



House of Commons
Scottish Affairs Committee

Meeting Scotland's Future Energy Needs

Second Report of Session 2004–05

Volume I



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Report, together with formal minutes

*Ordered by The House of Commons
to be printed 16 March 2005*

The Scottish Affairs Committee

The Scottish Affairs Committee is appointed by the House of Commons to examine the expenditure, administration, and policy of the Scotland Office (including (i) relations with the Scottish Parliament and (ii) administration and expenditure of the office of the Advocate General for Scotland (but excluding individual cases and advice given within government by the Advocate General)).

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1 Introduction

1. On 15 and 16 November 2004 the Scottish Affairs Committee visited the United Kingdom Atomic Energy Authority (UKAEA) site at Dounreay. We undertook the visit as one of a series of informal briefing meetings we hold regularly in Scotland to consider various matters of interest and concern. In this particular instance, we wished to ascertain how the UKAEA management and the Dounreay workforce were meeting the challenge of decommissioning the site.
2. At the time we undertook the visit, we did not intend our on-site discussions to develop into a full-scale inquiry. However, whilst at Dounreay, we identified three issues of fundamental concern and, at our next formal meeting at the House of Commons, we agreed that we should undertake an inquiry to examine these issues.
3. A press release was issued on 7 December announcing the inquiry. The Committee would be investigating: (i) the future job prospects for people currently employed at the Dounreay plant when it is finally decommissioned; (ii) the long-term strategy for the management of radioactive waste, in particular, intermediate-level waste; and (iii) how can the shortfall in energy output be met once nuclear power no longer provides Scotland's energy needs?
4. The Committee held four sessions of oral evidence at Westminster, taking evidence from the United Kingdom Atomic Energy Authority (UKAEA), from the Scottish Renewables Forum (including representatives from Scottish Coal, from Wavegen and from ScottishPower), from Professor James Lovelock and from Scottish and Southern Energy.
5. Due to the uncertainty about the date of the General Election, the Committee took the conscious decision to conclude its inquiry by the time the House rose for the Easter Adjournment 2005. Had it been a Parliamentary Session which we knew would end in the autumn, we would have wished to round off the inquiry by holding a few more evidence sessions with, for example, the Scottish Executive, the Department of Trade and Industry and the Nuclear Decommissioning Agency.
6. In addition to the oral evidence sessions, the Committee undertook two informal visits: to Dounreay, which precipitated the inquiry, and then, in February 2005 to Illinois and California in the United States. In Chicago the Committee met or visited representatives from the Economic Development Department of Zion (a small city to the north of Chicago which, because of the recent closure of a nuclear power plant in the city, was experiencing problems similar to those which could be faced by Thurso), Exelon Nuclear, to discuss, in particular, spent fuel and decommissioning strategy, the Chicago Green Technology Centre (the Mayor's showcase for sustainable architecture and alternative energy sources). The Committee also met officials from the United States Department of Energy, the Illinois Department of Commerce and Economic Opportunity and the City of Chicago Department of Energy.
7. In Sacramento the Committee visited the California Energy Commission, to discuss California State policies and practices in the decommissioning of facilities and renewable energy programs and the Sacramento Municipal Utility District (SMUD) including a visit to the Rancho Seco nuclear facility to discuss experiences in decommissioning this facility.

The Committee also met with local representatives of other organisations specialising in renewable energy technologies, for example, the Northern California Power Agency, Navigant Consulting, Theroux Environmental and Beckley Singleton. Finally, in San Francisco we met with the San Francisco Public Utilities Commission.

8. The Committee wishes to place on record its appreciation to all those who gave their time in meeting the Committee during its inquiry. The Committee also thanks those officials at UKAEA for their assistance and at the British Consulates General in Chicago and in San Francisco for organising the visits on the Committee's behalf and for providing helpful background briefing and advice.

2 How best to meet the shortfall?

9. The most appropriate way of introducing this section of the Report is by quoting from a recent "postnote" from the Parliamentary Office of Science and Technology (POST):

"The UK's gas reserves are declining. Government and industry analysts estimate that by around 2006 the UK will no longer be self-sufficient in gas production and will revert to being a net gas importer. Gas is the largest proportion of the UK's primary energy¹ supply, and gas-fired power plants are the main method of power generation. The UK will increasingly depend on gas imported from Europe and further afield."²

10. These are alarming words, but during its inquiry, the Committee concluded that POST was not being alarmist but simply stating facts.

11. The written submission from Scottish and Southern Energy does, we believe, set out the scenario facing Scotland the most succinctly:

".....Scotland is faced with the prospect of the following sequence of events unfolding:

closure of the nuclear power stations;

closure of the coal-fired power stations;

question marks against the viability of gas-fired and large hydro stations;

question marks against longer-term deployment of new renewable energy; and, in this scenario,

major investment in the England-Scotland interconnector and in the transmission networks.

None of this is unavoidable."³

1 "Primary energy" refers to resources that produce energy, eg, oil, gas, coal, nuclear or renewables. Electricity is "secondary energy" because it is generated from primary energy.

