INSTITUTE of ECOLOGY and ENVIRONMENTAL MANAGEMENT

Position Statement on Renewable Energy

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Summary

In view of accumulating evidence of the adverse ecological effects of climate change, the Institute of Ecology and Environmental Management (IEEM) supports moving towards low- or zero-carbon energy generation. This needs to be combined with improvements in energy efficiency and an overall reduction in per capita energy consumption and demand. Such a move is not without its challenges and there is a need to achieve it without significant negative effects on biodiversity and on vital ecosystem services and functions. This Position Statement seeks to draw attention to such potential ecological impacts in order to prevent unnecessary damage.

Introduction

1. The Fourth Assessment Report of the Intergovernmental Panel on Climate Change, published in 2007, established that global atmospheric concentrations of CO_2 (due primarily to fossil fuel use and land-use change) and methane and nitrous oxide (primarily due to agriculture) have increased markedly as a result of human activities since 1750 and now far exceed pre-industrial values. Atmospheric concentrations of greenhouse gases have reached 430 ppm compared with 280 ppm in 1750. As a result of human activities, the average global temperature is likely to rise by between 1.1°C and 6.4°C by 2100. To put this in context, the current average global temperature is only 5°C higher than the last ice age. Yet, since the UN Framework Convention on Climate Change (UNFCCC) was signed in 1992, global emissions of CO_2 have actually increased by 30%. The melting of Arctic sea ice, loss of glaciers in the Antarctic and mountain ranges and increasing incidence of severe droughts, hurricanes, floods, heat waves and pest attacks are all signals of the dangers posed to human life from altered ecosystem functions caused by climate change.

2. At the 15th Conference of the Parties to the UNFCCC in Copenhagen (December 2009), no binding decision was reached on the global response to the threat posed by climate change. However, a range of countries, among them several with high emission levels, endorsed *The Copenhagen Accord* issued on 18 December 2009. *The Copenhagen Accord* recognises that the global temperature increase should be kept below 2°C, which will require deep cuts in global emissions and investments of billions of pounds annually.

3. As part of its contribution to reducing greenhouse gas emissions, in December 2008 the European Union adopted a plan that aims to reduce by 20% the emissions of greenhouse gases compared with 1995, increase by 20% the energy efficiency in the EU and to reach 20% of renewables in total energy consumption in the EU by 2020.

4. The EU targets set in 2008 require 15% of the UK's energy to be met by renewable sources by 2020, which will translate to a higher proportion in relation to actual power generation. In order to implement such commitments, a significant element of CO_2 reduction will be sought from forms of energy generation that move away from those that generate CO_2, namely those from nuclear and renewable sources (e.g. Climate Change Act 2008).

Ecological Impact of Renewable Energy Production

5. Renewable energy installations, and their associated infrastructure, can often be located with minimal environmental damage. However, because many sources of renewable energy rely on features of their immediate environment for their function, there is sometimes a coincidence between their installation sites and areas which may be ecologically sensitive. This could be by virtue of the species they support, by the extent of semi-natural habitat present or by the functioning and ecosystem services that an ecosystem provides. In these circumstances, renewable energy production could have significant effects on the habitats or their function with which they interact, for example:

    a. wind turbines can affect coastal, marine and upland habitats, their functioning and the ecosystem services they provide, such as, in the latter case, carbon storage in the form of blanket peat;
    b. tidal energy generation can affect estuaries;
    c. hydro-electric energy production can affect upland and freshwater habitats;
    d. biofuel production can affect marginal 'non-productive' land and any semi-natural habitats present; and
    e. biomass production can affect forests, wetlands and food/energy crops or any semi-natural habitat they replace.

    The potential impact on habitats, species and dynamic ecosystems (including surface and subsurface hydrology) is therefore considerable.

IEEM Position on Renewable Energy Mitigation and Development

6. IEEM fully supports the principle of moving towards low- or zero-carbon energy generation, coupled with significant improvement in energy efficiency, leading to an overall reduction in per capita energy consumption and demand. IEEM also fully recognises the importance of reducing greenhouse gas emissions through more extensive use of renewable energy sources. However, IEEM notes that the shift to 'cleaner' forms of energy is also not without its challenges, and that the benefit derived from any proposed scheme has to clearly override any adverse ecological impact that may result.

7. IEEM is committed to the need to keep intact, restore and extend the range and extent of European biodiversity and the valuable ecological services they provide which are essential for the complete and healthy functioning of our society and economy. It is important to ensure that implementation of renewable energy schemes does not damage those same resources that they are trying to conserve.

8. Accordingly, IEEM calls for:

    a. ensuring that legal obligations for maintaining protected areas and species are fully respected for all renewable energy development proposals;
    b. every effort to be made to avoid damaging habitats and the native species they support, where these are of value for nature conservation and/or for the ecosystem services they support;
    c. strategic assessment and integration of national climate change, energy and biodiversity policies;
    d. multi-functional renewable energy installations;
    e. the introduction of a carbon tax as the most effective and efficient economic instrument for energy conservation; and
    f. higher research and development spending on improving the conversion efficiencies of renewable energy technologies.

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