

Angie Parkinson  
Department of Trade and Industry  
Room 1105  
1 Victoria Street  
London SW1H 0ET

13<sup>th</sup> September, 2002

Dear Ms Parkinson

## **ENERGY POLICY 2002**

The Marine Conservation Society (MCS) welcomes the opportunity to provide input and advice to the government in developing the White Paper on Energy.

**The marine environment bears the brunt of the majority of Britain's energy production and consumption. Oil and gas production, nuclear power and offshore renewables all result in environmental degradation of the marine environment to a greater or lesser extent.**

**MCS is the UK's leading environmental charity dedicated solely to the protection of the marine environment and its wildlife.** MCS has been working for marine conservation for over 20 years, and has considerable experience in advising government on issues such as spatial marine planning, oil and gas, fisheries and water quality. Recently MCS has become more involved in the energy debate following the first round of applications for offshore wind farms. MCS supports such offshore renewables providing they are suitably located and any environmental impacts are mitigated, and as such has been providing advice to energy companies for their Environmental Impact Assessments. However, at present there is no strategic overview and offshore wind farms are being developed in a piecemeal way, which could lead to cumulative and combined impacts on the environment, landscape and other uses being overlooked. MCS believes that a Strategic Environmental Assessment is urgently needed to inform the next licensing round.

Due to the impacts of energy on the marine environment the Marine Conservation Society's views are of significance in developing the government's new energy policy and we hope that they will be given full consideration.

Yours sincerely

Melissa Morton  
Coastal and Marine Planning Officer

## **ENERGY POLICY 2002**

### **Marine Conservation Society Response, September 2002**

MCS appreciates the fact that the government, in deciding on its energy policy, has three other considerations in addition to impacts on the environment: cost, security of supply and social issues including human safety. MCS will therefore take these factors into account while addressing the different industries. However, we support the view, which we hope that the government has adopted, that *“Where energy policy decisions involve trade-offs between environmental and other objectives, then environmental objectives will tend to take preference.”* Exec Summary, PIU 2002.

‘The Energy Review’ undertaken by the Performance and Innovation Unit (PIU) indicates the potential that exists for the UK to move towards a low carbon energy system as part of the drive for continued carbon emissions reductions. This clearly shows that this can be reached through a combination of energy efficiency, renewable energy and combined heat and power (CHP).

We urge the government to commit, in its White Paper, to driving the development of demand reduction and energy efficiency measures alongside clean technologies to reflect the potential identified by the PIU. This would avoid the need to rely on environmentally unacceptable technologies such as nuclear and limit the damaging impacts of energy infrastructure on the wider environment.

**Wildlife and Countryside Link statement supported by MCS**

## **1. NUCLEAR**

*The main message MCS would like to relay to government is that offshore renewables are preferable to nuclear power development with respect to their potential impact on the marine environment. MCS is therefore against the development of any new nuclear power stations.*

**Marine Current Turbines Ltd, who are developing marine current turbines with EU and DTI grants, estimate that the tidal currents on the Pentland Firth alone, between Orkney and the mainland, could generate 5-6,000 megawatt – the output of six nuclear power stations.**

MCS is extremely disturbed by rumours that the government might approve new nuclear power stations. MCS believes that such a policy shift on such an important issue should not be made without full and thorough consultation of the electorate.

**“Any move by Government to advance the use of nuclear power as a means of providing a low carbon and indigenous source of electricity would need to carry widespread public acceptance which would be more likely if progress could be made in dealing with the problem of waste.”** PIU 2002

MCS understands that the government is under severe pressure from the nuclear industry, nuclear scientists and conservatives to build new nuclear power stations, but we do not believe these sectors represent the majority view of the population. MCS believes that if the electorate were consulted, the government would find they would support increased development of renewables over nuclear.

