IRISHWIND

Spring 2019







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Richard Bruton talks to Irish Wind

Gala Award Pictures

Refit Grace Period & Wind for a Euro





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WELCOME TO THE SPRING 2019 EDITION OF IRISH WIND

IWEA is the national association for the wind industry in Ireland. This magazine provides updates on news and events in the wind industry in Ireland and is a resource for IWEA members in the interests of the promotion of wind energy.

Please contact Lisa-Anne Crookes with comments / suggestions for future editions on lisa-anne@iwea.com

David Connolly, Foreword CEO, IWEA



The disappointing decision not to provide a REFIT grace period for those projects still struggling to make their connection deadlines marks the final chapter of one of Ireland's most successful schemes for supporting renewable energy.

Under REFIT II more than 2,000 MW of wind energy was connected to our grid. We are now providing 29 per cent of Ireland's electricity. We have cut the carbon intensity of our electricity

system to its lowest level on record, preventing millions of tonnes of CO2 emissions every year and saving more than 200 million of foreign fuel imports.

The wind energy industry has delivered and, while it is frustrating that we could not deliver more, we now need to plan for the next decade, to look beyond the 2020 renewable energy targets.

The first draft of the Nation Energy & Climate Plan sets an ambition to develop 3,000 MW of onshore wind energy and an additional 1,800 MW of offshore by 2030. That is positive, but it is not enough.

While the increased Government ambition for 55 per cent renewable electricity in 2030 is welcome, we know we can do more and, as the scale of our global collective failure on climate change becomes more evident every day, we know we must do more.

Minister Richard Bruton has made clear that he sees 55 per cent as a minimum, as the starting point in a process that will hopefully see Ireland set a target closer to the 70 per cent which IWEA has shown is achievable, a target backed right across the renewable energy sector.

66

An ambitious **target** is essential for our industry, to show that this Government is determined to be the one to face up to the threat of climate change, to take responsibility and to act to decarbonise our energy system.

99

But ambitious targets are not enough – we learned that to our cost over the last decade as the possibility of achieving our 2020 target was allowed to pass us by with the rejection of the REFIT grid grace period.

Achieving even the current NECP target will require a new sense of purpose across government departments, the regulator and the system operators.

Minister Bruton's All of Government Action Plan on climate change has enormous potential to be the vehicle to provide that unified policy framework that enables us to deliver over 5,000 MW of onshore and offshore wind by the end of the next decade. A critical part of this plan will be to bring together departments and stakeholders to ensure that the 2020s are the decade when – finally – Ireland begins to develop some of Europe's best offshore wind energy resources.

For 14 years, since Arklow Bank was fully commissioned, we have been forced to miss opportunity after opportunity after opportunity while up to 5 GW of clean energy waited off our coastline.

Delivery of the **MAFA Bill and a grid connections policy that facilitates offshore** must be a central part of Minister Bruton's plan.

But in our focus on the potential of offshore wind we cannot lose sight of the fact that in the short to medium term it will be our onshore wind energy projects – with over 4 GW already in the pipeline – that drives our share of the electricity demand up to 40 per cent and beyond.

To do this, we need to work to ensure Government policy enables renewable energy rather than builds barriers to its expansion.

The forthcoming wind energy development guidelines must be fair. They address the needs and concerns of local communities, but they cannot become a barrier, by blocking the renewable energy Ireland needs or by pushing up the price of electricity for consumers struggling with bills pushed ever higher by rising fossil fuel prices.

We are working with our members and other stakeholders to ensure the final guidelines are reasonable and that they do not undermine Minister Bruton's ambition for REFIT's successor in the Renewable Electricity Support Scheme.

The Minister is clear that the first RESS auctions will take place this year. It is a message echoed by the officials in the department who are working to meet this target.

But throughout the industry there is a growing conviction that this deadline will be missed and that the first auction will not take place until 2020. The longer it takes to get RESS approved and the more time we lose, the more difficult it will be for wind and other renewables to replace fossil fuels.

Between the NECP, the Climate Action Committee and Minister Bruton's plan there is no shortage of focus on the issues, but it is essential that the result is an alignment across planning, financing and grid to deliver and overall ambitious target.

The *Wind for a Euro* report launched in January showed that the right choices were made in the past. Projects developed over the last 20 years have not just been good for the environment, they have been good for consumers, driving down the wholesale price of electricity

Now, new decisions are being made that will shape our industry for the next decade. The technology and the resources are there, ready, to deliver Ireland's green energy future, one with wind energy playing the key role as our country's main source of renewable electricity.

But having the technology and resources will not be enough without a robust policy framework or the leadership on climate change we have been lacking for a generation.

We are ready for 2030.

We have shown we can deliver.

Policy must now enable us to start.

UPCOMING EVENTS 2019

MARK YOUR CALENDAR







UPCOMING EVENTS 2019

MARK YOUR CALENDAR





Autumn Conference 2019



Sponsorship 2019

Sponsorship Packages for 2019 are now available. If you are interested in sponsorship opportunities for either of these events please contact Lorraine Killick, Membership & Events Manager at lorraine@iwea.com or 087 2823640.

MEMBERSHIP NEWS





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Fastnet Shipping Limited has been trading since 2001 and in addition to our services and consultancy portfolio we own, manage and operate a fleet of Wind Farm Services & Support Vessels, Survey Vessels, Tugs, Jack up Barges, Pontoons and other Marine Plant which work globally.



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Cenergise provide physical trading solutions to market participants. An Irish Company established in 2013, Cenergise specialises in trading wholesale energy products across Europe in both Physical and Financial markets.

MEMBERSHIP NEWS



E: andy.paine@vattenfall.com W: https://corporate.vattenfall.com/ Vattenfall is one of the world's leading wind power developers, and we operate wind power turbines in Sweden, Denmark, Germany, the Netherlands and the UK. They are wholly owned by the Swedish state.



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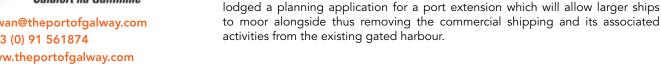
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BayWa R.E cover the entire range of activities from site development through turnkey construction and financing to sale. Moreover, we offer technical and commercial operations management for our own as well as third parties' sites.

The Port of Galway is situated in the centre of Galway City. The company have



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Akuray provides Repair, Refurbishment and Manufacturing Services of Electronic Control Modules. Building on electronics repair and manufacturing skills and experience in the Renewables Technologies market. We repair, refurbish and manufacture electronic parts for Wind Turbines from a range of manufacturers. These include Rotor Controllers, Thyristor modules and Inverters / Converters from a wide range of producers. Building on the knowledge and experience of Realtime Technologies, Akuray offers end-of-life manufacturing services, including test development and design.

Quality is paramount, with ISO9000, ISO13485 and AS9100 certifications plus OHS and WEEE compliance. Traceability of products through the repair and logistics cycle is provided with on-line access to customers.

NEOEN

E: laetitia.prot@neoen.com T: + 33 63 421 2196 W: https://www.neoen.com/en/ Founded in 2008, Neoen is a fast-growing company, France's leading independent producer of renewable energy and one of the top industry players worldwide. More than 2 GW are already operating or under construction with a further 1 GW worth of projects secured, targeting 5GW by 2021. We have projects in operation and under construction in eleven countries. We conduct our projects from beginning to end, ensuring we produce the most competitively-priced energy. Our pioneering attitude has led to several outstanding achievements, namely Europe's largestcapacity power plant (300 MW) in France; World's largest grid scale battery storage plant (100MW/129MW) in South Australia, Finnish largest corporate PPA (81MW) with Google as offtaker. We are the leading independent producer of renewable energy in France, Australia, El Salvador, Jamaica and Zambia.



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The Oriel offshore wind farm is in the development stage and is located approximately 22km off the coast of Dundalk. It represents a significant investment in the decarbonisation of the Irish electricity system and represents a significant investment from both ESB and Parkwind. Development of the project began in 2003 and the original investors, many of whom are local to the area, secured an experienced and responsible development partner when Parkwind entered the project in September 2017. The addition of ESB to the joint venture in January 2019 further reinforces the parties' commitment to successfully delivering this major investment in Ireland's sustainable future.



Richard Bruton, TDMinister of Communications, Climate Action & Environment

Minister speaks to Irish Wind Magazine about the challenges ahead

I am delighted to have been given this new responsibility for tackling what will be the biggest challenges of this century– responding to climate change, harnessing the communications revolution and protecting our environment.

Climate disruption is the defining challenge of this generation. The reality is, the window of opportunity is closing and we must act now. I am determined to make Ireland a leader in responding to this challenge, not a follower. The earlier we move the greater the economic opportunities will be. The later we leave it, the higher the final cost of adaptation will be.

Renewable energy will be crucial in this ambition. I am currently developing an all of government plan, to make Ireland a leader in responding to climate change, with actions across all areas such as heat, electricity, transport and agriculture according to strict timelines. Transitioning to green energy is an integral part of that Plan.

The renewable energy sector has undergone a considerable transformation over the last 10 years. The most visible change has taken place in the electricity sector where the share of renewable electricity generation in 2017, has more than doubled to 30.1%. Wind generation has played a significant role in this sector with one quarter of the total electricity generated in 2017.

