 Stephen Barclay: It is just that you are asking us to rely on at least 15 GW which is some way in the pipeline, not under planning permission, not financially closed, and it's just useful to have an idea how that maps into the funding, particularly given Wednesday's announcements, how much money there is in, as you yourself have cited, the difficult financial climate as well.
Moira Wallace: Yes.

Q91 Stephen Barclay: So you don't actually know what the rough cost is?
Moira Wallace: But what we will settle one way or other the financing of those deals is whether they think they will get a return in the market. I am sure I do not need to tell you that and that's not something that is going to be settled—it depends on the spending review and the market—

Q92 Stephen Barclay: Sure. The bit I am struggling to understand is in 2009 you signed a legally binding agreement saying we're going to hit the 2020 target.
Moira Wallace: Yes indeed.

Q93 James Wharton: Setting aside my scepticism when it comes to wind power and all the issues surrounding that and accepting at face value the direction in which we're going or what we're trying to achieve, we're not going to hit our 2010 target and we're going to probably struggle to hit our 2015 target. What we haven't really discussed is 2050, which seems to be way above all of this, which is talking about 80%, which is an extremely ambitious target. One of the things that's already coming out from this hearing this morning are the number of different pots of money that are out there, the different organisations through which they have been allocated. We've got this whole complex web of organisations which are all feeding into achieving these overall strategies and I think actually one of the problems that we might be running into has been bringing that together and coordinating it overall. So if we could just look at the 2050 target briefly, my understanding is that actually at the moment there is no real strategy beyond 2020. There are no targets for the contribution to be made by renewables as a whole or individual renewable technologies running up to this 2050 target. The 2050 pathways analysis identifies various possible paths but doesn't actually then say, "These are the one that we should go down." When do you think that we will actually have a clear strategy which has got milestones, which sets out the path we want to take and what you expect from renewables to deliver after 2020, and a route map for getting to this really extremely ambitious figure for 2050?
Moira Wallace: Okay. I might at some point ask David Mackay to come in since he is one of our great experts on 2050. You are quite right to say that everyone is agreed that we need not just a sense of what we have got to achieve by 2020, but a sense of how we are going to achieve the even more demanding targets longer term, so that is why we did the 2050 work, which sets out options and actually is trying to engage the public and other experts in that debate as to how we are going to get there. And it sets out a variety of different pathways with different mixes but I think one of the things it makes clear, as you yourself say, is what a lot of effort is going to be required on all of them. Perhaps the biggest single conclusion of that work—well there were two big conclusions, one is that actually we need to make progress on all the technologies, on renewables, on nuclear and CCS. The other big conclusion is that

actually the electricity market will need to be substantially reformed because it was not constructed to deal with a period of intense change, which is what we're about to see. That is a piece of work that we are doing at the moment. We will produce our first conclusions of that this side of Christmas; there will be a White Paper next spring. And that is extremely relevant to all the large investment decisions that we have been talking about because that will set the framework for the rest of the decade. In terms of renewables and what its specific contribution is going to be, as part of the Coalition Agreement we have asked the Committee on Climate Change for its advice both on the renewables target up to 2020—should it be increased—and the renewables target beyond 2020. They have given us the first bit of advice and said "no, it shouldn't be increased" and some suggestions, their thoughts on that. We await their advice which is due in a few months, on what should happen to renewables beyond 2020. I don't know if Professor Mackay wants to add anything.
David Mackay: I would be happy to take more questions.

Q94 James Wharton: What I'm getting at, what I would like to know is: when are we going to have a clear strategy of how we are going to get there? Because at the moment it all seems a little bit vague. I appreciate that there is a lot of work that needs to be done and this is going to be a transformational thing if it is achieved, but when are we going to be able to sit down and say "that is the strategy; that is how you are going to do it; that is how you are going to measure whether you are going in the right direction"?
Moira Wallace: Well on renewables we have a very concrete target. Another thing I should have mentioned which actually—

Q95 Chair: A target isn't a strategy.
Moira Wallace: No, it is not, but we do have a strategy and it has many bits as to how we are achieving renewables but the other thing I should have mentioned is documents that were published yesterday, the national planning policy statements, which were published and cover both the totality of energy and set out very clearly what we need to be planning for. They go for the first time to 2025 and set out actually the Government's conclusions as part of its planning policy of what we should be looking for on all these technologies. But we will never have a simple "this is the right answer; we will stick to this without deviation for 40 years" kind of a plan.

Q96 James Wharton: No, and I wouldn't expect that. But you would expect a sort of route map. The key thing actually for me is milestones, because what we really need to hear is "2010: no, actually we are going to miss that by a bit. 2015: we don't know, we might miss that buy a bit". 2050 is a step change to what we're talking about in 2010 or 2015. It is many magnitudes greater. We want to be able to measure how we are doing heading towards this very, very ambitious target. And what I am driving at is: when are you going to be able to tell us? And I appreciate we have to be flexible, have to change over time and adapt to changing circumstances but when are we going to get an indication of "by this date we want to have achieved that, we want to have achieved this; we want this percentage in this type of renewable area", so we have got things that we can measure.
Moira Wallace: Well, there are several bits to that. For renewables, we already have—it's in the Report—a target and a trajectory and actually the data that we refer to on the website shows you where we are against that and we are behind, as we have discussed.

Q97 Stephen Barclay: Although you don't have a detailed plan for 2020, do you?
Moira Wallace: In terms of renewables we will issue a more detailed delivery plan.

Q98 Stephen Barclay: Well page 11, point D mentions "the 2020 delivery plan that the Department is developing". So you don't have one. When did you start developing the 2020 plan and why is it not done?
Moira Wallace: Well, we are effectively updating strategies and plans that already exist.

Q99 Stephen Barclay: Sorry, please, my question was, when did you start the detailed plan for the 2020? When did you start it, how long is it taking and when is it going to be done please?
Hugh McNeal: It was started by the Chair of ORED just before I started in post.

