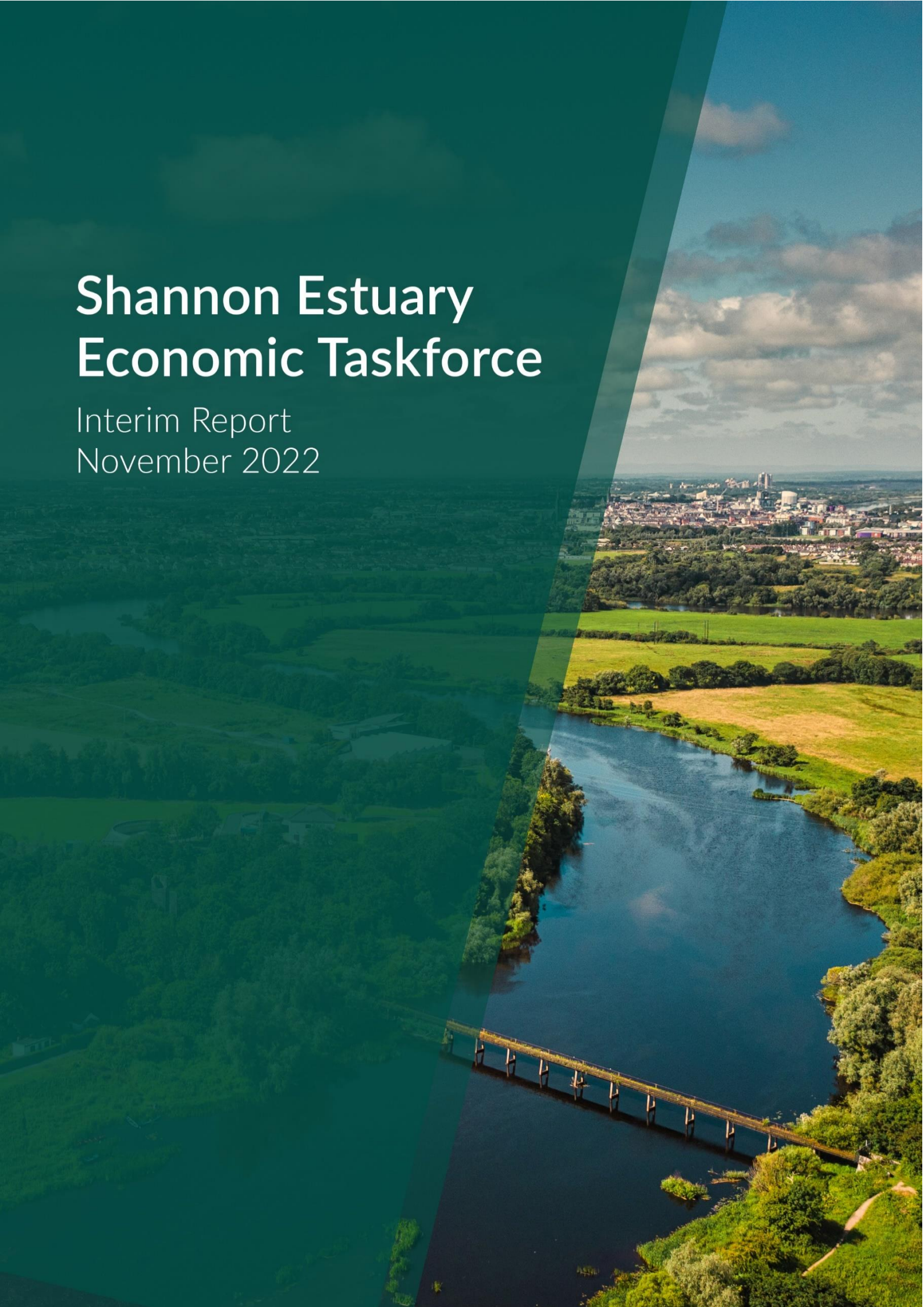


Shannon Estuary Economic Taskforce

Interim Report
November 2022



1. Introduction

The Programme for Government 2020 committed to supporting the Shannon Estuary Region through the establishment of a Taskforce to evaluate the economic development potential of the area and determining how this potential can be realised in both an economically and environmentally sustainable way. The Shannon Estuary Economic Taskforce was established on 21 April 2022 with the twofold objective to create a long-term vision for the region and to outline a concrete action plan to achieve it. Terms of Reference for the Taskforce are at Appendix 1 and membership and structure of the Taskforce are detailed at Appendices 2 and 3.

This interim report is an important milestone for the work of the Taskforce, the purpose of which is to:

- seek approval for our recommended long-term vision,
- outline and briefly explain our recommendations for the priority areas of focus,
- seek approval to proceed with the respective actions plans for these.

We now set out our recommended vision, identify our proposed areas of focus and the related actions that we propose to take before completing the final report.

We would like to take this opportunity to express sincere thanks to all who have engaged with and supported our work to date including:

- Those who submitted views as part of the Stakeholder Consultations details of which are set out at Appendix 4,
- Members of the subgroups details of which are at Appendix 3,
- Expert consultants commissioned details of which are at Appendix 5.

We look forward to continuing working with all stakeholders over the coming months as we finalise our proposed actions and we welcome views from interested parties on the contents of this interim report.

Barry O’Sullivan,
Chair, and on behalf of the Shannon Estuary Economic Taskforce

2. A Vision for the Shannon Estuary

Our primary aim is to strengthen the short-, medium-, and long-term economic competitiveness of the region by tackling national and EU wide challenges, in ways that provide opportunities for all in the region.

Firstly, we recognise that Ireland and Europe are at a crossroads in terms of energy; this represents our foremost economic challenge. Our quality of life, our communities, our enterprises, and our collective prosperity have for so long been underpinned by the availability of affordable energy. Largely, that energy has been provided by fossil fuels in ever increasing quantities. But this reliance on fossil fuel energy threatens our planet and this is driving the world to action. Geo-political developments, most notably the Russian invasion of Ukraine, also mean that sourcing fossil fuels is fraught with additional energy security and financial risks. This is accelerating a global renewable energy revolution.

Ireland can be at the forefront of this energy revolution, a revolution that will see the development of a new economic model with renewable energy generation and export as a key cornerstone. Offshore floating windfarms in the Atlantic are central to this. Ireland has one of the world’s leading wind resources, effectively an infinite supply of wind energy off the west coast. Shannon Foynes Port Company’s Vision 2041 Strategic Review identifies upwards of 70GW which can be harnessed from the Estuary. To put that in context, this is

over ten times our domestic electricity requirement. And so, Ireland's wild Atlantic can not only answer an Irish need, but a European one too.

