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For the attention of the Irish Energy Research Council (IERC) Secretariat, Energy Planning Division, Department of Communications, Energy and Natural Resources (DCENR), 29-31 Adelaide Road, Dublin 2

Response to An Energy Research Strategy for Ireland

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Summary

The IERC/DCENR research strategy for Ireland is an important and timely document. As outlined in the recent government report, climate change is one of the greatest challenges the world faces. The EU and Ireland seek to reduce greenhouse gas emissions by at least 20% (but possibly up to 30%) on 1990 levels by 2020. Under the Kyoto Protocol, Ireland must also limit its annual greenhouse gas emissions for 2008-2012 to 13% above the 1990 level. In addition to climate change, concerns about the rising price of oil (today at \$140 per barrel), the end of oil and the security of its supply mean that a secure, economic, sustainable, energy supply is now critical for our nation, for all citizens of Europe and the world.

The IERC's vision is articulated as: "Ireland meeting its energy system requirements in a manner that addresses the challenges of energy security and environmental sustainability informed, underpinned and facilitated by highly motivated and strongly coordinated teams of energy researchers of world class standard operating in a stable, adequately resourced and continuous research environment". This is indeed what Ireland must strive for; the DCENR and the IERC ought to be congratulated for initiating this process now.

Criteria for Prioritisation of Research Areas

Section 2.1.4: "However, it is possible that Ireland could develop strong market positions in niche areas – for example, in renewable technologies with widespread potential application in Ireland where no other country yet has a dominant position, in software or in intellectual property. There is a rapidly growing market worldwide for energy management services, and Ireland could build successful business ventures within such a market".

In Section 2.1.4, it is stated that Ireland can develop strong market positions in niche areas such as renewable technologies with widespread application in Ireland but where no

other country has a dominant position in software or intellectual property, for example in energy management systems.

While the idea of Ireland playing an enhanced role in energy research is a welcome idea, it is not enough for the nation to focus on technologies with minor global impact such as wave or unproven technologies such as bioenergy. Not if the stated aim is to achieve an Ireland that meets its “energy system requirements in a manner that addresses the challenges of energy security and environmental sustainability informed, underpinned and facilitated by highly motivated and strongly coordinated teams of energy researchers of world class standard operating in a stable, adequately resourced and continuous research environment”.

Ireland must research technologies that will be of most *utility* in meeting the IERC’s stated aims, regardless of whether or not other countries have a lead on us. Niche technologies within the renewable energy space will of course form a part of this research. To start a research endeavour, where the outcome cannot be predicted, by choosing to ignore the most likely technologies is a very risky strategy¹.

Section 5.1.1: *“The extent to which there are existing proven research strengths in Ireland, adequate for building a meaningful programme of further research in a given field”.*

In Section 5.1.1, the ICER outlines the criteria for selection of research areas of greatest relevance to Ireland. While these are for the most part sensible, it is not brave enough to state that we should only choose to fund areas in which we have proven research strengths. As acknowledged elsewhere in the report, we are not starting from a very high level of activity in energy research and it seems unimaginative to limit our research to areas in which we already have proven strengths. Again, the focus should be on areas that will be of most utility to Ireland (and the world if we are to maximise social and economic benefits).

It is important to remember that renewable energy research is a cross-disciplinary topic and can only be tackled with significant interaction between disciplines, or *intellectual fusion*. We have research workers and resources that may not be currently classified as energy related but which can contribute to aspects of the energy problem. Indeed, these workers may contribute significant insights if they can be encouraged to be part of a larger effort.

Section 5.1.1: *“The extent to which research activity in the given field/topic would be likely to represent value for money, especially recognising that significant public funds will be invested in priority areas, and recognising the scale of the R&D effort outside of Ireland”.*

¹ By way of a topical similar example, New Zealand has been in the news recently as it faces possible power outages due to an over-reliance on hydro-electric power together with a lack of rainfall.

This is absolutely sensible. It does not seem sensible, however, to limit the nation until 2013 to research in areas where we have a track record as of 2008. Our energy research programme as a nation is still young enough to start on completely new topics and it will be of most use to concentrate on technologies that will have the most utility. This includes representing the best value for money, i.e. to have the most impact in achieving the aims of this strategy.

