Economy, Energy and Tourism Committee

7th Report, 2012 (Session 4)

Report on the achievability of the Scottish Government's renewable energy targets

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Economy, Energy and Tourism Committee

Remit and membership

Remit:

The remit of the Committee is to consider and report on the Scottish economy, enterprise, energy, tourism and renewables and all other matters within the responsibility of the Cabinet Secretary for Finance, Employment and Sustainable Growth apart from those covered by the remit of the Local Government and Regeneration Committee and matters relating to the Cities Strategy falling within the responsibility of the Cabinet Secretary for Health, Wellbeing and Cities Strategy.

Membership:

Marco Biagi (from 19 September 2012)  
Chic Brodie  
Murdo Fraser (Convener)  
Rhoda Grant  
Patrick Harvie (until 1 November 2012)  
Alison Johnstone (from 1 November 2012)  
Angus MacDonald (until 19 September 2012)  
Mike MacKenzie  
Stuart McMillan (until 19 September 2012)  
John Park  
Dennis Robertson (Deputy Convener) (from 19 September 2012)  
David Torrance (from 19 September 2012)  
John Wilson (until 19 September 2012)

Committee Clerking Team:

Clerk to the Committee  
Jane Williams  
Senior Assistant Clerk  
Katy Orr  
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Diane Barr  
Committee Assistant  
Vikki Little
INTRODUCTION

1. The development of renewable energy technologies is at the very heart of the Scottish Government's energy, environmental, economic and employment policies. This extensive inquiry has explored the issue of whether the Scottish Government's targets for renewable energy are achievable and what challenges need to be overcome to realise them.

2. The Committee would like to thank all of those individuals and organisations that either submitted written evidence or gave oral evidence during this inquiry. Their views have helped to shape the conclusions and recommendations within this report.

3. The Committee would also like to thank its kind hosts on its visits to Orkney, Caithness, Perthshire and Fife. These visits provided invaluable information on renewable energy technologies, skills and infrastructure as well as illustrating some of the challenges and hurdles faced by those who are working towards the achievement of the Scottish Government's targets.

Remit and Terms of reference

4. The Committee’s agreed remit and terms of reference, which formed the basis of the Committee’s inquiry, can be found in Annexe B to this report. Details of all those who gave evidence to the Committee can be found in Annexe C.
EXECUTIVE SUMMARY – KEY FINDINGS AND RECOMMENDATIONS

Preamble

5. As a central plank of its energy, environmental and economic policies, the Scottish Government has set itself a series of challenging targets for the development of renewable energy technologies by 2020 in the electricity, heat and transport sectors. Our inquiry looked at whether these targets are achievable and, if so, what needs to be done to realise them. The Committee notes the Scottish Government’s announcement regarding the GP Wind project which, regrettably, came after the conclusion of evidence taking. We recognise that many of the issues raised in this report will be addressed by this new guidance and we look forward to hearing how some of our recommendations are being tackled through the initiative.¹ The Committee also notes the commitments made in the Scottish Government’s updated routemap² for renewable energy, which was produced close to finalisation of this report and which addresses some of its recommendations.

Targets

6. The Committee supports the Scottish Government in its efforts to develop the renewables industry which will be necessary if the Government is to achieve its generation targets. The Committee’s central finding is that the Scottish Government’s renewable energy target for electricity generation is achievable, but only if a number of issues are addressed. We set these out below.

7. We note that the interim target for renewable heat has been exceeded.³ However, from the evidence we received, there is a risk that the 2020 target may not be met. We are fully supportive of ambitious targets, particularly given the importance of heat within overall energy demand. Swift and decisive action to address this risk, particularly by boosting the penetration of Combined Heat and Power and district heating, is necessary. A factor in this has been the UK Government’s delay in agreeing the domestic Renewable Heat Incentive (RHI).

The impact on greenhouse gas emission targets

8. The Committee heard a range of views on the extent to which renewable energy generation leads to a reduction of greenhouse gas (GHG) emissions because of the requirement to have thermal generation running at sub-optimal efficiency as a back up to intermittent supply.

9. The Committee asks that the UK Government seeks clarity from the Committee on Climate Change on this issue and confirms that running thermal plant at lower efficiency has been accounted for in its calculations.

10. The Committee further seeks clarity from the National Grid and the UK Government on whether “reducing the carbon intensity” of the grid takes account of electricity which is generated from thermal plant but, due to despatch decisions,

¹ Good Practice Wind http://www.project-gpwind.eu/
² http://www.scotland.gov.uk/Topics/Business-Industry/Energy/UpdateRenewableRoutemap
³ Letter from Minister for Energy, Enterprise and Tourism, 1 October 2012.
does not make it as far as the grid, whether this is expected to be a continuing issue, and, if so, for how long.

11. In written evidence to the Committee, Scottish Power argued that “From a technical point of view, the development of renewables by the generation industry will have no impact on the 2020 CO₂ emissions targets because such renewables are in the traded sector under the EU Emissions Trading Scheme” (EU ETS). A letter⁴ to the Committee from the Minister for Energy, Enterprise and Tourism explained that emissions resulting from combustion processes >20MW are included in the EU ETS and are, therefore, captured by the traded sector.

The planning system

12. Increasingly high numbers of renewable energy applications are contributing to the pressure on the planning system, particularly in some local authority areas. However, the Committee welcomes the recent measures taken by the Scottish Government to address skills and resource issues in the planning system, which will go some way towards helping, but further improvements would be welcome.

13. Given the importance of assessing progress at local levels towards the national targets, it is critical that we can establish a baseline and trend data for the numbers of projects either operating, in development or at the planning stage in each of the 32 local authority areas. A robust and reliable dataset does not currently exist.

14. We recommend that the Scottish Government's Consents Unit, COSLA and the Heads of Planning Scotland publish regular reports which provide a breakdown of renewable energy developments by local authority area, which can then be used to provide a cumulative figure demonstrating progress towards the electricity, heat and transport sector targets. We note that other organisations publish relevant data on both a monthly and a quarterly basis.

15. The Committee is supportive of increasing planning fees charged for larger-scale planning applications where these will not disadvantage community developers. The additional finance generated should be used to boost resources in individual planning departments, where necessary. The Committee recommends that the Scottish Government explores whether in return for higher fees, planning authorities could address the duplication of effort for developers and improve efficiency, for example, by taking on tasks such as gathering information on cumulative visual impact from their own records, rather than each developer having to undertake this task separately.

16. The Committee welcomes the Scottish Government's commitment to provide more funding to planning authorities to cope with workloads and requests an update on the initiative once funds are disbursed.

17. The Committee would also like to see greater clarity on the circumstances in which environmental impact assessments are not required and calls on the Scottish Government and local authorities to address this issue. We would also

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⁴ Letter from Minister for Energy, Enterprise and Tourism, 28 September 2012.
like to see greater standardisation and guidance on issues such as visualisation standards and noise assessments to enable a level playing field.

18. **The Committee recommends that the Scottish Government gives greater support to the preparation of development plans and spatial frameworks, recognising the pressures placed on some councils to reflect national priorities.**

19. The timely delivery of local spatial development plans, agreed at local level in an open, transparent and democratic process, but with due regard to national targets, can reduce the costly and inefficient disputes about renewable energy developments that take place all across Scotland. Greater clarity on what type of developments are likely to be permitted, and where, in any local authority area should provide both communities and developers with more certainty in the planning process. Local Authorities must ensure that local development plans are consistent with national objectives and targets.

20. Finally, we believe that the benefits of community-generated renewable energy – in addition to contributing to the Scottish Government’s targets – are enormous. This being the case, the **Committee would like the Scottish Government to consider making adjustments to planning policy that would include clearer consideration of the local economic benefit of projects through the planning system.**
Finance and the subsidy regime

21. The Committee heard a broad range of opinion on whether sufficient finance will be forthcoming to deliver the necessary investment in generation plant and the upgrades to our infrastructure necessary to deliver on the targets. Estimates for the total amount of infrastructure investment required to realise UK targets by 2020 range from £100bn (Peter Atherton)\(^5\) to £120bn (Edward Davey, Secretary of State for Energy and Climate Change).\(^6\)

22. We are concerned, given the sums that are involved, that the banks and the wider investment community may be deterred from providing the finance necessary to green the energy sector and help meet these targets unless an attractive political and regulatory climate is in place. With the current problems in the financial sector, banks and other lenders may have insufficient funds to meet the renewable industry’s needs and/or they may use their more scarce resources to fund other industries or develop the renewables industries of other countries.

23. The Committee has heard clear evidence that the UK Government’s delay in finalising the detailed figures underpinning its reform of the current subsidy regime


is leading to investor uncertainty, which we believe could stall progress towards meeting the Scottish Government’s targets. Following publication of the draft Energy Bill by the UK Government, a lack of clarity and detail about subsidy levels remains.

24. We note the announcements made by the UK Department of Energy and Climate Change (DECC) in the summer of 2012 concerning renewable obligations certificates and the agreement by DECC that it will cut subsidies for onshore wind by 10% and that there will be a further review in 2014.

25. We conclude that the potential for a further review in 2014 only breeds uncertainty. The Committee therefore welcomes the decision of the Scottish Government to set its subsidy regime for onshore wind for the next four years. In our view, the UK Government needs to move more quickly to finalise the new subsidy regime and to clarify its policy on renewables, as delay and uncertainty is deterring investment. A number of commentators raised the issues of subsidies, investment certainty and the export market in a post-independence Scotland.

26. The Committee is aware of ongoing debate within the UK regarding the future of energy regulation and calls on both the Scottish and UK Governments to continue to cooperate towards the objective of a smoothly operating energy market in the future.

27. The Committee does not believe that there is significant evidence that the current constitutional debate is undermining investment decisions regarding renewable energy.\(^7\)

28. The Committee notes that the support the Scottish Government can provide to the development of the renewables sector is limited by the current constitutional arrangements.\(^8\)

29. The Committee also concludes that the application of Contracts for Difference for nuclear generation, as proposed, represents a subsidy and is therefore at odds with the UK Coalition’s programme for government, which states that new nuclear plant can only be constructed “provided that they receive no public subsidy”.\(^9\) **We recommend that this proposal is reversed.**\(^10\)

30. In terms of the transmission system and the charging regime, the Committee welcomes the recent decisions taken to level the playing field for mainland generators in Scotland compared to the rest of the UK. However, we believe that Ofgem’s proposed Improved Incremental Cost Related Pricing does not go far enough and that island generators remain at a distinct disadvantage to those on the mainland, which will render many projects uneconomic. Given the significant

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7 Agreed to by division: For 6 (Dennis Robertson, Mike MacKenzie, Chic Brodie, David Torrance, Marco Biagi, Patrick Harvie), Against 2 (Murdo Fraser, Rhoda Grant).

8 Agreed to by division: For 6 (Dennis Robertson, Mike MacKenzie, Chic Brodie, David Torrance, Marco Biagi, Alison Johnstone), Against 3 (Murdo Fraser, Rhoda Grant, John Park).


10 Murdo Fraser MSP dissented from this conclusion and recommendation.
renewable resources located on and around Scotland’s islands, a fairer system must be found. We note the positive engagement between the UK and Scottish Governments in relation to Ofgem’s proposals for Project Transmit. We recommend that the UK Government and Ofgem remove unfair disadvantage in respect of island connection and transmission charging.

31. Finally, the Committee wants to see communities empowered and equipped either to generate their own energy or to gain the maximum benefit from development in their local area. CARES (Community and Renewable Energy Scheme) has begun to make a contribution in this regard and the Committee therefore recommends that the Scottish Government considers devoting greater resources to CARES in future budgets and looks at restructuring repayments to enable greater participation and enhanced benefits.

32. The Committee recognises the range of mechanisms that the Scottish Government is deploying in order to get projects off the ground. The Committee regrets the reluctance of some banks to invest in renewable energy projects.

Skills and workforce development

33. It is our view that skills shortages present a risk to the achievement of the targets and the Scottish Government must urgently address the take up of STEM (Science, Technology, Engineering and Maths) subjects at school, college and university level. We make a specific recommendation on this at paragraph 218.

34. Whilst there are a range of vocational courses and apprenticeship opportunities, we are also concerned at the evidence we heard that some in industry are less than supportive of some of the education and training schemes currently on offer. We recommend that the Scottish Government and Scottish Funding Council should engage with the Energy Skills Partnership and the Energy Technology Partnership to ensure that the range of opportunities on offer is relevant and has the confidence of the industry.

Supply chain and infrastructure

35. Scotland is presently at the forefront of research and development in emerging wave, tidal and storage technologies. We could also be at the forefront of manufacturing, but only if the supply chain is provided with appropriate support and that incentive measures take account of the high costs of early stage development.

36. Scotland’s local authorities have a key role to play in demonstrating technology, offering financial support through loans and equity stakes and providing practical support to community groups to go it alone. We also explore the possibility of local authorities (LA) taking on the role of energy generators later in the report.

37. Local authorities should explore whether they could play a greater role in the transition to a low carbon economy. The Committee considers that an increase in such activity requires leadership at national as well as local
level, particularly the building of specialist skills and the sharing of experience, and recommends that the Scottish Government initiate dialogue with local authorities to identify the support they require in this area.

38. The UK and Scottish Governments should place a high priority on integration with the European market through interconnection. **The Committee welcomes efforts by the UK and Scottish Governments to pursue the issue of interconnection via the North Seas Countries’ Offshore Grid Initiative.**

39. The Committee is strongly of the view that grid-connected test facilities, such as the European Marine Energy Centre in Orkney and the proposed European Offshore Wind Deployment Centre at Aberdeen Bay, are critical in placing Scotland at the forefront of the development of newer technologies and in proving the case for investment and in driving down costs. Such demonstration centres are, in our view, a vital component in Scotland’s industrial infrastructure.

40. Finally, the Committee notes the debate as to whether the grid is able to deal with an increase in the proportion of electricity supplied from renewables. We are also aware that the Orkney islands are expected to generate 85% of their electricity demand by 2013, which would appear to demonstrate that far higher levels of penetration are possible. We recognise the views from some technical experts that the problem of intermittency of generation from wind and other forms of renewables will require much greater progress on interconnection, decentralised generation, demand reduction and storage. However, in conclusion, we are satisfied that much greater progress on these issues would ensure that intermittency does not present an insurmountable technological challenge.

**Impact issues and the link with tourism**

41. Several witnesses made assertions that there would be a negative impact on Scotland’s tourism industry from renewable developments. However, these assertions were contradicted by research evidence from VisitScotland and others.

42. Whilst care always needs to be taken in terms of the planning process and decisions on the siting of individual projects in areas popular with tourists and in our more rural and remote rural areas, no witness has provided the Committee with robust, empirical evidence, as opposed to anecdotal comment and opinion, that tourism is being negatively affected by the development of renewable projects. **However, given the importance of this issue, the Committee recommends that VisitScotland and the Scottish Government continue to gather, and take account of, evidence from visitors to Scotland.**

**Heat**

43. The Committee was disappointed with progress to overcome various barriers to the achievement of the heat target. Controversy surrounding large scale biomass, financial and infrastructural hurdles relating to district heating and the delay of domestic RHI all make the target hard to meet. A factor in this has been the UK Government’s delay in agreeing the domestic RHI.
44. The Committee therefore recommends that the Scottish Government works closely with its UK counterpart to resolve outstanding policy issues and set a course for concerted action to accelerate progress towards the target, particularly by boosting the penetration of Combined Heat and Power and district heating.

