

# Export Policy

**A renewables development policy  
framework for Ireland**

September 2012



*Photos courtesy of the following:*

*Page 1: Slieve Kirk Wind Farm, SSE Renewables*

*Page 4: Bellacorick Wind Farm, Bord na Mona Energy*

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*Page 12: Arklow Bank Offshore Wind Farm, SSE Renewables & GE*

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A photograph of a wind farm. In the foreground, there are tall, thin green grasses with clusters of small, white, fluffy flowers. In the background, several white wind turbines are visible against a clear blue sky with a few wispy clouds. The turbines are slightly out of focus, emphasizing the natural elements in the foreground.

# 1. Executive Summary

## Executive Summary

The Irish Wind Energy Association (IWEA) believe that there now exists a realisable opportunity to significantly develop Ireland's wind resource, providing electricity to Ireland, to Britain through export and in the coming years to the rest of Europe. IWEA believe that delivering renewable energy in this way can lead to a major energy based industrial sector that will rival electronics, pharmaceuticals and financial in providing substantial and much needed jobs.

**This export policy document stands in its own right but is also intended to be an important contribution to a Government policy statement in the context of the forth coming Inter-Governmental Agreement.** IWEA is not seeking this opportunity to be funded by the Irish customer – the demand and payment will come from those who purchase our resources

Ireland has one of the best wind resources in Europe. This has been illustrated and confirmed in numerous, internationally-respected reports<sup>1</sup>. These reports outline that Ireland has one-third of all of North West Europe's renewable energy resources including the world's most energy intensive waves and Europe's highest wind speeds.

In recent years it has become clear that some EU Member States may not have the resources available to meet all of their targets, in a manner that would be as economically competitive, when compared to the generation of renewable energy by Irish onshore and offshore wind. This creates the potential for Ireland to meet the energy targets of these countries on their behalf, subject to energy transfer agreements.

It is clear that Ireland has a comparative advantage in terms of its wind, wave and tidal potential and it is clear that the country needs to make every effort to harness this bounty to meet both our own domestic needs, as well as to deliver an energy export industry.

Current Irish renewable energy policy aims to meet the vast majority of the country's 2020 RES-E (Renewable Energy Sourced Electricity) targets from onshore wind<sup>2</sup>. Ireland will however have abundant additional surplus onshore and offshore realisable in advance of 2020 which can provide an opportunity to develop an integrated market for the provision of carbon free electricity between Ireland, the UK and mainland Europe in advance of 2020.

IWEA believes renewable energy exporting is a significant

national opportunity that needs to be seized – facilitated by government and delivered by industry. The opportunity is for Ireland to deliver a sustainable industry becoming a leader in the development and operation of renewable energy. This opportunity can only be capitalised upon if there is a plan, a framework and support to realise both. IWEA believes that policy support exists both at National government level and European level via the EU Directive on the Promotion of Electricity from Renewable Energy Sources in the Internal Electricity Market (2001/77/EC), also referred to as the Renewables Directive co-operation mechanisms that can be utilised and put in place to enable this opportunity. Therefore it is incumbent upon the country to urgently develop short and long term plans, **establish a framework for delivery, and urgently set-up a steering group made up of industry and government to deliver on the country's potential.**

**The export opportunity will not be funded by the Irish customer – the demand and payment will come from those who purchase our resources.**

IWEA believes we need to set exporting renewable energy targets, with associated timeframes in an overall plan to realise Ireland's abundant renewable opportunities. This agreed plan should span all relevant government departments working in a coordinated way addressing the challenges we face as a country (i.e. large energy imports, a necessity for job creation and investment) and the resources that we have (abundant renewable resources, educated workforce, project delivery experience, financial services, and ICT know how) to not only overcome domestic challenges but in doing so develop skills, products and services to help other countries do the same. This is the spirit of the RES-E Directive Co-operation Mechanisms and initiatives that utilise the co-operation mechanisms are timely and welcomed as part of the European Commission's wider plans to integrate the EU energy market.

The scale of the potential Irish renewable energy resource is such that it will be essential to export the vast majority of our output. It is therefore crucial that the Irish Government in partnership initially with the UK government and the private sector work collaboratively on delivering this potential to the benefit of Irish and UK customers. As such, clear enabling policy statements and regulations are required in the areas of:

- Renewable energy trading;
- Transmission interconnection; and
- Market and regulatory integration

IWEA believes the approach for Ireland in terms of energy should be much more ambitious than what exists to date. As a nation we suggest a paradigm shift from a compliance-led approach such as *“What does Ireland need to do to meet EU 2020 targets?”*

To a more visionary approach

*“What is Ireland going to do over the longer-term to demonstrate and excel in this sector globally, create jobs and become more competitive?”*

IWEA believes that the export policy document addresses these matters.

## 1.1 Recommendations

The recommendations have an order of priority in terms of implementation. Market access is the key priority that will be delivered through and flow from the Inter-Governmental Agreement. The grid connection to Britain is next in order of priority. An issue that arises here is that of a connection to the Irish grid. This has the major potential benefit of a coupled system with Britain and a reduction in the price of electricity in Ireland when a given level of connection is achieved. Beyond those two key priorities lie the other recommendations that now follow.

IWEA make the following recommendations which can be enacted without cost<sup>3</sup> to implement Ireland’s renewable energy resources:

- IWEA calls for a joint government policy to **facilitate the achievement of at least 6GW<sup>(4)</sup> of wind energy** to be identified as a minimum deliverable export potential for Ireland in advance of 2020.
- IWEA recommends that we ensure that we have the regulatory and policy component in place to ensure that we meet our legally binding 2020 RES-E targets. The combination of the architecture of connection methodology and cooperation mechanism adopted for export should not materially compromise Ireland’s ability to meet its own domestic targets.
- IWEA asks that **any agreed framework should provide a mechanism for generators in Ireland to participate in the UK’s support system** initially and further in Europe in the future.
- IWEA recommends that Irish export projects supported and delivered in advance of 2020 in so far as this is possible provide the **advanced strategic infrastructure** for additional follow-on projects to emerge as part of the broader liberalised EU market beyond 2020.
- IWEA stresses the **need for interconnection capacity of scale** and the requirement of further interconnection to match Irish onshore and offshore resources. Ireland should seek EU funding in the EU 2014-2020 ‘Connecting Europe’ financial programme for advancing further interconnection and interconnection-related assets as part of the move to integrate Ireland more robustly to the EU energy market.

- There is a need for a National ocean environmental statement. This should be facilitated in the impending 2012 OREDP (Ocean Renewable Energy Development Plan) without delay.
- IWEA proposes that Ireland [develop a round approach](#) as in oil and gas [for offshore renewables](#) consistent with the Ocean Wealth approach.
- This approach should be facilitated in the impending 2012 OREDP (Ocean Renewable Energy Development Plan) without delay.
- IWEA calls for the [creation of renewable energy divisions in the IDA, Enterprise Ireland and ForFais to promote Ireland as the renewable energy hub of Europe](#) securing investment and jobs. The fact that Irish energy policy should deliver certainty for a number of projects in the GW scale realisable in advance of 2020<sup>5</sup>, should be sufficient to attract a turbine manufacturer or balance of plant facilities to the east coast or south of Ireland.
- IWEA states that with the export potential of Ireland and the existing proven track record in the provision of fund services [Ireland should facilitate the creation of a centre of excellence for Green Finance](#) in the area of project financing opportunities and green funds management.
- Proven technology is currently available to develop wind energy projects both onshore and offshore. Notwithstanding this IWEA calls for a [specific R&D programme](#) to begin in 2013 to include, in particular, floating turbine technology and the potential as identified by SEAI in demonstration facilities. To capitalise fully on the country's renewable resources enabling technologies need to be encouraged through pre-commercial demonstration and defined "route to market" processes. In addition [marine market support should be provided for demonstration/pre-commercial projects less than 15MW](#). Clarity on this regime is required now to build longer term confidence in the sector.
- IWEA believes that 2030 [EU targets are required for wind and marine energy](#). Ireland should take a leading role in defining these during the EU presidency in 2013.
- Finally IWEA request the [establishment of a Government / Industry Implementation Group](#) to maximise the opportunities for Ireland from exporting renewable energy by bringing in the necessary private and public stakeholders and agencies, private capital, determine the goals and then lead the implementation. IWEA is willing to take a leading role in this process. This group could play an advisory role in the process for the Inter-Governmental Agreement currently being negotiated.