Strategic Lines of Activity

Section 5.2.1: *“Energy RD&D in a limited number of sector-specific fields as follows: Ocean Energy, Grid / Infrastructure, Energy in Buildings, Energy in Transport, Sustainable Bioenergy”*.

While work should of course continue in all areas of energy research and this strategy document is most welcome, we believe that the focus should be on areas that will have most utility for Ireland and the world in the future. These must include solar and wind technologies among the list of competing technologies.

Solar and Wind

It is interesting that the word “solar” is mentioned only twice in the document, in Sections 2.1.1. and Section 9.2.1. In Section 2.1.1., solar is mentioned together with wind and bioenergy as a technology that needs to be implemented rapidly. In Section 9.2.1, solar is mentioned as a possible future area of support.

It is our contention is that solar technologies are among several important technologies including wind, together with the list of IERC priorities, which are of significant value for Ireland’s future. At a recent Royal Irish Academy Conference, *“Where Will Ireland Get Its Energy From?”*, addressed by Minister Ryan, one slide of note was presented by Shell. In it, Shell’s Energy Scenario Team shows its estimate for the non-nuclear renewable resources available for energy conversion. Central solar photovoltaic (PV), solar thermal, onshore wind and biomass are the clear favourites. Nuclear technology is, of course, another option that must be discussed, even if never deployed in Ireland.

Strategic Line 4 – Watching Brief

Section 9.2.1: *“There are many fields of energy research that are not included in the Council’s recommended areas for support, but that may be of relevance in developing a sustainable energy system on the island of Ireland.*

Examples include renewable energy technologies such as offshore wind and solar heating and cooling, electricity production from photovoltaics, advanced coal technologies, carbon capture and storage, mid-scale energy storage technologies, transport technology options and efficient end-use technologies”.

In Section 9.2.1, the IERC mention that a watch must be kept on new technologies; while this is welcome, we must insist that the technologies mentioned are already demonstrably important and that in fact at least one, solar thermal and PV, is fast becoming a winning technology that Ireland needs to engage with at a research level if we are to benefit socially and economically from it in the future.

Strategic Line 5: Identifying and Mapping Ireland's Energy Resources

In Section 10.1, the IERC state that we need to identify and map Ireland's energy resources. This is a commendable idea. However, it is surprising to see that the IERC limits this proposed mapping to oil and gas! Surely the idea is that Ireland needs to do away with oil and gas power completely in the future in order to achieve its stated goals for climate change and energy security! While it is important for us to know about, and use these supplies, if appropriate, a mapping of *renewable* resources will of the most importance for the country and the IERC must encourage this.

IMPLEMENTATION AND COORDINATION

Section 12.1.1: *“There are some administrative, programme and coordination activities that would most appropriately be carried out by SEI as Ireland's national energy agency”*.

Section 12.2.5: *“The Council recognises the overarching need for coordination, taking account of the many bodies and agencies involved. The Council is conscious that its own remit provides for such a coordination role”*.

We agree with this. We also suggest that there is a role for advisory councils to the IERC to be drawn from the universities, technical institutes as well as industry.

Section 12.3.3: *“The fact that strict application of peer review, in the same way as in the academic case, can pose difficulty in the cases of energy research projects in demonstration and policy relevant areas should be taken into account in this regard, with a more nuanced approach to be defined for such projects ...*

... All major research programmes and projects should incorporate strict ‘Go/No-Go’ milestones, such that if goals are not being met, funding should cease”.

These suggestions are sensible. We would go further and say that a more nuanced approach should be applied to applications for funding for all energy related research, not only in demonstration and social policy. This is for the reasons already outlined, i.e. that researchers who can make significant contributions to the energy problem may have a track record in areas which are not explicitly energy related.

The idea of Go/No Go milestones is also a positive recommendation.

Conclusions

In Section 3.2.6, it is mentioned that significant funding has been allocated in 2006-2007 through the Charles Parsons Awards. While this is very welcome, it should be noted that the 2007 Charles Parsons Awards were cancelled quietly. It is more important now than ever before that these good intentions are followed through with real funding.

We urge the IERC, the DCENR and funding agencies to re-consider its list of prioritised research areas and to include research into technologies that will be of most utility in the future. We urge the IERC, the DCENR and funding agencies to promote a truly cross-disciplinary implementation of their strategy, drawing on the skills of as many researchers as possible.

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