WIND ENERGY IRELAND

DRAFT WEI Response to the Climate Action Plan 2023: Call for Expert Evidence

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1 Executive Summary

1.1 Introduction

WEI welcome the opportunity to respond to the Government's Call for Expert Evidence - Climate Action Plan 2023. This is an important opportunity for industry to feed into the process of setting out the needed actions towards delivering on our 2030 ambition and particularly the Sectorial Emissions Ceilings and Carbon Budgets.

WEI welcomes that Government and its agencies work to actively engage with industry and other key stakeholders to consider future development of the renewable electricity in Ireland. However, there is a feeling that there is more consultation than progress.

Formal Department consultations, while vitally important in general, do not represent the most efficient form of engagement at a time when urgent action is needed. In some cases, it can be months between the submission of consultation responses and the provision of feedback or engagement by Departments or stakeholders. In the context of meeting our 2030 ambition, there is no time to lose.

We therefore request Government to take the initiative to organise active and meaningful engagement with industry and other key stakeholders to effectively collaborate in identifying the key actions needed for the delivery of our 2030 ambition.

1.2 Key Priorities

1.2.1 Carbon Budgets

In July, Government reached agreement on the Sectoral Emissions Ceilings which set out maximum limits on greenhouse gas emissions for each sector of the Irish economy to the end of the decade. For electricity, the emissions reduction target is 75% by 2030, going from a level of 10.5 MtCO2eq to 3 MtCO2eq. Government is also expected to soon publish the sectorial carbon budgets, which will set out the cumulative emissions that each sector can emit while remaining within its allocated budget for the rest of the decade.

The budgets will limit Irish emissions to the equivalent of 295 MtCO2 over the 2021-2025 period, and a further 200 MtCO2 in 2026-2030. In the absence of a published carbon budget for the power sector, an indicative sectoral carbon budget has been suggested by Dr Paul Deane of University College Cork; a total of around 55 MtCO2 over the 2021-2030 period.

Total cumulative CO2 emissions from the Irish power sector out to 2030 are very much dependent on the pathway taken to get there.

In July 2022, Wind Energy Ireland published the *Bridging the Gap: Towards a Zero Carbon Power Grid* report, produced jointly by specialist energy consultants Baringa and TNEI. The report shows how power sector emissions could be kept to 66 million tonnes – of which 6 million are from constraints on the transmission system alone – between 2021 and 2030, but only if existing plans for Ireland's energy system are improved and accelerated.

This 66 million tonnes figure, 11 million tonnes more than the indicative budget mentioned above is **the best the power sector can deliver** unless extensive new grid infrastructure is completed by 2030, coal and peat electricity production ceases much sooner, or large volumes of offshore wind are connected before 2028.

To give Ireland the best possible chance of delivering on our 2030 ambition, and driving investment in and accelerated deployment of the required zero-carbon technologies, the following aspects must be addressed with clear and concrete policies as part of the updated Climate Action Plan:

1. **Carbon Budgets:** DECC must set out a trajectory for year-on-year electricity sector emissions reductions from 2021-2025 and 2026-2030 in line with sectoral cumulative emissions budgets and ensure the updated SOEF1.1 roadmap supports these. Key to this will be a roadmap to zero-carbon system services and reducing Minimum Generation Levels on the system.

2. **Connecting Onshore Renewables:** Complying with carbon budgets necessitates earlier connection of more onshore renewables. Transmission capacity solutions in SOEF v1.1 need to align with the onshore wind and solar pipelines currently working their way through the planning system. We must identify solutions to support the 2030 8GW & 5.5GW targets for onshore wind and solar respectively. Onshore renewables will play a key role in reducing emissions from 2022 – 2027, in reducing wholesale energy costs in this timeframe, and in paybacks to consumers through the PSO Levy.

3. **Connecting Offshore Renewables:** SOEF v1.0 proposed solutions for the east-coast Phase 1 offshore renewable projects. SOEF v1.1 must identify additional transmission capacity solutions to support the south and west coast projects and the new 7GW offshore target. Clarity on firm access policy will be crucial for both offshore and onshore renewables.

4. **Beyond 2030:** A Net-Zero energy system requires a much larger Net-Zero power system. Development of the transmission & distribution solutions to support the full decarbonisation of the energy system in the period 2030 - 2050 need to start soon. **SOEF**

v1.1 should establish the groundwork for a Net-Zero power system by 2035 at the latest.

5. **Market Reforms:** DECC should support the introduction of a new "Long Duration Storage Procurement Framework" as set out in a recent ESI position paper. BEIS in GB have committed to having this in place by 2024. AEMO in Australia are running auctions for this today. This would be most effective if it is accompanied by appropriate risk allocations in RESS auctions.

Additionally, CAP23 must instil a level of urgency into the need to replace our fossil-fuel based back-up generation, while ensuring security of supply. Ireland currently uses gas and coal generators to back-up the electricity system and ensure it remains secure. We must start work now to replace these with low and zero-carbon technologies like battery storage, new interconnectors, and demand-response technologies which lower electricity demand at times of tight supply.

While there is still a need for fast-acting gas turbines to ensure security of supply because we lack bulk storage of electricity from renewables at present, we must introduce fast-acting gas turbines now, which can be converted to run on green-hydrogen derived from renewable generation in the long run.

1.2.2 Zero-Carbon by 2035

Looking beyond 80% RES-E, WEI believe that we have the energy, the technology, and the investment to build a fully decarbonised electricity system by 2035. To give the needed signal to investors and build momentum towards this goal, **WEI call on Government to, as soon as possible, set out a target to achieve a zero-carbon electricity system no later than 2035**.

Additionally, and to support the achievement of this target, a longer-term vision for energy markets to support net zero should be set out for consultation. The current REMA consultation in the UK offers a compelling example. The UK has stated ambitions to decarbonise its power system on similar timelines to those proposed in Ireland, with an aim to reach 100% renewable electricity by 2035. As such it is seeing many of the same market design issues that we are encountering here.

The REMA consultation notes the need to unlock unprecedented levels of investment across the full range of low carbon technologies, including low carbon generation, electricity storage, and flexible demand from consumers and that the most cost-effective route to a net zero power sector by 2035 will require changes to markets to optimise both investment and dispatch (where

and when to produce and use electricity) as current market arrangements are based on the needs of fossil fuel generation rather than renewables.

This is a conversation that must be kicked-off in Ireland as soon as possible with the aim of delivering emissions reductions in the electricity sector beyond even the ambition set out in the sectoral targets.

1.2.3 The Planning System

The achievement of all of this will be dependent on a well-functioning planning system. The growing concern surrounding Ireland's energy security and the continuing urgent need to decarbonise our energy system has highlighted the need for faster development timelines.

We cannot decarbonise our electricity system and make Ireland energy independent without wind farms and cannot build them without a fit-for-purpose planning system.

The timelines associated with the permitting process have long been identified in Ireland, and across the EU generally, as a key barrier to the development and delivery of renewables projects, in particular wind energy projects. Thus, Ireland's planning consent and appeals system needs to be reformed if we are to fulfil the goals of the CAP.

WEI members are experiencing significant additional delays in the consenting of onshore wind energy projects which has resulted in the planning process for wind farms taking several years. The planning and permitting phase alone can typically take between 2-3 years at present (excluding grid connection planning). Developers expect that every project will be appealed and that every project will be the target of an application to take a Judicial Review resulting in lengthy and expensive legal proceedings. Therefore, including the above, it can take between 8-10 years for the full development phase of an onshore wind farm to complete. i.e., from commencement of environmental monitoring to lodging a planning application/ securing planning permission, securing a grid connection, obtaining a route to market before finally entering construction. Depending on the size of a project, construction can then typically take between 18 months to 2.5 years upwards to complete.

The CAP 2021 set out an ambitious target of 80% renewable electricity by 2030 as government policy. If Ireland has any chance of meeting that target, we must undertake an extensive reform of the current planning system.

Streamlining and speeding up the permitting process represents an opportunity to introduce meaningful change and improvements to the planning process in Ireland and will help reduce permitting timelines. There may also be opportunities to remove duplication and speed up or run certain permit applications in parallel. Shorter permitting timelines and more regular grid

connection and auction processes would significantly reduce project development costs, help increase installed capacity and would facilitate significant strides forward in Ireland's ability to reach its renewable energy targets.

WEI has several key recommendations for the systemic reform of the planning process in Ireland that will be detailed below in the following section.

1.2.4 The Electricity Grid

As mentioned above, to date, the approach to network reinforcement has not meaningfully considered the need to reduce emissions in line with the CAP target and carbon budgets and has been more focused on RES-E targets (80% by 2030). A focus on RES-E connections is not enough. Without the accelerated and aggressive build out of reinforcements, as well as the deployment of alternative technologies and solutions to reduce fossil fuel contributions and minimise congestion and constraint, carbon budgets over the decade cannot be met.

Offshore wind is critical but cannot be delivered quickly enough to help us reduce our emissions in the immediate term. Achieving reductions in cumulative CO2 emissions this decade for the power sector requires the rapid build out of large-scale onshore wind and solar PV capacity as early in the decade as possible. If we assume the renewable capacity connections can be accelerated in-line with the assumptions detailed in the *Bridging the Gap* pathway, to enable the lowest volume of cumulative CO2 emissions from the power sector, it is likely we will not reap the full benefit as new network capacity will not be in place on time, and constraint volumes will increase.

Technologies new to the Irish network are required to mitigate this impact, in particular the strategic deployment of long-duration energy storage technologies, technologies to sweat the existing infrastructure like Dynamic Line Rating and Power Flow Controllers as well as the connection of STATCOMs and synchronous compensation technologies to remove conventional must run plants. We need to leverage these alternative solutions and integrate them into our network as soon as possible and revolutionise our operational approaches in parallel, to allow time for grid reinforcements to come to fruition.

The current grid development strategy is focused on delivery by 2030, and does not consider beyond, towards a net zero future. Although we wait for the updated Shaping Our Electricity Future development plan, it is evident that the existing Roadmap will not deliver significant strategic capacity or headroom beyond the current renewable electricity targets.

Significant network capability to allow for additional renewable capacities beyond 2030 will be needed for further decarbonisation and to account for electrification and green hydrogen generation as well as other increasing demand. The power system should be planned, designed

and developed beyond 2030 to minimise the lag between societal development and needs and network deployment.

The matter of system resiliency and reliability is also a consideration. With the prospect of climate change, it is anticipated that we will experience more storms, more flooding as well as higher temperatures. These factors pose a greater risk to the resiliency and reliability of our power system. Stations are at risk due to increased flooding. Overhead power lines are at risk due to more electrical storms and lower ratings of circuits, therefore reducing capacity and increasing congestion. Ensuring the necessary mitigations, policy and standards must be identified and implemented in a timely manner to ensure the ongoing safe and secure development and operation of our power system.

1.2.5 Markets

Ireland has set itself an ambitious target of delivering 80% Renewable Electricity by 2030. The needed policy frameworks to incentivise enormous levels of investment into the deployment of renewable energy technologies are now being put in place. Ireland has a strong pipeline of wind projects both onshore and offshore, currently progressing through the various stages of the development process with the aim of delivering additional capacity onto the system by the end of the decade.

These projects, and their financial backers require certainty in the market. They are the projects that will enable us to meet national and EU-level renewable energy targets and reduce our reliance on Russian gas. Notwithstanding the discussions at EU level around revising the electricity market design, it is important to note that changes to the way electricity markets function, at this point, would put projects' business models into serious question, and ultimately damage our ability to deliver on our 2030 ambition and prolong the EU's reliance on imported fossil fuels.

WEI believe that well-functioning EU electricity markets are crucial to providing revenue certainty and investor confidence for renewable generators.

WEI welcomes the ***ACER Final Assessment of the EU Wholesale Electricity Market Design***, which found that the current electricity market design is not to blame for the current crisis, that it ensures efficient and secure electricity supply under relatively 'normal' market conditions, and that, as such, ACER's assessment is that the current market design is worth keeping. WEI believes that the Commission should be guided by this assessment as it considers its options in advance of any proposal on market re-design, expected in January 2023.

WEI note that in its ***Communication on Short-Term Energy Market Interventions and Long-Term Improvements to the Electricity Market Design – a course for action***, the Commission has set out, based on the ACER conclusions, several issues which have been studied and further considered to ensure an optimal future functioning market. The Commission has outlined that it intends to launch an impact assessment process and engage with Member States and a wide range of stakeholders and national regulatory authorities to adjust the electricity market design and, where necessary, its legislative framework.

