



House of Commons
Welsh Affairs Committee

**Energy in Wales:
Government Response
to the Committee's
Third Report of Session
2005–06**

**Fifth Special Report of Session 2005–
06**

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The Welsh Affairs Committee

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Fourth Special Report

The Committee published its Third Report of Session 2005–06, *Energy in Wales*, on Thursday 20 July 2006. The response from the Department of Trade and Industry was received on 25 September 2006 and is published as the Appendix to this Report.

Appendix

Overview

The Government is grateful to the Welsh Affairs Committee for its timely inquiry on energy production in Wales. As the Committee has recognised, given Wales' position as a net exporter of energy, with an abundance of natural resources, it has the unique opportunity to continue to play a vital role in providing clean, safe, secure and efficient sources of energy in the UK.

To address these challenges, the Prime Minister launched the Energy Review in November 2005. As the Committee will be aware, the Review's conclusions were published on 11 July 2006 in *The Energy Challenge*¹. This document puts forward a wide-ranging evidence-based package of proposals designed to reduce the demand for energy, to secure a mix of clean, low carbon energy sources and to streamline the planning process for energy projects.

The Report also launched a number of consultations to develop policy further in some areas, including action on both the demand and supply sides to reduce carbon dioxide emissions and to ensure security of energy supplies. Consultations focusing on distributed generation, energy efficiency and amendments to the Renewables Obligation might be of particular interest to Wales. The Government will continue to work closely with Wales and the other Devolved Administrations on the preparations for the White Paper, which is scheduled for publication at the turn of the year.

Responses to Recommendations

UK Carbon Trading Scheme

1. Whilst acknowledging that Welsh renewable energy schemes may make a valuable contribution to UK carbon reduction targets, we consider that this could be further enhanced and developed should an internal carbon trading scheme be developed in the UK. The Government endorses the principle of a carbon trading scheme and participates in such a scheme at the EU level. We see no reason why a similar incentive structure would not be successful at a national level within the UK. (paragraph 16)

The Energy Review Report said that the Government proposes to consult later in the year on the most effective measures for achieving cost-effective carbon reductions from large commercial and public sector organisations.

1 <http://www.dti.gov.uk/energy/review/page31995.html>

Analysis by the Carbon Trust concluded that participation in a mandatory auction-based emissions trading scheme, which targeted energy use related emissions, would incentivise the uptake of energy efficiency measures within the large non-energy intensive sector. Other policy options, which could also achieve energy efficiency improvements, include benchmarks on energy use, and voluntary reporting on emissions.

The consultation will therefore put forward a proposal for a mandatory UK emissions trading scheme, alongside other options for achieving our carbon reduction aims in this sector and will invite views.

The proposed scheme will target emissions from energy use only by large organisations whose electricity consumption is greater than 3000mWh/yr and which are not included in the EU Emissions Trading Scheme and Climate Change Agreements. This would involve some 5,000 organisations in total, comprising sectors such as supermarket chains, hotel chains, government departments and large local authorities.

2. We are unconvinced by the Department of Trade and Industry's assertion that carbon data cannot be collated below the UK level, and recommend that the Government develop procedures to monitor emissions data at the national level (Wales, Scotland and England) or below, within the UK. (paragraph 17)

The Government already produces annual greenhouse gas emissions data, including carbon dioxide emissions, disaggregated for England, Scotland, Northern Ireland and Wales.

This data are currently available for 1990, 1995 and annually from 1998-2003. The latest detailed report 'Greenhouse Gas Inventories for England, Scotland, Wales and Northern Ireland 1990-2003' is available at: <http://www.naei.org.uk/reports.php>.

More recently, Defra has developed more detailed carbon dioxide emissions data for regions and local authority areas in England. These are available at: <http://www.defra.gov.uk/environment/statistics/globalatmos/galocalghg.htm>.

It should be noted that the emission estimates for the England, Scotland, Wales and Northern Ireland inventories are subject to a greater level of uncertainty than the equivalent UK estimates; although the Government believes them accurate enough to aid Devolved Administrations in developing policy, setting targets and assessing progress. Scotland, for example, has set its own "Scottish Share" to ensure that it makes an equitable contribution to the UK commitments on climate change.

The local and regional data for England should be regarded as experimental at this stage, as they are subject to even greater uncertainty and refinement. However, even this is likely to be useful for local authorities and regions seeking to identify broad trends in their areas.

The greater level of uncertainty in the disaggregated data is because greenhouse gas inventories depend for their accuracy on a range of other data sets. These are often collected at national level but can be less detailed at a sub-UK level. In particular, complete and accurate sets of fuel consumption data are not always available for England, Wales, Scotland and the English regions, so estimates need to be made.

DTI continues to work with energy companies and others to improve the accuracy of its sub-UK energy consumption data; for example, through its regional energy consumption statistics project (data is published at: <http://www.dti.gov.uk/energy/statistics/regional/index.html>). Clearly, however, the extent to which more accurate data can be gathered in future will need to be considered in the light of practicability and cost effectiveness.

Renewable Obligation Certificates

3. Although the Renewable Obligation Certificates (ROCs) are a UK wide mechanism, they have played a significant role in stimulating the development of wind farms across Wales. There is however, an increasing concern that ROCs have skewed the market in favour of wind farms to the detriment of other renewable energy sources. Wales has an abundance of natural resources that can make a significant contribution to the UK's clean energy needs. We recommend that the Renewable Obligation Certificates be refined to ensure that they stimulate renewable energy sources in a more balanced way, so that the wave, tidal, biomass and photovoltaic resources, and other renewable resources, are able develop and play their full part in providing clean renewable energy in Wales. (paragraph 26)

The Government is committed to the development of renewable generation and as part of the Energy Review announced a number of proposals for changes to the Renewables Obligation (RO) intended to provide more support for emerging technologies. These are banding the RO; extending the RO to 20% on a guaranteed headroom basis; freezing the buyout price in 2015/16; and the introduction of a mechanism to allow the tapering down of ROC prices once generation exceeds the level of the Obligation. The Government will consult on these proposals in Autumn 2006.

Tripartite Group on Energy Consents

4. There is a clear impression that the work of the Tripartite Group on Energy Consents has been left to wither on the vine. The DTI as the decision-maker on this issue has to take an active and more purposeful lead. Whatever the outcome, a decision on where the powers on consents lie, needs to be taken very soon. We recommend that the UK Energy Minister give a clear statement on the current status of the Tripartite Group and set out in his response to this Report, a detailed timeframe for the conclusion of the Group's work, including dates by which the Group will report to Ministers and when any decision will be made. (paragraph 34)

As has been made clear previously, the work of the Tripartite Group was delayed because of the changing landscape of energy policy in the UK. The way in which the Government's recent thinking has a direct bearing on the Tripartite Group's work is evidenced by the Government's Energy Review, which has now been published, and which makes a number of recommendations regarding the streamlining of planning and consenting procedures for large-scale infrastructure projects, an issue at the very heart of the Group's work.