Q100 Stephen Barclay: Could I have some dates please?
Hugh McNeal: Yes of course. It was started earlier this year. We have been taking it forward—

Q101 Stephen Barclay: This is your detailed plan on which you have signed in 2009 a legally binding agreement, which must focus minds in the Department. When did you start your detailed plan to deliver these legally binding agreements, why is it taking so long and when are we going to have it?
Moira Wallace: The plan has been getting more detailed as we go along. The Renewable Energy Strategy—

Q102 Stephen Barclay: Sure. But can I have some dates please?
Moira Wallace: If you would let me finish any of my sentences I will do my best to answer your question. We published a Renewable Energy Strategy in 2009. That is at a fairly high level but it is a plan in one sense. I want and others in the Department want a much more detailed plan. I would say going down to the next level of detail started probably January or February this year. We have published a version of that in that we have shared it with the European Commission because we were required to, and that is available, you can read it on the website. What Ministers have committed themselves to do is to publish a very detailed one next spring. Drafts exist, but the reason that we will publish it then is because actually there are quite a lot of policy developments, some related to events tomorrow, other related to the electricity market reform etc, that actually we need to

take account of in our modelling. But I do think that that will give you more detailed milestones and it will reflect our best understanding at that point of how we're going to do it.

Q103 Chair: Is spring June or April?
Moira Wallace: I think April is our plan.

Q104 Ian Swales: I think part of the delivery of this relies obviously on organisation and if we look at figure 1 on page 6 it actually reminds me of a chemical plant; it is extremely complex. If I'm looking at the bottom of the diagram and I'm engaged in renewable energy it looks like I have six possible routes for engaging with the public sector and I can perhaps reduce that to five, because I suppose devolved administrations and Regional Development Agencies you could argue are double counting. I have five different routes, people to talk to, who seem to have an interest in my area, who in turn have a complex web behind them. What can be done do you think to simplify things and get all the effort pointing in the same direction on this.
Moira Wallace: I'm very interested in simplifying things too. I think there are some limits to what can be achieved because actually, legitimately some of these organisations do come at this from different angles and those different angles are legitimate. Obviously, we come at it from the low carbon angle. BIS and the bodies that report to it, the Technology Strategy Board, are looking at overall UK advantage and they have a much broader remit. RDAs while they still exist are looking at it from a regional perspective. Some simplification has already happened. First of all my Department brings together the low carbon energy bits of what was DEFRA and what was BERR, so that in itself is a simplification. Secondly, obviously the Regional Development Agencies are going to be wound up and their innovation responsibilities are, I believe, going to be transferred to the Technology Strategy Board and that has been announced, so you are starting to remove another box on this diagram. We will carry on looking at whether this can be simplified more because I agree with you this is a very complex picture and it must be quite tough being at the receiving end at the bottom or trying to be at the receiving end. In the meantime while these bodies are as they are we've done two things. We and our Ministers are trying to coordinate the governance and the strategy at the top through a Low Carbon Innovation Group which will be jointly chaired by Greg Barker and David Willetts in our Department and BIS, and secondly by actually having a sort of simple web access at the bottom, so that it is simpler for the user.

Q105 Ian Swales: So as I understand it these are not just organisational, these are financial links as well, so is it true that work in this area is being sort of sponsored and supported and so on, in particular, by your Department and by BIS separately?
Moira Wallace: In some cases yes and that reflects actually the mixture of objectives that some schemes meet in that some of them are of value to us because they help us meet our low carbon energy objectives and they are of value to BIS because of their significance on an economic or employment scale. So although I can be tidy-minded and say "gosh that's terribly complicated", actually if we weren't making those links with other Departments that have complementary objectives I think we could be criticised, too.
Chair: Could you now say—

Q106 Ian Swales: Sorry, just one final point. This diagram may be wrong, but according to this, you are not represented on the Technology Strategy Board. That seems rather strange.
Moira Wallace: I think we do have a status on it. David?
David Mackay: Well we are part of the Low Carbon Innovation Group which is a helpful forum for—

Q107 Ian Swales: Sorry, where's that?
David Mackay: The Low Carbon Innovation Group is the union of the Energy Technologies Institute CEO, the Technology Strategy Board CEO, the Carbon Trust CEO—

Q108 Ian Swales: So there is another box to go on here?
Moira Wallace: It's a line between boxes.
David Mackay: Yes it's the body you would hope exists to help co-ordinate the seven or so bodies on this diagram. So that's where people meet.

Q109 Ian Swales: And Mr McNeal you belong to the Office of Renewable Energy Deployment, is that just a subset of DECC?
Hugh McNeal: Yes, it is.
Ian Swales: Right. Okay.

Q110 Chair: And would you now be able to tell us how much is being spent across Government supporting renewable energies?
Moira Wallace: We can tell you about some, but not all. The big issue, as the NAO found in its Report, is the Regional Development Agencies. Their objectives are different and they're not divided up in this way, so we find it hard to tell that part of the story.

Q111 Chair: So you can tell everything bar the RDAs?
Moira Wallace: I think that is overstating it and I think the NAO found that we could go and find it out, but we didn't have it all at our fingertips.

Q112 Chair: When will you have it at your fingertips? It strikes me as not being insignificant.
Moira Wallace: We will have it at our fingertips to the extent it's significant at a strategic scale. What we won't do is I won't become the accounting officer for another Department so—

Q113 Chair: No, I am not asking you to become the accounting officer. You do hold responsibility for the target, so you must therefore know across Government what the contribution is from the public sector towards investment that will support the delivery of the target.

Moira Wallace: We will report those bits that are significant in the delivery plan, in the delivery plan.

Q114 Chair: Can you give us a note on what has been spent in 2009–10 across Government, because I couldn't get it out of the Report.
Moira Wallace: Okay. Yes.

Q115 Chair: Could you?
Moira Wallace: Yes, we will.

Q116 Chair: Right. In time for us to look into the Report. And then just one final thing then—there are a number of people waiting—the RDAs are being abolished. Looking at the Report they spent in 09/10, I think I have got the right year, more than you did on supporting the development of renewable technologies. How are you going to replace that?
Moira Wallace: I'm not in a position to say what's going to happen to all the RDA funding for reasons I am sure you will appreciate, it being the day it is, but it has already been announced that its innovation spending will come under the wing of the Technology Strategy Board. So that is how the continuing funding there will be managed.