Although renewable energy is one of the areas Ireland is strongest in however, we must step up the scale of our ambition even further. The wind sector, both onshore and offshore, will be critical to the delivery of our ambitions over the next 10, 20, 30 years and beyond.

We are currently designing the new renewable electricity support scheme (RESS) to support this step change, so that we can reach our target of at least 55% renewables by 2030

In addition to further Government support through the RESS, I am very keen to see a market develop in direct purchase by the Corporate sector for private renewable production. Corporate contracting of renewable energy has the potential to revolutionise the procurement of renewable energy at little or no direct cost to domestic or business consumers. I am very encouraged to see the steep decline in prices at which consumers are paying to support onshore wind across Europe and I look forward to seeing IWEA's members' participation in the upcoming competitive framework to be provided by the RESS and corporate PPAs.

Ireland has one of the best offshore renewable energy resources in the world and has more offshore potential than most other countries in the EU. The development of large-scale offshore wind in Ireland's maritime space will be the flagship renewable energy opportunity of the next decade. Realising this potential is a strategic and game changing challenge that lies ahead.

I will continue to progress the legislative and regulatory reforms that are required to enable ocean technologies (offshore wind, wave and tidal) to compete in the later RESS auctions out to 2030.

I recognise that these schemes cannot be delivered without the ongoing reinforcement of the existing electricity grid. EirGrid has a key role in planning for the development of renewable energy infrastructure for the electricity transmission system to meet the future needs of society. Alongside this, Ireland also needs to diversify supply sources by greater interconnection to international energy markets.

I cannot emphasise enough the need for wind developers to continue to work closely with their communities. I encourage them to engage early and listen to their local communities. I know that a number of community projects funded by the wind sector have been delivered to date in many areas around the country. The introduction of RESS will lead to further community gain offerings, co-ownership and even fully owned community projects. I hope to see many more communities working with and benefiting from wind farms going forward.

It is essential that we all work together to ensure that Ireland achieves the step change that is needed and I look forward to working with the wind industry to ensure that Ireland takes its place as a leader in responding to climate change.

OPERATING WINDFARMS IN ISEM - 6 take-aways from the first 6 months

Some suggested tips for operating windfarms in iSEM from the team in EnergyPro:

1. Beware market meter readings

Keep an eye on any differences between your SCADA meter reading and what's being issued through the market. There have been a number of issues already, and it's important that the market is notified, through your trading partner, to ensure that you're not missing out on revenue.

2. Keep detailed records

Put all your trader availability notification records in a searchable database so that you can easily query what was submitted by what time in response to any issues raised by traders.

3. Visualise your data

We've found visualising outages and production and on a single line graph as pictured below gives a very handy quick reference for windfarm managers, and helps to increase the accuracy of our availability predictions.

Sample Windfarm

Availability

Ob May 17 10.00

Other or a service flow on the representation of the represent

4. Get your availability forecasts in on time

Penalties for inaccurate availability forecasts can range from the difference in Day Ahead Market rate to Balancing Rate, to a fixed additional penalty fee per megawatt hour.

It's important to mitigate this risk by being accurate with your return-to-service time prediction, and by submitting your annual, monthly and daily predictions on time.

Our GenWatch Availability service can do this for you by combining

- a knowledgeable operator available 6am to midnight, 7 days a week, to estimate turbine down times with
- an automated system to ensure that notifications are sent to the trader by the appropriate times.

"We've been using EnergyPro's GenWatch service at Foyle Windfarm since the start of iSEM. For us, it's been brilliant. It takes away all the hassle of dealing with trader notifications, and worrying about how much we'll potentially lose in penalties if there's an outage over a weekend or during the holidays. I highly recommend it"

Richard Walshe, ART Generation

5. Set up automated alerts for data failures

Once you've set up your live data feed to your trader, set up automated email alerts when the feed goes down, allowing you to react in time and deal with the issue before you start getting penalties for not providing live data.

In addition, it's worth considering an automated failover to a secondary communications link, or a continuous secondary live data feed EnergyPro, we've set this up on a number of windfarms so far - please get in touch if you'd like help setting this up on your windfarm.

Keep an eye on your trading partner's trading strategy

In certain situations, compensation for dispatch down events is only available for the volume of power your trading partner traded in the Day Ahead and Intra-Day markets. Ensuring an appropriate level of trading in these markets means you don't miss out on this dispatch down compensation.

Our GenWatch Shadow Trading Analysis service provides ongoing analysis which might be useful to monitor this.

If you'd like to discuss any of the above, please contact Ronan on **059 865 0116** or **ronan.omeara@energypro.ie**.

About EnergyPro Asset Management

EnergyPro Asset Management is Ireland's largest indigenous windfarm management company, operating 15 windfarms across the Island of Ireland for a variety of owners, ranging from large international investment funds, such as Greencoat Renewables and Greystone Infrastructure Fund, to individual windfarm owners.

Over the past 20 years, we've seen practically all that can happen on a windfarm, allowing us to deliver a solution-focussed, hassle-free service for our customers.

If you're interested in an asset management partner or would just like support on a particular issue, please call Ronan or Sheila on **059 865 0101**, contact us via email at **ronan.omeara@energypro.ie / sheila.layden@energypro.ie**, or call into our offices in Athy, Cavan or Cork.

GenWatch

INCREASED ISEM MARKET REVENUE THROUGH BETTER AVAILABILITY FORECASTING

30/03 33/03







WHAT IS GENWATCH?

1. A BACKUP DATA FEED

SCADA/OPC feed of turbine production and availability

75/07

19/03 23/03

2. ACTIVE WINDFARM MONITORING

Operational Control Centre providing real-time updates of expected return to service times to traders

3. AUTOMATED COMPLIANCE SYSTEM

Software system that notifies traders within the PPA-specified time periods in required formats



Wind by numbers in 2018

359 MW (MEC)

Additional installed Wind Capacity in 2018 on the Island of Ireland increased by 21

New Wind Farms Operating in 2018 on the Island of Ireland

3566 MW

Installed Wind Capacity of the Republic of Ireland at the end of 2018 1134 MW

Installed Wind Capacity of the Northern Ireland at the end of 2018

29%

Average Wind in Republic of Ireland as % of Demand in 2018

31%

Average Wind in Northern Ireland as % of Demand in 2018

3080 MW

The Maximum Wind Output of all time in ROI was recorded in 2018

These figures are still provisional and the majority have been compiled by IWEA databases and EirGrid data.

Advice on a larger scale

The Irish law firm with a fresh global vision

The energy sector is more challenging than ever. Eversheds Sutherland has the capability, experience and forward thinking to help you meet those challenges.

With an international team of more than 300 lawyers in the sector throughout Africa, the Americas, Asia, Europe and the Middle East, we understand the agenda of all players and the regulatory frameworks in which they operate. Our innovative thinking means we are involved in the latest and largest projects.

We offer you complete service, drawing upon our quality resources in areas such as acquisitions, development, regulatory, property, financing, construction, climate change and planning. Efficiency, responsiveness and commercial thinking come guaranteed.

For energy advice in Ireland and the rest of the world contact Eversheds Sutherland:

Mark Varian

Partner +353 1 6644 341 markvarian@eversheds-sutherland.ie

eversheds-sutherland.ie



Annual cost of wind energy less than a euro per person

The latest cost-benefit analysis of wind energy in Ireland has confirmed it is not just driving down Ireland's CO2 emissions but is delivering great value for the Irish electricity consumer.

The report, Wind for a Euro: Costbenefit analysis of wind energy in Ireland 2000-2020, from leading energy and utilities consultants Baringa reveals that the net cost of wind energy for Irish consumers amounts to less than €1 per person per year since 2000.

Using advanced modelling techniques Baringa analysed Ireland's electricity market from 2000 to 2020 and then simulated how the market would have behaved without any wind energy on the system. This is the first time researchers have used historical data to carry out a cost-benefit analysis of wind energy.

The work was carried out using a pan-EU power market model covering the island of Ireland, Great Britain and most countries in Europe that Baringa use for a wide range of power market studies. The model sits within an integrated market simulation programme called PLEXOS, which is used by EirGrid and the CRU.

Researchers found that over the last two decades wind energy has delivered €2.3 billion in savings on the wholesale electricity market, driving down prices for consumers, and outweighing the amount of funding provided to support wind energy through the PSO levy.

Great value for money

"For less than a euro a year wind energy has reduced CO2 emissions by 33 million tonnes and cut the amount spent on fossil fuels by €2.7 billion. That's great value for money for electricity consumers," said Dr David Connolly, CEO of the Irish Wind Energy Association.

"Wind energy is pushing down the wholesale price of electricity and with the price of wind – both onshore and offshore – falling around the world this is a trend that is only going to continue.

"And of course wind energy is playing a vital role in addressing climate change, which the Government has identified as a key policy priority that must be urgently addressed. "This report confirms that wind isn't just good for the environment, it's good value for money."

The report considered not just the financial supports for wind energy but also the cost of additional investment in the electricity network and the additional technical costs of accommodating wind energy's variability on the electricity grid.