If the government recommends using the public's money to subsidise building new nuclear power stations, without their support, it would be in the words of Tony Blair MP, shadow spokesperson on energy in 1989, "publicly offensive and politically suicidal"

**MCS believes that offshore renewables are more sustainable than nuclear for the following reasons:**

**Environmental** (For further information see appendix I)

- **The real long term impact of discharging radioactive waste such as radionuclides and isotope technetium-99 used in reprocessing is unknown. Radioactive waste can remain potentially hazardous for tens of thousands of years and the cumulative impact on marine habitats and species as radionuclide discharges accumulate in sediments, plants and animals year after year is significant.** E.g. the high levels of technetium-99 found in lobsters and seaweed near Sellafield could be high enough to affect the lobsters' growth. *Porphyra*, an edible seaweed found near Sellafield, has been shown to accumulate Caesium 137 to ten times the normal concentrations found in seaweed, and Ruthenium 106 to 1,500 times normal levels.
- **The Irish Sea is the most radioactive sea in the world.** Caesium 137 can be traced in water currents from the Sellafield nuclear reprocessing plant through the Irish Sea, around the north of Scotland and into the North and Norwegian Seas. This has led to pleas and pressure being brought to bear on the UK by Ireland and Norway for urgent action to be taken to control radioactive discharges more effectively.
- **The government is committed under OSPAR to reach near zero discharges of radioactive waste** which must be taken into account when determining energy policy. The marine environment must be protected from these discharges and international directives and conventions will gradually force the UK to assess and reduce the impact of man-made radionuclides on wildlife.

**At present The UK Strategy for Radioactive Discharges 2001-2020 (DEFRA) includes numerous commitments to reduce discharges based on plant closures - the development of new plants would clearly make a mockery of such commitments.**

## Social

- **The British public have health concerns** in connection with radioactive discharges from the nuclear industry and the build up of radionuclides in the food chain. This is not helped by the lack of independent monitoring of radiation. The incidence of Leukaemia and other cancers tend to be higher around nuclear power stations. While it is not always possible to prove a link between the two, the precautionary principle should be used. Renewables have no such human health risks. Non-soluble radionuclides such as Plutonium 239 attach onto particles and accumulate in sediments. Some of these are remobilized by activities such as fishing and dredging and can be redeposited on land. **The contaminated sediments and sands of the Cumbrian coastline** are of particular concern to ecologists and medical professionals alike. The long term effects of low level exposure to radiation are unknown both for humans and marine life. Recent research has shown that chronic radiation affects the reproductive ability of fish after just 12 weeks.
- **Chernobyl type accidents could also occur in the UK**
- Most of the **jobs** that would be created in building and manning more nuclear power stations **can be replaced** by jobs building, installing and manning renewables; exporting technologies and products and energy efficiency such as loft insulation.

## Economic

- **Nuclear power is too expensive.** For too many years now British taxpayers and consumers have had to prop up the nuclear industry, costing billions of pounds and yet the nuclear industry is still unable to balance the books. The full price of nuclear power includes the cost of reprocessing, waste management and decommissioning. This should be costed into the cost per unit of nuclear energy.
- **British Energy has been plagued by financial problems and BNFL was technically bankrupt** until the government transferred the UK's civil nuclear liabilities of billions of pounds from BNFL and the UK atomic energy agency to the government's newly established Liabilities Management Authority.
- Meeting commitments under OSPAR is becoming increasingly expensive as more discharges need to be reduced.
- **Labour's 1997 manifesto said, "We see no economic case for the building of any new nuclear power stations".**
- Action 19 (q) of the **WSSD Implementation Plan 2002** commits the UK government to **"Take action where appropriate to phase out subsidies in this area [energy] that inhibit sustainable development."** Subsidies to the nuclear industry are inhibiting the sustainable development of renewable energy and hence will have to be stopped if this commitment is to be met.

## Security

- Nuclear provides no further security of supply than renewables. In fact, given the financial liability of nuclear, as experienced with British Energy, nuclear power probably provides a **less secure supply of energy than renewables**. As far as national security is concerned there is no doubt that **nuclear is more risky, being vulnerable to terrorist attack**.