Q117 Chair: They spent more than you did. I cannot remember the exact figure, but was it £31 million or £30 million? One assumes that if they are going, it will be cut. Will that have an impact on your ability to meet your target? Can you give me a yes or no?
Moira Wallace: I'm going to give you an answer which is it may have a slight impact and I'd like to expand on that. The big point from our perspective if you stand back and look at the picture of this funding is that we are moving from a point when a lot of what we were doing to drive renewables was innovation funding. So examples we have already discussed: trying to get the first offshore wind farm; trying to get the first wave or tidal projects in the water, functioning. These amounts: many of them have done their work. Most of the technologies that we need for 2020 are mature. Actually work that is now necessary is deployment. The sums that are detailed in this Report are not bearing the heavy lifting of meeting the 2020 target anymore, because for many of them their work is done. That work is being done now by the market; it is being done by things like the Renewables Obligation, which this year is £1 billion.

Q118 Chair: I hear that, but do you not need the £30 million that the RDAs were spending.
Moira Wallace: I'm not sure we need that money next year. I'm not sure we need that money next year.
Chair: Okay. Jackie, Austin.

Q119 Austin Mitchell: Well, I mean to follow that, because you will supply us, presumably from what the Chair has requested, with the figures the RDAs were spending for 2009–10.
Moira Wallace: We will do what we can with the RDAs. I will do what I can with the RDAs.

Q120 Austin Mitchell: Because our Report says that they were spending more than you in 2008–9. So did that relative balance continue in 2009–10? And you will supply us with the figures the Chairman has asked.
Moira Wallace: We will do what we can with the RDAs.

Q121 Austin Mitchell: I'm not satisfied with what you're saying about the work of the RDAs being continued, because certainly Yorkshire Forward, which was brutally abolished to great cheers from the south and gloom and groans from the north, was doing quite important work on carbon capture and there were proposals to develop schemes for shoving it all down oil wells in the North sea and various places. Now what happens to that work now? How important was it and what happens to it now?
Moira Wallace: Okay. There are two things I would like to say to that. The comment I just made about the technologies we need for 2020 being mature, that was a comment about renewables. It was not a comment about carbon capture and storage, where the issues are very different and where we still need to prove all the technologies involved in carbon capture and storage at scale. So I absolutely was not suggesting that technology has been proved and it is not the Department's policy—

Q122 Austin Mitchell: Will that work be continued?
Moira Wallace: I don't know whether that work will be continued, but I will say that carbon capture and storage is a very big priority for the Department, but it's a different subject to the one covered in this Report, if you do not mind me putting it that way. The other thing I would like to say about the spending of the RDAs is the primary purpose of the RDAs is regional economic benefit. The primary purpose of the RDAs is not to fund renewables and to tell DECC how much it has spent on them. So I will give you what information we can on RDAs but I think we may suffer from some of the same issues as the NAO have, which are to do with the way the RDAs report, which is to do with their primary purpose. I'm not for a minute suggesting that their spending has not been valuable, but do we need it as a source of innovation to give us the technologies which we expect to meet the 2020 renewables target? No, on balance, we don't.

Q123 Austin Mitchell: Well we might well need it regionally, but let me move on. One of the works of the RDA, and BIS was involved here, is in connection with the development of wind turbines for offshore, huge ones, in this country. Now it's a fairly open secret that Siemens are looking at three areas for a considerable investment, a sizeable investment which needs docks, and which needs land for factories. Now, they are looking at three possible sites, Denmark, Germany and this country. Various organisations and regions are competing in this country. Now, the question is what help and support is your Department in conjunction with BIS, going to give to attract that development which is very important in terms of jobs, a huge number of jobs, to this country in competition with the other countries competing for it?

Moira Wallace: I'm going to ask Hugh McNeal to answer that question but I am also going to say there is the spending review tomorrow.
Hugh McNeal: That's a good reminder. We are working very hard to bring those investments to the UK and that's all I can say.

Q124 Austin Mitchell: But working hard in this way?
Hugh McNeal: We are working hard in lots of different ways. In my previous role we had a project team across Whitehall thinking and looking into these investments that brought together people from the shareholder executive, from BIS, from DECC, from the Regional Development Agencies and at times from the devolved administrations to look at how we could provide support. In terms of manufacturing in the UK, there are a number of things I think that it is worth saying at this point, because there are a number of things that are going on right now that are is worth people knowing about. There is the announcement at Haverton Hill, TAG Energy Solutions, a company that has received some funding through one of these schemes. It is redeveloping Haverton Hill, where there will be up to 400 new jobs to provide foundations for offshore wind turbines. There is Burntisland in Scotland, also in the same business: producing the foundations for turbines now. There are UK-based companies winning contracts on the back of offshore wind turbines. There is a cable company in Wrexham, I forget the name, that's just won a £15 million contract to provide cables for the offshore wind farm at Gwynt y Môr and Harland and Wolff in Belfast has just won a £20 million contract to produce two substations for the Gwynt y Môr site. So it is starting to happen.

Q125 Austin Mitchell: You are talking about TAG. Of course, Vestas, which was, I think, the only British manufacturer, was allowed to go bust on the Isle of Wight. Now why was that?
Hugh McNeal: Vestas has not left the Isle of Wight and the reason was that they were producing onshore wind turbines on that site for the American market.

Q126 Austin Mitchell: And it was liquidated and jobs were lost.
Hugh McNeal: But jobs are coming back to that site on the Isle of Wight now. They are developing their R and D facilities, partially thanks to support from the Department to develop their new offshore wind turbines.