2 *The future of UK gas supplies*, POST postnote 230, October 2004.

3 See written submission from Maf Smith, Chief Executive, Scottish Renewables, HC 259 Vol II

12. It is, therefore, vital that decisions are taken now, to obviate the possibility of, quite literally, the lights going out in Scotland in the foreseeable future. There are a number of possible forms of energy; nuclear, fossil (ie, coal, oil and gas) and renewables (eg, biomass⁴, wind, wave and hydropower, geothermal and solar). Unfortunately, no one form of energy production is perfect as all have their drawbacks.

An energy audit

13. The most crucial issue that was raised with the Committee during its visit to Sacramento was that the UK should undertake an audit of the energy resources that are currently available, and then to use that as a basis to work the energy requirements that will be needed in the future. The Committee's attention was drawn to a report published in 2004, *A Balanced Energy Plan for the Interior West*,⁵ produced by Western Resource Advocates (WRA), which makes fascinating reading. WRA uses law, economics and policy analysis to protect land and water resources, protect essential habitats for flora and fauna and ensure that energy demands are met in environmentally sound and sustainable ways. WRA's Energy Programme develops policies and markets to promote sustainable energy technologies to improve environmental quality in the Interior West.

14. During his evidence, Professor Lovelock touched on this matter, putting it in these terms:

“...we do not have time at this juncture for visionary schemes. We have to cut our cloth to the conditions of the world and the world looks a very dangerous one. We had better use the energy sources we need. Maybe they will give us time to change over because any sort of energy source, like a nuclear power station, does not last for ever. They need replacing after a time, and then comes the time one should look at or be prepared to use alternatives.”⁶

15. The Committee agrees with the analysis put forward by its interlocutors in both the UK and the USA. As a matter of urgency before any final, irreversible, decisions on what sorts of power generation are the most appropriate for Scotland are taken, we recommend that the Government undertake an audit of the energy resources that are currently available, and then to use that as a basis to work out the energy requirements that will be needed in the future.

Renewable forms of energy

16. On the face of it, renewable forms of energy, harnessing without exploiting the Earth's limitless natural resources of wind, wave and sunlight would seem to be the perfect solution. But there are issues even with renewables, and some people do object to, for example, wind turbines as being unsightly and noisy.

4 Organic material provided by crops, trees, agricultural and forestry residues and animal waste.

5 The report is available electronically at <http://www.westernresourceadvocates.org>.

6 Q 144.

17. Other forms of renewable energy may be available and able to contribute to meeting future energy needs, for example biomass, solar energy, wave and tidal power. In their submission Scottish Renewables indicated a future energy mix from renewables of one quarter for hydro, half for wind and a quarter for “emerging technologies”, which encompassed wave and tidal power.⁷

18. In the case of biomass there are schemes already existing in Scotland and there is a huge potential for the forestry and agricultural industries to exploit this source. In their evidence to the Committee both Scottish Coal and ScottishPower indicated considerable interest in biomass. Scottish Coal indicated:

“Our particular company is interested in biomass because we see biomass as being a major generator of electricity at some time in the future, but there is virtually none being burnt at the present time in Scotland. I think 60 per cent of renewables in Europe come from biomass, but we are off to a fairly slow start. The advantage of biomass with coal is that you get an immediate reduction of emissions, this is the so called co firing. If we start to blend in biomass with coal supplies..... which we are doing at the moment – we are actually doing the first commercial contract in the country of biomass blending with coal – we have all the advantages of neutralising the existing coal fired power stations and getting that immediate reduction in emissions.”⁸

19. There are experimental wave and tidal schemes in Scotland but, although in theory they will provide a significant proportion of energy there has not, as yet, been a large scale prototype that would demonstrate that they can actually produce sufficient energy. In their evidence, Wavegen stated that:

“It would probably take up to 10 years for all the companies to get to the stage where they have enough critical mass to go their own way and act and behave as stand alone businesses.”⁹

20. Similarly, there is insufficient information on the part that solar or photovoltaic systems could provide. In looking at the use of renewables, particularly wind and biomass, we should not assume that we have to produce large scale projects. Scottish and Southern Energy made the point that small scale wind turbines could be useful in many homes.¹⁰ The same might also be true of biomass.

21. Although objections to renewable energy sites could be taken as simply NIMBY-ism, during its visit to California, the Committee had the opportunity to see the hundreds of wind turbines covering acres of the Altamont valley, and accepts that in situating wind farms, for example, there should be proper attention made to protecting areas of significant natural beauty from excessive numbers of turbines. Clearly, however, it is true to say that any form of energy production appears to have its detractors.