WEI look forward to engaging with this process and encourage DECC to work with the Commission to ensure a wide range of stakeholders at individual Member State level are given the opportunity to participate and provide their relevant evidence, expertise, and experience.

However, and as outlined above, **we believe that certainty and predictability in the market will be vital for the achievement of our 2030 ambition**, and we urge Government and the Commission to keep this in mind during the upcoming work.

Additionally, the current crisis has highlighted Renewable Contracts for Difference (CfDs) act as a valuable hedging instrument as at times of high fossil fuel prices, renewable projects contracted under these arrangements pay back to consumers. Greater deployment of new CfD contracted renewable generation, for longer tenors, provides renewable generators with the revenue certainty they need for efficient low cost of capital investment, while at the same time protecting consumers from the worst impacts of geopolitical events driving fossil fuel price spikes.

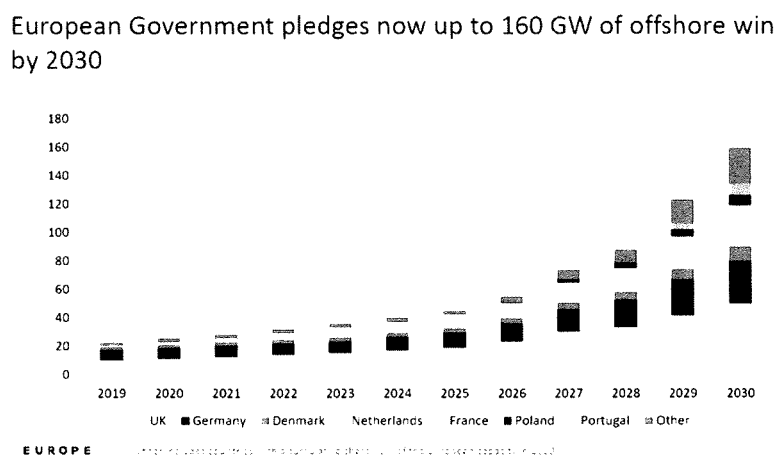
1.2.6 Speed and Policy Certainty vital in Supply Chain context

Policy certainty and urgency will be particularly vital to give Irish projects a chance to overcome the supply chain bottlenecks, expected in the latter half of this decade. Particularly from an offshore perspective, as concluded by the recent Offshore wind vessel availability until 2030[1], "to ensure in time installation of set targets, it is key that both the EU and local governments facilitate offshore wind development by creating the right conditions in terms of legislation, funding, supply chain and infrastructure as well as by creating proper conditions for the investment in installation vessels".

While the report focused on availability for Baltic Sea projects, it shows how the global offshore wind market will accelerate significantly towards the end of the decade, with the 2021 globally installed capacity of 57 GW set to increase over 5 times to 316 GW by 2030. This growth will be led by Europe, which, in 2030, will account for almost 50% of the global offshore wind market

[1] https://windeurope.org/wp-content/uploads/files/policy/topics/offshore/Offshore-wind-vessel-avaiability-until-2030-report-june-2022.pdf

(see chart below). This will mean significant shortages of vessels to meet demand over the course of the decade.



Policy certainty around offshore is critical. The European Union has an Offshore Wind target of 300 GW by 2050. Recently in its Dublin meeting, the NSEC countries set out a target for the Northern Seas of 260 GW of offshore wind by 2050. Offshore wind development across European countries and around the world is competing for a limited supply chain and there will be competition for contractors, OEMs, vessels, etc.

If Ireland is to deliver on 2030, certainty must be provided to the international supply chain as a matter of urgency.

We therefore must ensure projects can progress through the planning, grid, and route to market processes as quickly as possible. The planning and permitting processes must be streamlined and accelerated, and the utmost certainty must be provided to projects to ensure efficient and successful auctions.

1.2.7 Governance and Accountability

Given the urgency around the delivery of the actions in the Climate Action Plan, WEI believe there needs to be a strong level of governance and accountability around those responsible for delivering them.

The Climate Action Delivery Board was established in July 2019, jointly chaired by the Secretary Generals of the Department of the Taoiseach and Department of the Environment, Climate and Communications. It is tasked with providing strategic direction and leadership for the implementation of the CAP; monitor and support delivery and performance by each department; report to Government on progress in implementing actions; review strategic projects and areas of work necessary to achieve Government's climate objectives; and identify appropriate resolution pathways for barriers and constraints to the Government's climate objectives.

This Delivery Board must take an active and assertive role to ensure actions are delivered in a timely and high-quality manner.

While many of the CAP21 actions to date have been delivered, there remain several examples of actions which either were not or have not been delivered on time, for example:

- Action 113 - Draft and publish consultation paper on policy options on Private Wires (DECC, due Q1 2022)
- Action 125 – Determine contractual framework approach to accommodate Multiple Legal Entities behind a single connection point (CRU, Q1 2022)
- Action 102 - Designate a single contact point to guide applicants through and facilitate the entire permit granting process for renewable electricity installations (DECC, Q2 2022)
- Action 113 - Detailed design of new market arrangements for the evolution of System Services (CRU, Q2 2022)

It is important that there is clear accountability around the actions identified in the Climate Action Plan, and that if actions are delayed or not delivered for whatever reason, explanations should be provided including updated timelines for delivery.

2 Responses to specific consultation questions on Electricity

2.1 Question 1: What options are available to increase the penetration of renewable electricity beyond the up to 80% committed to in Climate Action Plan 2023?

At a high level, meeting and exceeding our 80% RES-E target requires, the deployment of:

- Sufficient MW capacities of the renewable generation to provide the variable **renewable power** in the volumes required.
- Sufficient capacity of the technologies that will provide zero carbon frequency and voltage **stability services** at 100% SNSP, 0MW minimum conventional generation.
- Flexibility technologies that will support **time shifting of very significant quantities of renewable energy** to simultaneously manage system oversupply and local network constraints while supporting capacity adequacy
- A **mix of technologies** with differing generation profiles that enable us to produce peak power at different times.

Additionally, it is important to consider that 80% RES-E today looks very different to 80% RES-E in 2030. Ireland's demand is expected to climb from a level of ~30TWh now, to more than 45TWh by 2030. This emphasises the crucial importance of consistent and accelerated delivery of renewable energy projects to ensure that the vast majority of Ireland's electricity needs in 2030 can be met by renewables.

Addressing these points in more detail:

Renewable Generation:

In terms of the renewable energy generation, we need a blend of onshore wind, solar and offshore wind that addresses the following key considerations:

- **How quickly they can be deployed on the system:** Staying within cumulative emissions limits over the decade means that projects that can be deployed earlier have a greater impact on emissions than projects arriving later. This emphasizes the need to support and accelerate the deployment of onshore wind and solar in the period to 2027-2028 in particular.
- **The profile of the generation:** Solar power is relatively negatively correlated with wind energy and so a reasonably optimised blend of wind and solar generation has the potential to enable more demand to be met by renewables more often. This will support higher average RES-E levels at lower levels of network constraints and system wide curtailment / oversupply.

- **The scale of the generation:** It won't be possible to reach an 80%+ target without a significant contribution from offshore wind in the later part of the decade.

Achieving the necessary renewable generation in time to support the targets in the climate action plan means we need to do everything we have been doing **but faster**. This applies across all elements of the planning / consenting process, grid connection applications, transmission capacity solutions, and RESS auctions.

Delivering this volume **cost effectively** requires addressing policy shortcomings particularly related to appropriate risk allocation in auctions. More on this in market considerations below.

Stability Services:

In order to ensure the secure, reliable operation of the system at close to 100% SNSP levels and with close to 0MW of constrained on thermal generation, EirGrid will need to be able to access all necessary system stability services from zero carbon sources. Supporting market frameworks need to be established to allow all inertia to be procured from devices such as synchronous compensators, frequency response, short term reserves and ramping services can be procured from storage and demand side response technologies, and voltage support / reactive power services can come from a wide variety of sources including appropriately located synchronous condensers, storage, DSR and renewable generators. The significant value of full zero carbon system services has been illustrated in several previous WEI reports, including Endgame and STore respond and save.

Flexibility Services:

At very high RES-E levels, it is likely that we will need to find ways of time shifting very significant renewable energy volumes. There is potentially a critical role for new and emerging long duration storage technologies to address this issue. A recent Baringa report commissioned by Energy Storage Ireland entitled "Gamechanger" highlights the potential of these technologies to manage system level curtailment and oversupply levels, and provide clean dispatchable capacity, reduced emissions, and if appropriately located in congested parts of the transmission grid, they also have the potential to simultaneously create significant additional "space" for renewables on the transmission grid.

Market Considerations:

All of these deployments require efficient and appropriate market investment signals if they are to be delivered. In designing these market systems / frameworks, we need to consider the inherent commercial / economic characteristics of these essential technologies that we know we will need.

For example:

- Renewable Energy Technologies: Onshore & Offshore wind and solar technologies cannot economically respond to price or locational signals after they are built. The availability of energy from these technologies and the underlying cost of making this energy available to the system will be the same irrespective of the wholesale market price, TUoS charging, TLAF's. Therefore, there is very limited economic merit in exposing these technologies to these price signals. Long term auctions with appropriate risk allocation particularly in relation to constraint, curtailment, and oversupply and will result in much more efficient auction outcomes. This was highlighted in the recent Cornwall Insight Report[2] on improving revenue certainty and risk allocation for renewable generators.

- Flexibility Services: Some technology solutions such as demand side response have limited capital costs and likely more material marginal operating costs and can potentially be deployed under modestly evolved energy, capacity and system service markets, and this flexibility will have a net system value. However, it is extremely unlikely that these technologies can provide energy time shifting services at the scale and in the locations, required to support the level of decarbonisation we are targeting. Large scale long duration storage technologies will likely have very significant capex and relatively low marginal operating costs (excluding energy market charges) and as such investment in these technologies would likely be more efficient if they were provided with a much higher degree of revenue certainty. For storage technologies however, it is also important to preserve short term energy market price signals to ensure that deployed technologies operate efficiently on the system once built.

- An efficient technology mix: There is a value in having a complimentary blend of wind and solar assets on the system given thee-complementary correlation of the profiles of each technology.

[2] https://windenergyireland.com/images/files/report-on-improving-revenue-certainty-and-risk-allocation-for-new-renewable-generators.pdf

- Appropriate Risk Allocations: This will be critical if we are to avoid a situation where consumers pay for high constraint, curtailment, and oversupply levels by allocating these risks in renewable auctions, locking in high prices for the tenor of the contracts, and then pay again to enable the deployment of flexibility solutions to solve these problems. These issues need to be considered holistically at a system level.

There have also been several interesting developments recently in the GB market. The Department for Business Energy and Industrial Strategy (BEIS) in GB is currently undertaking an extremely comprehensive "Review of Electricity Market Arrangements"[3].

UK has stated ambitions to decarbonise its power system on similar timelines to those proposed in Ireland, with an aim to reach 100% renewable electricity by 2035. As such it is seeing many of the same market design issues that we are.

The recently published consultation noted:

- The reformed electricity market will need to *"unlock unprecedented levels of investment across the full range of low carbon technologies, including low carbon generation, electricity storage, and flexible demand from consumers"*
- *"It is unlikely that the significant investment needed to decarbonise the power sector will be delivered cost-effectively by our market arrangements in their current form. In particular, they are unlikely to bring forward low carbon flexibility at the pace required;"*
- *"The most cost-effective route to a net zero power sector by 2035 will require changes to markets to optimise both investment and dispatch (where and when to produce and use electricity) as current market arrangements are based on the needs of fossil fuel generation rather than renewables."*
- In terms of options for delivering mass low carbon power: *"The majority of our options involve long-term contracts with the government, as this seems likely to be the best way of delivering the volumes of investment, we require at least cost"*
- In terms of delivering required system flexibility: *"Much of the incentive for flexibility should come through more accurate market signals, delivered through options set out in the wholesale market chapter. Such market signals could deliver much of the flexibility needed for our 2035 commitment, but challenges around investor certainty, for example, may mean a mechanism to de-risk investment on an enduring basis could also be required.*

[3] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1096002/large-scale-long-duration-electricity-storage-govt-response.pdf

Options under consideration include a (reformed) Capacity Market, a multi-technology revenue cap and floor, and a supplier obligation, including a 'Clean Peak Standard'."