## 2. Ireland's Resource



## Ireland's Resource

Ireland is fortunate to enjoy one of the best onshore and offshore wind regimes in the world and has a major resource in the wave and tidal sphere. This energy potential combined with our conventional generation capacity is likely to substantially exceed Ireland's demand requirement by the order of approximately 6000MW according to EirGrid's 2011-12 Generation Capacity Statement<sup>6</sup>.

Development of an export industry to make best use of this resource must, therefore, be a vital component for Ireland's long term energy strategy. The fact that Ireland has a competitive advantage in this area, in terms of wind and ocean scale and scope, means that realisation of a major export and of a major job creation opportunity is credible, achievable and sustainable. IWEA wants to form a partnership with Government to deliver the actions now necessary to see this previously unexploited potential become a reality, which will ultimately produce major revenue sources and jobs.

Ireland's resource in onshore wind, offshore wind and in wave and tidal capacity is extraordinary both in Irish terms and importantly in international terms. It is estimated that Ireland's resources that are realisable in the coming decades are:

- Onshore wind 20GW
- Offshore wind, east and south coast 50GW

**Note:** It is also estimated that there is an overall offshore resource in the order of 1920GWs on the west coast.

### 2.1 Offshore

The capacity to produce electricity from wind offshore from the Irish coast has been analysed on a number of occasions in particular by Garrad Hassan in February 2011<sup>7</sup>. This report concludes that:

*"Even with very conservative allowances for social and environmental constraints, there is an enormous offshore wind resource in the Irish EEZ [Exclusive Economic Zone], even within 50m water depth."*

The potential offshore wind energy identified by GH is as follows.

Water Depth Range	Installed Capacity [GW]
0-50m	78
50m-100m	178
100m-500m	618
500m-1500m	292
1500m+	806
Entire EEZ	1,971

*Irish Offshore Wind Resource at water depths*

### 2.2 Onshore

Taking into account some very recent studies, the Wind Energy Roadmap study<sup>8</sup> undertaken by SEAI outlines that, "Given favourable developments in policy and infrastructure, Ireland can achieve deployment of between 11GW - 16GW of onshore wind and 30GW of offshore wind by 2050."

Ireland's resource is not just about quantity, it's also about quality. Irish onshore wind even in low lying areas using modern Class 2 and Class 3 wind turbine technology is very productive compared to sites with similar elevation and topography on continental Europe. Bringing Irish wind energy resources to neighbouring markets is now both relevant and timely for the following reasons:

- Ireland has a comparative advantage; wind turbines in Ireland produce more energy than on similar sites in most other countries.
- Irish onshore wind in many cases is the same distance or closer to the UK shoreline than many of the Crown Estates Round 3 zones.
- Irish Offshore and Onshore Projects can be delivered cheaper than some Round 3 UK Projects<sup>9</sup>
- We have an excellent wind resource with low population density
- Delivery of onshore wind projects is more challenging in the UK
- The UK needs to deliver 18 GW of wind energy before 2020

## 2.3 Wave and Tidal

Ireland has a very large natural ocean energy resource with the ocean energy industry most developed in the UK and Ireland. The recent SEAI Environmental report on Ireland's draft offshore renewable energy development plan shows that 1500MW of wave and tidal stream is realisable by 2030 without significant adverse effects on the environment. IWEA believe that Ireland's targets should be much more ambitious and we should seek to have 2500MW of wave and tidal plant operational by 2030. Consistent with our resources, talent and R&D to date we should seek to **not only export this energy but develop an export industry for the technology also**. This will require an enabling environment to test-bed, deploy, manufacture and export this technology. To achieve these goals the prerequisites will be funding, branding, resources, promotion, scale and incentives.

Irish Government policy needs to promote the ocean energy economic, environmental and security of supply value proposition at EU level, support extension of existing or new EU funding programmes for marine renewables and promote worthwhile Irish ocean energy projects in seeking EU support. **REFIT support for demonstration / pre-commercial projects of less than 15MW should be advanced. Clarity on this regime is required now to build confidence in the sector.**

## 2.4 EU Framework

Ireland has the potential to be a substantial net exporter of renewable energy; a resource not fully used by the Irish consumer or State. However, this potential will only be realised if adequate EU infrastructure to facilitate efficient European-wide development and trade is delivered. It will also be necessary to ensure that there is an effective framework for the trade in electricity and associated green credits between Member States.

Garrad Hassan has identified a renewable energy resource of 1971GWs in Ireland's EEZ. This is enormous in scale when compared to the 5-7GWs which is the current and likely future renewable energy requirement for Ireland's domestic use. The scale of Ireland's extraordinary potential offshore and onshore wind and wave and tidal energy resource is such that it can only be harnessed for an export market, even for utilisation of a small part of it.

This reality has been acknowledged by Minister Pat Rabbitte TD during his address to the Institute of International and European Affairs on 24th February 2012,

*"We have in Ireland a rich and abundant wind and ocean energy potential which I firmly believe can be harvested and exported as a real economic opportunity for this island."* and again *"That work [with the UK] is set to intensify over the coming months with the objective of achieving an inter-Governmental agreement under the EU Framework to underpin the export of renewable energy."*

This EU Framework is found in Articles 6-11 of the EU RES-E Directive, which provide for the use of the "Co-operation Mechanisms" These are voluntary options for collaboration between Member States. The Member States decide whether to participate and with whom and, on the basis of decisions they make in bilateral or multilateral agreements, decide how the renewable energy value can be distributed between them as they see fit.

It is understood that an Inter-Governmental agreement will be negotiated between the British and Irish Governments towards the end of 2012. IWEA believes industry involvement is crucial in particular to ensure energy is generated before 2020.

## 2.5 Targets to 2020 and 2030

Ireland submitted a National Renewable Energy Action Plan<sup>10</sup> to the EU Commission in July 2010 outlining its strategy for achieving national energy targets. Ireland has a mandatory target of 16% of its energy to come from renewable energy by 2020; with 40% of the country's electricity consumption to come from renewable sources in 2020.

The National Renewable Energy Action Plan (NREAP) modelled scenario for the electricity sector set out that the 2020 target was expected to be achieved with just over 4GWs of onshore wind generation, over half of a GW of offshore wind and about half of a GW of wave and tidal, hydro and of biomass generation combined and that Ireland's target was to be achieved from domestic resources. The Government is now of the view that the wind energy contribution to the NREAP 2020 targets will be met by onshore wind alone. The vision therefore for Irish renewable energy should be to take a joint approach of

reaching our NREAP targets by developing out the Gate 3<sup>9</sup> wind farm projects onshore and delivering additional and excess projects within or beyond Gate 3<sup>11</sup> to neighbouring nations, initially in the 2020 timeframe to the UK. The delivery of this additional<sup>12</sup> export potential should be seen in two timeframes, as outlined in the table below.