Reviewing progress

45. The Committee is keen to monitor progress with our recommendations by the Scottish Government and others. To monitor progress, we give notice that we intend to seek regular updates from the Scottish Ministers following the publication of their response to this report.
THE TARGETS

46. The Scottish Government’s targets are for renewable sources to generate the equivalent of 100 per cent of Scotland's gross annual electricity consumption by 2020. A target has also been set for renewable sources to provide the equivalent of 11 per cent of Scotland's heat demand by 2020. Within the electricity generation target, a target has been set for "local and community ownership of 500 MW electricity by 2020".11

47. Recent figures produced by the UK Government’s Department for Energy and Climate Change12 show that Scotland's renewable energy output increased by 45% in the first quarter of 2012, compared with the same period in 2011. This meant that, assuming gross consumption in 2011 was similar to 2010, about 35% of Scotland's electricity needs came from renewables in 2011. The interim target for this period is 31%.

48. The Committee, on the balance of evidence it has heard, is of the view that the target of generating the equivalent of 100 per cent of electricity consumption by 2020 is achievable. Issues with the planning system, access to finance, infrastructure development and skills provision are all addressed.

49. From the evidence we received, there is a risk that the target for renewable heat may not be met. However, we note that the interim target has been exceeded.13

50. Similarly, with regard to the target for local and community ownership, the Committee has some doubts regarding the level at which the target is

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13 Letter from Minister for Energy, Enterprise and Tourism, 1 October 2012.
set. The Committee also considers that separate targets for local and community ownership should be established.

51. The sections that follow explore these findings in greater depth.
PLANNING

52. The ability of the planning system to cope with the increased development of both onshore and offshore renewable energy technologies is vital to the delivery of the Scottish Government’s targets. Due to the maturity of its development, onshore wind tends to dominate the debate but large scale biomass, offshore wind and hydro developments also raise various planning issues. A number of respondents to the Committee expressed a variety of concerns with the planning system.

53. The planning system is faced with the significant challenge of balancing national priorities with local interests. Resources and technical skills within planning authorities and statutory agencies are felt to be under pressure with some local authorities calling for a temporary suspension of onshore wind farm applications to allow planning teams to cope with the volume of work. Some frustration was expressed regarding “speculative” applications which ignored spatial plans which identify areas appropriate for the siting of wind turbines, also known as areas of search.

54. Uncertainty, time delay and complexity within the current planning regime increases levels of risk and, therefore, expense for developers which could place the Scottish Government’s targets in jeopardy.

Resources and fees

55. The rapid development of renewable energy, particularly in onshore wind, has put resources within local planning authorities under a great deal of strain both in determining local applications and as a statutory consultee for applications made under section 36 of the Electricity Act 1989 (i.e. for installations over 50 MW, which are determined by the Scottish Government) which can involve the further workload pressure of Public Local Inquiries.

56. One remedy to this squeeze on resources would be the introduction of higher planning fees to enable the expansion of staffing numbers. The gap between income and expenditure has widened in recent years with the increasing complexity of applications. The Scottish Government launched a consultation into planning fees in March 2012 which proposes a revised fee structure which aims to close this gap.

57. The Committee is supportive of fee increases for larger-scale planning applications where these will not disadvantage community developers. The Committee recommends that the Scottish Government considers whether, in return for higher fees, planning authorities could address duplication of effort for developers and improve efficiency, for example by taking on tasks such as gathering information on cumulative visual impact from their own

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16 Fife Council, June 2012.
records, rather than each developer having to undertake this task separately.

58. The Committee welcomes the Scottish Government’s commitment to provide more funding to planning authorities to cope with workloads and recommends that the Scottish Government provides an update to the Committee on the initiative\(^{18}\) once funds are disbursed.

59. Pressure is also brought to bear on resources as a result of the rapidly changing planning caseload that renewables development has brought about and the fact that local planners have a very diverse range of cases before them at any given time.

60. The Committee notes the Scottish Government’s commitment to provide a seminar for planning authorities and Scottish Government officials to examine procedures and working practices.\(^{19}\)

61. In the course of its consideration of resourcing issues within the planning system, the Committee became aware of capacity issues within the government’s statutory agencies which could result in delays in consenting projects. This was particularly apparent in the context of offshore developments.

62. The Committee recommends that the Scottish Government, and bodies such as the Crown Estate, report to Parliament on their capacity, and that of agencies such as Marine Scotland, to engage efficiently with offshore energy developments.

**Environmental Impact Assessments**

63. In accordance with the relevant European Directive, some planning proposals will require an Environmental Impact Assessment (EIA), “if it is likely to have a significant effect on the environment, by virtue of factors such as its size, nature or location”.\(^{20}\) While absolutely valid for large scale developments, EIAs, which result in Environmental Statements, are expensive and time consuming. There appears to be a lack of clarity over precisely where the threshold lies in relation EIAs and it is felt that planning authorities are tending to err on the safe side and request them for small to medium-scale projects as they are aware that an absence of an Environmental Statement is open to challenge by objectors.\(^{21}\)

64. In order to assist smaller, community scale projects the Committee recommends that the Scottish Government provides greater clarity to local authorities on the circumstances under which it is acceptable not to provide Environmental Statements.

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Spatial frameworks and areas of search

65. The Scottish Government produced guidance to local authorities on the preparation of spatial frameworks for wind farms in 2010 and interim supplementary guidance stated that they should form part of the local authority’s development plan. Such documents, arrived at through a local, democratic process, ought to provide clarity for developers as well as offering some reassurance to local residents, who will be consulted over the preferred areas for development contained within them.

66. Whilst acknowledging resource constraints, the Committee is extremely disappointed by local authorities’ rate of progress in producing spatial frameworks and therefore welcomes the letter from Minister for Energy, Enterprise and Tourism and the Minister for Local Government and Planning to COSLA and Heads of Planning Scotland which sets out the Scottish Government’s requirement that spatial frameworks will form part of local development plans.

67. The Committee urges developers to play their part in reducing the workload of local planners by paying due cognisance to local authority spatial frameworks and areas of search where these are available.

68. The timely delivery of local spatial development plans, agreed at local level in an open, transparent and democratic process, but with due regard to national targets, can reduce the costly and inefficient disputes about renewable energy developments that take place all across Scotland. By providing greater clarity on what type of developments are likely to be permitted, and where, in any local authority area, we can provide both the local citizen and the developer with more certainty in the planning process. Local Authorities must ensure that local development plans are consistent with national objectives and targets.

Public engagement with the planning system

69. A range of studies has demonstrated that a majority of Scotland’s population are supportive of the continued development of onshore wind, yet resistance to developments of all scales can be found in many areas. There are many factors leading to local resistance, with visual impact being top of the list. The Committee notes that objectors are much more likely to engage with the planning system than supporters. Some communities complain of being overwhelmed by development.

70. Scottish Renewables called for more awareness raising at a local level and the provision of factual, balanced information to enable the public to form views.

71. During this inquiry, the Committee was unable to obtain an accurate and up-to-date picture of where development of onshore wind has taken place, where

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25 Kim Terry. Written submission.
26 Scottish Renewables. Written submission. page 6.
development is planned and what are local authorities’ preferred areas for development. The provision of this information could go some way to reassuring members of the public about the expected scale of development in their area and that this will be arrived at through a local, democratic process.

72. **The Committee would like to see both developers and communities acting cooperatively and responsibly.** To enable all parties to feel equipped and secure in this process, greater openness and transparency around the planning process and better information on local capacity and preferred areas for development is necessary and the Committee urges planning authorities to provide this.

73. **The Committee welcomes the commitment by the Scottish Government**\(^{27}\) **to work with planning authorities to make information on the number, status and nature of renewable energy applications and developments readily available to the public.**

74. **Beyond the question of differing views on the aesthetics of wind turbines, the Committee recognises that small numbers of people can be inconvenienced by noise and shadow flicker caused by wind farms and we recommend that planning authorities and the Scottish Government continue to apprise themselves of research in these areas and take reasonable steps to mitigate the impacts than can be caused.** The Scottish Government must also monitor whether the guideline of placing larger developments at least 2km from settlements is being interpreted appropriately. The Committee recognises that many developers show willingness to negotiate and compromise with local authorities and believes that this is the spirit in which these issues are best resolved.

75. The Committee was impressed with Fife Council’s written submission to the inquiry, which set out its own routemap for achieving the Scottish Government’s targets, which ties together planning and economic development responsibilities. The Committee would strongly urge other local authorities to adopt a similar approach.

**Consistency**

76. Some developers have reported an inconsistency of practice from one local authority to the next with a disconnect between national policy and what is happening on the ground. SSE, in its written submission said “as a developer our primary wish is for consistency between Scottish Government policy and the positions taken by its agencies such as Scottish Natural Heritage. We respect the place of all advisory bodies in the consenting process but their positions can run contrary to national policy objectives. This makes it difficult for us [to] make the best possible decisions on potential developments and further clarity would be welcome.”\(^{28}\)

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\(^{27}\) Minister for Energy, Enterprise and Tourism and Minister for Local Government and Planning, letter to COSLA and Heads of Planning Scotland, 19 June 2012.

77. While the Committee accepts that the drafting of planning guidelines allows for flexibility of interpretation, developers should be able to expect a broadly similar service regardless of where their applications are made.

78. The Committee considers that policies expressed at a national level should translate into delivery at the local level.

Planning system’s influence on the scale of developments
79. The Committee has been made aware of a lack of middle ground between large, commercial development and small, private installations. This middle ground represents the type of installation that can create significant returns for communities while providing significant quantities of electricity to the grid in exchange for subsidies at a reasonable rate for consumers (small installations attract the highest rate). Witnesses blamed the planning system, finance issues and the subsidy regime for this. We explore finance and subsidy issues elsewhere in this report.

80. MEG Renewables, in its written submission said “for there to be any realistic chance of us achieving our 2020 targets, we believe that there is a need for greater intervention by the Scottish Government in order to overcome existing planning system obstacles”. Alan Hobbet proposed “a presumption in favour of developments up to a certain size”.

81. The Committee recommends that the Scottish Government addresses the planning regime preference for small scale devices as these may fail to maximise the power generated from a given site and, as such, may offer poorer value for the subsidy paid by the consumer.

29 MEG renewables. Written submission, page 2.
INFRASTRUCTURE

Grid

82. The infrastructure required to transmit and distribute renewable energy is, naturally, of central importance to the achievement of the Scottish Government’s targets. Installing new generating plant and upgrading the existing transmission network comes with a cost burden and must meet planning requirements.

83. We took evidence on a range of infrastructure-related issues, including transmission charging, charging for connection, grid stability, the development of a European grid and the provision of appropriate construction and port infrastructure.

Transmission charging

84. The current transmission regime incentivises the location of power generation close to centres of population. This model – called locational charging - fails to take account of the fact that renewables generation must be sited where the resource exists, and where the space exists to install the necessary infrastructure. This is very often at some distance from population centres.

85. Ofgem’s review of transmission charging (Project TransmiT)\(^{32}\) has proposed a formula called Improved Incremental Cost Related Pricing (ICRP) which goes some way to removing disadvantages for generators on mainland Scotland but still produces high transmission charges for Scotland’s islands as these areas are outwith the mainland network and, as such, are subject to a different charging methodology whereby the substantially higher costs of providing subsea links to the mainland must be borne by those who use them. Much of Scotland’s marine energy resource is accessed from these regions, therefore a charging regime that does not substantially mitigate the cost to the network user could threaten the industry. Ofgem rejected socialisation of costs – i.e. recovering transmission costs through a uniform £/MWh tariff applied to all generation users, whatever their type and location, as it would have had a greater impact on consumers’ bills.

86. In its concluding report\(^{33}\) Ofgem rejected other measures put forward by those responding to the consultation to assist island generators, arguing that they could result in uneconomic investment and in greater costs to the consumer. Ofgem concluded—

“We consider that if financial support is required for the development of renewable generation in a particular region, then it is more appropriate for

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\(^{32}\) Ofgem. Project TransmiT. Available at: [http://www.ofgem.gov.uk/Networks/Trans/PT/Pages/ProjectTransmiT.aspx](http://www.ofgem.gov.uk/Networks/Trans/PT/Pages/ProjectTransmiT.aspx) [Accessed September 2012].

Government to take this action using what it considers to be a suitable mechanism.”

87. One submission warned that “a once-in-a-generation socio-economic opportunity for the islands would be missed” if a solution to island charging is not found. Scottish Renewables, in its submission to Project TransmiT, pointed out that the cost of providing adequate connection to the islands would be much less than developing the equivalent energy from offshore wind.

88. E.on was not supportive of the removal of locational charging, stating—

“our recent investment in 75MW of new onshore wind plant in the Highlands has not been affected by locational transmission charging and reflects the fact that Scotland benefits from higher wind resources compared with much of England which is more than able to compensate for the higher transmission charges. The removal of locational charges will lead to higher returns for existing gas and coal-fired generators based in Scotland which may increase CO₂ emissions in Scotland if it leads to conventional plant being kept open which otherwise would have closed.”

89. The improved ICRP model seeks to make transmission more cost-reflective, in order to encourage more efficient investment decisions. It does so by adopting two separate tariff components: a peak-security charge (that intermittent generation does not pay), and a year-round charge (that takes into account how a plant uses the system through its load factor). Edward Davey said in evidence that the model would mean “baseload generators will have to pay more than intermittent generators”.

90. While the Committee welcomes the reduction of charges for mainland generators and higher charges for baseload generators, it considers that Ofgem’s proposed Improved Incremental Cost Related Pricing does not go far enough and that island generators remain at a distinct disadvantage to those on the mainland which will make many projects uneconomic. Given the significant renewable resources located on and around Scotland’s islands, a fairer system must be found.

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37 E.on. Written submission, page 6.


91. The Committee urges the Scottish and UK governments to work with Ofgem and with industry to ensure that the finalised regime for islands transmission charging does not disadvantage island-based developers or, failing this, to find a remedy to the problem outwith transmission charging.

92. EU Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources states that “island regions and regions of low population density, should, whenever feasible, benefit from reasonable connection costs in order to ensure that they are not unfairly disadvantaged in comparison with producers situated in more central, more industrialised and more densely populated areas”.

93. Ofgem told the Committee that “a cost-reflective transmission system is wholly consistent with the directive”. During evidence to the Committee, the Secretary of State for Energy and Climate Change, confirmed that “under the European rules, that is an issue for Ofgem to decide”. The conclusion document to Project TransmiT, sets out Ofgem’s opinion in more detail. It states that “the legislation permits (and does not prohibit) different charges to exist that reflect the existence of different costs for different producers”.

94. It appears to the Committee that island generators will be unfairly disadvantaged under current proposals. The Committee would appreciate a detailed explanation from Ofgem regarding its assertion that the current and proposed transmission charging regimes are not in conflict with EU Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources.

Grid capacity and infrastructure
95. The achievement of the Scottish Government’s targets depends on the capacity of the grid to transfer much larger volumes of electricity to where it is needed and on the grid’s reach to areas where the renewable resources exist. Scotland’s capacity to export will also be critical.

96. As an example, the Committee heard that Orkney’s connection with the mainland is now at full capacity but that there is no project big enough to provide a critical mass to justify the expense of a new cable. One witness argued that “there is a strong case for [transmission network operators] going ahead and doing that on a strategic and anticipatory basis”. Another added “we are building capacity according to demand, but we know that future demand from the marine

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sector will be substantially more”.\textsuperscript{45} In areas of intense pressure, network operators are providing intermittent access as a second best to no connection at all, pending upgrades.

97. Ofgem has a duty to ensure that investment does not take place in advance of need, thereby protecting the consumer from the cost of an asset that is not used. Some responding to this inquiry have expressed frustration with this restriction.\textsuperscript{46}

98. Ofgem announced in April 2012 that it would fast track the business plans of Scotland’s transmission network operators – Scottish Hydro Electric Transmission Ltd (SHETL) and SP Transmission Ltd (SPTL) – in order to hasten upgrades to capacity and greater interconnection.\textsuperscript{47}

99. The Committee welcomes Ofgem’s fast track initiative but, in wider terms, is concerned that it has not taken the proactive approach to grid development that we believe is necessary. The Committee recommends that Ofgem continues to look at ways of ensuring that grid capacity will expand at a rate that will stimulate development and thereby assist in achieving the Scottish Government’s targets.