OUR VISION

The Shannon Estuary presents an opportunity to transform Ireland's and Europe's sustainability and growth strategy.

We can create the EU's new eco-energy-economic frontier by deploying our island's natural edge through infinite renewable resources and doing so in a spirit of community. Coupled with deep tech innovation, this new frontier will renew and secure Ireland's and Europe's energy future.

In Ireland. By Ireland.

Like our wind, the potential economic and societal opportunities are infinite. A whole ecosystem of research, development and innovation will be needed to complement sub-supply chains for the renewable energy sector. Investment by indigenous and multinational enterprises will be drawn by the offer of green energy supplies and an ecosystem that thrives on sustainability and innovation. Thousands of high-skilled job opportunities will be created, powering economic development across the broader Shannon Estuary Region. This will require public investment in key infrastructure such as sustainable transport, digital connectivity, and housing. And existing industries, such as the tourism industry, will become more sustainable and greener. However, for this huge transformation to happen, a plan is needed.

3. A Better Quality of Life for All

The Taskforce places the quality of life of the citizen at the core of its vision. The economic conditions in the region, rooted in sufficiently abundant, secure, and decarbonised renewable energy will allow citizens to develop their talent, raise a family, feel secure in their retirement days, and overall enjoy opportunities as diverse as the (future) Irish Citizens are themselves. The Taskforce expects a diversity of lifestyles, ranging from distributed living and small villages, enjoying the natural landscapes across the region, to a busier 'smart' urban environment with abundant cultural, sport, and leisure options. The Taskforce envisages more diverse communities to emerge across the region as it becomes a leader in the green-digital economic development of the EU's new eco-energy-economic frontier by deploying the vast renewable resources at the island's natural edge. As part of this, the region will be able to entice back many that have left the region and attract a new influx; both of whom will be needed to build a sustainable and secure future for the Shannon Estuary, and for Ireland.

To achieve a better quality of life for all, the Taskforce considers the following to be some of the essential building blocks:

- An economy powered by renewable energy,
- Upskilling the workforce / attracting new talent,
- Building on the region's innovative tradition,
- Leading and embracing new ways of working,
- Leading and embracing healthier ways of living,
- Creating vibrant urban landscapes.

The Taskforce believes that harnessing the massive Atlantic wind energy potential will create a legacy of responsible eco-energy-economic development in the Shannon Estuary Region and Ireland towards 2050, enhancing citizens' quality of life. The societal benefits of this green-digital transformation will be the most compelling argument for embarking on this significant transformation.

4. Medium Term Energy Outlook

As an Economic Taskforce for the Shannon Estuary Region, our first consideration must be to retain the significant economic gains made in the last decade. From here, we must make choices to enable further growth, mindful that we are in an era of significant financial and energy security risk.

Our region's economy is highly linked to the export performance of both food and non-food goods, the purchase of which are all highly price sensitive and thus at risk of competitive pressure. Currently, these industries are all highly dependent on secure supplies of internationally competitive natural gas, both for high temperature heat processes and for electricity generation. Over the long term, we are convinced that the decarbonisation of our energy will form the basis for Ireland's secure economic prosperity for the decades ahead.

Rising energy costs, uncertainty around electricity supply for the next three winters at least, and the lack of a biomethane industry as a low carbon alternative for high temperature industrial heat, are among the concerns for major employers in the region and for our ability to attract new investment here.

The proposed LNG import, storage and distribution and electricity generation facility at Ballylongford (The Shannon Technology and Energy Park) has been the subject of many submissions to the Taskforce, the vast majority of which were highly supportive. This project is currently under consideration by An Bord Pleanála (ABP).

The Taskforce notes the ongoing public commentaries from the Irish Academy of Engineers and others that are strongly in favour of having an LNG import & storage facility for security of supply in Ireland. We note that EU policy since July 6th, 2022, considers natural gas as a transitional, sustainable fuel and that new LNG facilities are being accelerated across the EU at present. We also note the opportunity to significantly reduce CO₂ emissions relatively quickly by replacing coal and heavy fuel oil generation that is already operating beyond its planned life. It is understood from a review of the Shannon Technology and Energy Park project submissions to ABP that both the Power Plant and the Terminal will be 'future-proofed' to have the ability to transition to hydrogen fuel once the technology and public policy are fully developed.

It is widely believed that the proposed project would greatly enhance the prospect of further investment in North Kerry, an area that has not secured any major new industrial investment in almost 50 years and is suffering significant decline.

5. Offshore Energy

The urgent need for Europe to transition to secure, cost-effective, renewable energy is now at a critical juncture. This precarious situation, which has developed due to the international climate emergency, has only escalated due to the war in Ukraine, with EU electricity demand reduction targets and spiralling costs creating an overwhelming need for all Member States to do more to activate all alternative energy sources. With its proximity to a vast offshore wind resource, a deep-water port, the availability of development lands, existing gas and electricity grid connectivity, road/rail/air, and water connectivity, as well as human capital, the Shannon Estuary Region is uniquely positioned to deliver a European solution – through the harnessing of Atlantic offshore wind, with upwards of 70 GW of capacity within a viable distance.

Global adversity in the energy sector has presented a unique opportunity for Ireland - we believe we can now become a Clean Energy Powerhouse for Europe.

Our vision is for the Shannon Estuary to be the lead location for Atlantic offshore wind through the delivery of 2GW by 2030 and 30GW by 2050, satisfying both the domestic demand of our future economy and also export demand to Europe. The 2050 scenario of 30 GW of Floating Offshore Wind could attract direct and indirect investment of €60-90Bn if integrated with current and new downstream industrial and domestic usage. A recent study estimates upwards of 5,000 jobs would be directly supported through the design, construction, and operation and maintenance of this pipeline up to 2050¹. The potential for significantly more jobs and economic value could then be harnessed through increasing Ireland's share of the supply chain, and through new high value-add industries/jobs in agri-food, tech, and materials industries, as well as in emerging areas such as carbon neutral digital services, eHealth, transport, tourism. Further details of the economic impacts are included at Appendix 6.

Our ambition aligns with both the July 2022 Government announcement on 2030 sectoral emissions ceilings² and the September Joint Statement³ on the North Seas Energy Cooperation committing Ireland to 37GW target for offshore wind by 2050. However, our extensive stakeholder engagement to date has shown us that Atlantic offshore wind will need to happen at scale in order to be viable given the economies of scale required, and with this in mind we have identified a number of significant policy, infrastructure, and regulatory enablers that must now be addressed without delay.