Furthermore, in addition to the Energy Review, work is also underway within Government to examine the difficulties within the transport (Eddington Review) and planning systems (Barker Review). These Reviews will most likely conclude around November, and the

specific detail of any changes regarding the regime for energy projects will need to be looked at alongside the findings of this related work.

Government will continue to consult closely with Devolved Administrations to ensure that the planning system in the UK strikes a balance between the need to secure affordable, stable electricity production and accountability to the public. Discussions between the members of the Tripartite Group will thus continue to consider large-scale energy infrastructure planning as an integral part of these broader reviews. There have been bilateral talks over the summer in preparation for the next full meeting to take place later this year, following the publication of the Eddington and Barker Reviews. If at that stage the strategy has been formulated to sufficient detail to inform the work of the Tripartite Group, then the Group will be in a stronger position to conclude its deliberations, and thus to present options to Ministers for consideration at the earliest possible date.

Government Funding for Research

5. While we welcome the provision of that funding, a more detail assessment of the spread and level of UK Government funding for energy research in Wales would be welcome. (paragraph 35)

As requested during the evidence session on 13 June, the Minister for Energy provided this information by letter to the Committee on 26 June.

Although the DTI does not keep figures on particular spend on renewable energy research and development in Wales, it is noted that a number of organisations in Wales are participating in specific R&D projects supported by DTI and the Research Councils. For example, in the renewables area there are a number of EPSRC (Engineering and Physical Sciences Research Council) SUPERGEN consortia that include Welsh academic institutions:

- UK Sustainable Hydrogen Energy Consortium includes University of Glamorgan;
- Photovoltaic Materials includes University of Wales, Bangor;
- Bioenergy includes Institute of Grassland and Environmental Research.

In addition, Cardiff University has also received EPSRC funding for research on fuel cells.

There have also been a number of specific R&D proposals funded by DTI in photovoltaics (PV) under the PV Field Trials and the Technology Programme.

6. We recommend that the DTI fully appraise itself of the valuable work being undertaken at the Centre for Alternative Technology. (paragraph 38)

The DTI are aware of the work being undertaken at the Centre for Alternative Technology and note that it is one of a number of sites showcasing examples of renewable energy technology in the UK.

The Centre has received grants from DTI via the “Clearskies” programme for the installation of a biomass boiler and from the Major PV Demonstration programme for the installation of photovoltaic panels.

Tallow

7. We welcome the clarification given by the UK Energy Minister that power stations are permitted to co-fire with tallow. (paragraph 53)

The Waste Incineration Directive² does not ban the use of tallow as a fuel. Installations may burn tallow provided they comply with regulatory requirements. If, as is usually the case, the tallow is waste within the definition given in the EU Waste Framework Directive, the regulatory requirements allow for a permit to be issued under the Pollution Prevention and Control Regulations 2000 incorporating the requirements of the EU Waste Incineration Directive.

Defra, in consultation with the Welsh Assembly Government, has produced guidance describing the scope, and regulatory and technical requirements of the Waste Incineration Directive. This is the third edition and includes changes made in response to comments made about the previous editions. It is aimed primarily at operators of incineration and co-incineration plant, regulators, waste producers and waste managers, all of whom will be affected by the implementation of the Directive.

Clean Coal Technology

8. We welcome the investment into the development of clean coal technologies in Wales, in particular at Tower Colliery and Aberthaw power station. We are concerned that apparent differences of approach between Ofgem and the DTI on the use of biomass is frustrating further development in this area. We recommend that the Government investigate this matter and update the Committee in its response to this report. (paragraph 55)

Co-firing of biomass with coal was originally established within the Renewables Obligation (RO) as a transitional measure to develop robust biomass supply chains and to help suppliers progress towards the UK's renewable energy target. Co-firing has been very popular with generators and the majority of coal-fired power stations in the UK have co-fired with low percentages of biomass. The Government in the Energy Review Report has proposed measures possibly to extend support for co-firing under the Renewables Obligation beyond 2015/16.

The RO requires licensed electricity suppliers to source a proportion of their supplies from renewable sources. The Gas and Electricity Markets Authority, whose day to day functions are performed by Ofgem, is given powers and functions under the relevant Orders. Ofgem cannot act beyond the scope of the powers laid down in the Orders, but in conjunction with Ofgem the Government is always keen to consider any suggestions on how procedures or controls could be simplified or improved.

As part of the 2005/06 Renewables Obligation Review³, DTI reviewed the current requirements for the measurement, sampling, analysis and reporting of fuels used in generating stations burning biomass, and considered arguments that the rules were

2 <http://www.defra.gov.uk/environment/ppc/wasteincin/pdf/wid-guidance-edition3.pdf> - see section 2.1.4 *Application of the Waste Incineration Directive to the burning of waste tallow as fuel*

3 <http://www.dti.gov.uk/energy/sources/renewables/policy/renewables-obligation/2005-6-obligation/page18365.html>

unnecessarily complex and burdensome. Given the high value attached to the award of ROCs, we also took account of the need to maintain an acceptable level of rigour in relation to the administration of the scheme in this area and to ensure that ROCs issued accurately reflect the biomass content of fuels used to generate electricity. This is particularly the case for generating stations in which a wide range of different biomass fuels may be used over short periods of time.

The Renewables Obligation Review concluded that the sampling and measurement requirements should be reduced for biomass fuels in cases where the generator in question has provided Ofgem in the past with consistent evidence about the calorific value and biomass content of that fuel. This change will be of benefit to a number of biomass generators and co-firers who have established long-term biomass fuel supply arrangements.

We have therefore now amended the RO Order to provide Ofgem with the flexibility to introduce reduced sampling requirements for biomass fuels where there is established and consistent evidence about the calorific value and biomass content of the fuel. We have worked with Ofgem and industry through the Biomass Fuels Working Group to develop the detailed implementation of this change. We have also made other changes to the Order to simplify the administration of the RO, which will benefit co-firing as well as other forms of generation, and to encourage energy generation from biomass waste.

Ofgem have carried out a survey of sampling and measurement of all generators and revised guidance is available on the Ofgem website⁴. They will continue to look at specific issues that arise in connection with energy crops and waste, and guidance on measurement of the biomass fraction of mixed wastes has also been developed through the Biomass Fuels Working Group.

9. We are disappointed at the low levels of DTI funding into the research and development of clean coal technologies. We are concerned that the Government's lack of foresight is compromising Wales' potential to be a world leader in clean coal technologies, and is frustrating the potential to revive a rich and experienced indigenous coal industry in Wales. Furthermore, we endorse the Science and Technology Committee's view that the piecemeal allocation of funding suggests a worrying lack of strategic vision in Government decision making, in contrast to the clear vision and commitment to coal given by the United States Government. (paragraph 65)

It is not possible to provide figures for Wales alone as the scope of the Government's support for Carbon Abatement Technologies (CAT) and Clean Coal Technologies (CCT) covers the UK in total. However since 1999 the Cleaner Coal Technology Programme committed some £13 million for R&D. In addition to this some £3.5 million was committed for collaborative R&D with the USA. Coal mined in Wales would of course benefit from this R&D as would the remainder of the UK.

