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By e-mail

Friday, 22 November 2013

RE: 'Consultation on RES Exports Co-ordination Options'

On behalf of the Dublin Array project, I would like to make the following recommendations in relation to the consultation on "***RES Exports Co-ordination Options***".

- We suggest that the export project be divided into two phases. Phase 1 Offshore is the export of offshore wind energy from Ireland. This initial phase will require a simple Irish Sea collector network, almost all of it offshore. Phase 2 Onshore is the addition of the onshore export resource. This phasing is entirely natural because the Phase 1 Offshore projects are both further advanced than Phase 2 Onshore projects (by several years) and are also more beneficial to the Irish economy, as has been pointed out to the Department (see attached KHSK economic briefing note).
- Dublin Array is of the view that the five offshore developers who are in the existing foreshore permitting process can form a Phase 1 Consortium to finance and deliver Phase 1 Offshore. We suggest that NOW Ireland is the natural co-ordinating body for this purpose. It would be logical that a similar Phase 2 Consortium of onshore developers also be established in time.

Conclusions:

1. We recommend a Phase 1 Offshore to ensure delivery to the UK by 2020
2. We suggest that the two Governments create the investment environment and that a Phase 1 Consortium build the collector network
3. The Governments' focus should be on creating an investment environment that will immediately attract the necessary €10-15 billion of investment

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ECONOMIC CONSULTANTS

Economic Impact Issues for a CBA on the Export of Onshore and Offshore Wind Energy

September 2013

Current Developments and Context

Under the *Renewable Energy Directive*, the UK was assigned a target that 15% of energy would come from renewables by 2020. The British Government has set an objective that over 30% of Britain's electricity will come from renewable sources by 2020, but research has indicated that the UK will require this to reach 40% if the energy target is to be met[1]. Achieving this will require up to 20GW of installed offshore capacity in the UK. This target appears increasingly ambitions. At the same time, Ireland has a wind resource that is more than adequate to meet any future projected demand creating the potential for this resource to form the basis of energy exports.

This briefing note has been prepared by KHSK Economic Consultants at the request of NOW Ireland[2]. The potential for renewable energy to become an important export sector for Ireland has been given a significant boost by the Memorandum of Understanding that was signed by Ministers from Ireland and the UK in January 2013 and by ongoing work to develop policy and implement a renewable energy export strategy. KHSK understands that part of this work will examine the relative costs and benefits of different renewable technologies and will provide a planning framework to guide planning decisions in relation to individual projects. These developments mean that it is important that the relative economic impacts of different wind technologies are fully incorporated into the policy development process.

Economic Impacts of Onshore and Offshore Generation

The development of the wind sector to date has depended heavily on the policy environment as a result of crucial factors such the need for grid access, planning requirements and because of cost factors. The commercial cost of onshore wind has moved close to being competitive with traditional electricity generation technologies and is competitive when all lifetime and external costs are included[3]. However, despite the extent of the onshore resource, it is also clear that planning issues are becoming increasingly more difficult with the extent of local opposition not abating despite the economic potential.

The resource represented by the alternative of offshore generation is a multiple of onshore, but its development has been limited to date primarily due to cost considerations. Depending on the location, and despite improved cost efficiency,

[1] UK Energy Research Centre (2010) *Great Expectations: the cost of offshore wind in UK waters*.
[2] KHSK Economic Consultants was founded in 1997 and has undertaken numerous economic consultancy assignments in an independent capacity since then. These have ranged across many sectors of the Irish economy with a number in the area of renewable energy. The consultancy has particular expertise and experience in policy evaluation, investment appraisal and cost benefit analysis.
[3] Meitheal na Gaoithe (2013) *Embedding Sustainability*. Report prepared by Jennings O'Donovan

offshore costs lie in the range of 1.5 to 3 times the onshore level[4]. Along with technological development, improving the economies of scale associated with offshore generation will assist in reducing these costs, but cost competitiveness with conventional generation fuels and technologies remains some way into the future.