100. Witnesses highlighted the issues of planning and consents for grid upgrades, stating that while Ofgem’s new regime had made financing possible, gaining consent still represented a barrier to progress.

101. It is essential that network operators have confidence in the planning system and the Committee therefore recommends that the Scottish Government continues to work with transmission owners to streamline processes for gaining consent for transmission infrastructure upgrades.

Gaining access to the grid

102. The Committee heard that queues of projects wishing to gain access to the grid can form, with projects which have planning permission being held lower down the queue than projects without planning permission. Witnesses felt that Connect and Manage – the new regime implemented by Department of Energy and Climate Change (DECC) from 11 August 2010 – had gone some way to mitigating this.\textsuperscript{48}

103. However, some frustration was expressed with the absence of grid connections in parts of Scotland that have the potential to generate renewable energy.\textsuperscript{49} The Committee saw for themselves hydro projects in Glen Lyon which


\textsuperscript{46} Community Energy Scotland. Written submission, page 6.


\textsuperscript{49} Adrian Laycock. Written submission.
were only made possible after several grid connection hurdles had been overcome. A written submission to the Committee criticised the 50kW limit (imposed by SSE) on the size of grid connections over much of rural Scotland, describing it as “arbitrary” and arguing that it threatened the viability of many small hydro projects.50

104. The Committee welcomes the Connect and Manage regime and recommends that DECC keep a close eye on grid access issues in order to ensure that connection does not present a barrier to new generation.

Impact of Electricity Market Reform on infrastructure
105. Electricity Market Reform (EMR) will be brought about by the passage of the UK Energy Bill later this year. The House of Commons Energy and Climate Change Committee carried out pre-legislative scrutiny over the summer and the bill will be introduced in November. National Grid saw the bill as “a major tool in underpinning large capital investment”.51 Since this Committee took evidence, the Energy and Climate Change Committee has produced a report on its pre-legislative scrutiny which contains a number of criticisms. The report highlighted a lack of clarity over the detail of how Contracts for Difference will operate and criticised DECC for not gathering all the relevant evidence on demand reduction and access to market for independent generators before consulting. The report also warned of unintended consequences of the proposed legislation and regretted the conflict between HM Treasury and DECC over policy.52

106. The Committee notes the report of the Energy and Climate Change Committee and shares many of its concerns.

Intermittency of generation
107. The Committee has received a great deal of evidence on the challenges of balancing within the grid the intermittent supply associated with renewable energy generation. Some respondents53 have suggested that this could lead to greater greenhouse gas (GHG) emissions than relying solely on gas thermal generation as the backup generation necessary to balance the intermittency is deployed at lower efficiency as a result of being in “spinning reserve” for some of the time. One contributor regretted that “the scientific calculations always seem to be assumed and stated as a matter of fact, rather than proven by a transparent method”.54

108. In supplementary evidence to the Committee, the Institution of Engineering and Technology said—

50 Adrian Laycock. Written submission.
53 Stop Highland Windfarms; Joint Submission from Professional Engineering Institutions; Brenda Herrick; The Scientific Alliance; Communities Against Turbines; Sir Donald Miller.
54 Maureen Beaumont. Written submission.
At the extreme, the resulting overall emissions from a combination of renewable sources and inefficient or high carbon sources deployed on the margin for balancing it potentially could exceed those which might be generated from conventional carbon-based plant such as CCGT. However, it is unlikely that either extreme will be reached."55

109. A joint submission by the professional engineering institutions, described the challenge as “feasible” but argued that it would “require major investment”. The submission pointed out the importance of a balanced portfolio of generation and integration into a large grid.56

110. During oral evidence to the Committee, Duncan Burt, National Grid said that—

“wind power is probably already the single largest source of capacity connected in Scotland. Very soon—in the next year or two—it will become the largest single source of supply of electricity. That is being managed day to day, hour to hour, minute to minute in a very straightforward way.”57

111. He added that interconnection with the rest of the UK and Europe would assist in balancing supply.

112. Witnesses also pointed out that when wind output reduces, it does so in a gradual, manageable way, unlike the sudden drop-off which is experienced when thermal plant is shut off.58

113. The Committee is aware of recent advances in energy storage technology.

114. The Committee notes the debate as to whether the grid is able to deal with an increase in the proportion of electricity supplied from renewables. We are also aware that the Orkney Islands are expected to generate 85% of their electricity demand by 2013, which would appear to demonstrate that far higher levels of penetration are possible. We recognise the views from some technical experts that the problem of intermittency of generation from wind and other forms of renewables will require much greater progress on interconnection, decentralised generation, demand reduction and storage. However, in conclusion, we are satisfied that much greater progress on these issues would ensure that intermittency does not present an insurmountable technological challenge.

Greenhouse gas emissions
115. Views differ on the extent to which CO₂ emissions are reduced through greater penetration of renewable forms of generation. This is because the thermal generation necessary to back up supply is made to run at part load, producing lower efficiencies.

55 Institution of Engineering and Technology. Written submission.
56 Joint submission from professional engineering institutions. Page 4.
116. Communities Against Turbines Scotland’s written submission stated that—

“A variety of studies have been done, one is the ‘The Bentek’ study and another study based on real data from the Irish National Grid, shows that there is actually a slight increase in CO\textsubscript{2} emissions as wind energy contributions increase.”

117. The Institution of Engineering and Technology was also concerned, stating: “at the extreme, the resulting overall emissions from a combination of renewable sources and inefficient or high carbon sources deployed on the margin for balancing, it potentially could exceed those which might be generated from conventional carbon-based plant such as CCGT.”

118. Duncan Burt, National Grid disagreed with these views, arguing that—

“Wind power reduces the carbon intensity of the grid. That is not just a National Grid view; it is entirely consistent with the view of the Committee on Climate Change.”

119. And WWF Scotland, during oral evidence, cited work by Garrad Hassan, which predicted that “if we meet the 100 per cent target, we will save about 13 million tonnes of CO2…which represents about 21 per cent of all the emissions from 1990”.

120. The Committee received and heard a range of conflicting views on the extent to which CO\textsubscript{2} emissions are reduced as renewable sources replace traditional, thermal plant. It is essential that the public and policy makers are equipped with good quality evidence on this issue. The Committee is satisfied that wind power reduces the carbon intensity of the grid. The Committee asks that the UK Government seeks clarity from the Committee on Climate Change on the extent to which wind power reduces CO\textsubscript{2} emissions from electricity generation and confirms that running thermal plant at lower efficiency has been accounted for in its calculations.

121. The Committee further seeks clarity from National Grid and the UK Government on whether “reducing the carbon intensity” of the grid takes account of electricity which is generated from thermal plant but, due to despatch decisions, does not make it as far as the grid, whether this is expected to be a continuing issue and, if so, for how long.

Links to Europe
122. Integration within a Europe-wide energy market would offer Scotland the advantages of greater security of supply and easier management of peaks and

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60 Communities Against Turbines Scotland. Written submission.
61 The Institution of Engineering and Technology. Supplementary written submission, page 1.
troughs in demand. Consumers would ultimately benefit from allowing the cheapest sources of power at any given time to flow where it was required. The North Sea grid and an interconnection between Scotland and Norway are potential means of integrating Scotland within a Europe-wide system but require enormous amounts of investment.

123. Dr Richard Blanchfield explained that the business case for major investments such as a Scotland-Norway interconnector alters along with fluctuations in the market.64

124. Early discussions are currently taking place through the North Sea Countries’ Offshore Grid Initiative and Ofgem is now consulting on how coordination might be achieved.65

125. The Committee welcomes efforts by the UK and Scottish Governments to pursue the issue of interconnection via the North Seas Countries’ Offshore Grid Initiative.

Other infrastructure

126. If targets are to be met, Scotland will require significant port and supply chain infrastructure upgrades in order to support the development of offshore wind. The Scottish Government’s National Renewable Infrastructure Plan (NRIP) identifies existing underused fabrication facilities and aims to support the industry to build, deploy and maintain capacity and maximise local economic benefit.

127. The Committee visited Wick Harbour, Scrabster Harbour, Hatston Pier in Kirkwall and BiFab’s yard in Methil to observe the changes taking place as a result of expected market demand. The Committee also paid a visit to the European Marine Energy Centre (EMEC). The Committee was impressed to see projects and learn of others that will allow Scotland to rise to the significant challenges of constructing, testing and installing offshore wind and, ultimately, marine and tidal technologies. This is the type of infrastructure investment that could enable Scotland to maximise the economic opportunity renewables will continue to bring. The £70m Scottish Government funding which underpins the NRIP was welcomed by witnesses as a “great start” but not sufficient to equip many ports.66

65 Ofgem. Written submission, page 5.
Photograph 2: Patrick Harvie MSP, John Robertson, Managing Director of BiFab, Mike Mackenzie MSP and Murdo Fraser MSP are pictured in the BiFab fabrication plant in Methil, Fife.

128. The Committee therefore recommends that the Scottish Government and its agencies, during this period of limited resources, continue to make a strategic assessment of port and supply chain facilities in order to maximise opportunities and invest appropriately.

129. The Committee is strongly of the view that grid-connected test facilities, such as the European Marine Energy Centre in Orkney and the proposed European Offshore Wind Deployment Centre (EOWDC) at Aberdeen Bay, are critical in placing Scotland at the forefront of the development of newer technologies and in proving the case for investment and in driving down costs.
FINANCE

130. Throughout the inquiry, the Committee heard a very strong message from potential investors that strong political leadership, a robust, reliable and predictable investment climate and a subsidy regime were crucial if the Scottish Government’s targets are to be met.

Access to finance

131. Witnesses indicated that money for investment in generation and distribution would be forthcoming as long as return on investment was underpinned by government policy.67 However, some evidence, such as that from Peter Atherton of Citigroup, called this into question. He argued that a shortfall exists in the supply of money for investment (with investment at the UK scale running at approximately half of that required) and that equity markets are wary due to a number of countries reneging on promises made to developers before times of austerity.68

132. Planning and policy certainty reduce the risk of investment, thereby potentially reducing the cost of money. The section of this report on planning and consents deals with this. In terms of policy, a number of respondents praised the Scottish Government for its leadership but expressed frustration with uncertainty surrounding Electricity Market Reform (EMR), which will come about once new legislation is passed by the UK Parliament. EMR is explored in more detail elsewhere in the report. The question of certainty also relates to possible constitutional change which is considered elsewhere in this report.

Scottish Government investment

133. A range of Scottish Government schemes are in place to support the development of renewables in Scotland:

134. The Scottish Government launched the Renewable Energy Investment Fund (REIF) in October 2012. Backed by £103 million, the fund will be delivered by the Scottish Investment Bank on behalf of the Scottish Government, with the first deals expected to be completed by the end of the financial year. REIF has been designed to be complementary to other funds available, such as the Green Investment Bank, and is designed to support projects that are significantly advanced but have a demonstrable funding gap.69

135. REIF will complement funding from the Green Investment Bank (GIB), which has been established by the UK Government, to operate at arm’s length and will be headquartered in Edinburgh. The GIB will receive a total of £3 billion, which includes £103 million Scottish Fossil Fuel Levy. The Scottish Government intends

69 http://www.scotland.gov.uk/News/Releases/2012/10/renewable-investment10102012
that the GIB will support projects at a “near commercial” stage while the REIF will be used to support projects at an earlier stage of development.  

136. The Community and Renewable Energy Scheme (CARES) was launched in April 2009 to help communities to develop and install renewable energy projects. It is administered through Community Energy Scotland.

Cost reduction

137. Reducing the costs of generation creates a more attractive return on investment and should increase the rate of progress towards the Scottish Government’s targets. An industry target of £100 per MWh has been set in order to make this technology commercially competitive with other forms of renewable generation. The industry-led Offshore Wind Cost Reduction Task Force recently reported that “the UK is on course to reduce the cost of electricity from offshore wind substantially over the next seven years” and set out a number of recommendations that will deliver this.  

138. The Committee shares the view that cost reduction will be an essential factor determining the commercial success of offshore wind and the new marine technologies. The commercial viability of offshore wind will be a critical factor in rolling out its deployment in time to meet the 2020 target.

Lending for supply chain manufacturers

139. Infrastructure to support the supply chain is discussed elsewhere in this report. In terms of accessing finance, one witness from the supply chain spoke of the difficulty in attracting investment. He said “quite honestly, at this point in time the banks are not playing” and urged the Scottish Government to find a way to help.

140. In its written submission, Aquamarine Power said—

“significant strides will need to be made to grow capacity in Scotland as offshore wind comes on stream. There may be significant competition within Scotland for scarce resources”.  

141. Scottish Renewables echoed the concern over competition for supply chain resources.

142. It is important that the supply chain is able to expand and grow to keep pace with the industry’s ambitions in order to ensure that the Scottish Government’s targets will be met. The Committee recognises that the

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74 Scottish Renewables. Written submission, page 7.
Scottish Government assists supply chain manufacturers through enterprise support but regrets that some banks remain unwilling to invest.

Lending for small and medium scale projects
143. The Committee heard that small and medium-scale projects face distinctive difficulties in attracting lending from banks, and the withdrawal of some banks from the market segment that is supported by Feed in Tariffs was observed.\(^{75}\) RBS has developed a specific fund for small generators yet many still report difficulties gaining access to funding\(^ {76}\) and regret the apparent unwillingness of banks to lend in this sector, compared with the fossil fuel sector.

144. While small-scale turbines (below 100kW) are affordable for some farmers, landowners and community groups, MEG Renewables’ submission stated that “as a rule, some form of 3rd party funding will be required for turbines…in the bandings between 100kW and 1.5MW”.\(^ {77}\) Bank funding is secured against assets – such as land or buildings, or it is secured against the income that will accrue from the installation.

145. MEG Renewables summarised the issue in its written submission—

> “the big problem is that turbines of the scale that are acceptable to the banks for project funding purposes, are generally not acceptable to planners…consequently, there is a serious mis-match between what is acceptable to planners and what is fundable by banks”.\(^ {78}\)

146. Maitland Mackie said that “people are having serious difficulty getting £5 million, £10 million or £2 million for small-scale projects”\(^ {79}\) while Mike Pitman told the Committee that “none of the mainstream banks is at all interested, despite promises”.\(^ {80}\)

147. Friends of the Earth Scotland (FoES) argued: “If the UK Government can intervene with regard to bonuses it should also be prepared to intervene to ensure RBS lending practices match Government ambitions for the low carbon economy”.\(^ {81}\)

148. The Committee recognises the difficulties experienced by some small and medium scale projects in attracting sufficient funding, and regrets the reluctance of some banks to lend to projects of this type. The Committee acknowledges that the Renewable Energy Investment Fund (REIF) has undertaken to support community and rural business projects and would welcome clarity about how much of this fund is earmarked for these

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\(^{77}\)MEG Renewables. Written submission, page 2.

\(^{78}\)MEG Renewables. Written submission, page 2.


\(^{81}\)Friends of the Earth Scotland. Written submission, page 8.
projects. The Scottish Government should also explore the potential role for the Green Investment Bank to bridge this lending gap.

**Funding for marine technologies**

149. The marine industries face distinctive funding challenges due to the risks inherent in more unproven technologies and the relatively greater costs, at this stage of development, of generation per unit of energy. One witness said that “there is a large amount of industry concern about and focus on the amounts of funding and risk capital that will need to be available to move the sector forward”.