The DTI's CAT Strategy originally included a provision of £25 million for capital grants to support demonstrations of capture ready plant and CO₂ storage. This was an important extension to our support for innovation in clean fossil fuel technologies, which previously

4 <http://www.ofgem.gov.uk/ofgem/work/index.jsp?section=/areasofwork/renewobligation>

had been limited to R&D, and is intended to encourage the growing momentum in the UK to development of Carbon Capture and Storage (CCS) technologies. The CAT strategy acknowledged that the full-scale deployment of the complete chain of CCS technologies involved substantial capital investment that might require a different form of incentive. As studies under the Final Call of the DTT's Cleaner Fossil Fuel Programme have progressed it has become clear that there could be a wider need for demonstration projects covering key CCS technologies (e.g. demonstration of oxy-fuel firing with hard coal). This has been confirmed by on-going discussions with industry that identified additional needs some of which related to large carbon sources outside of the electricity generation sector. The additional £10 million was provided to increase the range of demonstration projects that could be supported subject to EU State Aid approval. It is intended to launch a £10 million scheme for CCS demonstration this September.

10. We share our witnesses' frustration at the Government's laissez-faire approach to the development of clean coal technology in Wales. Wales has considerable indigenous supplies of coal, which, if accessed through clean coal technology could provide a major indigenous clean and secure energy source. Urgent action is required now to ensure the future of clean coal in Wales and we look to the Government to provide that leadership. (paragraph 68)

We agree that Clean Coal Technology, and particular, Carbon Capture and Storage, can contribute to the UK's security of energy supply enabling it to use its coal resources whilst avoiding coal's impact on the environment. We believe the Government is already providing leadership through the publication of the Carbon Abatement Technology Strategy and its announcement of £25 million for a demonstration project with a further £10 million announced in the Chancellor's Pre-Budget Statement on 2005.

11. The Department of Trade and Industry needs to prove, through a more urgent and pro-active approach, that clean coal technologies have a major role to play in the United Kingdom's future energy mix. (paragraph 69)

We believe that the activities identified in the Carbon Abatement Technology Strategy (see our response to Recommendation 10 above) already provide a timely and pro-active approach to the sustainable use of coal and other fossil fuels. The Strategy certainly sees Cleaner Coal Technologies, and in particular Carbon Capture and Storage, as a significant component, with other sustainable technologies in solving the climate change problem.

Coal in Wales

12. The inability of the Department of Trade and Industry to present a consistent position on the economics of indigenous coal does not fill us with confidence in the Government's ability to make key strategic decisions about the future of the coal industry in Wales. It is disappointing that the UK Energy Minister's emphasis on security of supply and the reliance on coal, much of it imported, for 50% of our electricity generation during the cold winter 2005-06 has not led to a greater appreciation of the potential of indigenous coal. The Government's attitude to the coal mining industry in Wales is at best apathetic, and at worst dismissive. The Energy Review will need to demonstrate a far greater commitment to the indigenous Welsh coal industry in order for us to revise our view. (paragraph 76)

The Government's position is both clear and consistent. We will continue to set a policy framework that sends the right long-term signals on all four of our long term policy goals – cutting carbon emissions, maintaining security of supply, promoting competitive markets and ensuring that every home is adequately and affordably heated.

We recognise the important contribution that coal continues to make to the security and diversity of UK electricity supply and, as stated in the Energy Review Report, we believe that it is right to make the best use of UK energy resources, including coal reserves, where it is economically viable and environmentally acceptable to do so.

We have announced the establishment of the Coal Forum to help find solutions to secure the long-term future of coal-fired power generation and UK coal production. We continue to promote the development and application of cleaner coal technologies. We have supported the UK coal industry, including that in Wales, first through Coal Operating Aid and now through Coal Investment Aid (CIA). But primary responsibility for investment and production decisions, within the policy framework set by the Government, rests not with Government but with the industry itself.

13. We acknowledge the undisputed success of Tower Colliery. It is very rare that upon closure, a colliery has exhausted all of its accessible reserves, and it is to the credit of this cooperative enterprise that Tower Colliery has proved such a success. (paragraph 78)

The Committee's conclusion is noted.

14. We also recognise the value of Coal Investment Aid, and its success in providing an initial boost to both Tower Colliery and Aberpergwm, both commercially successful mines. We urge the Government to provide similar aid in the future, where a sufficient economic case has been made. The Government should lead by example in promoting investor confidence in this important industry. (paragraph 79)

The coal industry in Wales has benefited from both the UK Coal Operating Aid Scheme (UKCOAS), which was active during 2000-2002, and CIA, which was introduced in 2003. A total of £22.75 million was paid to 5 Welsh mines under UKCOAS. CIA awards totalling £3.057 million have helped Tower Colliery to remain open to recover its remaining reserves. An award of £3.502 million may also make a vital contribution to the revival of Aberpergwm colliery. In both cases, these awards are still being drawn down.

Under EU Coal State Aid Regulation 1407/2002, aid of up to 30% can be paid to investment projects which aim to maintain access until at least 2008 to economic reserves of qualifying coal at mines which were in production during July-December 2002. Tower and Aberpergwm collieries submitted applications that met these conditions and both are receiving CIA under a scheme approved by the European Commission in June 2003. That scheme is now closed to new applications. The Commission's current review of Regulation 1407/2002 will determine what scope there may be for any further aid that might be justified in future.

15. The future of the Welsh coal industry is dependant upon clear policy, funding and planning frameworks. We welcome the Welsh Assembly Government's timely publication of a Coal Planning Technical Advisory Note. However, assistance and guidance will also need to be given by the UK Government in the form of a UK wide

strategic plan for the future of coal. We recommend that the Government provide appropriate resources for a detailed exploration and assessment of the UK's coal reserves. (paragraph 83)

The Government's role is to set a clear energy policy framework, within which industry can make informed decisions. It continues to do so – most recently through the Energy Review Report. The establishment of the Coal Forum will help coal producers, coal users and other parties with an interest in ensuring a continuing role for coal as part of a diverse, secure and affordable UK energy mix to work together to deliver this vision.

The Government also welcomes the Welsh Assembly Government's timely work on a Coal Planning Technical Advisory Note, but notes with regret that although at least half of Wales's remaining economic reserves of coal are most suitable for surface mining, the Committee has not actively considered the future of this sector of the industry. The Government acknowledges that surface mining should only be permitted where the development is environmentally acceptable or can be made so by conditions or where local or community benefits can outweigh potential adverse impacts, but also that developments which meet these conditions should be permitted.

Assessments of UK coal reserves were carried out in 1998 and 2002 (the latter for deep mines only). The Coal Authority and the British Geological Survey are currently developing an information tool which will help Mineral Planning Authorities and others to identify sites with potential for future coal extraction so that they and their potential economic value to both the local and the wider community can be recognised in strategic and detailed planning processes.