## 2. RENEWABLES

"The immediate priorities of energy policy are likely to be most cost effectively served by promoting energy efficiency and expanding the role of renewables."  
PIU 2002

**The UK has vast potential for renewable energy resources. MCS supports the calculations that with Britain's wealth of renewable energy sources of wind, waves and tidal currents and our not inconsiderable levels of daylight we have sufficient energy sources to supply all of the UK's electricity needs from renewables.** MCS appreciates that after decades of under investment in renewable technologies, this will not happen over night, but with real government commitment and financial

incentives (usually spent on handouts for the nuclear industry), Britain can move away from our outdated polluting power sources and could become one of the countries leading the way in producing environmentally sustainable energy. MCS was pleased to hear the Prime Minister pushing for the development of alternative energy sources, such as wind and solar power, in his speech to the Earth Summit and hope that his words are backed by political support and investment proposals in the white paper.

“UK’s wind and marine resources are the best in Europe.” PIU 2002

“The UK resource is in principle more than sufficient to meet the UK’s energy needs.” PIU 2002

#### Environmental:

- **MCS supports the development of offshore renewables, but is against the present piecemeal approach** being taken to development and calls for a strategic overview which takes into account the future as well as present energy needs. **The marine environment should not be seen as an out of sight out of mind development site**, where development can take place without the restrictions applied to building wind farms on land.
- **MCS believes there should be an integrated energy strategy**, which identifies suitable sites for offshore and onshore wind farms and other renewables. It should include real incentives to assist individual households investing in solar power and CHP. There should also be a Strategic Environmental Assessment of this plan as well as sectoral SEA’s for offshore wind farms, oil and gas etc.
- **Offshore wind farms probably have a greater impact on habitat and species than terrestrial wind farms** because the structures interfere with natural physical processes, may be sited on internationally important habitats (sublittoral sandbanks), which are important spawning and nursery grounds for fish and birds and involve dredging of the seabed to lay cables. These cables are also thought to affect the electromagnetic fields of sharks, skates and rays.
- **Renewable energy technology does not lead to polluting emissions or discharges once constructed.**
- Renewable energy **does not emit climate changing gases** which is one of the biggest threats facing marine habitats and species.

#### Social:

- Renewables will not result in any health hazards or risks to humans.
- Renewables do not lead to climate change, which could have a devastating effect on coastal communities.
- Government bodies consider terrestrial wind farms unpopular amongst local communities. However, **if they consulted** them, providing simple opportunities to vote such as texting, **they might find that people are increasingly in favour of wind turbines.** This was found to be the case in Wales, where a local community grouped together to request a small wind farm.
- Landscape values need to be taken into consideration especially in areas of outstanding natural beauty and heritage coasts, however **opinion polls should be undertaken** which gain feedback from the wider community who might actually support such developments.

#### Economic:

- **Renewable energy is low cost: the sun, wind and waves all cost nothing.** The only costs are associated with technology development and construction and the maintenance of infrastructure, which in many cases are higher for offshore development compared to onshore development. Terrestrial wind power is hence generally much cheaper than offshore wind power.
- **Creation of jobs: the EU commission has calculated that doubling the current level of renewable energy systems could create between 500,000 and 900,000 new jobs.**
- There is a potential for sale of surplus energy abroad, an additional mechanism for paying for the cost of creating the technologies and infrastructure. The UK is the best site in Europe for renewable energy with excessive wind, tide and wave power.
- Renewable Energy produces no greenhouse gases. Coastal communities will bear the brunt of the effects of climate change. Sea level rise and increased storminess are already threatening coastal

communities in Britain where millions have to be spent in every region each year. **Unless a halt is put on climate change, flooding and costly coast protection will continue to increase.** King Canute was correct in illustrating we cannot keep back the tide.

- **Renewable energy produces no radioactive pollution, which ties this and future generations to crippling costs in radioactive waste management.**
- “Long-term projections show reduced costs so that some renewables are likely to be the cheapest low carbon energy source by 2020.” PIU 2002
- The government is providing some grants towards research and investment in renewable technology, but **compared to past investment in nuclear power the amounts involved pale into insignificance. If the government put the money it would have to provide for the building of three new nuclear power stations and their future waste management into renewables Britain could really begin to lead by example.**

**Security:**

- **“Renewable energy poses no problem for system security. Indeed, such sources probably improve local security.”PIU 2002**

## 2.1 OFFSHORE RENEWABLES (see Appendix II for further details)

**“Offshore wind has potential for more than 100 TWh/year, ... and wave and tidal power have potential up to 700 TWh/year (compared to current UK electricity use of 360 TWh/year).” PIU 2002**

With its dependably high wind speeds, large tidal range, strong currents and waves, Britain has enviable offshore renewable energy resources. The Danish government has committed itself to 4,000 Megawatts (MW) of energy generated by offshore wind farms by 2010.