5.1 Challenges

Floating Offshore Wind technology is currently being deployed in a number of international locations, for example, in 2022 Crown Estate Scotland auctioned seabed options for 17.4 GW of floating offshore wind in its "ScotWind" tender⁴. This tender raised £755m in just option fees alone. Despite the rapid emergence of the technology and Ireland's natural offshore wind advantages the subgroup has identified, through wide-ranging consultations, a number of significant policy, infrastructure and regulatory measures that require urgent action.

Key amongst these challenges are:

- lack of clarity on long-term Atlantic offshore energy policy, and associated lack of measures to accelerate the construction of requisite enabling infrastructure,
- lack of recognition of Ireland's resource in a European context,
- lack of suitable port infrastructure,
- lack of long-term Atlantic offshore electricity grid strategy,
- concerns relating to the resourcing of planning and consenting bodies,
- lack of an integrated national industrial and societal strategy, and insufficient investment in relevant education, innovation, and R&D.

Each of these issues is creating reluctance by major market players (i.e. developers and international Tier 1 firms) to invest in Ireland and adding to complexity, costs, delays and the likelihood of project attrition over time, as illustrated by recent high-profile exits from projects by international investors⁵.

¹ The Growth of Onshore to Offshore Wind – Atlantic Region Wind Energy Supply Chain, Dublin Offshore Consultants, 2022.

² [gov.ie](https://www.gov.ie) - Government announces sectoral emissions ceilings, setting Ireland on a pathway to turn the tide on climate change (www.gov.ie)

³ [220912 NSEC Joint Statement Dublin Ministerial.pdf \(europa.eu\)](https://www.europa.eu)

⁴ <https://www.crownestatescotland.com/our-projects/scotwind>

⁵ <https://www.businesspost.ie/news/shell-withdrawal-shows-urgent-need-for-state-action-on-offshore-wind-policy/>

5.2 Emerging Themes

In order to deliver an initial 2GW of floating offshore wind energy from the Shannon Estuary by 2030, and in excess of 30GW by 2050, the Taskforce has identified, through extensive stakeholder consultations, the following actions which it will consider further for inclusion in its final report:

1. Policy direction to accelerate delivery of Atlantic Wind Resource, including recognition of the scale of the resource in a European context. Policy supporting the large scale development of necessary enabling infrastructure such as offshore grid and port infrastructure.
2. Designation of the Shannon Estuary as a REPowerEU 'go-to' Area for renewable energy.
3. Acceleration of port infrastructure projects at Foynes and Moneypoint to deliver Offshore Wind Energy at scale. For early stage enabling infrastructure projects, devise a funding mechanism to ensure appropriate projects are initially funded. These early stage projects will enable the private sector to invest the €60bn-€90bn quantified above.
4. Announce and conduct an auction for a minimum of 2GW of Floating Offshore Wind in 2024 as part of Phase 2 Floating Offshore Wind Development and to deliver the July 2022 Government Green Hydrogen commitment.
5. Updating of Eirgrid strategy in 2023 to connect Atlantic Wind Energy by 2028 (to include the provision of hybrid connectivity at Moneypoint and Tarbert and other HV infrastructure).
6. Increased resourcing for MARA/ABP to facilitate floating offshore wind and to reduce delay risks for projects.
7. Re-Establishment of Strategic Integrated Framework Plan for the Shannon Estuary Working Group.
8. Priority Planning Designation – with associated enabling investigations and works carried out.
9. Integrating and investing in innovation, research and education to realise full economic advantage.
10. Establishment of regional / cross-regional energy cluster for industry/agency/academia collaboration to grow and market the offshore wind sector.
11. Partner with Local Authorities and State Agencies to identify any additional suitable sites, over and above what is already available, that may be required for the establishment of industries of significant scale that will be attracted to the region by the availability of affordable clean energy.

6. Onshore Energy

The cost of doing business in Ireland has placed increased pressure on the existing industrial base in recent months, with rising energy costs putting the future of many small and medium enterprises at financial risk. Failure to deliver the targets set within the Climate Action Plan (CAP) will further challenge industries facing pressure from consumers and internal management to reduce emissions. A balanced, diverse, and reliable onshore green energy system is therefore critical to safeguarding jobs in our existing industry base.

The Shannon Estuary Region's diverse industry mix including food and agriculture, aviation, metals, cement, life science, manufacturing, and digital/ICT means that it is an ideal representation of the national economy as a whole. These characteristics will enable the region to provide a pathway to the national target of a 35% reduction in industry emissions by 2030.

Specifically, the region can become a leader in decarbonisation of heat in industry, can provide a large proportion of Ireland's biomethane targets (20%+), and can deploy rooftop PV at scale across industrial, public, agriculture and community buildings in the region. These existing onshore technologies can be deployed at scale locally, and within a relatively short time frame, resulting in stabilised energy costs, improved security of supply, and environmental benefits.

Onshore wind and large-scale PV can also make a significant contribution to the regional and national energy targets. There are advanced policy and support frameworks in place for these technologies and their developers, however, grid capacity issues will become a significant bottleneck if not addressed.

6.1 Challenges

Despite the presence of existing technologies and the urgent need for deployment at scale, extensive stakeholder consultation by the Onshore Energy subgroup has identified a number of significant challenges to delivery that are common across each of the onshore energy areas being considered. Key amongst these are:

- a lengthy, expensive, and uncertain planning process,
- a lack of expertise to deploy technologies at local level,
- opposition to certain types of onshore energy projects,
- concerns over the financial viability of projects.

Critically, commentary noted that the technologies for onshore energy are available for deployment immediately with minimal technical risks. Hence the issues are one of scale, expertise, and rapid deployment. New mechanisms to enable this are required, addressing aggregation, procurement, finance, and supply chain requirements.

The continuous challenge of grid capacity (at a network level) will restrict deployment for current and future projects if solutions are not put in place through the revision of Eirgrid's *Shaping Our Electricity Future*. Media commentary has highlighted the inconsistency of such strategies in meeting Ireland's climate action targets.⁶

⁶ [Natural gas is a bridge to nowhere – The Irish Times](#)

6.2 Emerging Themes

Following the identification of key challenges and opportunities the Taskforce proposes the following key activities to deliver on ambitions and maximise opportunities in the region:

1. Mobilise development and investment in anaerobic digestion/biomethane in the region, including aggregation of projects using “One Stop Shop” methodologies.
2. Decarbonisation of process heat in industry with a particular focus on electrification of heat, in line with the National Heat Study.
3. Scale rooftop PV across industry, public, community, and importantly, agriculture buildings.

