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By e-mail

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

On behalf of the members of NOW Ireland, I would like to make the following observations in relation to the consultation on "***RES Exports Co-ordination Options***".

Ireland's green energy resource ready to export

The development of renewable energy has substantially changed the energy landscape in Ireland. A concerted programme of onshore wind development has led to one of the highest rates of wind generation per capita from wind anywhere in the world. By 2020, 42% of Irish electricity will come from renewable sources. We are on target to reach that target. The limit is set by grid constraint, not by availability of those renewable resources. There has been a growing realisation over recent years that Ireland's renewable energy resource could join agri-food and tourism as a major generator of sustainable export income. It is now expected that the UK would, in principle, accept up to 5000 MW of Irish green energy capacity by 2020. If supplied by offshore wind, this will bring an estimated return in taxes alone of well over 100 million euros per annum and a lifetime benefit to the Irish economy approaching 10 billion euros.

What element of the resource is most ready?

It is well-accepted that our wind energy resource is the largest, most competitive and most technologically developed of all Irish renewable energy resources. Within this wind resource, the onshore and offshore wind sectors have quite different characteristics and costs. Offshore wind offers vast scale at sea and turbines are generally several kilometres or more offshore; at 10 km from the coast, a typical offshore wind turbine will appear on the horizon at an apparent height of half an outstretched thumbnail. In contrast, onshore wind turbines offer cheaper power but are necessarily closer to people. An obvious policy question arises - which of these resources should be developed for export first?

The companies, including a number of semi-state enterprises, that are investigating the potential of the Irish midlands for generating wind energy for export have clearly demonstrated that very significant resources exist. However, as part of EU requirements, the Government plan for export of this onshore wind energy resource necessitates a Strategic Environmental Assessment (SEA). The Government has stated that this SEA will then form part of the plan-led approach to export of green energy. Only after publication of the plan and SEA can planning permission applications be made. The issue is that if the plan/SEA is published in 2016 and the subsequent planning permissions take another year at least, the time remaining to then construct the onshore projects and accompanying undersea cables is very short if power is to be delivered to the UK before the 2020 deadline.

In contrast, about 3000 MW of offshore wind energy is already well advanced in the permitting process. The necessary Offshore Renewable Energy Development plan (OREDPA) and associated SEA for the full national offshore resource has also already been completed. These are due to be published by Government this month. In other words, the offshore resource is substantially ahead of the onshore resource in terms of permitting. Put simply, Irish offshore wind is 'shovel-ready'. The seven year interval between now and 2020 is realistic (but not generous given the scale) in terms of getting the necessary work done to have Irish green offshore energy in the UK by 2020. Given the myriad complexities in arranging for a co-ordinated approach with new international legislative and regulatory structures required to underpin subsequent billion-euro investments, a shorter timescale would carry considerable risk.

Economic Advantage

However, the fact that Irish offshore is years ahead of Irish onshore is not the only difference between them. The sales revenue and employment per unit of electricity from offshore wind will be significantly greater due to the larger budgets needed for installing and operating wind turbines at sea. This means that, per unit of electricity exported, more revenue comes into Ireland from exporting offshore wind. This in turn means that the tax take for the State and the economic spin off for the economy generally is greater if we export offshore wind in the first instance. Furthermore, a greater proportion of offshore wind income would be recycled in the Irish economy. It is clear in any case from the briefing note prepared by KHSK Economic Consultants and presented to DCENR by NOW Ireland (see attached) that the economic benefit to Ireland from offshore is much greater than from onshore.

UK and Irish officials are currently engaged in negotiations on an Intergovernmental Agreement which will help shape energy policy between these two islands. As part of this process, the Irish Government has undertaken a Cost Benefit Analysis on the economic benefit of exporting energy. This analysis must consider the significant comparative benefit to Ireland of developing a resource that is both ready and delivers more benefit and it will need to recognise the opportunity cost of alternative approaches.

Policy Choice

The choice is a simple one: the onshore resource will be cheaper for the UK but with significant delivery risks while the offshore resource will be economically better for the Irish but without the same delivery risks. It will be in the interests of both the Irish and UK negotiators to signal that Irish offshore will be developed as Phase 1 and onshore export as Phase 2. It is imperative that we ensure, no matter what delays occur onshore, that we proceed with developing our considerable offshore resources.

This approach will deliver greater economic benefits to Ireland and will ensure that Ireland will not miss the limited window of opportunity that presents itself.

But we re-iterate that time is now very short for any exports to happen in time for 2020. It is necessary for the two Governments to agree a roadmap, which provides the lowest possible risk route to connecting and exporting. Uncertainties about connection methods and rules, market access and regulation need to be eliminated as soon as possible, in order for any projects to attract the large-scale investment required to make exports possible.

High Level Design

As an aid to establishing the type and degree of co-ordination needed, we suggest that this 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.

Phase 1 Consortium

NOW Ireland suggests strongly that the Phase 1 projects (offshore projects in the existing foreshore consenting system) would form a consortium where the individual members will each build their own generation project (co-ordinated by the consortium) and the consortium itself will build the Phase 1 collector network.