For many in the environmental sector, offshore energy is viewed as a clean and sustainable industry to be embraced and promoted. Certainly it is sustainable compared to nuclear power or oil and gas. However, along with all other offshore industries, offshore renewables still cause damage and displacement of benthic communities and interfere with natural physical processes of waves, currents and sediment movement.

**Offshore renewables must therefore not simply be used as an out of sight out of mind, relatively cheap and easy option by government to meet renewable targets.**

### Environmental:

#### **Offshore wind: (for further details on environmental effects see Appendix III)**

- MCS believes that the development of offshore wind has an important contribution to make towards a more sustainable energy strategy in the UK and throughout Europe. **We are however, concerned that the developments are sensitively placed with full regard being given to potential impacts on marine life, natural physical processes and other users of the sea.** To date, assessment of the eighteen wind farms currently proposed has been undertaken on a piecemeal project by project basis, which does not allow a full assessment of the cumulative impacts to be taken into consideration prior to development commencing. MCS has called upon Government to set in place a mechanism for ensuring that a strategic approach is applied to offshore wind development. By this we mean that prior to licences being granted for several individual projects, a full assessment of the wind resource and the relative sensitivity and other uses of areas that may be targeted for development is undertaken.
- **DTI is publishing a consultation paper this Autumn called “Future Offshore”. This includes details of how a Strategic Environmental Assessment will be undertaken. MCS supports this approach, though we are concerned that the SEA will be rushed through and not be based on sound science.**

#### **Tidal power and marine currents:**

- Fortunately for the marine environment, R & D in tidal power is much further advanced than a few decades ago when tidal barrages were considered. Tidal barrages result in the wholesale habitat destruction of entire estuaries and hence are unsustainable and inconceivable. Today more imaginative schemes include tidal turbines, which look like up side down wind turbines. They would not result in habitat destruction, though they might be locally disruptive to wildlife, the marine benthos and physical processes. **Further studies into the potential environmental effects of tide and current power should be undertaken as a priority, so that support can be given to those technologies that have minimal environmental effects.**

**Marine Current Turbines Ltd who are developing these devices estimate that the tidal currents on the Pentland Firth alone, between Orkney and the mainland, could generate 5-6,000 megawatts – the output of six nuclear power stations.**

#### **Wave power:**

- Wave power systems can be fixed in position on the coast or at sea, or are free floating. The first commercial wave powered station in the UK, the Land Installed Marine Powered Energy Transformer (LIMPET), consists of turbines housed in concrete on the shoreline. Such technology, if housed in existing coastal defences should have no additional impacts on the coastal environment. If, however, concrete structures are developed specifically for the turbines, these would have an adverse affect on coastal habitats, including coastal squeeze, changes to coastal cell hydrodynamics and loss of intertidal habitats. **Further studies into the potential environmental effects of wave power should be undertaken as a priority, so that support can be given to those technologies that have minimal environmental effects.**

#### **Social:**

- **It seems that the islands off Britain are leading the way in illustrating how communities can be powered by renewables**, with Islay having the first wave turbine, Lewis one of the world's largest wind farms, and Eigg now being powered entirely by wind power. Further South, islanders are taking a leaf out of the Scottish book with the Isle of Wight Council publishing 'Powering the Island through Renewable Energy' in January 2002. The message is clear, if local communities are left with the task of securing their own electricity they will choose renewables and by being empowered with decision making are unlikely to take the NIMBY approach (Not in My Back Yard).
- **The NIMBY approach, which terrestrial renewables has fallen foul to, is now also gathering pace for offshore renewables.** MCS received an email recently from the first local action group (that MCS has heard of) 'formed to oppose the proposed development' of an offshore wind farm. The group called SOS Porthcawl is opposed to the offshore wind farm 4.5km from Rest Bay beach in Porthcawl. As more offshore wind farms are proposed local opposition may become more pronounced. **This opposition could have been prevented if local community consultation had occurred, or even better if the government tasked each region or county with securing their own sources of energy.**