Timeframe Targets	
<b>Up to 2020</b>	<b>From 2020 to 2030</b>
<b>3,000MW Onshore Wind</b> <b>3,000MW Offshore Wind</b>	<b>6,000MW Onshore Wind</b> <b>9,000MW Offshore Wind</b> <b>2,500MW Marine</b>

*Irish Renewable Energy Export Targets and Timeframes*

## 2.6 Delivery of Ireland's potential

The forthcoming energy white paper and the DCENR (Department of Communication Energy and Natural Resources) Renewable Energy Framework provide a unique opportunity to define a series of integrated policies and initiatives to ensure that Ireland delivers on its renewable energy potential in a way that maximises the long term benefits to society and the economy. In particular, the energy white paper needs to recognise the significant opportunities Ireland holds in renewable energy as identified above. Of equal importance, the paper should give commitments to meeting 2020 targets, stretching export targets for 2020 and overall renewable energy targets for 2030, while putting the necessary administrative and supporting environment in place to allow energy policies to be achieved.

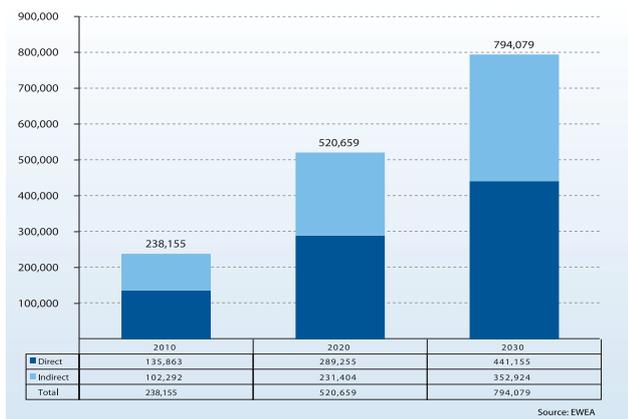
### 3. Creating Jobs from Exporting Renewable Energy



## Creating Jobs from Exporting Renewable Energy

### 3.1 The Jobs Potential

The potential for job creation from wind energy is estimated to reach 520,000 jobs in Europe by 2020. A report commissioned by the European Wind Energy Association (EWEA) "Green Growth - The impact of wind energy on jobs and the economy"<sup>13</sup> in April 2012 demonstrates that the European wind industry grew at a rate more than twice that of the EU's overall GDP between 2007 and 2010 with employment rising by 30% to 240,000 in the same period. It is projected that employment in the EU wind industry will rise by 233% to reach 794,079 jobs by 2030.



Forecast of direct and indirect employment in wind energy sector in 2020 and 2030 in number of jobs

Additionally the scale of the jobs potential can be seen with reference to the growth of the EU offshore industry. This industry forecasts a steep rise in employment numbers over the course of the next decade. Europe had 1,136 offshore wind turbines installed and connected to the grid on 45 wind farms in nine countries<sup>14</sup>. By 2030, jobs in offshore are expected to count for 62% of total employment in the wind energy sector: around 270,000 jobs out of a total of 445,000 jobs.

EWEA has set a target of 40GW of offshore wind energy to be installed by 2020 and 150GW by 2030. The huge number of offshore wind farms under construction and planning will result in a corresponding demand for ecologists, geophysicists, foundation structures, transition pieces, shipping, installation, logistics, port services, Operation & Maintenance services and general supply chain opportunities. Investments in offshore wind farms

in Europe alone are projected at €209 billion in the period 2010-20.

It has been outlined that the UK will need to deliver 18GW of new renewable capacity to meet its mandatory 2020 targets. Furthermore the UK is likely to set itself challenging targets for 2030 to decarbonise its electricity industry. Separately the EU Large Combustion Plant Directive and the Industrial Emissions Directive are also expected to result in older coal burning plants closing in the coming years. To bridge this shortfall in both renewable and conventional generating capacity the UK will target renewable energy projects remote to the UK mainland. This will, therefore, open up opportunities for onshore and offshore wind projects of scale along Ireland's coasts and on the mainland.

EWEA estimated that the wind energy sector in total will employ 520,000<sup>15</sup> people in Europe by 2020. In 2009 a report by the EU Commission "The impact of renewable energy policy on economic growth and employment in the European Union", concluded that achieving the 2020 Renewable's target will deliver 2.8 million jobs in the Renewables' sector in total. As Ireland has 1% of the total EU GDP, IWEA believes we should aim to secure at least 1% of the EU wide renewable energy jobs by 2020. This would equate to 28,000 jobs<sup>17</sup>, but is expanded on further below.

In 2009 IWEA delivered its own report with Deloitte<sup>18</sup> "Jobs and Investment in Irish Wind Energy" which outlined that Ireland can deliver 10,700 Jobs by meeting onshore targets and building out on the gate process which is underway.

The table (on next page) from the EWEA Report<sup>19</sup> shows that for every MW installed the wind sector creates 15 jobs. The three EU wind energy 'pioneers' – Denmark, Germany and Spain – were the first countries to realise the vast potential of the winds sweeping across their lands and as such have secured first mover advantage. The EWEA figures show that attracting heavy engineering direct employment can deliver 7.5 direct jobs per MW installed. Ireland has not captured any manufacturing related employment to date however even if Ireland could attract 1.5 Jobs per MW installed this would equate to 9,000 Jobs for a targeted installed capacity of 6GW.

Employment/MW (2007)	Jobs	Jobs/Annual MW	Jobs/Cumulative MW	Basis
WT Manufacturing – Direct	64,074	7.5		Annual
Wt manufacturing – Indirect	42,716	5.0		Annual
Installation	10,665	1.2		Annual
Operations and maintenance	18,657		0.33	Cumulative
Other direct employment*	15,204	1.3	0.07	75% annual/25% cumulative
<b>Total employment</b>	<b>151,316</b>	<b>15.1</b>	<b>0.40</b>	

\* IPP/utilities, consultants, research institutions, universities, financial services and other.

EWEA Wind at Work, Summary of recent studies: Job per GW

		Up to 2020	From 2020 to 2030
Area	Jobs per MW	Renewable Energy Exporting-Jobs Potential	
Installation, O&M & Others	1.6	Onshore Jobs	4000MW in ROI & 1500MW in Northern Ireland
		Energy Exporting Targets	4000MW in ROI & 1500MW in Northern Ireland
		3000MW Onshore, 3000MW Offshore	6000MW Onshore, 9000MW Offshore, 2500MW Marine
<b>Sub Total</b>		<b>18400</b>	<b>36800</b>
Manufacturing-Direct	1.5	9000	26250
Manufacturing-Indirect	0.5	3000	8750
<b>Sub Total</b>		<b>12000</b>	<b>35000</b>
<b>Total Jobs</b>	<b>3.6</b>	<b>30400</b>	<b>71800</b>

Irish Renewable Energy Target Timeframes Jobs/MW

With the creation of the right environment for investment Ireland can deliver the targets identified for the 2020 and 2030 timeframe; the jobs arising would be 18,400 by 2020, and 37,000 by 2030.

### 3.2 Attracting Manufacturing Opportunities

Scale has always been the limiting factor in attracting turbine manufacturers to Ireland. The other advantages of manufacturing in Ireland are currently in place i.e. an attractive corporate tax regime and the abundant supply of skilled labour. With the addition of a pipeline of projects at the GW scale, this would be sufficient to attract a turbine manufacturer to the East Coast of Ireland, as well as supplying turbines to projects in advance of 2020 an Irish base could then be used as a launch-pad into the European onshore and sizeable UK offshore market. The scale of the

projects looking at the export markets in combination with potential Gate 3 projects now make it clear that there would be a number of Asian and European companies interested in Ireland as a manufacturing base.

While some European firms are very active in securing and advancing their plan to invest in European facilities in the FUI<sup>20</sup> region there are a numbers of Chinese, Asian and Indian firms who are just beginning this process and are additional and obvious targets for inwards investment.