16. Wales currently has a cadre of excellent specialised mining skills that have well served the UK coal industry. But if deep coal mining in Wales is not supported there is a danger that those key skills would be lost forever. The Government needs to take urgent action to address this issue, and we expect the Energy Review to specifically recognise and nurture that expert skill base in Wales. (paragraph 85)

The Government is alert to skills base concerns throughout the coal industry. The revival of Aberpergwm and the potential development of the Margam coking coal prospect should enable the existing skills base to continue to be maintained through training and practical experience, as it has been at Tower and other mines in recent years.

Nuclear Power in Wales

17. Wylfa nuclear power station plays a vital role in the Welsh economy, both as a major electricity generator, and as the supplier of energy for Anglesey Aluminium, a significant employer on Anglesey. The proposed closure date of 2010 presents Wales with significant power generation issues. With only four years left before Wylfa is due to close, it appears unlikely that an alternative Welsh electricity source will be found. The removal of Wylfa will have significant effects on electricity generation in Wales both in general, and specifically for Anglesey Aluminium. We urge the Department of Trade and Industry to explore all alternative sources of electricity supply for Anglesey Aluminium. (paragraph 105)

Answer grouped with Recommendation 18 – see below.

18. However, in the absence of any credible alternative, an extension of Wylfa nuclear power station is not only the most pragmatic solution, it is vital to the economic well-being of Anglesey. We understand that a decision on the extension of Wylfa will be made shortly and we fully support the proposal for an extension. The Energy Minister has a responsibility to take a lead on this issue. We look to the UK Energy Minister to act with a greater resolve than he showed to this Committee and act for the interests of Anglesey and Wales. (paragraph 106)

As the owner of Wylfa power station the Nuclear Decommissioning Authority (NDA) undertook a comprehensive review of the feasibility of extending its operational life beyond its planned closure date of 2010. It has concluded that there was no realistic case for extending the life of this plant beyond 2010. The NDA has informed stakeholders of its conclusion and its detailed report is available on its website.

The NDA is actively pursuing the possibility of operating Wylfa until December 2010, nine months later than currently planned. It is also in discussion with Anglesey Aluminium (AAM) about the possibility of extending its current contract, which is due to expire in 2009.

In parallel with contract extension negotiations, AAM, in conjunction with the Local Authority has commissioned work on alternative power sources, including the possibility of a new biomass fired power generation plant.

The lead for this is clearly with AAM and potential private sector energy suppliers. It was made clear in the Energy Review Report that it is for the private sector to bring forward proposals to build, extend or operate power stations of any type, nuclear or otherwise. It will be for the private sector to make judgments on the relative generating costs of technologies, within the market framework set by Government. We are committed to taking action to remove barriers for secure, low carbon forms of generation, but we are clear that it will be for the private sector to take specific investment decisions.

19. The threat of an accident or terrorist attack is one that resonates deeply when the public considers nuclear power. We do not try to explain the complexities of the threats or of the safety of nuclear power here. Rather we have set out the two sides of the argument. When the Government makes its decision it should do so on the basis of clear evidence on the perceived and actual risks that may be posed by new build nuclear power stations. That evidence should be the basis for the wider debate in the country and we look to the Government to ensure the highest level of accessibility to the threat assessments of nuclear power. (paragraph 116)

The UK has in place a strict regulatory regime, which provides for the application of high standard of safety aimed at both at minimising radiation exposures from normal operations and at preventing major accidental releases of radioactivity at nuclear installations. The nuclear operators are required to demonstrate to the Health and Safety Executive's Nuclear Installations Inspectorate (HSE's NII) the safety of activities at nuclear sites and that they are complying with the strict conditions of their nuclear site license, and other relevant safety legislation.

The provision of information for wider debate in the country relating to threat assessments for the civil nuclear industry must be balanced against the risk that the information could

be of potential use to a person or group planning to attack a nuclear facility or transport. It is therefore not Government policy to disclose details of procedures related to national security measures.

However, we can assure the Committee that the security of nuclear materials and process is robustly regulated by the Office for Civil Nuclear Security (OCNS), and kept under constant review. Any new licensed nuclear sites would need to satisfy the requirements of the Nuclear Industries Security Regulations 2003, which make provision for the protection of nuclear material, both on sites and in transit, against the risks of theft and sabotage, and for the protection of sensitive nuclear information. OCNS is satisfied with the standards, procedures and commitment with regard to security within the civil nuclear industry and that regulation is effective and proportionate.

20. Should there be a new generation of nuclear power stations, there is a strong argument in favour of those power stations being located on existing nuclear power sites. Anglesey already has the necessary infrastructure and skill base to service any future nuclear build. There is also an established understanding of nuclear power between the local community and the nuclear industry, through the experience of Wylfa nuclear power station. Should the UK Government decide in favour of new nuclear build, Anglesey would represent an obvious location for any new build in Wales. (paragraph 120)

Any new nuclear stations would be proposed, constructed and operated by the private sector. It is for potential developers to decide where to site any proposals to build a power station. Industry has indicated that the most attractive sites are likely to be next to existing nuclear power stations.

The Government will be undertaking a strategic siting assessment to identify the locations and the criteria for locations where Government would support proposals for new nuclear power stations.

21. We look to Government to ensure that there is an open and mature debate on nuclear power in Wales and in the UK, and that it is conducted to the benefit of Wales and the Welsh people, within the wider UK context. (paragraph 124)

The Energy Review Report set out Government's proposals for a policy framework for new nuclear build. We are currently consulting on these proposals, and the framework will be finalised in an Energy White Paper around the turn of the year. This consultation process, together with other consultations arising from the Energy Review will involve stakeholders throughout the UK, including Wales.

Liquefied Natural Gas in Wales

22. We welcome the contribution of the new South Hook and Dragon LNG facilities near Milford Haven, and their potential contribution to a diversified and secure gas supply in Wales and the UK. Furthermore, we recognise the positive economic impact of these projects for west Wales, and the fact that they represent another example of Wales providing a lead in the provision of energy for the UK. (paragraph 135)

The Government agrees. Gas now provides around 50% of Great Britain's primary energy consumption for non-transport purposes, with gas usage split between the household, industrial and power generation sectors. Against this background the decline of indigenous production of gas from the North Sea has represented a major challenge to the British economy. The Energy White Paper of 2003 reaffirmed our commitment to the principle of energy delivery via the competitive market.

The Government welcomes decisions of commercial enterprises to make major investments, at their own risk, in projects to increase Great Britain's gas import capacity.

The Committee rightly acknowledges the positive economic impact of the LNG import terminals now under construction at Milford Haven. Recent experience has demonstrated the impact of tight gas supply from a pre-competitive continental European market. The new terminals will give access to gas supplies from diverse new sources - from Qatar in the case of the South Hook terminal, and from a range of potential sources in the case of the Dragon terminal. In this way the terminals will contribute to the reliability of future gas supplies. They will also help to exert downward pressure on future gas prices, and, via the power generation sector, on future electricity prices.

It is important, in the interests of gas consumers, that there should be no avoidable regulatory obstacles to new gas supply infrastructure projects. The Government therefore welcomes the constructive dialogues which, it understands, developed between the projects and the responsible local planning authorities (and also the Welsh Assembly). These were valuable in smoothing the paths which culminated in the timely issue of planning consents for these terminals.