7. Transport, Logistics, and Connectivity

The Transport sector in Ireland is required to cut emissions by 51% by 2030 and key to meeting these targets on a national basis will be to further develop sustainable transport modes and fully exploit digital technologies. Our Vision is that through investment in infrastructure, the Shannon Estuary Region can offer a credible solution to the increasingly congested east coast for the transport of goods, people, and data, not only within the region, but nationally and internationally also. In doing so, this will provide regional balance and a better quality of life for all our citizens, while making a substantial contribution towards achieving the national target of reducing transport emissions by 51% by 2030.

7.1 Challenges

A recurring theme emerging from the stakeholder consultations to date has been, while there is a lot of work being done by separate organisations across the region in terms of infrastructural development, that work needs coordination to present a clearer vision for an interconnected region. This will enable the Shannon Estuary to become a key centre in Ireland and Europe’s transport and connectivity network. Road, rail, sea, and air infrastructures and capacities need to be further developed, augmented by digitalisation, providing an integrated transport system that supports not just current economic and social needs across the region, but new emerging industries and the population growth which that will bring. The region’s connectivity both nationally and internationally also needs to be considered as part of this new integrated transport network.

7.2 Emerging Themes

Amongst its strategic strengths, the Shannon Estuary Region is home to Shannon Foynes Port and Shannon Airport, both of which have development plans which can serve as key pillars of a multi-modal sustainable transport and logistics hub. Shannon Foynes Port has a key role not just serving Ireland’s needs, but those of newly emerging European and North American shipping routes, whilst Shannon Airport will be critical in supporting the air connectivity required from the expanding industrial base that will develop in the Estuary and the associated population growth that will ensue. Accelerating the development of infrastructure at the Airport will be crucial to this.

Connecting these two important transport hubs with an upgraded road and rail network will be essential for achieving a fully integrated sustainable intermodal transport and logistics system, not only within the region, but inter-regionally also, with enhanced connectivity to Cork, Waterford and onward to Rosslare being identified by stakeholders as offering economic benefits across all the regions. Additionally, stakeholder consultations to date have indicated that such a network will need to be underpinned by digital solutions and enhanced 5G infrastructure. Such a network would also support the development of sustainable transport

solutions, something that key stakeholders have identified as being a significant area of opportunity for the Estuary Region.

The Transport, Logistics, and Connectivity Subgroup has identified the following concepts to help contribute to the national reduction target of 51%, which it proposes to further examine over the coming months:

1. The Shannon Estuary as a National Transport & Logistics Hub based on a multi-modal transport model that can support a container freight industry.
2. The Shannon Estuary as a Hub for Sustainable Transport Technologies.
3. The Shannon Estuary as a western “Digital Gateway” to Europe.

The physical and digital infrastructures required for these projects will also serve to improve passenger connectivity across the region, as well as to/from the region, while enhanced fibre connectivity will benefit existing businesses and households in the short term. These projects will also be enablers for the development of an offshore wind industry around the Estuary, bringing new jobs and population growth to the region, all of which will require key supporting infrastructure such as housing, water services, and other social infrastructures. If realised, these three ambitions for the region will underpin not only economic development, but improved living standards too.

8. Tourism and Leisure

The Shannon Estuary area encompasses the twin headlands of Loop Head Peninsula in County Clare, across to the northern coastal area of County Kerry, and stretching inland on either side of the Estuary, to Limerick city and North Tipperary. The region is covered by three Fáilte Ireland Strategies:

1. Shannon Estuary Loop - a driving route from Tarbert to Kilimer, and inland to Limerick,
2. Gateway City for Wild Atlantic Way strategy (Limerick city),
3. Cliff Coast Destination Development Plan, covering coastal areas of Kerry and Clare.

It is an area of remarkable beauty and natural resources where the River Shannon meets the wild Atlantic. In 2019, there were 1.6 million recorded visitors to the Cliffs of Moher in County Clare, making it the second most visited tourist attraction in the State. Fáilte Ireland also cites an estimated 9 million visitors to the Wild Atlantic Way in 2019. However, despite this high volume of visitor traffic along the coastal areas of North Kerry, Limerick and West Clare, it is arguable that the potential to grow the tourism opportunity along the Shannon Estuary Loop has not been optimised. The objective of the Tourism Subgroup is to identify actions that can harness 100% growth in tourist numbers to the Region by 2030. The Adare Manor Limerick Ryder Cup 2027 will showcase the region to hundreds of millions of international viewers with considerable spending power, and so this is a timely opportunity to set out recommended actions that can leverage from this major event.

8.1 Challenges

Consultation across industry and state actors was unanimous in recognising the scale of opportunity for the region, particularly in the areas of slow, sustainable, and active tourism. However, a number of challenges to that potential being realised have been identified by stakeholders, including a shortage of visitor accommodation, an imbalance of tourism product across the region, the complexities of three local authority

jurisdictions covering the area around the Estuary, and the impact this has on developing a cohesive brand identity and visitor offering for under visited areas.

8.2 Emerging Themes

The Shannon Estuary can be a centre of self-directed slow travel populated by a network of interconnecting greenways, cycle routes, and walking trails. The water is a vastly underutilised resource with opportunities for kayaking, slow cruises, and water taxis, with potential to develop events of scale which would generate off-season demand. In order to attract tourists to the region, investment is needed in the product offering around this, and will need to be underpinned by newly developed tourism assets and supporting infrastructure/facilities around the Estuary.

Taskforce consultations have emphasised that hosting an international sporting event on the scale of the Ryder Cup 2027 will bring renewed confidence to regional stakeholders when it comes to hosting other prestigious international and national events. Over the coming months, the Taskforce will work with stakeholders to identify such opportunities.

The region is home to a high concentration of large indigenous and multinational enterprises. As a result, significant business travel is associated with the area, leveraging off transatlantic routes offered by Shannon Airport. A key theme emanating from the Taskforce is positioning the region as a world leader in green and sustainable energy solutions, making the Estuary ever more attractive for international business. This raises the potential to firmly establish Limerick as an international centre for sustainable business conferences.

The Taskforce recognises the vast array of eclectic festivals that are supported by the respective local authorities. It is recommended that the local authorities work with festival organisers and Fáilte Ireland in developing a Shannon Estuary calendar of festivals showcasing the cultural, sporting, and artistic assets of the region, thus extending the tourist season from early spring into late autumn.