150. Earlier this year, the Scottish Government launched its Marine Renewables Commercialisation Fund, which is designed to bridge the gap between demonstration and commercialisation. Vattenfall praised the fact that the Scottish Government had “provided the grant funding and a strong framework within which technology developers can raise the early finance needed to prove and commercialise their technologies” but concerns were expressed over long term certainty for investors. Scotland led the way with higher Renewables Obligation Certificates (ROCs) for wave and tidal energy but the shift from support through ROCs to support through the Feed-in Tariff Scheme (FITS) under Electricity Market Reform is felt to be introducing uncertainty for investors. Contributors again emphasised the importance of clear, long term incentives and stated that, in addition to this, grant funding will be necessary to get the first arrays installed.

151. The Committee believes that marine energy represents a special case. It endorses the Scottish Government’s extra measures that aim to assist the industry in Scotland to take the lead in this developing field. The Scottish Government must also work with the UK Government to ensure that a clear, stable, long-term incentive regime emerges from Electricity Market Reform.

152. The Committee endorses the range of mechanisms that the Scottish Government is deploying in order to get projects off the ground. The Committee regrets the reluctance of some banks to invest in renewable energy projects.

**The subsidy regime**

153. The UK and Scottish Governments support the generation of energy from renewable sources in several ways.

154. The Renewables Obligation (RO) places an obligation on UK suppliers of electricity to source an increasing proportion of their electricity from renewable sources. A Renewables Obligation Certificate (ROC) is issued to an accredited generator for renewable electricity generated and supplied to customers. The number of ROCs issued for each megawatt hour of renewable output depends on technology, with higher rates being offered for newer technologies. Suppliers meet their obligations by presenting sufficient ROCs. Where suppliers do not have sufficient ROCs to meet their obligations, they must pay an equivalent amount into

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83 Vattenfall. Written submission, page 8.
84 Aquamarine Power. Written submission, page 7.
a fund, the proceeds of which are paid back to those suppliers that have presented ROCs.

155. The Feed-in Tariff Scheme (FITS) encourages investment in small-scale low carbon electricity generation, and requires energy firms to pay a generation tariff to householders or other small-scale generators (whether or not such electricity is exported to the grid) and an export tariff to them where it is also exported to the grid.

156. The table below illustrates ROC Bandings currently set in the UK (as of March 2011)

<table>
<thead>
<tr>
<th>Type of technology used</th>
<th>Number of ROCs awarded per MWh of electricity generated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scotland</td>
<td>England/Wales</td>
</tr>
<tr>
<td>Tidal Power</td>
<td>3</td>
</tr>
<tr>
<td>Wave Power</td>
<td>5</td>
</tr>
<tr>
<td>Offshore Wind</td>
<td>2</td>
</tr>
<tr>
<td>Onshore Wind</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: SPICe

Subsidy levels
157. In its written submission, Scottish Renewables states that “the Renewables Obligation (Scotland) has been fundamental to the rapid growth in renewable energy capacity over the past five years”. While Scottish Renewables were broadly supportive of the Scottish Government proposals to reform banding levels set out in its 2011 consultation, it described proposals to cut support for hydro and biomass as “poorly-informed”.

158. Some question whether, in the most productive areas, subsidy for onshore wind is still necessary, arguing that monies would be put to better use by increasing support for nascent technologies. Others cautioned that even a modest reduction in the ROCs level would make some projects – particularly hydro projects - commercially unviable.

159. Richard Dixon, WWF, Scotland, cited a Bloomberg new energy finance report, which “says that at the windiest sites we do not need subsidies”. Helen

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86 Scottish Renewables. Written submission, page 4.
88 SSE. Written submission, page 7.
McDade, John Muir Trust, concurred, adding: “we now have a mature technology, and I agree that it is time to stop subsidising it”.\(^\text{89}\)

160. In July 2012, the Scottish and UK Governments announced a reduction from 1 ROC to 0.9 ROC for onshore wind with effect from April 2013.

161. The Committee endorses the Scottish Government’s decision to make a modest and proportionate reduction of 10% to Scottish ROCs for onshore wind and welcomes the clarity this will bring for investors. The Committee urges the UK Government to follow suit and put an end to industry uncertainty by finalising its own ROC levels.

162. The Committee welcomes the Minister for Energy, Enterprise and Tourism’s announcement that the current ROC band for hydro generation in Scotland will be retained.\(^\text{90}\) This will have a positive bearing on the business case for potential schemes.

Photograph 3: From left to right, John Park MSP talks with Ian Cartwright and Murdo Fraser MSP on a visit to a Green Highland Hydro energy station near Aberfeldy, Perthshire.

163. Different levels of FIT support are offered for different types and scale of generation. Smaller installations attract higher rates per unit of energy produced.\(^\text{91}\) FIT support levels are currently under review. Some question whether the scheme


incentivises smaller scale devices, leading to underdevelopment of sites and lower efficiency, and poorer value for the consumer bearing the cost of the subsidies.  

164. Maitland Mackie asserted that “you are wasting people’s money supporting these tiny little toys”. He expanded on this in written evidence pointing out that—

“The incentivising subsidy, paid for by all electricity users in UK, for the big turbines (1 MW +) is circa four pence per kilowatt. And will not be necessary when the price of electricity doubles. In comparison the subsidy for the smaller turbines, rises to circa 33 pence per kilowatt for the very small toys, and incentivises people to spend a very large amount of money for very small and insignificant output. (Note that photo voltaic solar panels currently require subsidy of up to 43pence per KW produced)”.

165. Dr Colin Anderson agreed. He said, of the feed-in-tariff, that—

“the scheme tends to put a high premium on small-scale renewables and can encourage people to put in a smaller wind turbine, say, than they would otherwise have done in order to get more per unit. That means that we end up with less energy from the site at a high price, which is a mistake”.  

166. He suggested that a tariff akin to the taxation system where the premium payments were offered for the first units of generation and lower payments of subsidy would kick in for subsequent units. Such a scheme ought to make it worthwhile for developers to opt for the larger installation since they would still benefit from the higher payments for some of the electricity generated.

167. Economies of scale can be achieved using larger devices thereby producing better value for the consumers who provide the subsidy. The Committee recommends that the Scottish and UK Governments review the subsidy regime to ensure that it does not create barriers for community developments which wish to install larger devices. The Committee therefore invites the UK and Scottish Governments to explore whether a more graduated system of subsidy could be introduced which would remove these barriers.

Electricity Market Reform – impact on investment in renewables

168. Electricity Market Reform (EMR) will be brought about by the passage of the UK Energy Bill later this year. The House of Commons Energy and Climate Change Committee carried out pre-legislative scrutiny over the summer and published a critical report on the proposed legislation. It is anticipated that the bill will be introduced in November 2012. The legislation would see the introduction of Contracts for Difference (CFDs) for energy suppliers. CFDs are designed to stabilise returns for generators of low carbon energy at a fixed level, known as the

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92 MEG Renewables. Written submission.
94 Maitland Mackie. Written submission.
'strike price'. The introduction of this draft legislation has raised a number of questions about its impact on the market and the supply of investment.

169. While some feel that EMR will broaden the investor base by providing long term investor security through Contracts for Difference, others lament the hiatus caused by uncertainty in the lead up to the introduction of the legislation. SSE expressed concern that the CFD mechanism may not continue to deliver the same level of investment due to their complexity and a lack of clarity around how they will operate.96

170. Attracting investment for renewable energy generation will involve competing with thermal generation. Concern has been expressed regarding DECC’s current Emissions Performance Standard (EPS), with some suggesting that it is too low and could lead to a “dash for gas”. FoES recommended tightening the EPS to a level that will require new gas fired generation to be equipped with carbon capture and storage (CCS) technology or have an element of combined heat and power (CHP).97 RSPB Scotland’s written submission echoed these concerns. Policies within EMR and for renewable energy in general, are predicated on a long term trend of increasing fossil fuel prices. While the majority of respondents believed that this was a sound assumption, it was disputed by Peter Atherton, who argued that this could not be accurately predicted.98

171. A very clear message emerged from respondents to this inquiry that stability and durability of any government support intervention are essential to attract investment. The Committee heard that projects had fallen by the way side due to a lack of certainty in the subsidy regime.99 One witness, speaking of the current mooted alterations to the ROC regime said that “uncertainty…gives big investors worries about whether long-term contracts will stick”.100

172. The damaging nature of uncertainty surrounding market incentives was raised again during discussions on skills. It was pointed out that firms who had invested in training for the installation of solar PV had to lay off staff following the reduction of the Feed-in tariff (FIT) by the UK Government. It was unclear whether this training would be accredited under the green deal.101,102

173. The Committee wishes to see a new support regime that will have both durability and stability and urges the UK Government to set out the detailed terms of the new market regime as soon as is practicably possible.

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96 SSE. Written submission.
97 Friends of the Earth Scotland. Written submission.
174. The following list is a checklist of priorities for the Scottish Government’s engagement with the UK government over the UK energy bill:

- Importance of clarity, stability and durability of new policies
- A revision of the Emissions Performance Standard that does not create incentives which will lead to investment being unduly diverted from renewables to gas
- Engagement with Ofgem over islands charging regime
- The adoption of technology-specific support mechanisms (feed in tariffs and contracts for difference) which reflect the maturity of the technology.
- A reversal of the decision to support nuclear generation through Contracts for Difference as this represents a subsidy.\(^{103}\)

**Constitutional questions**

175. In relation to Scotland’s constitutional future, a number of commentators raised the issues of subsidies, investment certainty and the export market.

176. In its written submission, SSE stated—

“The forthcoming referendum...increases the risk of regulatory change and legislative change with regard to the electricity and gas industry in Scotland because it means there is additional uncertainty about the future. This additional risk will apply up to the date of the referendum and, should the result be a vote in favour of a change in Scotland’s status, will continue until there is a binding agreement on all of the issues that could affect the electricity and gas industry in Scotland”.\(^{104}\)

177. SSE also argued that “investment in new long-term electricity and gas assets in Scotland and England and Wales is effectively remunerated through the bills paid by electricity and gas customers throughout Great Britain”.\(^{105}\)

178. The Renewable Energy Foundation also drew attention to the issues around investors continuing to attract the necessary subsidy and infrastructure investment in a post-independence scenario in its written submission.

179. WWF Scotland and FoES’s written submissions were both optimistic about Scotland’s ability to deliver on its targets as an independent country. WWF Scotland pointed out that—

“The UK and indeed EU ambition on climate change means that it is likely that whatever the outcome of the independence referendum that there will remain a growing market for renewable power generated in Scotland. This

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\(^{103}\) Murdo Fraser MSP dissented from this conclusion and recommendation.

\(^{104}\) SSE. Written submission.

\(^{105}\) SSE. Written submission.
market should ensure that there is a strong investment case for infrastructure provision”.

180. While FoE believed—

“It is likely that whatever the outcome of an independence referendum, there will be a growing market for renewable power generated in Scotland. While it is probable, because of Scotland’s strong resource, that this would be required for UK and EU targets in the medium term (2020), beyond this, and because of uncertainty around fossil fuel prices, one would expect renewables to be even more sought after”.107

181. The Secretary of State for Energy and Climate Change, Edward Davey, said that “questions would be raised” as to whether it would be fair, post-independence, for consumers in England, Wales and Northern Ireland to continue to pay a subsidy on their bills for renewable power generated in Scotland and that Scottish consumers’ bills would be likely to rise.108

182. On the other hand, Minister for Energy, Enterprise and Tourism, Fergus Ewing expressed the Scottish Government’s intention that, in a post-independence scenario, Scotland would continue with the integrated UK energy market, due to the shared objectives of the countries involved. He argued that “continuing with an integrated energy market will be good for consumers”109 and asked, “why on earth would National Grid have agreed with Ofgem to enable a four-fold increase in our capacity to export electricity south of the border unless it was necessary?”.110

183. The Committee is aware of ongoing debate within the UK regarding the future of energy regulation and calls on both the Scottish and UK Governments to continue to cooperate towards the objective of a smoothly operating energy market in the future.

184. The Committee does not believe that there is significant evidence that the current constitutional debate is undermining investment decisions regarding renewable energy.111

185. The Committee notes that the support the Scottish Government can provide to the development of the renewables sector is limited by the current constitutional arrangements.112

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106 WWF Scotland. Written submission.
107 Friends of the Earth Scotland. Written submission.
111 Agreed to by division: For 6 (Dennis Robertson, Mike MacKenzie, Chic Brodie, David Torrance, Marco Biagi, Patrick Harvie), Against 2 (Murdo Fraser, Rhoda Grant).
112 Agreed to by division: For 6 (Dennis Robertson, Mike MacKenzie, Chic Brodie, David Torrance, Marco Biagi, Alison Johnstone), Against 3 (Murdo Fraser, Rhoda Grant, John Park).
Nuclear generation

186. The UK Government, in its programme for government, ruled out subsidy for nuclear generation\(^{113}\), yet CFDs are to be applied to all forms of low-carbon generation, including nuclear.

187. FoES summarised a number of concerns when it stated—

“If nuclear gains at the expense of renewables, as is likely under the proposed package, the electricity system is likely to decarbonise less quickly (since nuclear plants take much longer to construct than, e.g. windfarms); we risk lock-in to a highly centralized electricity system, with concomitant inefficiencies in transmission and distribution; we will fail to support emerging technologies in which the UK could be world leader, e.g. wave, tidal, and the jobs that would accompany such leadership”\(^{114}\)

188. The Committee concludes that the application of Contracts for Difference for nuclear generation, as proposed, represents a subsidy and is therefore at odds with the UK Coalition’s programme for government, which states that new nuclear plant can only be constructed “provided that they receive no public subsidy”\(^{115}\). We recommend that this proposal is reversed\(^{116}\).

Exports

189. Achievement of the Scottish Government’s targets will be depend on Scotland’s ability to export electricity to the rest of the UK and, ultimately to Europe.

190. FoES’s written submission emphasised the potential for an export market—

“...there will be a growing market for renewable power generated in Scotland. While it is probable, because of Scotland’s strong resource, that this would be required for UK and EU targets in the medium term (2020), beyond this, and because of uncertainty around fossil fuel prices, one would expect renewables to be even more sought after”\(^{117}\).

191. The Committee wished to explore the risk, outlined in a number of submissions, that Scotland, when connected to a European grid, might have to sell excess power cheaply and buy it back at a higher price. Dr Charlotte Ramsay, Ofgem, said that was “the reality of efficient use of interconnection” and pointed out that energy generated from renewables has a green value (in addition to a wholesale value) and therefore “even if your wholesale energy price is zero, or

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\(^{114}\) Friends of the Earth Scotland. Written submission, page 10.


\(^{116}\) Murdo Fraser MSP dissented from this conclusion and recommendation.

\(^{117}\) Friends of the Earth Scotland. Written submission, page 7.
close to zero, renewable generation will still be rewarded by the renewables support scheme”.\(^{118}\) She added—

“If the UK is producing more renewables than it needs, we must ensure that there are other member states that still need to meet their own targets and that are willing to support the green value that comes from that energy.”\(^{119}\)

192. **The Committee recognises the benefits of Scotland becoming part of an integrated European energy market.**

### Cost of policies to the consumer

193. The Committee has received a number of submissions which talk of the cost of the governments’ renewables policies to the consumer, with some advocating “cheap” and “clean” nuclear energy generation as an alternative to onshore wind.\(^{120}\) Comparing the costs of different methods of electricity generation is notoriously difficult to do as each form of generation entails different set up costs and decommissioning and the processing and long term storage of nuclear waste has to be accounted for. It is difficult accurately predict fuel costs over the lifetime of an installation.