Q127 Austin Mitchell: Okay, well I am glad to hear that, but one final question. Over the years, as MP for Grimsby, various people have approached me with various schemes which looked very good and were certainly well developed for production of energy from food waste, from wood chips, from biomass in the case of the Drax scheme, from wheat, which was brought in and partly produced in Lincolnshire, for assembly in Grimsby of wind turbines brought in from China and solar panelling, again, brought in from China. I have brought up various proposals to BIS and to your Department for help in these schemes, for support from these schemes, for changes in the interpretation of European regulations, which would improve the prospects of these schemes. All have been met with a negative response and the developments have just gone away. Now, is this going to continue, because it's an appalling prelude to the need to reach these kind of targets—sacrosanct, sacred European targets—in 2020. If this is the extent of investment and encouragement for local development it presages a disastrous future.
Moira Wallace: It's very difficult to answer on specific projects that I don't have the details of.

Q128 Austin Mitchell: Well that is true, but I did send it to the Department at the time.
Moira Wallace: Okay, well I am happy to have them looked at again, if you feel we made a mistake but I'd like to come back to the point I made a few times which is that actually if we're going to develop renewables at scale, then what we are going to need is technologies that work, a planning and regulatory framework that everybody understands and a market that remunerates them. And that is actually the strategic context we have got to get right and we will never have developments at the scale we are talking about if it's reliant on the one-off response to small-scale schemes.
Chair: Okay. James has got a very quick one on that.

Q129 James Wharton: I don't want to leave the RDA point hanging, not being from the south and being rather delighted that my RDA is going. In respect of your targets—this is just to get an understanding of this—with the RDAs going, have you factored in any impact on your ability to meet your target or do you think that will be entirely compensated for by other factors?
Moira Wallace: The way I would put it is that in order to meet our 2010 targets, our need for extra innovation support is quite low. A huge amount has been spent on this and actually, as I think the facts demonstrate, the amount that has been spent has got these technologies to a point where we have got an installer base; people know they work; it is clear how much they cost.

Q130 James Wharton: So you do not think that the demise of the RDAs will have any significant impact on your ability to meet your target?
Moira Wallace: From our point of view we do not need them for innovation purposes. That of course is not the only purpose of those funds.
James Wharton: Thank you.
Chair: Jackie.

Q131 Jackie Doyle-Price: I am not convinced by that. I just want to unpick this a little bit more. If we look at figure 7 on page 30, which actually documents exactly how much has been spent by each of the RDAs, and obviously there is very variable performance, it follows what you would expect, that London has been spending less on investing in these projects than other regions that are more in need of development. Taking you back to what you said earlier about RDAs being focussed on job creation

and economic growth, and there is a complementary aspect to meeting both these targets and ultimately if we are going to have a very viable sector we need to think about it in those terms. Now, you set out earlier quite an optimistic forecast in terms of how you meet this target, but ultimately we come back to this graph here, which illustrates just how much money the RDAs have been spending in pursuit of this agenda. Can you really be satisfied that you're going to be able to meet the projections you have outlined to us today with the RDAs gone.

Moira Wallace: Let me say two things about this. There's a huge issue of scale, which I want to come back to. The scale on the left hand side of this graph is £16 million. The Renewables Obligation which will remunerate many of these things is over £1 billion this year. It will grow as people take it up, so it dwarfs this. It isn't the case that because innovation money needed to be spent in one year it always needs to continue at that level, because actually the whole point of these things is you do them to learn and to establish markets, and once you have you wouldn't continue with it on innovation grounds. In terms of the RDAs' principal role about regional economic benefit, we will hear what the successor arrangements are, what the regional growth fund looks like, how it's to be spent, what local enterprise partnerships look like and I have no doubt that some of that will go into energy, because energy is going to be a very significant employer again in this country. So I have no doubt that there will be something in that. But in terms of innovation do we still need someone to show us that an offshore wind farm can be built? No, we don't.

Q132 Chair: They were not really funding that. It's a bit naïve to say that is what they were funding. What they were doing was subsidising the creation of offshore. Now, if you're saying that can be replaced by the Renewables Obligation, fine. But if you're not, if that is not the case, we will lose some new facilities.

Moira Wallace: Well, I think you've put your finger on the point. If you look at the spending that is detailed in this Report, a great deal of it was establishing a technology, a supplier base, how does it work, what does it cost, and then actually that technology then moves on to market, subsidised by Renewables Obligations and that is the natural successor to many of these funding streams. So there is a transition. Now, we will still be spending money on innovation, but some of this will be looking at the challenge Mr Wharton mentioned of how you get from 2020 to 2050, because there are technologies that actually are at very early stages and will be significant. I sense at some stage you might want to hear Professor Mackay on this subject.

Chair: Because we are going on a bit we might come back to that. Amyas wants to say something and then I will come to Stephen and then Matt.

***Amyas Morse*:** I think it may have just been answered. I was a bit concerned that as I listened to the testimony the impression was starting to grow that we'd finished the innovation phase. And I was a bit concerned that considering the massive 2050 targets, you might be, you may intend to give the impression that you think the technologies for delivering the 2050 targets are already there. So in fact you are going to have to do very extensive amount of innovation going forward and I'm not coupling it with the RDA question.

Moira Wallace: Sorry, that is exactly what I was trying to say and if it didn't come out that way I apologise. I would like to draw the distinction between the largely mature technologies which will take us to 2020—they are largely mature, but there are individual issues, bugs and problems that we need to iron out—but much of the innovation necessary for 2020 has been done for precisely the reason that some of your colleagues have already alluded to, that if it wasn't there would be no chance of their deploying within that time. For 2020 to 2050, there is innovation to do.

Q133 Chair: And you are not going to have RDA money to support that?

Moira Wallace: I don't know what RDA money we are going to have but I would not expect that that would be a major contributor; the innovation money of the RDAs will go to the Technology Strategy Group.

Q134 Chair: Mr Mackay, you had better have an opportunity to tell us about that.