The deep-water port at Shannon Foynes offers significant opportunity to bring cruise ships to the Estuary and this potential will be further examined by the Taskforce over the coming months.

In summary, the key themes emerging from the work of the Tourism Subgroup are:

1. The Shannon Estuary as an outdoor adventure and sporting destination.
2. The Shannon Estuary as a business and leisure events destination.
3. The Shannon Estuary as a Cruise Ship destination.

9. Enabling Infrastructure

Recognising the significant Offshore Wind Energy available in the Atlantic, the Taskforce proposes that suitable locations are identified for industries reliant on deep-sea water, as well as downstream operations. This will inform what enabling infrastructure is required, and when and where it will be required.

The creation of high-quality employment opportunities arising directly from the development of Atlantic Offshore Wind, and indirectly from the downstream use of this renewable energy, will necessitate not only an update and revision of the Strategic Integrated Framework Plan for the Shannon Estuary, as noted earlier, but a review of the County Development Plans, which in turn can feed into an overarching development

strategy for the Shannon Estuary Region. This will be required to ensure a good quality of life for the existing population and those we will need to attract to the region to work in this green energy ecosystem.

The Taskforce will consult with stakeholders to develop recommendations on enabling infrastructure, pre- and post-2030, for its final report.

10. Next Steps

The purpose of the Interim Report is to demonstrate the comprehensive consultation that has taken place to inform the considerations of the Taskforce and to highlight the major themes that will be subject to detailed recommendations in the Final Report.

The Taskforce is convinced that the realisable scale of ambition can be truly transformative in the same vein as the impact of the Shannon Hydroelectric Scheme.

However, this will not be achieved without well-thought through, practical implementation plans – and ambition to match.

Our challenge over the coming months will be to propose key actions and structures at both a national and regional level that can transform the economic fortunes of the Shannon Estuary Region to the benefit of the State.

To that end, the Taskforce proposes that its next steps are:

1. Develop a detailed set of recommendations based on the themes highlighted in this report which are both ambitious and actionable,
2. Consider possible implementation models,
3. Prepare a final report which will include an action plan and implementation options with timelines for delivery.

Appendix 1 – Terms of Reference

The Programme for Government committed to supporting the Shannon Estuary and surrounding area through the establishment of a Taskforce to evaluate the economic development potential of the area and determining how this potential can be realised in both an economically and environmentally sustainable way.

The Taskforce was established on 21 April 2022 and comprises leaders in industry and academia from across the Shannon Estuary area.

The Terms of Reference for the taskforce are to:

1. assess the strategic strengths and comparative advantages of the Shannon Estuary from an investment and enterprise development perspective, in a national and international context;
2. scope potential areas of opportunity for the Shannon Estuary and specify policy and investment requirements to exploit those areas of potential;
3. assess the current connectivity of the region and make recommendations as to how this could be enhanced;
4. specify the actions required from national and local government, as well as from other stakeholders, to exploit those areas of potential;
5. produce a Report and associated Action Plan with specific steps in areas of potential.

Appendix 2 – Members of the Taskforce

Barry O’Sullivan	IDA Board Member, formerly Johnson & Johnson (Taskforce Chair)
Mary Considine	CEO, Shannon Group
Siobhan Dolan Clancy	MD, SDC Business Consulting Ltd (Chair of the Transport, Logistics, and Connectivity Subgroup)
Pat Dowling*	Chief Executive, Clare County Council
Seán Hegarty	ESB Generation and Trading
Seamus Hoyne	Dean of Flexible and Workplace Learning, Technological University of the Shannon: Midlands Midwest (Chair of the Onshore Energy Subgroup)
Pat Keating	CEO, Shannon Foynes Port Company (Chair of the Offshore Energy Subgroup)
Professor Eamonn Murphy	University of Limerick and Chair of Mid-West Regional Enterprise Plan
Moira Murrell*	Chief Executive, Kerry County Council
Dr Brendan O’Donnell	Vice President Research and Vice President Academic Affairs & Registrar, Munster Technological University
Dee Ryan	CEO, Limerick Chamber (Chair of the Tourism Subgroup)
Professor Luuk van der Wielen	Director, Bernal Institute, University of Limerick

*Rotating membership, representing local authorities

Appendix 3 – Structure of the Taskforce

The Taskforce agreed at an early stage to establish subgroups to examine potential and make recommendations across the following four focus areas:



The four subgroups are comprised of subgroups chairs, taskforce members with expertise in each area, supported by experts from government departments, state agencies, and local government. The subgroup chairs meet on a weekly basis with the chair of the taskforce, and each subgroup provides an update to the meetings of the plenary taskforce (usually held every three weeks). While the sub-groups represent separate pillars they are closely integrated and contribute to a shared vision of a sustainable, prosperous region delivering sustainable futures for all aspects of society. The sub-groups have commissioned, where necessary, specific expertise to inform their work.

Appendix 4 – Stakeholder Consultations

An extensive programme of engagement has brought together stakeholders across national and local government, industry, research and academia, and local community to consider the opportunities, challenges, and future ambition for the Shannon Estuary Region.

In the onshore and offshore energy sectors, consultations include national stakeholders such as Eirgrid, ESB, SEAI, and representative bodies for the wind energy, bioenergy, and solar energy industries. The Taskforce has also engaged with international stakeholders including the European Commission, Hydrogen Europe, wind energy developers, European energy ports, and others.

In the transport and connectivity sectors, consultations have focussed on opportunities for the development and integration of both physical and digital infrastructures with stakeholders representing the national transport bodies, the aviation industry, the sustainable transport fuels sector, and those involved in the data and telecom connectivity sectors, both in Ireland and Europe.

In the tourism sector the Taskforce has engaged widely with local and national stakeholders including the Department of Tourism, Culture, Arts, Gaeltacht, Sports and Media, each local authority, Fáilte Ireland, Coillte, local industry and representative bodies. Important stakeholders for the development of water based activities including Waterways Ireland, Shannon Foynes Port Company, and the Harbourmaster have also been consulted.

The Taskforce consulted with the Government Strategic Taskforce for Ryder Cup preparations, Adare Manor and Limerick City and County Council to ensure alignment of ambition and focus on the accelerated delivery of high-quality Tourism assets in advance of 2027.