194. The Committee on Climate Change’s work on the cost to consumers of decarbonising energy supply concluded that the rising cost of wholesale gas accounts for most of the recent rises in consumer bills (£290 between 2004 and 2012)\(^{121}\), while the Renewables Obligation, paid for through consumers’ bills, added £20 to average bills in 2011, and will add an estimated £48 by 2020.\(^{122}\)

195. In terms of subsidy via taxation, Friends of the Earth Scotland cited an OECD report which contrasts support for renewables (£1.4 billion) with tax breaks for gas, oil and coal (£3.63 billion) in 2010.\(^{123}\)

196. **While the Committee accepts that it is difficult to accurately predict fossil fuel prices in the future, it believes that energy generated from renewable sources has the potential to offer a high degree of certainty and security that no other source of energy can. It is the Committee’s view**

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\(^{120}\) John and Denise Brown; Jane Bower. Written submissions.


\(^{123}\) OECD. (2011) *Inventory of Estimated Budgetary Support and Tax Expenditures for Fossil Fuels*. Available at: [http://www.oecd.org/document/41/0,3746,en_2649_37431_48813609_1_1_1_37431,00.html](http://www.oecd.org/document/41/0,3746,en_2649_37431_48813609_1_1_1_37431,00.html) [Accessed September 2012].
therefore that renewable energy represents a safe bet both for energy security and for protection from price shock.

197. It is the Committee’s view that the true cost of nuclear generation is obscured by the way it is paid for. While renewable energy is subsidised through consumer bills, nuclear generation and decommissioning was and is supported through general taxation and, as such, does not inspire headlines such as “environment policy reforms to add £300 to energy bills”. It is notable that the Secretary of State for Energy and Climate Change’s statement that “more or less half of DECC’s budget goes on nuclear decommissioning” did not attract a headline of its own.

Economic benefits

Jobs and GVA

198. The Scottish Government, in its 2020 Routemap for Renewable energy in Scotland states that “over the next decade to 2020, renewables in Scotland could provide: up to 40,000 jobs and £30bn investment to the Scottish economy”. The Committee explored these ambitions. Recent work by Scottish Renewables puts the number of jobs currently within the industry at 11,000.

199. In particular, the Committee was interested to hear views on the opportunity costs of directing public and private resources to support the development of the industry and associated infrastructure and whether economic aims and CO₂ obligations could be realised by directing resources in a different way. It is argued by some that an aggressive programme of home insulation could better meet reductions in CO₂ emissions responsibilities and provide a greater number of jobs per pound invested. Other witnesses argued that both renewable energy generation and demand reduction are necessary in order to meet the economic aims and CO₂ obligations.

200. Scottish Enterprise, referring specifically to a preferred scenario within Scotland’s Offshore Wind Routemap, felt that the projected return investment of renewables projects compared well with projects in other sectors, although it was “always difficult to compare returns on investment in projects across sectors due to the different nature and objectives of each project and the time-frames over which they could deliver impacts”.

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127 Scottish Renewables. Scottish-renewable-energy-statistics-glance/#jobs


130 Scottish Enterprise. Supplementary written evidence.
201. John Robertson, Burntisland Fabrications Ltd., commented that the renewables industry offered a stable job market rather than the cycle of highs and lows experienced as a result of oil price fluctuations. He said, “One thing that renewables can bring to Scotland is continuity of employment and investment for a long period. We have never had such an opportunity in the manufacturing industry.”

202. Only time will tell whether the projected jobs and GVA within the Scottish Government’s routemap and associated documents are realised. The Committee recommends that progress towards this industry estimate of job creation be monitored by the Scottish Government as well as the nature and type of those jobs. The Scottish Government should report regularly to Parliament on the progress towards realisation of job creation projections.

Who benefits?
203. A common refrain from those responding to this inquiry was that the bulk of the economic benefits reaped from the development of renewables go to wealthy landowners and large – often foreign-owned – firms while the cost was borne by bill payers, some of whom were unhappy with the visual consequences of renewable energy generation.

204. The counter argument to this is that we all benefit from the security of meeting our energy needs domestically and being insulated to some degree from the fluctuating price of fossil fuels. Reduced reliance on burning fossil fuels, if this is achieved, produces less local pollution while the challenge of man-made climate change means that we are all likely to benefit from a reduction in greenhouse gas emissions in the long term.

205. Community benefit payments and the benefits of community ownership are explored elsewhere in this report, as is the Committee’s view that community ownership represents the best and most immediate benefit to communities and individuals.

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SKILLS AND TECHNOLOGY

Skills

206. If Scotland is to capitalise on everything that an expanding renewables sector can bring in terms of economic growth and prosperity, it must have an appropriately skilled workforce. Competition for skilled workers between the conventional energy sectors and the renewables industries is stiff and the transfer of skilled workers from oil and gas into renewables, anticipated by some, has not been realised. The Scottish Government, its agencies and associated public bodies have a number of plans and initiatives designed to ensure that the skills supply matches demand and the Committee wished to explore whether their aims are being met.

207. The Energy Technology Partnership (ETP) is an alliance of independent Scottish Universities, engaged in energy Research, Development and Demonstration (RD&D). The ETP is the largest power and energy research partnership in Europe and promotes collaboration between universities and industry to deliver energy RD&D capability across a range of energy technologies.

208. The Energy Skills Partnership (ESP) is a collaboration of colleges across Scotland. It aims to establish an energy community which can respond to industry requirements through pooling expertise and resources.\(^\text{132}\)

209. **Despite the partnership working taking place between industry, government and learning providers, the Committee was concerned to hear that several of its witnesses doubted Scotland’s ability to reach its renewables targets because of skills shortages.**

210. Linda Greig, Carnegie College, asserted that “we will not meet the targets because we are not taking into account that people are leaving and the fact that we have a workforce that is skewed over the age of 35”.\(^\text{133}\)

211. Rob Moore, National Skills Academy for Power, said “we have the potential to meet the targets but it will take a lot of work. If we do not do things differently, we will not meet them”.\(^\text{134}\)

212. Professor Sean Smith, Edinburgh Napier University, said that “I doubt that we will meet the targets” adding “My main concern is about other sectors pulling away some of the resources. The likes of green deal will pull away a huge amount of resource – it is a slow car crash waiting to happen”.\(^\text{135}\)


213. Robin MacLaren, Institution of Engineering Technology, added “like the previous witnesses, we have concerns about the availability of skills for the delivery of the policy, given that we are operating in a world market”\textsuperscript{136}

214. The Committee visited North Highland College in June 2012 to tour the campus and find out more about courses on offer. We heard about a pilot scheme which offers apprenticeships in partnership with local employers. North Highland College deliberately recruited for the apprenticeships after local employers had completed their recruitment as the purpose of the scheme was to offer additional capacity. Despite this timing, the 12 places received over 80 applicants. This figure would, arguably, have been higher if the college had recruited at the same time as local employers.

215. While witnesses were in agreement that more skilled workers were required in the marketplace overall – as jobs in oil and gas were not tailing off as expected - the Committee heard differing views on the appeal of careers in engineering to young people. While such jobs are still seen by some as dirty, heavy jobs, other firms reported that they had no trouble with recruitment and that young people found renewable energy an appealing area to work in.\textsuperscript{137} Many were in agreement that too few women are attracted to careers in engineering and other jobs in the sector more generally.\textsuperscript{138} Reskilling of existing workers will be essential in order to meet demand.

216. Witnesses called on the Scottish Funding Council to make more funding available for postgraduate courses.\textsuperscript{139}

217. Many respondents to this inquiry regretted the level of take up of STEM (science, technology, engineering and maths) subjects in schools and universities. A good level of uptake of STEM subjects will be essential in meeting the Government’s energy targets and also in ensuring Scotland succeeds in a number of other areas in the future.

218. The Committee believes that more work needs to be done to address the lower than desirable take up of STEM (science, technology, engineering and maths) subjects in schools, universities and colleges particularly where young women are concerned.

219. The Committee recommends that the Government works with industry to challenge any negative perceptions which may adversely influence career choices. In that regard, school careers advisors have a role to play in encouraging young people, especially women, to consider career

opportunities in this sector. We note that the Scottish Government’s updated routemap includes an equalities statement.\textsuperscript{140}

220. The Committee received a number of comments relating to the quality and rigour of some training schemes.\textsuperscript{141} However, it was pointed out that high quality, hands-on training schemes, which deliver work-ready, experienced and capable workers are more expensive to deliver.

221. The Committee has been impressed by the work it has seen being carried out in partnership with FE colleges, sector skills councils and employers to equip young people for the industry. It particularly endorses hands-on, intensive, accelerated schemes.

222. The Committee believes that lower quality training schemes fail the individual and will, ultimately, fail the industry. It therefore wishes to see a concerted effort by the Scottish Government, Skills Development Scotland, Scotland’s Colleges and Universities Scotland to drive out of the system courses which do not prepare young people for the workplace and ensure that they are replaced by rigorous, high quality courses.

223. We recommend that the Scottish Government and Scottish Funding Council should engage with the Energy Skills Partnership and the Energy Technology Partnership to ensure that the range of opportunities on offer is relevant and has the confidence of the industry.

224. Later sections of this report explore the role that community benefit funds can play in supporting training opportunities for local people, often in the low carbon sector.

\textsuperscript{140} \url{http://www.scotland.gov.uk/Topics/Business-Industry/Energy/UpdateRenewableRoutemap}
Photograph 4: From left to right: Mike MacKenzie MSP, Patrick Harvie MSP, student Dougie McFarlane and Murdo Fraser MSP are pictured in Adam Smith College’s welding workshop.

Technology

225. While respondents were generally of the opinion that the technology exists to deliver the Scottish Government’s targets, this was set against the financial and planning hurdles which needed to be overcome to install it and the cost to the end-user.

Scotland leading the way on technology

226. Scotland can lay claim to a number of technology firsts – the world’s first deep water offshore wind farm has been consented in the Moray Firth and the world’s first tidal array consented off Islay.

227. Much has been made of the “Danish model” whereby Denmark is said to have stolen a march on other European countries by vigorously pursuing wind technology and grasping the lead on research and development. Aquamarine Power produced a report that explored the issue in some depth.\(^{142}\) Factors which led to Denmark’s success are thought to be: a strong domestic market stimulated by the correct incentives, capital support for early-stage projects, the successful commercialisation of early stage research and the facilities to test devices. Other

witnesses spoke of the advantage of scaling up technology in a gradual and sustainable way and avoiding the loss of confidence in the industry which was experienced in the UK and US when large projects failed. One witness said “as the technologies develop, there is an opportunity to get world reach”.

228. The Committee visited a number of firms based in or working in Orkney developing and testing wave and tidal technologies and was impressed by the range of organisations attracted there by the renewable resources and the facility for testing devices in live conditions.

229. The Committee believes that test facilities such as the European Marine Energy Centre (EMEC) and the proposed European Offshore Wind Deployment Centre (EOWDC) provide an important draw for companies wishing to develop and test devices and will be critical in securing Scotland’s edge in the newer offshore wind, marine and tidal technologies.

230. Some contributors commented on the lack of manufacturing of devices taking place in Scotland and questioned whether Scotland could make up ground on manufacturing jobs. While it may be too late to gain a significant market share in the manufacture of wind energy components, it is felt that Scotland could lead the way in newer technologies such as marine energy and energy storage if the conditions were right.

Scale

231. As set out earlier in this report, smaller, less efficient turbines are favoured by both the planning system and the FIT while lenders favour bigger installations. MEG renewables said that “the big problem is that turbines of the scale that are acceptable to the banks for project funding purposes, are generally not acceptable to planners – or at least not when they are presented as single turbine or medium scale developments”.

232. The Committee recognises that smaller installations offer lower efficiency, and would like to see greater harmony between financial, planning and subsidy systems that would remove the bias in favour of smaller, less productive installations which offer poorer value in exchange for the subsidy provided by the bill payer.

145 MEG renewables. Written submission, page 2.
COMMUNITIES

233. The Committee had a particular concern with communities throughout this inquiry, both in terms of the impact of renewable energy development on local communities and regarding communities’ ability to take advantage of local renewable resources to generate financial and other benefits.

Community engagement with developers

234. Communities in certain rural areas are seeing significantly higher levels of deployment of onshore wind. Some of these issues were explored in the planning and consents section of this report. Some community groups and community councils have expressed their concern at a lack of resources to cope with the complexity of technical information provided by developers and complained of an insufficiency of support from local authorities and others such as Planning Aid for Scotland in this.\(^{146}\) Frustration was expressed with the law\(^ {147}\) which precludes local councillors from discussing applications with constituents if they sit on the planning committee. Planning Aid for Scotland was praised for its provision of training events.\(^ {148}\)

235. While National Grid and developers appear to have significantly upped their game in engaging with local communities, a great deal of dissatisfaction clearly remains. Some witnesses noted that there is a perception of a “David and Goliath” scenario of local unskilled community representatives sitting across the table from Queen’s Counsel and highly qualified planning consultants. However, this is not unique to renewable energy development and the Committee has not undertaken a comparison with other forms of development.

236. Many communities feel poorly equipped to deal with planning applications. The Scottish Government should look at how this can be improved perhaps through reinforcing the role of Planning Aid for Scotland.

Community benefit clauses

237. Community benefit payments are voluntarily made by a developer for the benefit of communities affected by development where this will have a long-term impact on the environment. While many community groups welcome the income from community benefit payments, others view them as unacceptable “bribes” which can bias the planning process.

238. Kelly McIntyre, Fintry Development Trust, told the Committee that “benefits can be negotiated by local communities from day one to ensure that they get something that is important to them”.\(^ {149}\) Jason Ormiston, Vattenfall, elaborated—


\(^{147}\) Ethical Standards in Public Life etc. (Scotland) Act 2000.


“A range of financial models are available to communities for benefiting from the development of onshore wind. It seems that straight community benefit payments are seen as the least respectable form of benefit in the pecking order. However, such funds are typically generous. They support communities to do what they need to do locally. Communities can gain access to those funds without incurring the risk that is associated with the development”.\(^{150}\)

239. However, another witness described the process as follows: “they employ public relations people to campaign and go round the areas trying to persuade people by holding out carrots of making a certain amount of money if the developers are supported”.\(^{151}\) Another described the clauses as “beads and mirrors”.\(^{152}\) Maureen Beaumont, in her written submission, argued that the payments “undermine the impartiality of the planning process”.

240. Community benefit payments do not compare well with the income realised by a community generating its own energy, or taking a stake in a large project. A community-owned scheme 1\% of the size of a large development can generate the same income for the local community as the usual community benefit payment attached to such a scheme\(^{153}\) (this would clearly contribute less energy to the grid). Murdo MacDonald, of Rosneath Peninsula West Community Development Trust described the community benefits from commercial schemes as “a pittance”.\(^{154}\)

241. The Committee learned that there is a broad range in the scale of community benefits offered, depending on the developers e.g. SSE who offer up to £5000 per megawatt installed capacity per annum\(^{155}\). When the Committee asked larger firms about the scale of community benefits they offered in relation to profitability, they were reluctant to give hard figures, claiming commercial confidentiality. This contrasted with smaller generators, some of whom were very open about their community partnership work which could involve a generous slice of profit (10\%) or a community turbine, with the developer taking on all the risk.\(^{156}\)

242. The Committee believes that the generation of community owned energy brings benefits beyond financial ones. The income can increase the sustainability of fragile communities, lead to greater social cohesion and provide work for local people in areas such as energy efficiency.


243. When it comes to community benefit, the Committee wishes to see larger firms emulate the example of the best smaller firms. We believe that community engagement should be a genuine two-way street and a fair exchange rather than a token payment representing a small portion of profit. Developers should adopt a code of practice which will set out a minimum profit share or ownership stake for the local community.