In a very real way the activation of the Irish job agencies IDA Ireland, Forfás is needed to attract heavy engineering firms to bring jobs in excess of 18,400. This need has also been highlighted in the Department of Jobs, Enterprise and Innovation 2012 actions plan for jobs where they set a target under action 7.3.4 to:

*“Target FDI opportunities in the green economy including the manufacturing, assembly and testing of products/solutions*

*in renewable energy, smart grids, water management and wastewater treatment and electric vehicles”*

The EWEA figures show that for each MW installed 7.5 Direct and 5 indirect manufacturing jobs are created in the wind sector. As Ireland will not have first mover advantage, manufacturing is less likely for full assembly line production of nacelles<sup>21</sup> even with 6GW over a number of years. Larger heavier components that are difficult to transport such as towers, blades and brakes etc. could well be manufactured in Ireland. Realistically between now and 2020 Ireland should target 1.5 direct manufacturing jobs per MW installed with an associated benefit to the economy of 0.5 indirect jobs leading to an additional 12,000 jobs from direct and indirect manufacturing up to 2020.

**IWEA stresses that interaction between industry and government agencies is now imperative as project promoters will determine their requirements and this should shape what IDA, Enterprise Ireland and Forfás go to market to secure.**

### 3.3 Supply Chain Jobs

It is proposed that Ireland take steps to secure boating, turbines and other necessary services and to develop a supply chain industry. The UK government has adopted progressive offshore wind targets that will attract many key suppliers of support services to that market. Ireland needs to move to secure access to the necessary boats, turbines and other necessary services. It is widely expected that the demand for these services and expertise will significantly rise in the coming decade and beyond. This will create opportunities for Ireland to develop its own supply chain, e.g. turbine assembly or other components manufacture, offshore construction industry and vessel supply. There will be significant opportunities for companies in this supply chain to export services to the UK and Europe. Handled correctly this could be a substantial opportunity for the Irish economy. Ireland should also provide demonstration sites for the testing of advanced offshore wind turbines. Again, we note the emphasis that the UK government has placed on the development of a domestic supply chain. **IWEA propose that we aim to work in a co-ordinated manner with UK partners, so that certain key facilities could serve both jurisdictions.**

**Some examples of realisable supply chain opportunities:**

Instrumentation	e.g. Techworks Marine
Consulting Engineers	e.g. Numerous within IWEA Membership across supply chain activities
Fabricators	e.g. Turbine Towers
Operations and Maintenance	e.g. Numerous within IWEA Membership
Construction	e.g. Offshore Jackets, onshore civils
Training Services	e.g. Health, Safety, Environmental, Marine services
Consultants	e.g. (Ecological, Geophysical, Marine Legal, Tax Finance, general advisory)
Blades	e.g. Kingspan
Foundation & Transition Pieces	e.g. Strabag <sup>22</sup>
Support Vessels	e.g. Arklow Marine Services
Array Cables, Export cables	e.g. ABB EWIC (East West Interconnector Project)
Substations and Switchgear	e.g. Siemens/ABB
Port Facilities	e.g. Cork Docklands Facilities, Bremore Port Plans
Installation Vessels for WTGs and Foundations	e.g. Arklow Marine Services

**It is now timely that the expertise and resources of the Industrial Development Agency and Enterprise Ireland are focused on the development of the supply chain for onshore and ocean energy and that these agencies strategies, business plans and support budgets are aligned with government renewable energy strategy and the integrated marine plans as they develop.**

### 3.4 Developing Our Ports for Jobs

The offshore supply chain needs a heavy engineering “anchor tenant”. This tenant will need to see a clear pipeline of Irish Sea projects to stimulate the required capital investment. The Strabag facility in Cuxhaven is an example of how this model has worked to create significant employment in a deprived area and Cuxhaven has now established a feeder chain of O&M spin off companies. Sufficient ports/maritime infrastructure for delivering large scale offshore projects and associated manufacturing facilities are essential for inward investment. All major Irish ports are state owned, however potential partnership opportunities should be considered to stimulate investment.

The Crown Estate in the UK has estimated that up to 55,000 new jobs could be created in the UK offshore industry, while the UK Carbon Trust believes the number may be as high as 70,000. These jobs are based on plans to develop 25GW of offshore wind around the UK. Many of these jobs will be developed in industrial clusters surrounding appropriate port facilities. **There are now effectively two clusters in place, it is likely that at least three port facilities will be required and developed on these islands; Ireland should aim to ensure that at least one is in Ireland.**

Additionally IWEA believe given the plans for offshore in the UK and the Northern Isles, Ireland should seek to develop our ports capability to take and service the required ships and technical equipment needed to develop and construct these offshore projects.

### 3.5 Wave and Tidal Jobs Potential

Ocean renewable energy offers great development opportunities and Ireland's location at the western edge of the Atlantic Ocean means that we are ideally located to take advantage of this emerging sector. Given the significant development opportunities from ocean renewable energy, IWEA propose that a proactive strategy and programme up to 2030 is formulated to realise the potential. Investment decisions require stability and predictability around licensing, market arrangements and achievement of consents. There is currently significant focus around 2020 goals but IWEA envisage a longer outlook, when considering ocean energy. In this context it is important to point out that this needs to be invested in now to reap the rewards later.

The proposed IWEA approach can be substantiated by recent SEAI work which identified benefits to Ireland, through a number of studies. The most recent study, Economic Study for Ocean Energy Development in Ireland<sup>23</sup> concluded that:

- There is currently sound quantitative evidence that by 2030 a fully developed island of Ireland Ocean Energy sector providing a home market and feeding a global market for renewables could produce a total Net Present Value (NPV) of around €9 billion and many thousands of jobs to the Republic of Ireland and Northern Irish economies.

- It is possible that an island of Ireland wave energy industry meeting the 500MW 2020 target could produce at least 1,431 additional Full Time Equivalent (FTE) jobs and an NPV of €0.25bn, increasing to 17,000- 52,000 FTE jobs and an NPV of between €4-10bn by 2030. This is dependent upon achieving sufficient technology learning rates - most likely encouraged and maintained initially through a form of capital and/or operational subsidy.
- Similarly a tidal industry providing **200MW** of capacity by **2020** may deliver around **600 FTE jobs** and an NPV of **€111m**, increasing to **8,500-17,000** FTE jobs and an NPV of between **€1.5-2.75bn by 2030**.



### 3.6 R&D Opportunities and Requirements

IWEA recognises the significant opportunity that exists in the development of renewable energy technologies. This should be expanded to include onshore and offshore wind and wave and tidal capacity and incentives to allow turbine manufacturers access to suitable test sites for advanced offshore floating turbine technology should be introduced. In particular IWEA is calling for the funding to be put in place to advance the energy test site at Belmullet, Co. Mayo to ensure Ireland can lead the way in developing and testing devices and in so doing take an early mover advantage in the commercialisation of this emerging sector.

The Tidal / Marine industry is estimated to be worth €128bn in equipment sales<sup>24</sup>. If the correct actions are taken, Ireland could emerge as an early mover in ocean energy technology. Irish manufacturing companies are among

the top 8 in the world in this area. We currently have R&D facilities at Electricity Research Centre (ERC) Dublin, Irish Maritime and Energy Resource Cluster (IMERC) Cork, NUIG, UL, Queens University, and Dublin Institute of Technology (DIT).

Irish ocean energy policy should ensure the continuation of the current excellent data collection projects, such as Infomar and maintain the continued support of the Marine Institute. We need to continue to support the development of excellent research facilities for ocean energy at IMERC, which is recognised world-wide as a leading research facility in ocean energy. A report by SEA<sup>25</sup> outlines that over 1,900 new jobs can be created by 2020 in the wave and tidal industry in Ireland and that there will be at least 500 MW of generating capacity installed in the ocean; enough to power nearly 500,000 homes.



