

May 16, 2005

**Comments on the DCMNR April 2005
Consultation Paper on
Energy Research, Development and Demonstration
Centre for Renewable Energy at Dundalk IT**

Overview

The Department is to be congratulated for initiating consultation on a subject that is critical to national interests moving forward. The consultation paper is timely in the face of rising oil prices, as well the need to address our Kyoto commitment on greenhouse gas emissions. Focused and co-ordinated research in the areas of energy technology and energy policy is needed to help chart a way forward for an island that on the one hand is effectively at the end of a long and narrowing fossil fuel pipeline, and on the other has vast untapped native energy potential.

We are facing a crisis in energy supply in the near- to medium-term. A recent Danish Society of Engineers study concludes that a world oil production peak is imminent, and that “The trouble is that no realistic technological, economic and political strategies for the warding off of the impacts of a decline in conventional oil supply are in sight.”¹ Ireland is fortunate that a strategy based on renewable energy is available to us, offering a competitive advantage that most nations do not have.

In general what is needed is the initiation of a process resulting in a common vision of national goals at certain dates moving forward, and then an energy programme (including RD&D) to realise that vision. Possibly **one of the first outputs of the this new energy body should be the development of this common vision, and to then put RD&D needs in that context.** The successful execution of such a process is a critical and pressing national need. Initial efforts have begun with such projects as the ongoing ECCO model of the Irish economy.²

The following subjects and related comments are addressed in the order presented in the consultation paper.

¹ Society of Danish Engineers and the Danish Board of Technology, March 2004: *Oil-based Technology and Economy – Prospects for the Future*, p.5 (www.tekno.dk)

² Crane and Staudt, 2003, *Simulating a Sustainable Ireland*, from [Before the Wells Run Dry](#), edited by Richard Douthwaite

1. Institution and Governance Options

We would agree with the concept of establishing an energy RD&D co-ordination council.

An interesting model for governance is provided by Questor, at Queen's University Belfast. We understand that they have industry "subscribers" who provide funding in return for a seat on the board that determines research direction. Possibly a **public-private partnership version of that model** could be used in this case. Private funds would come from businesses to the energy council in return for a say in the disbursement of the funding (possibly through representation on the council) and/or for access to the research results prior to their public release. Industry participation would provide a practical and more immediate value-for-money focus, while government participation would provide a longer-term strategic view. We must be careful to include a mix of public and private decision-makers in order to ensure this new body is dynamic.

The involvement of both SEI and SFI on such a council is essential. SFI should add an energy strand to its programme as a national priority.

2. How to increase all-island energy RD&D collaboration

The energy RD&D affairs of the UK are essentially their own, but the goal of co-ordinating efforts as much as possible between the two constituencies should be fostered. To that end we should **physically locate our energy RD&D body on the border**. In addition to facilitating high-level collaboration in whatever way is determined in discussion with our NI colleagues, this will facilitate the accessing of cross-border funding. It would also be important to not have the council locate at a university, but rather at a "neutral location" or where university researchers would gather as equals.

3. How to maximise the benefit of EU Framework Programme funding for Irish energy RD&D

This process will become easier once we have significant energy RD&D capacity and facilities. It is our vision that Ireland, due to its large renewable energy resources, will naturally become significant in the EU energy scene in due course as it follows a focused development plan for RD&D in its renewable energy resources.

The areas of wind, wave and bio-energy are the primary Irish RE resources³, and so these areas along with grid integration and overall energy policy should be the five primary areas in which we should focus R&D resources. Ireland will be the first major grid in the world to face large penetrations of renewable energy, and we can and should become experts in this area. Our energy future will demand such expertise, and in due course we will be recognised within the EU energy R&D scene as major contributors in these areas. A substantial national investment in developing this expertise will allow us to make significant contributions to large EU programmes.

