13 June, 2021

(EirGrid) Industry Consultation: Shaping our Electricity Future

Technical Questionnaire

The Programme for Government set RES generating capacity targets to 2030 (+8.2GW of terrestrial wind and +5GW of offshore wind with contributions also expected from other sources, notably solar). We believe that these targets should be the focus of EirGrid's development effort rather than the '70% RES-E by 2030' target. We have four overall concerns about the SEF approach.

First, the SEF lacks ambition to 2030, seeking only, for example, 4.5GW of Offshore Renewable Energy (ORE) from Ireland under the Generation led scenario, the approach which involves the most ORE. We support a *minimum* of 5GW by 2030 off Ireland. ORE has the most potential to deliver at scale and also for social acceptance, a critical issue for Government and industry alike.

Second, an important issue which should be tackled as a priority is an assessment of the grid capacity available now, and required in the future, to support ORE off the south and west coasts. This exercise would be similar to the study undertaken off the east coast in 2019 which, however, was high level and did not deal in detail with the issue of cumulative impacts. The new studies would give recognition in EirGrid's planning to the scope for ORE projects off coasts other than the east coast in this decade e.g., to ensure competitive Offshore RESS auctions. There is a dilemma here for EirGrid and for Government alike. There are few references in SEF to coasts other than the east coast and to the post 2030 possibilities because EirGrid hasn't done a grid assessment beyond the east coast and currently don't know what Government wants under Phase 2 while Government can't define Phase 2, including the geographical coverage aspect, until inter alia the grid availability and planning situation is clarified!

We recommend that EirGrid carry out these studies as a priority. A complementary priority should be to conduct a cumulative analysis on the pre-2030 projects so that grid reinforcement needs are identified and progressed early. Building on this analysis, EirGrid could develop a strategic plan for post 2030 e.g., to enable significant levels of 'floating wind' (and 'wave') off the west coast.

It is anticipated that 30GW of Floating Offshore Wind (FLOW) could be harnessed off the west coast, in particular, along with wave energy developments, export opportunities opened up, offshore hydrogen projects becoming possible etc. Policy and investment decisions made under the SEF will impact on the 2030+ developments and they must be taken into explicit account now. A plan that focuses just on immediate needs (out to 2030) is too short-term and could lead to a sub-optimal solution for the achievement of greater ambitions out as far as 2050.

Third, SEF indicates the cost of reinforcements required under the various scenarios, 'Generation led' etc. What is striking is that the level of grid investment forecasts - to facilitate the extra RES capacity required under various scenarios - is relatively low and affordable, particularly when the potential life - perhaps 50 years - of such assets is taken into account. The weight given to narrow economic criteria to determine the best grid development approach is strongly questioned across industry. It fails to address the impact that building out grid capacity will have on bid prices and on LCoE: grid development costs should be considered an investment.

Looked at another way, the cost of reinforcements forecast for all projects - land and sea - envisaged in the 'Generation led' approach is €0.7bn which is less than the project cost which will be incurred by just one wind farm under the Relevant Projects heading! The cost of grid development should not be the prime consideration in determining between grid development options.

Finally, MRIA believes that resilience and security of electricity supply to customers is a key requirement today and will remain a key requirement of a decarbonised electricity sector. Providers of system resilience and security must be rewarded. Moreover, hybrid connections, mating traditional thermal generation with offshore wind projects, will play a part in ensuring the most efficient use of existing onshore grid assets.

Context - achieving the 'Renewable Target'

1. Have we adequately explained the Renewable Targets that underpin the Shaping Our Electricity Future (SOEF) studies?

Yes

2. Would you support maximising the use of the existing grid and development of new grid infrastructure if this is required to achieve the Renewable Target?