David Mackay: Yes, so certainly I see a substantial need for innovation support to meet the 2050 targets. Our 2050 pathways work indicates that there are number of sectors that will have the potential to do the heavy lifting to get us to the 2050 targets. There is demand reduction, for example, building insulation. There is wind—onshore and offshore—there is nuclear, CCS. Biomass will play an important role. Technologies on the demand side include electric vehicles and electric-powered heat pumps for delivering heating and finally we need storage systems to match supply to demand when we have an increasingly inflexible electricity system. So that could include smart demand management, interconnectors and perhaps things equivalent to pump storage. Almost all of those sectors have risks and uncertainties and many of those risks and uncertainties involve the need for innovation. So demand reduction can mean retrofit building insulation into poor quality old buildings at a lower cost than today's methods. And can we make it less intrusive so that we don't need 20cm of Rockwool on the outside of a building; can we get by with a new material that is much thinner? On biomass we have a very strong need for innovation support, because many of today's biomass technologies require a lot of energy input to get the energy out and for the long-term targets we need to have better chemical engineering processes.

Q135 Chair: So how is all this going to be funded?

David Mackay: So innovation support is one of BIS's priorities and it's one of DECC's priorities and in the next four years tomorrow's spending review will—

Chair: Although you failed to spend £200 million and more. Stephen.

Q136 Stephen Barclay: Paragraph 17 says "the overall value for money of direct support for

renewable energy technologies cannot be demonstrated". Can I just check you will be able to demonstrate that from spring next year; the detailed plan you're pulling together will include evaluating and reporting performance?
Moira Wallace: Yes it will.

Q137 Stephen Barclay: So you will meet that?
Moira Wallace: Because the story, looking backwards, is not acceptable. And it's not acceptable we were told this in 2005 and it wasn't fixed.

Q138 Stephen Barclay: Sure. That's helpful, thank you. We have talked quite a bit about offshore but can I just bring it on to onshore? And you were talking about on the offshore side 8.3 GW now, the optimistic point around 25 GW in the pipeline; can you just give me the comparable onshore figures please?
Hugh McNeal: The current position on onshore is 1.6 GW in construction.

Q139 Stephen Barclay: Where are we at the moment, today? How many gigs have we got today on onshore?
David Mackay: Onshore is 3.7 GW is actually out there, working.

Q140 Stephen Barclay: 3.7 GW, yes.
Hugh McNeal: And there's 1.6 GW in construction now.

Q141 Stephen Barclay: Yes.
Moira Wallace: There's another 3 GW that has planning permission and is awaiting construction, and there is another 8.5 GW that is in planning.
Hugh McNeal: And of the three that have got through the planning system, I don't know where the projects are with financial close, but the biggest issue appears to be radar systems and the impact of onshore wind on radar systems.

Q142 Stephen Barclay: Sure. And to achieve our 2020 targets, how many gigs do we need? And what's the shortfall?
Moira Wallace: Well, we haven't at the moment set or announced a precise target for this. We haven't updated that but we would expect onshore wind to make quite a sizeable proportion of the target.
Chair: Across the piece if you—

Q143 Stephen Barclay: Give us a ballpark figure. How many gigawatts do we expect onshore; you gave me the figures for offshore, so you must have an idea for onshore. What are we looking at?
Hugh McNeal: It's approximately 30 GW, but I would want to write to check that figure for you.

Q144 Stephen Barclay: About 30 GW.
David Mackay: Roughly 30 TWh per year of onshore.

Q145 Chair: Do you want to give a different answer on gigawatts, David?
David Mackay: Yes. I am imagining that 9 GW might be a reasonable ballpark figure.

Q146 Stephen Barclay: Sorry, so 9 GW or 30 GW?
David Mackay: Delivering 30 TWh per year. I think we will be happy to write to you.

Q147 Stephen Barclay: I am trying to compare like with like, because I get confused if we start comparing with something else, so on the gigawatts, how many gigawatts are we expecting from onshore?
Hugh McNeal: We will have to write to you, apologies.
Stephen Barclay: Okay. Any ballpark figure.
Moira Wallace: Let us say 9 GW.
Stephen Barclay: So we are expecting 9 GW. Okay.

Q148 Ian Swales: Is the difference between 9 GW and 30 GW installed versus what you actually get from it? Is that why there is a confusion? We all know that wind power you only get intermittently, so is that why there were two numbers?
David Mackay: I think 30 GW is a rough indication of how much total wind we might have, both onshore and offshore.
Ian Swales: Oh. Okay.

Q149 Stephen Barclay: It is just because I was getting a bit confused because the funding which the European Investment Bank I think is lining up was for around seven wind farms totalling 175 MW rather than gigawatts, so it didn't seem that much by comparison. Could we just put some numbers to that? The 3.7 GW of existing capacity, how many wind turbines does that equate to? Within the nearest ballpark figure.
David Mackay: The total of all wind turbines in Britain including the offshore is about 3,000 today and maybe one third of those, roughly, are offshore.

Q150 Stephen Barclay: So the number of wind turbines onshore, Mr Mackay, that we have got in the country today? How many wind turbines have we got?
David Mackay: Roughly 2,000.

Q151 Stephen Barclay: So we have got about 2,000 and we're looking at adding another 5.3 GW, so that is rather a lot of turbines isn't it? How many extra turbines are we expecting to build then?
David Mackay: So maybe another 6,000 or so. It depends on how big they are and whether we go for—

Q152 Stephen Barclay: And we have gone for the easiest sites first, I presume. I represent an area which is fast becoming known as the voice of the Fens because we have a lot of existing turbines, and increasingly people are saying "well, we feel we have got our share" and are starting to resist. So we are actually planning to go from 2,000 today and add another 6,000.
David Mackay: Yes, that is a ballpark figure; we haven't published a target.

Q153 Stephen Barclay: Sure, but this is your—
David Mackay: This is a ballpark indication. And perhaps in terms of people feeling that their community or their region has done its bit, maybe the 2050 pathways work is going to help people

re-evaluate what actually needs to be done to maintain security of supply and reach our targets.

Q154 Stephen Barclay: Given that this is a legally binding target, you are confident from a planning and public policy point of view that you are going to be able to deliver that many onshore wind turbines?
Moira Wallace: Planning is a significant issue. A significant number of wind farms get rejected in the planning process.
Hugh McNeal: Over 40% in England. Less in Scotland.
Moira Wallace: You have to allow for that level of attrition. I referred earlier on to attrition rates.