- In terms of ensuring capacity adequacy and avoiding the kinds of issues we're seeing on the system in Ireland today: *"Our core options under consideration take a centralised approach to procuring capacity adequacy. These include reforming the Capacity Market to better support firm low carbon technologies, a centralised reliability option scheme, and a strategic reserve. We are not minded to pursue a decentralised approaches to ensuring capacity adequacy, because it is a system outcome that the government will always value more highly than any individual market participant."*
- The importance of investor confidence is recognised as one of five key criteria against which different market design options will be assessed. In particular, they note: *"Market design must drive the significant investment in low carbon technologies needed to deliver our objectives. Risks will differ by technology type, but should be borne by those best able to manage it".*

In addition, BEIS published a "call for evidence" consultation on Large Scale Long Duration Energy Storage (LLES) in July 2021. It recently published a government response[1] to the submissions received. In this BEIS *"concluded that LLES:*

- *has an important role to play in achieving net zero, helping to integrate renewables, maximising their use, contributing to security of supply, and helping manage constraints in certain areas;*
- *provides low carbon flexibility, replacing some unabated gas generation;*
- *diversifies our technology mix and provides optionality for meeting our ambitious 2035 power sector decarbonisation targets; and*
- *faces significant barriers to deployment under the current market framework due to their high upfront costs and a lack of forecastable revenue streams.*

Considering these conclusions and as outlined in the British Energy Security Strategy, we will ensure the deployment of sufficient LLES to balance the overall system by developing appropriate policy to enable investment by 2024."

While Ireland may be more limited than UK in terms of its ongoing obligations to comply with EU Regulations and the need to integrate fully with EU systems in advance of the Celtic Interconnector "going live", there will likely be significant learning opportunities available by following the reform process as it evolves in GB that can inform improvements to our own market. Ireland will also need to consider how our interconnector capacity will interact with a reformed GB market.

WEI believe that many of the issues mentioned above can be adequately addressed within the current system, without the need for a full re-design. The REMA process could help to inform the required fine-tuning that could improve the Irish market and give the needed signals and incentives for investment into the zero-carbon technologies that will help us achieve our climate objectives. This will also be relevant ahead of the upcoming work around the revision of the EU Electricity Market Design, with proposals from the European Commission in January 2023.

In the context of the potential need for new and innovative market frameworks to support our decarbonisation ambitions, Energy Storage Ireland members have been giving thought to the development of a storage services procurement framework that addresses many of the challenges identified by BEIS in their review. This paper is attached alongside this submission and sets out a problem statement, high level principles and an initial suggested high-level design that would enable appropriate and efficient investment in storage technologies at scale in Ireland.

2.2 Question 2: What can be done to accelerate/facilitate the delivery/deployment of offshore wind and solar PV in particular, in the context of Climate Action Plan 2021 and the REPowerEU ambition?

In September 2021, WEI published its "12 months to deliver offshore wind energy" report, setting out the seven urgent actions we had identified that needed to be delivered as a matter of urgency over the following year.

Action: Foreshore Licence applications must be processed as quickly as possible. Delays cannot be allowed to continue. We set out that by Q1 2022, enough projects have Foreshore Licences to ensure we can reach 5,000 MW.

> ***Assessment:*** *This was not delivered. Projects aiming to deliver for 2030, including those set to compete in an ORESS auction in less than eight months are still experiencing significant delays in the Foreshore Application process.*

Action: Developing 5,000 MW of offshore wind energy by the end of 2030 will place an enormous burden on the relevant Government departments, An Bord Pleanála, NPWS, EirGrid, ESB Networks and the CRU. The report highlighted that these bodies must be adequately funded in the coming budget.

Assessment: *we have seen some evidence of additional resources being allocated to these bodies. EirGrid has since established an offshore wind team, while resources have been allocated to the Marine and Climate unit in ABP. However, we do not believe this to be enough, relative to the scale of offshore.*

Action: A firm commitment on the date for the first auction needed to be communicated as soon as possible, along with clarity on the timeline for further auctions and how to include a preference category to support floating wind energy.

Assessment: *a provisional date has been set for the first ORESS auction. This is an important step and gives some much-needed visibility for the Phase 1 projects. However, we still await any direction on Phase 2, despite it being a full 6 months since it was consulted on, and no firm date for auctions beyond 2023.*

Action: The Maritime Area Planning Bill needed to be passed before the end of 2021 and amended to ensure Phase Two projects could get a Maritime Area Consent (MAC) in 2022.

Assessment: *The MAP Act was enacted in December 2021. However, at this point MACs are still yet to be issued to the Phase 1 projects. We expect the Phase 1 projects to receive MACs in the coming weeks.*

Action: An Offshore Grid Steering Committee must be set up to bring together industry, EirGrid, the CRU and DECC to ensure the successful implementation of the new offshore grid model, to develop technical offshore grid standards and to rapidly process grid offers.

Assessment: *This has not been set up. While engagement has been good in some aspects of offshore grid policy, it is evident that in the areas where engagement has been poor, delivery has been poor. A regular forum, as called for by WEI, would have enabled us to identify problems and timeline slippages before they became problems, and collaborate to find solutions to the admittedly complex task of establishing the new offshore grid model.*

Action: The grid is not currently strong enough to accommodate the Offshore target. Additionally, that EirGrid's grid development strategy, at the time still yet to be published, must have strong political and public support right across Irish society.

Assessment: *EirGrid delivered SOEF in November 2021, setting out how to connect 5GW of offshore wind. A new version is now being prepared to account for increased targets and to keep the electricity system within the carbon budgets.*

Action: Strategic investment must be directed into an east coast port by the end of 2021 while also identifying a south or west coast port must as soon as possible for future projects, including floating wind energy.

Assessment: *We are still yet to see this level of strategic investment in ports to ensure they are ready to deliver for Offshore wind.*

Progress has been made over the last 12 months, however, there remain several aspects that must be addressed as a matter of urgency if Ireland is to delivery on its 2030 offshore ambition.

In the immediate term, it is crucial that a strong focus is put on delivering a successful ORESS1, set to open by the end of 2022, with bidding to take place at the end of April / beginning of May 2023. We are just over seven months from the date developers are expected to submit their bids, yet there remains a significant level of uncertainty around several key policy aspects. For example:

- Conditions for Transmission Asset Transfer – Phase 1 projects still have no certainty around the point at which the asset transfers ownership and what way the valuation will be done to be able to effectively inform their financial models.
- Contractual certainty of the volume of and date by which each developer will get Firm Access – CRU were expected to issue a consultation on Firm Access over the summer months, yet projects are still awaiting clarity on when this will be published, how it will be dealt with, and the timeframes for project-specific Firm Access information.
- Conclusion of ongoing discussions regarding ORESS 1 Terms and Conditions (including indexation, treatment of Oversupply, onerous planning conditions, and Judicial Review planning risk).
- Curtailment / Oversupply / Constraints, and detailed information on TUoS / TLAF levels for projects.
- Progress on issuing foreshore licences – continued delays and lack of resources and engagement is a growing concern as it is compounding the problem of the growing bottleneck of applications with no clarity on when these will be processed.
- Award of MACs for Phase 1 projects and clarity on the final Terms and Conditions for the MAC process.
- Progress of the secondary legislation under the MAP Act which is required to set out the engagement process for projects with An Bord Pleanála and timelines for when this engagement can begin ahead of ORESS. As it stands, projects may be looking at putting down substantial bid bonds in February, prior to having any engagement with ABP, who will be responsible for making final decisions regarding project design flexibility.

For ORESS1 to be a success, it is vital that these issues are addressed, resourced adequately, and clarity delivered for the Phase 1 projects set to bid into the auction.

REPowerEU

Current geopolitical tensions have drawn a sharp focus on diversifying where European countries obtain their fuel and electricity required to power their homes, businesses, and transportation. A strong focus on the accelerated rollout of renewable energy and divestment of fossil fuels has become more vital than ever.

On 18th May 2022, the European Commission presented the REPowerEU Plan, in response to the hardships and global energy market disruption caused by Russia's invasion of Ukraine. The plan sets out to:

- Increase the overall target set out in the Renewable Energy Directive from 32% to 45% by 2030, up from 40% target proposed as part of 2021's *Fit for 55* package of legislative proposals. This would bring the total renewable energy generation capacities to 1236 GW by 2030, in comparison to 1067 GW by 2030 envisaged under Fit for 55 for 2030.
- Increase the 2030 target under the Energy Efficiency Directive from 9% to 13%.
- Support the acceleration of permitting procedures for renewable energy projects and related infrastructure by operationalising the principle of renewable energy as an overriding public interest within each member state, introducing the designation of 'go-to' areas and other ways to shorten and simplify permitting while also minimising potential risks and negative impacts on the environment.

WEI welcomes the REPowerEU Plan and its urgent objectives to end the EU's dependence on Russian fossil fuels and tackle the climate crisis. We particularly welcome the provisions in the draft legislative texts aimed at scaling up and speeding up renewable energy deployment, including the proposal to increase the 2030 Renewable Energy target to 45%.

Planning and Permitting in REPowerEU

WEI welcomes the proposals included in the REPowerEU Plan aimed at tackling slow and complex permitting of renewable energy projects. The Commission has correctly identified planning and permitting procedures at Member State level as a critical obstacle to the necessary accelerated deployment of renewable energy.

We welcome the documents the Commission has published as part of the REPowerEU Plan to address this issue, namely:

1. A Recommendation on speeding up permit-granting procedures for renewable energy projects and facilitating Power Purchase Agreements, particularly outlining the need for faster and shorter procedures, and to ensure sufficient and adequate staffing, with relevant skills and qualifications in permit-granting bodies and environmental assessment authorities.

2. The identification by Member States of dedicated 'go-to' areas / accelerated delivery areas that are particularly suitable to develop renewable energy projects with shortened and simplified permitting processes.

3. A targeted legislative proposal setting out that renewable energy projects, their connection to the grid, the related grid itself or storage assets is considered to be in the overriding public interest and serving public health and safety, except where there is clear evidence that these projects have major adverse effects on the environment which cannot be mitigated or compensated.

Speeding up the permit-granting process:

Firstly, we believe that the existing provisions in Article 15 and 16 of the RED II, which oblige Member States to establish a single contact point to facilitate the permitting process and set a two-year limit on the permit-granting process for renewables, must be implemented as a matter of urgency to accelerate our pathway towards our 2030 onshore and offshore ambition. We welcome the Commission's new proposals on these Articles as part of the REPowerEU package.

In Ireland, the planning and permitting phase of an onshore wind farm and grid connection can typically take approximately four years or more, not including appeal or judicial review.

Implementation of the two-year timeline set out in the REDII would be a vast improvement in the Irish context. Appeals and Judicial Review can add more years to the process. Feedback from our members indicates the Judicial Review process is costing Ireland more than two years delay for every wind energy project we need to develop by 2030.

This approximate 4-year estimate also does not include the project pre-planning stage and the two years of environmental monitoring that is required before an application can be submitted. It can take up to 8 years or more for the full project lifecycle of an onshore wind energy project to complete i.e., from commencement of environmental monitoring, secure planning permission, secure a grid connection, obtain a route to market, and enter into operation.

The timelines for offshore wind have not been robustly tested and secondary legislation and guidelines are yet to be developed. However, as an indication, site investigation licenses for routine data collection offshore take on average 2 years to process and there is currently a significant bottleneck in the system as project pipeline ramps up. Similar processes take a maximum of 6 months in other jurisdictions so there are significant concerns with regards to these delays.

These surveys are vital and are required as a first step before EIA to secure planning permission, grid connection and route to market. Delays here would have serious knock-ons impacts on project delivery timelines for 2030. Additionally, surveys beyond 12 nautical miles (nm) are further delayed and currently not permitted. This significantly hinders Ireland's potential to access the significant resources further from shore.

WEI also supports the intention to establish a single point of contact to guide and facilitate the permit granting process. The establishment of a single point of contact may also help reduce permitting timelines. The permitting process in Ireland encompasses a host of permits involving multiple Consenting Authorities and Government. The process of applying for these also adds time to the permitting process.