#### **Economic:**

##### **Wind power:**

- **The UK has over 33% of the Europe's potential offshore wind resource.** Many companies are keen to apply for both large and small offshore wind farms in the next round. Industry is hampered in its developments by the consents procedure. Without the DTI's Offshore Renewables Strategy, it is difficult for industry to plan for the future and government to speed up decision making. Such a strategy needs to be informed by a Strategic Environmental Assessment. **The SEA needs to be informed by a comprehensive survey of the UK continental shelf. Both would reduce the time and resources that industry needs to spend on EIAs. Finally, primary legislation is needed to enable the development of offshore wind farms outside territorial waters and to rationalise existing legislation. Clearly, resources need to be swiftly mobilised to complete these surveys, strategies and assessments if offshore wind farms are to be developed in time to meet CO2 emission targets by 2010.**

##### **Wave power:**

- Although many wave energy devices have been invented, very few have been tested at sea and only one commercial wave station is in operation in Islay, the Hebrides. **The government needs to greatly increase funds to enable the R & D work that still needs to be undertaken.** To date such grants include the Scottish Executive awarding power contracts to three wave projects under the 'Scottish Renewables Obligation' and the DTI has awarded £1.67 million towards a wave power project in Orkney.

##### **Tidal power:**

- **A number of companies and university researchers are now developing their tidal energy technologies abroad after R & D was blocked in Britain by a lack of finance.** E.g. Imperial College is now developing offshore wave technology in Iceland.

**Security:**

“Renewable energy poses no problem for system security. Indeed, such sources probably improve local security.”PIU 2002

## **2.2 TERRESTRIAL WIND POWER**

Terrestrial wind power is not an area of MCS expertise, so we will not go into details of their sustainability, but we would like to make the following observations and suggestions:

**Environmental:**

- Most terrestrial wind farms are likely to have fewer environmental impacts than offshore wind farms.

### Social:

- If local communities are left with the task of securing their own electricity (or at least a proportion of it ) they will choose renewables and by being empowered with decision making are unlikely to take the NIMBY approach (Not in My Back Yard).

### Economic:

- Terrestrial wind power is generally much cheaper than offshore wind power.

### Security:

- As stated above “Renewable energy poses no problem for system security. Indeed, such sources probably improve local security.”PIU 2002

## 2.4 SOLAR POWER

Solar power is not an area of MCS expertise, so we will not give details of their sustainability, but we would like to make the following observations and suggestions:

- **The majority of navigation lights in British waters are solar powered.** This makes economic and practical as well as environmental sense. **Britain’s terrestrial street lights could also be solar powered.** The technology already exists and is readily available.
- **It is now possible to purchase solar powered boats.** Examples may be seen on the Norfolk Broads. These vessels can travel at twelve knots, all day powered by British sunlight.
- **Local Authorities could gradually replace many of their cars with electric cars, powered by solar panels.** An energy consultancy, ESD, has found that solar panels on their garage are sufficient to power their company car.
- **The DTI once estimated that the amount of solar energy received by the UK in one year, is 30 times greater than the energy potential from the total of our known oil reserves.**
- **Many sailing yachts have to motor for over an hour a day simply to charge their battery for their lights and fridge. VAT on marine diesel would encourage the use of solar panels and mini wind turbines instead.**
- The government should stipulate that every new development, from supermarkets to shops, bar perhaps “affordable housing”, is fitted with solar panels.