Calculating the cost of wind

Costs

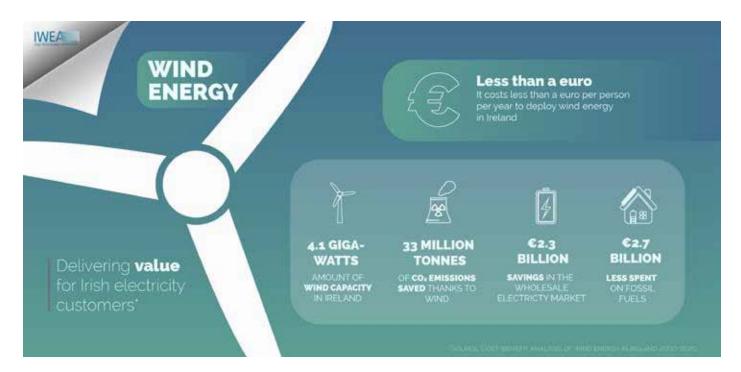
Renewable support costs €1.9 billion DS3 costs €0.4 billion Network upgrade costs €0.5 billion Constraint costs €0.5 billion €0.5 billion

Savings

Wholesale price savings €2.3 billion
Avoided EU fines €0.7 billion
CRM savings €0.2 billion

Total €3.2 billion

Overall cost €100 million over 20 years



Impact of wind on prices

The financial benefits of wind energy in fines avoided, reduced capacity payments to fossil fuel companies and – most importantly – the impact of wind energy on wholesale electricity prices were set against the costs.

"While consumers generally understand a portion of the PSO levy on their electricity bill is used to support renewable energy they are less conscious of the role wind energy has in driving down the price of electricity," explained Dr Mark Turner, Director at Baringa, who led the research.

"Every day electricity generators, fossil fuel and renewable, compete against each other in an auction to provide power to the suppliers who sell it on to homes and businesses. The more wind energy on the system, the more it pushes out fossil fuel generators that are much more costly to run.

"We used our advanced power market models to calculate how much wind energy is reducing the wholesale price of electricity and found this ranged from 5-20 per cent, depending on the year.

"As more wind energy is added, the savings typically increase, so the largest reductions are occurring right now across the years 2018, 2019 and 2020.

"These benefits will continue well into the future too, for as long as wind keeps generating energy."

Prices for consumers

Dr Turner acknowledged that while wind energy might be driving down the wholesale price of electricity, that may not be clear for many consumers.

"Irish electricity customers – under pressure from rising prices – can legitimately ask why, if wind energy is reducing wholesale electricity prices, they have not seen their own bills fall," he admitted.

"But we must remember that while wind provides more than a quarter of the country's electricity much more of it comes from gas, the price for which has more than doubled in recent years. Wind might be getting cheaper, but gas is getting more expensive."

The study shows that over twenty years, with all costs and benefits set against each other, the cumulative cost of wind energy works out at €63 million, or just 66 cent per person, per year.

Blow me down! Wind energy has cost only €1 a year per person

Pint of milk

"For the price of a pint of milk wind energy has become a leader in Ireland's fight against climate change while making us more energy independent and creating thousands of jobs," said Dr Connolly.

"As an industry we're focused on reducing the price of wind energy even more in coming years. There is enormous potential in developing Ireland's incredible offshore wind energy resources and still huge opportunities for expanding the amount of renewable energy we can generate onshore.

"With wind energy at its heart, there is no reason why we cannot, alongside solar, hydro and other renewables, be providing 70 per cent of Ireland's electricity by 2030."

The report Wind for a Euro: Cost-benefit analysis of wind energy in Ireland 2000-2020 is available on iwea.com/windforaeuro or you can request a hard copy by contacting IWEA at office@iwea.com.



ESB TRADING: READY FOR I-SEM

The introduction of I-SEM will mean a fundamental change in managing energy assets in the Irish electricity industry. ESB has developed a major trading capability to deliver asset optimisation, risk management and wholesale market access. ESB Trading now offers a range of services to manage renewable assets across this new all-island market, including:

- Power Purchase Agreements
- Supplier Lite Contracts
- Flexible Green Hedge Swaps

Our front office trades 24 hours a day, across multiple commodities in several key markets. Those markets all have unique characteristics, which result in us handling different currencies and regulatory regimes while constantly dealing with high levels of risk in a very fast-paced global environment.

If you would like to learn more about the Renewables Services that ESB can offer in I-SEM, please contact:



NIRIG NORTHERN IRELAND UPDATE



Brexit: Still here

Unfortunately, with mere weeks to go, Brexit impacts on the electricity sector remain unclear. At risk of being out-of-date by the time this comes to print, we still have no agreement about the form Brexit will take on 29th March. We are assured that delivering a deal remains UK government priority, but the civil service has been instructed to accelerate and intensify no deal preparations. There has been reassurance, not least from Prime Minister Theresa May, that the UK government will continue to work with Irish government and European Commission to seek agreement on SEM even in the event of no-deal, but no guarantees.

In a recent stakeholder event with the Department of Business, Energy and Industrial Strategy (BEIS), Department for the Economy (DfE) and NI Authority for Utility Regulation (NIAUR) there was a high degree of confidence that even in the event of a no deal scenario, the SEM will continue, but much less confidence that it would function efficiently (with the proposed withdrawal agreement, existing arrangements would continue until end-2020).

Key departments and utility regulators have been carrying out work to ensure continued operation of the SEM in a no-deal scenario. This includes legislation readiness, a review of licence and industry codes, market design adjustment, contingency plans, and market participation engagement.

Key concerns in event of a no-deal Brexit

- General inflationary impact on electricity prices as trading will be less efficient
- 2. Increase in curtailment for generators due to less efficient interconnector flows

In the event of no deal:

- SEM to be decoupled from pan-European Day-Ahead market coupling
- SEM Day-Ahead Market to continue to operate on an allisland basis (but not SEM-GB trading)
- Euphemia as a proprietary software should continue to be local market solver
- SEM Intraday Markets to continue without change, but less liquid

While the proposed solutions should ensure continued operation of the SEM, there will be impacts:

- Potential reduction in liquidity in ID1A1
- Internal auction could detract liquidity from market coupling timeframe
- Simple products and changed auction timing
- Less efficient allocation of cross-border capacity / impacts on SEM price formation
- Scheduling risks
- Interconnector impacts, including congestion rents, limited Moyle export and the North-South tieline becoming an interconnector
- Balancing guidelines will not apply in ROI as they would not be connected to a member state in the event of a hard Brexit



Recently NIRIG joined other NI business, farming and trade union bodies in Westminster to communicate key concerns about the need to avoid a no-deal Brexit and the importance of a backstop. Among those met were lan Blackford (SNP), Sir Vince Cable (Liberal Democrats), Sir Keir Starmer and Jeremy Corbyn (Labour) and Secretary of State Karen Bradley and Parliamentary Undersecretary of State at DExEU Robin Walker (Conservative). We raised questions about interconnector trading and SEM post-Brexit.

Further information can be found at EU Exit Business Readiness pages (Energy and Climate) and https://www.renewableuk.com/general/custom.asp?page=Brexit

NIAUR Corporate Strategy 2019-2024

NIAUR recently consulted on their next Corporate Strategy and we responded with comment both to the Regulator and the Department for the Economy. The Strategy provides a welcome analysis of the future changes in the energy sector, including disruptive factors which necessitate a shift in strategy, Brexit, the energy transition, the move to 'smarter' networks and the timeline of the SEF coming to an end.

Particularly welcome was the recognition of the low-carbon trajectory and the need for innovation, flexibility and new regulatory approaches. Also positive was the focus on facilitating 21st century networks, which will be important in ensuring greater consumer engagement, economic growth, low-carbon generation and innovation.

However, we do not believe that existing legislation and the duties and obligations of NIAUR will fully enable its Strategic Objectives as additional flexibility is needed to enable future power system needs. Policy development, such as rebates, has been stymied by the requirements for changes in legislation, which in other jurisdictions could be carried out through regulatory decision-making. We therefore recommended a review of all energy legislation as soon as possible to ensure that it is fit for purpose.

As with all consultation response, the full response can be found here https://www.ni-rig.org/policy/

Meabh Cormacain, Manager, Northern Ireland Renewables Industry Group



Crossmolina, Co. Mayo is usually associated with natural beauty, fishing and basketball. It also has a crossroads that has caused great consternation: "how do we get a 55m blade through this junction?" Our project team studied layouts, reviewed plans and swept paths with our client and haulier, until eventually on the night of 13th January 2019, with over 100 spectators in attendance, the blades squeezed through the crossroads with less than 200mm to spare. So starts 2019. An immensely busy year for our customers, teams and communities. We are proud that we are first and foremost an engineering company, dedicated to providing our customers with the most cost-effective renewable energy options for their projects. Since our first project in Ireland in 2002, Siemens Gamesa has installed over 1GW and by the end of 2019 will achieve 1.3GW. This significant market share will be achieved with 12 different customers ranging from utility to community owners. As we continue to focus on delivering our customers' projects, we also recognise that the market is changing, fundamentally. With the EU setting higher RE targets, Ireland will have to increase its ambition to achieve parity with other nations. As Ireland faces into the new world of auction systems, Siemens Gamesa is fortunate to have the capability to develop solutions in Onshore & Offshore Wind, Battery and Solar. With our global presence and local capability, we are confident our customers will be able to achieve project LCoE targets with us. Safety remains a key focus for all our teams and we are glad to partner with like-minded owners and sub-suppliers with #homesafe continuing to underpin everything we do. Making safety a core value ensures a safe, attractive industry that will be welcome in every community. Our 100 plus employees in communities across the country, remain focused on responding to all our customers, supporting them in any way we can to ensure no stone is left unturned to safely deliver lifetime projects. We have the ability and will value the opportunity to work in partnership with customers and suppliers on this exciting renewable energy journey.