³ ESB International and ETSU, March 1997: *Total Renewable Energy Resource in Ireland*

4. How to integrate Irish the energy/environment interface vis a vis RD&D

A market for renewables will provide the greatest stimulus for R&D, as has been shown in other countries where substantial RE programmes are in place. These programmes in various ways assign economic value to the environment and supply security benefits of renewable energy. **We should stimulate a renewable energy market, possibly initially through a time-limited fixed feed in tariff programme.** This will result in a practical need for R&D, e.g. in grid integration and product development. By giving value to the environment in this or other ways, the energy/environment interface would be strengthened and integrated.

Alternatively or additionally, **the DoE should have a representative on the proposed energy council.** The DoE should be one of the significant sources of energy R&D funding for the council, and therefore would be able to foster RD&D projects which offer particular environmental benefits.

Other government departments (agriculture, transport, etc.) should also have a presence on the energy council, as the development of a sustainable energy future would benefit from their input.

5. Short term vs. long term RD&D

As is the case with all of the above, the vision for Ireland's energy future will determine perceived short term and long term energy RD&D needs. In our view Ireland (and all other countries) will find it necessary to cope with a peak in world oil production within the next decade. The seriousness of this likelihood cannot be overstated, and the most prudent and conservative response is to use the precautionary principle and develop native energy sources ASAP.

Virtually all of our energy RD&D funding should support the urgent development of a sustainable energy economy for Ireland. This of course would consider such items as energy conservation, transport, and the appropriate use of fossil fuel energy as a transition fuel in various ways.

Research in the short term would be in energy policy, grid integration, wind energy, and bio-energy. Energy for transport also needs to be addressed in the short term owing to the urgency of the problem. Wave/ocean energy is medium term, while research into such things as the hydrogen economy is longer term.

6. How to better co-ordinate public and private RD&D efforts

As has been mentioned above, **the proposed energy council must have members and contributions from industry.** This keeps industry intimately in touch with energy RD&D, solicits their expertise and financial support, and would take their needs into account. Such membership would have to be carefully designed to avoid undue influence from any one industry. The overall interests of the country are paramount.

7. How to build energy capacity in the Irish RD&D community

There is a need for capital investment in a variety of **world-class Irish energy R&D facilities**. Without such facilities we cannot conduct significant research. We agreed above with the IEA recommendation to focus R&D investment in a few primary areas, and to that end we need to establish national energy R&D facilities at several locations which would provide focal points for various types of energy research. These facilities would be available to researchers island-wide at known fees. This would foster collaboration, as energy researchers from around the country would meet at these centres during the course of their research. Once the facilities are established, then we would agree that funding for R&D work could be made available on a competitive basis.

For example, research into the development of the electricity grid could be focused at UCD, and significant facilities developed there. In the case of wave energy it might be UCC. In the case of wind energy Dundalk IT, etc. A particular facility would be managed by the institution where the facility is located, but research by any group could be carried out there at known rates, which would be integrated into R&D proposals.

Funding awards would favour collaborative projects. Given the limited population of researchers at universities and elsewhere around the country, our strategy should be to gather the best and brightest minds to work together at world-class facilities. **Baseline funding should be provided for permanent researchers at third-level energy research facilities.** This will allow for the strategic retention of a minimal level of Irish energy research expertise

Conclusions

- One of the first outputs of the this new energy body should be the development of a common vision for a sustainable energy future for Ireland, and to then put RD&D needs in that context.
- The establishment of a public- and privately-funded energy research council on the border of NI and the Republic will foster an all-island dimension to the research.
- The areas of wind, wave and bio-energy are the primary Irish RE resources, and so these areas along with grid integration and overall energy policy should be the five primary areas in which we should focus R&D resources.
- Giving market value to the environment will effectively result in the integration of energy and environment. Also, to this end the DoE (and other relevant departments) should have a representative on the proposed energy council.
- Virtually all of our energy RD&D funding should support the urgent development of a sustainable energy economy for Ireland.
- The proposed energy council should include membership and seek financial support from industry (in addition to academia and government).
- We need to establish world-class energy R&D facilities at several locations to provide focal points for various types of energy research.
- Baseline funding should be provided for permanent researchers with third-level energy research groups to facilitate energy research expertise stability/continuity.

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