7 See written submission from Maf Smith, Chief Executive, Scottish Renewables HC 259 Vol II

8 Q 58

9 Q 87

10 See written evidence from Scottish and Southern Energy

22. **Given the timescale and uncertainty of these “emerging technologies” the Committee consider that it is unwise to assume that they can meet a quarter of the renewable proportion of Scotland’s energy needs. We would urge that further research and development is urgently required to ascertain their viability.**

23. There is also the matter that renewable forms of energy would need to be subsidised by the taxpayer if the individual consumer were not to find the cost intolerable. We were quoted a report from the Royal Academy of Engineering, which put the cost of energy at 2.2p per kilowatt for coal, 2.3p for nuclear, 6.3p for wave and 6.7p for wind.¹¹ It was not entirely clear, however, what factors were taken into account in coming to these figures.

Coal and gas

24. As stated in paragraph 9 above, by around 2006 the UK will no longer be self-sufficient in gas production and will increasingly depend on gas imported from Europe and further afield. Whilst some of this gas will be imported from stable democracies such as Norway, some of it will have to come from less politically stable countries and regions. We do not consider that the UK should set itself up as being a hostage to fortune in such a way.

25. In order for coal to have a viable future, coal fired power stations will have to take on board the 2003 Energy White Paper’s 2050 target of a 60 percent reduction in carbon dioxide emissions to about 240 million tonnes, and more immediately the EU’s Large Combustion Plant Directive, coming into force in 2008.

26. This latter Directive will mean that coal fired stations will have to operate at very low sulphur emissions. As Scottish and English coal is high in sulphur, costly flue gas sulphurisation will have to be fitted to the plants, or low sulphur coal will have to be imported from, eg, South Africa.

27. **Given the vast reserves of coal within the United Kingdom, it must have a part to play in meeting our future energy needs; therefore, coal-burning power stations in the UK must be fitted with the equipment necessary to capture carbon dioxide and sulphur. The Committee recommends that the Government shows its commitment to the future of the UK coal industry by agreeing to underwrite the cost of providing and installing such equipment at coal-burning power stations.**

Nuclear power

28. Perhaps, however, the solution might be the most controversial decision that the Government could take: the rehabilitation of nuclear power. Nuclear power does have a proven track record, and a new build power station could take less than 5 years to complete,¹² but people do have fears about nuclear power. The solution could be a new generation type of nuclear power station; from our discussions in Chicago, we understand that Exelon are already analysing possible future developments.

11 Q 94.

12 Q 126.

29. The Committee heard from UKAEA about the possibility of nuclear fusion (ie, joining together atoms), rather than nuclear fission (ie, splitting atoms), being used to produce electricity in the future. Nuclear fusion technology, if “marketed” properly would appear to be nowhere near as controversial as nuclear fission, as the Director of UKAEA Dounreay confirmed that fusion technology would be safer, cleaner with no waste produces and with no possibility of the technology having a military application.¹³

30. UKAEA’s Head of Corporate Communication continued:

“This is one of the key advantages that everybody sees for fusion as opposed to fission. Having said that, we do have to recognise that it is not a developed technology in the way that nuclear power, fission power is. The reason that it might be worth developing is because it has got these inherent advantages of safety; it genuinely fails safe....Environmentally, fusion is of hydrogen isotopes so the actual product of it is not radioactive isotopes. Where there is waste produced in the fusion reaction it is just radiation of the material around the reactor but none of that is these long lived isotopes that give us such a problem with what is the eventual waste route. My understanding is that they are all isotopes that would decay within a period of 50 or 100 years, so there is not a huge waste disposal issue as we are currently struggling with on fission.”¹⁴

31. The Committee considers nuclear fusion plants to be an option which may be worth pursuing. As Professor Lovelock commented when following up his oral evidence:

“The reactor at Culham is an experimental device that has now succeeded in proving the feasibility of obtaining energy by the nuclear combustion of hydrogen, almost the same process that goes on in the sun. It is a prototype for a larger reactor from which the first fusion power plant will be designed. The Culham reactor successfully fused the isotopes of hydrogen, deuterium and tritium in 1997 with a yield of 16 Megawatts of energy lasting for two seconds.

The chance of building and running a successful fusion power plant looks good. Its advantages are impressive; the main fuel deuterium is everywhere as a part of water and easily separated from it, the second fuel, tritium, is produced by the reactor as it runs. There is no risk of an explosion, and no long lived nuclear waste. Think of it as somewhat like a gas fired boiler. The deuterium, tritium fuel mix is fed in and burnt continuously; there is no vast radioactive energy store inside the reactor as there is with fission power. If only it were available now! ¹⁵

13 Q 44.

14 *Ibid.*

15 E-mail to the Committee secretary, 2 March 2005 (not otherwise reported).

32. The major problem with nuclear fusion, which appears to be a particularly benign and efficient way of producing electricity, is that it will not be available until nearly the mid-21st century. As the UKAEA witnesses stated, it is 30 years, at least, before a commercial fusion reactor would be available.¹⁶ Nevertheless, nuclear fusion could be a major source of power in the not too far distant future, although more research may be required.

A mix of sources

33. From our informal discussions and oral evidence sessions it was clear that no-one any longer advocates a sole form of energy to provide Scotland's electricity; everyone accepts that a mix of some description is needed.