Wind Energy in Wales

23. TAN8 identifies seven strategic areas in Wales where there is a presumption in favour of wind farm developments, while Section 36 of the Electricity Act does not allow for objections to the provision of energy consents. When these two procedures are combined, they leave little—if any—opportunity for local residents in Wales to mount a defence against applications for large wind farms in their locality. Not only is this deeply frustrating, it also undermines the democratic accountability that underpins decision-making in this policy area. We recommend that the Government review this position as a matter of urgency in order to give fair access to the decision-making process for individuals affected by large-scale wind farms in Wales. (paragraph 150)

The Government disagrees with the Committee's view that the combination of Section 36 of Electricity Act and the Welsh Assembly Government's TAN 8 planning advice note leaves little scope for local representation in decision making in respect of major wind farms in Wales. Both have been designed to positively encourage local participation.

As part of the Section 36 consultation process on consent applications for wind farms of 50MW and above, objections from individuals are carefully considered in determining consent applications and how decisions are reached. The views of key stakeholders are also considered in the decision-making process. In addition, relevant Local Planning Authorities (LPAs) are asked to provide their views on onshore wind farm proposals taking

account of local views and local knowledge. Where a relevant LPA (one within whose jurisdiction a project will be sited) objects to an onshore proposal, a public inquiry is automatically triggered which will consider the issues put forward by the council and any other parties that have objected. At the end of the day, the consents decision should result in a situation in which well thought out proposals with acceptable impacts are allowed to proceed while projects which would have significant adverse impacts are not.

Decisions on power stations of less than 50MW are the responsibility of local planning authorities and unless issues of more than local importance are raised, or there is an appeal, decisions will continue to be made at the local level. Local planning authorities consider the local application of TAN 8, including the strategic search areas, and should incorporate detailed location requirements into Local Development Plans (LDP) in line with the requirements of the LDP process, in which community involvement is a requirement.

The Government is satisfied that the democratic process is fully integrated into the decision-making processes for all sizes of wind farm developments.

24. The consents process for Rhyl Flats serves as a timely reminder of how quickly public confidence can be undermined. While the UK Energy Minister agrees on the need for accuracy in statutory notices, he has refused to acknowledge the fact that in this case a proposal was inaccurately named after one maritime feature while being located on another, adjacent maritime feature. That was a mistake and it was misleading. While we accept that the true coordinates were contained within the consultation documents, local residents would have not felt it necessary to delve that deep into a document that implied that the proposal would be built away from their immediate area. (paragraph 158)

Answer grouped with Recommendation 25 – see below.

25. The Government has a duty to ensure accuracy and confidence in the planning and consents systems. It has not done so on this occasion. Furthermore, it is not acceptable to explain away the fact by arguing that it is “difficult to define the boundaries of this or any other sea bed feature precisely as they change with time”. If wind energy is to be further exploited in Wales, it is incumbent on the DTI, as the commissioner of large projects, to take a far deeper interest in the accuracy and probity of the consultation process. To not do so is to disregard the need to support the views of the local population. We look to the UK Energy Minister to acknowledge the shortcomings of the consultation process on this occasion and set out clear unambiguous guidelines for the accurate description of wind farm locations for the future. (paragraph 159)

The Government’s position on the grant of consent for the Rhyl Flats project has been made clear on a number of occasions. The decision was taken after a full and proper consideration of all relevant matters, including the views of the Government’s advisers on the marine environment. We firmly believe that there was sufficient information contained in the public notice for Rhyl Flats to enable interested parties to identify the location of the project. We restate our position that the naming of offshore wind farm projects, particularly those which occupy an area of several square kilometres, is not always an easy decision for developers to take as they may be a similar distance from a number of onshore and offshore features. It is not felt that any benefit would arise from providing wind farm

developers with guidelines on how to name their projects: it is the supporting information, particularly precise coordinates, that are important.

26. Wind energy is often portrayed as a renewable panacea for our energy needs. Whilst it does have an important contribution to make, there remains a worrying difference between the expectation of wind power and its actual output. With the significant expansion of wind farms in Wales, the Welsh public is entitled to be given an objective assessment of its contribution to electricity supply in Wales. The Digest of UK Energy Statistics may provide the raw data on wind energy but it is not sufficient to inform the public on the true contribution made by wind. The UK Government has to play a more intelligent role in setting out the true case for wind energy at both a regional and a national level. (paragraph 178)

The Digest of UK Energy Statistics is just one of a family of DTI energy publications. There are others that put renewable energy into context. These include the quarterly bulletin *Energy Trends* and *Energy – its impact on the environment and society*. All the publications are available free of charge on the DTI web site (<http://www.dti.gov.uk/energy/statistics/publications/index.html>). The response to recommendation 28 gives further details of how we communicate the facts on renewables.

One of the relevant articles in *Energy Trends* (December 2005 pages 42 to 46) shows that Wales generates more electricity than is consumed in Wales. In 2004 about 6,000 GWh in net terms was transferred to England via the grid system. Because of the grid system it is not possible to say how much of the electricity supplied to consumers in Wales was from wind, or from any other fuel source. Overall 3.0% of the electricity generated in Wales was from renewable sources compared with 3.6% in the UK as a whole. Wind farms in Wales accounted for 52% of the generation from renewable sources in Wales whereas in the UK as a whole the proportion was 14%. 2005 data for generation from wind and other renewable sources in Wales are not yet available but are due to be published in *Energy Trends* at the end of September 2006. This will mean that almost as much statistical information will be available for Wales as for the UK as a whole, the only limitation being maintaining statistical confidentiality.

27. The benefits of wind farms to the environment at a national level are well publicised. Less obvious is the potential impact of those wind farms to their surrounding habitat. For that reason we acknowledge the work that Falck Renewables is doing to restore the natural habitat at Cefn Croes, and welcome the establishment of the local community fund. Such work is a vital part of ensuring that the environmental impact of wind farms is considered on an equal footing to the economic benefits derived from their development. However, the environmental obligation is neither understood widely nor yet proven. (paragraph 192)

In addition to the duty placed on the Secretary of State under the Countryside Act 1968, the Secretary of State also has the same duty under Schedule 9 of the Electricity Act 1989. That duty is, when considering proposals for which his consent is required under Section 36 and Section 37 of the Electricity Act 1989, the Secretary of State has to have regard to the extent a developer of a proposal has had regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological and physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or

archaeological interest. The Secretary of State also has the duty of considering what a developer can reasonably do to mitigate any effects which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects. For the avoidance of doubt, developments in the countryside are permissible, subject to Ministers satisfying themselves that the criteria specified in the Acts are complied with and the necessary mitigation is in place so as to allow the grant of consent.