Streamlining and speeding up the process of progressing these permits represents an opportunity to introduce meaningful change and improvements to the planning process in Ireland and accelerate the deployment of both onshore and offshore projects.

EC Recommendation and Guidance on Permitting

WEI welcomes the Commission Recommendation on speeding up permit-granting procedures for renewable energy projects and facilitating Power Purchase Agreements. We believe such guidance is extremely important, welcome, and badly needed.

To ensure Ireland can deliver on our 80% RES-E target by 2030, including 8GW onshore wind and 5GW offshore wind, it is crucial that delays and bottlenecks in the planning system are addressed.

To offer insight from the Irish perspective, at the request of WEI, planning and environmental consultants MKO examined the decision timelines of every wind farm case decided by An Bord Pleanála, or awaiting decision, from 2020 to 9 March 2022.

While all the cases are for onshore projects, it demonstrates the issues that need to be addressed in the planning system, particularly as offshore wind projects prepare to enter the system within the next 12 months. As noted above there are already significant delays and bottlenecks in the system responsible for processing offshore projects.

The results show a planning system that is simply unable to process applications in anything close to the 18-week statutory objective. The Strategic Infrastructure Development system is simply not working. The findings are summarised here:

Decisions on Planning Appeals

- Of the ten planning appeals cases heard by the Board none were decided within the 18-week statutory objective.

- The average time for a decision was 60 weeks and the average time for the Board's inspectors to make a recommendation was 35 weeks.
- Further information requests were made by the Board in only three of those ten cases.

Decisions on SID Applications

- Of the three SID applications heard by the Board none were decided within the 18-week statutory objective.
- The average time for a decision was 69 weeks and the average time for the Board's inspectors to make a recommendation was 47 weeks.
- While further information was requested in two of these three cases, the applicant had responded within seven weeks in both.
- The quickest decision from the Board took 57 weeks.

Decisions Pending

- As of 9 March 2022, nine wind farm appeal cases are awaiting decision for an average of 59 weeks.
- As of 9 March 2022, nine SID applications are awaiting decision for an average of 54 weeks.

To ensure progression of onshore and offshore wind in Ireland and to ensure our 2030 targets are met, significant additional resources are required within An Bord Pleanála to address these delays and bottlenecks within the planning system, as well as other key state bodies including the new Maritime Area Regulatory Authority (MARA), EirGrid, National Parks and Wildlife, etc.

Specifically related to offshore wind, it is critical that projects can enter the planning process in the first instance within a timeframe that will allow their contribution to our 2030 targets.

Prioritising Renewables

WEI welcomes the European Commission's proposal for Member States to ensure that until climate neutrality is achieved the planning, construction, and operation of plants for the production of energy from renewable sources, their connection to the grid, the related grid itself and storage assets are considered as being in the overriding public interest and serving public health and safety and qualify for the most favourable procedure available in their planning and permitting procedures.

WEI equally welcomes the Commission's proposal to introduce "go-to areas" for renewable energy installations and considers this to be an important provision that can accelerate the development of the projects we need to deliver on our 2030 and longer-term ambition.

The European Commission's proposals are welcome and once adopted will make a significant positive impact on Ireland's ability to accelerate progress towards a zero-carbon electricity system. However, in the Irish context, WEI believe that without action from Government to enable An Bord Pleanála to make decisions more quickly we will simply not be able to get enough projects through the planning system to reach our Climate Action Plan targets.

In this context, WEI would welcome the publication of guidance on derogation and compensation measures for An Bord Pleanála and authorities to ensure consistency of their approach and that the mechanisms are in place to support projects in line with the REPowerEU ambition.

WEI has also identified important actions that the Irish Government could take in line with this political priority that has been identified by the Commission. They involve implementing fixed timeframes for An Bord Pleanála decisions for renewable energy projects via Ministerial Order under s.37(J)6 and S.126(5) of the planning and development act.

Government's power to prioritise certain classes of planning applications is set out in legislation. Section 37J (6) of the Planning and Development (Strategic Infrastructure) Act 2006 states:

> *"Where the Minister considers it to be necessary or expedient that a certain class or classes of application under section 37E that are of special strategic, economic or social importance to the State be determined as expeditiously as is consistent with proper planning and sustainable development, he or she may give a direction to the Board that priority be given to the determination of applications of the class or classes concerned, and the Board shall comply with such a direction."*

Section 126 (5) of the Planning and Development Act 2000 allows for determination of appeals referred to An Bord Pleanála to be similarly prioritised.

WEI believes that a reasonable timeframe to be implemented to accelerate timelines would be:

- 22 Weeks for decision
- If required, ABP may request Further Information, which 'stops the clock'
- 12 Weeks following receipt of Further Information for a final decision

In the context of the REPowerEU Plan, we call on Government to immediately exercise these powers and instruct An Bord Pleanála to prioritise SID applications and appeals related to wind farms, whether on or offshore, solar farms and related grid infrastructure.

Specifically in relation to offshore wind, we call on Government to:

- Allocate increased resourcing and progress in key state bodies and enabling areas such as An Bord Pleanála and EirGrid.
- Immediately implement processes to reduce timelines for the establishment and effective operation of MARA.
- Publish the decision in relation to the process for the allocation of Phase 2 Maritime Area Consents (MACs) and designate the Phase 2 projects as soon as possible thereafter.
- Implement processes to reduce the timeline for the processing of applications for offshore surveys to align with best practise in other jurisdictions and to extend the opportunity to survey beyond 12nm.

2.3 Question 3: What role does renewable gas have in the power generation sector?

The DECC consultation on developing a Hydrogen Strategy for Ireland closed in early September. Government have committed to publishing the Strategy by the end of 2022 and WEI would welcome the clarity that this policy will deliver. The strategy once finalised must be underpinned by tangible, deliverable targets that will enable green hydrogen and green hydrogen derivatives to make a real impact on our energy system including power generation.

REPowerEU has set 2030 targets for green hydrogen. They are ambitious but achievable if the national policies are aligned with achieving the overall objective. Our NECP needs to be updated to define our contribution to those targets. Ireland already has an initial target of 1.6 TWh/yr of biomethane production by 2030 in our NECP. This renewable fuel is already contributing to decarbonising sectors like transport. We need to progress a mix portfolio of renewable gases to tackle all sectors.

WEI believes that technologies such as green hydrogen and green hydrogen derivatives can play in decarbonising the electricity sector. While its' impact will be phased, the current timelines in CAP 2021 are not reflective of the ambition set out by the EU or that of the Irish Governments announcement of 2GW of hydrogen by 2030. We would expect to see updated timelines with more refined actions in the next version of the CAP.

Renewable electricity is the core input in the production of green hydrogen. The price of electricity influences the price of the fuel. To stimulate the production, and consumption of green hydrogen in Ireland we need to reduce the cost of renewable electricity. Increasing the deployment of renewables such as onshore and offshore wind can drive this cost down.

In terms of accelerating the use of green hydrogen in the near term, consideration should be given to requiring any new fossil generation capacity to be highly flexible (very low minimum generation and commercially able to accommodate regular on / off cycling) and to be hydrogen

ready. This could be achieved through appropriate amendments to capacity auction terms and conditions. Green Hydrogen or green hydrogen derivatives could be used to decarbonise the gas-fired dispatchable thermal generation required by the system to back-up intermittent generation like wind and solar. These technologies need to work in parallel to support the security of our energy system in totality.

While in the near-term hydrogen is likely to be an expensive fuel for this category of plant, in the medium-term fuel costs are likely to drop as electrolysers are deployed at greater scale, and the fuel cost would become less impactful as less is required on this very high RES-E system i.e. the opportunity may emerge to completely decarbonise the power system at modest costs if all new gas fired generation is hydrogen ready.

It is perhaps also noteworthy, that if hydrogen production facilities could be located behind wind generation network constraints, then this could also reduce the network congestion problem i.e., we would be using renewable electricity that might otherwise be constrained due to network limitations to produce hydrogen to support clean capacity provision. Our understanding is that the current market system has limitations in differentiating the volume of curtailed electricity at an individual site level. WEI suggest that an action is placed on the TSO in the next CAP to address this challenge either through system changes or an agreed approach. Being able to do this will support windfarm operators in business cases to deploy electrolysers at windfarm sites.

Decarbonising the power sector will require a significant volume of green hydrogen and green hydrogen derivatives that may need to be stored and / or transported. This will impact cost but is worth further consideration given existing renewable and green hydrogen storage options being explored by Irish companies and the wider role storage plays in increasing security of supply.

2.4 Question 4: What role could carbon, capture and storage have in decarbonising our power sector?

There is an action in CAP21 (Action 126) for DECC to examine and oversee the feasibility of the utilisation of Carbon Capture and Storage in Ireland. The recent Baringa Endgame[4] report demonstrates a pathway to a zero-carbon power system which does not require carbon, capture and storage.

It is generally considered that hydrogen powered generation is more suitable for flexible units than CCS, which will in general need to run for longer periods. On very high RES-E systems this requires all remaining conventional plant to be extremely flexible and will need to be viable

[4] https://windenergyireland.com/images/files/20210629-baringa-endgame-final-version.pdf

running at very low-capacity factors. Inflexible generation may inadvertently create a situation where gas generation and CCS is displacing other renewable generation on the system. As noted above, one key enabler in maximising the deployment of renewables is reducing the amount of must run conventional generation on the system through the removal of existing operational constraints.

If we can reduce the requirement for this fuel to sufficiently low levels through increased deployment of renewable generation, full zero carbon system services, greater interconnection to neighbouring jurisdictions and potentially deployment of new and emerging long duration storage solutions, then a better option may be to source the remaining fuel required to fully decarbonise the power system from renewable gas such as hydrogen.

Given Ireland's abundance of energy in the form of wind, but no long-term indigenous supply of natural gas, it is not appropriate for Ireland to consider role for using CCS on imported gas given the impact on security as well as affordability.

2.5 Question 5: What other opportunities exist to support the decarbonisation of the electricity sector?

2.5.1 Corporate PPAs

The CAP 2019 set a very ambitious target of ensuring that 15% of electricity demand in 2030 is met by renewable sources contracted under corporate power purchase agreements (CPPAs). CAP 2021 included an action to Publish High Level Roadmap on CPPs, which was published in March. WEI welcome this roadmap, and would highlight the following priorities which could facilitate the growth of CPPAs as an alternative route to market in Ireland:

- **Lowering the cost of developing on and offshore wind in Ireland is fundamental to supporting the development of CPPAs in Ireland.** Cost is a significant determinant for any CPPA, and Ireland is currently an expensive market, competing with cheaper European jurisdictions. WEI proposed a series of measures to lower the costs of wind-generated electricity in our Saving Money report[5]. We would also recommend that the Climate Action Plan adopts a further recommendation from that report which is that an independently chaired taskforce should be established as soon as possible to bring

[5] https://windenergyireland.com/images/files/final-iwea-70by30-saving-money-report-may-2020.pdf

Field Code Changed

together industry, consumers and the relevant Government departments with the sole remit of identifying ways to reduce the price of renewable electricity in Ireland.

- **The use of private wire generation for large industrial energy users needs to be facilitated.** This is prevalent in many other countries but blocked by regulatory and legal barriers in Ireland. This is contrary to the Clean Energy Package. WEI welcomes Action 115 of CAP21 to Draft and publish a consultation on policy options on private wires however note that the publication of this consultation did not meet this deadline and is still awaited by industry.

- **Permit-granting procedures are too complex and lengthy.** Short and simple permitting processes, in line with Article 16 of the Clean Energy Package, are key to increasing the supply of renewable projects for CPPAs.

- **Demand sites engaged in CPPAs should be given a reduction in their PSO charge, proportionate to their total MWh of CPPA generation over their overall demand.** It does not appear to be equitable that a corporate engaging in a CPPA would also have to pay a PSO Levy for the electricity consumption.

- **Corporates should be given the ability to retire GoOs, in line with European standards.** At present, corporates in Ireland are unable to retire GoOs and must contract with a supply company to do so. This acts as a barrier to CPPAs. WEI also believes that GoOs could be used to track electricity produced by CPPAs, by applying a CPPA flag to these GoOs that originate from CPPAs.