34. For example, the Scottish Executive has set a target of 18 per cent of electricity generated in Scotland to be from renewable sources by 2010 and an aspirational target of 40 per cent by 2020. Current generation from renewable sources stands at around 12 per cent. In his evidence, Professor Lovelock suggested that an appropriate mix might be 30 to 40 per cent from nuclear, possibly a similar balance from "clean" coal with renewables filling the shortfall.¹⁷ In their submission, the Scottish Renewables Forum states that:

"The key issue facing Scotland is how to consider the replacement of current conventional generation that will complement the planned 40% renewable target. i.e. the issue is how to achieve the 60%. The debate is not, therefore, about renewables vs. conventional as both will be needed."¹⁸

35. However, it is not immediately clear what the Scottish Executive means by 40 per cent. Scottish and Southern Energy expressed their confusion:

"40 per cent of what, is one of the questions? I think we are going back, to answer that question. Is it on electricity production in Scotland, because 40 per cent of nothing is not a great deal? Or is it 40 per cent of energy supplied in Scotland? Or is it 40 per cent of renewables in the UK?..... I have been actively encouraging the Scottish Executive to give greater definition to what that policy meant or potentially to redefine the policy in different terms."¹⁹ SSE continued:

"The 40 per cent will be achieved very, very easily just by shutting Longannet and Cockenzie, and that is my point. If you define it as a relative point it is easy to achieve by reducing the amount you generate. I think that is the wrong definition of policy. I think it should be of energy supplied, in other words what Scottish consumers use rather than what Scottish generators generate."²⁰

16 Q 46.

17 Q 146.

18 See written submission from Maf Smith, Scottish Renewables, HC 259 Vol II

19 Q 175

20 Q 176

36. The Committee shares Scottish and Southern Energy’s confusion and concern. **The Scottish Executive must, therefore, clarify its position and state whether the “40 per cent renewables” refers to generation or consumption.**

37. **The Committee agrees with the statement by the Scottish Renewables Forum that the debate is not about renewables vs. conventional as both will be needed. The energy audit, recommended by the Committee in paragraph 15 above, must, therefore, be on the basis that all current forms of energy, whether renewable, fossil fuel or nuclear, will be necessary.**

BETTA

38. Another important matter brought to the Committee’s attention was the impact of the British Electricity Trading and Transmission Arrangements (BETTA).²¹ Previously, there were three separate transmission charging areas, England and Wales, Central Scotland and the North of Scotland. Different amounts were charged for generation, whereas under BETTA there is a national set of transmission charges, put in place by the National Grid Company.

39. The effect of this was that it costs between £23 and £26 million more to operate a gas-fired power station in Aberdeenshire than one in South West England. How such an anomaly could happen was explained by Scottish and Southern Energy (SSE):

“...our Peterhead power station will pay £18 a kilowatt for every kilowatt it has connected. A power station in the central belt of Scotland will pay around £12 a kilowatt. A power station in the north of England will pay around £5. A power station in the Somerset area will *receive* £5, so you have a very pronounced tilt.”²²

40. As previously stated in paragraph 11 above, Scottish and Southern Energy suggested that none of the scenario set out in its written submission was unavoidable.²³ The transmission charging regime could be fundamentally reviewed; a reformed regime would, SSE claim, remove from Scotland the stigma (all other things being equal) of being the last place in which it is economically rational to maintain or build a power station, including new renewable energy, and that a review could help Scotland meet its future energy needs.

41. The Committee is persuaded by this argument and therefore **recommends that a fundamental, and immediate, review of the transmission charging regime takes place.**

21 The Trade and Industry reported on BETTA in 2003. See the Fifth Report from the Trade and Industry Committee, Session 2002–03, *The British Electricity Trading and Transmission Arrangements: Pre-legislative scrutiny of the draft Electricity (Trading and Transmission) Bill*, HC (2002–03) 468–I, and the Tenth Report from the Trade and Industry Committee, Session 2002–03, *BETTA: Comments on the Government Reply to the Committee’s Fifth Report of Session 2002–03*, HC (2002–03) 937.

22 Q 159.

23 See written submission from Scottish and Southern Energy, HC 259 Vol II

Energy efficiency

42. During our inquiry it has been put to us on several occasions that the best way of ensuring that Scotland's energy supply is maintained is by conserving energy. We agree, and therefore commend the Government's current Energy Efficiency campaign, particularly the television advertisements which seek to convince the British people that one person can indeed make a difference by simply switching off, eg, an unused light or lamp.

43. We commend also those companies who, under the Energy Efficiency Commitment, are helping priority households to lower their energy costs by providing them with free loft and cavity wall insulation,²⁴ and those builders who are incorporating solar panels, for example, as standard in or on their new build homes and office blocks.

44. We call upon the Government to continue to improve through national regulations, the standard of building construction, both commercial and residential to ensure that maximum energy efficiency is realised. The Committee was impressed in its visit to the San Francisco Public Utility Company at their efforts to ensure that minimising energy use was integral to the city's planning processes for development. We accordingly recommend that the government provide tax incentives such as reductions in VAT, to encourage a rigorous energy audit before any substantial development so that the developer works towards a zero or minimal net energy demand. This should be extended to existing homes.