RENEWABLE ENERGY AWARDS SHOW WIND POWERING AHEAD

The First Irish Wind Industry Awards took place in Dublin in January – 12 winners recognised for excellence and innovation in renewable energy.

More than 300 people from Ireland's leading renewable energy companies were joined by Minister Richard Bruton TD and MC, broadcaster Ivan Yates at the Clontarf Castle Hotel to celebrate the achievements of award winners who are leading the way to a carbon free energy future for Ireland.







Winners in each category

Best Community Project Award Sponsored by Natural Power

1 Galway Wind Park – SSE/Coillte (Winners)

Excellence in Operation and Maintenance Sponsored by Height for Hire

2 Wind Turbine Engineering (Winner)

Innovation in Research & Development Sponsored by ElectroRoute

3 Tullahennel Wind Farm – GE Renewable Energy & Microsoft (Winner)

Exemplary Health and Safety Performance Sponsored by RES

4 Roadbridge (Winner)

Planning & Permitting – Pre-Construction Stage Sponsored by Fehily Timoney & Company

5 MKO (McCarthy Keville O'Sullivan) (Winner)

Innovation in Technology
Sponsored by Siemens Gamesa Renewable Energy

6 Smart Wires (Winner)

Champion of Renewables Award Sponsored by Vestas

Catherine Swaine - Bord na Móna Powergen (Winner)

Consultant Firm of the Year Sponsored by Nordex Acciona

8 Ionic Consulting (Winner)

Project of the Year Award Sponsored by Ionic Consulting

9 Galway Wind Park – SSE/Coillte (Winner)

Outstanding Contribution Award Sponsored by Innogy

10 ElectroRoute (Winner)

Overall Winner

11 Catherine Swaine

IWEA Person of the Year

12 Brendan Heneghan









































IS THIS THE YEAR THE TIDE TURNS FOR OFFSHORE WIND?

By Stephen Wheeler, Managing Director, SSE Ireland

There was a time when Ireland was the undisputed leader in offshore wind energy. Just over 15 years ago, the world's largest offshore wind farm was to be found in the Irish Sea.

GE Energy and Airtricity co-developed a seven-turbine offshore wind farm off the Wicklow coastline. Generating 25MW of green energy, Arklow Bank Phase 1 was designed to prove the capability of offshore wind, not only in Irish waters, but globally.

Opened by Taoiseach Bertie Ahern to much fanfare, there were broad political hints that funding support for offshore wind energy would be forthcoming for future projects around our island.

Well, that was then – and the policy promises never materialised. In 2019, the seven Arklow turbines remain the first and only operational offshore wind farm in Ireland.

Where Ireland was a leader in renewable energy 15 years ago, we are now internationally recognised as the worst performing European state on climate action. Our carbon-emitting sins are many. And we're one of the few EU countries where carbon emissions continue to climb.

Onshore wind energy has been a huge success story here in Ireland. But the scale and urgency of the challenge we face is now greater than ever. We can no longer solely depend on onshore energy to meet our climate and energy targets. And we need to look beyond our 2020 targets – which we will miss – to targets for 2030 and out to 2050.

We need a new renewables revolution, and that revolution needs to be offshore where oceans of opportunity lie.

Ireland's potential for offshore wind is enormous. Our seabed territory is one of the largest in Europe, more than ten times the size of our land mass. And we have an incredible wind resource off our entire coastline.

We already have a number of significant projects in Irish waters, at different stages of development, which can deliver around 4.5GW of offshore energy in the coming years. At SSE, we're actively progressing our plans to develop the next phase of Arklow Bank Wind Park, which can deliver a minimum of 520MW of capacity. That's enough energy from one offshore wind site to power around half a million homes or five new 50MW data centres.

The industry is poised to invest billions of euro in large capital expenditure to develop Ireland's offshore wind energy assets to their full potential. However, policy and technical barriers continue to hold back the development of our largest renewable resource. The new Renewable Electricity Support Scheme (RESS) launched by Government last summer to replace REFIT provides only an

'indicative outline' of how offshore wind energy may be treated in future auctions. In the detail, the potential size of individual auctions open to offshore energy appear too small to allow largescale projects to commercially progress.

For this reason, industry continues to encourage Government to implement a category of sufficient scale for offshore wind in the final RESS design. This will send the early signals needed to give greater certainty to developers and investors, as well as to enable a new Irish job-creating supply chain to be ready for when offshore wind projects are scheduled to be delivered.

Additionally, we need action on grid. We continue to exist in a limbo where no grid connection policy is in place that provides access to the market for offshore.

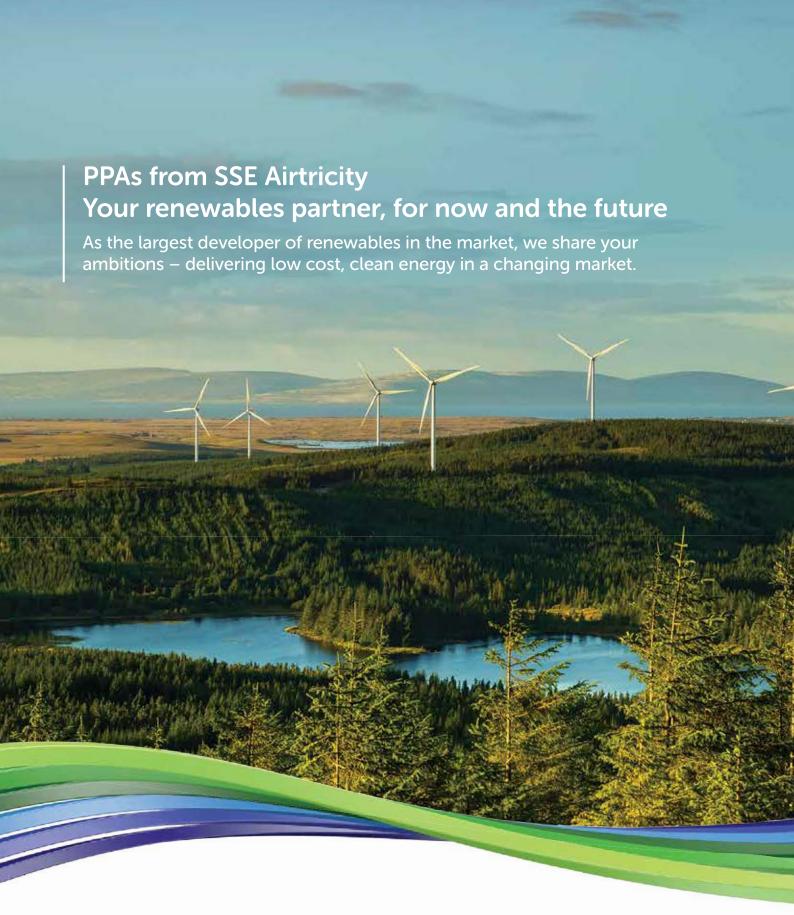
These policy and technical barriers can be overcome if the political will is there to make it happen.

So, it was important to see the Government publish its first draft National Energy and Climate Plan just before Christmas, setting a target to hit at least 55% renewable electricity by 2030 (although we prefer IWEA's more ambitious vision of 70%). More heartening still were the recent comments from Climate Action Minister Richard Bruton, stressing that "the speedy, efficient and effective roll-out and connection of offshore wind at scale has, by far, the single greatest potential impact terms of decarbonisation of Ireland's electricity generation mix".

These are important step-change policy statements. And for once, you begin to feel that there is a real political urgency and a sense of commitment to stepping up and becoming a leader, once again, in responding to climate change.

And if we want an example of what a step-change looks like, then look no further than our nearest neighbour. In the 15 years in which Ireland's offshore sector has been stalled, the UK set clear and ambitious policies that delivered 7GW of installed capacity. Today, the UK is the global leader in offshore wind and almost 10% of Britain's power needs come from offshore wind. By 2030, it is planned that offshore wind will deliver at least a third of the UK's electricity supply and, in doing so, will create tens of thousands of new supply chain jobs.

We need to take inspiration from that approach, and devise similar strategies for Ireland to ensure offshore wind is harnessed to power Ireland's homes, businesses and economy. In doing so, we will ensure Ireland is a leader once again in tackling climate change, and playing our rightful role in promoting climate justice. Let's make 2019 the year in which we make that change.



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DRIVING DOWN MARKET COSTS FOR A RENEWABLE FUTURE

We're now six months into I-SEM, so perhaps a natural point to reflect on how the market is developing. Over the last half-year, we've gained a number of interesting insights into how the new market is functioning and the exposures faced by participants, particularly wind farms.