Q155 Stephen Barclay: So the public had better brace themselves for a lot more planning applications, because if that is the rejection rate there is actually going to be a lot more applied for.
Moira Wallace: It depends. It depends on what developers do. It depends on where people think it is easiest and most economic to build.

Q156 Stephen Barclay: Sure. But just to deliver the numbers.
Moira Wallace: But yes, so you are going to see a lot more.

Q157 Stephen Barclay: Is it the case that Denmark have recently moved away from onshore? I was wondering if you could explain why that's the case?
David Mackay: It's true that the Danish wind capacity has levelled out. They're not building very much wind anymore. I don't know the reason for that decision.

Q158 Chair: But their levels are already very high.
Moira Wallace: They have got an awful lot already.

Q159 Stephen Barclay: So almost they have picked all their best sites and they have come to the point now that they have exhausted the productive sites that can offer the wind speeds that they require?
David Mackay: I think actually the layout of wind machines in Denmark is quite different to the British layout. They are much more uniformly spread throughout the countryside in perhaps smaller numbers. And that is a model that we could perhaps imagine in Britain: community ownership of smaller numbers of turbines, perhaps increasing engagement and increasing potential for deployment.

Q160 Stephen Barclay: I guess what I am driving at is there are only certain parts of the country which will have the optimum wind speed for onshore turbines. Has the Department modelled which areas those are? Because if we are adding another 6,000 then potentially they're going to be concentrated within certain parts of the country.
Moira Wallace: Yes, most likely because they only get paid when they generate, so developers have very little interest if they are logical in deploying—I just happen to have a map which shows where wind is.
Matthew Hancock: That's your constituency, Stephen!
Moira Wallace: I can obviously draw a few more blobs in if anybody would like, but it is fairly obviously a huge amount, for example, a huge amount—

Q161 Chair: What is that? That is where the 6,000 would go or—
Moira Wallace: No, that is where wind is deployed at the moment. This is published in our energy statistics—

Q162 Stephen Barclay: No, but with respect I am asking a different question. I'm saying there are only certain parts of the country which will be suitable.
Moira Wallace: Yes.

Q163 Stephen Barclay: If we're going to put 6,000 more in, one assumes the areas that are suitable already have a fair stock. Have you modelled how much of the area is still left which would be suitable and what the level of concentration will be in those and have you made that public yet and if not will you be making it public?
Moira Wallace: We are not being so deterministic about this. We obviously have some views on areas both offshore and onshore that are suitable for this, but actually our planning system is about developers identifying where there are areas that would be suitable and trying to persuade local communities. One of the coalition Government's commitments is to try and help find ways to reward local communities for hosting something and buying into something that they might not otherwise think was a great idea. But we are not sitting there—the map I have is the map of what has happened, it is the map of where people have decided it would be economic and have got planning permission and have built. But actually this is for developers to sort out. Of course we have a view on potential but the decisions will be taken by those who—

Q164 Stephen Barclay: Yes, I fully accept it is for developers and planning policy to decide. What I am trying to drive at is what modelling you have done as to the areas where these will have to go and the levels of concentration within those areas to actually come to the view of whether it's a realistic target, and whether you have made that public.
Hugh McNeal: That needs to be covered in the delivery plan next year. What we do know and as the map sort of already shows is that there is likely to be more deployment, significantly more deployment, in Scotland, as you would expect, because there is more natural wind resource, than there would be in places in England where there is less wind resource. But we haven't got down to that level of detail yet.

Q165 Chair: But when you signed up in 2009 to the target you must have done some modelling to say "this is feasible" and you own the target so you need to have clear in your head where you need to build.
Hugh McNeal: We absolutely agree with that. The top-down analysis of that is what was published in the Renewable Energy Strategy and that's the pie chart at the start of that document that says—

Q166 Stephen Barclay: Yes. But your delivery of the target is going to be reliant upon permissive planning policy from others, which is beyond your control. So in other words you're not totally in control on the delivery of that target.
Moira Wallace: No, we are not. Of course not. No, we are not.
Chair: Matt.

Q167 Ian Swales: Can I just add on this, according to the information we have got, in early June the Committee on Climate Change demanded that we build 10,000 more onshore wind turbines to help meet the target, so what are we faced with? Is it 6,000? 10,000, as there?
Hugh McNeal: It depends on the size of the turbine.
David Mackay: But the technical potential of wind power in Britain is much greater than this increase that we were just imagining to, perhaps, something like 8 GW. If we were to get up to Denmark's levels of wind in the community we would be getting much more than that. So there's no technical constraint.

Q168 Matthew Hancock: Just on this, before moving on, you talk about the technical potential, but clearly the planning issue is important, not only because, as you see it, gets in the way of hitting your technical potential, but also because it reflects the views and needs of communities. Do you have a strategy for trying to get the turbines that are built, built in the right places? The reason I ask this question is that all of us will have experience of proposals for wind turbines in the wrong places and this undermines, I'd argue, the capability to put wind turbines in the right places. Because when a planning application goes in in a particularly beautiful part of the countryside, when no planning application has gone in elsewhere where it might be more appropriate, that actually undermines community support for the whole goal of improving wind power provision across the country. So do you have a strategy for trying to get that through?
Moira Wallace: Well, the planning policy statements that were issued yesterday have quite a lot to say in terms of establishing the framework for wind turbines, where they should be, how you should deal with some of the things about the visual impact, other issues like noise, shadow flicker, that communities are very concerned about. So that is one way that we try and establish a framework and consistency, and there's quite a lot in there about actually trying to set out as clearly as we can what would be a good place to have a wind farm, without being deterministic and saying "I'm afraid that grid reference isn't in my plan, because we're not doing it like that". But the second issue, which I have referred to already, is that actually the Government is quite concerned about the nature of the dialogue between developers and communities and whether more can be done to help communities feel "this helps generate power and that's fine", but also what else does the community get other than a landscape that looks different, which they may not like.