Yes

3. Have we adequately explained the purpose and objectives of Shaping Our Electricity Future?

Yes

4. Have we adequately explained the process for developing our draft roadmap and how we will develop the final roadmap?

Yes

5. Do you think that the final roadmap will be useful to you? Please briefly describe how you will use it.

MRIA believes that the 'Generation led approach' is one correct course to follow but with a higher level of Offshore Renewable Energy (ORE) ambition than that set out in the SEF- see 13. below. We also believe that 'Developer led' is credible but with a much higher level of

ambition than that set in the SEF. Whichever course is followed, the offshore renewable energy community need a clear roadmap for projects in line with the following pointers:

- A grid roadmap is a key part of the legislative and policy framework currently being woven - other elements include the Maritime Area Planning Bill, MARA etc.
- However, the grid roadmap also needs clarity on the issue of what development will be possible i.e., it is clear that Offshore RESS 1 will focus on the Relevant Projects which are concentrated on the east coast.
- However, there needs to be clarity soon about the eligible projects/geographies/ technologies associated with Offshore RESS 2 and 3 and these, of course, will be affected by grid availability now and possible grid development by 2030.
- In addition, fulfilment of the Programme for Government's ambition for at least 30GW of floating offshore wind in the Atlantic in the 2030s coupled with steps to exploit our enormous potential in wave energy - the technology will mature from c2030 and early Irish aims are already set in the NECP - means that a roadmap which takes cognizance of potential development beyond 2030 is vital. Ireland needs an integrated early plan to exploit our enormous floating wind and wave potential, particularly off the Atlantic coast.

Power system assumptions

6. DO YOU AGREE WITH THE RANGE OF ASSUMPTIONS USED RELATING TO ELECTRICITY DEMAND GROWTH FROM LARGE ENERGY USERS AND TECHNOLOGIES SUCH AS ELECTRIC VEHICLES AND HEAT PUMPS?

Yes

7. DO YOU AGREE WITH THE RANGE OF ASSUMPTIONS USED RELATING TO CONVENTIONAL GENERATION TECHNOLOGIES SUCH AS COAL, PEAT, OIL AND GAS FIRED GENERATION?

Yes

8. DO YOU AGREE WITH THE RANGE OF ASSUMPTIONS USED RELATING TO RENEWABLE GENERATION TECHNOLOGIES SUCH AS OFFSHORE WIND, ONSHORE WIND AND SOLAR PV?

It appears that EirGrid has assumed (e.g., at figure 3 of the SEF Technical Report) that the bulk of offshore wind generation which will be energised to 2030 will be drawn from the Phase 1 projects located in the Irish Sea and will be based on Bottom Fixed Offshore Wind (BFOW) technology. However, the Association believes (see 12. below) that there will be a need to draw also from projects located elsewhere (e.g., the Celtic Sea). Accordingly, there is a need to identify Phase 2 projects and to facilitate early engagement between EirGrid and these project developers if targets are to be achieved. Clarity on Phase 2 designation will enable developers to effectively plan their projects, invest in data gathering and project design, with the certainty that they will compete in an Offshore RESS.

The draft SEF focuses, in regard to offshore wind, only on the Irish Sea - (*Generation Led* approach - 4.5GW in Ireland plus 0.7GW from Northern Ireland) and de facto on BFOW

technology. This may be impacted by the availability of a major study on east coast grid (*East Coast Generation Opportunity Assessment*- Eirgrid, 2019) and the lack of an equivalent work with regard to the Celtic Sea or the Atlantic coasts.

MRIA understands that there may be concerns about the technical maturity of Floating Offshore Wind (FLOW) technology and, therefore, about its immediate readiness to contribute to the 2030 target. Several of the projects seeking sites off the south coast involve FLOW - potentially (part of) the SSE project and the full proposals by DP Energy, Simply Blue Energy and ESB/Equinor's 'Celtic 2' are based on this technology - while FLOW (and later wave) is the dominant, necessary technology choice for west coast projects.

Floating offshore wind activity has increased rapidly in the past 5 years. Technology improvements and successful demonstrator projects have enabled the maturing of the market. Global installed capacity of floating wind stands at 65MW but there is currently *25GW of capacity* under development worldwide[1]. It is notable that the UK government has set a new target of 1 GW of floating wind capacity by 2030 as part of its recent policy declaration for the 'green agenda'.

Globally, 10GW to 30GW of FLOW capacity is likely to be installed by 2030, with 50 -70GW in place by 2040. With demonstration projects now operating, developers are turning to early commercial-scale projects. The next ten years will see a substantial increase in installations in multiple countries. Increasing cost competitiveness with bottom fixed wind later this decade will create more traction[2] for the technology.