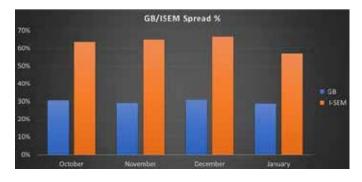
Introducing balancing costs

In the old SEM, wind farms were not financially penalised for non-delivery. However, in I-SEM participants must manage their forecast errors or get 'cashed out' at the imbalance price. In simple terms, participants will either pay, or be paid, the imbalance price for delivering less, or more, than forecasted. Typically, wind farm forecast errors are largely in line with each other, as they all tend to over- or under-deliver at the same time. And because this forecast error is the largest variable on the system, wind will typically always be on the 'wrong' side of the imbalance price; buying when the price is high or selling when the price is low.

Leading up to the implementation of I-SEM, there was much speculation around what the level of balancing costs would be. Naturally, comparisons were made to the GB market, as it already operated on a similar design. So, a few months in, how do the comparisons stack up?

So far, so volatile!

The opening months of I-SEM have been notable for the imbalance price volatility. The chart below shows the absolute spread between imbalance prices and day-ahead prices, as a percentage of day-ahead price from the launch of the market up until January.



It is clear that I-SEM imbalance price spreads have been significantly greater than those in GB. This means that participants are faced with greater price exposures on their forecast errors. Furthermore, balancing prices in I-SEM have out-turned significantly lower than the day-ahead prices, so simply selling all generation to the Balancing Market is very costly.

Why the high level of volatility? A complex question to answer, but one of the most surprising factors has been the extreme levels of pricing from thermal generators, and how they have fed into the imbalance prices under the new design. For example, prices have frequently been set at negative levels (even - 1,000 MWh) by waste-to-energy generators, and up to 5,637 MWh by peaking plant. And as mentioned earlier, any wind forecast error will tend to be on the wrong side of these prices.

Minimising the exposure; avoiding the costs

As the market continues to evolve in the years to come, the financial risk around managing the cost of balancing will also vary, as predictable thermal generators change the way they operate, and new flexible generation potentially enters the market. However, the risk will not disappear, and typically in markets where the levels of renewables increase, the cost of balancing will increase also. In the Irish market, where Government ambition is to get to 55% renewables by 2030 (or hopefully 70% by 2030, as IWEA is pushing for), the high cost of balancing for developers and investors is a key hurdle to overcome - particularly when it has been made clear in the current RESS High Level Design that these costs will be fully born by the projects.

For this reason, SSE Airtricity is working to break new ground in the field of wind forecasting. In late 2018, in collaboration with UCD's Centre for Applied Data Analytics (CeADAR), we were successful in obtaining funding from the Sustainable Energy Authority of Ireland (SEAI) to support a project focused on significantly improving the accuracy of wind generation forecasts. This project, named FREMI (Forecasting Renewable Energy with Machine Intelligence) will bring together SSE Airtricity's vast knowledge and data, built up from developing and managing the largest wind portfolio in the market, with CeADARs skills as a renowned centre for excellence in advanced data analytics.

While existing forecasting techniques focus solely on meteorological conditions, FREMI will take a holistic approach, advancing these techniques through the latest Artificial Intelligence (AI) technologies to combine them with plant availability, system demand and localised grid constraints. This will greatly enhance the understanding of each wind farm's likely market position, not only when operational, but in the development stage too.

Irish renewables leading the way!

The Irish energy system is already seen as world leading in its ability to facilitate substantial amounts of renewables on a relatively isolated grid. To enable us to meet future national targets, and the even loftier ambitions of the wind industry, we will also need to be world leaders in managing the effects that a high penetration of renewables has in an energy balancing market. By capitalising on advances in technology, and utilising the skills of partnering bodies such as CeADAR, we will ensure we achieve our goals – providing cheaper, cleaner energy to homes and businesses across the island.

As both the owners of Ireland's largest wind generation fleet, and managers of the biggest third-party PPA portfolio, SSE Airtricity's Energy Markets team is uniquely positioned - by having the same incentives as its client base -to minimise the cost of wind balancing across existing and future projects. Contact us today at energymarkets@sseairtricity.com for more information.









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The Re-wind Project: New life for old turbine blades

Project looks at new uses for end-of-life turbine blades – including play area equipment and public seating



The Re-Wind project is a unique collaboration between research teams in the Republic of Ireland, Northern Ireland and the USA, looking at the growing issue of waste from decommissioned wind turbine blades. The goal of Re-Wind is to find sustainable and novel uses for these valuable highly-engineered composite material structures.

The team was formed when Prof. Larry Bank of City University New York, an expert in sustainable composite materials, visited Prof. Jian-Fei Chen's structural mechanics laboratory in Queens University Belfast. Both had extensive experience of civil engineering composites, and they became interested in the sustainability of the wind turbines which they saw dotted around the landscape of Ireland. They approached Dr. Paul Leahy, Lecturer in Wind Energy at UCC, an expert in wind energy and environmental impacts, and the Re-Wind idea was born. As landfill and incineration of blades have negative environmental impacts and as recycling composite materials is difficult, could innovative new uses be found for composite wind turbine blades when they reach the end of their service lives?

Any repurposing of wind turbine blades will impact on local communities and local economies, so experts in social dimensions of energy systems from UCC joined the Re-Wind team. Geographical Information Systems researchers from QUB, architects from QUB and Georgia Institute of Technology also joined the team to design locally-specific repurposing solutions. The project proposal won funding from The National Science Foundation of the USA, the Department for Employment and Learning of Northern Ireland and Science Foundation Ireland.

As the national installed base of wind turbines in Ireland matures, the issue of dealing with end-of-life blade waste will become increasingly important. Preliminary estimates by the Re-Wind Geographical

Information Systems team in Belfast indicate that over 2,300 wind turbines are likely to be decommissioned on the island of Ireland by 2038. Globally, composite material blade waste is projected to reach 40 million tonnes by 2050. Re-Wind addresses a key challenge for the Irish and global wind energy industry: how to manage the projected stream of end-of-life blades in a way which is environmentally sustainable, economically feasible and socially beneficial.

The Re-Wind team believes that circular economy thinking can be applied to the problem, and that repurposing of blades should be the preferred option over lower-value outcomes such as material separation, recycling or recovery, aggregates production, incineration or landfill.

What new purposes can be found for end-of-life wind turbine blades? There are already some examples of successful blade repurposing from other countries, such as play structures and public seating constructed from blade sections in the Netherlands and bus shelters in Germany. The Re-Wind team has created a library of over 50 potential blade reuse applications. From these, the best ideas will be selected and further developed in Design Studio exercises in Belfast and Atlanta. As transporting entire blades or large sections of blades over long distances is likely to be prohibitively expensive, one of the design imperatives of Re-Wind is to find local repurposing solutions wherever possible. Detailed knowledge of the blades themselves and of their surrounding areas is needed for this.

The Re-Wind GIS team is building a geodatabase of every installed turbine in Ireland, including details such as the blade geometry, composition, and date of installation, as well as road and ancillary infrastructure which will be used to help tailor repurposing solutions for specific blades and locations.



Dr. Paul Leahy, School of Engineering & MAREI Centre, Environmental Research Institute

In many cases, the blade designs and geometries are unknown – they may either be commercially-protected, even after 20 or more years in service, or the turbine manufacturers may now be defunct.

Re-Wind has been given access to some blade designs, and has carried out 3-D LiDAR scans of other blades in order to determine their geometries. Samples of blades have been brought to Atlanta and Belfast for structural investigation and testing. This will allow the residual structural properties of the blades to be determined, which will then inform the technical feasibility of proposed blade reuse scenarios.

In UCC, the work of three Re-Wind PhD students is focussing on the environmental, social and economic sustainability of repurposed blade applications. Life-cycle assessment will be used to gauge the environmental performance of repurposed blade applications. For example, there may be beneficial effects from deployments of flood barriers or coastal erosion protection measures, but there may also be negative effects, for example CO2 emissions due to transportation or cutting of blades. Social dimensions will be a key factor. Reusing blades in ways which benefit local communities offer the prospect of greater local acceptance of wind turbines, while addressing wider societal goals such as the decarbonisation of energy systems and improving resource usage efficiency.

Finally, any future redeployment of blades will need to be sustainable from a business perspective. Re-Wind will also examine how the value of repurposing blades may be recognised and captured in order to allow enterprises to develop business models to capture the value of composite blades, and prevent their materials from entering conventional low-value waste streams.

The Re-Wind team is interested in the views of all stakeholders in the wind energy sector. For further information, visit www. re-wind.info or contact UCC at paul.leahy@ucc.ie

GENERATION TABLE SPRING 2019

IWEA carried out a survey to update members on the latest level of energised wind on the Island of Ireland. As of March 2019, IWEA's, database indicates that there is a total wind generation capacity of 4700 MW broken down into 3566 MW in the Republic of Ireland and 1134 MW in Northern Ireland.

The table below gives a projection of how the Republic of Ireland's installed capacity could increase over 2019 and onwards. However, a small number of these projects are at risk from the decision not to grant the REFIT grace period and they may not connect until after 2020. As with the previous generation table all information displayed has been gathered through contacting both developers and specialised consultants within the industry. IWEA also utilised the ESB and EirGrid connections and contracted lists as a reference point. Connection Dates are based on available information and may be subject to change.

