

# **Economic Development & Transport Committee**

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**Date: Wednesday 29 March 2006**

**Time: 9.00am to 12.25pm**

**Venue: Committee Room 3, Senedd, Cardiff Bay**

**Title: Welsh Assembly Government Energy Policy Update Paper for EDTC**

## **Purpose**

To inform the Committee of developments relating to Welsh energy policy as we move towards the finalisation of the Wales Energy Route Map during the summer this year.

## **Summary**

There is increasing recognition around the world of the major challenges faced in ensuring that energy supplies are secure and affordable, produced in a safe and reliable way with minimum impact on the environment both at the local and global levels. The only way to minimise the risk of not meeting these goals is through the pursuit of diversity which, because of the complexity of the issues, can be considered analogous to completing a complicated jigsaw puzzle.

In this complex world, to succeed both in creating each piece of the puzzle and putting them together holistically requires a strong private/public (Whitehall, Assembly Government, local authority and in some cases European Commission) partnership. These partnerships will only succeed if there is a clear vision and common purpose. To help enable this in Wales, the Welsh Assembly Government activities in pursuit of the energy route map goals have already been amended in the light of the consultation responses and the discussion at the Energy Summit before Christmas, for example, in respect of seeking the extension of the life of Wylfa nuclear power station. Looking forward, the final version of the energy route map, which we aim to produce in the summer, will also give full consideration to the findings of the current UK Energy Review. In addition, as part of the process of the merger of the WDA into the Assembly Government, Energy Wales is being created to act as a focal point to help all work in concert towards the common goals.

## **Timing**

The Wales Energy Route Map has been through its main consultation stage and discussions took place with our main energy users, producers and stakeholders at an Energy Summit jointly chaired by the First Minister and Economic Development and Transport Minister in December 2005. The Route Map will be

finalised after the initial report of the UK Energy Review, which is expected in Summer 2006.

## **Background - The Energy Policy Challenge**

The goal of achieving the following for energy supplies is a very challenging one and yet one we must meet. Energy must be:

- produced safely, securely and reliably;
- affordable and competitively priced;
- cause minimal environmental impact in its generation, especially from the local pollution and global climate change perspectives, and
- used as efficiently as possible.

And, as we pass through what is a watershed from the old world of energy production to the new, we have the opportunity to maximise the economic development and supply chain opportunities which will abound from these major changes.

The scale of this challenge is exacerbated by the following:

On a global level:

- the perception that as this century progresses, oil and gas supplies may not meet the world demand, especially as nations such as China and India with their enormous populations seek to emulate the West's economic success. Note that with our economic system, it is the perception of the financial sector that matters rather than the reality of the supply situation;
- the growing evidence that not only is human-activity induced global warming a real phenomenon but the chances of catastrophic runaway effects are not insignificant;
- CO<sub>2</sub> emissions from developing countries are growing at rapid levels. Last year alone China added to its annual CO<sub>2</sub> emissions level the equivalent of the UK's entire annual output of CO<sub>2</sub> and
- most of our chemicals and plastic products (and to an extent food through fertiliser inputs) currently depend on oil as the primary feed-stock.

Also at the UK level we have seen:

- the sharp rise in electricity and gas prices with the UK becoming a net importer of gas sooner than expected;
- large-scale offshore wind projects proving more problematic to bring into being than expected;
- the increasing scale of the challenge to meet the UK's Kyoto targets for the reduction in carbon-dioxide emissions; and
- the launch of a wide range of major studies, including the:

- Stern review of climate change economics;
- the DEFRA led climate change programme review;
- Treasury led consultation on barriers to wide-scale commercial deployment of carbon capture and storage;
- Eddington study of transport and economic growth;
- Baker review of land use planning;
- ODPM review of measures to reduce emissions from existing building stock; and
- DTI Review of micro-generation prospects.