The Celtic Sea between Ireland, Wales and South West of England was the focus of a resource assessment by ITP Energised on behalf of Irish developer Simply Blue Energy Ltd[3]. The study showed the potential for the development of between 15-50GW of the 150-250GW total FLOW capacity in the Celtic Sea region.

The Association is satisfied that FLOW is ready to contribute to the 5GW target and notes, moreover, that it is the key, alongside wave technology, to opening up our Atlantic waters to development. Grid planning now needs to take this into account and, in particular, early action on south and west coast studies equivalent to the *East Coast Generation Opportunity Assessment* is required

9. DO YOU AGREE WITH THE RANGE OF ASSUMPTIONS USED RELATING TO INTERCONNECTION AND STORAGE

Yes

[1] Carbon Trust, 2020. *Floating Wind Joint Industry Report – Phase II Summary Report*

[2] DNV GL, 2020. *Floating Wind: The Power to Commercialize: Insights and Reasons for Confidence*

[3] ITP Energised (2019). *Assessment of the Floating Offshore Wind Potential in the Irish Sea and UK Waters of the Celtic Sea.*

10. HAVE WE ADEQUATELY THE DESCRIBED THE CONSEQUENCES FOR NETWORK PERFORMANCE ASSOCIATED WITH DELIVERING THE RENEWABLE AMBITION?

Yes

Transmission Network

11. HAVE WE ADEQUATELY EXPLAINED THE METHODOLOGY USED TO ANALYSE THE TRANSMISSION ELECTRICITY NETWORK?

Yes

12. DO YOU THINK THE NETWORK DEVELOPMENT APPROACHES USED ARE CREDIBLE? WHAT CHANGES, IF ANY, WOULD YOU MAKE TO THESE APPROACHES?

Our responses at 13-16 below set out our views on each option. Overall, we consider Option 1 - *Generation Led* - to be realistic but it lacks in ambition and fails to recognise that there may be a need for capacity to be drawn, at least, from the so-called Phase 2 category of development projects, at least, if our 2030 RES targets are to be met. It is notable that there is a concern expressed in the SEF - see 26. below - about the volume of RES capacity. We also consider the Developer Led approach to be attractive but, as set out in the SEF, it is totally lacking in ambition - see 14. Below.

13. WHAT, IN YOUR OPINION, ARE THE STRENGTHS AND WEAKNESSES OF THE GENERATION-LED SCENARIO?

Strengths

- It addresses the 2030 target with Offshore Renewable Energy (ORE) to a greater extent than the other Options
- It would enable the Relevant Projects to proceed with their projects (at least in their planned first phases)
- We believe that the target should be amended to 5GW of offshore wind for Ireland while maintaining the Northern Ireland element
- ORE capacity beyond 5GW is possible by 2030 if policy decisions under a variety of headings e.g., consenting, Phase 2 'definition' etc are made quickly
- We note that this option enables the '70% RES by 2030' target to be achieved with relatively limited extra terrestrial renewables capacity and with a Northern Ireland contribution.

Weaknesses

- The target of 4.5GW of offshore wind from Irish waters is below that set in the Programme for Government and the introduction of a Northern Ireland contribution of 0.7GW is a new element which has not been discussed with industry, although the Association appreciates the SEM and welcomes a Northern Ireland contribution. The *original* Ireland target set in the Programme for Government should be retained and

the Northern Ireland target *added* to it. Moreover, the SEF makes assumptions about Northern Ireland's contributions under various scenarios in advance of the finalisation of Northern Ireland's energy strategy.

- The option does not address our concern that *confining* the offshore wind portion of the 'RES-E of 70% by 2030' target to contributions from the east coast may not produce a sufficiently competitive series of RESS Offshore auctions and, thus, lead to higher electricity prices to the customer.
- It is likely that projects in the Celtic Sea, at least, will be needed to reach the 70% target and, indeed projects currently planned off the Clare coast may also be required
- In any event, the apparent exclusive focus on grid provision on the east coast without any apparent planning or plans for the Celtic Sea and Atlantic coasts is short sighted for three reasons:
    - The need for real competition at RESS auctions, as just outlined
    - The requirement to start planning and investing now to ensure there is a flow of offshore projects in the late 2020s and into the 2030s to meet the Programme for Government's ambition for 30GW of FLOW off the west coast in the 2030s and to address wave energy opportunities that will start to emerge there as that technology matures
    - Social acceptance is a key to a successful ORE drive and this will depend to a significant extent on our success in 'industrializing' the offshore renewable energy opportunity i.e., creating a supply chain which will bring investment and jobs to affected coastal communities. The signal given by SEF that our de facto offshore planning and future is confined to less than 5GW off Ireland will militate against this.