244. Furthermore, the Scottish Government should give consideration to whether developers of schemes over a certain threshold should be required to provide a community stake.

245. The Committee notes that the First Minister launched a register of community benefits from renewables in September 2012. The Committee hopes that the register will provide greater transparency and encourage some developers to make fairer payments.

Community developers

246. The Committee views community ownership as a way of ensuring that wealth derived from generating renewable energy remains within communities and can be put to good use for training and for funding low carbon measures for local households.

247. Locally produced power reduces grid distribution costs and can empower and enrich communities. The money generated is likely to be spent in the community, providing employment for local people. In some cases, it can be the key to the sustainability of a remote community. The Scottish Government has set a target for 500MW of “community and locally-owned” of energy by 2020\(^{157}\) and has a number of schemes in place to support it. Recent work by the Energy Saving Trust estimated that, of 147MW of community and locally owned energy generation, only 13 per cent of it is community-owned.\(^{158}\)

248. The Committee wished to explore whether this target is meaningful and helpful. Dr Nicola McEwen, University of Edinburgh, said that “the target would be more transparent if it was unpacked”.\(^{159}\)

249. The Committee finds that it is unhelpful to lump “community and locally owned” under one target. Communities and local entrepreneurs are likely to have very different needs and the benefits that will accrue from a local, privately owned installation are likely to be very different from one owned by the community. It is important to have clarity about the definition of


community given the renewable energy investment fund (REIF) will regard public bodies as able to bid for community energy funding.\textsuperscript{160}

250. In order to support and monitor the 500MW target, the Committee recommends that it is broken down into separate targets for community and locally owned developments. Specific measures should be identified to support the achievement of each strand.

\textbf{Support schemes}

251. The Scottish Government’s Community and Renewable Energy Scheme (CARES) is administered by Community Energy Scotland and aims to mitigate the risk of community renewables development by funding pre-planning costs through loans. Loans are issued to fund planning proposals and are repaid, with interest, back into the fund if the scheme is successful.

252. The Renewable Energy Investment Fund (REIF),\textsuperscript{161} mentioned earlier in this report will have a particular emphasis on supporting communities and rural businesses to develop their own local renewable projects. One witness described finance for community projects as “a major obstacle, particularly to smaller developments”, compounded by the withdrawal of some banks from this sector.\textsuperscript{162} Witnesses hoped that the REIF and the Green Investment Bank would be able to step in to “break through the logjam”.\textsuperscript{163}

253. Witnesses were very enthusiastic about CARES, describing it as a “great facility”, “highly effective” and “the only way to get into the game”.\textsuperscript{164} Witnesses did feel that the rate of interest, at ten per cent, was high and would rather see interest start to accrue at the point when planning permission is gained rather than from the point at which funds are drawn down, which is the case now. It was also felt that it would be more helpful if the community element of contribution to the project (10%) could be made at the end of the planning process rather than at each draw down, to ease cash flow.

254. There was very broad endorsement for the work of Community Energy Scotland from those responding to the inquiry.

255. \textbf{The Committee strongly endorses CARES (Community and Renewable Energy Scheme) and believes it should be extended further. It recommends that the Scottish Government considers devoting greater resources to CARES in future budgets and looks at restructuring repayments to enable greater participation and enhanced benefits.}


A role for local authorities

256. Local authorities have a role to play in providing advice and support to developers on planning issues but also in terms of local economic development. Experiences of community developers and would-be developers vary across Scotland. In 2012, DECC removed barriers to local authorities (across the whole of the UK) selling energy.

257. The Committee recommends that local authorities should be encouraged to provide a baseline level of support, complementary to the support offered by Community Energy Scotland, which would help local groups get their own projects off the ground as rapidly as possible. Local authorities should explore whether they could play a greater role in the transition to a low carbon economy, for example by participating in district heating schemes.

Community generation and planning – a special case?

258. The Committee believes that the benefits of community-generated renewable energy – in addition to contributing to the Scottish Government’s targets – are enormous. This being the case, the Committee would like the Scottish Government to consider making adjustments to planning policy that would include clearer consideration of the local economic benefit of projects through the planning system.

Community scale developments

259. As discussed earlier in this report, a planning policy, finance and subsidy bias against medium scale projects exists and, as such, could put the community target at risk. The Committee recommends that the Scottish and UK Governments examine biases within the subsidy and planning regimes towards smaller scale devices with a view to ensuring that community-scale projects are not discouraged and communities are enabled to produce the greatest amount of energy they are capable of.

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RENEWABLE HEAT

The target

260. Heat accounts for over half of energy demand in Scotland. The Scottish Government’s target on renewable heat is to produce 11% of heat demand from renewables by 2020. This target presents specific challenges. An estimated 2.8% of heat demand was met from renewable sources in 2010; of this, the combustion of biomass provided 90%. Renewable heat can be produced in a range of ways: on a micro-scale by burning wood or wood chips in the domestic setting, through solar hot water and through ground and air source heat pumps. Larger heating schemes for commercial and domestic use involve the combustion of biomass.

Subsidies

261. The Renewable Heat Incentive (RHI) operates in the manner of a feed in tariff and provides a payment per unit of heat produced. It was launched by DECC in November 2011 for commercial premises and a long-awaited domestic version is now expected to be launched in 2013. Uptake of the commercial scheme has been very low in Scotland to date.167 Witnesses felt that the delay in the introduction of domestic RHI would impact on Scotland’s ability to meet its target.168

262. Support for renewable CHP produced by burning biomass is available under the ROCs scheme. Large scale biomass plants have the potential to make a major contribution to the Scottish Government’s target, but the combustion of biomass is not without controversy.

District heating

263. There is no heat network akin to the electricity and gas networks and, therefore, no straightforward market place for heat. Those wishing to install district heating schemes face problems in attracting financial support, in part due to the lack of a clear market place and an established relationship with end users. Developers wishing to build district heating into house building schemes cannot conclude contracts for heat supply in advance of building the homes and such plans are therefore deemed high risk. District heating schemes find it hard to compete on cost where homes are connected to the gas grid and retrofitting is, in any case, expensive.

264. The Scottish Government produced a renewable heat action plan in 2009, updated in 2010 and 2011,169 which was subsumed into the 2020 Routemap. The Scottish Government also established the Expert Commission on the Delivery of District Heating, which will be made up of academics, industry leaders, local authorities and environmental groups. The Commission began meeting earlier this

167 Scottish Renewables. Written submission.
year and is expected to make recommendations to “ensure a major shift to district heating in Scotland”.  

265. Witnesses spoke of the investment hurdles faced by those wishing to install renewable heating systems and district heating schemes, stating that “banks are not lending”.  

Witnesses felt that CHP schemes were unlikely to be successful unless a large customer – such as a school, swimming pool or hospital was involved, to provide an “anchor load”. It was felt that the public sector, by committing to such schemes, would promote public confidence.  

266. The Committee believes that local and national government have a role to play in leading the way in investing in renewable heat and district heating schemes, producing local heat maps and also in creating a culture in which heat is a valued commodity and by raising awareness of RHI.  

267. The Committee recommends that planning authorities produce heat maps and try to coordinate planning decisions on new industrial and domestic developments in order to identify potential synergies.  

Biomass  

268. It is estimated that just 15 large biomass facilities provided 74% of Scotland’s renewable heat output in 2008/09. The Government has stated that it would prefer to see biomass deployed in heat-only or Combined Heat and Power (CHP) schemes, off gas-grid, at a scale appropriate to make best use of both the available heat, and of local supply and, accordingly, set Scottish ROCs at a level which disincentivises larger scale schemes. Ironically, larger schemes are more likely to remain viable as electricity generators following the loss of a heat client and, as such, are commercially attractive to investors.  

269. Stuart Reid, (HWEnergy Ltd) estimated that, to achieve 6% of heat from renewable sources, “between 1,500 and 2,000 high-school-sized building [would need to] convert to biomass heating“.  

270. The combustion of biomass is controversial for a number of reasons. Some dispute the carbon savings claimed for this form of generation while others are concerned that, if it becomes popular, fuel costs will rise, cancelling out any financial savings. The Fraser of Allander Institute states that it would be “highly

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175 The Fraser of Allander Institute. Written submission, page 1.  
unlikely” within the current policy and commercial environment for Scotland to meet the 11% target using purely indigenous wood resources.\(^{178}\)

271. The wood panel sector is a major generator of renewable heat via biomass (through the combustion of by-product), yet there is a risk that promoting renewable heat could put pressure on the viability of those businesses by creating a greater demand for feedstock and pushing prices up. This would, ironically, place the renewable heat target at greater risk of not being met. A written submission from the Wood Panel Industries Federation states that “the UK wood market will not be able to meet the demands of large-scale biomass developments” and argued that “It is far more environmentally sound to process wood than it is to burn it for energy generation.”\(^{179}\) There is also the potential for wood fuel price increases to impact on fuel poverty in areas off the gas grid, where householders rely on wood to heat their homes.

272. During oral evidence, Biofuelwatch pointed out that certification schemes, such as the sustainable forestry initiative, are owned by the companies that are contracted to use the land and, therefore, “we dispute the suggestion that reliance on certification schemes necessarily ensures sustainability”.\(^{180}\) Biofuelwatch also highlighted concerns over the emissions which are released when biomass is burned and the fact that these are repaid only when trees (for example) are replaced, which can take from 20 to 200 years. The potential human rights impact of some types of large-scale wood production were raised by Biofuelwatch and it was pointed out that it is difficult to measure this type of impact.\(^{181}\) Biofuelwatch also argued that “if Scotland is to meet its own stated target for heat we need to consider stronger efficiency requirements for biomass power stations”.\(^{182}\)

273. The Committee shares the concerns of the Scottish Government and the wood panel industry with regard to the potential distortion of the wood market caused by increasing biomass generation. We are further concerned that sustainability criteria and certification schemes for feedstock fail to take account of issues of human rights, indirect land use change and emissions debt. Accordingly, the Committee supports the Scottish Government’s proposals\(^{183}\) not to incentivise new, large scale plants dedicated solely to the generation electricity. The Committee would wish to see substantive improvements in the efficiency of proposed biomass plants before they could attract subsidy.

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178 The Fraser of Allander Institute. Written submission, page 1.
179 Wood Panel Industries Federation. Written submission.
The Committee supports the Scottish Government’s intention\textsuperscript{184} to remove ROC support for large wood-fuelled stations which do not offer combined heat and power.

If the Scottish Government’s ambition for biomass (i.e. deployed in heat-only or CHP schemes, off gas-grid, at a scale appropriate to make best use of both the available heat, and of local supply) proves to be economically unattractive for investors, then efforts will need to be focused on the domestic sector. This places an even greater urgency on the finalisation of domestic RHI, in order to improve consumer and installer confidence in the domestic heat sector.

\textit{Domestic, off-grid}

Around 8% of households in Scotland are not connected to the gas grid\textsuperscript{185} and rely on more expensive oil, electricity or solid fuel to heat their homes. This, in combination with older housing stock, more likely to be a single dwelling, produces high levels of fuel poverty in rural areas.

Oceanflow Energy estimate that if half of these off-grid properties were to switch over to a renewable form of heating – such as a wood chip boiler – then the Scottish Government’s target would be met.\textsuperscript{186}

The domestic RHI must be designed in such a way that it will enable householders who are not connected to the gas grid to make the switch to renewable heat affordably. The Committee notes the proposal in DECC’s consultation to “target the incentive where the opportunities to switch are cheapest i.e. those households that can make the greatest savings both financially and environmentally”, and is supportive of this approach.\textsuperscript{187}

\textit{Other technologies}

Air and ground source heat pumps and solar hot water are gaining popularity. The installation of air and ground source heat pumps costs more than installing a traditional boiler but the domestic RHI, when it is introduced, must make it possible for individuals to recoup this investment.

Questions have arisen over the effectiveness and efficiency of ground and air source heat pumps, with some claiming that costs and carbon savings are marginal.\textsuperscript{188} The Energy Saving Trust point out that air and ground source heat pump technology is widely deployed in countries such as Sweden but warn that “failure to adequately insulate homes could lead to heat pump efficiency values not being achieved and undermine medium to long term renewable heat targets”.\textsuperscript{189} In


\textsuperscript{186} Oceanflow energy. Written submission. Page 1.


\textsuperscript{188} The Fraser of Allander Institute. Written submission, page 4, citing \textit{Getting warmer: a field trial of heat pumps} – Energy Saving Trust –September 2010

\textsuperscript{189} Energy Saving Trust. Written submission. Page 5.
a recent report, Consumer Focus Scotland found that “Both landlords and tenants believe the systems do deliver affordable warmth, when properly installed and with appropriate support”. More data is required to give investors confidence. In the future, when technology is installed under the domestic RHI, it will be monitored via a heat meter, in order to assess payments under the scheme. This will build up a data set to assist with investment decisions.

Overall finding

281. Taking account of the on-going delay of the introduction of domestic RHI, the controversies surrounding the combustion of biomass, and the hurdles associated with district heating schemes, there is a risk that the target for renewable heat may not be met. However, we note that the interim target has been exceeded.

282. The Committee recommends that the Scottish Government considers whether there are ways of assisting domestic off grid households to move towards renewable sources of heating.

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190 Consumer Focus Scotland. 21st century heating in rural homes Social landlords and tenants’ experience of renewable heat. February 2012.
TOURISM

283. Whilst care always needs to be taken in terms of the planning process and decisions on the siting of individual projects in areas popular with tourists and in our more rural and remote rural areas, no witness has provided the Committee with robust, empirical evidence, as opposed to anecdotal comment and opinion, that tourism is being negatively affected by the development of renewable projects.

284. A study commissioned by the Scottish Government and published in 2008 found that "the Scottish Government should be able to meet commitments to generate at least 50 per cent of Scotland's electricity from renewable sources by 2020 with minimal impact on the tourism industry's ambition to grow". Approximately three-quarters of tourists felt wind farms had a positive (39 per cent) or neutral (36 per cent) impact on the landscape. A study carried out by Wild Scotland in 2006 found that 61% of wildlife tour operators felt that the impact of wind farms on Scottish tourism would be negative. In a more recent survey by VisitScotland, UK respondents were asked whether the presence of a wind farm would affect their decision about where to visit or where to stay on a UK holiday or short break. 80% stated their decision would not be affected.

285. It is worth noting that a number of wind farms have become tourist attractions in their own right. It was reported in June this year that Whitelee wind farm was set to reach a total visitor number of a quarter of a million. These visitor numbers are for the visitor centre itself, and do not include those who come to the farm for recreation.

286. Professor Cara Aitchison, of The University of Edinburgh, provided an analysis for the Committee of previous research on the impact of wind farms on tourism in Scotland, England and Wales. This analysis also critically evaluated the sampling methodologies deployed in the various studies. Taking all of this into account, the submission concluded that there was "an emerging consensus within the research examining the actual and potential impact of wind farms on tourism. The clear consensus is that there has been no measurable economic impact, either positively or negatively, of wind farms on tourism".

287. Some witnesses called for the Scottish Government's survey work to be repeated on an annual basis.

288. While some strongly held localised and anecdotal opinion exists, the Committee has seen no empirical evidence which demonstrates that the tourism industry in Scotland will be adversely affected by the wider

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194 The University of Edinburgh. Written submission, pages 16-17.
deployment of renewable energy projects, particularly onshore and offshore wind.

289. Whilst care always needs to be taken in terms of the planning process and decisions on the siting of individual projects in areas popular with tourists and in our rural and wild land areas, no one has provided the Committee with evidence, as opposed to opinion, that tourism is being negatively affected by the development of renewable projects. However, given the importance of this issue, the Committee recommends that VisitScotland and the Scottish Government continue to gather evidence on this from visitors to Scotland.
RENEWABLE ENERGY FOR TRANSPORT

290. The Scottish Government has set a target of 10% of all transport fuels to come from renewable sources by 2020, with electric vehicles being a particular policy focus.