On a Wales Level:

- High UK energy prices have a disproportionately large impact on Wales as we have a larger proportion of heavy industry than the rest of UK;
- Energy costs to UK industry are now among the highest in the EU. Welsh manufacturers have voiced their concern that if this continues they will become uncompetitive;
- South Wales already pays the highest UK domestic electricity prices, though this situation may ease as more generation comes on line as a result of proposed new power station build .
- We are still in the early stages of realising the potential for renewable energy in Wales.

## **Pursuit of Diversity**

The quest for affordable, safe, secure and sufficient supplies of energy for the last 100 years has been a major risk-management exercise. For the reasons outlined above, the management of risk is becoming increasingly complex and the importance of pursuing diversity is becoming ever more apparent. As we look forward, there is a wide range of options which might be pursued in the short, medium and long term. In Wales, the medium term options which are of greatest interest include the following.

- The pursuit of renewable energy production both at the large scale and through micro-generation at the individual building level. Whilst wind energy, especially that based on-shore, is currently the most commercially attractive, bio-mass energy (including that from waste) and marine renewables in Wales have considerable potential and are currently being supported through the use of Structural Funds. In the longer term, solar photo-voltaic systems may have an enormous potential
- The exceptional opportunity presented by building the Severn Barrage between Lavernock and Brean Down. Whilst costing £10 billion plus on current estimates and raising many local but serious environmental issues, the barrage would be equivalent to 2 nuclear power stations operating continuously, lasting not 40 years with a questionable legacy but operating for 150 years plus and throughout its life:
  - producing zero-carbon electricity on a totally predictable, low cost and reliable basis – which may have considerable long term financial investment attractions in the current economic climate;

- whilst not conserving the existing environmental regime (which in any case will be disturbed by global warming effects) may have the potential to significantly enhance the biodiversity of the Severn Estuary; and
  - providing further flood defences as the effects of global warming come into play.
- While the construction of any barrage would require overcoming some very serious European Commission driven environmental legislation constraints, it is now considered appropriate to re-examine the Severn barrage proposals in depth.
  - The growth and use of energy-related bio-mass, with its capacity to produce heat, electricity, vehicle fuels and new chemical food-stock. Although the potential production volumes may be limited because of land availability considerations, bio-mass in the form of waste, forestry, energy and chemical food-stock crops offers:
    - energy diversity and "storage";
    - low-carbon electricity, heat and transport, alongside;
    - agricultural, supply chain and research opportunities.

This may well be an area where the energy requirements of the public sector in Wales could facilitate confidence in associated agricultural investments;

- Clean coal and ‘carbon capture and storage’ (CCS) technologies, although they will be developed on the world stage, if applied to new and existing fossil-fuel stations could greatly assist us in fulfilling the Welsh Assembly Government’s sustainable development duties. There is no doubt that large-scale fossil-fuel stations will remain the mainstay of electricity production in Wales for the next 20 years plus and therefore pursuing these opportunities at the research, demonstration and full commercial levels should be a high priority.
- Also attractive may be other new technologies for extracting energy from underground coal reserves, which, if combined with carbon capture and storage, could create a major indigenous low carbon energy source. In the short to medium term, supplementing conventional coal extraction methods, there is some energy generation potential from coal bed methane and enhanced coal bed methane projects. In the long term, there are considerable deep coal reserves from which the energy could be extracted by gasifying the coal in situ (underground coal gasification (UGC)).
- Nuclear, both fission in the medium term and fusion in the long term, could play a strong role in the pursuit of diversity and low carbon electricity production but, from the risk management perspective, these technologies bring other issues into play. These include:
  - dealing with the very long term radioactive waste legacy;
  - with fission, nuclear weapon-material proliferation concerns; and
  - the risk, low but not zero, of accidents or terrorist actions, possibly leading to the creation of non-inhabitable areas.

These issues are being explored, along with the estimates of true economic cost, in the UK Energy Review, the findings of which we await with interest. However, at the moment based on existing knowledge as discussed in the 2003 UK Energy Review, we believe that sufficient other new electricity generation will come on stream in Wales over the next 10-15 years to make the pursuit of new nuclear build unnecessary from our medium term perspective. We do, however, recognise the importance on a shorter timescale of the continuation of the existing Wylfa nuclear power station, especially in respect of its synergy with the nearby Anglesey Aluminium Metals operation. The issues surrounding the extension of the life of Wylfa are currently being re-examined by the Nuclear Decommissioning Authority.