14. WHAT, IN YOUR OPINION, ARE THE STRENGTHS AND WEAKNESSES OF THE DEVELOPER-LED SCENARIO?

Strengths

- This option, with its terrestrial focus, appears to be straightforward to deliver as it seeks new capacity largely from traditional, sources (onshore wind) with some contribution from other technologies (e.g., solar)
- However, we note the concern that '.... large number of reinforcements throughout the grid impact security of supply, and the ability to operate and maintain the power system while they are being implemented'
- There is some grid availability at present on the east coast
- It strives to achieve the onshore targets as set out in the Climate Action Plan

Weaknesses

- The targets set under this approach are not credible and do not align with the grid connections options being processed currently by EirGrid

- This approach falls far short of the 5GW offshore target as set in the Programme for Government and the resulting constraint per annum remains quite high at an estimated 9%.
- 'Developer-led' involves an expensive reinforcement programme (v Generation-led)
- Fails to address at scale the opportunity represented by our vast offshore wind (and wave resources)
- The 2GW offshore element - actually it is less than that for Ireland after the Northern Ireland contribution is taken into account - is small by industry standards. It represents just about half a year's investment under the UK's ORE programme out to 2030 - and would lead to uncompetitive RESS Offshore auctions
- This option, if adopted in its present format, would be unlikely to succeed
- However, a Developer-led approach, of greater ambition (notably in ORE) along with installing new system enabling technologies (such as synchronous condensers) and strategic location of new demand (such as electricity storage and hydrogen electrolysers) would be an attractive approach to achieving the 2030 aims, delivering value to customers and maintaining a secure, resilient system.

15. WHAT, IN YOUR OPINION, ARE THE STRENGTHS AND WEAKNESSES OF THE TECHNOLOGY-LED SCENARIO?

Strengths

- Would place Ireland in a position of technical leadership
- This approach has the potential to deliver significant volumes of capacity onto the grid and reportedly can reduce constraints to an estimated 5% per annum whilst delivering the 70% RES-E target.
- Might address social acceptance issues associated with overhead transmission infrastructure but, perhaps, only after public controversies over 'undergrounding' cables
- There is an opportunity to consider how an offshore grid might support the onshore grid. A longer-term plan to identify strategic projects will provide much needed clarity on a programme for increasing grid capacity.

Weaknesses

- This is a high risk, expensive and time-consuming option
- The impact of delays to the roll out of proposed radial HVDC links would have a significant and detrimental impact on our ability to deliver on our RES-E targets, whilst also driving up the cost of electricity due to increased dispatch down.
- Again, as with the Developer-led scenario, the 1.8 GW of ORE targeted from Ireland is sub-scale and, as such, could encounter difficulty e.g., lack of competitive RESS Offshore auction results
- The scenario is a variant on the 'Developer led' scenario and also involves substantial extra onshore wind and solar capacity.

16. What, in your opinion, are the strengths and weakness of the Demand-Led scenario?

Strengths

- This scenario seeks, it seems, to tackle the energy-intensive Data Centres issue and MRIA understands why EirGrid would examine such an option
- This approach has the potential to reduce constraints to an estimated 5% per annum whilst delivering the 70% RES-E target, should the key variable be realised.
- This approach illustrates the impact of data centres relocating out of the mid-eastern area; however, the credibility of the 'relocation' assumption is questionable.