28. Both the UK Government and the Welsh Assembly Government remain committed to relying predominantly on wind energy to meet their current targets for renewable energy generation. Wind energy is beneficial to Wales but that benefit should not be overstated. It is unfair to dismiss all opposition to wind energy as nimbysim, without understanding the valid concerns that Wales is being overly populated by wind farms for what those opponents perceive as marginal benefit, set against the possible threat to leisure and tourist industries. Government at all levels will need to improve upon their communications strategy to explain both the benefits and limitations of wind power. (paragraph 195)

The DTI has been running a wide-ranging renewable energy Communications Campaign, entitled 'It's only Natural', since 2004 with the specific aim of providing key stakeholders, planners, councillors, investors, media and the public with factual and objective information on renewable energy to allow individuals to make up their own minds based on fact. The campaign's main objectives are to:

- Raise awareness of renewable energy and its benefits among planners, councillors, investors and wider public audiences;
- Inform and educate key audiences to enable them to make informed decisions.

Campaign activities include:

Planners/Councillors - A series of renewable energy workshops has been running since 2004 (49 workshops completed to date) with the aim of better equipping Planners and Councillors in their job of objectively assessing applications for renewable energy projects and in the difficult task of striking the appropriate balance between local impacts and benefits and broader benefits and policy objectives. The workshops examine all the potential issues that could be raised during the planning application process and provide the factual, balanced information necessary to make informed decisions. Workshops include Planning for Wind, Advanced Planning for Wind, Micro-renewables and Biomass.

The workshops are supported by a Planning E-newsletter which is circulated bi-monthly to c 1000 local authority councillors and planners who have attended or expressed an interest in the DTI's 'It's Only Natural' workshops on planning for renewable energy. The newsletter provides further information on renewable energy policy, guidance, technologies, case studies etc.

Website - The DTI has a dedicated renewables website which provides comprehensive factual, balanced and objective information on renewable energy. It contains extensive information on renewable technologies, policy, planning, business and investment, and education resources. In addition it provides answers to the most frequently asked

questions about renewable energy and it debunks the top 10 myths that are perpetuated about renewables by providing factual information.

Schools - DTI has developed, in conjunction with a specialist education company, curriculum based education resource packs for primary and secondary schools in England, Wales and Scotland to provide information and teaching resources about eight key renewable energy sources. The education packs have been distributed free to schools in Great Britain and are also downloadable from the DTI website at <http://www.dti.gov.uk/energy/sources/renewables/renewables-schools/index.html>.

General Public - The DTI commissioned research, in May 2006, to conduct a quantitative research project to explore awareness and attitudes to renewable energy amongst the general public in Great Britain, and determine influences on their opinions of this subject. The findings confirmed that public support for renewables remains high, for example, 85% support the use of renewable energy. (Survey available at <http://www.dti.gov.uk/files/file29360.pdf>)

Media - A dedicated DTI Press Officer is in post to support all the activities and events mentioned above. The Press Officer works to:

- Improve understanding of the Government's renewable energy targets and to explain how progress towards the targets can be made;
- Improve understanding of how renewable energy can counter climate change and assist the UK's security of supply;
- Raise awareness of renewable energy use in the UK;
- Promote all renewable technologies; and
- Counteract misleading and inaccurate coverage of renewables in the national and regional media.

29. Government Ministers and other supporters of wind energy must recognise that wind energy cannot be a complete substitute for nuclear power. We reiterate our previous concern that wind energy and nuclear energy continue to be presented as simple alternatives. In reality, it is much more likely that both will exist in any future energy mix for the United Kingdom. (paragraph 196)

Government is clear that there is no single solution to meeting our energy challenges. Energy efficiency, renewables and nuclear all have a role to play.

We remain committed to renewables as an important way of delivering our energy policy goals and have produced a radical package to help industry deliver more renewables. We are also taking action to remove uncertainty and delays in the planning and licensing processes to reduce investment in new nuclear build.

Wave and Tidal Energy in Wales

30. Given the potential of tidal lagoon technology off the Welsh coast, we urge the Government to expand the scope of its Marine Renewables Deployment Fund to include tidal lagoon technology. (paragraph 213)

The Marine Renewables Deployment Fund (MRDF) implements a main recommendation of the Renewables Innovation Review. That is, to assist emerging wave and tidal stream technologies, which have the potential for significant cost reduction, to bridge the gap between research and development and commercialisation. We therefore see no case for amending the scope of the support provided under the MRDF so as to include mature technologies such as tidal lagoons. We also understand that the company that promotes this type of technology claims it to be commercially viable within the Renewables Obligation.

31. We are disappointed by the absence of a firm Ministerial commitment to wave and tidal energy in Wales. Furthermore, we are concerned that as a result of the lack of foresight and commitment in the area of marine renewables, Wales is in danger, once again, of losing out on pioneering a major source of clean and renewable energy. We strongly support tidal energy as a renewable energy source that has the potential to make a step change in the generation of clean electricity in the United Kingdom. Furthermore, tidal lagoons also have the potential to play a significant role as sea defences. We look to the Government to make tidal energy schemes a priority in its delivery of clean, renewable energy for the United Kingdom. (paragraph 217)

Answer grouped with Recommendations 34 and 35 – see below.

32. We agree with the Countryside Council for Wales that an all-Wales Marine Renewables strategy is required. Marine Renewables provide a great opportunity for Wales, both in producing a major source of clean and reliable renewable energy, and in developing an indigenous industry around the design, manufacture and export of the technology. We would therefore encourage the DTI to work closely with the WAG in order to develop this strategy, thus maximising both the potential contribution of this sector to the energy needs of Wales and the UK, and the economic benefits to Wales. (paragraph 220)

Both the DTI and the Welsh Affairs Government (WAG) are actively working towards developing a system of marine spatial planning together with Defra in the context of the recent consultation on a proposed Marine Bill. We acknowledge the Committee's recommendation and confirm that the DTI intend to open a dialogue with WAG and others on the issue of the need for a UK wide strategy for marine renewables. In addition, WAG is planning to carry out work to examine and evaluate the potential of the marine energy resource in Welsh waters.

33. We are concerned about the seeming disparity between the time for marine technologies to be commercially viable according to the investors, and the Government's own perception. We are concerned that this (mis)understanding is having a detrimental impact on both the funding and the development of a strategic policy development framework for marine renewables. We seek urgent clarity on these

issues in order to ensure that crucial opportunities in developing a renewable and clean energy source and a viable indigenous Welsh industry are not lost. (paragraph 227)

Since the reopening of the Government's wave energy research and development programme in 1999 and tidal stream energy programme in 2000, a number of wave and tidal stream technologies have been developed and tested at full scale. However, despite early progress there still remains very limited real-sea operating experience of any full scale device at the present time and so results that have been obtained under these programmes to date suggest that the long-term commercial prospects for these technologies remain highly uncertain. The results of the DTI Research and Development Programmes and those of the Carbon Trust's Marine Energy Challenge provide in our eyes a realistic assessment of the current technical status of these technologies.

However, we remain committed to providing these technologies with the opportunity to realise their potential and already have in place the most comprehensive set of measures to assist the development of marine technologies anywhere in the world. Most recently in the Energy Review Report we announced our intention to consult on the use of the Renewables Obligation to support these emerging technologies.