2.5.2 Clean Energy Package Implementation (CEP)

The Clean Energy for all Europeans package (CEP) consists of eight legislative acts which were adopted by the European Parliament and European Council in 2018 and 2019 following Commission proposals in November 2016. It involved a comprehensive update of the EU's energy policy framework aimed at enabling the transition to cleaner energy and facilitating a reduction in greenhouse gas emission levels of 40% by 2030 compared to 1990. The revised Regulation on the internal market for electricity (EU) 2019/9431 under the CEP seeks to amend aspects of wholesale electricity markets in Europe, enhance integration and progress the transition to renewables.

On 22 March 2022, the SEM Committee published paper SEM-22-00 "Decision Paper on Dispatch, redispatch and Compensation Pursuant to Regulation (EU) 2019/943". This is a complex and opaque paper decision that will be highly damaging to the efforts to deliver the Climate Action Plan. In that it involves transcribing an EU regulation into the I-SEM trading and settlement code and will involve the Regulatory Authorities, SEM Committee, DECC, DfE, EirGrid SEM-O and, of course, market participants. It only allows for compensation when a unit has firm capacity and without knowledge of the future Firm Access Policy, or even the consultation on such being open, it puts participants in a very difficult position. The early consequences of which were shown in the outcome of the RESS 2 auction.

The SEMC's decision is to implement a market model that is complex and, being without precedent globally will be extremely difficult to implement with a very high chance of unforeseen consequences. In the opinion of legal experts, it is not compliant with EU law and will cause undue financial burden to the Irish consumer as plant is not redispatched on an economic basis.

Worse still it provides a very weak signal to build out new grid and disincentivises the delivery of new renewables, making the delivery of the Climate Action Plan exceedingly unlikely. It also disincentivises the delivery of Corporate Power Purchase Agreements (CPPAs) putting a greater staring on the requirements of government and providing a deterrent for business seeking to invest in Ireland, damaging "Ireland Plc".

The RESS 2 auction results provided an initial warning about the consequence of the SEMC's decision and other failures of the Irish system to deliver new renewables and following this decision Wind Energy Ireland reached out to the SEMC and DECC to rectify this before further, and in all likelihood, irrecoverable damaging is done in the RESS 3 and O-RESS 1 auctions.

We note with grave concern that we have not received a response from either party and recommend urgent interaction with both parties such that this can be put right.

2.5.3 Dispatch Down Certainty in RESS Auctions

Once a generator becomes operational following a successful RESS auction, the developer of that generator has no control over the levels of constraint, curtailment, or energy balancing which the generator will absorb.

Similarly, the developer has no ability to respond to varying locational signals driven by changes to TLAFs or TUoS as the decision regarding the location of the generator has already been made - with the locational signals at that point in time, such as TLAF and TUoS costs, having fed into this decision.

There is substantial difficulty in predicting each of the five volatile factors (constraint, curtailment, energy balancing, TLAF and TUoS) over a 35-year project lifetime. This creates a very wide-ranging band of uncertainty which the developer must take account of in advance of submitting a RESS auction bid. The continuation of this uncertainty and risk remaining with the developer will lead to inefficient outcomes in future RESS auctions, as the developer's estimate for each of these five factors for the full lifetime will be locked into consumer costs through the RESS auction bid price for 15 years, regardless of any subsequent improvements to reduce the volatility of these factors. In addition, the high risk and uncertainty around these assumptions will likely result in a higher investment hurdle rate / required IRR to reward the end investor for taking this risk.

At the same time, incentives should be put in place for the parties best placed to manage the volatility of these factors to deliver the best outcome for the consumer. In this situation, the parties best placed to manage the risks are the System Operators and the Regulators as they are mandated to develop the electricity network and enhance operational practices to reduce dispatch down and they also set policy related to the locational signals (TLAFs and TUoS) for where future generators should locate.

This is also related to the implementation of Articles 12 & 13 regarding which party is best placed to manage the risk of dispatch down and who is best able to mitigate it through measures under their control. Therefore, there is merit to minimising or removing the risk and volatility associated with these factors to the RESS bidder. A greater level of certainty around these factors should be offered to developers in advance of the auction taking place.

The recent Cornwall Insights report[6] on Improving revenue certainty and risk allocation for new renewable generators includes important supporting research on these points. The report concludes that if auction design does not insulate developers from enough risk, especially those risks that they have no ability to manage and limited ability to predict, the bid price submitted by those developers will be higher. This will result in higher contracted auction prices and costs to the consumer.

2.5.4 Market Design for 2030 and beyond

The energy market was designed around the short-term marginal cost of production since it was originally conceived with fossil-fuelled power plants in mind, where marginal costs (i.e. the price of fuel) were typically the most significant expense driven by coal, gas and oil prices.

[6] https://windenergyireland.com/images/files/report-on-improving-revenue-certainty-and-risk-allocation-for-new-renewable-generators.pdf

This means that the price of commodities such as coal and gas have typically determined the price of electricity in Ireland and the Irish market is therefore exposed to volatility in the international prices for these commodities. These fossil fuel plants typically have lower capital costs relative to their marginal or operating costs, so they rely on the energy market for most of their revenue to cover costs.

However, wind energy is different in that it has relatively high capital costs but has no marginal costs (as there is no fuel or carbon cost) so when wind energy participates in the electricity market it effectively enters with a bid of zero, thus driving down the price of electricity on the market as it displaces more expensive forms of fossil fuel generation via the merit order effect.

So, what happens when Ireland's power system can facilitate 100% wind energy at a single point in time? A market design based on the marginal cost of the generators participating in it is not fit for purpose in a world where 100% of the electricity is being produced by zero-marginal cost renewable electricity. It is likely to lead to a lot of negative pricing in the market and volatile price swings, which is unlikely to provide the revenue certainty required for investments to continue in either renewable or thermal generators.

Renewable electricity will provide the majority of the energy in the market (i.e., 80%), but unlike today's market in Ireland where electricity prices for participants are set one day in advance, renewable electricity typically requires price certainty for 10-15 years in advance to be financeable due to its relatively high up front capital costs. So how can our energy market evolve to provide the price certainty required to stimulate more investment in renewable electricity?

The electricity sector will change rapidly over the next decade and so the electricity market needs to keep pace with these changes. The energy market is moving from one based predominantly on fossil fuel plants and recovering short-term marginal costs to one based on renewable electricity with little to no short-term marginal costs but with a need for longer-term price supports.

Capacity markets will also become critical to ensure sufficient generation capacity is available as a backup for low wind/low solar days and new system services and technologies need to be incentivised to support a system with high levels of variable renewable electricity. At present, there is a clear consensus that change is coming, but very little consensus on what the market design of 2030 looks like to send the correct signals for the investments that are required to achieve our renewable ambitions.

Therefore, we recommend as an action in the final CAP 2023 that the market operator, SEMO via EirGrid, the CRU and DECC should put in place a dedicated team to solely focus on what the electricity market design should be in 2030 to facilitate a power system with at least 80% of demand being met by renewables.

2.6 Question 6: What measures might be taken to improve the resilience of the electricity system to the impacts of climate change?

With the prospect of climate change, it is anticipated that we will experience more storms, more flooding as well as higher temperatures. These factors pose a greater risk to the resiliency and reliability of our power system. Stations are at risk due to increased flooding. Overhead power lines are at risk due to more electrical storms and lower ratings of circuits, therefore reducing capacity and increasing congestion. Ensuring the necessary mitigations, policy and standards must be identified and implemented in a timely manner to ensure the ongoing safe and secure development and operation of our power system.

Additionally, a range of measures will be required to ensure security of supply and the most efficient use of the grid. In August 2022, WEI held a Grid Capacity workshop along with its members to agree upon a number of solutions that would be critical in improving grid capacity. The group is aiming to progress work on these solutions in the coming months. Below are several options resulting from this workshop that would enable more efficient use of the grid:

- Ensuring adequate **hybrid policy** resourcing and developing **hybrid policy** along with associated policies, such as private wires and autoproducers. Policy change should be enabled to allow sharing of MEC, allow multiple legal entities, allow over-install beyond 120% MEC cap, and allow private wires.
  The establishment of a new **National Strategic Infrastructure** body, along with the greater use of the **Public Private** Partnership model to ensure the most optimal use of existing infrastructure to support the roll out of grid solutions.
- **Placing emphasis on the need to Build Grid to accommodate zero-carbon electrification**. This would tie in with EirGrid completing a Net-Zero study, which is due to be completed by Q4 2023 under Action 127 of the Climate Action Plan. This is vital to ensure that targets continue to be met in the post 2030 timeframe.
- **Offshore bootstrapping** and implementation of a "meshed" network or SuperGrid. There is a need to plan for future demand and generation growth, and to follow examples from other markets such as GB.
- Ensuring utilization of **long duration energy storage** and prioritising a market reform to incentivise long duration energy storage.
- **TSOs engaging further with developers** to understand renewable projects plans and enable a more pro-active network build. The *Bridging the Gap* report has identified reinforcements and cluster stations in the Midlands as one option.

- Enhanced rollout of **Dynamic Line Rating**. Based on analysis outlined in *Bridging the Gap*, it is important that this is rolled out further and that barriers to implementation are addressed.
- Allowing 3rd party network build and further use of private wires
- Explore further opportunities for up-voltaging of existing lines in addition to exploring new technological solutions, for example PFC, virtual transmission lines, etc.
- Upgrading the 38kV network to 110kV.

2.7 Question 7: What role do you see for electricity storage and demand-side response in providing flexibility to a system comprised of high renewable penetration and in supporting the decarbonisation of the electricity sector?

This has been largely addressed in the response to Question 3.1 above. In summary:

- Every effort should be made to maximise the use of demand side response as it is likely to be the cheapest source of flexibility on the system.
- However, the energy management challenges (i.e. the requirement to time shift very significant renewable energy volumes) associated with an 80%+ system, will likely far exceed the capability of demand side response. This will only increase as we work towards a fully decarbonised power system.
- In this regard, we would see a key role for increased storage deployments particularly long duration storage technologies with the ability to absorb significant quantities of energy over extended time periods.
- The potential benefits of these technologies to the system have been well illustrated in the recent Baringa "Gamechanger" report.
- Key to enabling this will be the creation of a new Storage Services procurement framework.
- In this regard, ESI have developed a position paper outlining:
    - The problems / challenges that such a framework would need to address
    - Key principles that should be applied when determining a design
    - A proposed high level design option that addresses these challenges and respects the principles

- This need has already been recognised on other power systems attempting to achieve very high renewable penetration levels notably
    - Great Britain: BEIS published a "call for evidence" consultation on Large Scale Long Duration Energy Storage (LLES) in July 2021. They recently published a government response[7] to the submissions received. In this they *"concluded that LLES:*
        - *has an important role to play in achieving net zero, helping to integrate renewables, maximising their use, contributing to security of supply, and helping manage constraints in certain areas;*
        - *provides low carbon flexibility, replacing some unabated gas generation;*
        - *diversifies our technology mix and provides optionality for meeting our ambitious 2035 power sector decarbonisation targets; and*
        - *faces significant barriers to deployment under the current market framework due to their high upfront costs and a lack of forecastable revenue streams.*
        - *Considering these conclusions and as outlined in the British Energy Security Strategy, we will ensure the deployment of sufficient LLES to balance the overall system by developing appropriate policy to enable investment by 2024."*
    - Australia: AEMO NSW have set out high level objectives and a development roadmap for long duration storage: https://aemoservices.com.au/-/media/services/files/publications/iio-report/2021/iio-report-2021.pdf?la=en
    - And are already offering long term contracts for efficient well located long duration storage projects: https://aemoservices.com.au/tenders/tender-pack
- We would also endorse Energy Storage Ireland's response to this consultation.

[7] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1096002/large-scale-long-duration-electricity-storage-govt-response.pdf

2.8 Question 8: What financial incentives are needed to increase renewable generation capacity?

In recent years, WEI has raised several points across RESS consultations that we believe would help to better incentivise renewable generation capacity, along with making the auctions more cost-effective for the Irish consumer. We summarise these points below.

2.8.1 Indexation

The additional risk taken on by a project with no indexation in RESS manifests as higher bid prices into the RESS auction. Successful auctions elsewhere in Europe index-link their strike prices but in Ireland renewable projects need to bid a price that will cover the next 15 years of inflation; something that is impossible to accurately predict.

Index-linking auctions means lower prices, greater transparency for consumers, and increased deliverability of successful RESS projects due to protection against rapidly changing supply chain costs. Past feedback provided by industry on RESS/O-RESS consultations has noted that a lack of indexation is a major barrier.