The programme of consultations included two public consultations which were conducted by the Department of Enterprise, Trade, and Employment on behalf of the Taskforce. The first of these consultations took place pre-taskforce establishment and was open from the 9th of March to the 13th of April, whilst the second took place following the establishment of the taskforce and was open from the 16th of June to 29th of July. Forty-two submissions were received from the energy sector, local government, local community groups, environmental bodies, academia, and members of the public. These submissions broadly support the development opportunities being examined by the Taskforce, with particular emphasis on energy, tourism, and the environment impacts of future economic development.

The programme of consultations also included presentations by the Chair to elected officials from each of the four local authorities (Clare, Limerick, Tipperary, and Kerry), while meetings have also been held between the Chair and members of the Oireachtas from the region, the region's MEPs, and a number of relevant cabinet ministers.

These consultations underpin the emerging themes outlined in this report.

Appendix 5 – Expert Consultants

The Taskforce has commissioned the following external expertise to inform its work:

1. Enterprise opportunities of Offshore Floating Wind Energy

An analysis of the enterprise opportunities associated with the deployment of floating offshore windfarms in Ireland including an assessment of international best practice – Contract being prepared with Gavin & Doherty Geosolutions (GDG).

2. Assessment of Opportunities for Decarbonisation of Process Heat

A study to identify pathways for the decarbonisation of heat within industry (Commercial and Industrial) – Contract awarded to Tipperary Energy Agency.

3. Assessment of Opportunities for Large Scale Rooftop PV Deployment

An analysis of the potential for large scale Rooftop Photo Voltaic (PV) panels on industrial, agricultural, commercial, and public buildings within the Shannon Estuary Region – Contract being prepared with International Energy Research Centre, Tyndall National Institute.

4. Vision for the Shannon Estuary

The provision of expert advice on the development and communication of an overarching vision for the Shannon Estuary Region – Contract awarded to Teneo Ireland.

Each contract has been procured by the Department of Enterprise, Trade, and Employment on behalf of the Taskforce in compliance with public procurement rules.

Appendix 6 - Economic Impact of Offshore & Onshore Renewable Energy and its downstream Industrial and Societal Use

The Shannon Estuary Economic Taskforce (SEET) centres its plan on the economic impact of all industrial, professional and services ecosystems and the associated societal activity and benefits, rooted in realistic yet abundant renewable energy scenarios. The baseline scenarios foresee an autonomic growth of the regional population by over 50,000 by 2040⁷.

A6.1 Direct Economic Impact of Building Wind Supply Chain and Generation Sectors

The analysis here aligns with the buildout scenarios presented in Shannon Foynes Port Company's Vision 2041 Strategic Review⁸, that foresee a gradual increase in the installation rate of Floating Offshore Renewable Energy, starting with an installation rate of 0.5 GW per year up to 2032 and scaling to 1.8 GW per year by 2050 to meet a target of 30GW as shown in the figure below.

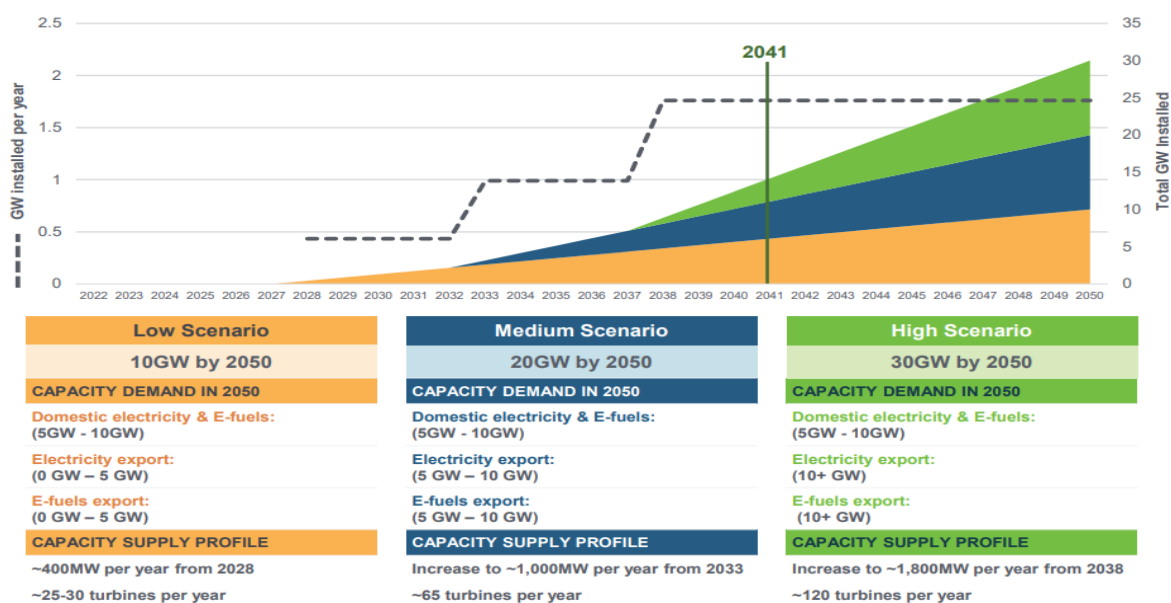


Figure A5.1 - Wind Power Generation Capacity Delivered by the Shannon Estuary – Scenarios for 2050 (Citation: SFPC Vision 2041 Strategic Review by Bechtel)

This resembles the 'Rapid Build Out' scenario recently proposed by Dublin Offshore Consultants (DOC) and BIGGAR Economics in their July 2022 Report⁹. Their Economic Impact Methodology maps first total generating capacity of operational developments over target period corrected for estimated development and construction times, to estimate total annual expenditure. Rapid Build Out estimates around 2 GW of Floating Offshore Wind by 2030, 4 GW in 15 year assumed project period (2037), and 6 GW by 2040 along the Atlantic Region. Spending across the Atlantic Region are estimated almost €6 billion (or €1.5 bn per GW generating capacity) including cable arraying and transmission, but without grid and onshore integration.

By benchmarking against international offshore wind industry we anticipate a capital investment of approximately €3bn per GW of capacity installed at 2022 pricings when connected to the grid, and an estimated minimum of €4bn per GW when also integrated in onshore industry, using conversion technology such as electrolyzers to create hydrogen. Hence, the 2050 scenario of 30 GW of Floating Offshore Wind could

⁷ Project Ireland 2040, The Mid-West, Government of Ireland, 2018.