Q169 Matthew Hancock: Okay. This brings me to another question, which is closer to the Report which is, within the £1 billion that you spend within the Renewables Obligation what analysis have you done of how well that is spent and what value in terms of renewable gigawatts you get for each pound, and especially the comparison across different technologies?
Moira Wallace: Do you want to comment on that?
Hugh McNeal: I don't have a detailed analysis and we would be happy to—

Q170 Matthew Hancock: You don't have a detailed analysis?
Hugh McNeal: I don't have detailed analysis with me here, but I—
Matthew Hancock: Oh, you don't have it with you. Okay.
Hugh McNeal: But we do have a sense of what you get for a particular moment in time.

Q171 Matthew Hancock: A sense.
Hugh McNeal: Yes, we do have that. So, of the mature technologies, onshore wind, in terms of what you get, is pretty much the cheapest. And then as you go up the curve, offshore wind is significantly more expensive. I can't remember off the top of my head where biomass is, but yes we do have analysis.

Q172 Matthew Hancock: Expensive in terms of RO rather than in terms of overall including private investment?
Hugh McNeal: Well, that's a good point.

Q173 Matthew Hancock: Well, that's the crucial point when you are thinking about how much subsidy to give, because you have got to look at how much subsidy you do give per gigawatt. Do you have that analysis?
Moira Wallace: You are not going to necessarily like the answer, but this is what the banding review is about. Earlier on you were saying—

Q174 Matthew Hancock: Hold on, you said you had one last year. Are you telling me that you did a review but you did not know how much subsidy you put into each gigawatt?
Moira Wallace: Yes, of course we do.
David Mackay: I think actually the bands that we end up with are the answer to your question. The Renewables Obligation Band tells you how many pounds we are giving of subsidy per megawatt hour. The rough exchange rate is each ROC is £40, so per megawatt hour, if you're in band one you are getting £40 per megawatt hour of subsidy. If you are—

Q175 Matthew Hancock: And have you done that analysis across the different technologies?
David Mackay: That is what the banding review is for.

Q176 Ian Swales: You're talking about this taking way into next year. I must have seen three or four at least what I would call banding reviews from people in the private sector who are trying to invest in

renewable energy. They will show you the graphs of what the effect is and I have seen them with about 12 technologies on it. The information is out there and it needs testing, it needs testing hard, but how long is it going to take to do that? These people who are desperate to invest have already done their homework.
Moira Wallace: Okay. There are two issues of cost here and I think we're at risk of confusing them. The cost of the subsidy is exactly as David Mackay has just described. It is perfectly transparent. On the cost of the technologies and therefore their case for how much subsidy they receive, obviously there are different views and there is constantly changing evidence, because one of the purposes of both innovation funding and things like the Renewables Obligation is to get these off the ground so that the costs come down. And there is evidence that costs are coming down in some of these and that is what we want to look at very carefully to make sure that we set the right balance between subsidy and the cost on those who pay for these.
Chair: Stephen.

Q177 Stephen Barclay: Could I just briefly touch on transport because figure 3 on page 14 had a target for transport and I would have thought transport, given that we are developing electric cars, technology on planes, is unlikely to come on stream for sometime and various other problems that we are facing. How reliable are your forecasts on transport?
Hugh McNeal: The forecast on transport is primarily being met now through biofuels and I think, David might correct me, but I think we are at 3.3% and we need to get to 5% by 2014 and DfT is due to provide further analysis of how we move on from 2014 to 2020 in due course. There is an issue of course about the sustainability of biofuels and that's a separate issue.
Stephen Barclay: Would you be able to provide us with some more details on that please?

Q178 Chair: Can I just ask you finally, you announced yesterday that you weren't going ahead at this point with the Severn tidal power scheme. Well, that was contributing 5% to your target. Why?
Hugh McNeal: The Severn tidal scheme was never intended to hit the 2020 target. It wasn't going to contribute to the 5% of the target.

Q179 Chair: So what was it there for?
Hugh McNeal: It's the capability that we might have there but the strategic assessment as we set out yesterday was that it would cost over £30 billion and that that would not be met by the private sector and might have to be met by the public sector and as we've been discussing that sort of level of support, that sort of deployment of renewables can be achieved more cheaply by other technologies.

Q180 Chair: So it's not required for the 2020 target?
Moira Wallace: It isn't.

Q181 Chair: Will it be required for the 2050?
Moira Wallace: We are not ruling out that it will be, but the announcement that was made yesterday was that there was no strategic reason to proceed with it at the moment for a whole range of reasons.

Q182 Chair: Strategic or no money?
Moira Wallace: Strategic. I don't think anyone does have £30 billion to invest in a project like this; that was one of the more expensive costs. There are also environmental reasons and there is also the question that it is such a one off that actually unlike some of the things that we've been talking about where you fund something and then that sparks imitators and grows a larger industry, it is really unlikely—well, it is not the case—that Severn would do that. So it is something that people have wondered about, asked about, and for that reason it was recommended to us and we agreed that we should look into it. Was it practical? Could you mitigate the environmental damage? How much would it cost? And so we have studied that very deeply and concluded that, absolutely, it does not stack up as something that is sensible to do.

Q183 Chair: But it is shelved for ever, is it?
Moira Wallace: No, the Government has not rule out coming back to it at some other stage, not least because of the enormous scale of the challenge for 2050, but we are not going to come back to it quickly. This rules it out for quite a while.
Chair: Okay. Well thank you very much indeed for answering our questions. And we look forward to, no doubt, returning to this issue in the future. All our thanks.

Memoranda from the Department of Energy and Climate Change

PUBLIC ACCOUNTS COMMITTEE HEARING ON RENEWABLES

Following the Hearing on 19 October we committed to provide further information on:

— the banding of the Renewables Obligation;

— the renewables pipeline;

— the potential generation from wind energy in 2020;

— Government spend on renewable energy support programmes in 2009–10; and

— progress on renewable transport.

1. *Banding of the renewable Obligation*

We have previously outlined the banding process. The published timetable would mean consulting on bands in Spring 2012, confirming them in autumn 2012 and implementing in April 2013.