Weaknesses

- The low level of ORE envisaged is again a problem - see 13. and 14. above- and the high levels of extra onshore capacity envisaged similarly could pose social acceptance challenges
- The likelihood of Data Centre promoters being open to locating beyond their chosen sites (the Dublin area is favoured to date) is probably low because of 1. the lack of real incentives (because of EU State Aids rules) e.g., significant differential grant levels to incentivise such location choices and 2. because of the Apple/Athenry experience and the perception that rural locations may pose consenting challenges
- It is unlikely that IDA Ireland would support such a policy as Data Centre promoters are often also key IDA clients on a variety of other projects e.g., Google, Apple etc
- In the longer term, the impact of Data Centres on electricity demand may be reduced as it may be possible to locate such facilities in the sea (resulting in a lower energy requirement) and, indeed, to power them with ORE. Microsoft are experimenting with this approach off the US Northwest coast and in the North Sea. The early results are promising.
- If further data centre - type growth materialises in Dublin even beyond 2030, it is likely that many of the reinforcements which appear to be 'avoided' in this decade will resurface, supporting the possibility that this approach will not avoid grid development issues, merely postpone them.

System Operations

17. Have we adequately explained the operational challenges associated with meeting the renewable target?

Yes

18. Do you have any comments in relation to the technical scarcities and operational challenges identified? Are there challenges that you foresee that we have not discussed?

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19. Are there technologies that could help mitigate some of the technical challenges that we have not mentioned?

Ireland has, arguably, the world's most energy intensive waves with a resource estimated by the first *Offshore Renewable Energy Development Plan* (OREDP 1) at up to 31GW, most of which is located off the Atlantic coast. Exploiting that resource has long been an ambition of the State. Minister Ryan, as far back as 2007, set a deployment target, which became policy, of 500MW of 'ocean energy'[4] (wave and tidal) in the water off Ireland by 2020.

This pioneering effort was backed up by substantial investment during the austerity period: the Beaufort Building and the LíR National Ocean Test Facility in University College Cork were built at that time to facilitate the development of Marine Renewables Emerging Technologies (MRETs); the 'SmartBay' and AMETS State test sites advanced; SEAI operated a crucial Prototype Development Fund; and the SFI MaREI Centre with a focus on marine and renewable energy was established which has since collaborated with in excess of 50 industry partners and, through peer review, has been recognised as a global leader in the offshore renewable energy research field. This investment has been translated into tangible impacts including:

- A number of technologies progressing through the TRLs to securing real 'in the sea' projects (e.g., Ocean Energy and Sea Power in wave and GKinetic in tidal energy)
- Early-stage technology developers achieving success in international competitions and programmes such as the EU's Horizon 2020, Wave Energy Scotland and the US Department of Energy *Wave Energy Prize*.
- Publicly funded technologies finding commercial applications outside wave and tidal, including offshore wind, floating wind and aquaculture.
- Irish R&D funding was shown to have been the most cost-efficient in delivering installed ocean energy capacity in the period 2007-2016[5]

However, wave energy technology - the main component of ocean energy for Ireland[6] - has been slower to reach commercialisation than anticipated. This led, for example, to the ESB placing their WestWave project (5MW off the Clare coast) on hold, although the Saoirse project has since emerged in approximately the same area[7] which reflects recent advances in wave energy knowledge. All offshore energy technology takes time to 'hatch' and become competitive. It is instructive to recall that no commercial offshore wind farms existed

[4] wave + tidal energy = *ocean energy* + wind energy etc = *Marine Renewable Energy* or *Marine Energy*

[5] Hannon & van Diemen (2016) *An international assessment of ocean energy innovation performance*

[6] Ireland has no significant tidal resource although it has been a pioneer in the field with companies such as GK Kinetic. Northern Ireland has a notable tidal resource off the Antrim coast.

[7] Saoirse is promoted by Simply Blue Energy and also involves 5MW

anywhere pre-2000 and, indeed, the existing Arklow wind farm is one of the oldest in the world. There is now over 22GW of European offshore wind capacity (including over 3.6GW commissioned in 2019 alone (the most recent date for which data is available) with a total of 5000+ turbines installed off 12 countries[8].

Wave energy technology - usually grouped with tidal energy (of which Ireland has almost no viable resource other than for technology suited to low tidal flows which could serve local communities) under the rubric of 'ocean energy' - is now firmly located on the development pathway. It is being supported internationally - €3.84bn (€2.7bn from the private sector) was spent on R&D in the period 2007-2019 on wave and tidal energy. Wave and tidal energy have recently become a priority of the European Commission[9] which has just set a target of 100MW of ocean energy deployed by 2025; 1GW by 2030 and 50GW (5% of forecast European electricity demand) by 2050.