291. Electrification of the transport system has the potential to have a major impact on GHG emissions but before there can be widespread adoption of electric vehicles, a public and work-place charging infrastructure will need to be created. Management of peaks in demand created by large numbers of consumers charging their cars overnight will present challenges, although there is scope for car batteries to assist in balancing the grid by storing energy produced at times of high output and / or low demand. These effects are unlikely to be felt within the 2020 timeframe. A potential market exists in deploying the same battery technology in homes to balance demand in the same way.

292. Electric vehicles are currently more expensive than petrol or diesel equivalents, although this is offset, to a degree, by cheaper running costs. Wider adoption would lead to economies of scale and cost reductions. As with electricity generation, as fossil fuel prices increase, the alternative becomes more financially compelling. There are examples of local authorities (using financial support from the Scottish Government) which have made savings by replacing some vehicles with electric vehicles.  

293. The Committee notes that there is a risk that the target may not be met and that further effort is needed in order to achieve this. The Committee wishes to see more local authorities taking the lead and demonstrating the savings to be made by switching to electric vehicles. Local authorities should also work together to produce a national network of charging points which would allow long journeys to be made in electric vehicles.

Jobs and skills

294. Scotland is home to leading designers and manufacturers of electric vehicles (e.g. Allied Vehicles) and batteries (e.g. Axeon) and these are seen as areas where the country could provide the lead for manufacturing. Although government support for the industry is available, anecdotal evidence suggests it is not working in a joined-up way. Referring to a recent withdrawal of an R and D grant from Scottish Enterprise, (due to funding from the Technology Strategy Board), Paul Nelson reported that “our company ended up being £120,000 out on the project because joined-up government does not work”.

295. The Scottish and UK Governments’ approach to incentivising the uptake of electric vehicles should have the dual aims of decarbonising transport and capturing an emerging global market for battery technology which will promote manufacturing and research and development jobs and skills within Scotland.

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ANNEXE A: LIST OF ACRONYMS

Note – All acronyms are fully explained when first mentioned in the text of the report. This list is provided for ease of reference.

CARES – Community and Renewable Energy Scheme
CCGT – Combined Cycle Gas Turbine
CCS – carbon capture and storage
CFD – Contracts for Difference
CHP – combined heat and power
COSLA – Convention of Scottish Local Authorities
DECC – Department of Energy and Climate Change
GHG – greenhouse gas
GIB – Green Investment Bank
EIA – Environmental Impact Assessment
EMEC – European Marine Energy Centre
EMR – Electricity Market Reform
EOWDC – European Offshore Wind Deployment Centre
EPS – Emissions Performance Standard
EU – European Union
EU ETS – EU Emissions Trading Scheme
ESP – Energy Skills Partnership
ETP – Energy Technology Partnership
FIT – Feed in Tariff
FiTS – Feed in Tariff Scheme
GVA – Gross Value Added
ICRP – Incremental Cost Related Pricing
kW – kilowatt
MW – Megawatt
MWh – Megawatt hour
NRIP – National Renewable Infrastructure Plan
OECD – Organisation for Economic Co-operation and Development
Ofgem – Office of the Gas and Electricity Markets
REIF – Renewable Energy Investment Fund
RHI – Renewable Heat Incentive
RO – Renewables Obligation
ROC – Renewables Obligation Certificate
STEM – Science, Technology, Engineering and Maths
ANNEXE B: REMIT AND TERMS OF REFERENCE

The following remit and terms of reference formed the basis of the Committee’s inquiry.

Rermit

“An inquiry into the achievability of the Scottish Government’s 2020 renewable energy targets, the merits of the targets and what the risks and barriers are to realising them.”

Terms of Reference

Targets

- Are the 2020 renewables targets (for electricity and heat) achievable? If not, why not?
- What contribution will achievement of the 2020 renewables targets make to meeting Scotland’s CO₂ emissions targets (a reduction of at least 42% by 2020 and an 80% reduction target for 2050) under the Climate Change (Scotland) Act 2009?
- Will increase in demand from electric heat and transport be offset by efficiencies elsewhere?
- Has the Scottish Government made any estimation of the overall costs of achieving the targets, and identified which parties will bear them?

Challenges

(a) Technology

- Is the technology to meet these targets available and affordable? If not, what needs to be done?
- Are electricity generating or heat producing technologies compatible with the need for security of energy supplies?
- Are our universities and research institutes fully geared up to the need for technological development, innovation and commercialisation?

(b) Supply chain and infrastructure

- Is the supply chain in Scotland in place to meet the targets?
- What further improvements are needed to the grid infrastructure or heat supply networks both at a national and a local level? Additionally, are we confident that the necessary infrastructure can be developed and financed so that Scotland can export any excess electricity generated to the rest of the UK and/or the EU? What is the role for the Scottish Government here?

(c) Planning and consents

- Is the planning system adequately resourced and fit for purpose?
- How can national priorities be reconciled with local interests?

(d) Access to finance

- Will sufficient funds be available to allow investment in both the installation and the development of relevant technologies? What can the Scottish Government do to influence this?
• What will the impacts be on consumers and their bills?

(e) Skills and workforce development
• Will Scotland have sufficient home-grown skills to attract inward investment? Are current policies producing the desired move towards Science Technology Engineering and Maths subjects at schools and universities? Is the skills transfer from the oil and gas sectors being realised?

(f) Energy market reform and the subsidy regime
• Are the reforms of the energy markets and subsidy regimes at both UK and EU level sufficient to meet the challenge of the Scottish Government’s renewable targets?
ANNEXE C: EXTRACTS FROM THE MINUTES OF THE ECONOMY, ENERGY AND TOURISM COMMITTEE

2nd Meeting, 2012 (Session 4), Wednesday 18 January 2012

Achieving the Scottish Government’s renewable energy targets (in private): The Committee agreed the draft remit, terms of reference and call for evidence for its inquiry.

8th Meeting, 2012 (Session 4), Wednesday 7 March 2012

Inquiry into the Scottish Government’s renewable energy targets (in private): The Committee discussed its choice of witnesses, potential visits and the management of the written evidence received for its inquiry.

9th Meeting, 2012 (Session 4), Wednesday 14 March 2012

Inquiry into the Scottish Government’s renewable energy targets: The Committee took evidence from—
Graeme Blackett, Director, Biggar Economics;
Richard Marsh, Director, 4-Consulting;
Niall Stuart, Chief Executive, Scottish Renewables;
and then from—
Richard Dixon, Director, WWF Scotland;
Stan Blackley, Chief Executive, Friends of the Earth Scotland;
Helen McDade, Head of Policy, The John Muir Trust;
Aedán Smith, Head of Planning and Development, RSPB Scotland.

10th Meeting, 2012 (Session 4), Wednesday 21 March 2012

Inquiry into the Scottish Government’s renewable energy targets: The Committee took evidence from—
Chris Norman, Chair, Heads of Planning Scotland, West Lothian Council;
Simon Coote, Head of Energy Consents and Deployment, and Lindsey Nicoll, Chief Reporter and Director for Planning and Environmental Appeals, Scottish Government;
Keith Winter, Head of Enterprise, Planning and Protective Services, Fife Council;
Cllr Roger Grant, Chair of Housing, Planning and Environment Services Committee, Dumfries and Galloway Council;
Cllr Carolyn Riddell-Carre, Executive Member for Planning and Environment, Scottish Borders Council;
Jim MacKay, Planning Unit Manager, SEPA;
Andrew Thin, Chair, Scottish Natural Heritage;
David Palmer, Head of Marine Planning and Policy, Marine Scotland.

11th Meeting, 2012 (Session 4), Wednesday 28 March 2012

Inquiry into the Scottish Government’s renewable energy targets: The Committee took evidence from—
Linda Greig, Director of Business and Sponsorship, Carnegie College;
Jim Brown, Director, Scotland's Colleges Energy Skills Partnership; Professor Sean Smith, Director, Institute for Sustainable Construction and Professor of Construction Innovation, Edinburgh Napier University; Gordon McGuiness, Skills Development Scotland; Rob Moore, Operations Manager Low Carbon, National Skills Academy of Power; Andrew Scott, Senior Project Development Manager, Pelamis Wave; John Robertson, Managing Director, BiFab; Martin McAdam, Chief Executive Officer, Aquamarine Power; Robin MacLaren, Institute of Engineering and Technology; Simon Forrest, Director, Nova Innovation Ltd.

12th Meeting, 2012 (Session 4), Wednesday 18 April 2012

1. Inquiry into the Scottish Government's renewable energy targets: The Committee took evidence from— Dave Morris, Director, Ramblers Scotland; Gordon Ball, Chairman, Cameron Community Council; Kelly McIntyre, Project Manager, Fintry Development Trust; Stephen Leckie, Chair, Scottish Tourism Alliance; Walter Inglis, Convener, Grangemouth Community Council.

3. Inquiry into the Scottish Government's renewable energy targets (in private): The Committee reviewed the evidence it has heard to date and discussed future witnesses.

13th Meeting, 2012 (Session 4), Wednesday 25 April 2012

Inquiry into the Scottish Government's renewable energy targets: The Committee took evidence from— Donald Trump Sr., Chairman and Chief Executive Officer, and George Sorial, Executive Vice President and Counsel, The Trump Organisation; J Mark Gibson, and Graham Lang, Communities Against Turbines Scotland.

15th Meeting, 2012 (Session 4), Wednesday 9 May 2012

1. Inquiry into the Scottish Government's renewable energy targets: The Committee took evidence from— Dr Colin Anderson, Consulting Engineer; Ken Hunter, Business Development Manager, MEG Renewables; Steven Watson, Corporate Manager, Community Energy Scotland; Dr Nicola McEwan, Co-Director, Institute of Governance, University of Edinburgh; Murdo MacDonald, Convener, Rosneath Peninsula West Community Development Trust; Alan Hobbet, Director, Gigha Renewable Energy Ltd.; Mike Pitman, Director, Boyndie Windfarm Cooperative Ltd.; John Booth, Director, Eigg Electric Ltd.

3. Inquiry into the Scottish Government's renewable energy targets (in private): The Committee reviewed the evidence heard to date and agreed future witnesses.
16th Meeting, 2012 (Session 4), Wednesday 16 May 2012

**Inquiry into the Scottish Government's renewable energy targets:** The Committee took evidence from—
Lesley McInnes, Chief Executive, West Highland Housing Association;
Stuart Reid, HWEnergy Ltd.;
Neville Martin, General Manager, Shetland Heat Energy and Power Ltd.;
Emilia Jane Hanna, Biomass Campaigner, Biofuelwatch;
Calum Wilson, Managing Director, Forth Energy;
Ian Booth, General Manager, Aberdeen Heat and Power;
Professor Paul Mitchell, Director, Institute of Energy Technologies, University of Aberdeen.

17th Meeting, 2012 (Session 4), Wednesday 23 May 2012

**Inquiry into the Scottish Government's renewable energy targets:** The Committee took evidence from—
Duncan Burt, Head of Customer Service, National Grid;
Ian Funnell, Managing Director, Transmission, SSE;
Ronald Peddie, AMEC Power & Process Europe, Project Director of the Lewis Wind Farm Project;
Scott Mathieson, Regulation and Commercial Director, Scottish Power, Energy Networks;
Dr Richard Blanchfield, Deputy Project Manager and Head of Technical Department, NorthConnect KS;
Jeremy Baster, Grid Consultant to Orkney Islands Council;
Paul Nelson, Managing Director, Allied Vehicles;
Rebecca Trengove, Head of Marketing and Corporate Affairs, Axeon;
Shane Slater, Director, elementenergy.

18th Meeting, 2012 (Session 4), Wednesday 30 May 2012

**Inquiry into the Scottish Government's Renewable Energy Targets:** The Committee took evidence from—
Peter Atherton, Head - European Utility Sector Research, Citigroup Global Markets;
Andrew Buglass, Managing Director, Head of Energy Structured Finance, Corporate and Institutional Banking, Royal Bank of Scotland;
Dr Maitland Mackie, Chairman, Mackies;
Paul Lewis, Managing Director Operations - Sectors and Commercialisation, Scottish Enterprise;
Sir Donald Miller;
Dr John Constable, Renewable Energy Foundation;
Guy Doyle, Chief Economist, Energy & Carbon, Mott MacDonald Ltd;
Andrew Faulk, Policy Manger (Energy), Consumer Focus Scotland;
Duncan Carter, Policy Manager for Energy Regulation, Consumer Focus.
19th Meeting, 2012 (Session 4), Wednesday 6 June 2012

**Inquiry into the Scottish Government's renewable energy targets:** The Committee took evidence from—

Steve Salt, Planning and Development Director, West Coast Energy;
Graham Brown, Managing Director, Burcote Wind Limited;
Jason Ormiston, Head of Public and Regulatory Affairs, Vattenfall;
Ronnie Quinn, Senior Policy Manager, Crown Estates Commission;
Gavin McCallum, Investment Director, Clyde Blowers Capital;
Jamie Glackin, Managing Director, Renewable Energy Consultants Ltd;
Andrew Jamieson, Policy and Innovation Director, ScottishPower Renewables;
Jim Smith, Managing Director, SSE Renewables.

20th Meeting, 2012 (Session 4), Wednesday 13 June 2012

2. **Inquiry into the Scottish Government's renewable energy targets:** The Committee took evidence from—

Ian Marlee, Senior Partner, Smarter Grids and Governance (transmission), Charles Gallacher, Director of GB External Relations, and Dr Charlotte Ramsay, Head of European Strategy, Ofgem;
David Odling, Energy Policy Manager, and Alix Thom, Employment and Skills Issues Advisor, Oil & Gas UK.

3. **Inquiry into the Scottish Government's renewable energy targets (in private):** The Committee considered its approach to this report.

21st Meeting, 2012 (Session 4), Wednesday 20 June 2012

**Inquiry into the Scottish Government's Renewable Energy Targets:** The Committee took evidence from—

Edward Davey, Secretary of State for Energy and Climate Change, and Jonathan Brearley, Director Energy Markets and Networks, UK Government;
Fergus Ewing, Minister for Energy, Enterprise and Tourism, David Wilson, Director of Energy, and Graham Marchbank, Principal Planner, Scottish Government.

22nd Meeting, 2012 (Session 4), Wednesday 5 September 2012

**Inquiry into the Scottish Government's renewable energy targets (in private):** The Committee agreed to defer consideration of the draft report to its next meeting.

23rd Meeting, 2012 (Session 4), Wednesday 12 September 2012

**Inquiry into the Scottish Government's renewable energy targets (in private):** The Committee agreed to defer consideration of its draft report to its next meeting.

24th Meeting, 2012 (Session 4), Wednesday 19 September 2012
Inquiry into the Scottish Government’s renewable energy targets (in private):
The Committee considered a draft report.

26th Meeting, 2012 (Session 4), Wednesday 3 October 2012

Inquiry into the Scottish Government’s renewable energy targets (in private):
The Committee considered a draft report.

27th Meeting, 2012 (Session 4), Wednesday 24 October 2012

Inquiry into the Scottish Government’s renewable energy targets (in private):
The Committee considered a draft report. Several changes were agreed to, three by division.

Note of divisions in private:

Patrick Harvie proposed the inclusion of paragraph 184. The proposal was agreed to by division: For 6 (Patrick Harvie, Dennis Robertson, Mike MacKenzie, Chic Brodie, David Torrance and Marco Biagi), Against 2 (Murdo Fraser and Rhoda Grant), Abstentions 0.

The Committee does not believe that there is significant evidence that the current constitutional debate is undermining investment decisions regarding renewable energy.