We have just started the banding process—and following a competitive tender, we appointed Arup/Ernst & Young in October to analyse cost data and deployment potential.

As indicated at the PAC Hearing we are looking at whether we can bring forward elements of the process to facilitate investment decisions. We expect to have the results of this analysis by the end of February, so should hopefully be in a position to publish this report early next year, and make an informed decision on the cost of any grace period. Our Ministers will be confirming a new timetable before the end of the year.

2. *A note on the 25GW pipeline*

Our current data does not include financial close data as a separate category but we do publish the status of all electricity projects that have entered the planning system.

TOTAL RENEWABLE ELECTRICITY GENERATION (GW INSTALLED CAPACITY)

Stage	*All Technologies (Sept 2010)*	*Onshore Wind (Sept 2010)*	*Bioenergy * (Sept 2010)*	*Offshore Wind (Sept 2010)*
Installed & Operating	8.9 GW**	3.7 GW**	2.2 GW	1.3 GW**
Under Construction	4.0 GW**	1.6 GW**	0.6 GW	1.8 GW**
Have planning permission & awaiting Construction	6.8 GW	3.0 GW	1.8 GW	1.9 GW
In planning	14.2 GW	7.6 GW	4.3 GW	2.3 GW
Total Operating and in Pipeline	**33.9 GW**	**15.9 GW**	**8.9 GW**	**7.3 GW**

* Bioenergy includes: Biomass electricity, co-firing, landfill gas, sewage gas, waste
** *Source:* RESTATS

3. *Potential generation from wind in 2020 and potential numbers of turbines*

DECC does not set specific targets for individual technologies, but our central scenario analysis, set out in 2009 Renewable energy Strategy, suggests the following potential contribution of onshore and offshore wind towards the 2020 target.

	Current installed Capacity (GW)	*Current generation (TWh)*[1]	*Forecast 2020 installed capacity (GW)*	*Forecast 2020 generation (TWh)*[1]
Onshore Wind	3.8	9.0	15	34
Offshore Wind	1.3	4.0	13	44
TOTAL WIND	5.0	12.9	28	78

Source: RESTATS
[1] *Using Renewable Energy definition*

The number of turbines in 2020 will depend on the assumed average turbine size and the table below indicates the potential number of turbines at various installed capacities.

	Assumed average turbine capacity	*Estimated number of turbine in 2020*
Onshore Wind	1.5 MW	10,000
	2.5 MW	6,000
Offshore Wind	3.0 MW	4,333
	5.0 MW	2,600
	7.5 MW	1,733

4. *Government renewable spend in 2009–10*

RENEWABLES SPENDING IN 2009–10 BY DECC, CARBON TRUST, TECHNOLOGY STRATEGY BOARD AND ENERGY TECHNOLOGIES INSTITUTE

£m	*2009–10 spend*
Offshore Wind	2.0
Bioenergy Capital Grants shceme	6.7
Bioenergy Infrastructure scheme	4.1
Marine Renewables Deployment Fund	2.6
Clear Skies	N/A
Major Photovoltaic Demonstration Programme	N/A
Low Carbon Buildings Programme (Capital)	36.6
Advanced Biofuels	1.0
Anaerobic Digestion	5.7
Biogas	1.0
Deep geothermal	4.0
Marine Renewables Proving Fund	7.3
Renewable construction Demonstration Fund	6.7
Renewables elements of Central Government Low Carbon Technology Programme	2.1
DECC Sub-total	**79.8**
Applied research scheme (Re tech)	0.6
Biomass heat accelerator	0.8
Incubator (Re technologies)	0.5
Investments (RE projects only)	2.8
Marine Energy Accelerator	1.6
Marine Energy Challenge	N/A
Partnership for Renewables	2.7
PV Research Accelerator	0.8
Offshore Wind	1.6
Insource Energy	1.0
Carbon Trust Sub-total	**12.3**
Energy Generation and Supply	2.2
Materials for Energy	1.7
Low Carbon Energy Technologies	5.0
TSB Sub-total	**8.8**
Offshore Wind	8.6
Marine	0.5
ETI Sub-total	**9.1**
Total	**110.0**

Notes

1. The table shows expenditure on renewable technologies on an accruals basis. Expenditure from programmes funding a mixture of renewable and other non-nuclear technologies are included where the renewable spend could be separated out.
2. Rounding has affected the Carbon Truest and TSB sub-totals by £0.1 million each.
3. DECC's 2009–10 spend includes activities funded from the additional funding for non-nuclear low carbon technologies announced in Budget 2009.

4.2 *Renewables spending in 2009–10 by Regional Development Agencies*

RDA SPEND ON RENEWABLE ENERGY IN 2009–10

Technology	£m
Offshore Wind	12.2
Onshore Wind	1.0
Wave & Tidal	18.5
Biomass	9.9
Biofuels	1.4
Solar	2.2
Fuel Cells	0.3
Geothermal	0.3
Other[2]	12.7
Total	58.4

2

Notes:
Other spend includes: anaerobic digestion, community renewable energy schemes, hydro, microgeneration, onshore wind and renewable skills training.

It excludes spending on: carbon capture and storage, hydrogen and fuel cells, insulation, non-renewable low carbon technologies and skills training.

Includes spending by: Advantage West Midlands (AWM) East of England Develpment Agency (EEDA), East Midlands Development Agency (EMDA), North West Regional Development Agency, (NWDA), One North East (One), South East England Development agency (SEEDA) South West Development Agency (SWDA) and Yorkshire Forward (YF). There was a nil return for the London Development Agency (LDA).

5. *A note on progress towards 2020 renewables transport target—attached pdf*

The target for 2009–10 was 3.25% renewable in road fuels by volume. Provisional figures for the second year of the Renewable Transport Fuel Obligation (RTFO) show that biofuels constituted 3.3% of road transport fuels in the UK. This indicates we have succedded in achieving our target for 2009–10. The table below provides the RTFO levels until 2013–14 (more detail is set out in the attached pdf).

Obligation period	*RTFO level*
2010–11	3.5%
2011–12	4.0%
2012–13	4.5%
2013–14	5.0%

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