### 3.7 Green Finance Jobs

When the export potential of Ireland is delivered there are undoubted opportunities for Ireland to establish a centre of excellence for Green Finance in the area of project financing opportunities and also the re-establishment of green funds. Ireland has a proven track record in the provision of fund services. Servicing Green Funds, including green Private Equity/Venture Capital funds is very different to the servicing of non-green funds. Therefore **Ireland could seek to create a Servicing Centre for Green Funds.**

The cost of transition to a global low-carbon economy is unprecedented. It is predicted that the annual market size will grow from \$740bn (2009) to \$2.2trn (2020). This

is a compound annual growth rate of 11%. Innovative financial techniques will be required to meet the challenge of bridging the gap between green R&D and commercialisation.

The average investment in offshore wind is **€3M** per MW while the average investment in onshore wind is approximately **€1.7M** per MW. Ireland's targets set down in addition to the further **2.5 GW** to be delivered to reach onshore 2020 targets will involve an investment of **€18.4bn** to 2020 and **€41.5bn** to 2030. In addition, Greentech developments will create openings for new investment funds, asset management, venture capital, insurance and treasury risk management. Green financial markets will thrive in a favourable tax environment with a supportive governmental and regulatory regime – both of which currently exist in Ireland.

**Ireland has an attractive fiscal environment, expertise in markets and world class skills in the financial services sector. The IFSC Clearing House Group headed by the Department of the Taoiseach should set about looking at this opportunity to build on the success of the IFSC in conjunction with the IDA and the Green IFSC.**

It is noted in the DJEI Action Plan for Jobs under action 7.3.6<sup>27</sup> that the IDA are to “Seek to attract a new range of ‘green’ related financial products and services to Ireland”.

A large white wind turbine stands on a grassy hillside. The sky is blue with scattered white clouds. In the background, there are rolling hills and mountains. A dirt road leads towards the turbine. A green container is visible near the base of the turbine.

## 4. Exporting Options

## Exporting Options

Clearly there are a range of options available to facilitate the trade of renewable energy between Ireland and other Member States namely, statistical transfers, joint projects, and joint support schemes.

With regard to the options available, Member States need to have due regard for the costs, benefits and risks associated with each option. The current framework in the EU creates the possibility of separation of the electricity generation and renewable benefit. As such Irish renewable energy could be contributing statistically to the achievement of renewable energy targets in other Member States without any matched trade of physical electricity.

However, the production of the products is physically linked; a renewable credit or certificate is only created where a physical MW of electricity is generated and used. For Ireland the fundamental issue here is the scale of the Irish renewable wind resource relative to the size of the Irish electricity system - the resource being at least up to twenty times the size of the system. It is not feasible to use all the developed resource on the Irish system and therefore physical electricity exports are essential. Additionally IWEA is of the view that the spirit of the cooperation mechanisms should facilitate the delivery of the greatest need of any member state, i.e. it is assumed that in most cases this will be green certificates in tandem with physical green energy. It is important to note that exporting directly will generate income for Ireland and would avoid socialised grid infrastructure cost, PSO Levy/ Support Mechanism cost.

**IWEA believes that while statistical transfer has merit, the size of the Irish system and most importantly the lack of interconnection are the main barriers to statistical transfer.** The government has signalled its intention to reach 2020 renewable targets with onshore wind providing the most significant contribution. As such, onshore wind should not be compromised in pursuit of any option that could materially affect the ability to meet domestic targets. The combination of the architecture of connection methodology and cooperation mechanism adopted for export should not materially compromise Ireland achieving its own target. Statistical transfer of scale is likely to increase the curtailment of connected wind generators on the Irish system and this would inevitably impact existing projects' cash flows, while potentially challenging the viability of new projects.

At the core of the co-operation mechanism is enabling Member States to utilise their resources to meet EU targets and individual Member States' targets. While statistical transfer may be of limited cost to the UK, it could in fact slow the ability of Ireland to meet its binding EU targets should this mechanism affect the Irish government policy of delivering targets via onshore wind (due to interaction with the Irish system which has an annual max demand of c. 5,000MW). Irish green energy consumed in Ireland with the green credits exported to the UK runs the risk of contributing to Irish wind curtailment and potentially creating a barrier to Ireland meeting its green energy targets, and would in effect be counter to the spirit of the co-operation mechanism.

Ironically the greatest barrier to statistical transfer is the size of the Irish electricity demand and the capacity of the grid system. This can only be changed when we have considerably greater interconnection with member states.

**Interconnection and physical transfer should be the priority policy focus which would enable statistical transfer and other more flexible market arrangements at a later date.**

### 4.1 Grid Connection Requirements & Interconnection

The implementation of co-operation mechanisms should ensure that least cost overall long term solutions for exporting are advanced and importantly infrastructure should be supported and delivered in such a manner as to facilitate the transfer of assets to the benefit of Ireland in terms of additional interconnection. Additional interconnection should allow further trade of renewable energy over and above the initial main projects that have access rights to retain capacity levels.

Options to alleviate known or potential future grid constraints should be considered as part of this work to secure the maximum amount of generation on both systems (e.g. Ireland and the UK) to export and import at least overall cost.

IWEA agrees with the findings of the recent ISLES (Irish Scottish Links on Energy Study)<sup>28</sup> and recommends that it be implemented. There are significant opportunities

to develop a grid encompassing onshore and offshore wind and wave and tidal capacity with further significant interconnection between Ireland South and North, Britain and mainland Europe.

IWEA is of the view that it is imperative that EirGrid, ESBN and the Commission for Energy Regulation (CER) are involved in developing an agreed and comprehensive phased strategy for the development of an offshore grid, consistent with the specific detail needed to progress the exporting sector generally in the period up to 2020 and beyond. The ISLES study seeks to address some of these issues however IWEA proposes a more phased approach to exporting via onshore and offshore be commissioned to look at the potential up to 2020 and separately the potential beyond to 2030. This strategy should include:

- 2020 Export potential to UK and Europe
- Private development of an offshore grid and linking of same to potential future projects
- Exploitation of strategic resources
- European offshore transmission grid network
- Connection strategy and charging policy and
- EU market integration

To ensure timely delivery of infrastructure it will be critical to advance the potential for private development of offshore grids. This may potentially be sold to a state owned network owner company on completion.

Clear enabling policy statements and regulations are required in the areas of renewable energy trading, transmission interconnection and market and regulatory integration. With the work in progress work on the EMR (Electricity Market Reform) and the EU Target model, the North-Sea Group and the ISLES study, work is advancing on these matters. However to extract value from these enablers, projects must exist of considerable scale to export to the UK or other member states. It is the considered view of IWEA that a number of projects exist and, given access to the market and regulatory structure, these projects could form part of an initial offering in advance of 2020. Critically these projects would deliver the advanced strategic infrastructure for additional follow-on projects of scale as part of the broader liberalised EU market beyond 2020.



It is now possible to connect offshore wind farms into an offshore grid network. Recent research by EirGrid<sup>29</sup> has identified the potential benefits of offshore grid networks for supporting onshore grids. This is echoed by the proposed development of “bootstrap” cables along the East and West coasts of Great Britain. EirGrid studies have demonstrated that a strategic approach to offshore development may provide more optimal methods of connecting offshore wind, interconnecting markets and supporting onshore grid networks.

The lack of interconnection capacity of scale and the requirement of further interconnection to match Irish onshore and offshore resources should be addressed and facilitated as part of a strategic approach to infrastructure delivery. Critically this strategic approach should take into consideration future grid and grid reinforcement requirements on both the Irish and UK systems and would ideally address existing or future transmission constraints in the most cost effective manner to both system consumers.

There is a need for a holistic view of the future development direction of a potential offshore grid between Britain, Ireland and Europe.

With regard to wave and tidal energy, IWEA believes that Ireland should ensure that grid development planning is initiated in parallel to project development, using development zones as an initial focus. i.e. ensure consistency between OREDP and Grid 25.