Actors' Roles

NOW Ireland suggests strongly that in principle, the Phase 1 Consortium referred to above will deal with the necessary co-ordination between developers as well as between developers and the respective Governments. We suggest that the role of the Governments should be to create the investment environment (tax, legislative, regulatory and EU matters) that will be able to attract the multi-billion euro investments required. This clear division of roles will be very necessary to show a clear path to market for prospective investors. We would also recommend that the Phase 1 Consortium and the Government and regulatory parties be brought together in a structured way over periods of 1-3 days to efficiently develop and agree an investment environment in which the projects would be commercially realistic.

Possible models for bringing about co-ordination

We favour option (d), a co-ordinated contractual authority. However, as alluded to above, we believe that this should be comprised in Phase 1 of all offshore wind projects that are in the existing foreshore permitting system. This Phase 1 Consortium would, in co-ordination with the two Governments, plan, finance and deliver Phase 1. There would inevitably be challenges in operating this consortium but we believe that the Phase 1 offshore projects would be able to manage this effectively without the necessity of having State actors as members of the consortium. We believe that the benefits of such an approach outweigh the competitive tensions referred to in the consultation document and that the complications (as listed) that naturally arise in any such consortium will need to be addressed in a comprehensive shareholders agreement or a similar document. We would feel that this element (intra-consortium issues) be left to the consortium. The Governments' roles can then be limited to working with the consortium to establish an investment environment that is fit for the

purpose intended - to obtain the participation in the export project of at least 10 billion euros of private capital.

Specific questions at end of document:

1. Do parties concur with the aims of an overall co-ordinated approach as set out?

Yes but on the basis set out above.

2. Given that co-ordination is desirable is there a preference as to the method, either as outlined in this paper or otherwise, by which such co-ordination should be effected?

Phase 1 Offshore developer-developer co-ordination should be via a Phase 1 Consortium of the developer parties (5 members)

3. Do the developers believe an independent third party designated by the Irish government would be beneficial or detrimental to effecting such co-ordination?

The effect would be detrimental; we do not believe that the involvement of a State actor would be required within the Phase 1 Consortium.

4. Are some of the mechanisms for effecting co-ordination likely to be more effective than others in achieving the aims of co-ordination as set out in the paper?

See point 3 above. We also believe that, given the short timescale to 2020 to organise such a multi-billion euro project, that negotiations between the developer and State parties on the establishment of an effective investment environment should take place over a defined period of days in a single location. This would shorten timescales considerably and would be in itself an important investment signal.

5. Are there further commercial issues which should be considered in determining the best means by which to effect co-ordination of the grid infrastructure to facilitate RES Exports?

It is very important that the financing and construction of the wind turbines and the undersea connections in Phase 1 be carried out by the same entity. Our suggestion is that this entity be a Phase 1 Consortium of the offshore developers in the existing foreshore process.

6. Are there particular risks that parties wish to flag and which the government should be cognisant of in developing an architecture to deliver co-ordination? How do parties see such risks being managed/mitigated?

The main risks in attracting the interest of investors with the appetite and capability for such projects are:

- insufficiently clear or attractive investment environment
- an unclear “path to market”
- unnecessary involvement of State actors in commercial decision making

7. Do developers see any issues arising from a requirement to co-ordinate and from the mechanisms to achieve this in relation to the rights and responsibilities under existing UK connection agreements? Would a requirement to co-ordinate have any implications on the process for awarding the CfD support?

We don't see that a well-designed framework will necessarily give rise to any such issues.

8. Given that co-ordination is desirable, please outline the sequencing you envisage, taking into account planning permission, authorisation to construct, licensing etc.

By referring to planning permission, this question appears to contemplate that the export framework is centred around onshore wind. We would like to reiterate that it is much more realistic to take a phased approach with Phase 1 being offshore export. The five offshore projects that are in the existing foreshore permitting system are significantly further ahead in respect of the permitting stages referred to in the question. However, of more importance are the stages in the permitting, procurement and construction of the undersea export cables. This sequence of events will be determined to a large degree by the proposition that the two Governments will make to the global investment community through the Intergovernmental Agreement.

9. What regulatory issues need to be considered under a co-ordinated network development approach?

This will be determined to a large degree by the proposition that the two Governments make to the global investment community through the Intergovernmental Agreement. However, in principle, there are three stages:

- The shape of the collector network is agreed between the various State agencies and the Phase 1 Consortium.
- The collector network is financed and built by the Phase 1 Consortium.
- The collector network is transferred to the TSO's (or other State entity)

Conclusion:

- We recommend a Phase 1 Offshore to ensure delivery to the UK by 2020
- We suggest that the two Governments create the investment environment and that the Phase 1 Consortium build the collector network
- The investment proposition from the Governments must be fit for the purpose of attracting 12- 15 billion euros of international capital

Yours Sincerely

NOW Ireland

Aidan Forde, Council Member



**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 met¹. Achieving this will require up to 20GW of installed offshore capacity in the UK. This target appears increasingly ambitious. 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 Ireland². 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 as 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 included³. 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 level⁴. 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 2014-2019 for electricity from different renewable sources with variation in the price depending on the energy source⁵. 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.