3 The management of nuclear waste

45. Before the provision of electricity by nuclear power could be considered again, the people of Scotland would need to be convinced that it is safe – in particular, that the management and storage of such waste is not going to pose any threats to them, their families or the environment.

46. Such a task has not been made any easier by recent media reports which quote a former health physics surveyor at the Dounreay plant stating that, *inter alia*, “highly radioactive wastes was pumped into the sea and evidence of the pollution was covered up by managers who had a “reckless” disregard for public health”.²⁵ These revelations appear to be have been verified by Dounreay's Project Manager who, according to the report, said that past practices at Dounreay “could be considered reckless if not culpable today.”²⁶

47. If there had been time to do so, the Committee would certainly have recalled UKAEA to be questioned on these allegations. If true, they would, at the very least, cause a lack of confidence in UKAEA's activities and, at worst, possibly cast doubt on any of their reassurances, such as they gave to the Committee when questioned about the safety of the shaft used to store intermediate-level waste:

24 For example, see written submission from Scottish and Southern Energy, HC 259 Vol II

25 See *The Sunday Times*, 6 March 2005, pages 1 and 2.

26 *Ibid.*

“.....The rock in the vicinity of the Dounreay shaft is extremely impermeable; water does not flow through the rock. It does, however, flow through the very thin fissures between the Caithness slabs, and that results in a very, very small quantity of radioactivity ending up in the environment. By the time, of course, it reaches the environment it is so dilute that it is no longer intermediate-level waste, it is low-level waste. Nonetheless UKAEA recognises that the shaft is an inappropriate disposal facility, and before we can remove the material that is in there it is necessary to stop water getting into the shaft..... we have a project underway now, two years ahead of programme, to inject a grout curtain around the shaft to prevent it leaking. The effect of that in fact is to remove the principal hazard which is posed by the shaft, which is a hazard to the environment rather than a hazard to anyone in the immediate vicinity.....That actually has a very, very good impact on the environment. At the moment we remove in the order of 20 cubic metres of water per day from the Dounreay shaft. This is filtered, processed as appropriate, and discharged to the sea. Once we isolate the shaft from the environment, even that modest amount of radioactivity will not reach the sea, so the shaft will be rendered relatively benign until we get the material out of there.”²⁷

48. We understand from informal discussions with UKAEA that the only radioactive waste generated at Dounreay for which there is currently no long-term strategy (other than conditioning and storage) is intermediate-level waste, which is the subject of a UK-wide review by the Committee on Radioactive Waste Management.²⁸ This is the same for all of the Scottish nuclear sites being decommissioned – ie, Dounreay, Hunterston A and Chapelcross.

49. As regards the regulatory aspects, the situation in Scotland is not altogether straightforward, with the storage of waste at licensed nuclear sites in Scotland being reserved to the Nuclear Installations Inspectorate of the Health and Safety Executive, whilst the disposal of radioactive waste at licensed nuclear sites in Scotland is devolved to the Scottish Environment Protection Agency.

50. Similarly, the public needs to be convinced that some of the 70 tonnes of plutonium currently stored at Sellafield cannot, for example, be stolen by terrorists or agents of rogue states and converted into either dirty-bombs or nuclear warheads for ICBMs.

51. The Committee considers that, because the Government has not yet come to a decision about how to manage the nuclear waste that has already been created, it sends the wrong signal and remains a matter of concern.

52. We are, therefore, encouraged by the response given by the Minister of State for the Environment, Elliot Morley MP, when he was being questioned by the House of Lords Science and Technology Committee on that Committee’s inquiry into *Radioactive Waste Management*, when he confirmed that he had instructed the Committee on Radioactive

27 Q 27.

28 Established in 2003 to review options for managing solid radioactive waste, and to recommend what should be done with the wastes for which no long-term strategy exists.

Waste Management (CoRWRM) to finish its work by July 2006.²⁹ This timescale was reconfirmed by UKAEA when they gave evidence to us.³⁰

53. This is a positive development. However, in its Report, the Lords' Science and Technology Committee pointed out that, since 1997:

“progress towards finding a long-term solution to the problem of radioactive waste management has been bedevilled by delay....Mr Morley assured us that CoRWM will be able to deliver its recommendations to Ministers by July 2006. This timetable must not be allowed to slip, nor must CoRWM's report be followed by further procrastination”.³¹

54. We concur absolutely with the House of Lords Science and Technology Committee's conclusions on the management of nuclear waste; we hope that the Lords Committee, and this Committee's successor, will keep the matter under review, and ensure that neither CoRWM nor the Government allow the July 2006 target date for a final decision on how to manage such waste to be missed.

4 The future for Dounreay's workers

55. UKAEA Dounreay was not solely a power station, but was also an active research facility, including the Dounreay Fast Reactor (DFR), closed in 1977, the Prototype Fast Reactor, shutdown in 1994, and Supernoah, used to study sodium-water reactions, closed in 1995. In 2000 the Dounreay site restoration plan envisaged a 60 year project; in 2004, however, it was announced that decommissioning would be completed by 2036.