The EU has identified energy security as a key strategic concern. To mitigate this it will be necessary to increase the share of EU energy produced from domestic sources. Traditionally significant investment and support has been provided to enable the secure delivery of energy from source to market.

IWEA is aware that the European Commission can allocate funding to electricity highways of the future and 'projects of European significance' which could be considered for preferential planning treatment and possible access to European funding in the EU 2014-2020 'Connecting Europe' financial programme. Ireland should make the case to the EU commission for access to this funding for advancing further interconnection and interconnection related assets as part of the move to integrate Ireland more robustly to the EU energy market. This proposal should initially be advanced through our links with ENTSO-E and The North Seas Offshore Grid Initiative which we are active both in the European offshore grids as part of the ENTSO-E 2010 Ten Year Development Network and EU market integration studies.

Competing interconnector development and competing interconnectors and grid connections, if all private sector led, is inefficient, costly and may result in fall out.

**The private sector will move very fast but needs guidelines and clarity which will now require dedicated government support.**

## 4.2 Planning and Licensing Requirements

IWEA welcomes the planned publication of new legislation on licensing for offshore wind projects. Increased clarity in the allocation of responsibility for the development of offshore wind between Government Departments is essential. Ireland needs to develop a round approach as in oil and gas for offshore renewables consistent with the Ocean Wealth approach.

## 5. Market Support Arrangements



## Market Support Arrangements

The concept of green energy being produced in one jurisdiction and consumed and paid for in another will need to be carefully examined particularly in light of where and to what percentage the RES-E credit for these projects will lie. However, access to market support schemes will be critical to enable renewable energy trade. **Any agreed framework should provide a mechanism for generators in Ireland to participate in the UK's support system. IWEA proposes that exporting projects needs clear and predictable off-take agreements and structures in place.** In the context of likely European energy market change in the coming years, regulatory certainty will be key; as projects which will be delivering over the next 5 years will need clarity on structure and treatment in the longer term.

### 5.1 Export support system – Anchor Tenants

Delivery of an exporting support system is now urgent as there is always a significant lead time between financial close and project delivery. It is anticipated that projects would need to complete financial close in a relatively short period of time in order to develop as the DC network or offshore grid is delivered. There is a limited range of suppliers for high voltage (HV) subsea cables due to high investment costs and long lead times for new capacity. This could be in the order of 35-40 months.

Other equipment is generally drawn from much larger transmission and distribution (T&D) industries which are relatively unconstrained, with the exception of HV transformers, where delivery times are set by general world demand.

Due to the timeframes in connection delivery and construction of onshore and offshore wind projects of scale it will be necessary to ensure that the provisions of the scheme ensure that projects can avail of the full support window (i.e. 20 Year Renewable Obligation Certificates (ROCs) UK). It is recommended that the backstop date for any agreed market support allows for some contingency around project delivery timelines and the focus for support should be on the start date and not the end date for market support.

The following could be set as preconditions for entry into an export support scheme:

- Evidence that the applicant has submitted a foreshore lease application to the relevant authority having

also previously held a foreshore license to examine the feasibility of the project and that it satisfied the conditions of this license. (Offshore)

- Evidence that the applicant has been made a connection offer by a TSO in another member state.
- The capacity is not in receipt of a renewable support system from a different jurisdiction.

The issue of exporting support systems at EU has not yet been developed, however the move to a common market system (EU target model) may provide the opportunity to develop such a support system which is necessary to ensure the EU maximises the scale of renewable energy moving forward.

It has been noted however that market reform and steps to deliver the EU target model and the integration of the SEM model into such a wide European model is challenging. In this context IWEA believes that the price for exporting should be applied on the same basis as the price for the delivery of other large scale wind projects i.e. ROCs for offshore wind and furthermore aligned with the proposed changes to the Contract for Difference (CFD) market scheduled for 2017 in the UK.

### 5.2 Export support system – Strand 2

For onshore projects which are to be connected to the existing Irish grid a different support scheme is proposed. An Export REFIT scheme may be the appropriate mechanism and projects could migrate between REFIT 2 and Export REFIT similar to projects migrating between REFIT 1 & REFIT 2. **It is noted that this is unlikely to be feasible until after the delivery of additional interconnection or when statistical transfer mechanism are in place, again likely to be closer to 2020, however the opportunity for this mechanism should be put in place well in advance to give certainty to onshore project beyond 2018.**

The following could be set as preconditions for entry into an export REFIT:

- Evidence that the applicant has received planning consent for the requested support.
- Evidence that the applicant has been made a connection offer by TSO/DSO in Ireland.

6. The Export Opportunity for Ireland Inc.



## The Export Opportunity for Ireland Inc.

In the recent publication of the 2012-2020 Renewable Energy Strategy it was defined that the Export opportunity should be delivered *“without cost to the Irish Consumer and to the benefit of the economy”*. There are obvious and diverse benefits to Ireland some of which have been mentioned earlier however this section summarises additional and key benefits that can and must be delivered before 2020 in tandem with domestic targets.

### 6.1 The Window of Opportunity

It is important to point out that that Ireland now needs urgent certainty on the regulatory, policy and physical route to markets to be delivered. The export opportunity requires an ambitious but realisable high rate of deployment far in excess of that achieved to date onshore and coming from a starting point where the regulatory, policy and physical route to markets have all to be developed. This is however achievable if a plan and the resources to match this are put in place immediately and no later than Q1 2013.

There is a window of opportunity here and unless we seize this shortly we will miss another golden opportunity. The UK want actual energy and the greener the better. Firstly any discussion about the UK's energy should start with two key facts. **The UK is now a net energy importer and over a fifth of the UK's existing generating capacity will be coming off stream before 2020.**

**For Ireland to take advantage of the export opportunity we must address part of this need in a manner of guaranteed delivery before 2020**

### 6.2 Certainty for 2020 Domestic Targets

IWEA stresses that while the export opportunity in terms of scale is hugely positive for Ireland it will be important over the coming years that the balance between delivery of our own legally binding 2020 targets and delivering the targets for other nations is achieved and in so doing additional economic opportunity for Ireland is focused on. **IWEA cautions that EU authorization to enact the co-operation mechanism is only available once Ireland can show that it has a clear and credible plan to meet domestic targets.**

The renewable energy strategy document outlines that the government intends to reach these targets primarily from onshore wind. Any export options that would undermine Ireland's ability to meet our 2020 domestic targets should not be considered. IWEA is of the view that Irish green energy consumed in Ireland with the green credits exported to the UK, while contributing to Irish wind curtailment and potentially putting Ireland's green energy targets at risk, would in effect be counter to the spirit of the co-operation mechanism. This would be a feature of early adaptation of statistical transfer were it adopted.

In the longer term it would probably be advantageous for Ireland if a process of statistically transferring renewable credits or guarantees of origin evolved into a liquid and transparent EU-wide market. This would enable a more robust market for exports and better price discovery and stability.

### 6.3 Six Benefits to the Irish State from Exporting Renewable Energy

If the exporting opportunity is supported then Ireland will benefit in the following areas. These are explored in more detail below.

- Jobs and Investment
- Investment and Boost to the local economy
- State monetisation of green credits
- Market for non-Government targets wind projects
- Ireland “Home of Green Finance”
- Delivery of strategic Infrastructure

#### i. Jobs and Investment

The capital required and hence investment figures for wind energy are huge. One of the barriers to sizeable manufacturing investment the Irish renewables sector has always had is scale. This challenge is now addressed with the export opportunity. Ireland needs to install an additional 2GW onshore before 2020 to meet its RES-E target. The UK needs 18GW of wind energy before 2020. EWEA has set a target of 40GW of offshore wind energy to be installed by 2020 and 150GW by 2030. The huge number of offshore wind farms under construction and



in planning will result in a corresponding demand for foundation structures, shipping, logistics and general supply chain opportunities. Investments in offshore wind farms in Europe alone are projected at €209 billion from 2010-20. The table above outlines the investment pipeline for Ireland and Europe between now and 2020. **If the enablers are put in place Ireland can attract and manage a total pipeline of investment into our economy of more than €18bn up to 2020.**

The IWEA Deloitte Study from 2009 outlines that Ireland can deliver 10,700 Jobs based on meeting our 2020 targets. With reference to table 3 “Irish Renewable Energy Target Timeframes Jobs/MW” IWEA believe if the correct enablers are put in place Ireland can deliver 18,400 jobs in Construction, O&M and services with an additional 12,000 jobs from direct and indirect manufacturing.