Murdo Fraser proposed that the following paragraph be inserted after paragraph 184. The proposal was disagreed to by division: For 3 (Rhoda Grant, Murdo Fraser and Patrick Harvie), Against 5 (Dennis Robertson, Mike MacKenzie, Chic Brodie, David Torrance and Marco Biagi), Abstentions 0.

The Committee believes that there are issues regarding the subsidy regime in light of the constitutional debate that require to be addressed and calls on Ministers to continue to update the Committee on these matters.

Rhoda Grant proposed that the following paragraph be inserted after paragraph 184. The proposal was disagreed to by division: For 3 (Rhoda Grant, Murdo Fraser and Patrick Harvie), Against 5 (Dennis Robertson, Mike MacKenzie, Chic Brodie, David Torrance and Marco Biagi), Abstentions 0.

The Committee believes that there are significant issues regarding the subsidy regime in light of the constitutional debate that require to be addressed and calls on Ministers to continue to update the Committee on these matters.

28th Meeting, 2012 (Session 4), Wednesday 31 October 2012

Inquiry into the Scottish Government’s renewable energy targets (in private):
The Committee considered draft report.
Marco Biagi indicated that close family members intend to lodge formal objections to a proposed planning application for a windfarm development by Rosneath Peninsula West Community Development Trust.

**29th Meeting, 2012 (Session 4), Wednesday 7 November 2012**

**Inquiry into the Scottish Government's renewable energy targets (in private):**
The Committee considered a draft report. Various changes were agreed to (one by division).

Marco Biagi proposed that the following paragraph to be inserted after paragraph 184. The proposal was agreed to by division: For 6 (Dennis Robertson, Mike MacKenzie, Chic Brodie, David Torrance, Marco Biagi, Alison Johnstone), Against 3 (Murdo Fraser, John Park, Rhoda Grant), Abstentions 0.

*The Committee notes that the support the Scottish Government can provide to the development of the renewables sector is limited by the current constitutional arrangements.*

**31st Meeting, 2012 (Session 4), Wednesday 21 November 2012**

**Inquiry into the Scottish Government's renewable energy targets (in private):**
The Committee agreed its report and the arrangements for its publication.
ANNEXE D: ORAL AND ASSOCIATED WRITTEN EVIDENCE

Please note that all oral evidence and associated written evidence is published electronically only, and can be accessed via the Economy, Energy and Tourism Committee’s webpages, at:


9th Meeting, 2012 (Session 4), Wednesday 14 March 2012

ORAL EVIDENCE

Graeme Blackett, Director, Biggar Economics;
Richard Marsh, Director, 4-Consulting;
Niall Stuart, Chief Executive, Scottish Renewables;
Richard Dixon, Director, WWF Scotland;
Stan Blackley, Chief Executive, Friends of the Earth Scotland;
Helen McDade, Head of Policy, The John Muir Trust;
Aedán Smith, Head of Planning and Development, RSPB Scotland.

WRITTEN EVIDENCE

4-Consulting (129KB pdf)
Scottish Renewables (441KB pdf)
WWF Scotland (199KB pdf)
Friends of the Earth Scotland (358KB pdf)
The John Muir Trust (456KB pdf)
RSPB Scotland (423KB pdf)

10th Meeting, 2012 (Session 4), Wednesday 21 March 2012

ORAL EVIDENCE

Chris Norman, Chair, Heads of Planning Scotland, West Lothian Council;
Simon Coote, Head of Energy Consents and Deployment, Scottish Government
Lindsey Nicoll, Chief Reporter and Director for Planning and Environmental
Appeals, Scottish Government;
Keith Winter, Head of Enterprise, Planning and Protective Services, Fife Council;
Cllr Roger Grant, Chair of Housing, Planning and Environment Services
Committee, Dumfries and Galloway Council;
Cllr Carolyn Riddell-Carre, Executive Member for Planning and Environment,
Scottish Borders Council;
Jim MacKay, Planning Unit Manager, SEPA;
Andrew Thin, Chair, Scottish Natural Heritage;
David Palmer, Head of Marine Planning and Policy, Marine Scotland.

WRITTEN EVIDENCE

Heads of Planning Scotland (121KB pdf)
11th Meeting, 2012 (Session 4), Wednesday 28 March 2012

ORAL EVIDENCE

Linda Greig, Director of Business and Sponsorship, Carnegie College; Jim Brown, Director, Scotland's Colleges Energy Skills Partnership; Professor Sean Smith, Director, Institute for Sustainable Construction and Professor of Construction Innovation, Edinburgh Napier University; Gordon McGuiness, Skills Development Scotland; Rob Moore, Operations Manager Low Carbon, National Skills Academy of Power; Andrew Scott, Senior Project Development Manager, Pelamis Wave; John Robertson, Managing Director, BiFab; Martin McAdam, Chief Executive Officer, Aquamarine Power; Robin McLaren, Institute of Engineering and Technology; Simon Forrest, Director, Nova Innovation Ltd.

WRITTEN EVIDENCE

Aquamarine Power (163KB pdf)
Alliance of Sector Skills Councils in Scotland (239KB pdf)
Skills Development Scotland (174Kb pdf)
Joint submission from Professional Engineering Institutions (178KB pdf)

12th Meeting, 2012 (Session 4), Wednesday 18 April 2012

ORAL EVIDENCE

Dave Morris, Director, Ramblers Scotland; Gordon Ball, Chairman, Cameron Community Council; Kelly McIntyre, Project Manager, Fintry Development Trust; Stephen Leckie, Chair, Scottish Tourism Alliance; Walter Inglis, Convener, Grangemouth Community Council.

WRITTEN EVIDENCE

Ramblers Scotland (186KB pdf)
Fintry Development Trust (197KB pdf)
Cameron Community Council (83KB pdf)
Grangemouth Community Council (78KB pdf)

13th Meeting, 2012 (Session 4), Wednesday 25 April 2012

ORAL EVIDENCE

Donald Trump Sr., Chairman and Chief Executive Officer, The Trump Organisation;
George Sorial, Executive Vice President and Counsel, The Trump Organisation; J Mark Gibson, Communities Against Turbines Scotland. Graham Lang, Communities Against Turbines Scotland.

WRITTEN EVIDENCE

The Trump Organisation (16.95MB pdf)
Communities Against Turbines Scotland (CATS) (2861KB pdf)
CATS Annexe 1 (1410KB pdf)
CATS Annexe 2 (142KB pdf)
CATS Annexe 3 (32KB pdf)
CATS Annexe 4 (30KB pdf)
J Mark Gibson (2.13 MB pdf)

15th Meeting, 2012 (Session 4), Wednesday 9 May 2012

ORAL EVIDENCE

Dr Colin Anderson, Consulting Engineer; Ken Hunter, Business Development Manager, MEG Renewables; Steven Watson, Corporate Manager, Community Energy Scotland; Dr Nicola McEwan, Co-Director, Institute of Governance, University of Edinburgh; Murdo MacDonald, Convener, Rosneath Peninsula West Community Development Trust; Alan Hobbet, Director, Gigha Renewable Energy Ltd.; Mike Pitman, Director, Boyndie Windfarm Cooperative Ltd.; John Booth, Director, Eigg Electric Ltd.

WRITTEN EVIDENCE

Colin Anderson (95KB pdf)
MEG Renewables (306KB pdf)
Community Energy Scotland (115KB pdf)
Dr Nicola McEwan (211KB pdf)
Rosneath Peninsula West Community Development Trust (73KB pdf)

16th Meeting, 2012 (Session 4), Wednesday 16 May 2012

ORAL EVIDENCE

Lesley McInnes, Chief Executive, West Highland Housing Association; Stuart Reid, HWEnergy Ltd.; Neville Martin, General Manager, Shetland Heat Energy and Power Ltd.; Emilia Jane Hanna, Biomass Campaigner, Biofuelwatch; Calum Wilson, Managing Director, Forth Energy; Ian Booth, General Manager, Aberdeen Heat and Power; Professor Paul Mitchell, Director, Institute of Energy Technologies, University of Aberdeen.
WRITTEN EVIDENCE

Forth Energy (253KB pdf)
Biofuelwatch (249KB pdf)
Aberdeen Heat and Power (150KB pdf)

17th Meeting, 2012 (Session 4), Wednesday 23 May 2012

ORAL EVIDENCE

Duncan Burt, Head of Customer Service, National Grid;
Ian Funnell, Managing Director, Transmission, SSE;
Ronald Peddie, AMEC Power & Process Europe, Project Director of the Lewis Wind Farm Project;
Scott Mathieson, Regulation and Commercial Director, Scottish Power, Energy Networks;
Dr Richard Blanchfield, Deputy Project Manager and Head of Technical Department, NorthConnect KS;
Jeremy Baster, Grid Consultant to Orkney Islands Council;
Paul Nelson, Managing Director, Allied Vehicles;
Rebecca Trengove, Head of Marketing and Corporate Affairs, Axeon;
Shane Slater, Director, elementenergy.

WRITTEN EVIDENCE

National Grid (134KB pdf)
Scottish Power (277KB pdf)

18th Meeting, 2012 (Session 4), Wednesday 30 May 2012

ORAL EVIDENCE

Peter Atherton, Head - European Utility Sector Research, Citigroup Global Markets;
Andrew Buglass, Managing Director, Head of Energy Structured Finance, Corporate and Institutional Banking, Royal Bank of Scotland;
Dr Maitland Mackie, Chairman, Mackies;
Paul Lewis, Managing Director Operations - Sectors and Commercialisation, Scottish Enterprise;
Sir Donald Miller;
Dr John Constable, Renewable Energy Foundation;
Guy Doyle, Chief Economist, Energy & Carbon, Mott MacDonald Ltd;
Andrew Faulk, Head of Corporate Resources, Consumer Focus Scotland;
Duncan Carter, Policy Manager for Energy Regulation, Consumer Focus.

WRITTEN EVIDENCE

Maitland Mackie (78KB pdf)
Sir Donald Miller (108KB pdf)
19th Meeting, 2012 (Session 4), Wednesday 6 June 2012

ORAL EVIDENCE

Steve Salt, Planning and Development Director, West Coast Energy; Graham Brown, Managing Director, Burcote Wind Limited; Jason Ormiston, Head of Public and Regulatory Affairs, Vattenfall; Ronnie Quinn, Senior Policy Manager, Crown Estates Commission; Gavin McCallum, Investment Director, Clyde Blowers Capital; Jamie Glackin, Managing Director, Renewable Energy Consultants Ltd; Andrew Jamieson, Policy and Innovation Director, Scottish Power Renewables; Jim Smith, Managing Director, SSE Renewables.

WRITTEN EVIDENCE

West Coast Energy Ltd (308KB pdf)
Burcote Wind (259KB pdf)
Vattenfall (244KB pdf)
Renewable Energy Consultants (Scotland) Ltd (272KB pdf)
Scottish Power (277KB pdf)

20th Meeting, 2012 (Session 4), Wednesday 13 June 2012

ORAL EVIDENCE

Ian Marlee, Senior Partner, Smarter Grids and Governance (transmission), Ofgem; Charles Gallacher, Director of GB External Relations, Ofgem; Dr Charlotte Ramsay, Head of European Strategy, Ofgem; David Odling, Energy Policy Manager, Oil & Gas UK; Alix Thom, Employment and Skills Issues Advisor, Oil & Gas UK.

WRITTEN EVIDENCE

Ofgem (461KB pdf)
Oil & Gas UK (262KB pdf)

21st Meeting, 2012 (Session 4), Wednesday 20 June 2012

ORAL EVIDENCE

Rt Hon Edward Davey MP, Secretary of State for Energy and Climate Change, UK Government; Jonathan Brearley, Director, Energy Markets and Networks, UK Government; Fergus Ewing, Minister for Energy, Enterprise and Tourism, Scottish Government; David Wilson, Director of Energy, Scottish Government; Graham Marchbank, Principal Planner, Scottish Government.
ASSOCIATED WRITTEN EVIDENCE

The Committee received over 174 unique written submissions and 451 in similar terms. These can be viewed at:


Aberdeen Renewable Energy Group
AES Wind Generation
Association for the Conservation of Energy
Barreiro, Julio Cesar
Beaumont, Maureen
Birkett, Derek G
Bower, Professor D Jane
Brown, John and Denise
Brown, William
BSW Timber
Burns, W K
Caithness Windfarm Information Forum
Calor Gas
Cameron, Alan
CATS video
CBI Scotland
Chalmers, David
Chopping, Dr B M
Consumer Focus Scotland
Consumer Focus Scotland (2)
Cross, Michael
Dales, Mike
Diageo
Dickson, Malcolm
Duff, Marion
Dunbar Community Energy Company
Durie, Nick
E-ON
EDF Energy
Ellen, Chris
Energy Saving Trust
Falck Renewables Wind Ltd
Fells, Ian
Fraser of Allander Institute
Fraser of Allander Institute 2
Fuller, Adam
Gall, Avril
Galloway Landscape and Renewable Energy
Galloway Static Gear Fisherman’s Association
Gibson, Janet
Gleneagles Hotel
GL Garrad Hassan
Grave, Alison
Green, Morag
Greenheat Systems Limited
Hampson, Jim
Haseler, Mike
Hay, Frank
Herraghty, George
Herrick, Brenda
Highlands and Islands Enterprise
Hill, Brian
Hobbs, Bruce
Hobbs, Celia
Hurry, May
Institute of Energy Technologies
Islay Energy Trust
Keith, Alan and Tricia
Kerr, Philip
King, David
Landscape Institute Scotland
Langlands, Angus
Lauderdale Preservation Group
Laycock, Adrian
Lincoln, Carole
Maciver, Angus
MacKay Consultants
Mackay, John
MacLeod, Alastair
Mahoney, Cairn
Mcintosh, Bruce
McKee, Penelope Ann
Mcoustra, Archie
Meehan, Professor Tony
Metcalf, Christine
Millar, David
Minto Hills Conservation Group
Monreith and District Action Group
National Farmers Union Scotland and Scottish Land & Estates
No Tiree Array
Nova Innovation
Oceanflow Energy
Osspower Limited
Ouldcott, Malcolm
Paddison, Mr John and Dr Jackie
Planning Aid for Scotland
Ponton, Professor Jack W
Procter, Trevor and Elaine
Pritchard, Heather
Pumfrett, Sarah
Quartermaine, Ronald
Rampen, Dr Win
Reform Scotland
Reeve, A
Rigg, Trevor
Royal Society of Edinburgh
Royal Town Planning Institute
Scott, Mark
Scott, Mary and Eppel, Herbert
Scientific Alliance
Scottish Chambers of Commerce
Scottish Climate and Energy Forum
Scottish Council for Development and Industry
Scottish Engineering
Scottish Federation of Housing Associations
Scottish Government
Scottish Sea Angling Conservation Network
Scottish Wildlife Trust
SCVO
Smith, Douglas
Stevenson, Struan
Stewart, G.W
Stop Climate Chaos Scotland
Stop Highland Windfarms Campaign
Strachan, Professor Peter A
Stuart, Francis
Telford, David
Terry, Kim
Thrapapland International Retreat
The Scotch Whisky Association
Thompson, D.H
Travers, Mike
Trewavas, Professor Tony
UK Energy Research Centre
UNISON Scotland
University of Edinburgh, The
VisitScotland
VisitScotland report
Watson, Dave
Watson, George
West Highland Housing Association
Wilderness Scotland
Wilson, Gordon
Wood Panel Industries Federation
Woollen, Ian
Young, Stuart

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Supplementary evidence
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Consumer Focus Scotland
Friends of the Earth Scotland
Friends of the Earth Scotland - YouGov Poll
John Constable
NorthConnect1
NorthConnect - Skills
Pelamis Wave
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