The inclusion of indexation in O-RESS 1 contracts will make inflation a more manageable risk for investors, decreasing bid prices. Alignment of the RESS 3 policy with proposed O-RESS 1 policy would be a prudent measure in our view. The majority of Corporate PPA (CPPA) contracts are index-linked which makes them an attractive route-to-market for investors. The higher the volume of CPPA contracts, the lower the volume of generation entering in the RESS auctions. Index-linking RESS would put it on a level playing field with CPPAs and lead to increased competition which will ultimately deliver lower prices.

2.8.2 Grandfathering

The SEM Committee issued a Decision (SEM-022-009) in March 2022 regarding the implementation of Article 12 and 13 of the Clean Energy Package (CEP). One of the core issues with the Decision is that, at some point post-2026, there will be "grandfathering" of constraints for all new generators. This means that when there is a need to turn down renewables to solve a network congestion problem, new generators (including all RESS and O-RESS projects) would be turned down before any existing contracted generators as they do not have Priority Dispatch status which existing contracted generators have.

This poses major risks to future renewables delivery, in that constraint levels for new projects could outturn 2-5 times higher for new generators compared with constraint levels if dispatch down were to remain on the current pro-rata basis. In our view, more clarity is urgently needed surrounding grandfathering of constraints and compensation regarding this issue.

Whilst this uncertainty remains it only serves to impact future RESS auctions, pushing up prices for consumers, who will face higher electricity bills than anywhere else in Europe and GB, at a time when prices should be coming down.

2.8.3 Dispatch Down

While generators are compensated for curtailment above a level of 10% for two consecutive 'PSO Levy Years' in the RESS 2 T&Cs, no compensation is offered to generators in the event of oversupply curtailment.

Oversupply of renewables has not been an issue within the electricity market to date; however, with the intention of adding roughly 10GW of renewable power to the market by 2030, oversupply will become a serious risk for future investment and the risk of this is completely outside of the control of the project developer/investor.

No oversupply curtailment compensation exists within the RESS 2 T&Cs. The inclusion of oversupply curtailment in RESS 3/O-RESS 1 would decrease clearing prices. The impact of volatile and uncertain constraint levels on the future network is also a concern impacting clearing prices and it would be prudent to address this ahead of the next round of auctions.

2.8.4 Longstop Dates

The longstop date (31/12/2025 in the case of RESS 2) defines when a project must reach commercial operation to successfully meet its obligations under a RESS contract. Longstop could be extended in future auctions to allow more projects to participate in the auction, thus increasing competition and lowering prices.

Erosion of support against a fixed end date is a much more manageable risk for project investors than a fixed longstop date. This change would facilitate a broader range of investment strategies and increase participation in the auction. It would also help to mitigate potential risks posed by JRs and by delays to grid connections.

2.8.5 TLAF & TUoS Charges

Accurate modelling of TLAF & TUoS charges is complex and currently there are no ways to model future TUoS charges. These charges depend on grid infrastructure and are charged to a connected generator on a yearly basis. Put simply, a lack of grid development in parallel with an increase in connection of renewable generators to the grid would hugely increase these charges.

Uncertainty surrounding these charges can increase bids into the RESS auctions. Fixed TLAF charges assigned post commissioning, and fixed nodal TUoS charges indexed for inflation would mitigate against the risk of uncertainty.

2.8.6 Merchant Tail Risk

The RESS 2 T&Cs dictated that a RESS contract will end after 15 years, while the lifetime of many of these generators can extend beyond 25 years. This leaves investors fully exposed to the market with no support scheme for at least 10 years. This risk increases RESS bidding prices.

Extending RESS contract length to 20 years or having a gradual erosion of support after 15 years would reduce the severity of the merchant tail risk decreasing the RESS clearing price in RESS 3/O-RESS 1. This measure is something that was analysed in the recent Cornwall Insight[8] report and the full details on the conclusions are in that publication linked in the footnote.

2.8.7 Communications

While generally communications from the Department and EirGrid throughout the RESS 2 process were handled well, we do feel there is a need to highlight the challenges that arose from the first postponement of the auction results and then the delay in them being published on the second date.

The outcome of the RESS auction was of significant interest to investors and developers in Ireland and internationally. In several cases special Board meetings had been convened to receive the results and immediately analyse their implications. It would be helpful to engage with industry so there is clarity, for future auctions, on exactly how and when the results will be communicated.

2.9 Question 9 What financial incentives are needed to incentivise commercial scale production.

Government must work with industry drive strategic investment in our ports, skills capacity, and local enterprise to ensure offshore wind farms create jobs, support businesses at home and deliver long-term benefits for communities across this island.

We have an enormous opportunity to build a whole new industry, support balanced regional development, create thousands of jobs, and drive sustainable growth across Ireland.

[8] https://windenergyireland.com/images/files/report-on-improving-revenue-certainty-and-risk-allocation-for-new-renewable-generators.pdf

However, if this is to happen it is crucial that Government:

- Design an action plan to support the development of a strong domestic offshore renewable energy industry.
- Direct Strategic investment into Irish ports to ensure that they are ready to support the construction of offshore wind farms.
- Address the growing skills gap by establishing a High-Level Implementation Group to deliver the recommendations set out in the Skills for Zero Carbon report.

Currently, only one port on the island – Belfast Harbour – is suitable to support the construction of an offshore wind farm. We urgently need support for other ports to ensure they are ready for the opportunities that will come in developing offshore wind. If we do not, we could see that work and that investment going to ports in other countries.

Additionally, policy certainty around offshore is critical. The European Union has an Offshore Wind target of 300 GW by 2050. Recently in its Dublin meeting, the NSEC countries set out a target for the Northern Seas of 260 GW of offshore wind by 2050. Offshore wind development across European countries and around the world is competing for a limited supply chain and there will be competition for contractors, OEMs, vessels, etc. If Ireland is to deliver on 2030, certainty must be provided to the international supply chain as a matter of urgency.

With regards to roll out of Offshore projects there is a need to ensure that fees and levies for offshore leases (Marine Area consents) are set at a level which reflects the current evolving status of the Irish planning system. The ability to gather information to inform site location for offshore projects is significantly limited by the current foreshore licensing regime. Hence many developers seeking to enter Phase 2 are not in a position to make informed decision on footprint for MAC application in 2023. Fees for MACs need to be set at an appropriate level to ensure projects are not discouraged from developing; to guarantee sufficient competition at ORESS auctions and to incentivise continued investment in the Irish market.

In addition, significant clarity is required with regards to the enduring regime and how the current developer led phases will align with it. There is huge uncertainty in the market with regards to this and it is driving down confidence from investors. Projects being progressed by developers for Phase 2 need to be accounted for in the preparation for the enduring regime via inclusion into the OREDPII and supporting assessments (eg SEA and AA).

Finally, clarity on incentives for Hydrogen is urgently required and feedback from the recent consultation should be prioritised. The target of 2GW is a good starting point- but details are needed to get investment secured to realise projects for 2030.

2.10 Question 11: What are the regulatory challenges for reaching the renewable energy share targets?

We refer to the answers provided above, particularly in sections 2.5 and 2.8 above which set out the challenges for renewable energy developers around:

- **Implementation of the CEP Articles 12 & 13** and the uncertainty driven by the recent SEMC decisions on this matter.
- The landscape for **CPPAs** and how we can better incentivise them as a route to market for renewable generators.
- The **design of RESS / ORESS** and how greater certainty can be provided to prospective bidders, leading to lower prices for consumers.
- Visibility on the **longer-term market design** as we approach 100% renewable electricity,

Additionally, we draw attention to the following non-exhaustive list which clarity must be provided as quickly as possible:

- **Firm Access:** There remains uncertainty around decision timeframes for a new Firm Access policy. This is a policy that is crucial for minimising additional costs to end consumers ahead of ORESS1 and RESS3 and ensuring investor confidence.

- **Certainty on future ECP batches:** ECP has been a positive development that provides certainty on connection opportunities for project developers and facilitates the connection of vital renewable and other system support technologies. CRU should confirm the continuation of annual ECP-2 batches beyond ECP 2.3 and provide clarity for future renewable projects that there is a viable route to connect to the system and remove any risk of a hiatus in connection offer processing.

- **Hybrid Connections:** The facilitation of hybrid connections has been a clear policy objective for some time that has been included in the Climate Action Plan in both 2019 and 2021. range of measures to be taken to facilitate these connections are set out in Annex 125. The lead for these measures is shared between CRU and EirGrid in the Annex and a timeline for addressing all the measure was set out to be completed by the start of 2023. However, to date progress has been slow. It important that progress is now accelerated to allow the benefits of hybrid connections to be realised and allow these connections to help in delivering the 2030 targets.

- **Lack of an existing framework for storage:** A coordinated strategy for energy storage is needed to ensure investment is supported through the various pillars of the market and that new energy storage technologies are fully integrated into the electricity system and market to unlock their full potential. This should bring together the relevant stakeholders such as the System Operators, Regulatory Authorities, Government departments and industry to ensure a coordinated approach to energy storage going forward.

- **Offshore Cliff-Edge:** Fundamental to the development of Ireland's offshore wind sector is clarity on frameworks beyond the 2030 target date, something that is currently lacking. This brings additional risk into the Phase Two process, particularly given some of the proposals included in the consultation document, notably the cliff-edge for projects who fail to secure a route-to-market before 2030. Urgent clarity must be provided on the post-2030 enduring regimes as regards consenting and centralised grid planning, with visibility to the industry on longer term Offshore wind development plans.

As a general point, developers are experiencing mixed responses from statutory bodies involved in the various elements of developing and consenting a wind farm. Feedback from our members suggests that various elements are very silo-driven, and often a lack of understanding of how their role and actions fit into the process, particularly on the offshore wind development side.

Resourcing is and will continue to be a crucial deciding factor around whether or not we deliver on our 2030 ambition. Additional resources and expertise are urgently needed in An Bord Pleanála to ensure a robust and fair planning system, in the NPWS to ensure projects are developed in a sustainable way and in bodies like EirGrid, ESB Networks and the Commission for the Regulation of Utilities to ensure the electricity system continues to operate safely and securely.

Government is expected to announce commitments to resourcing key state entities under Budget 2023 to ensure that Ireland can consent and deploy renewables. This is extremely welcome. However, it isn't enough to resource these state bodies, these bodies need to understand their role and its impact on delivering the needed projects to deliver for 2030.

3 Non-Electricity Questions

3.1 Sectoral Emissions Ceilings

3.1.1 What do you view as the key actions required to ensure the emission reduction targets set out in the Sectoral Emission Ceilings are met?

3.1.2 The Shaping Roadmap must be made fit to deliver on sectoral emissions ceilings

In 2020, a total of 8.4 million tonnes of CO2 was emitted as a result of electricity generation in the Irish power sector, at an average emission intensity of 296 grams of CO2 per kWh of generation, Preliminary analysis by the Environmental Protection Agency (EPA) indicates that due to increased demand and coal-fired generation, annual power sector emissions in Ireland increased around 21% in 2021, to 10.2 million tonnes of CO2.

These historical emissions constitute almost a fifth of the indicative 55 MtCO2 power sector carbon budget suggested for the decade, emitted within the first year.

The Bridging the Gap study set out a pathway to achieving all targets set out in the Climate Action Plan 2021, including the delivery of 8.2 GW of onshore wind, 5 GW of offshore wind, and 3 GW of solar PV capacity. The deployment of this capacity was assumed to proceed at the fastest rate achievable under the current RESS auction schedule, and be enabled by the adoption of a comprehensive suite of zero-carbon system services provided by synchronous condensers and dedicated battery storage assets.

Achieving the rapid rate of renewable capacity deployment assumed in this pathway requires the build out of all network development projects assumed in EirGrid's Shaping Roadmap, as well as incremental circuit upgrades beyond this. Where long lead times apply to network upgrades, and prevent their timely delivery in-line with the deployment of renewable capacity, strategic spatial deployment of enabling technologies can act to manage contraints across the Irish network; such as STATCOMs in Greater Dublin, power flow control in the South-East and South West, and dedicated energy storage capacity in the North-West.