These commercial realities mean that a substantially higher price is required to incentivise the investment in the offshore capacity that is required if a country such as the UK is to meet its targets. Given this, the UK has published draft strike prices for the period 2014-1019 for electricity from different renewable sources with variation in the price depending on the energy source[5]. A total of 14 different price bands were published, depending on the technology. For onshore wind, the 2014/15 price has been set at £100 (€119) per MWh, and at £155 (€184) for offshore generation. This use of a banding approach is aimed at keeping prices to consumers as low as possible while incentivising investment to meet targets.

Together, these policy developments provide an important opportunity for Ireland as the national source of the energy is not specified, and could not be taken into consideration under EU law, when determining the price to be paid in the UK market. Therefore, ensuring a high export capacity for offshore generated electricity on the interconnector to the UK would maximise the revenue stream for Ireland without any additional transmission costs. This is a big benefit of targeting Irish policy towards developing offshore capacity.

A second important economic benefit of offshore generation over onshore arises as a result of the extra costs that are involved. Information from industry sources and published material indicates that capital expenditure for onshore capacity is approximately €1.5 million per MW installed, but is likely to be close to €3.5 million offshore given the resource in Irish waters. Labour costs would account for in the region of 20% of this expenditure, when professional costs are included, thereby providing incomes of over €700,000 per MW in offshore construction. This compares favourably with incomes from employment in the region of 375,000 per MW from onshore construction. Operating expenditures are also much higher with offshore amounting to around €70,000 per MW per annum (40% of revenue), compared to €40,000 per MW (25% of revenue) for onshore. Thus, the employment content of offshore is about twice that of onshore in the construction phase and 1.75 times during operations.

This is particularly important as these are permanent skilled jobs that arise without imposing additional costs on the exchequer or economy. Indeed, if it is assumed that the income tax take from operating employment is similar in respect of both

[4] Karst, T. (2012) Cost Reduction in Offshore Wind. Presentation to Offshore Wind International Business2Business Event, Esbjerg.

[5] Department of Energy and Climate Change (2013) *Electricity Market Reform: Delivering UK Investment*. Report presented to Parliament, June 2013

technologies then exchequer revenues will also be higher, in similar proportions, from offshore production. Furthermore, onshore technology is relatively mature so that material inputs can be mass produced and imported. However, this is not the case with offshore where there is a greater need for customisation to location-specific conditions and a greater scale is required. These features mean that a greater proportion of material inputs would need to be produced locally. As a result, not only is there a higher level of investment per MW with offshore, but there would also be a greater impact on the Irish economy from this expenditure for every unit of investment. This would increase the number of jobs created through multiplier effects and the tax revenues that would arise relative to onshore.

Conclusion

The potential to build an Irish energy export sector offers a valuable economic opportunity. It is welcome that a comprehensive planning and policy strategy is being developed to guide the economy in realising this opportunity. Decisions in this regard will affect the structure of the renewables sector that emerges, with the respective roles of onshore and offshore wind generation being very important. Although, offshore remains more expensive, its potential economic benefits are much greater.

A comprehensive CBA of the alternatives in the policy decision set, as with any CBA, must attempt to define the outcome that will be produced by a particular course of action relative to a different possible course. This is important since the costs that are identified with undertaking a particular course must also include, as opportunity costs, any benefits that would have arisen if an alternative option had been chosen. This ensures that if net benefits are found then not only is there a gain, but that the gain is maximised. Only by including the impact of this counterfactual into the assessment can it be determined that an optimal policy recommendation will result.

In the case of the export of renewable energy there are clearly two competing means of production – onshore and offshore generation. It is vital that the assessment includes the relative economic impacts of the two approaches. The economic opportunity is such that onshore generation will provide monetary benefits. However, this is an inadequate basis from which to draw a conclusion. **The evidence discussed above shows that offshore generation would have a much greater beneficial impact on the Irish economy without adding proportionately to the costs that would be incurred.** This means that there is a large opportunity cost to be included in any CBA that assumes onshore generation. As a result, there is reason to expect that, if an appropriate calculation is undertaken, a CBA that assumes a large input from offshore generation would provide a more beneficial cost benefit ratio.