The core challenge facing the resilience of the electricity system is the potential instability posed by the dependence of the future system on a high level of *System Non*-Synchronous *Penetration* (SNSP). A key part of the solution will be to extend the geographical coverage of Offshore Renewable Energy (e.g., wind speeds off the west coast won't necessarily match those in the Irish Sea at any one point in time) and also to introduce wave energy which operates to a different pattern to wind i.e., can complement wind energy in terms of availability.

The pioneering work of Professor John Ringwood of Maynooth University and others indicates that wave and wind energy combined 'smooths out' the discontinuity inherent in each source: *'...it is shown how the West and South coasts experience, most of the time, wave systems where the predominant (from an energy point of view) part is composed of large swell systems, generated by remote wind systems, which have little correlation with the local wind conditions. This means that the two resources can appear at different times and their integration in combined farms allows a more reliable, less variable and more predictable electrical power production. The reliability is improved thanks to a significant reduction of the periods of null or very low power production (which is a problem with wind farms). The variability and predictability improvements derive from the smoothing effect due to the integration of poorly correlated and diversified sources*.' From VARIABILITY REDUCTION THROUGH OPTIMAL COMBINATION OF WIND/WAVE RESOURCES – AN IRISH CASE STUDY by Francesco Fuscoa, Gary Nolan, John V. Ringwood in ENERGY, 2010

20. DO YOU HAVE ANY COMMENTS ON THE APPROACH WE ARE TAKING TO SYSTEM SERVICES PRODUCT DESIGN?

No

[8] *Offshore Wind in Europe - key trends and statistics in 2019* www.europwind.org

[9] *An EU Strategy to harness the potential of offshore renewable energy for a climate neutral future,* European Commission, November 2020. The targets set by the Commission do not differentiate between tidal and wave energy

21. DO YOU HAVE ANY COMMENTS IN RELATION TO THE EVOLUTION OF OPERATIONAL POLICY OUT TO 2030?

No

22. DO YOU HAVE ANY COMMENTS ON THE OPERATIONAL PATHWAYS TO 2030 OBJECTIVES, PROGRAMME OR KEY MILESTONES

NO

Electricity Markets

23. DO YOU AGREE A HOLISTIC APPROACH IN INCENTIVISING TIMELY AND AFFORDABLE INVESTMENTS VIA MARKETS IS REQUIRED?

Yes

24. DO YOU AGREE THAT THE CONCEPTS OF ALIGNMENT, CLARITY AND COMMITMENT WE HAVE OUTLINED ARE IMPORTANT TO ENABLE MARKETS TO EFFECTIVELY DELIVER INVESTMENT TO MEET THE LONG TERM POLICY OBJECTIVES?

Yes

25. DO YOU HAVE ANY COMMENTS ON OUR FINDINGS AND RECOMMENDATIONS IN RELATION TO THE ENERGY MARKETS COMPONENT OF OUR REVIEW?

SEF identifies a complex body of work ahead under the energy markets component e.g., sorting out the challenges arising from the components of the SEM lying in different jurisdictions (one of which is not within the EU) and Ireland's plan to reconnect to the EU electricity network, initially via the Celtic Interconnector to France. 5.1.1 captures this challenge '...trading arrangements that are required as part of the UK-EU trade and cooperation agreement and aim to establish suitable...trading arrangements with GB that do not hinder future pan-EU trading once we are reconnected to Europe'.

The concerns expressed under the heading of Predictability at 5.1.3 need to take account of the scope offered in the 2030s by Floating Offshore Wind and Wave technologies to open up wide new sea spaces in the Atlantic which could contribute strongly to system balance. The proposed Market Roadmap should take account of these and recognise that ORE ambitions - regardless of which grid development approach is ultimately adopted - are not confined to the 2030 target.

26. DO YOU HAVE ANY COMMENTS ON OUR FINDINGS AND RECOMMENDATIONS IN RELATION TO THE CAPACITY MARKET COMPONENT OF OUR REVIEW?