⁸ Vision 2041 Strategic Review, By Bechtel for Shannon Foynes Port Company, 2022

⁹ Dublin Offshore Consultants and BIGGAR Economics. *Growth of Onshore to Offshore Wind – Atlantic Region Wind Energy & Supply-Chain Feasibility Study*. July 2022.

attract an estimated investment in the range of €90 - 120 bn when fully integrated to the grid for use by existing and new downstream industries.

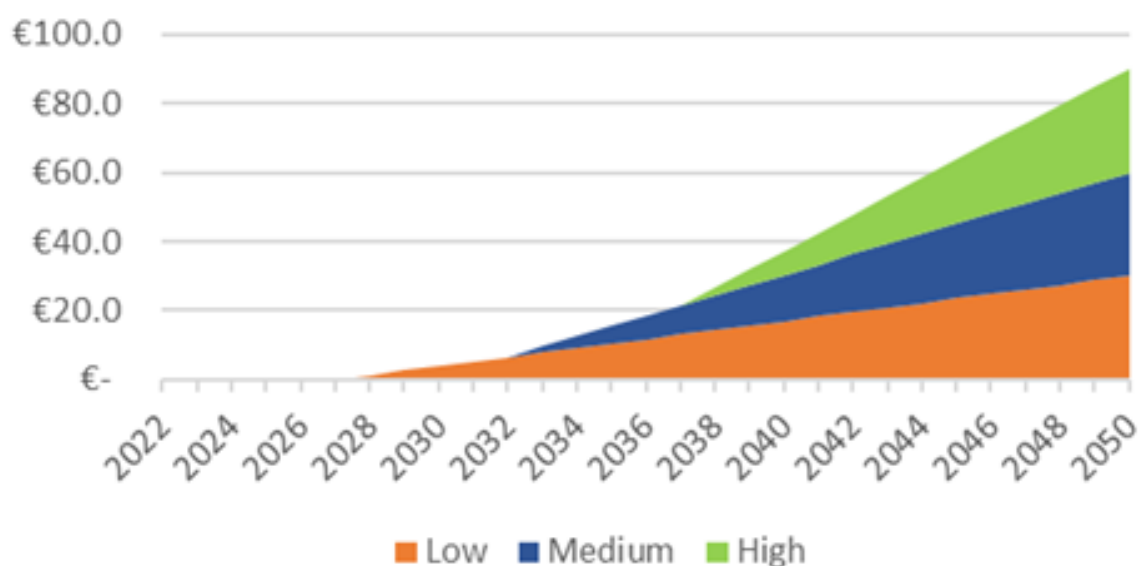


Figure A5.2 - Cumulative CAPEX development for grid integrated Low, Medium and High Scenarios

Economic impacts such as direct Gross Value Add (GVA) and direct employment were calculated based on the ability of businesses to fulfil the development, construction, and operational contracts. This (model-based) methodology is complemented with indirect and induced GVA and employment effects.

The Rapid Build Out Scenario proposed by DOC (2022) estimates the total GVA impact to the Irish economy as being 74% of capital expenditure occurring (38% Direct expenditure + 23% Indirect GVA + 13% induced GVA). This leaves an opportunity over time to extract further value by increasing Ireland’s share of the direct expenditure through an expanded indigenous supply chain. This increased GVA capture can be achieved through continued investment in innovation through the likes of Science Foundation Ireland, Horizon Europe, Enterprise Ireland, and the private sector. Following this rationale, the average annual GVA contribution can be estimated as €3 – 4 bn¹⁰ annually subject to implementation scenario.

A6.2 Economic Impact of Pathways to Market of Renewable Energy

The economic impact in relation to onshore grid, industrial, and societal integration requires specific attention since they depend on the type of industry and location. In an emerging sector such as Floating Offshore Wind, significant improvements in efficiency and economies of scale can be gained through increased installed capacity.

SEET has used the recent results of Equinor and UK’s Floating Offshore Wind Centre of Excellence¹¹, that anticipate price reduction towards and even below £50 per MWh (€0.05 per kWh at 2022 rates) depending of level of innovation. This rate places the unit cost below the (pre-pandemic/pre-war) UK Government’s Department for Business, Energy and Industrial Strategy (BEIS) forecast for wholesale electricity price. Stakeholder engagement suggests this price could fall as low as €0.03 per kWh over time.

¹⁰ =75% of the estimated €60 - 90 bn direct expenditure over the next 25 - 30 years.

¹¹ Floating Offshore Wind Centre of Excellence (2022). FLOATING OFFSHORE WIND: COST REDUCTION PATHWAYS TO SUBSIDY FREE. Downloadable from ore.catapult.org.uk.

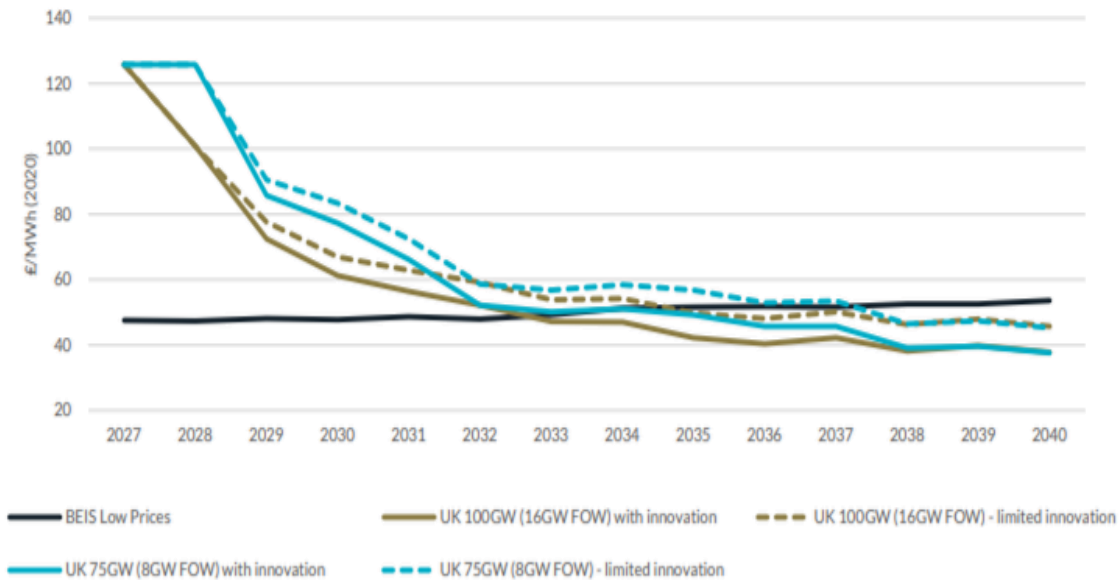


Figure A5.3 - UK FOW cost reduction vs BEIS forecast low wholesale price - Scenarios

The equivalent renewable power sales are annually a minimum of €8 - 13 bn based on wholesale prices of €30 - 50 per MWh and significantly more when converted to high added value products for the Irish agri-food, high-tech and construction materials industries as well as the driving carbon neutral digital, eHealth and service sectors. These values are not direct contributions to GVA, and should be corrected for the earlier mentioned requirement for procurement outside of Ireland (i.e. 25% of contract value or around € 1 bn per year).