The total carbon emissions produced by the Irish power sector between 2021 and 2030 in this very ambitious pathway, which represents the limit of ambition towards decarbonisation under current policies, total 66 million tonnes of CO2. If cumulative CO2 emissions are to be reduced below this figure and be brought closer to the indicative 55 million tonnes suggested for the sector, major interventions beyond the current policy will be required.

Around 45 million tonnes of CO2 are emitted from the Irish power sector between 2021 and 2025 in this pathway, with carbon-intensive fossil fuels including coal, distillate oil, and peat providing disproportionate contributions; coal fired generation alone contributes 10 million tonnes of CO2 towards a prospective sectoral carbon budget.

To further reduce emissions on our pathway towards delivering our 2030 ambition for the power sector, solutions must be implemented to rapidly phase out these carbon intensive fossil fuels in the first half of this upcoming decade.

Deployment of technologies able to provide zero-carbon system-services, development of the transmission network, and the delivery of constraint management solutions must keep pace with renewables. A total of 15 million tonnes of CO2, in the modelled scenario, results from the re-dispatch of plant in Ireland to maintain DS3 limits and transmission constraints in the Accelerated Decarbonisation Pathway.

A faster deployment of enabling solutions than modelled in the Pathway offers further opportunity to reduce the CO2 emitted from the Irish power sector.

The results of the study indicate a series of key findings regarding the future of the Irish power sector:

- The total cumulative CO2 emissions from the Irish power sector out to 2030 are sensitive to the Pathway taken to get there.
- In Pathways that meet Ireland's 2030 targets, our analysis shows that cumulative power sector emissions can be reduced by 4 million tonnes of CO2 by the rapid delivery of renewables following RESS auctions compared to a delayed delivery of the same capacity.
- In an ambitious Pathway that exceeds many of Ireland's 2030 targets, with rapid delivery of renewable capacity and investment in enabling technologies, the analysis shows that 66 million tonnes of CO2 are emitted from the power sector in the decade between 2021 and 2030, including 6 million tonnes resulting from transmission constraints
- This Pathway represents a saving of at least 6 million tonnes of CO2 compared to a Baseline of EirGrid's Shaping our Electricity Future Roadmap. However, it still substantially exceeds an indicative sectoral carbon budget of 55 million tonnes of CO2.
- Achieving a carbon budget of 66 million tonnes of CO2 in the power sector requires the build of onshore wind and solar PV capacity as early in the decade as possible and proactive investment in enabling technologies, including:
    - Sources of system flexibility to manage renewable oversupply, such as interconnection, demand-side response, and energy storage technologies;
    - Provision of zero-carbon system services from battery assets and synchronous condensers, to unwind DS3 limits and moderate renewable curtailment; and

  - The continued development of the transmission network including all projects identified in the Shaping Roadmap, and further upgrades to circuits throughout Ireland. The rapid deployment of renewables also requires the strategic deployment of constraint management solutions, such as dynamic line rating, power flow control, and dedicated energy storage assets, to address renewable constraint due to transmission limits.
- Use of carbon intensive fossil fuels including coal and peat in the first half of the decade 'locks in' substantial emissions, and puts pressure on carbon budgets.

The Bridging the Gap analysis suggests that 66 million tonnes of CO2 between 2021 and 2030 represents the minimum achievable for the Irish power sector under current policies. Major and fast interventions are required to move the dial past this figure, including solutions to phase out the usage of these carbon intensive fuels, and an acceleration of renewables and enabling technologies above and beyond existing policy.

3.1.3 Statutory Decision Periods

As detailed above, WEI members have to date experienced significant delays in the consenting of onshore wind energy projects resulting in the planning process for wind farms taking several years.

WEI propose the statutory objective periods for both appeal cases and SID applications should become **statutory decision periods** to remove the uncertainty around timeframes and provide developers with greater clarity on timeframes in advance of our 2030 targets.

In acknowledgement of the recommendations of the Organisational Review, the varying complexity of both appeals and SID projects and the priority of producing quality decisions which should not be compromised as a result of restrictive timeframes, WEI propose the 18-week statutory objective period for both appeal cases and SID application decisions is increased to a **22-week statutory decision period**. Where the Board receives Further Information from the applicant, WEI proposes that a decision should be made within **12 weeks of receipt of the Further Information** response. Further to that, WEI proposes that the Board advises the Developer of any requirement to re-advertise the application for Public Consultation within **2 weeks of receipt of the Further Information response**.

3.1.4 Need for Adequate Resourcing

At a time when Ireland is facing both a climate and energy crisis, renewable energy applications need to move through the planning process as efficiently and expeditiously as possible. Sufficient

expertise and resources are required for planning bodies if we are to meet our obligations under the Aarhus Convention, the Habitats Directive and EU law and emission reduction targets.

Increased allocation of resources to planning bodies (NPWS etc.) and ABP will help in clearing the backlog of appeal and SID applications currently with ABP for decision is therefore even more necessary, particularly having regard to the impeding 2030 targets for both onshore and offshore wind energy and to avoid the delays experienced to date in the planning process. In summary the following is required:

- Sufficient resources and a unit dedicated to renewables must be provided within ABP.
- Allocation of additional resources to other Planning Bodies including NPWS, CRU and Forestry Services.
- Improved processing times at Inspector and Board Level; and
- Shorter administrative processing timelines.

3.1.5 Judicial Review

Judicial Review (JR) is used as the mechanism to challenge the substantive and procedural legality of a decision of a public body. Members of the public, environmental Non-Governmental Organisations (NGO) and developers have the right to seek a review of decisions that have been made, which may affect the environment.

WEI believe in the three fundamental rights to sound environmental governance of access to environmental information, public participation in environmental decision making and access to justice in environmental matters. However, we also believe that Ireland is living in an energy and climate emergency and that decarbonising our economy and our society should be a national priority.

We believe it is possible to have a planning and legal system which protects the rights of individuals, groups and communities to challenge decisions in the courts and at the same time, to have a system which strikes the right balance with the need to develop renewable energy and to discourage those who would use the courts to delay climate action. This is not just possible, it is essential if we are to have a system in which all parties can have confidence.

As detailed above, the items of highest priority which WEI consider require urgent attention include:

- The urgent need for a dedicated and adequately resourced Planning & Environmental Law Court which includes:
    - A minimum of three specialist judges with relevant case experience and includes for support staff to allow for the expediting of planning cases through the courts system as quickly as possible.

    - Prioritise the delivery of the Planning & Environmental Law Court by year end.
- Amendments to the existing special legal costs rules as detailed above.
- Strengthening of standing rights requirements to include:
    - A front loaded process with the onus on the applicant to demonstrate sufficient interest and substantial grounds early in the leave process.
    - Leave applications to be made by "motion on notice".

3.1.6 SID Consenting Process

The SID process should be a very clear and straightforward process which can be completed within an efficient timeline. As detailed above, the items which WEI consider can create efficiencies and allow projects to move through the pre-application consultation phase as quickly and expeditiously as possible include:

- Use of a standardised form in web/electronic/paper format;
- Discretionary meetings based on the type of development proposed;
- A Stage 1 process which allows Seventh Schedule development to be determined within **four weeks of lodgement of a pre-application consultation request**;
- A Stage 1 process which allows Section 182A applications to be determined within **six weeks of lodgement of a pre-application consultation request**; and
- A Stage 2 process which allows a formal and meaningful pre-application consultation process including allowance of tripartite discussions to be completed within 13 weeks from determination of a project as SID.

3.1.7 Repowering & Lifetime Extensions

Repowering and lifetime extension of projects are vital if we are to reach the renewable energy targets set out in the governments Climate Action Plan.

As turbine technology and reliability continues to improve, and with strategic replacement of key components such as gearboxes, blades, sensors, and electricals, it is evident that wind farms can continue to operate well in excess of 35 years. Therefore, where a wind farm is operating safely, securely and within the terms of the permission granted to it, continuing to produce low-cost electricity and to reduce our CO2 emissions, it should not be blocked from continuing to do so because of assumptions on turbine lifespans which are no longer supported by evidence.

There is currently an absence of specific provisions related to repowering/ lifetime extension wind projects in Ireland. The recast Renewable Energy Directive stipulates that Member States shall facilitate the repowering of existing renewable energy plants by ensuring a simplified and swift permit-granting process not exceeding one year.

With the continual advancement of technology and the development of more efficient wind turbines, it is generally expected that machines will be capable of generating over a longer period. Policies should therefore confirm that renewable energy developments, including onshore wind, should be consented in perpetuity in line with most other developments.

Any policy requirement for time-limits (i.e., temporary permission) should only be applied on an individual basis considering robust evidence rather than being the default position. Requirements for decommissioning and restoration can still be controlled via appropriate planning conditions. In turn, this removes any artificial timeline/restriction on a development's operational life and ensures that decisions to remove a scheme are more sensibly based on the technical capability of the asset to run safely. In addition, this eases burdens on decision makers and stakeholders by reducing the need for processing applications for life extensions and consent variations.

WEI recommends:

- Specific provisions in relation to repowering and lifetime extensions of wind projects in Ireland need to be urgently developed and adopted.
- Local authorities and ABP shall facilitate the repowering and lifetime extension of existing renewable energy projects by ensuring a simplified and swift permit-granting process. The length of that process shall not exceed one year.
- Consideration should be given to establishing a simple-notification procedure for grid connections for repowering and lifetime extensions projects:
    - Repowering/ lifetime extensions shall be permitted following notification to the relevant authority where no significant negative environmental or social impact is expected. That authority shall decide within six months of receipt of a notification whether this is sufficient.
    - Where the relevant authority decides that a notification is sufficient, it shall automatically grant the permit.
    - Where that authority decides that the notification is not sufficient, it shall be necessary to apply for a new permit.

3.1.8 What do you view as the main challenges/obstacles to the Sectoral Emission Ceilings being met?

We refer to our answer to the previous question.

3.1.9 Are there any unintended barriers within the planning system that should be addressed at national policy level in order to deliver our climate ambitions?

Translating national renewable onshore wind targets into regional targets and developing associated Spatial Strategies to ensure their delivery.

WEI has reviewed the MW potential emerging from the most recent County Development plan making cycle. From our initial analysis the onshore wind ambition at a local County level is not sufficient to achieve national targets.

WEI has long been an advocate of a regional approach to onshore wind target setting and to the development of a regional spatial strategies to inform local plan making (ref. WEI submission 18th May 2021). In this regard WEI broadly welcomed Action 102 in the Climate Action Plan 2021, Annex of Actions and in particular the references to 'regional renewable energy strategies' and 'targets for onshore renewable electricity development to inform spatial plans'. These are critical to resolve challenges at the county development plan making level.

However, WEI has concerns that the proposed output of same in Action 102 is not sufficiently meaningful and a clearer and more specific commitment to delivering these initiatives is required in CAP 2022.

For example, Action 102 commits to "*Publishing a roadmap for the development of the Regional Renewable Electricity Strategies*". This must mature in the next CAP to a commitment to publishing the [final] Regional Renewable Electricity Strategies for each of the Southern, Northern & Western and Midlands & Eastern Regional Assemblies. This is required urgently in 2023 if the targets for onshore wind and solar generation are to be seen as credible.

Similarly, the commitment to "*Publish a framework to set out targets for onshore renewable electricity development to inform spatial plans*" needs to mature to the "publication of on-shore regional wind targets (MW)". This is also required urgently in 2023 and will inform the Regional Strategies.

The Regional Strategies have a critical role in setting a wind energy policy framework that a local authority must apply when preparing new development plans and determining planning applications. By empowering locally elected representatives who sit on the Regional Assemblies to play their part in the process we facilitate greater democratic participation in setting regional strategic planning objectives for energy. This policy framework may well need the support of section 28 guidelines incorporating 'Specific Planning Policy Requirements'.

3.2 Enterprise

With the right approach, through a concerted effort between industry, Government, and coastal communities, we can build a whole new industrial sector for offshore renewables, supporting regional development, creating thousands of jobs and driving sustainable and inclusive growth in Ireland. To achieve this, we must work together.

We have enough offshore wind to power our country and export our energy as both electricity and green hydrogen. We can become an international centre of excellence, the Silicon Valley of renewable energy. This will be a unique opportunity for Ireland as we will have the potential to shift our position from an energy importer to an exporter on a significant scale. With this shift there is a need to reconsider how agencies such as Enterprise Ireland and IDA support companies in the energy sector who will be dealing with exports of electrons and molecules rather than traditional products.