Wind Farm Name	County	MEC (MW)	Owner/ Developer	Estimated Energisation Date	Cumulative Installed in ROI (MW)
Ballincurry Wind Farm Ltd	Tipperary	4.70	Thomas Cooke	2019 Q1	3571
Rossaveel Wind Farm (Clifden)	Galway	3.00	Lir Environmental Research	2019 Q1	3575
Carrowleagh Wind Farm (2)	Mayo	2.65	Loftus Bros.	2019 Q1	3576
Corvin Wind Turbine	Donegal	2.100	Corvin Wind Ltd.	2019 Q1	3577
Ballycumber Wind Farm	Wicklow	18.00	KBM Wind Group	2019 Q1/Q2	3595
Black Lough Wind Farm	Mayo	12.50	Black Lough WF	2019 Q1/Q2	3608
Killala Wind Farm	Mayo	17.00	Killala Community Wind Farm	2019 Q1/Q2	3625
Three Trees	Donegal	4.25	Three Trees WF	2019 Q1/Q2	3629
Tullynamalra Wind Farm	Monaghan	2.64	Wind Direct Energy	2019 Q1/Q2	3631
Magheramore / Cloontooa WF	Mayo	40.80	PWWP Developments Ltd	2019 Q1/Q2	3672
Knockalough (1)	Galway	33.60	Knockalough WF Ltd.	2019 Q1/Q2	3706
Enros - Sorne Hill 1 Turbine (3)	Donegal	2.30	Inish Wind	2019 Q1/Q2	3708
Cronalaght 2 Wind Farm	Donegal	17.96	Gaoithe Teoranta Gineadoiri	2019 2 nd Half/Later	3726
Grousemount WF	Kerry	114.20	ESB Wind Power/ Kerry Wind Power	2019 2 nd Half/Later	3840
Oweninny Power (1)	Mayo	89.00	ESB / Bord na Móna	2019 2 nd Half/Later	3929
Raheen Bar Extension	Mayo	6.80	Ecopower	2019 2 nd Half/Later	3936
Raragh 2 Wind Farm	Cavan	11.50	Mainstream Renewable Power	2019 2 nd Half/Later	3947
Sorrell Island(Glenmore)	Clare	24.00	Enerco (Clare Winds Ltd.)	2019 2 nd Half/Later	3971
Lissycasey Wind Farm	Clare	13.40	Renewable Power Generation	2019 2 nd Half/Later	3985
Tobertooreen	Limerick	23.10	Element Power	2019 2 nd Half/Later	4008
Bunnahowen Wind Farm	Mayo	2.55	Alpha Wind Energy	2019 2 nd Half/Later	4010
Boolynagleragh (1)	Clare	36.98	Hibernian Wind Power	2019 2 nd Half/Later	4047
Bunnyconnellan Wind Farm	Mayo	28	NTR	2019 2 nd Half/Later	4075
Mauricetown	Limerick	13.80	Mauricetown Wind Farm	2019 2 nd Half/Later	4089
Esk Wind Farm	Cork	5.95	Michael Murnane	2019 2 nd Half/Later	4095
Esk 2	Cork	5.40	Michael Murnane	2019 2 nd Half/Later	4100
Clogheravaddy Wind Farm	Donegal	9.20	ABO	2019 2 nd Half/Later	4110
Knockawarriga Ext	Kerry	6.60	Brookfield	2019 2 nd Half/Later	4116
Cahermurphy Wind Farm	Clare	6.00	Alpha Wind Energy Ltd.	2019 2 nd Half/Later	4122
Kiltumper Wind Farm	Clare	4.99	Renewable Power Generation	2019 2 nd Half/Later	4127
Derragh Wind Farm	Cork	12	Mudkar Ltd	2019 2 nd Half/Later	4139
Cleanrath Wind Farm	Cork	30.64	Wind Prospect Ireland Ltd.	2019 2 nd Half/Later	4170
Derreenacrinnig West	Cork	5.82	George O 'Mahony	2019 2 nd Half/Later	4176
Boolard Wind Farm (Charleville)	Cork	4.45	NTR	2019 2 nd Half/Later	4180
Derrysallagh Wind Farm	Roscommon	34	GE Energy	2019 2 nd Half/Later	4214
Upperchurch Wind Farm	Tipperary	94	Eco Power Ltd.	2019 2 nd Half/Later	4308
Knocknamona Wind Farm	Waterford	34	Eco Power Ltd.	2019 2 nd Half/Later	4342

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IWEA's Committee Update

Email helen@iwea.com to enquire about joining any of our committees



MARKETS COMMITTEE

Chair: John McNamara

Markets Committee

The Markets Committee looks at a range of financial issues and risks to the wind industry and develops solutions to these through the working groups. Activities cover the wind industry's Route to Market via existing and new support schemes, the operation of wind energy in Ireland's electricity market (SEM/I-SEM) and broader policy developments affecting the electricity market such as the Clean Energy Package and Brexit.

Working Groups include: RESS, REFIT in I-SEM, I-SEM, Brexit. These working groups have recently been working on a position paper on early RESS, a paper on Corporate PPAs with the SEAI and other Renewable Associations and modifications to the Trading and Settlement Code and many more projects.



GRID COMMITTEE Chair: Donal Smith

Chair: Donai Smith

The Grid Committee examines a range of issues affecting project delivery and connection to the electric grid. Topics range from high-level policy and regulation, such as procedures for grid connection applications and processing, to specific issues related to the grid and wind energy connections such as Harmonics and Met Mast Guidelines.

Working Groups include: Enduring Connection Policy, Grid Delivery, Build Out Survey, Contestable Cable Works, REFIT Grace period, Grid Code Compliance Testing.

Recent work includes: Positions on ECP-2, the REFIT Grace period, a response to ESBN's Standard Generator Charges (SGC) which achieved much lower costs that the proposed SGCs, and a review of EirGrid's draft functional specifications for contestable cables.



PLANNING COMMITTEE

Chair: Brian Keville

Planning Committee

The Planning Committee looks at the many planning issues affecting wind farms in Ireland.

Working Groups include: WEGs (Noise), Section 48/49, Regional Planning, CRU Licensing, Planning process, Hen Harrier. On-going work includes work on the WEGS consultation, positions on Section 48/49 of the Electricity Act, and a new spatial analysis exercise.



STORAGE COMMITTEE

Chair: Bernice Doyle

Storage Committee

The Storage Committee was established as a forum to address the needs of the storage industry to work on areas of common interest of members.

Working Groups include: DS3/Curtailment, Volume Capped procurement framework, Storage charges and markets registration, Future storage Volumes, Planning / Noise. These working groups have been very busy submitting and continue to review some of the projects such as DS3 System Services, Volume Capped Fixed Contracts & Battery Energy storage Systems and have set up an All-Island Working Group to develop a paper on the barriers to storage.



ENERGY SYSTEMS COMMITTEE

Chair: Paul Blount

Energy Systems Committee

The Energy Systems Committee was established as a forum for the wind energy industry to discuss broader energy policy and to evaluate how the surrounding energy system will need to evolve in the future to accommodate more wind. Central to this committee is the IWEA Energy Vision, which sets out how Ireland can provide 70% of its electricity with renewable electricity in 2030 without increasing the cost of electricity for the consumer.

Working Groups include: 2030 Targets, Future Costs, Cost-Benefit Analysis of Wind Energy and the National Energy & Climate Plan (NECP). Since October the above working groups have addressed the 70/30 Baringa report, the NECP consultation and the Wind for a Euro report to name but a few projects.

IWEA's Committee Update



COMMUNITY ENGAGEMENT COMMITTEE

Chair: Emmet Egan

Community Engagement Committee

IWEA regularly reviews and updates best practice guidelines on how wind farm developers and owners interact with the local community. Specific recommendations were proposed for Ownership in 2017 and these were all combined and updated in 2018, with the launch for consultation of Community Engagement Strategy March 2018. IWEA is currently engaging with various stakeholders across communities, policy and industry about this new strategy and is aiming to complete a final version by early 2019.

Working Groups include: Handbook, Benefit/ownership, & Communications. These working groups are currently building a handbook as a guide to community engagement, developing documents on community benefit and shared investment & a brochure on the positive aspect of wind energy.



NORTHERN IRELAND (NIRIG)

Chair: Rachel Anderson

Northern Ireland Committee

The Northern Ireland Renewables Industry Group (NIRIG) is a collaboration between the Irish Wind Energy Association and Renewable UK. NIRIG represents the views of the large-scale renewable energy industry inNorthern Ireland, providing a conduit for knowledge exchange, policy development support and consensus on best practice between all stakeholders.

Working Groups include: Markets, Grid and Planning. Some items these working groups are working on are Transmission development plan, 2020 rates revaluation & All Island Energy storage paper.



HEALTH & SAFETY COMMITTEE

Chair: Ronan O'Meara

Health & Safety Committee

The aim of the Health & Safety Committee is to protect people, maintain and develop stakeholder relationships, and ensure access to all relevant information and policy development processes. The Committee will look to secure the safety of the industry through the benchmarking of international practices, knowledge sharing and the dissemination of information to the whole industry, beyond our membership base. Peer support - IWEA strives to provide fora which allow industry peers an opportunity to openly seek opinion, guidance, information and support.