We will continue to review our policy in this area but it is important that we do so properly informed. The demonstration projects that we expect to come forward under the Marine Renewables Deployment Fund will help provide a greater level of understanding of these technologies and allow industry to demonstrate their viability.

34. We acknowledge the concerns with regard to the environmental impact of the proposed Severn Barrage scheme. However, we are in the unique position of being able to harness the second largest tidal range in the world in order to provide the long term supply of clean renewable energy and we recommend that the scheme be considered very seriously. (paragraph 234)

Answer grouped with Recommendations 31 and 35.

35. We agreed with the Minister that tough decisions need to be taken to secure the UK's future energy supply and to tackle climate change. We urge the Minister to make the 'step change' he claims is necessary, and to be bold when considering the Severn Barrage scheme. (paragraph 235)

Answer grouped with Recommendations 31 and 34.

The Government continues to be supportive of marine renewables as part of our strategy significantly to increase the supply of renewable energy in the UK.

During the course of Energy Review consultation the Government received a range of views on tidal generation, in particular on the plans for a Severn Barrage, which could provide around 5% of current UK electricity demand by 2020. This could cost in the region of £14 billion. It is clear that while attractive in terms of energy generation and associated benefits, plans for a Severn Barrage would, as the Committee say, raise strong environmental concerns in view of the designations that apply to the Severn Estuary.

We are however interested in improving our understanding of how to make best use of the potential tidal resource in UK waters. We therefore announced in the Energy Review

Report that together with the Welsh Assembly Government, we would work with the Sustainable Development Commission, the South West Regional Development Agency and other key interested parties to explore the issues arising on the tidal resource in the UK. The study will explore the potential costs, benefits and public acceptability of developments using the range of tidal technologies (including tidal barrages and lagoons), with a strong focus on the Severn. The study is expected to report in early 2007 and further details can be found at www.sd-commission.org.uk/pages/tidal.html.

36. Regardless of merits and economic viability of the Swansea Bay tidal lagoon scheme, we have concerns about the DTI's handling of the scheme and the damaging effect that this has had on investor confidence and potential commercial development. We are pleased that the DTI has now withdrawn its technical objections to the scheme, but the errors made by the DTI officials have undermined and delayed a highly promising project. We recommend that the DTI takes urgent steps to address the damage it has caused, and to set out clearly its strategy for rebuilding investor confidence in this scheme. (paragraph 239)

The DTI and Welsh Development Agency published an independent assessment of the Swansea Bay Scheme following a recommendation of the House of Lords Select Committee on Science and Technology to do so and believe that it was appropriate to publish this information.

There are no constraints on the project coming forward and the DTI has indicated to the company that they are free to make an application for consent under Section 36 of the Electricity Act. The project is eligible for support under the Renewables Obligation.

Biomass in Wales

37. We look forward to the publication of the Government's UK-wide Strategy for Biomass, and how that strategy will take forward the conclusions and recommendations of the Biomass Task Force. We also welcome the Welsh Assembly Government's intention to publish a Biomass Strategy for Wales, and seek clarification from the DTI on how the Welsh Biomass strategy will feed in to the UK Biomass strategy. (paragraph 246)

The Welsh strategy will focus on energy issues and the potential for carbon savings through use of biomass rather than fossil fuels for the generation of heat and electricity and for transport. WAG officials will work closely with UK Government Departments to ensure that the Welsh and UK biomass strategies are compatible.

38. We welcome the investment that has been put in to research projects such as the Willows for Wales scheme. We look to the Government to provide a strategic framework in which energy crops in Wales can become a commercial reality. (paragraph 253)

Support for Energy Crops within Wales is a devolved matter and would be part of the Welsh Rural Development Programme (the English equivalent being the basis for Defra's Energy Crops Scheme). The wider market for energy crops in the UK will be considered in the context of the Biomass Strategy. The Government is also consulting on proposals to

remove co-firing of energy crops from the caps on co-firing under the Renewables Obligation.

39. There is a great potential for wood fuel in Wales to contribute to energy generation, local wealth generation, and the maintenance of the forestry industry in Wales. We urge both the DTI and WAG to develop a biomass strategy that would maximise that potential. (paragraph 257)

The Committee's recommendation has been noted. The Biomass Strategy is due for publication in 2007 and will consider the potential for biomass to contribute to a number of objectives. The Government is working actively with WAG on its development.

40. We welcome the use of biomass for heat production, and welcome the schemes and initiatives that have proved the success of this technology to date. However, we agree with our witnesses that the UK and Welsh Assembly Governments should formalise their support for biomass for heat by providing incentives for renewable heat generation, and that in any revision of the Renewable Obligation Certificates, biomass for heat should be included, but the impact on other industries competing for the same feedstock should be considered. (paragraph 264)

The Renewables Obligation cannot directly support biomass heat as it is a mechanism to support renewable electricity supply in the UK, although there has been indirect support for heat in the extension of ROC eligibility for waste-fired CHP (Combined Heat and Power) projects.

We have already supported renewable heat at a variety of scales through the Clear Skies Initiative and the Bioenergy Capital Grants Scheme. Support for renewable heat continues through the Low Carbon Buildings Programme (launched in April) and the Biomass heat/CHP scheme (announced in the Climate Change Programme Review and expected to be open to bids around the turn of the year). Renewable heat also benefits from a number of the measures being brought forward as part of the Government's Microgeneration Strategy.

The Energy Review has identified, consistent with the findings of the Biomass Task Force Report, a number of practical issues which we consider currently prevent the Renewable Heat Obligation from being an appropriate 'market-pull' mechanism at this time.

However, we shall continue both to be open to solutions to these practical issues and to seek to identify alternative market-pull mechanisms. The proposed EU Renewable Heating and Cooling Directive, expected later this year, and further development of the market for renewable heat technologies over time, may act to hasten this process. We will also consider this area in the development of the Biomass Strategy over the coming year.

41. We acknowledge the steps required to promote and secure the future of biomass energy in Wales. We urge the DTI to include these steps in its UK Biomass Strategy, and we recommend that funding be made available to establish a one-stop shop biomass advice centre for Wales at the earliest opportunity. (paragraph 268)

The Biomass Centre established in response to the Biomass Task Force is UK wide. It would be for WAG to establish any Centre for Wales.

Solar Energy and Photovoltaics in Wales

42. Photovoltaics is an emerging technology that has the potential to have a significant impact on renewable energy production in the future. We welcome the Government's acknowledgement that Wales has expertise in photovoltaics, and that Government funds have been allocated to further research in that area. However, it is unclear how much of that funding is being directed to Welsh Centres of Excellence such as Bangor University. We recommend that the Department of Trade and Industry sets out clearly what proportion of the Chancellor's funding in this area has been directed to Wales, and what support his Department can offer Welsh centres of excellence to build on their valuable research in photovoltaics. We also recommend that the DTI continue to support domestic photovoltaic installations through its low carbon buildings programme. (paragraph 276)

The Government has supported the development of solar PV through research and development funding and capital grant funding.