We welcome the commitment at 5.1.3 of the SEF Technical Report to undertake '..... a significant review of the existing Market Roadmap...' but urge that the objectives of this review be broadened to consider the ambitions of both Government and industry to step up

ORE development in the 2030s which will involve inter alia new technologies (e.g., Floating Wind, Wave), new geographies (e.g., the Atlantic) and new markets (e.g., hydrogen).

We note the comment at 5.5.2 that '.....the rate at which new capacity is being delivered to replace existing capacity and meet growing demand is not deemed adequate to ensure that the required system security can be delivered' and the broadly related comment at p133 that 'There is further evidence that generation adequacy is not being delivered to a sufficient extent to meet the current LOLE (Loss of Load Expectation) standard of 8 hours...'.

While realising that these points relate to relatively short-term operational issues, they may also indicate an underlying issue of too little *new, extra* generation capacity coming on stream which supports a common thread of MRIA's response to this Consultation - the ORE ambition is too low. While ORE may encounter some public acceptance issues, there are grounds for optimism and it may be possible to add capacity offshore with greater public support than might occur with terrestrial developments. The Relevant Projects and some Phase 2 projects are already engaged in significant public outreach exercises while the safeguards that will be set out in the Maritime Planning Bill (e.g., An Bord Pleanála as consenting authority), community benefit arrangements etc all augur well for the future. Moreover, the Floating Offshore Wind and Wave developments envisaged for the Atlantic in the 2030s will normally be located over the horizon or barely visible on the horizon.

Overall, high ambitions for ORE will more readily enable 'high RES' than other approaches.

27. DO YOU HAVE ANY COMMENTS ON OUR FINDINGS AND RECOMMENDATIONS IN RELATION TO THE SYSTEM SERVICES COMPONENT OF OUR REVIEW?

We commend the pioneering efforts being made to accommodate high levels of SNSP with a pilot exercise of 70% SNSP at present and a target for 95% SNSP by 2030. We welcome in particular the statement (4.1.2) that:

- 'We....consider that there would be benefits in procuring services from new types of service provider, or new services from existing providers, early in the decade to understand their operational impact, gain operational experience and deliver benefits to consumers earlier...'.

While this is not specifically aimed at ORE, it nonetheless raises the issue of EirGrid engagement with new or emerging ORE technologies, particularly when considered in the light of the further statement (4.2.3 of the SEF Technical Report) in the *Operational Pathways to 2030 Programme* that a key objective will involve:

- 'Removing barriers to entry and enabling the integration of new technologies at scale'

We are heartened by the work stream commitment (Table 34: *Overview of technology enablement pillar*) to:

- 'Proactively engage with industry and academia to review and evaluate emerging technologies which are not covered by other work streams'

MRIA will engage separately with EirGrid to discuss these commitments, in particular with regard to the emerging technologies e.g., small scale tidal technology which may support island communities, wave energy etc.

28. DO YOU HAVE ANY COMMENTS ON OUR FINDINGS AND RECOMMENDATIONS IN RELATION TO THE RENEWABLE SUPPORTS COMPONENT OF OUR REVIEW?

We note the statement at 5.8:

- The use of different support schemes and various levels of support throughout Europe can have a direct impact on European power system operations and planning. One consequence is a national clustering of RES. Countries with a high level of support attract, in general, more investments than countries with a low level of support, and additionally countries with high levels of renewable resources and support see increased investment in renewables. As the support mechanism and the renewable resource availability are an important decision criterion for the location of new RES investments, this impacts grid planning and development, and can have negative consequences if the two are not fully aligned.

MRIA considers it unnecessary for Ireland to engage in a competition with other jurisdictions based on the level of renewables' supports. Ireland will attract high levels of developer interest for competitive RESS auctions if all the key factors are available and appropriate: routes to market; grid availability; predictable and suitable policy instruments in consenting; etc. Against this backdrop, a suitable RESS instrument and balanced RESS auction conditions and rules should attract competitive levels of investment proposals.

29. DO YOU HAVE ANY COMMENTS ON OUR FINDINGS AND RECOMMENDATIONS IN RELATION TO NETWORK TARIFFS COMPONENT OF OUR REVIEW?

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