### ii. Investment and Boost to the local economy

Rates payable to local authorities provide a substantial boost to the local economy and copper fasten the ability of many county council to maintain the multitude of ingrained services that are expected in local and county communities. County Council rates are dependant of condition laid down by council pertaining to turbine hub height and other conditions. Taking an average rates contribution are €6866 per MW, the current installed wind farms are contributing approximately €11.5million per year and by 2020 wind farms will contribute an additional €17million per year in rates, in reaching EU RES-E targets. **This in effect highlights that Ireland will see a rates boost to the local economy for the operational lifetime<sup>30</sup> of the next 2500MW of wind farm installations, required to meet 2020 EU targets, alone equating to €3.43billion.**

Onshore development targeted for export would provide similar levels of county council rate. In addition offshore

development with associated royalties could add significantly to county council coffers and the national exchequer. There are of course additional benefits to the exchequer from income taxes, corporate taxes, land rents, community development funds and capital gains which will all be significant.

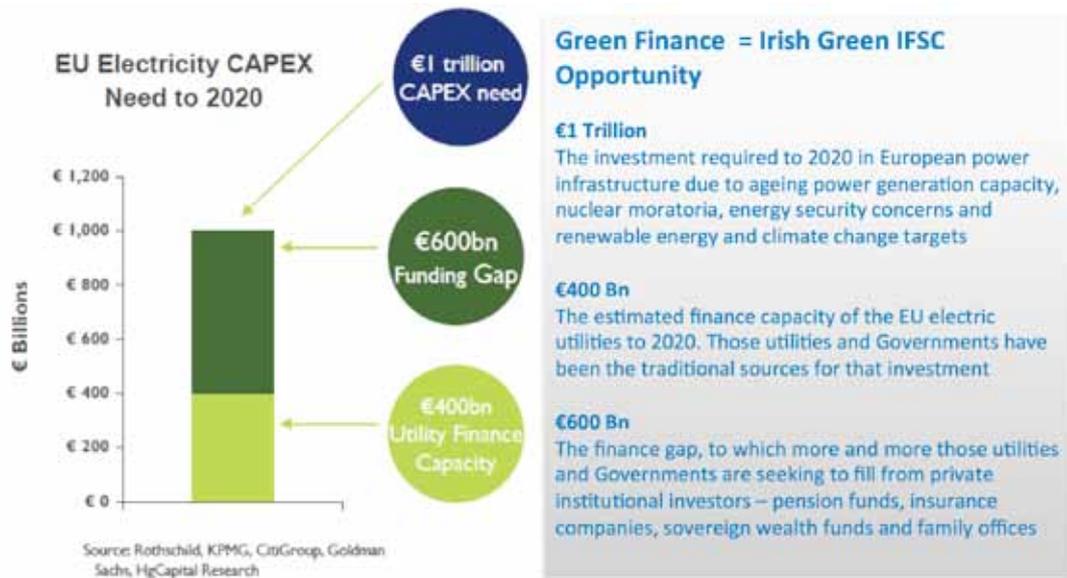
### iii. State monetisation of green credits and Exchequer benefits

The question “how does the state extract value from the exporting opportunity” can be answered. Joint projects between states via the co-operation mechanism set out the arrangements around the joint project such as where it will be located, the size, where support scheme payments in respect of the project will come from, what volume of the output will count towards the target of each country, which country will pay for any infrastructure costs, etc. Importantly the renewable value can be separated from the physical flow. **IWEA believes there should be a commercial consideration between member states for the renewable value transfer.** The recent Renewable Energy Strategy sets out that Ireland will meet its NREAP plan and RES-E targets from onshore wind (from Gate 3 applications). Therefore Ireland will not need an additional renewable value. There is room for exploring revenue linked levies or taxes or applying a similar approach as done for other extractive industries - oil and gas exploration and production taxes.

**Royalty extraction to the state should be done in a reasonable way to ensure that the assets in consideration can be commercialised.**

### iv. Benefits of Market for Non-Government Targets wind projects

Resulting from the fall in electricity demand in the Irish economy in recent years it is now reasonable to outline that all the projects within Gate 3 totalling 3900MW will now



Irish Renewable Energy Target Timeframes Jobs/MW

not be required to meet binding 2020 domestic targets. Many of these projects are well advanced however due to policy and 220kV grid delivery expected delays some of these projects may not advance on original timelines. IWEA are of the view that the surplus capacity that may not be in a position to accept a connection offer in the coming years should have another mechanism to bring the project to market. The export opportunity via an Export REFIT should be explored in detail to facilitate this. The delivery of these projects will be to the benefits of Ireland based on jobs, Investment retained in the local economy and the benefits that can be realised from a pipeline of Irish projects.

**v. Ireland “Home of Green Finance”**

IWEA believe that for both Ireland and Europe the ability to access flexible finance instrument is a huge feature for all energy investment required for the future. If the policy makers and financiers could come together to develop a framework for green financing for renewables in Ireland and in Ireland for Europe it would put Ireland at a huge competitive advantage when one consider Irelands competitive tax environment and international recognised expertise in managing financial services. Table above outlines the gap in funding for total EU electricity CAPEX<sup>31</sup> funding. If Ireland could manage a small percentage of this funding requirement it would be a significant boots to our financial services sector.

Irelands has an attractive fiscal environment, expertise in markets and world class skills in the financial services sector. The IFSC Clearing House Group headed by the Department of the Taoiseach should set about looking at this opportunity to build on the success of the IFSC in conjunction with the IDA and the Green IFSC.

**vi. Delivery of Strategic Infrastructure**

Managed correctly IWEA believe that the export opportunity can be of benefit to Ireland as it has the potential to deliver both additional interconnection and has the potential to alleviate the need for system reinforcement in the UK and possibly Ireland. Benefits of additional Infrastructure include

- Reduction in wholesale price of electricity
- Increased security of supply
- A Government and industry led approach may facilitate access to EU funding which would reduce infrastructure delivery cost.
- Potential mitigation of aspects of planned infrastructure in the UK and potentially Ireland<sup>32</sup>
- IWEA believe that significant cost saving for the Irish consumer can be achieved through system reserve sharing with the UK.

Clearly a significant benefit is that infrastructure used for export could also be used to deliver additional interconnection between the two electricity markets at scale, this would invariably lead to closer price coupling between the UK and Ireland, with significant economic benefits given Ireland has a traditionally higher cost of electricity than the UK and Europe.

## 7. Execution Mechanics



IWEA believe that there is a need for better engagement of key stakeholders in the offshore and onshore exporting wind sector. Drawing together the work of the Department of Energy, Departments of the Environment, Departments of Agriculture, Department of Enterprise and finally and importantly the Department of Enterprise Trade and Innovation is essential.

The wind energy development phase is high risk with often uncertain results. For success it need access to appropriate funding terms, stakeholder buy in and all the necessary licencing and consenting schemes streamlined, onshore and offshore. This requires resources and accountability across multiple agencies and departments. IWEA advocate a clearing house approach as utilised during the setup and establishment of the IFSC combined with a streamlined and focused independent taskforce to assist as required.