It is difficult to identify exactly how much research and development funding has been directed to Wales as the total award is paid to the lead institute of the successful consortia, who will then allocate the funds to other consortia members as required to deliver elements of the work. The University of Wales, Bangor, is part of a consortium that won £3.1 million from SUPERGEN to investigate photovoltaic materials. This is one of only two solar power projects funded by SUPERGEN.

We have also invested, through the Technology Programme, £178,000 in two Welsh projects that investigated the materials used for building integrated PV panels and plant design for the manufacturing of PV. And four projects in Wales under the PV field trials have received a total of £113,000.

The DTI is continuing to support domestic PV installations through the Low Carbon Buildings Programme. In the period from May to August 2006, eight applications for domestic PV installations in Wales have been approved.

We would like to take this opportunity to correct a typographical error in our original written evidence to the Committee. Paragraph 53 of our written evidence submitted on 9 December 2005 stated that "The Government has provided funds through the major PV demonstration programme of £431 million from 2002-06...". The figure quoted should have been "£41 million". We apologise for this error.

Geothermal Energy in Wales

43. The potential for generating electricity from geothermal energy in Wales remains open to question, for both technical and economic reasons. However, geothermal energy offers great potential for heat generation. Disused mines in Wales represent ready-made reservoirs for this. While they would not generate electricity, heating homes would significantly reduce the use of electricity to heat homes. That would reduce demand for electricity in Wales and represent a further move towards renewable energy. We recommend that the Government focuses on the use of geothermal heat as an achievable win in addressing Welsh energy needs. (paragraph 284)

Geothermal energy from aquifers (permeable rock formations) has been previously investigated under a former Department of Energy programme between 1976 and 1994. The £11.2 million programme failed to identify any economically viable resource within the UK, although a trial demonstration scheme was developed for the city of Southampton.

The UK also initiated one of the world's first Hot Dry Rock (HDR) programmes over the same time period. The concept relies on heat recovery from artificially widened fractures in hard crystalline rocks such as granites where there is a relatively high geothermal gradient. An experimental site in Cornwall identified a number of technical and economic limitations and the programme was curtailed in 1994.

Previous research suggests that the potential for geothermal energy in Wales is limited by the underlying geology, which is largely comprised of hard crystalline rocks that lack permeability. Although aquifers do exist the temperature of the groundwater is too low for economic exploitation as an energy source. HDR is far from proven and would not be suitable for areas such as Wales with low geothermal gradients.

We are aware of one example in Canada where the use of water from an abandoned mine has been used as an energy transfer medium to heat and cool a factory. However, there are likely to be significant technical and environmental difficulties with the use of mine water because of the high level of contaminants.

However, the Government does provide support to innovation/research and development on new and renewable energy through the DTI's Technology Programme. Although for the reasons set out above geothermal energy is not currently a priority for R&D, as a renewable energy source, geothermal energy is relevant to the aims of the Government's energy policies and its programmes for renewable energy. The Technology Programme does therefore offer a route should new proposals for further research in this area come forward and, subject to a satisfactory case being made, would be considered for support.

The use of ground source heat pumps, which rely on the land or ground water immediately beneath a building, is now an established technology. Conditions are suitable for application in Wales although it is expensive to install. The DTI already provides support for the installation of ground source heat pumps through its Low Carbon Buildings programme, managed by the Energy Saving Trust⁵. This provides grants for householders of up to £1,200 towards the cost of the equipment. It is also possible for ground source heat pumps to receive grant funding under the programme's support for community and large-scale projects.

Hydro Power in Wales

44. We recognise the role of hydro-electricity as a major contributor to the Welsh renewable energy portfolio. We also acknowledge the role of the pump storage facility, which we saw on our visit to Ffestiniog, which particularly complements other intermittent renewable energy sources. (paragraph 291)

Government recognise the important contribution that hydropower has played and the continuing potential for small-scale hydro schemes (see answer to recommendation 45).

5 www.lowcarbonbuildings.org.uk

The prospects for significant further expansion of large-scale projects are limited, however, because of environmental concerns and commercial viability.

By their nature, hydropower proposals often need to balance environmental concerns with the requirements of developers. In order to speed up decisions on new hydropower projects, the Government have set up with industry the Environmental Agency Hydropower Working Group to address the environmental concerns.

Government also recognises the important role that pump storage facilities play at times of peak electricity demand.

45. We recognise the potential contribution of small-scale hydro power in Wales, and we agree with RWE npower that a target should be set to promote and encourage development in this area. We further acknowledge the potential role for small-scale hydro in both community and microgeneration schemes, undervalued by the Government. We recommend that the DTI work with the National Assembly for Wales to develop an all Wales small-scale hydro strategy to maximise the development of this form of renewable energy. (paragraph 296)

Micro-hydro has an important role to play as an energy source. As well as providing electricity from a renewable source, small-scale hydro power schemes have good potential to raise public awareness and support for renewables. A study carried out by the Energy Saving Trust on behalf of the DTI (*The Potential for Microgeneration: Study and Analysis*) estimated that the potential for micro-hydro installations in the UK is approximately 100MW, this figure is obviously limited by the number of practical sites with the largest resource being in Scotland and Wales.

Under the Clear Skies Initiative DTI has funded 28 small-scale hydro projects, allocating capital grants totalling £433,000. In the first four months of the Low Carbon Buildings Programme we have received three applications for small-scale hydro projects, all of which were successful, receiving a total of £9,300 of funding.

The DTI is working closely with the National Assembly of Wales in the development of their overall Microgeneration Strategy for Wales and we will also be working closely with the National Assembly when developing a route map for micro-hydro in accordance with the commitment in the UK Government's Microgeneration Strategy.

46. Furthermore, we recommend that the Welsh Assembly Government and the UK Government provide appropriate grant support to Local Authorities for micro generation projects in public and private housing and transport and links such initiatives into city and regional energy conservations schemes similar to those developed by the green cities alliance in the US and piloted by the Centre for Alternative Technology. (paragraph 297)

In the past, the UK Government has provided support to the public sector for microgeneration projects through our Clear Skies and Major PV Demonstration Programme. Under the Low Carbon Buildings Programme we will continue to do this. In fact, the additional £50 million for the Programme (Phase 2), announced in Budget 2006, will be dedicated to the public sector. We have already received significant amounts of interest from various local authorities with respect to social housing projects and hope to

be in a position to fund some of the suggested projects, once Phase 2 is up and running towards the end of November. In the meantime, local authorities can receive funding under Phase 1 of the Low Carbon Buildings Programme. Private households can also receive funding under Phase 1, and (as of 21 August 2006) we have already allocated over £1 million to 168 projects since April 2006.

DTI will continue to work with the National Assembly to ensure that sufficient funds are being allocated to projects in Wales.

WAG is reviewing the results of a consultation on an action plan to facilitate the uptake of microgeneration in Wales. Local Authorities, as well as other public bodies across Wales, will have a key role to play in the final Action Plan – as will other organisations, SMEs (small and medium sized enterprises) and the public. Continued interaction with DTI will ensure that the WAG Action Plan builds on initiatives identified in the GB Strategy.