The annual GVA contributions of the integral 30 GW Wind Energy project is composed of economic activity around installing the generation capacity over the period 2022-2050 (GVA[1]), and the increasing annual power revenue at wholesale market prices without tax and subsidies (GVA[2]).

In the figure below both GVA[1], GVA[2] and their combined GVA effect is shown for the High (30GW) scenario, using a wholesale market price of €50 per MWh. The model includes the phase-based development of the generating capacity as proposed in the SFPC Vision 2041 by Bechtel. Increase installation capacity is shown as the stepwise increases in GVA[1], as well as 'investment dips' in GVA contribution due to power sales (GVA[2]). Note this high-level model is fully additional and does not include the effects of replacing conventional generation capacity. In practise the net GVA effect will be somewhat lower, but a lack of sufficient data exists around the decommissioning of existing generating capacity.

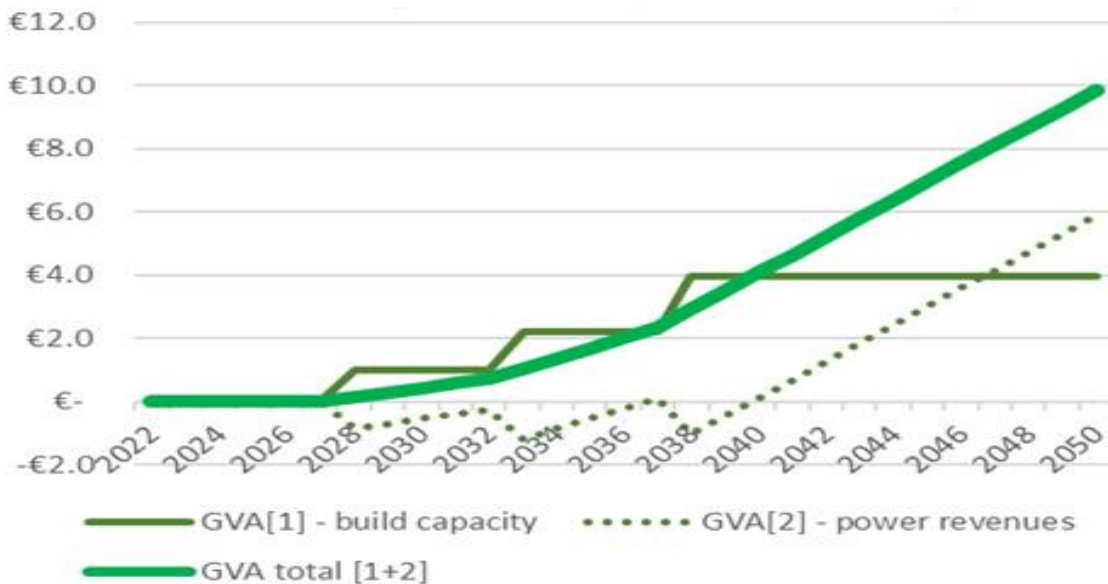


Figure A5.4 - Development of Annual GVA contributions for the economic activity around building generating capacity GVA[1] (thin solid line) and by increasing power revenue GVA[2] (dotted line) as well as their combined effect (thick solid line) over the period 2022-2050 for the SFPC/Bechtel High Scenario for power sales only without derivative products.

Note: While the technology and experience of international developers is key to success of the Floating Offshore Wind operation, upfront RD&I investments in well-chosen innovation niches of the Floating Offshore Wind Supply Chain and its Onshore integration allow a proprietary technology position with a significant multiplier and thus increased GVA[1] contributions can be achieved as international deployment of this Irish potential comes to fruition.

A6.3 Economic Impacts including derivatives products as route to market

Further economic value-add can be generated through renewable energy-based products, alongside an industrial portfolio of downstream usages such as in digital industries, electrification of transport and residential/industrial heating, and conversion to energy carriers such as hydrogen, green ammonia and e-fuels (such as SAF for the aviation sector).

The key derivative products of renewable power are expected to be hydrogen and ammonia (for its ability to be transported and also as a main constituent of fertiliser). The price of both will depend on (renewable) energy costs. For green hydrogen, most developers indicate hydrogen price ranges of €2 - 9 per kg with an average of €4 – 5 per kg (Orsted¹²), depending on locality, renewable power pricing, and applicable taxes and levies.

A6.4 Workforce related economic impacts

Similar models based on scenarios in development, installation, and deployment of wind energy generating capacity as indicated earlier under A5.1 by Dublin Offshore Consultants and BIGGAR Economics, can be used to estimate the required workforce. Based on available industry benchmarks, 28,571 FTE-years are required for developing, manufacturing, installing and operating 1 GW of Floating Offshore Renewable Wind Energy during a 15–20-year project life with a peak in the manufacturing & installation years of 1400-1900 jobs per GW generating capacity non-integrated. This compares well to the earlier rough estimate of 6000 jobs per GW installed and onshore grid and industry integrated.

¹² Orsted forecasts, downloadable at: <https://orsted.com/-/media/www/docs/corp/com/...>

Following those industrial benchmarks, development of the Floating Offshore Wind potential in the *SPFC High Scenario* of 30 GW could support up to 50 000¹³ workers and staff through direct and indirect opportunities such as manufacturing of floating wind turbine components and platforms followed by assembly and installation, and later operation, M&R and End-of-Life recycling. This population growth would be over and above the already forecasted increase in the regional population of 50,000 as included in Project Ireland 2040. Residential requirements to support such population growth are estimated as an additional €15 - 20 bn inclusive of build costs plus supporting infrastructure, cultural, sport and retail facilities etc.

All of the above, while approximate high-level estimates indicate that the proposed strategy based on economic development supported by Atlantic ORE potential offers significant economic opportunity for Ireland and Europe combined, making it a credible candidate as an *Important Project of Common European Interest (IPCEI)*.

¹³ Model based estimates