56. Therefore, whereas just 5 years ago, every worker at Dounreay could be confident of employment for the rest of their working lives, the youngest workers could now face the possibility of being out of work by the time they are in their late 40s.

57. As Highlands and Islands Enterprise (HIE), a Scottish Executive Non-Departmental Public Body (NDPB), said in their written submission:

“The Dounreay nuclear establishment has been a major part of the economy of the far north for the last 50 years and currently provides direct employment (between UKAEA and site based contractors) for over 2000 people. Recent estimates from UKAEA indicates that one in five jobs in Caithness and North Sutherland depends on decommissioning Dounreay and across Scotland it accounts for approximately 2930 jobs.”³²

29 House of Lords Science and Technology Committee, 5th Report of Session 2003–04, *Radioactive Waste Management*, HL Paper (2003–04) 200, Qs 34 – 36.

30 Qs 23 – 25.

31 *Ibid*, paragraph 3.4.

32 See written submission from Highlands and Islands Enterprise (HIE), HC 259 Vol II

58. When asked about other forms of employment in the area, UKAEA's response was:

“There is a manufacturing company, Norfrost, who are based in one of the smaller satellite towns away from Thurso.....they manufacture refrigeration units, and they employ of the order of 350 people. There is a specialist battery factory based in Thurso which employs of the order of 200 people; there is a call centre managed by British Telecom, once again of the order of 100 people. Beyond that we have a number of engineering contract firms which are not exclusively but heavily reliant upon Dounreay, and give it a tremendous service, actually. We are talking I think of low hundreds in terms of employment.....The rest of employment is dispersed in agricultural and small business units..... it is perhaps worthwhile pointing out the adjacent nuclear facility at Vulcan, which is the Royal Navy's reactor test establishment to support its submarine fleet, which is quite a significant employer, and the nearest thing there is to Dounreay-type of employment.”³³

59. Highlands and Islands Enterprise is responsible for social and economic development in northern Scotland. It operates a network of local enterprise companies, including Caithness and Sutherland Enterprise (CASE). It is the lead body in terms of responding to the socio-economic challenges brought about by clean-up and site closure. In 2001, the then Energy Minister, Brian Wilson MP, and the then Scottish Executive Enterprise Minister, Wendy Alexander MSP, announced a task force under the auspices of CASE to address the socio-economic consequences of site closure.

60. From 1 April 2005, UKAEA will become a contractor to the new Nuclear Decommissioning Authority (NDA), an NDPB being set up by Department of Trade and Industry. The NDA will take strategic responsibility for the clean-up of 20 civil nuclear sites in the UK (Dounreay being the second largest). The NDA will have a duty to consider the socio-economic consequences of the clean-up programme. The contract between NDA and UKAEA will include reference to socio-economic issues. Subsequent contracts will be opened up to competition.

61. There are still some 30 years before Dounreay is finally decommissioned, so there is the possibility of other employment coming into the area or a new role being found for the site. For example, we were pleased to note that the famous DFR sphere would be retained after decommissioning, and possibly used as a science exhibition centre.³⁴ It was also suggested when we were in Sacramento that Dounreay could become, in effect, “a biomass centre of excellence”. But although there is no need to panic, there is no need for complacency either.

62. If they have not already done so, we would suggest that the UKAEA, CASE, HIE etc might usefully make contact with the Bureau of Workforce Development at the Illinois Department of Commerce and Economic Opportunity, who have reacted with compassion and efficiency when tackling some of the not dissimilar problems experienced by redundant workers and their families in Zion City with the closure of that city's major source of employment..

33 Q 6.

34 Q 21.

63. We consider that UKAEA, in conjunction with its partners, is doing all it can to assist its loyal and skilled Dounreay workforce who are facing an unsure future. We consider also that the Government should stand ready to listen to any proposals put forward by UKAEA or the NDA etc to ensure that the workforce are given all possible support. In addition, Dounreay contributes approximately £80 million into the Highlands through salaries, pensions, contracts and sub-contracts. Caithness and the rest of the Highland Region must be assisted also to overcome the problems which could ensue in a few years' time.