## 3. OIL AND GAS

**The UK’s excessive consumption of oil and gas is unsustainable:**

### Environmental:

- **Emissions from oil and gas consumption are key causes of climate change.** Only by cutting production and consumption can these emissions be effectively reduced. Climate change is possibly the greatest threat to coastal and marine biodiversity.
- **Oil and gas exploration and production results in significant effects on marine ecosystems.** Oil and gas exploration has an adverse affect on cetaceans; development of oil and gas platforms, pipelines and interconnectors results in the disturbance and displacement of marine biotopes and mobile species; production results in toxic air emissions and discharges; shipping oil around the world leads to oil pollution disasters and decommissioning leaves behind toxic drill muds and concrete substructures.
- MCS supports the more strategic approach the DTI takes for oil and gas with Strategic Environmental Assessments being undertaken prior to each licensing round. Unfortunately, however this is still resulting in blocks being licensed in candidate or possible Special Areas of Conservation.

### Social:

- **Oil consumption leads to air pollution, which causes health problems such as asthma.**
- Communities are increasingly threatened by coastal erosion of property, flooding, and storms as a result of climate change leading to increasing insurance costs.
- People need government incentives, intervention and inspiration to leave their cars at home and to buy energy efficient or electric alternatives.

### Economic:

- The cost of climate change is considerable. Increased storminess, erosion and temperature changes will not only have catastrophic effects on our environment, but it will cost us dearly.

- **Much of the UK’s military funding should be attributed to Britain’s reliance on oil.** Remove that reliance by initiating alternatives and military funding could be cut.

**Security**

- **Our present consumption rates will leave no oil and gas available for future generations.** This will increasingly necessitate reliance on other countries for oil and gas leading to an economy that is also increasingly reliant on the international oil market and an over reliance on hostile states.

**4. COMBINED HEAT AND POWER**

This is not an area of MCS expertise, and we have no comment

**5. ENERGY EFFICIENCY**

**MCS believe that promoting energy efficiency is the cheapest and most long term solution to the problems caused by energy generation from any source whether oil, gas, coal, waste, or renewables and believes the Government should be doing much more to educate, encourage and provides incentives for the public and businesses to increase their energy efficiency.**

Energy Efficiency is not an area of MCS expertise, so we will only provide two energy saving ideas and leave the rest to organisations such as the Energy Saving Trust.

- **Electricity companies should be required to provide information on the appliances that consume most electricity and energy saving measures.**
- A public competition to devise 100 energy saving initiatives would provide some excellent ideas.

With regard to the marine environment we would like to raise the following points:

- **At present owners of motor cruisers and yachts, some of the wealthiest people in the country, do not pay adequate tax on their diesel, paying instead the rate set for agricultural diesel.** This diesel is also known as marine diesel. While this tax break may make sense for farmers, fishermen and other maritime professionals such as the coastguard, it is not in line with the “polluter pays principle” adopted for fuel for terrestrial vehicles. There are approximately 400,000 people who have motorboats in the UK and whom will primarily use marine diesel. There are also approximately the same number of sailing yachts that will also frequently motor rather than sail or use the motor for charging their battery. **Filling the tank of a motorboat in other countries in Europe costs nearly three times as much as it does in the UK. This tax loophole should be stopped.**

Cost of marine diesel in UK (VAT free)	30 p/litre or 1.20 p/gallon
Cost of marine diesel on the continent	70-80 p/litre or 3.50 p/gallon

- Little investment has yet been made into pollution abatement technology to reduce emissions from ships. Since Britain relies on ships for over 90% of all imports and exports it should take the lead in implementing Directives and Conventions and reducing emissions from ships.

**CONCLUSION**

**MCS is against the development of any new nuclear power stations.**

**Offshore renewables are preferable to nuclear power for the marine environment.**

**Terrestrial renewables have a lower impact on biodiversity.**

The lack of any strategic spatial plan for renewables is however still of concern – together with inadequate financial incentives - to the sustainable development of this industry. **The lack of a strategic approach prevents a strategic environmental assessment at the ecosystem level,** does not enable comparison between one option or location and another, does not provide local people with information on potential developments in their area and prevents industry being able to plan for the future.

**Solutions can also be found at the local level.** The government should allow local communities to initiate and develop their own solutions to their local energy needs. This would allow community participation and innovation. Government funding to support such initiatives could come from monies not spent on new nuclear power stations.