Progressing an enterprise strategy to support this potential will require a shared purpose, an understanding that the Government needs the industry, the industry needs the Government, and the people of Ireland desperately need and deserve a clean energy future. Together, we can drive strategic investment in our ports, infrastructure, skill capacity and local enterprise to ensure Irish wind farms create jobs, support businesses at home and deliver long-term benefits for communities across this island.

WEI recently published a short position paper called 'Working Together Building Irelands Offshore Wind Industry'[9]- one of our key recommendations is that an Offshore Renewable Industry Forum is established, led by the Department of Enterprise – but bringing together other departments, key State agencies and our members – to agree a much broader list of actions and work together to deliver them. We recommend that this and supporting actions outlined in the paper be incorporated into the Climate Action Plan to progress enterprise development in this space.

3.3 Just Transition

3.3.1 Q6: What other issues should be considered by the Government to inform just transition policy in the 2023 Climate Action Plan?

The table below gives an overview of the benefits that a target of 70 per cent renewable electricity would bring to the Irish economy if implemented in line with the 2019 CAP. While we

[9] https://windenergyireland.com/images/files/final-wind-energy-12-page-a4-conference-report.pdf

now have a target of 80% RES-E set out by Government, it still offers an important insight into the benefits of high levels of RES-E deployment.

Firstly, it will reduce CO2 emissions in electricity generation by 66 per cent by 2030, from approximately 12 Mt per year to 4-5 Mt per year. This is mainly driven by the replacement of fossil fuels with clean electricity, which will save the Irish economy an additional €1 billion on imported fossil fuels each year by 2030.

Moving beyond 70% renewable electricity as proposed in the WEI response in Section **Error! Reference source not found.** will deliver even further carbon emission savings and fossil fuel savings than those shown below.

Delivering the renewable generation infrastructure will require approximately €12 billion of investment and will create ~6,000 direct jobs in Ireland, which is estimated here to create an additional ~9,000 indirect jobs.

However, these is an opportunity to significantly increase this. Research completed last year by the Carbon Trust examining the potential for Ireland's offshore wind energy supply chain found that currently – at best – Irish firms would be able to attract only 22 per cent of the lifetime multi-billion-euro investment[10]. The report set out how this could quickly grow to 31-36 per cent and eventually as much as half of the estimated €17.9 billion of investment associated with a 3.5 GW target for offshore wind.

Critical to this will be identifying a port on the east coast to facilitate the construction of offshore wind farms, creating an enterprise zone around this port (which has proven effective in the UK) and simultaneously supporting training in the sector via the Skillnets or Future Jobs programmes.

Metric to Achieve 70by30	Onshore Wind	Offshore Wind	Solar	Notes
Installed Capacity by end of 2020 (MW)	4,200 MW	25 MW	0 MW	Initial data for 2020 is promising to meet the 40% RES-E target for 2020[11]
Additional Capacity in 2030* (MW)	4,000 MW	3,500 MW	1,500 MW	Capacities identified in the Climate Action Plan (CAP)
Total Investment (Billion euro by 2030)	€5 Billion (very accurate)	€6-7 Billion (very accurate)	€500 Million (very accurate)	Based on typical investment costs[12]. Excludes investment in supporting technologies such as batteries and interconnectors.

[10] https://windenergyireland.com/images/files/final-harnessing-our-potential-report-may-2020.pdf

[11] http://www.eirgrid.ie/newsroom/record-wind-levels-feb-20/index.xml

[12] https://ens.dk/sites/ens.dk/files/Statistik/technology_data_catalogue_for_el_and_dh_-_0009.pdf

Carbon Savings (Mt/year by 2030)	~3.5 Mt (very accurate)	~4 Mt (very accurate)	~0.5 Mt (very accurate)	CAP found that 70% RES-E will save 7-8 Mt/year out of a total ambition in the CAP of ~16 Mt[13]
Avoided Natural Gas Imports (Million euro per year by 2030)	~€500 Million (very accurate)	~€600 Million (very accurate)	~€75 Million (very accurate)	Assuming all natural gas for electricity generation is imported and a forecasted gas price of 63 p/therm in 2030
Additional Direct Jobs (for new capacity only)	2,000[14] (very accurate)	2,500 (very accurate)	1,500[15] (estimate)	Onshore & offshore numbers are based on bespoke research in these areas. Solar is an estimate based on international experiences.
Indirect Jobs (for new capacity only)	4,000[16] (accurate)	3,500 (estimate)[17]	1,500[15] (estimate)	Onshore wind numbers are based on a study from 2010, so it needs to be updated, but provides a guide. Offshore numbers assume the same rate as onshore and solar is an estimate based on international experiences.

To inform the just transition policy in the 2023 Climate Action Plan, the should also provide incentives to decarbonise transport, heat and agriculture and taking lead from successful policies in other jurisdictions.

In the transport sector, for example, Germany has taken steps to gradually replace its diesel trains with trains with fuel cells and batteries, powered by green hydrogen. In August 2022, five Coradia iLint trains using fuel cells run on hydrogen started carrying passengers in Lower Saxony, Germany. Manufactured by Alstom, these trains have range of 1000km, can run only single tank of hydrogen a day and their only by-products of operation are steam and water. Germany plans to replace 9 more diesel trains on same line with this train later in 2022. Germany, France, and Italy have plans to replace more diesel trains with this type of hydrogen-powered train in 2023.

[13] https://www.dccae.gov.ie/documents/Climate%20Action%20Plan%202019.pdf

[14] Based on economic research on the number of jobs created per MW of installed capacity contained in the Siemens 2014 report *An Enterprising Wind: An economic analysis of the job creation potential of the wind sector in Ireland*. The ratio of 0.5 jobs per MW installed is the **most conservative** of the predictions made.

[15] Assuming 1 job per MW based on Figure 11 here for both direct and indirect jobs: https://www.solarpowereurope.org/wp-content/uploads/2018/08/Solar-PV-Jobs-Value-Added-in-Europe-November-2017.pdf

[16] Based on a study from 2010 which concluded that Ireland creates 1.5 jobs per MW in total in Ireland from wind energy, so assumed here that 0.5 per MW are direct and 1 per MW are indirect: https://www.iwea.com/images/files/9660bd5e72bcac538f47d1b02cc6658c97d41f.pdf

[17] Assuming the same indirect benefits as for onshore wind

An additional action that could be explored is allowing developers to replant trees felled for wind farm development with slow-growing agroforestry or native woodland species in place of sitka spruce in appropriate locations. This could generate additional revenues for wind farms, with which developers could set out walking trails through these replanted lands, link them with existing greenways/trails, add in features that the local communities may, etc. This could lead to increased local job creation to deliver on some of this work, contributing to the objectives of the Just Transition.

To help farmers to produce both food and energy, the Irish government could consider incentivising the development of anaerobic digester plant to produce biogas, digestate, heat and electricity from slurry. This could help farmers cut their emissions by 25% without substantially reducing the herd size if implemented at scale, because it could significantly reduce the amount of methane released into atmosphere from our beef and dairy industries.

3.4 Research and Innovation

WEI believe there is a definite need to recognise the research and innovation system as a resource to provide evidence-based research to address key national policy questions. In recent years WEI has carried out extensive research to support the Irish government in setting policy targets in decarbonisation, climate action and the just transition. For example, our suite of 70 by 30 report[18], focusing on the areas of onshore and offshore wind, were pivotal publications which set out ways of delivering many of the targets in the government's 2019 Climate Action Plan. Our Harnessing Our Potential study[19] outlined how offshore wind energy can create 2,500 jobs over the next ten years and attract over €42 billion in lifetime investment. Our partnership with the MaREI centre for Our Climate Neutral Future: Zeroby50[20] showed how Ireland can have a net-zero energy system by 2050. WEI feels there is enormous opportunity for significantly more research and innovation across both academia and industry to deliver on the step change required to move us to a decarbonised society, and that research and innovation can play a major role in addressing key national policy questions in the coming years.

We believe that any priorities defined in the National Research and Innovation Strategy 2021-27 must support national policy objectives set out elsewhere in government. The development of updated Climate Action Plan, following on from the Climate Action and Low Carbon Development (Amendment) Bill 2021, will likely set out even greater ambitious targets impacting the entire economy, to support a 51% reduction in Ireland's greenhouse gas emissions by 2030. It is our

18 https://windenergyireland.com/images/Article_files/Final_Baringa_70by30_Report_web.pdf
19 https://windenergyireland.com/images/files/final-harnessing-our-potential-report-may-2020.pdf
20 https://www.marei.ie/wp-content/uploads/2021/03/Our-Climate-Neutral-Future-Zero-by-50-Skillnet-Report-March-2021-Final-2.pdf

view that the funding priorities for research and innovation must be coherent with the targets set out in the government's Climate Action Plan.

Research and innovation priorities should be cognisant of the potential for job creation and new business opportunities, arising from successful links with industry. Looking at the new strategy through the lens of addressing the post-pandemic recovery and climate change, if addressed in a suitably strategic and integrated manner, WEI members foresee significant opportunities for Ireland to create sustainable jobs, which could also contribute to developing a sustainable competitive advantage for the country into the future. *Our Climate Neutral Future: Zeroby50* estimates that delivering a net-zero energy system could create at least 50,000 jobs in Ireland.

The scale of the transformation is such that the new 'green jobs' will be required across the whole economy. Some of these jobs will be in the areas of:

- Installation and maintenance of wind turbines (onshore and offshore), solar PV, and other forms of renewable energy at scale.
- Installation and maintenance of local renewable energy generation (microgeneration) and shared services offered by energy cooperatives (e.g., demand-side management, peer-to-peer trading, virtual power plants).
- Installation and maintenance of the charging infrastructure for electric vehicles and other non-fossil advanced fuel (biofuels, hydrogen, etc.) and electric vehicles.
- Local engagement agencies providing information to the public and communities.

The fact that Ireland is currently one of the countries at the forefront of decarbonising its electricity system provides an opportunity for Ireland to become a 'test bed' and an exemplar for the electrification of broader society. With the existing strong presence of expertise in the energy sectors, there is a basis for creating an ecosystem to support significant innovation related to decarbonisation, not just of the electricity sector but of all businesses.

To achieve this would require the establishment of a specific supportive ecosystem that could offer opportunities for collaboration between academic researchers, private companies, state companies and agencies, the Commission for the Regulation of Utilities and industry bodies such as Wind Energy Ireland.

Because of the high capital investments required in the energy sector, this ecosystem would require financial support for establishing and running some 'test beds' and this would need to be provided for in the new strategy. Such an innovation would enable Irish companies, academic researchers, and local communities, to collaborate in finding solutions to problems associated with the decarbonisation of society.

If this ecosystem was established, it is likely to result in Irish patents, new Irish companies being formed and new jobs arising at various skill levels and in regional areas around the country.

While research capacity on climate change has grown over the last decade and funding structures to support this have been evolved by several state agencies including EPA, SFI, SEAI and Marine institute, WEI feel that more could be done to support the development of renewable technologies in Ireland and specifically to support development of innovative technologies and SMEs in this space.

WEI recommend:

- More formal opportunities for WEI and industry to input into shaping of research topics e.g., through an industry forum
- Development of an accelerator models, e.g. Offshore Wind Accelerator (OWA) | The Carbon Trust which would allow industry to influence and support relevant research.
- Comprehensive rollout of the Small Business and Innovation Research (SBIR) model for SME companies in the renewable sector and supply chain
- Review of funding models (e.g., SEAI RD&D) to allow for better inclusive of SME companies
- More active programmes with industry to encourage students (particularly girls) into STEM subjects
- More active and targeted programmes for Internships and apprenticeships jointly between universities and industry.

Additionally, innovation activities that could enable us to fully benefit from our considerable offshore resource should be explored. For example, according to the Government's Offshore Renewable Energy Development Plan, there is potential to develop more than 12.5GW of wave energy capacity off the Irish coast – more than twice the peak demand.

Since there can be a 5-15hour lag between peak power production on energy from wave plant and offshore windfarms on West coast of Ireland, there is technical merit in developing hybrid offshore wind/wave plant connected to the same node. However, wave power has relatively lower technology readiness level than wind; needs to survive 20m waves in winter in some parts of Ireland and is significantly more expensive than wind now. To make this option commercially viable in short run, the government will therefore need to put in place special incentives to encourage developers to invest in type of hybrid development.