Working Groups include: Operations, Construction, Logistics & Wind turbine safety rules



ASSET MANAGEMENT COMMITTEE

Chair: Sheila Layden

Asset Management Committee

This committee works on the premise that effective Asset Management drives the optimization of asset base lifecycle in terms of performance, cost and risk. The Asset Management Committee focuses on: Continuous improvement, establishment and promotion of high standards with regards to technology, systems, community, policy and commercial return.

Working Groups include: Operational including Rates, Standard Setting, Engagement



OFFSHORE COMMITTEE

Chair: Peter Lefroy

Offshore Committee

The Offshore Committee addresses the specific needs of offshore wind. Offshore wind costs are falling rapidly in other parts of Europe and Ireland has a very large offshore resource, so the committee is working to ensure that there is an efficient policy framework in place for the development of offshore wind in Ireland.

Working Groups include: Marine Spatial Planning and Consenting, Grid & Route to Market. They have been working on the National Marine Planning Framework Baseline Report. The Route to market group are currently working together with the Grid committee on developing an IWEA position to the development of the first RESS auction.

DISAPPOINTMENT AS REFIT GRACE PERIOD REFUSED

The decision by Minister for Communications, Climate Action and Environment Richard Bruton TD to refuse requests from IWEA and a number of wind farm developers for a REFIT II grace period has been described as 'very disappointing' by IWEA's CEO Dr David Connolly.

More than a dozen projects and over 400 MW of renewable electricity generation stood to benefit if a grace period was put in place that would have allowed projects which, through no fault of their own, missed their 31 March 2020 connection deadline to still qualify for REFIT.

All of these projects have been through the planning system and have received grid connection offers but due to increasingly common delays in connecting projects to the grid, some of them will no longer be able to meet the deadlines required under REFIT.

If one of these deadlines is missed then projects could potentially lose all of their REFIT support and some projects simply cannot take this risk.

200 MW at serious risk

IWEA estimates that while some of the projects that would have benefited from a 'grid grace period' may still make the deadline, at least 200 MW of consented wind farms are now very unlikely to go ahead.

Over the last six months IWEA has raised the issue with the department of Communications, Climate Action and Environment on multiple occasions but unfortunately the Minister rejected the proposal based on four main reasons: 1) a previous extension was provided, 2) not all delays were deemed grid-related 3) the upcoming RESS auctions and Corporate PPAs could provide better value for money and 4) to incentivise projects to connect in 2019 rather than 2020, due to the additional contribution this provides to Ireland's 2020 targets.

None of these provide what could be considered a strong justification for the decline of the grace period, especially considering RESS will not be able to deliver any projects in 2020 and the lack of policy support to reduce the cost of wind energy and support the development of a thriving market in Corporate PPAs.

"It's a really disappointing decision and it'll make hitting Ireland's 2020 renewable electricity target extremely difficult," said Dr Connolly. "It means more CO2 emissions in the electricity system and more energy imports.

"What makes this all the more frustrating is that these developers did everything that was asked of them in going through the planning system and applying for grid connections, but will now lose out because of factors completely outside of their control."

His reaction was echoed by Ionic Consulting's managing director Ken Boyne. "There are projects that should have been built but will not now be built," he told ReNews. "It is a big disappointment."

RESS critical

The decision not to extend the grace period makes it all the more critical that the commitments made by the Minister and the department that the new Renewable Electricity Support Scheme (RESS) will hold its first auction before the end of 2019 are met.

The development of the RESS has been slow to date and across the renewable energy industry doubts are increasing about whether the deadline for the first auction is now at all realistic. Participants at February's Renewable Energy Ireland conference heard one industry expert estimate that the first auction would not take place until the middle of 2020.

Dr Connolly said that the decision on the grace period means it is time for the industry to look forward and to do everything possible to ensure projects are not left stranded between the end of REFIT and the beginning of the RESS.

"The focus now needs to shift to getting the new Renewable Electricity Support Scheme up and running as quickly as possible," he said. "That has to be our top priority.

"The Government must deliver on the commitment to hold the first auction before the end of 2019 and we want to work with the department to ensure an effective auction design that will provide a route to market for the next generation of renewable electricity projects."



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Policy Update



IWEA Policy Update - Spring 2019

The policy team has six committees – Markets, Grid, Planning, Energy Systems, Storage and Offshore. Each committee contains a number of working groups which tackle specific topics and issues. The working groups allow for cross-committee subject matter experts to come together to work on industry related topics. They range from commissioning economic analyses and reports to developing responses to consultations. The working groups provide IWEA members with an opportunity to influence key stakeholders and policy decision-makers, via the IWEA platform, and therefore help to shape the direction of energy policy in Ireland. Described below, are several key workstreams currently active across various IWEA Policy working groups and Committees. Any member of IWEA can apply to join a Committee by emailing office@iwea.com.

Renewable Energy Support Scheme (RESS)

The RESS Working Group developed an IWEA position paper on the key aspects of the early RESS auctions. The paper examined the potential pros and cons of decisions including bonding arrangements, realisation dates and late delivery penalties. This work was support by analysis by Pyory which looked at the European experience as well as the impact of specific decisions on the Levelised Cost of Energy (LCOE) for example contract durations and price certainty. IWEA expects that a well-designed RESS programme will provide Ireland with an opportunity to deploy renewable power at value to the consumer while helping to meet EU renewable energy targets and increase security of supply. The RESS position paper has been submitted to DCCAE. The paper is available to read on the IWEA website.

Corporate PPAs (CPPA)

DCCAE has requested that the SEAI carry out a study on Corporate PPAs. IWEA has been asked to be on the advisory panel for this study. The CPPA Working Group has been working with the SEAI to develop the scope of this paper. It is currently intended that the study be completed mid Q3 2019.

REFIT in I-SEM

The CRU published a notification paper on 18 December which included information on REFIT in I-SEM. The CRU confirmed that its interpretation of DCCAE's June 2018 decision paper is that there is no deviation required to the CRU's current approach to calculating total costs and total revenues over a 12-month PSO period. The market reference price for calculating the energy component of market revenues (for each individual trading period within the 12-month PSO period) will be based on:

- the lower of a blend of 80% of the Day Ahead Market Price and 20 % of the Balancing Market Price, and the Day Ahead Market Price (for all supported wind generators above 5 MW)
- the lower of a blend of 70% of the Day Ahead Market Price and 30% of the Balancing Market Price, and the Day Ahead Market Price (for all supported wind generators below 5 MW)
- the Day Ahead Market Price (for non-wind generation under REFIT 1-3 & Peat PSO Scheme)

The Markets Committee is preparing a worked example on this to confirm that their understanding is correct.

At the CER Quarterly, the CRU confirmed that there would be a consultation on REFIT in I-SEM in Q1 2019.

ESBN Generator Standard Charges (GSCs)

The CRU held a consultation on proposed changes to ESBN's GSCs in November 2018. The Grid Committee formed a Working Group to respond to this consultation. The Working Group worked with the Irish Solar Energy Association, the Irish Wind Farmers Association and the Irish BioEnergy Association to develop a response. It was the view of the group that the proposed changes to the GSCs were not sufficiently explained and that in many cases the increase was unreasonably high and did not reflect industry experience of contestable connection costs. The group engaged with the CRU on the topic of the weeks after the consultation closed to provide additional background information. The CRU issued a note in January 2019 stating that they would not make a decision on the proposed changes to the GSCs at this time as they considered that further assessment is needed to determine if the proposed GSCs are reasonable and efficient.

Wind for a Euro

IWEA launched a major new report by Baringa on 31 January 2019 called Wind for a Euro: Cost-benefit analysis of wind energy in Ireland 2000-2020. The report analyses the impact on household electricity bills of the growth of wind. Baringa researchers assessed the costs of wind energy, including financial supports, investment in the grid and the technical costs of accommodating wind power on the electricity network. Against these are the savings wind delivers which include lower prices on the wholesale electricity market, reduced capacity payments and avoided EU fines.

POLICY UPDATES

During the same period wind energy has enabled Ireland to avoid 33 million tonnes of CO2 emissions, meaning the net costs equate to a carbon mitigation cost of approximately 2/ tonne. Wind energy has also helped to reduce spending on fossil fuels by 2.7 billion between 2000 and 2020 – cutting fuel imports by 226 million in 2017 alone – while providing jobs and investment in Ireland.

This is the first time that a cost-benefit analysis of wind energy in Ireland has been carried out using actual historic data and modelling. The report is available to read on the IWEA website.

Offshore Committee

There are three main Working Groups Marine Spatial Planning / Consenting, Grid and Route to Market focussing on the three key pillars of offshore development. IWEA recently commissioned a report by Cornwall Insight, A Great Leap Forward? Offshore Wind in Ireland which highlights the major issues for the deployment of offshore wind in Ireland and recommendations for policy action. IWEA are also represented as an external stakeholder on the Offshore Renewable Energy Steering Group, the cross governmental group tasked with coordinating an Offshore Renewable Energy Development Plan.

Marine Spatial Planning

The Marine Spatial Planning / Consenting Working Group recently submitted a consultation response to DHPLG on the National Marine Planning Framework (NMPF) Baseline report. This was a key step in the development of a Marine Spatial Plan (MSP) for Ireland, which will act as a key decision making tool for regulatory authorities and policy makers in how our marine space is used including the future deployment of large scale offshore wind in our seas. The consultation response is available on the IWEA website.