Conclusions and recommendations

1. As a matter of urgency before any final, irreversible, decisions on what sorts of power generation are the most appropriate for Scotland are taken, we recommend that the Government undertake an audit of the energy resources that are currently available, and then to use that as a basis to work out the energy requirements that will be needed in the future. (Paragraph 15)
2. Given the timescale and uncertainty of “emerging technologies” the Committee consider that it is unwise to assume that they can meet a quarter of the renewable proportion of Scotland’s energy needs. We would urge that further research and development is urgently required to ascertain their viability. (Paragraph 22)
3. Given the vast reserves of coal within the United Kingdom, it must have a part to play in meeting our future energy needs; therefore, coal-burning power stations in the UK must be fitted with the equipment necessary to capture carbon dioxide and sulphur. The Committee recommends that the Government shows its commitment to the future of the UK coal industry by agreeing to underwrite the cost of providing and installing such equipment at coal-burning power stations. (Paragraph 27)
4. The major problem with nuclear fusion, which appears to be a particularly benign and efficient way of producing electricity, is that it will not be available until nearly the mid-21st century. As the UKAEA witnesses stated, it is 30 years, at least, before a commercial fusion reactor would be available. Nevertheless, nuclear fusion could be a major source of power in the not too far distant future, although more research may be required. (Paragraph 32)
5. The Scottish Executive must clarify its position and state whether the “40 per cent renewables” refers to generation or consumption. (Paragraph 36)
6. The Committee agrees that the debate is not about renewables vs. conventional as both will be needed. The energy audit recommended by the Committee must, therefore, be on the basis that all current forms of energy, whether renewable, fossil fuel or nuclear, will be necessary. (Paragraph 37)
7. The Committee recommends that a fundamental, and immediate, review of the transmission charging regime takes place. (Paragraph 41)
8. The best way of ensuring that Scotland’s energy supply is maintained is by conserving energy. We therefore commend the Government’s current Energy Efficiency campaign, particularly the television advertisements which seek to convince the British people that one person can indeed make a difference by simply switching off, eg, an unused light or lamp. (Paragraph 42)
9. We commend those companies who, under the Energy Efficiency Commitment, are helping priority households to lower their energy costs by providing them with free loft and cavity wall insulation, and those builders who are incorporating, solar panels, for example, as standard in or on their new build homes and office blocks. (Paragraph 43)

10. We call upon the Government to continue to improve through national regulations, the standard of building construction, both commercial and residential to ensure that maximum energy efficiency is realised. The Committee was impressed in its visit to the San Francisco Public Utility Company at their efforts to ensure that minimising energy use was integral to the city's planning processes for development. We accordingly recommend that the government provide tax incentives such as reductions in VAT, to encourage a rigorous energy audit before any substantial development so that the developer works towards a zero or minimal net energy demand. This should be extended to existing homes. (Paragraph 44)
11. We concur absolutely with the House of Lords Science and Technology Committee's conclusions on the management of nuclear waste; we hope that the Lords Committee, and this Committee's successor, will keep the matter under review, and ensure that neither CoRWM nor the Government allow the July 2006 target date for a final decision on how to manage such waste to be missed. (Paragraph 54)
12. We consider that UKAEA, in conjunction with its partners, is doing all it can to assist its loyal and skilled Dounreay workforce who are facing an unsure future. We consider also that the Government should stand ready to listen to any proposals put forward by UKAEA or the Nuclear Decommissioning Authority etc to ensure that the workforce are given all possible support. In addition, Dounreay contributes approximately £80 million into the Highlands through salaries, pensions, contracts and sub-contracts. Caithness and the rest of the Highland Region must be assisted also to overcome the problems which could ensue in a few years' time. (Paragraph 63)

Formal minutes

Wednesday 17 March 2005

Members present:

Mrs Irene Adams, in the Chair

Mr David Hamilton

John Robertson

Mr John Lyons

Mr Mohammed Sarwar

Mr John MacDougall

Mr Michael Weir

The Committee deliberated.

Draft Report (Meeting Scotland's Future Energy Needs), proposed by the Chairman, brought up and read.

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

Paragraphs 1 to 22 read and agreed to.

Paragraph 23 read, amended and agreed to.

Paragraphs 24 to 27 read and agreed to.

Motion made, to leave out paragraph 28 and insert the following new paragraphs:

“One solution to the problem might be to build new nuclear power stations, but there would be serious problems and public opposition to such a course of action, not least the problems of possible nuclear proliferation and disposal of waste. In his evidence Professor Lovelock was asked about the question of proliferation and sidestepped the issue with the reply :

“I do not know how to deal with other countries, but I do know how to deal with the UK.”

Whilst strictly the question of proliferation is outwith the scope of this Report it is none the less a relevant question. How do we justify new nuclear stations in the UK but deny them to other nations?” —(*Mr Michael Weir.*)

Motion made, and Question put, That the paragraphs be read a second time.

The Committee divided.

Ayes, 1

Noes, 5

Mr Michael Weir

Mr David Hamilton

Mr John Lyons

Mr John MacDougall

John Robertson

Mr Mohammed Sarwar

Motion made, and Question put, That paragraphs 28 to 32 stand part of the Report.

The Committee divided.

Ayes, 5

Noes, 1

Mr David Hamilton
Mr John Lyons
Mr John MacDougall
John Robertson
Mr Mohammed Sarwar

Mr Michael Weir

Paragraphs agreed to.

Paragraphs 33 to 36 read and agreed to.

Paragraph 37 read, as follows:

“The Committee agrees with the statement by the Scottish Renewables Forum that the debate is not about renewables vs. conventional as both will be needed. The energy audit, recommended by the Committee in paragraph 15 above, must, therefore, be on the basis that all current forms of energy, whether renewable, fossil fuel or nuclear, will be necessary.”