While DCENR, CER, EirGrid, SEAI and ESBN have acknowledged the role of the industry there is a clear need for progress on detailed plans. Effective co-ordination between these and other relevant agencies, in particular IDA Ireland, Enterprise Ireland and Forfás would create a framework for efficient delivery and eliminate the possibility of conflicting policies.

IWEA wishes to interact with relevant Government agencies and will propose that agencies and industry work together to attract both domestic and inward investment. The benefits to Ireland will be in the areas of corporation tax and lease payments and in particular the delivery of high value added long term Jobs.

### Next Steps

IWEA request the establishment of a Government/ Industry Implementation Group with the following structure and work streams (see above)

The IWEA will make itself available to assist this group in this important work.

## 8. Conclusions

This paper has outlined some of the key issues that are required to enable the delivery of exporting wind energy and eventually wave and tidal energy from Ireland. While the document has noted several detailed issues in the short term what is required is the delivery of an inter-governmental bilateral agreement, approved by the EU Commission, providing for the trading mechanism with access to ROC support schemes or schemes of this type. If this and other government enablers as outlined below are delivered the industry will respond and will work with key stakeholders in a strategic and planned way to connect projects up to 2020 which could allow consumers and system operators share the benefits from strategic infrastructure.

In summary the opportunity for Ireland is to be a leading player in major global industry. Ireland can create a world leading innovation and development centre with expertise in technology, renewable energy integration, financial services and community engagement.

Ireland has the potential to deliver 6GW of renewable energy targeted for exporting. In combination with the domestic need of 4GW before 2020 the overall potential exists to attract and manage more than €18bn in new investment, delivering potentially over 20,000 jobs, allowing Ireland to take its place as the renewable energy and renewable finance hub of Europe.

*IWEA will make itself available to all stakeholders to discuss this document in more detail and present further background supporting analysis and information.*

## Appendix

- 1 Garrad Hassan /SEAI Report Industrial Development Potential of Offshore Wind in Ireland 2011 [www.seai.ie/Renewables/Ocean\\_Energy/Offshore\\_Wind\\_Study.pdf](http://www.seai.ie/Renewables/Ocean_Energy/Offshore_Wind_Study.pdf)  
RISO Wind Maps 1989 - Riso National Laboratory, Denmark.
- 2 This assumes that there is appropriate regulatory and financial framework for renewable energy projects in place.
- 3 All recommendation are without cost other than action 10 -Marine market support.
- 4 Minimum of 6GW made up of 3GW Onshore and 3GW offshore.  
This target is subject to the delivery of swift policy actions taken before the end of 2012. The availability of specialised equipment namely cabling, offshore grid platform, transformers, vessels etc. and importantly planning authorisation will all be critical. It is noted that there is a limited range of suppliers for high voltage (HV) subsea cables due to high investment costs and long lead times for new capacity.
- 5 This does not account for the domestic additional onshore 2.5GW to be delivered. Beyond 2020 there are further opportunities to deliver to the broader FUI market and supply to National and European 2030 RES targetts.
- 6 [www.eirgrid.com/media/All-Island%20GCS%202012-2021.pdf](http://www.eirgrid.com/media/All-Island%20GCS%202012-2021.pdf)
- 7 Garrad Hassan Report Industrial Development Potential of Offshore Wind in Ireland for SEAI Feb 2011.
- 8 [www.seai.ie/publications/seai\\_roadmaps/wind\\_energy\\_roadmap.pdf](http://www.seai.ie/publications/seai_roadmaps/wind_energy_roadmap.pdf)
- 9 This is based on known ground conditions for project of the east coast and south east coast of Ireland.
- 10 [www.dcenr.gov.ie/NR/rdonlyres/C71495BB.../2010NREAP.pdf](http://www.dcenr.gov.ie/NR/rdonlyres/C71495BB.../2010NREAP.pdf)
- 11 The Gate 3 Offer Project refers to the third round of connection offers that are currently being issued to generators under the Group Processing Approach (GPA). It involves offers for connection to circa 3900 MW of wind generation.
- 12 Note this target is in addition to the onshore domestic requirement for ROI and NI which are 4000MW and 1500MW respectively.
- 13 [http://www.ewea.org/fileadmin/ewea\\_documents/documents/publications/reports/Green\\_Growth.pdf](http://www.ewea.org/fileadmin/ewea_documents/documents/publications/reports/Green_Growth.pdf)
- 14 Information as of January 2012 from report "The European offshore wind industry key trends and statistics 2011".
- 15 [http://www.ewea.org/fileadmin/ewea\\_documents/documents/publications/reports/Green\\_Growth.pdf](http://www.ewea.org/fileadmin/ewea_documents/documents/publications/reports/Green_Growth.pdf)
- 16 [http://ec.europa.eu/energy/renewables/studies/renewables\\_en.htm](http://ec.europa.eu/energy/renewables/studies/renewables_en.htm)
- 17 This is contingent on Ireland securing turbine and component manufacturing jobs.
- 18 [www.deloitte.com/assets/Dcom-Ireland/.../ie\\_CF\\_IWEA\\_Apr10.pdf](http://www.deloitte.com/assets/Dcom-Ireland/.../ie_CF_IWEA_Apr10.pdf)
- 19 Wind at Work- Wind energy and job creation in the EU EWEA January 2009.
- 20 The FUI region consists of France, the United Kingdom and the Republic of Ireland. Together the FUI countries account for annual electricity consumption of approximately 780TWh or about 25% of the EU electricity market. Ireland consumption is a mere 3.5% of the FUI market.
- 21 A nacelle is a cover housing that houses all of the generating components in a wind turbine, including the generator, gearbox, drive train, and brake assembly.
- 22 Note Strabag are not in Ireland, however they are likely to seek a 3rd base in Europe close to the UK/ Irish Market. Other similar sized manufacturers will also seek a presence to supply this market.
- 23 Economic Study for Ocean Energy Development in Ireland", Sustainable Energy Authority Ireland and Invest Northern Ireland, July 2010.
- 24 Source Open Hydro.
- 25 [www.seai.ie/Renewables/.../Belmullet\\_WETS\\_info\\_brochure.pdf](http://www.seai.ie/Renewables/.../Belmullet_WETS_info_brochure.pdf)
- 26 Source HSBC.
- 27 DJEI Feb 2012 Action Plan for Jobs.
- 28 <http://www.islesproject.eu>
- 29 [www.eirgrid.com/media/EirGrid%20Offshore%20Grid%20Study.pdf](http://www.eirgrid.com/media/EirGrid%20Offshore%20Grid%20Study.pdf)
- 30 The operational lifetime of windfarm is taken as approximately 20 years.
- 31 Capital Expenditure.
- 32 IWEA have raised this matter with EirGrid, however it is fundamentally important that planned and agreed infrastructure most be advanced since this is based on actual known and quantified system needs.





## About Irish Wind Energy Association

Established in 1993, the Irish Wind Energy Association (IWEA) is the national body representing the wind energy sector in Ireland. IWEA is committed to promoting the use of wind energy in Ireland and beyond as an economically viable and environmentally sound alternative to imported fossil fuels and promotes awareness and understanding of wind power as the primary renewable energy resource.

IWEA is also dedicated to education and awareness building, and to building the skills base of the renewable energy sector in Ireland. IWEA also supports the development of other renewable technology, particularly marine energy.

IWEA represents more than 200 members involved in wind and renewable energy development in Ireland and Northern Ireland, through the Northern Ireland Renewables Industry Group (NIRIG), set up in collaboration with Renewable UK.

For information please contact:

IWEA  
Sycamore House  
Millennium Park  
Osberstown  
Naas  
Co. Kildare

Tel: +353 (0)45 899341

Fax: +353 (0)45 854958

Email: [office@iwea.com](mailto:office@iwea.com)

Web: [www.iwea.com](http://www.iwea.com)