Last, but of great importance, there are the issues surrounding:

- building and process energy conservation measures;
- the installation in buildings of micro-generation (especially non-fossil fuel driven systems); and
- the use of highly fuel-efficient vehicles.

All have the tremendous attraction of reducing energy demand, and thus energy costs and related emissions, and simultaneously decreasing the vulnerability from the disruption of conventional oil, electricity and gas supplies.

Whilst the programme outlined in Energy Saving Wales, and the establishment of the associated internet portal, provides a sound base for the pursuit of energy conservation, we accept that, alongside programmes such as HEES and the activities of the Carbon Trust and Energy Saving Trust in Wales, more needs to be done. Somehow we need to enable many more champions to successfully ensure that as many people as possible in Wales understand the importance of conserving energy and minimising carbon emissions and know that there are quality and affordable remedies available.

With micro-generation, as well as overcoming the public-resistance issues, in many instances significant further technology developments are required to enable large-scale deployment. A new Wales micro-generation strategy is in preparation alongside the associated DTI plan. We are looking for the most effective ways of :

- raising public awareness and knowledge;
- increasing the capacity of our installation businesses;
- further developing our a micro-generation equipment industry
- promoting best practice in all sectors of our communities.

With transport, policies which might enhance a more environmentally friendly transport system are under review.

## **Private-Public Sector Partnerships**

Putting together the diversity puzzle can only be achieved through a strong partnership between the public and private sectors, between Whitehall, the Welsh Assembly Government, local authorities and in some instances European Commission. The nature of the partnership may well vary according to the task in hand, with for example the pursuit of greater energy efficiency involving a very wide range of partners indeed, including the general public. On the other hand, there are some basic principles which need to be borne in mind.

- First, since we operate in a free market system, we clearly need to seek a framework in which private sector decisions emerge in line with public policy goals. At present we hope the final version of the energy route map in conjunction of the outcomes of the UK energy review will fulfil that role.
- Second, the importance of having a common vision, hence the need for clear strategies, including the energy route map and the energy strand in the proposed new Wales science policy (for which the consultation period has just ended), if possible implemented and further developed with the help of expert discussion fora and effective communication campaigns.
- And third, because the focal point at the individual project level of this private-public sector partnership is often the planning application, we need to ensure we have planning processes in Wales which are as effective as possible in taking notice both of local views and national needs.

## Way Ahead

Last summer we consulted on the energy route map. Its contents were based not only on the findings of the 2003 UK Energy Review and the preceding Cabinet Office/PRU Review, but also extensive discussions with stakeholders, including those which occurred as part of the Economic Development Committee review in the first Assembly term. We have already amended the activities as described in the first version of the Energy Route Map as a consequence of the consultation responses and the discussions at the Ministerial chaired energy summit just before Christmas. For example, the case for the extension of the life of Wylfa power station is being pressed.

Looking forward, the final version of the Energy Route Map, which is scheduled for production in the summer, we will take careful note of the findings from the current UK Energy Review, with which we are maintaining close contact. Under the auspices of the route map we are currently preparing a micro-generation strategy for consultation and undertaking extensive exploratory work on the prospects for biomass energy.

Finally, with the merger of the Welsh Development Agency into the Welsh Assembly Government a core Energy Wales team is being created and an integrated regional energy- project support approach being developed. This is being done to ensure that Welsh Assembly Government resources are used as effectively as possible in support of delivering our energy policy objectives, both at the strategic and project level – through which some £4/5 billion of investment in Wales is being pursued. On the wider canvass within the Welsh Assembly, close working will take place between the new Department of Enterprise, Innovation and Networks and other relevant Welsh Assembly Government departments,

including the Department for Environment, Planning and Countryside, and the Spatial Plan strategic support teams.

**Action for the Economic Development and Transport Committee**

To consider this report and offer comments.