Amendment proposed, in line 5 to leave out the word ”will” and insert the word “may”.—
(*Mr Michael Weir.*)

Question put, That the Amendment be made.

The Committee divided.

Ayes, 1

Noes, 5

Mr Michael Weir

Mr David Hamilton
Mr John Lyons
Mr John MacDougall
John Robertson
Mr Mohammed Sarwar

Paragraph agreed to.

Paragraphs 38 to 63 read and agreed to.

Resolved, That the Report, as amended, be the Second Report of the Committee to the House.

Ordered, That the Chairman do make the Report to the House.

Ordered, That the provisions of Standing Order No. 134 (Select Committee (reports)) be applied to the Report.

Ordered, That the Appendices to the Minutes of Evidence taken before the Committee be reported to the House.

[Adjourned till a date and time to be fixed by the Chairman

Witnesses (Volume II)

Wednesday 19 November 2004

Mr Norman Harrison, Mr Sandy McWhirter, Mr Marc Murray and Dr Beth Taylor, UKAEA

Tuesday 1 February 2005

Mr Maf Smith, Scottish Renewables Forum; **Mr Niall Crabb**, Scottish Coal, **Mr Jimmy Ferguson**, Wavegen; **Mr Alan Mortimer**, ScottishPower

Tuesday 22 February 2005

Professor James Lovelock CH CBE DSc FRS

Tuesday 1 March 2005

Mr Ian Marchant and **Mr Paul Smith**, Scottish and Southern Energy

List of written evidence (Volume II)

United Kingdom Atomic Energy Authority
Scottish Renewables
Professor James Lovelock CH CBE DSc FRS
Scottish and Southern Energy
Stuart Young
Confederation of UK Coal Producers
Dounreay Action Group
Julian Walford BSc(Eng), MBE, MIEE
Alan J Scott MIMechE, CEng
Alistair J MacDonald BEng CEng MIEE
Energywatch
Industrial and Power Association
David R Craig BSc MSc CChem MRSC
Nuclear Industry Association
The Highland Council
Highlands and Islands Enterprise Network (HIE)
Aker Kvaerner Engineering Services Ltd

Publications from the Scottish Affairs Committee since 2001

The following publications have been produced by the Scottish Affairs Committee since the 2001 Parliament:

Session 2004-05

First Report	Work of the Committee in 2004	HC 277
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Session 2003-04

First Report	Coincidence of Parliamentary Constituency Boundaries in Scotland and the Consequences of Change	HC 77
Second Report	Work of the Committee in 2003	HC 344
Third Report	The Proposed Whisky Strip Stamp	HC 419
First Special Report	Response by the Government to the First Report (Session 2003-04) on Coincidence of Parliamentary Constituency Boundaries in Scotland and the Consequences of Change	HC 514
Second Special Report	Response by the Government to the Third Report (Session 2003-04) on The Proposed Whisky Strip Stamp	HC 822
Minutes of Evidence	Registration of Voters in Scotland	HC 78-i
Minutes of Evidence	Scotland Office Annual Report 2004	HC 823-i

Session 2002-03

First Report	The Work of the Scottish Affairs Committee in 2002	HC 197
Second Report	Homeworkers and the Minimum Wage	HC 335
First Special Report	Scotland Office Expenditure	HC 198
Second Special Report	Response by the Government to the Fifth Report (Session 2001-02) on Employment in Shipbuilding on the Clyde	HC 199
Third Special Report	Response by the Government to the Second Report (Session 2002-03) on Homeworkers and the Minimum Wage	HC 816
Minutes of Evidence	Futureskills Scotland	HC 101-i
Minutes of Evidence	The Work of Citizens Advice Scotland	HC 158-i
Minutes of Evidence	The Work of the Disability Rights Commission in Scotland	HC 608-i
Minutes of Evidence	The Work of the Child Support Agency Centre in Falkirk	HC 693-i
Minutes of Evidence	Job Creation Potential of the Modernised Forth, Clyde and Scottish Union Canal	HC 717-i
Minutes of Evidence	Custom Services in Scotland	HC 911-i
Minutes of Evidence	Scotland Office Departmental Report 2003	HC 815-i

Session 2001–02

First Report	The Drinks Industry in Scotland	HC 324
Second Report	Job Creation Potential of the Modernised Forth, Clyde and Union Canal	HC 424
Third Report	Post Devolution News and Current Affairs Broadcasting in Scotland	HC 549
Fourth Report	Customs Services in Scotland	HC 782
Fifth Report	Employment in Shipbuilding on the Clyde	HC 865
First Special Report	Response by the Government and the Scottish Executive to the First Report (Session 2001-02) on the Drinks Industry in Scotland	HC 696
Second Special Report	Response by the Government to the Fourth Report (Session 2001-02) on Customs Services in Scotland	HC 1287
Minutes of Evidence	Scotland Office Departmental Report 2001	HC 345–i
Minutes of Evidence	The Work of the Commission for Racial Equality in Scotland	HC 712–i
Minutes of Evidence	The Work of the Scottish Consumer Council	HC 1199–i