IWEA are currently represented on the Stakeholder Advisory Group on Marine Spatial Planning that involves review and working arrangements in developing this National Marine Planning Framework. It is envisioned a draft MSP will be consulted on throughout 2019 with a view to publishing a final version by Q3 2020.

Another important step in ensuring the deployment of offshore wind in Ireland is the finalisation of the MAFA (Maritime Area and Foreshore (Amendment) Bill 2013). The Bill has three main aims: to align the foreshore consent system with the planning system, to provide for a single Environmental Impact Assessment for offshore projects; and to provide a coherent mechanism to facilitate and manage development in the exclusive economic zone (EEZ) and on the continental shelf. It is envisioned The Bill will replace the current Foreshore Act (1933-2014), which currently involves the cumbersome interaction across multiple parties. The working group is currently tasked with a watching brief for MAFA. The Bill has recently been reviewed by the Attorney General and has been returned for revisions. The earliest consenting regime under MAFA that can be expected is 2021 therefore it is hoped there will be a carved out process for offshore wind to allow for exiting projects in the Irish Sea to be progressed.

Offshore Grid

The Grid Working Group are currently engaging with relevant stakeholders to resolve how best to approach connection policy for offshore wind and how the future architecture for offshore grid infrastructure might look and function. Specifically, with regard connection policy, the Offshore Committee are working closely with the Grid Committee ECP2 Working Group. The working group also submitted a consultation to Eirgrid in January on Offshore Substation and Cable Functional Specification revisions which is available here (on the IWEA website) and are currently tasked with developing a grid position paper as part of an overarching IWEA offshore position paper.

Route to Market for Offshore

The Route to Market Working Group have commenced work on a route to market position paper looking at the key aspects of the RESS auctions, relevant to offshore. The group will look to leverage off some of the work of the Markets Committee RESS Working Group position paper submitted to DCCAE recently. Final details on the levels of support, auction qualification and participation rules for offshore wind in RESS are not yet known but IWEA believes a well-designed RESS aligned to the nature of larger scale projects and the associated consenting, grid and finance timelines will aid the deployment of offshore wind projects in the near future.

Wind Energy Development Guidelines (WEGs)

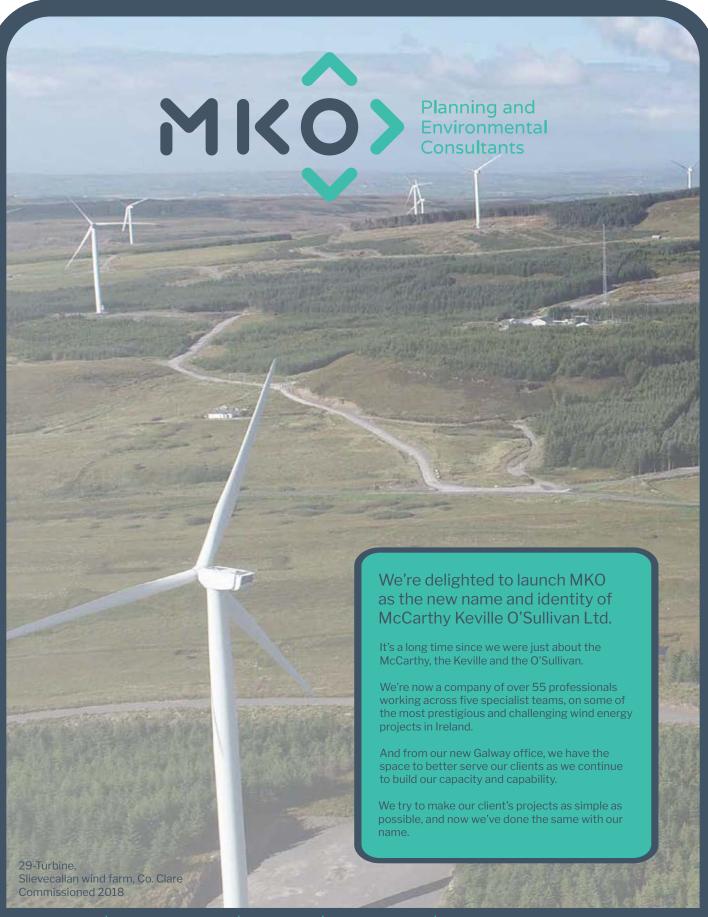
The WHO Environmental Noise Guidelines have resulted in another delay to the release of the WEGs. The new guidelines are now expected to be finalised by the end of Q2 2019. IWEA's Planning Committee is undertaking several actions to analyse the impact of the proposed WEGs and work on a detailed submission for the final public consultation. On top of this we are continuing to engage with the Dept. of Housing, Planning and Local Government and the Dept. Communications, Climate Action and the Environment to seek further information on WHO Guidelines and the Lden metric.

Spatial Analysis of the Future of Onshore Wind

The working group also began work on a new spatial analysis exercise with the aim to evaluate what the maximum potential future development of onshore wind is likely to be. The output from the exercise will be a written report, to be authored by McCarthy Keville O'Sullivan (MKO) and published by IWEA (exact details TBC), that gives IWEA a transparent, sequential and replicable methodology for determining future wind farm potential and allows IWEA to engage further with industry stakeholders to gauge the level of their ambition towards the required energy transition. This work will also be very useful for IWEA's response to the upcoming WEGs.

Grid Connections (Road Ownership etc.)

The Planning Committee has undertaken extensive work to find a solution to the ongoing planning issue of road ownership and consent. We have previously concentrated on utilising Section 48's and Section 49 to solve this issue by leveraging CRU's powers. However, as of late we have been exploring new solutions one which would use the Roads Act to solve the consenting issue and bypass S. 48/49s altogether.



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CURTAILMENT COMPENSATION

IWEA outgoing Head of Policy, Anne-Marie McCague talks I-SEM, Curtailment and REFIT

As reported by the most recently published All Island Quarterly Wind Dispatch Down Report 2018 for Quarter 3, the TSO dispatch down for 2018 was 5.1% with the majority of this (65.7%) being caused by curtailment events and the remainder by constraints. As the volume of non-synchronous generation increases, there is a risk that without proper measures by the TSO, curtailment levels will increase.

The move to I-SEM has seen some changes in how wind farms affected by curtailment and constraints are compensated. From the start of I-SEM, wind generators no longer received compensation for curtailment. The Trading and Settlement Code has what is called a "Curtailment Payment". This is in fact a payment from the generator to SEMO. It is calculated using the weighted average of the generator's day-ahead and intraday positions.

How a wind farm is treated when it comes to constraints depends on whether it will receive a REFIT payment or not and whether it has a firm or non-firm connection.

There are 2 scenarios for firm connections:

- Generators can retain the income received prior to being constrained if they are non-REFIT projects or if the REFIT floor is lower than the market price (i.e. no REFIT support is required).
- 2. Generators must pay back any constraint payments received through the REFIT R-Factor if they are REFIT projects and the REFIT floor is greater than the market price.

Those generators with non-firm connections must pay back the constrained volume at the imbalance price. At this point, there has been no clear guidance from the CRU on the treatment under REFIT for these imbalance costs.

In December 2018 the European Commission welcomed political agreement on conclusion of the Clean Energy for All Europeans package. The European Council, the European Parliament and the European Commission, through a series of meetings and discussions, agreed on the new rules for the EU's electricity market.

Commissioner for Climate Action and Energy Miguel Arias Cañete said "The new market will be more flexible and facilitate the integration of a greater share of renewable energy. An integrated EU energy market is the most cost-



Miguel Arias Cañet, Commissioner for Climate Action and Energy

effective way to ensure secure and affordable supplies to all EU citizens. The new rules will create more competition and will allow consumers to participate more actively in the market and play their part in the clean energy transition."

There has been a particular focus within the IWEA Markets Committee on the outcome of the discussions of the European Council, Parliament and Commission on the recast of the Electricity Regulation with regard to curtailment and representatives have been engaging with Wind Europe throughout the process.

Article 12 of the Electricity Regulation puts obligations on the System Operators (SOs) to publish justification for redispatching and strategy for reducing redispatching. This is a positive inclusion as it puts pressure on the SOs to continue to reduce constraints and curtailment. Article 12.6.b sets out the principles for compensation for the generators that have been redispatched. The Articles states that compensation should be at least equal to the higher of a) the additional operational cost incurred as a result of being redispatched or net revenues from the sale of electricity on the day-ahead market that the generating or demand facility would have generated without the redispatching request

However, compensation is for firm access only. Considering that all Enduring Connection Policy (ECP) offers are given on a non-firm basis this puts new wind farms in Ireland at a disadvantage. There are a number of details within the Electricity Regulation that need clarification, for example the exact definition of firmness. The Markets Committee will continue to engage with Wind Europe on this topic to develop IWEA's understanding.



IRISHWIND

IWEA organises numerous conferences, exhibitions, seminars and networking events for the benefit of its members and the industry.

IWEA 2019 Calendar of Events

10[™] APRIL 2019

Smart Energy Northern Ireland

The Mac,

Belfast

22ND MAY 2019

Health & Safety Conference

Mount Wolseley Hotel, Carlow



25^{TH &} 26TH SEPTEMBER 2019 Autumn Conference

Radisson Blu, Athlone

